

UNITED STATES PATENT AND TRADEMARK OFFICE

---

BEFORE THE PATENT TRIAL AND APPEAL BOARD

---

Samsung Electronics America, Inc., et al.  
Petitioner

v.

Smartflash, LLC  
Patent Owner

---

Case CBM2014-00190  
Patent 7,334,720

---

**PETITIONER'S RESPONSE TO PATENT OWNER'S OBJECTIONS AND  
NOTICE OF SERVICE OF SUPPLEMENTAL EVIDENCE UNDER 37 CFR  
§ 42.64(b)(2)**

## UPDATED EXHIBIT LIST

- SAMSUNG-1001 U.S. Patent No. 7,334,720 to Hulst et al. (“the ‘720 Patent”)
- SAMSUNG-1002 Excerpts from the Prosecution History of the ‘720 Patent (“the Prosecution History”)
- SAMSUNG-1003 Declaration of Dr. Jeffrey Bloom re the ‘720 Patent (“Bloom”)
- SAMSUNG-1004 U.S. Patent No. 5,530,235 (“Stefik ‘235”)
- SAMSUNG-1005 U.S. Patent No. 5,629,980 (“Stefik ‘980”)
- SAMSUNG-1006 PCT Publication No. WO 00/08909 (“Gruse”)
- SAMSUNG-1007 PCT Application PCT/GB00/04110 (“the ‘110 Appln.” or “‘110”)
- SAMSUNG-1008 United Kingdom Patent Application GB9925227.2 (“the ‘227.2 Appln.” or “‘227.2”)
- SAMSUNG-1009 Transitional Program for Covered Business Method Pa-tents—Definitions of Covered Business Method Patent and Technological Invention, 77 Fed. Reg. 157 (Aug. 14, 2012)
- SAMSUNG-1010 A Guide to the Legislative History of the America Invents Act; Part II of II, 21 Fed. Cir. Bar J. No. 4
- SAMSUNG-1011 Interim Guidance for Determining Subject Matter Eligibility for Process Claims in View of *Bilski v. Kappos* (Jul. 27, 2010)
- SAMSUNG-1012 *Apple Inc. v. Sightsound Technologies, LLC*, CBM2013-00019 Paper No. 17 (entered Oct. 8, 2013) at 11-13
- SAMSUNG-1013 *Volusion, Inc. v. Versata Software, Inc. and Versata Development Group, Inc.*, CBM2013-00017 Paper No. 8 (entered Oct. 24, 2013)

SAMSUNG-1014 Salesforce.com, Inc. v. VirtualAgility, Inc., CBM2013-00024  
Paper No. 16 (entered Nov. 19, 2013)

SAMSUNG-1015 RESERVED

SAMSUNG-1016 RESERVED

SAMSUNG-1017 RESERVED

SAMSUNG-1018 RESERVED

SAMSUNG-1019 RESERVED

SAMSUNG-1020 RESERVED

SAMSUNG-1021 RESERVED

SAMSUNG-1022 RESERVED

SAMSUNG-1023 RESERVED

SAMSUNG-1024 RESERVED

SAMSUNG-1025 RESERVED

SAMSUNG-1026 RESERVED

SAMSUNG-1027 RESERVED

SAMSUNG-1028 Weinstein “MasterCard Plans Point-of-Sale Product for  
Merchants Leery of Bank Cards”

SAMSUNG-1029 Mayo Collaborative Serv v. Prometheus Labs., Inc., 132 S. Ct.  
1289 (2012)

SAMSUNG-1030 Gottschalk v. Benson, 409 U.S. 63 (1972)

- SAMSUNG-1031 Cybersource Corp. v. Retail Decisions, Inc., 654 F.3d 1366 (Fed. Cir. 2011)
- SAMSUNG-1032 Bilski v. Kappos, 130 S. Ct. 3218 (2010)
- SAMSUNG-1033 Alice Corp. v. CLS Bank International, 134 S.Ct. 2347 (2014)
- SAMSUNG-1034 Bancorp Serv., L.L.C. v. Sun Life Assur. Co. (U.S.), 687 F.3d 1266 (Fed. Cir. 2012)
- SAMSUNG-1035 Dealertrack, Inc. v. Huber, 674 F.3d 1323 (Fed. Cir. 2012)
- SAMSUNG-1036 SiRF Tech., Inc. v. Int'l Trade Comm'n, 601 F.3d 1319 (Fed. Cir. 2010)
- SAMSUNG-1037 In re Bilski, 545 F.3d 943, 88 U.S.P.Q.2d 1385 (Fed. Cir. 2008)
- SAMSUNG-1038 Accenture Global Services, GmbH v. Guidewire Software, Inc., 728 F.3d 1336 (Fed. Cir. 2013)
- SAMSUNG-1039 RESERVED
- SAMSUNG-1040 Stephanie Cook, Audio revolution blasts record companies, Christian Science Monitor April 29, 1999
- SAMSUNG-1041 Doug Bedell, THE MP3 WAVE: As millions download music off the Net, piracy enforcement flounders, Dallas Morning News July 27, 1999
- SAMSUNG-1042 Internet gains higher ground, Marketing Week January 20, 2000
- SAMSUNG-1043 Napster Operates a Pirate Bazaar – RIAA, Newsbytes News Network December 10, 1999
- SAMSUNG-1044 Digital music recorders OK, Cincinnati Post June 16, 1999



- SAMSUNG-1045 Microsoft and BMG Move Digital Music Into Mainstream, PR Newswire November 15, 1999
- SAMSUNG-1046 Microsoft and Diamond Multimedia Showcase Rio player in live demonstration of Windows Media, M2 PressWIRE November 16, 1999
- SAMSUNG-1047 About ASCAP Licensing, American Society of Composers, Authors and Publishers (1999)
- SAMSUNG-1048 Frequently Asked Questions About Licensing, American Society of Composers, Authors and Publishers (2000)
- SAMSUNG-1049 Music for Money, American Society of Composers, Authors and Publishers (1999)
- SAMSUNG-1050 U.S. Patent No. 5,778,187 to Monteiro et al.
- SAMSUNG-1051 Keith, Michael C., The Radio Station Broadcast, Satellite and Internet, Eighth Edition, 2009
- SAMSUNG-1052 Digital Millenium Copyright Act of 1998

Petitioner respectfully submits that Patent Owner's Objections to Evidence served on April 15, 2015 fail to establish a need for correction to the evidence filed and served with the Petition, which is properly before the Board. Because, however, such correction may eventually be deemed appropriate by the Board, Petitioner hereby serves, pursuant to 37 C.F.R. § 42.64, the Supplemental Evidence identified in this paper's updated exhibit list.

4/29/2015

Date: \_\_\_\_\_

Respectfully submitted,

/Thomas Rozylowicz/

\_\_\_\_\_  
Thomas Rozylowicz  
Reg. No. 50,620

Customer Number 26171  
Fish & Richardson P.C.  
T: 202-783-5070  
F: 202-783-2331

Counsel for Petitioner



*'To injure no man,  
but to bless all mankind'*

BOSTON • THURSDAY  
APRIL 29, 1999

# THE CHRISTIAN SCIENCE MONITOR

Black cocaine Drug traffickers have found a way to alter the drug so it eludes detection. **2**

Statehood on hold? Arafat appears unlikely to declare a Palestinian state on May 4 deadline. **6**

Ideas Who owns a computer's operating system? A young Finn, Linus Torvalds, thinks you do. **15**

75¢

## AFTER APARTHEID

### South Africa's new black rich as new targets

By Corinna Schuler  
Special to The Christian Science Monitor

JOHANNESBURG, SOUTH AFRICA  
**P**ETER VUNDLA drives a flashy sports car, collects fine art, plays golf, and savors his success in the new South Africa at some of its most exclusive clubs. He is the very essence of a class the country desperately lacked during its apartheid past: the black bourgeoisie.

"I always intended to be a black fat cat," says Mr. Vundla, chuckling in a dapper designer shirt and tie. "I am one now. And I love it."

Five years of democratic rule opened the door to scores of government-sponsored "black empowerment" investment deals. These, along with a push on corporate affirmative action, have produced a small cadre of affluent blacks.

Their emergence has provoked questions among some black leaders, paralleling ones that white societies elsewhere have long asked: Do the rich have a responsibility to uplift the impoverished masses? Are South Africa's new rich abandoning the apartheid-era "struggle" to create a better life for all blacks - in favor of enriching themselves?

See S. AFRICA page 8



DONIS FARRRELL/AP

**NTOMBI MSIMANG:** Pretoria restaurateur helps others.

## IN THIS ISSUE

USA..... **2**  
WORLD..... **6**  
EDITORIAL/CARTOON..... **10**  
IDEAS..... **15**  
THE HOME FORUM..... **22**  
NEWS IN BRIEF..... **24**

monitor online:  
www.csmonitor.com



US AIR FORCE/AP

**LOADED WITH CONTROVERSY:** Airmen prepared 30-mm depleted-uranium rounds for an A-10 'Warthog' plane this month in Aviano, Italy, a base used for strikes on Yugoslavia.

## A SPECIAL REPORT THE TRAIL OF A BULLET

*The armor-piercing wonders of depleted uranium helped win the Gulf War. As it is loaded for use in Kosovo, questions about its long-term dangers linger.*

First of two parts.

By Scott Peterson

Staff writer of The Christian Science Monitor

AMERICAN anti-tank gunners in the Gulf War raved about it. It was their "silver bullet," piercing the armor of Iraq's Soviet-made tanks as if they were soda cans.

Gunners became accustomed to first-round, tank-fired shots that ignited Iraqi T-72s with such force and fire that the result was dubbed "Dante's Inferno." Fired from A-10 "tank-buster" planes in 30-mm form, this bullet stopped armored convoys in their tracks.

This is the tale of a high-density bullet made of depleted uranium (DU), a low-level

radioactive waste left over from the making of nuclear fuel and bombs. Because of its success, DU has already become a staple of the US military's arsenal. It has been sold by the US and Russia to other forces all over the world.

In the war over Kosovo today, NATO has loaded DU rounds into the guns of Air Force A-10s. So far, the Air Force says, this highly effective antitank ordnance has not yet been used.

Wherever it is fired, it leaves a radioactive trail.

See TRAIL page 12

## In paying for war, Congress criticizes

■ GOP lawmakers use power of purse to signal disapproval with Clinton's wartime leadership.

By Ann Scott Tyson  
Special correspondent of The Christian Science Monitor

WASHINGTON - As Congress grapples this week with abstract questions of whether to authorize war against Yugoslavia, its only real grip on US policy in the Balkans takes a far more concrete form: dollars.

The GOP-led Congress is using its purse-string powers to assert its views not only on President Clinton's Kosovo strategy, but also on his commitment to military readiness and his performance as America's commander in chief.

Congressional tactics on Kosovo are clearly demonstrated in two emergency spending bills working their way through the House and Senate this week. The bills would roughly double the Clinton administration's request for \$6 billion to fund the US portion of the NATO airstrikes and provide relief for Kosovo's ethnic Albanian refugees.

By hiking up the funding to as much as \$13 billion, far above the president's request, Republicans are trying to use the legislation to advance their own national-security priorities while firing off a strong statement about the inadequacies of Mr. Clinton's military leadership.

See COST page 9

## Young and male in America: It's hard being a boy

By Brad Knickerbocker  
Staff writer of The Christian Science Monitor

Here's what it's like to be a boy in America today.

Boys drop out of school, are considered emotionally disturbed, and commit suicide four times as often as girls; they get in twice as many fights; they murder 10 times more frequently; and become the victim of a crime 15 times more often. They are less likely

than girls to go to college (because they haven't done as well in high school); are labeled "slow learners" and assigned to "special ed" classes twice as often; and far more boys than girls are diagnosed as having "attention deficit disorder" and placed on powerful prescription drugs.

This does not describe all, or even most boys in America. But the figures, and especially their pattern, are disturbing - espe-

cially as they relate to extreme antisocial behavior.

And as the country sorts through the emotional debris of the Littleton, Colo., high school shooting last week, there has been a lot of talk about warning signs missed or ignored by parents, teachers, and religious leaders - responsible adults who could have prevented this tragedy, as well as the

See BOYS page 4



## MUSIC ON THE WEB

# Audio revolution blasts record companies

By Stephanie Cook

Special to The Christian Science Monitor

**T**erry Sinay should be studying for finals next week. Instead, he's scouring the Internet for free music in his quintessential college pad, complete with a mega-sound system, mood lamp, and electric guitars draping down livingroom walls.

"I don't have to pay, and I can listen to it as often as I want," says the student at the Massachusetts Communications College in Boston. With a few clicks of a mouse, the Digable Planets surge from his computer-turned-jukebox.

He's one of the millions of Web-savvy teens and twentysomethings who are skipping trips to record stores and joining a digital-music revolution that has the music industry reexamining its business model.

Mr. Sinay has downloaded about 20 tracks - everything from the Stone Temple Pilots to the Doors - which he can also play by connecting his computer to his stereo or on a Walkman-like device that costs about \$200. Using a digitally compressed format known as MP3 (MPEG-1 Layer 3), which offers near CD-quality sound, Sinay can e-mail songs to friends without a trace. Although there are other digital formats, MP3 is the most widely used (see related article).

## Bootleggers prefer MP3

It's become the format of choice for a new breed of bootleggers - digital ones, whose Web sites are proliferating daily.

But pirates aren't the only ones using the technology. Music buffs can legitimately download MP3 files for free or pay about \$1 per single from online retailers such as [mp3.com](http://mp3.com) or [mjuice.com](http://mjuice.com).

The technology has a \$12 billion music industry fired up over how it will tune down online lifting that's costing it millions of dollars a year in lost sales. Adding to that, retailers and record labels worry they might get cut out of the deal. They question whether consumers will continue shelling out \$16 for a CD, if digital songs are free or cost less. Artists may opt to go straight to the consumer by posting albums online instead of through a separate agent. Rock band Public Enemy, for example, dumped its record company recently, choosing instead to release an album on the Internet.

"We know that there are more than 2 million people each month downloading Winamp,"

the software to play MP3 tracks on computers, says Duncan Kennedy, vice president of Audio Explosion.

Piracy has gone up since MP3 became popular - although it's hard to calculate by exactly how much, says Steve Marks, a spokesman for the Recording Industry Association of America (RIAA), which represents major labels. As it gathers more converts, MP3 piracy could cut even deeper into profits, he adds. "On any given day, we can find thousands of [illegal] records and [go after] a [Web] site," but policing them online "is almost like playing a game of 'Whack-a-Mole.' As soon as we shut down one operation, another pops up," he says. Copyright penalties can cost up to \$100,000 per infringement, he adds.

It's a different operation from making illegal cassette copies, Marks says. "MP3 allows anybody to become a worldwide publisher of virtually CD-quality music. It can be more easily done ... [and] quality isn't lost when copies are made." But the association has been cracking down, and industry executives agree that the answer combines encryption with digital-rights management.

Last year, the RIAA created the Secure Digital Music Initiative, seeking to come up with new industry standards for copyright protection and distribution of music in digital formats. It filed lawsuits against makers of MP3 hardware products, such as the Diamond Rio, a portable MP3 player, alleging violations of the 1992 Audio Home Recording Act. Artists don't receive royalties for music played on the device. While the case hasn't been decided, the association wasn't

granted a preliminary injunction to stop the Rio from hitting shelves, Marks says.

But as the industry tries to snuff out digital bootlegging, companies are recognizing the burgeoning influence of cyber-

space in building an audience for musicians and selling music.

Microsoft Corp., for example, announced it will launch a software called MS Audio 4.0 to deliver secure music over the Web. And record companies BMG En-

tertainment and Universal Music Group formed a joint venture this month to create a series of Web sites to promote and sell music. The sites will feature artist profiles, live music broadcasts, and link users to [Getmusic.com](http://Getmusic.com), a new Web music store.

But while the Internet appears to be making record companies vulnerable, a 10 percent revenue increase last year for record labels may show that the damage isn't as bad as the industry fears, says Eric Scheirer, a research assistant at the Massachusetts Institute of Technology's Media Lab. "It could even be helping them," he adds.

Artists - especially lesser-known ones - tend to agree, arguing there's tremendous value in using MP3 as a promotional tool. Garage bands can give fans a taste of what's coming, they say, and use it to test out new songs.

Since the band Furious IV started posting music on its Web site five months ago, concert-ticket sales have jumped and popularity has spread by word of mouth, says Ian Taylor, singer and guitar player of the two-year-old group from San Diego. "They come to our live show after they listen," he says. "A lot of friends say they download."

## Web music will grow

There's no question that Web distribution will flourish in the next five to 10 years, says Randy Weiner, executive producer of new media for LOUD Records, whose artists include hip-hop bands. At a time when more people are shopping online for access and convenience, they'll turn to MP3 or something like it for the same reasons - especially as technology makes digital downloads easier, Scheirer says.

LOUD is taking the digital plunge by partnering with Audio Explosion, a company that just introduced Mjuice, an MP3-based music delivery service. "I don't feel threatened by MP3," Mr. Weiner says. "I'm not threatened by digital downloads either, because I think the music industry will change.... The idea of ownership will change.... There will be more of a radio model."

CD prices may drop as digital downloads take off, but don't expect, a utopia of free giveaways, says Bob Zimmerman, general manager of a Tower Records store in Boston. "We've been pushing labels forever to go down," he says. "I think we'd all like to see CDs cheaper, but the market will bear [MP3 piracy]. In the next year or two, labels will make sure it's something they have control over."



MELANIE STETSON FREEMAN - STAFF

**DROWNED OUT BY THE WEB?** Bob Zimmerman, manager of Tower Records in Boston, says Web technology may force down CD prices.

## Copying music from the Web

**What is MP3?** It stands for MPEG-1 Layer 3 and was created in 1992, says Eric Scheirer, a research assistant at the Massachusetts Institute of Technology's Media Lab. It's a layered audio-compression format that has a small file size, offers near CD-quality sound, and transmits music easily over the Web. MP3 is an open standard - no one controls it. Technically, MP3 makes music more efficient because it trims excess data and only compresses the part you can hear, Mr. Scheirer says.

MP3 is legal, but it makes it easier to copy and transmit copyrighted songs without permission because not many MP3 tracks have watermarks or playback restrictions. Musicians and Web sites sell or give away songs legitimately, but most MP3 sites are illegal.

**How does it work?** To play an MP3 track, you need a player and, for better sound, a pair of speakers connected to your computer. You can download dozens of different players from [mp3.com](http://mp3.com), such as Winamp, the most popular for PCs. On the same site or on others such as [goodnoise.com](http://goodnoise.com), you click and legally download songs for free or for about \$1 each. It typically takes three-to-five times the length of the song to download it, Scheirer says. High-speed T-1 lines reduce download time to a few seconds. Then you drag the file onto your virtual player deck and click the play button. You can also take songs with you by transferring them to a portable player, like the Diamond Rio, which stores about 40 minutes of music.

- S.C.



# The Dallas Morning News

Texas' Leading Newspaper

Dallas, Texas, Tuesday, July 27, 1999

www.dallasnews.com

50 Cents

## Dallas tax base up 7.4%

Other cities also see property values surge

By Nora López and Michael Saul  
Staff Writers of The Dallas Morning News

Tax rolls in cities and school districts across Dallas County grew this year, despite a record number of challenges to higher appraisals, according to a Dallas Central Appraisal District report released Monday.

Dallas' tax base rose 7.4 percent

■ Dallas County tax rolls, 8A

to a record \$53.9 billion. The expansion marks the seventh straight year of economic growth in the city.

Other area cities that enjoyed significant tax-base increases include Carrollton, Coppell, Cedar Hill, Irving and Richardson. The Dallas Independent School District saw its tax roll grow 10.2 percent, to nearly \$49 billion.

"This is good news for a strong economy in Dallas because we are so far behind on important basics like street repair and buying garbage trucks," said Mayor Pro Tem Mary Ann, chairwoman of the City Council's Finance and Audit Committee. "It means we have more opportunity to catch up on basic service needs in Dallas."

However, City Manager Ted Benavides said the city still faces a shortfall between revenue and expenses.

The growing tax rolls are a mixed bag for property owners. While their homes and businesses may be worth more, they will have to pay more property taxes unless cities and school districts cut their tax rates.

"It's a double-edged sword," said Please see COUNTY on Page 9A.

## A homecoming in Kosovo



Sevala Hakaj welcomes her daughter Arta, a back home to Pristina, Yugoslavia. Arta had been taking refuge with relatives in

Sweden during the war in Kosovo. About 300 Kosovo refugees left the United States for home on Monday. (Story on Page 6A.)

## U.S. spy plane wreckage found in Colombia

### 5 Texas soldiers presumed dead

By Tod Robberson

Latin America Bureau of The Dallas Morning News

BOGOTA, Colombia — U.S. and Colombian military search teams have located the wreckage of a reconnaissance plane that went down Friday with five Texas-based U.S. servicemen and two Colombian military officers on board, a senior White House official confirmed Monday.

Barry McCaffrey, the White House national drug policy director, said that all seven of the plane's crew are presumed to have been killed. Rescuers have been unable to reach the wreckage because of bad weather and potential ground fire from leftist guerrillas who dominate the area in southern Colombia.

"It is not yet definite," Mr. McCaffrey said during a two-day visit to Colombia. The spy plane wreckage has "been under observation... The evidence so far would indicate these five brave young Army aviators, as well as two Colombian air force officers, have probably lost their lives in a fatal accident." The five Americans — three off-



cers and two enlisted men — were based at Fort Bliss in El Paso and were in Colombia for a three- to four-week stint performing what U.S. officials describe as routine counterterrorism operations. Capt. Chris Yates, spokesman for the U.S. Southern Command in Miami, said the wreckage was found on Monday. Please see WRECKAGE on Page 9A.

## EPA seeks to cut use of gasoline additive

### Panel's report cites water pollution concern

By Matthew L. Wald

New York Times News Service

WASHINGTON — The Environmental Protection Agency will propose that Congress no longer require oil companies to add an ingredient to gasoline that is meant to make the air cleaner, because it pollutes water.

A panel appointed by the EPA is set to report on Tuesday that use of the ingredient, MTBE, should be "reduced substantially" because it dissolves easily in water and turns up in tap water when gasoline has leaked or spilled.

MTBE is used in so-called reformulated gasoline required by the EPA in all or parts of 16 states, including Texas. That accounts for about a third of the gasoline sold in the nation.

Even before the report was made public, EPA Administrator Carol Browner said Monday that Americans should have "both cleaner air and cleaner water — and never one at the expense of the other." Ms. Browner's agency in the past has defended MTBE mandates to critics who said it posed health problems. But she said she would urge Congress to change rules passed in 1990 that require oil companies to put into gasoline an "oxygenate," a chemical that incorporates an oxygen atom, to promote more thorough burning in engines. Most oil companies chose the ingredient known as MTBE, for methyl tertiary butyl ether.

After Congress passed an oxygenate in nine big metropolitan areas. Please see EPA on Page 8A.

## Jury can hear tapes of Cisneros, judge rules

By David Jackson

Washington Bureau of The Dallas Morning News

WASHINGTON — A federal judge said Monday that prosecutors can use tapes that an ex-mistress secretly made of conversations with Henry Cisneros, clearing the way for the former housing secretary's trial on charges of lying about payments to the woman.

U.S. District Judge Stanley Sporkin excluded portions of these edited audio recordings made by Linda Jones but allowed 22 others in their entirety. Mr. Cisneros' lawyers tried to keep all of Ms. Jones'

### Prosecutors to use ex-mistress's recordings

tapes out of the trial, set to start Sept. 7.

In a 15-page opinion, Judge Sporkin said that the defense failed to prove that Ms. Jones' tapes were unreliable and that she may have made them as part of a blackmail or extortion scheme.

"She testified she was motivated by a desire to make a record of Cisneros' statements to her so that in the event she needed to correct an inaccuracy about the nature of their relationship, she would be

able to do so," Judge Sporkin wrote.

Attorneys for Mr. Cisneros and Ms. Jones declined to comment on the ruling. So did the office of independent counsel David Berrett, the prosecutor in the case.

A grand jury in 1997 indicted Mr. Cisneros on charges of deliberately lying to the FBI by underreporting the more than \$250,000 he paid Ms. Jones after their affair ended. The indictment also accuses Mr. Cisneros of conspiring with others during the FBI background check

that followed his nomination to be secretary of housing and urban development.

Mr. Cisneros has denied the charges. The trial will continue a legal odyssey that essentially began when their affair did in 1987, when he was mayor of San Antonio and she worked as a political fund-raiser.

Between 1990 and 1994, Ms. Jones taped 98 conversations with Mr. Cisneros. She destroyed the originals but kept copies, according to court Please see FEDERAL on Page 8A.

## Midwest bakes in deadly heat

### 23 fatalities thought to be linked to extended high temperatures

By Krista Larson

Staff Writer of The Dallas Morning News

Midwesters watched last summer's Texas heat wave in disbelief. Now some are getting a glimpse of Texas-like heat as temperatures rise as high as 100 degrees.

Officials suspect that the prolonged, above-normal temperatures played a role in 23 deaths in the Midwest. Complete weather. 22A seven deaths in Cincinnati, 11 deaths in Illinois, and five in Missouri.

Monday in St. Louis the high was 102 degrees — making it the hottest day of the 12-day span of 90-plus degree weather. Kansas City, Mo., hit the century mark both Sunday and Monday. Louisville, Ky., recorded 97 degrees Monday, while Minneapolis and Chicago have both seen highs in the upper 90s.

"This is the first real heat the Midwest has received this summer," said Mike Looney of the Central Region office of the National Weather Service. "In North Texas, where temperatures finally hit 100 Friday, that may not seem hot. But for the area that stretches east from Kansas through the lower Mississippi Valley region, that's higher than normal, according to Mr. Looney."

A 90-degree day here or there is not unheard of in Please see MIDWEST on Page 8A.

### INSIDE

#### The MP3 wave

"Sex" used to be the No. 1 search word on the Internet. Now, it's "MP3." Learn how a simple audio file format is changing the face of American music.

Person@ Technology, Section F



Ann Landers... JC  
Bridge... JC  
Business... JC  
Classified... JC  
Culinary... JC  
Dear Abby... JC  
Batterfield... JC  
Education... JC  
Heritage... JC  
International... JC  
Lobby Members... JC  
Metropolitan... 13A-13B  
Movies... 24C  
News... 24A  
Oversight... 24A  
Sports... 24B  
Tourism... 24C  
Texas & Travel... 24C  
Today... 24C  
Voyagers... 24A



Many parents have no doubt noticed that the more they ask their kids to do something, the less likely their kids are to do it. Family, Page 5C

### Yosemite suspect confessed to 4 slayings, sources say

A motel handyman suspected of killing a naturalist last week and three Yosemite National Park signposts earlier this year has confessed to the four slayings, law enforcement sources said Monday. National, Page 4A

### Circus comes to town

From the Prince of the Pythons to the Human Volcano, the circus returns to traditional show acts. Today, Page 1C

## Palestinian pays historic visit to Israeli parliament

From Wire Reports

JERUSALEM — Israelis and Palestinians took another small step toward normal relations Monday when the speaker of the Palestinian parliament visited the Israeli Knesset for the first time.

Palestinian speaker Ahmed Qureis sat side by side in a Knesset hall with Avraham Burg, speaker of the Israeli parliament. The men pledged that their legislatures would work together for peace. They shrugged off interruptions by right-wing legislators.

"The readiness of both sides to enhance the peace process in every possible way is very sacred to both of us," Mr. Burg said.

"This is an important stage, when everyone is hoping that the peace process will come back on track again," Mr. Qureis responded.

Mr. Qureis, better known as Abu Ala, is one of Palestinian leader Yasser Arafat's close confidants and the highest-ranking Palestinian official ever to tour the Knesset. Although his tour was not official, such as might be made by a head of state, it was one of the most striking in a recent series of friendly gestures by Israeli officials toward the Palestinians.

Mr. Burg, a Labor Party stalwart who took over as Knesset speaker earlier this month, said he hoped to see Mr. Arafat address the Knesset in the foreseeable future, as well as Syrian President Hafez Assad.

"So help us God, we will have peace with Syria and Lebanon and the Palestinians," Mr. Burg declared. Please see PARLIAMENT on Page 7A.



# Person@ Technology

Tuesday, July 27, 1999

©1999 The Dallas Morning News

The Dallas Morning News

www.dallasnews.com

Section F

## THE MP3 WAVE

As millions download music off the Net, piracy enforcement flounders

By Doug Bedell  
Staff Writer of The Dallas Morning News

Until April, the hottest search term on the Internet was "sex." The new undisputed king is "MP3," a digital technology feared by record companies and embraced by millions.

For about three years, computer users have been pulling down music — classical, foreign, new and old — in the MPEG-1, layer 3 format from a dizzying spectrum of Web sites, secret and public file servers, and unlicensed Web radio stations.

Thanks to word of mouth, recent court actions and a new array of free software, MP3 singles and whole albums are being copied, or "ripped," from commercial compact discs faster than laws and record companies can respond.

"It's important to remember these are just music fans doing this," says Siddiq Bello, publisher of the online magazine MP3 Impact (mp3impact.com). "They're people who buy CDs. And in many cases, they're running servers at a cost to themselves to exchange music."

The International Federation of Phonographic Industries estimated this year that about 3 million tracks are being downloaded from the Internet every day, many of them without permission of established stars.

The Recording Industry Association of America, or RIAA, says that it lost as much as \$10 billion through music piracy last year and that illegal Internet downloads of music are making a bad problem worse.

On the other hand, the exchanging of MP3 files on the Internet has provided a back door for artists who couldn't get a record company exec to Please see PIRACY on Page 6E



The Dallas Morning News © Matt Pothary



The Dallas Morning News © Steve Caplan

## Defying extinction

Typewriters tap out niche for filling out forms and labels despite predictions of their demise

By Brian Booney  
Special Contributor to The Dallas Morning News

Louise Chandler has been using typewriters since before they came with a "1" key. That was in 1960, when the new typewriters of the day featured electric motors and all 10 digits.

In those days, Ms. Chandler spent up to four hours a day in front of her typewriter. Today, if Ms. Chandler, a secretary in the Student Life office at the University of Texas at Dallas, works on the office's typewriter for more than 30 minutes, she's put it to heavy use.

"I'd say I use it from 20 to 30 minutes a day at peak use. It kind of depends on what I'm doing that day," she says. "I rarely use it for memos anymore. I use

it for deposit slips or if I have a couple of envelopes to address."

"Before everything went to computer, I might do 50 percent of my work on a typewriter. Now maybe 10 percent of the stuff I do is done on them. But when I need it, I'm glad it's there."

In a world of word processing software and laser printers, the typewriter continues to find its niche, refusing to go the way of the buggy whip or vacuum tube.

Typewriter makers no longer produce as many units, but sales are steady, manufacturers say. Companies, schools and other organizations still have needs for the venerable machines, which have come a long way from the nonelectric "writing machines"

of the early 20th century.

Users have discovered they just can't quite live without typewriters, even though many people born during the last two decades have never used one — or can recognize one, for that matter.

And with the gadgets that future machines are likely to incorporate, the typewriter could become one of the most advanced pieces of technology in the modern office.

From collectors' items to workplace necessities, typewriters are defying extinction.

For Ms. Chandler, the typewriter has a very specific role to play.

"There are still a lot of forms that aren't available to us on computer. So they must go in the typewriter. That's mostly what I use mine for," she says. "A lot of our students come in and use it to fill out their forms. And it's especially good for addressing envelopes or making labels. I use my computer whenever I have to write something. But when I need to fill something out, I reach for the typewriter."

It's employees such as Ms. Chandler that typewriter manufacturers are trying to reach. According to industry estimates, typewriter sales have stabilized over the past five years after yearly sales losses of Please see TYPEWRITERS on Page 5F

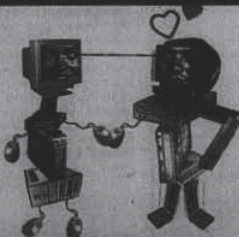
### INSIDE

#### TRENDS

### Cheating hearts

Chat rooms now rank second to the workplace for illicit affairs.

Page 2



#### ELECTRONIC ADVENTURES

### Bonus points

Pokémon Pinball captures the spirit — if not the monsters — of the Game Boy craze.

Page 4



#### ALSO THIS WEEK

### Under construction

Get some step-by-step guidance on building a Web page. **Destinations, 7F.**

### A clear picture

Scan 35 mm slides using your flatbed and a lamp. **Help Desk, 5F.**

Visit The Dallas Morning News online at [www.dallasnews.com](http://www.dallasnews.com)



# Piracy enforcement flounders with rise of MP3

Continued from Page 1F. record labels have suddenly found the mass audience that eluded them in competition against the Big Five—Sony Music, Universal, EMI, BMG and Warner.

And a mini-industry has arisen as tech companies rush to produce MP3 players for the home, palm, PC, Mac and, now, automobile.

MP3 is a case of technology outpacing an industry's efforts to protect its product. With the exception of a few artists such as Public Enemy, Alanis Morissette, Deanie Bray and Franz Dink, musicians and record labels haven't provided downloadable singles for consumption via the Internet. The technology is moving on, regardless.

"Very few people are in favor of MP3, per se," says MP3 researcher and consultant David Weekly (david.weekly.org). "They're in favor of a free, open format. And they're going to stick with MP3 until something better comes along."

### The MP3 allure

As the recording industry grapples with policies and legalities, the public continues to endorse MP3 with mouse clicks. MP3 files are spread through a computer's system or headphones have captured the attention of many.

"It changed the way I looked at my computer," Mr. Weekly recalls. "I thought, 'Wow, I can play these files, they sound great and I can put them in any order.' ... It changed everything."

A song in an MP3 file is compressed to about 3 megabytes, one-sixteenth the size of the original CD track. That makes downloading singles onto a computer or other device fairly fast. With a good 56 kilobits-per-second modem, one tune may take 10 minutes or less to download. Although the music is physically changed, it retains a rich, full quality in MP3.

Technological advances and free programs for playing the files are behind much of the MP3 phenomenon. Software developers such as Nullsoft, maker of the immensely popular Winamp (www.winamp.com), distribute MP3 players at no charge that feature sophisticated mixing controls and lively, customizable electronic coverings, known as "skins," for those on-screen players.

Last week, the most popular downloads at Cnet's www.download.com were the new Macintosh MP3 players SoundJam MP and MacMP3.

Because downloading itself is not a crime, mega-search engines have cropped up to scan the Web by artist, track and album name. MP3 Fiend (www.mp3fiend.com) and Scour Net (www.scour.net), for example, provide software that helps locate all sorts of files, legal and illegal.

Other sites—among them MP3 Now (www.mp3now.com) and MP3.com (www.mp3.com)—provide only authorized offerings from featured artists.

None of the Web search mechanisms can guarantee to return only sites that offer legal, downloadable tracks, however. Many have agreed to delist their directories any site that violates copyright laws. They include the old-line search engine Lycos, which catalogs more than 500,000 files. Netwide with its Fast MP3 search service (mp3.lycos.com).

Still other MP3 sites have legitimized the format with innovative approaches.

MP3.com, which raised at least \$34 million in an initial public stock offering last week, allows artists to post their songs and sells digital automatic music, or DAM—custom CDs made up of tracks that the user selects. The site splits profits 50-50 with the artists.

MP3.com also attempts to attract artist submissions by region, but selection is spotty at best. The heavy metal group Majik, for example, is the only Dallas band represented.

Another site, Eazy (www.eazy.com), sells music tracks for 99 cents apiece.

### Underground movement

Mr. Weekly says that only about 5 percent of the Internet traffic in MP3 is run through public areas on the Net.

"People perceive it as being intrinsic to the Web," he says. "That's really not the case anymore."

For many reasons, MP3 has moved underground, where it continues to proliferate.

Copyright laws allow an owner of a CD to shift the format of its content. In other words, they are permitted to use free MP3 encoding software on their computers to convert albums and save them as digital files on their hard disks for private use.

## WHAT THE MP3 FUSS IS ALL ABOUT

MP3 is technology that can compress sounds such as audio into digital files and that can play back those sounds without a loss of audio quality. The term is short for MPEG-1, audio layer 3.



### Home computers

Free MP3 programs, or players, such as Winamp and MusicMatch, can be downloaded from multiple sites across the Internet. New players and customized, decorative on-screen interfaces, or skins, being produced every day.

### Car stereos

Manufacturers cataloged by MP3.com (www.mp3.com) and other services have developed home stereo components that will store and play more than 2,000 songs using MP3 and other digital compression formats.

### Home stereos

AudioQuest (www.audioquest.com) and other services have developed home stereo components that will store and play more than 2,000 songs using MP3 and other digital compression formats.

### Portable players

Diamond Multimedia's hand-held Rio and other small devices are being sold in retail stores and on the Internet. These players can be upgraded with MP3 files for private listening.



### There are thousands of Web sites from which MP3 files can be downloaded, some of them regularly. Many sites have agreements with artists, record labels and other owners of distribution rights. Some Web search sites, including Lycos MP3 Search, have agreed to pull any site from their databases if it is found that files are being placed on that server.

**MP3.com (www.mp3.com)** — By agreement with artists who share in online sales of CDs purchased online. Music can be downloaded, listened to live in a stream or ordered in Digital Automatic Music, or DAM, form on CD for as low as \$5.99, as priced by the artists.



### CDDB — A database comprised of thousands of artists, albums and track titles. CD rippers included in programs such as Xing's AudioCatalyst and MusicMatch Jukebox will call up your Web browser and connect you to this site. It will match the serial number of your CD with its records and import all the artist and track data. CDDB removes the necessity of filling in all of the CD data manually.

**CD Ripper** — A program used to grab audio tracks from a compact disc and convert them to WAV file format.

**Decoder** — A program used to transform an MP3 file to a WAV file. This is done by using a decompression algorithm.

**Encoder** — A program that is used to transform WAV files to MP3 files. This is done by using a compression algorithm.

**ID3** — Tags used to name an MP3 file. A typical ID3 tag includes the title and the artist of the song.

**MPEG** — An acronym for the Moving Pictures Experts Group, which was established in 1988 to develop standards for the "coded" representation of moving pictures, audio and their combination. The Moving Pictures Experts Group is an International Organization for Standards committee, made up of individuals representing corporate and academic interests, which meets to draft standards of audio and video coding. The Moving Pictures Experts Group has drafted several standards, which bear its name, including:

**MPEG-2** — The standard for digital television.

**MPEG-4** — Proposed standard for multimedia applications.

**MPEG-7** — A content representation standard for an information search.

**MPEG-1** — A standard for MPEG-1, audio layer 3. There are three layers in the MPEG-1 standard, each with different media dependent on usage. The basic difference between layers relates to issues with encoding and decoding. Higher layers are more complex and can be more CPU-intensive. The higher layers also include all the functionality of the lower layers.

**MP3 player** — A program that can be used to play back MP3 files. It is also a portable hardware device, smaller than a Sony Walkman, that is able to store music in MP3 format in special memory cards. Thus, the playback of music is achieved without any moving parts.

**Radio sites** — Some MP3 download sites require users to upload one or more tracks to the site's servers in exchange for making a selection from the radio site.

**Secure Digital Music Initiative (SDMI)** — An industry effort to develop technologies that will help curb MP3 music piracy and control dissemination of MP3 files.

**SHOUTcast** — A streaming audio system for Windows and Unix platforms. MP3 is used by SHOUTcast to provide clear, crisp sound to Internet listeners.



**World Wide Web** — Web sites are the best-known download channel for music distribution. However, the Web is often used simply to provide information and content in support of the actual download channel, which is usually File Transfer Protocol. The Web continues to lead as the main distribution channel for music files, bootlegged or legal.



**Hotline** — This is an application suite that allows anyone on the Internet to turn a personal computer into part of a virtual, Internet-based community. These communities are accessible via the Web but are not a part of it, and they cannot be located using traditional Web searches engines. Because setting up a hotline server requires no special knowledge and the server resides on the user's PC, the average number of files on a Hotline server is greater than those on other online music distribution channels.



**IRC** — Short for Internet Relay Chat, IRC is one of the surviving technologies from the early, text-based days of the Internet. IRC remains one of the largest online chat networks, with an average of more than 20,000 simultaneous users spread across 15,000 chat rooms on 42 servers. Users can create and administer their own chat rooms and, on some servers, can write small programs called bots. Bots can be used to automatically trade files 24 hours a day. As one of the earlier Internet chat applications.

systems, IRC is not particularly user-friendly nor is it likely to gain mass market acceptance. However, as more sites are shut down by ISPs and schools, the number of IRC chat rooms will probably increase.

**FTP** — Short for File Transfer Protocol, a system developed before the World Wide Web, for copying files from one computer to another. As such, it has no tools that lend themselves to marketing or promotions. The seamless integration of FTP in Web browsers allows MP3 site operators to use a Web site as the front-end of their FTP servers, where actual downloading takes place.

**ICQ** — Pronounced "I seek you," this peer-to-peer application informs you when a specific user is online and enables you to contact and chat with them. It functions in much the same way as America Online's Instant Messenger and other Net pagers. Users use this channel to directly trade MP3 files from their private collections and/or to promote a Web, FTP- or Hotline-based server.

**Usenet** — Also called Usenet News or simply newsgroups, it is a massive network of more than 40,000 discussion groups on topics ranging from cat grooming to Hindu metaphysics. Usenet can also be used to distribute MP3s directly by posting MP3 files in the appropriate music or fan-related newsgroup. There is an application called NewsFover that has been specifically enhanced to collect MP3 files from newsgroups and download them overnight to a user's computer.

The Dallas Morning News © Matt Fitzhugh

"It is simply not fair to take someone else's music and put it online for free distribution."

— Hilary Rosen, president, RIAA

"[MP3 is] a new way of doing things, and it's going to fundamentally change the way the Big Five record companies operate, whether they like it or not."

— Siddiq Belko, publisher, online magazine MP3 Impact

wherever they found unauthorized MP3 files trading in large volumes.

The Recording Industry Association of America, armed with a new federal law, has had three full-time staffers sniffing out pirates and large-scale MP3 sites that have File Transfer Protocol, or FTP, servers. More than 250 sites were shut down as of April.

Will Komassa, a University of Wisconsin student forced to close his free FTP site, told the online service Wired News that the action by his university's network administrator was "akin to bitching at every eighth-grader who taped M&M's off the radio."

Hilary Rosen, RIAA president and CEO, doesn't share such opinions. "It is simply not fair to take someone else's music and put it online for free distribution," she says. "No one wants their property taken from them and distributed without their permission."

"Why should artists be treated any differently?"

Enforcement attempts have done little to stop MP3, however. Mr. Weekly, whose own music exchange site was forcibly shut down two years ago, says most of the traffic has gone underground.

Many traders of MP3 files have moved to the old Internet Relay Chat servers, a technological hangover from the days when the Internet was text-based, to set up and administer chat rooms where file exchanges are arranged. Some IRC servers even allow bots, small programs that scan, copy and automatically trade files around the clock.

Usenet groups are also being used to make contacts, and an application called NewsFover has been developed to collect MP3 files and download them overnight.

Another note of progress, Net-

line, allows individual computers to be easily set up as servers, away from the public portion of the Internet. Mr. Belko's MP3 Impact e-zine reports that more than 400 sites equipped with Hotline currently distribute MP3 files. More than half of them boast high-speed Internet connections that support lightning-quick downloads of massive amounts of MP3 data.

"MP3 doesn't have to hurt the industry. But it's a new way of doing things, and it's going to fundamentally change the way the Big Five record companies operate, whether they like it or not," Mr. Belko says.

line, allows individual computers to be easily set up as servers, away from the public portion of the Internet. Mr. Belko's MP3 Impact e-zine reports that more than 400 sites equipped with Hotline currently distribute MP3 files. More than half of them boast high-speed Internet connections that support lightning-quick downloads of massive amounts of MP3 data.

"MP3 doesn't have to hurt the industry. But it's a new way of doing things, and it's going to fundamentally change the way the Big Five record companies operate, whether they like it or not," Mr. Belko says.

### Worried industry

Computers have been the main source for downloading and playing the music files, but a host of new MP3 devices and mechanisms are adding to the record industry's Internet music file problem.

more than 200,000 of its Walkman-like Rio MP3 players in the last year and is being joined by competitors after a recent legal victory over the RIAA.

A federal appeals court ruled that Diamond was within its rights to develop and sell portable MP3 players. The court's action spurred the production of newer, larger-capacity units. Creative Labs entered the market last week with Nomad, which is an FM radio and MP3 player.

"With the legal path cleared, portable players could quickly become an even more persistent playback thorn than PCs," says a recent report by market researchers at ZDNet's InfoBooks.

Manufacturers, as cataloged at www.mp3.com/hardware/car/listar.htm, are taking orders and starting to ship car audio players. AudioQuest (www.audioquest.com) and several other companies have now released home stereo components that store and play more than 2,000 songs made with MP3 and other digital compression formats.

### Radio MP3

And some obscure, music-based Internet radio stations have begun using MP3 files streamed live to anyone who can find their Internet address.

The industry is attempting to assess fees on those stations, although this breed of Internet broadcaster often receives no advertising revenue and is frequently limited to a couple dozen listeners at a time.

SHOUTcast (www.shoutcast.com) and Live365 (www.live365.com) are offering menus of these new MP3-based stations. Hundreds are available daily. Like regular radio, they run the gamut from punk to classical.

The streaming technique allows Internet listeners to hear music as it is pushed out of the site, eliminating the wait while files download. Radio.net (www.radio.net) just this year became the first site licensed to play MP3 music under the recently passed Digital Millennium Copyright Act.

Under the provision, the nascent Net radio stations must pay a statutory license fee to the record companies, something not required of traditional broadcast radio stations. Previously, webcasters were also exempt because they basically served as free promoters of the record industry's products.

Beyond that, the music industry is trying to develop its own standards for distributing digital music while protecting copyrights.

The Secure Digital Music Initiative, or SDMI, was formed last year by 150 recording industry and technology companies to develop an architecture and specification for rights management and licensing of digital music.

But since its inception, splinter groups have formed, impatient that the process was taking too long.

The SDMI drew strong reactions last week when it revealed that those specifications will limit how many times devices such as the Rio can record a track.

In a single downloading session, a consumer would be restricted to four digital copies of a single track off a CD. If a person needs to copy the MP3 file again, it must be re-copied from the original CD.

SDMI's goal is to reduce piracy by requiring that portable digital stereo systems include mechanisms to limit rampant conversion of CD music to MP3 and other digital forms.

That puts the organization potentially at odds with intellectual property laws establishing that content creators give up control over that content's use at the point of sale.

### Fight them or join them

But experts predict that the free MP3 model of music distribution will become even more attractive as Internet connections become faster.

According to InfoBooks' Technology User Profile, more than 121 million PCs had been installed in the United States by January. About 66 percent of those computers used a CD-ROM or DVD-ROM drive, and 56 percent of those 121 million PCs had Internet access.

In theory, the InfoBooks report concludes, more than 67 million PCs are ready and waiting to download music—legally or illegally—from the Internet.

"So here's the question for music executives: Would they rather have 66 percent of a \$1 billion market or 10 percent of a \$60 billion market? It's not a silly question," the InfoBooks report states.

"Piracy—or at least some piracy—may be the price the music industry has to pay for growing their business in a more open future," the report says.

Send e-mail to Doug Beckett at dougbe@netnet.com.



# Piracy enforcement flounders with rise of MP3

Continued from Page 1F

return a phone call. Small, independent record labels have suddenly found the mass audience that eluded them in competition against the Big Five—Sony Music, Universal, EMI, BMG and Warner.

And a mini-industry has arisen as tech companies rush to produce MP3 players for the home, palm, PC, Mac and, now, automobile.

MP3 is a case of technology outpacing an industry's efforts to protect its product. With the exception of a few artists such as Public Enemy, Alanis Morissette, Beastie Boys and Frank Black, musicians and record labels haven't provided downloadable files for consumption via the Internet. The technology is moving on, regardless.

"Very few people are in favor of MP3, per se," says MP3 researcher and consultant David Weekley (david.weekley.org). "They're in favor of a free, open format. And they're going to stick with MP3 until something better comes along."

## The MP3 allure

As the recording industry grapples with policies and legalities, the public continues to embrace MP3 with mouse clicks. MP3 files played through a computer's speakers or headphones have captured the attention of many.

"It changed the way I looked at my computer," Mr. Weekley recalls. "I thought, 'Wow, I can play these files, they sound great and I can put them in any order.... It changed everything.'"

A song in an MP3 file is compressed to about 3 megabytes, one-sixteenth the size of the original CD track. That makes downloading files onto a computer or other device fairly fast. With a good \$6 kilobit-per-second modem, one tune may take 10 minutes or less to download. Although the music is physically changed, it retains a rich, full quality in MP3.

Technological advances and free programs for playing the files are behind much of the MP3 phenomenon. Software developers such as Nullsoft, maker of the immensely popular Winamp (www.winamp.com), distribute MP3 players at no charge that feature sophisticated mixing controls and lively, customizable electronic covers.

## WHAT THE MP3 FUSS IS ALL ABOUT

MP3 is technology that can compress sounds such as music into digital files and that can play back those sounds without a loss of audio quality. The term is short for MPEG-1, audio layer 3.



**Playing MP3 files**

**Home computers**  
Free MP3 programs, or players, such as Winamp and MusicMatch, can be downloaded from multiple sites across the Internet. New players are customized, decorative on-screen facades, or skins, are being produced every day. Computer-based players can also present streams of music from hundreds of individual users using SHOUTcast Internet broadcasting systems.

**Car stereos**  
Manufacturers cataloged by MP3.com (www.mp3.com/hardware) and several other companies have developed stereo components that will store and play more than 2,000 songs using MP3 and other digital compression formats.

**Home stereos**  
AudioRequest (www.audiorequest.com) and several other companies have developed stereo components that will store and play more than 2,000 songs using MP3 and other digital compression formats.

**Portable players**  
Diamond Multimedia's hand-held Rio and other small devices are being sold in retail stores and on the Internet. These players can be uplinked with MP3 files for private listening.

**Some sources for MP3 files**

There are thousands of Web sites from which MP3 files can be downloaded, some of them illegal. Many sites have agreements with artists, record labels and other owners of distribution rights. Some Web search sites, including Lycos MP3 Search, have agreed to pull any site from their databases if informed that files are being phased from that server.

■ **MP3.com (www.mp3.com)**—By agreement with artists who share in online sales of CDs purchased online. Music can be downloaded, listened to live in a stream or ordered in Digital Automatic Music, or DAM, form on CD for as low as \$5.99, as priced by the artists.  
SOURCE: Dallas Morning News research

■ **Scour Net (www.scour.net)**—A meta-searching tool for all sorts of audio, video and images. Includes the free Scour Mixes Agent, which searches the Internet for MP3 files.

■ **Lycos MP3 Search (mp3.lycos.com)**—More than 500,000 MP3 files are available in a searchable database.

■ **Pure MP3 (www.puremp3.org)**—Software and more than 800 site listings, which are checked to keep X-rated banners and sexually explicit advertising from listings. Many MP3 sites accept pornographic advertising as a way to acquire income and drive traffic to their URLs.

**Glossary for MP3**

**CDDB**—A database comprised of thousands of artists, albums and track titles. CD rippers included in programs such as Xing's AudioCatalyst and MusicMatch Jukebox will call up your Web browser and connect you to this site. It will match the serial number of your CD with its records and import all the artist and track data. CDDB removes the necessity of filing in all of the CD data manually.

**CD ripper**—A program used to grab audio tracks from a compact disc and convert them to WAV file format.

**Decoder**—A program used to transform an MP3 file to a WAV file. This is done by using a decompression algorithm.

**Encoder**—A program that is used to transform WAV files to MP3 files. This is done by using a compression algorithm.

**ID3**—Tags used to name an MP3 file. A typical ID3 tag includes the file and the artist of the song.

**MPEG**—An acronym for the Moving Pictures Experts Group, which was established in 1988 to develop standards for the "coded representation of moving pictures, audio and their combination." The Moving Pictures Experts Group is an international organization for standards committee, made up of individuals representing corporate and academic interests, which meets to draft standards of audio and video coding. The Moving Pictures Experts Group has drafted several standards, which bear its name, including:

**MPEG-2**—The standard for digital television.

**MPEG-4**—Proposed standard for multimedia applications.

**MPEG-7**—A content representation standard for an information search.

**MP3**—Short for MPEG-1, audio layer 3. There are three layers in the MPEG-1 standard, each with different merits dependent on usage. The basic difference between layers relates to issues with encoding and decoding. Higher layers are more complex and can be more CPU-intensive. The higher layers also include all the functionality of the lower layers.

**MP3 player**—A program that can be used to play back MP3 files. It is also a portable hardware device, smaller than a Sony Walkman, that is capable of storing music in MP3 format in special memory cards. Thus, the playback of music is achieved without any moving parts.

**Radio labs**—Some MP3 download sites require users to upload one or more tracks to the site's servers in exchange for making a selection from the radio site.

**Secure Digital Music Initiative (SDMI)**—An industry effort to develop technologies that will help curb MP3 music piracy and control dissemination of MP3 files.

**SHOUTcast**—A streaming audio system for Windows and Unix platforms. MP3 is used by SHOUTcast to provide clear, crisp sound to Internet listeners.

**SHOUTcast**—A content representation standard for an information search.

**SHOUTcast**—A streaming audio system for Windows and Unix platforms. MP3 is used by SHOUTcast to provide clear, crisp sound to Internet listeners.

**SHOUTcast**—A content representation standard for an information search.

**SHOUTcast**—A content representation standard for an information search.

**SHOUTcast**—A content representation standard for an information search.

**SHOUTcast**—A content representation standard for an information search.

more than 200,000 of its Walkman-like Rio MP3 players in the last year and is being joined by competitors after a recent legal victory over the RIAA.

A federal appeals court ruled that Diamond was within its rights to develop and sell portable MP3 players. The court's action spurred the production of newer, larger-capacity units. Creative Labs entered the market last week with Nomad, which is an FM radio and MP3 player.

"With the legal path cleared, portable players could quickly become an even more persistent playback thorn than PCs," says a recent report by market researchers at ZDNet's InfoBeds.

Manufacturers, as cataloged at www.mp3.com/hardware/car/listcar.htm, are taking orders and starting to ship car audio players. AudioRequest (www.audiorequest.com) and several other companies have now developed home stereo components that store and play more than 2,000 songs made with MP3 and other digital compression formats.

## Radio MP3

And some obscure, music-based Internet radio stations have begun using MP3 files streamed live to anyone who can find their Internet addresses.

The industry is attempting to assess fees on those stations, although this breed of Internet broadcaster often receives no advertising revenue and is frequently limited to a couple dozen listeners at a time.

SHOUTcast (www.shoutcast.com) and Live365 (www.live365.com) are offering menus of these new MP3-based stations. Hundreds are available daily. Like regular radio, they run the gamut from punk to Puccini.

The streaming technique allows Internet listeners to hear music as it is pushed out of the site, eliminating the wait while files download. Radiomot (www.radiomot.com) just this year became the first site licensed to play MP3 music under the recently passed Digital Millennium Copyright Act.

Under the provision, the nascent Net radio stations must pay a statutory license fee to the record companies, something not required of traditional broadcast radio stations. Previously, Webcasters were also exempt because their broadcast covered



lively, customizable electronic screenings known as "skins," for those on-screen players.

Last week, the most popular downloads at Cnet's [www.download.com](http://www.download.com) were the new Macintosh MP3 players SoundJam MP and MacAMP.

Because downloading itself is not a crime, mega-search engines have cropped up to scan the Web by artist, track and album name. MP3 Friend ([www.mp3friend.com](http://www.mp3friend.com)) and Scout Net ([www.scout.net](http://www.scout.net)), for example, provide software that helps locate all sorts of files, legal and illegal.

Other sites — among them MP3 Now ([www.mp3now.com](http://www.mp3now.com)) and MP3.Com ([www.mp3.com](http://www.mp3.com)) — provide only authorized offerings from featured artists.

None of the Web search mechanisms can guarantee to return only sites that offer legal, downloadable tracks, however. Many have agreed to delist from their directories any site that violates copyright laws. They include the old-line search engine Lycos, which catalogs more than 500,000 files Netwide with its Fast MP3 Search service ([mp3.lycos.com](http://mp3.lycos.com)).

Still other MP3 sites have legitimized the format with innovative approaches.

MP3.Com, which raised at least \$344 million in an initial public stock offering last week, allows artists to post their songs and sells digital automatic music, or DAM — custom CDs made up of tracks that the user selects. The site splits profits 50-50 with the artists.

MP3.Com also attempts to attract artist submissions by region, but selection is spotty at best. The heavy metal group Megak, for example, is the only Dallas band represented.

Another site, Emusic ([www.emusic.com](http://www.emusic.com)), sells music tracks for 99 cents apiece.

**Underground movement**

Mr. Weekly says that only about 5 percent of the Internet traffic in MP3s is run through public areas on the Net.

"People perceive it as being intrinsic to the Web," he says. "That's really not the case anymore."

For many reasons, MP3 has moved underground, where it continues to proliferate.

Copyright laws allow an owner of a CD to shift the format of its content. In other words, they are permitted to use free MP3 encoding software on their computers to convert albums and save them as digital files on their hard disks for private use.

To the music industry, though, the digital format remains an untamed

## Methods of downloading

**World Wide Web** — Web sites are the best-known download channel for music distribution. However, the Web is often used simply to provide information and content in support of the actual download channel, which is usually File Transfer Protocol. The Web continues to lead as the main distribution channel for music files, bootlegged or legal.

**Hotline** — This is an application suite that allows anyone on the Internet to turn a personal computer into part of a virtual, Internet-based community. These communities are accessible via the Web but are not a part of it, and they cannot be located using traditional Web searches engines. Because setting up a Hotline server requires no special knowledge and the server resides on the user's PC, the average number of files on a Hotline server is greater than those on other online music distribution channels.

**IRC** — Short for Internet Relay Chat, IRC is one of the surviving technologies from the early, text-based days of the Internet. IRC remains one of the largest online chat networks, with an average of more than 20,000 simultaneous users spread across 15,000 chat rooms on 42 servers. Users can create and administer their own chat rooms and, on some servers, can write small programs called bots. Bots can be used to automatically trade files 24 hours a day. As one of the earlier Internet chat

SOURCE: MP3 Impact online magazine ([www.mp3impact.com](http://www.mp3impact.com))

systems, IRC is not particularly user-friendly nor is it likely to gain mass market acceptance. However, as more sites are shut down by labels and schools, the number of IRC chat rooms will probably increase.

**FTP** — Short for File Transfer Protocol, a system developed before the World Wide Web, for copying files from one computer to another. As such, it has no tools that lend themselves to marketing or promotions. The seamless integration of FTP in Web browsers allows MP3 site operators to use a Web site as the front-end of their FTP servers, where actual downloading takes place.

**ICO** — Pronounced "I seek you," this peer-to-peer application informs you when a specific user is online and enables you to contact and chat with them. It functions in much the same way as America Online's Instant Messenger and other Net pagers. Users use this channel to directly trade MP3 files from their private collections and/or to promote a Web, FTP, or Hotline-based server.

**Usenet** — Also called Usenet News or simply newsgroups, it is a massive network of more than 40,000 discussion groups on topics ranging from cat grooming to Hindu metaphysics. Usenet can also be used to distribute MP3s directly by posting MP3 files in the appropriate music or fan-related newsgroup. There is an application called NewsPlayer that has been specifically enhanced to collect MP3 files from newsgroups and download them overnight to a user's computer.

The Online Learning News: W. Mar Peckay

## "It is simply not fair to take someone else's music and put it online for free distribution."

— Hillary Rosen, president, RIAA

## "[MP3 is] a new way of doing things, and it's going to fundamentally change the way the Big Five record companies operate, whether they like it or not."

— Sidley Bello, publisher, online magazine, MP3 Impact

wherever they found unauthorized MP3 file trading in large volume.

The Recording Industry Association of America, armed with a new federal law, has had three full-time staffers sniffing out pirates and large-scale MP3 sites that have File Transfer Protocol, or FTP, servers. More than 250 sites were shut down as of April.

Will Komassa, a University of Wisconsin student forced to close his free FTP site, told the online service Wired News that the action by his university's network administrator was "akin to blatching at every eighth grader who taped MMBop off the radio."

Hillary Rosen, RIAA president and CEO, doesn't share such opinions. "It is simply not fair to take someone else's music and put it online for free distribution," she says. "No one wants their property taken from them and distributed without their threatened systems administrators

permission.

"Why should artists be treated any differently?"

Enforcement attempts have done little to stop MP3, however. Mr. Weekly, whose own music exchange site was forcibly shut down two years ago, says most of the traffic has gone underground.

Many traders of MP3 files have moved to the old Internet Relay Chat service, a technological hangover from the days when the Internet was text-based, to set up and administer chat rooms where file exchanges are arranged. Some IRC servers even allow bots, small programs that scan copy and automatically trade files around the clock.

Usenet groups are also being used to make contacts, and an application called NewsPlayer has been developed to collect MP3 files and download them overnight.

Another suite of programs, Hot-

except because they basically served as free promoters of the record industry's products.

Beyond that, the music industry is trying to develop its own standards for distributing digital music while protecting copyrights.

The Secure Digital Music Initiative, or SDMI, was formed last year by 150 recording industry and technology companies to develop an architecture and specification for rights management and licensing of digital music.

But since its inception, splinter groups have formed, impatient that the process was taking too long.

The SDMI drew strong reactions last week when it revealed that those specifications will limit how many times devices such as the Rio can record a track.

In a single downloading session, a consumer would be restricted to four digital copies of a single track off a CD. If a person needs to copy the MP3 file again, it must be re-copied from the original CD.

SDMI's goal is to reduce piracy by requiring that portable digital stereo systems include mechanisms to limit rampant conversion of CD music to MP3 and other digital formats.

That puts the organization potentially at odds with intellectual property laws establishing that content creators give up control over that content's use at the point of sale.

## Fight them or join them

But experts predict that the free MP3 model of music distribution will become even more attractive as Internet connections become faster.

According to InfoWeek's Technology User Profile, more than 121 million PCs had been installed in the United States by January. About 66 percent of those computers used a CD-ROM or DVD-ROM drive, and 56 percent of those 121 million PCs had Internet access.

In theory, the InfoWeek report concludes, more than 67 million PCs are ready and waiting to download music — legally or illegally — from the Internet.

"So here's the question for music executives: Would they rather have 99 percent of a \$1 billion market or 10 percent of a \$40 billion market? It's not a silly question," the InfoWeek report states.

"Piracy — or at least some piracy — may be the price the music industry has to pay for growing their business in a more open future," the report says.

Send e-mail to Doug Heddel at [doug@netfront.com](mailto:doug@netfront.com).

line, allows individual computers to be easily set up as servers away from the public portion of the Internet. Mr. Bello's MP3 Impact e-zine reports that more than 400 sites equipped with Hotline currently distribute MP3 files. More than half of them boast high-speed Internet connections that support lightning-quick downloads of massive amounts of MP3 data.

"MP3 doesn't have to hurt the industry. But it's a new way of doing things, and it's going to fundamentally change the way the Big Five record companies operate, whether they like it or not," Mr. Bello says.

## Worried industry

Computers have been the main source for downloading and playing the music files, but a host of new MP3 services and mechanisms are adding to the record industry's Internet music headache.

Diamond Multimedia has sold



1 of 9 DOCUMENTS

Marketing Week

January 20, 2000

## Internet gains higher ground

**SECTION:** Factfile; Pg. 40

**LENGTH:** 657 words

No technology has had such a rapid impact on our lives and businesses as the **Internet**. To put it into perspective, radio took 38 years to acquire 50 million listeners worldwide, TV 13 years. Even the PC took 16 years to reach this number. The Net achieved the same figure in four years.

The Net continues to grow at an exponential rate. As many people as live in the UK **gain** Net access every six months. Businesses have been quick to use it as a delivery channel to sell everything from books and clothes to cars and houses - commonly referred to as e-commerce.

Companies are looking at ways to make the technology work harder by distributing goods digitally. Unlike e-commerce, digital commerce is immediate as the consumer can download a product at the click of a mouse.

Whether it is music in an MP3 format, the latest anti-virus software, a new edition of a computer game or the most recent Mintel report, the Net can be used to distribute content digitally.

According to new research carried out on behalf of NatWest' digital commerce service Magex, businesses are recognising the potential of being able to receive payment for their content and building their brands on the Web.

Investment bank JP Morgan believes the market for digital content and online intellectual property is worth \$ 185bn (£116bn) and is projected to rise to \$ 275bn (£172bn) by 2003.

Digital commerce is not without its challenges, such as the well-publicised fear that the copyright of digital content could be infringed.

Digital music piracy cost was about \$ 4.5bn (£2.8bn) in 1998 and software piracy was about \$ 11bn (£6.9bn) in 1999, according to the Business Software Alliance.

The Intellectual Property Mess report, by technology research company Forrester, says digital content, including images, business information and business reports worth \$ 300bn (£188bn), is under threat from online piracy.

Technology was introduced in 1999 to address the secure and cost-effective collection and distribution of small payments through the Net.

Well-known names such as Microsoft, Intel and IBM have developed technology which protects digital content to various degrees. New names, such as InterTrust Technologies, are extending protection to new portable devices, for example, the Rio MP3 player, Sony Music Clip and WAP mobile phones.

One of the first major companies to explore digital commerce seriously is Universal Music Group (UMG), which has a 25 per cent share of the worldwide music market, with artists such as Bryan Adams, Sting and The Cranberries.

UMG is looking to maximise the Net's potential by allowing consumers to download and purchase enhanced music tracks, alongside sleeve notes, video footage and Web links, digitally.

UMG uses Intertrust Digital Rights Management to protect the copyright of artists' tracks and a clearing solution from Magex which allows consumers to pay instantly using an electronic wallet.

Mark Taylor, former managing director of Creation Records and founder of the YoYo Partnership, says: Until now, the music industry has been wary of the Net because of the severe problems piracy has presented.

Now, with the development of effective encryption and viable payment solutions, the industry can at last embrace the Net and use its potential to distribute music in truly imaginative ways.

As Net use continues to spiral globally, companies will be competing to build brands and businesses online. Digital commerce presents businesses with a unique opportunity to distribute content securely and efficiently.

Moreover, the direct, information-rich and versatile interaction offers new, and more subtle, ways to build stronger relationships than some conventional channels.

Behind the Net hype, marketing and business professionals can see a way to build profitable relationships based on enduring customer franchises in a wider market.

**LANGUAGE:** English

**LOAD-DATE:** January 19, 2000

**PUB-TYPE:** Magazine

Copyright 2000 Centaur Communications Ltd.

Napster Operates A Pirate Bazaar - RIAA .....2



## **Napster Operates A Pirate Bazaar - RIAA**

Sherman Fridman, Newsbytes  
488 words  
10 December 1999  
Newsbytes News Network  
NBYT  
English  
(c) 1999 Newsbytes News Network

LOS ANGELES, CALIFORNIA, U.S.A., 1999 DEC 10 (NB). The Recording Industry Association of America (RIAA), claiming the support of the overwhelming majority of its members, filed a lawsuit earlier this week in a US District Court against San Mateo, Calif.-based Napster Inc., saying Napster committed copyright infringement and violated related state laws.

The complaint filed by RIAA said Napster "is similar to a giant online pirate bazaar."

The lawsuit also accuses Napster of creating and operating an Internet haven for music piracy on an unprecedented scale.

"Napster is about facilitating piracy, and trying to build a business on the backs of artists and copyright owners," said Cary Sherman, senior executive vice president and general counsel for RIAA.

The complaint claims that through Napster's software, which is available as a free download, users can log on to its servers and make their personal MP3-format music collections available for download by others who access the site.

Napster claims that it simply is trying to promote unknown artists, and that it puts a copyright violation warning on its Website.

No royalties are paid to the artists whose music is downloaded at the Napster site, and the company does not charge any fee to viewers or users of its Website.

Napster Chief Executive Eileen Richardson told Newsbytes that the company was not making any money. However, Richardson flatly refused to discuss the company's business model and plans for making money in the future.

However, Richardson did confirm that she was disappointed in the RIAA lawsuit because attorneys on both sides had been working to resolve the dispute. "We were working hard, and in good faith," Richardson said.

Richardson said she was optimistic that the lawsuit would be resolved, but would not guarantee a resolution.

The RIAA, on the other hand, has alleged that the overwhelming majority of the millions of MP3 files being made available to users around the world by Napster were pirated.

Ron Stone, whose company represents many artists, including Bonnie Raitt, Tracy Chapman and Ziggy Marley, and supports the RIAA lawsuit, called the Napster Website, "(T)he most insidious Website I've ever seen... it's like a burglar's tool."

Sean "Puffy" Combs, CEO of Bad Boy Entertainment Inc., in a statement said that he couldn't believe that Napster was linking thousands of people to the new Notorious B.I.G. album, "Born Again," a week before it hit the streets.

Scott Stapp, lead singer and lyricist for "Creed," in the statement said that what Napster was doing was "... sneaking in the back door and robbing me blind."

Information about the RIAA is available at <http://www.riaa.com>.

Napster Inc.'s Website is at <http://www.napster.com>.

Reported by Newsbytes.com, <http://www.newsbytes.com>.

14:49 CST

Document nbyt000020010828dvca00c18

#### Search Summary

Text	"Napster Operates a Pirate Bazaar"
Date	All Dates
Source	All Sources
Author	All Authors
Company	All Companies
Subject	All Subjects
Industry	All Industries
Region	All Regions
Language	English
Results Found	1
Timestamp	23 April 2015 10:28





# A Life in the Opera

Living, Section B



# Manager for a day

Sports, Page 1C

Ken Griffey Sr.



# The Cincinnati Post

Final

WEDNESDAY, JUNE 16, 1999

50 Cents

## 5/3 will be No. 3 in Ind.

By Nick Miller  
Post staff reporter

Fifth Third Bancorp is about to become the third largest bank in Indiana by acquiring CNB Bancshares Inc. of Evansville.

CNB is the largest independent bank holding company in Indiana and is the parent of Civitas Bank.

The \$2.4 billion purchase is an extension

of Cincinnati-based Fifth Third's strategy of growing through acquisition, bank officials said today.

CNB has \$7.2 billion in assets, 145 banking offices and 700 automated teller machines — mainly in Indiana with some presence in Kentucky, Michigan and Illinois.

The CNB transaction will be a tax-free, stock-for-stock fixed exchange that is expected to close in this year's fourth quarter pending regulatory approval. It calls for 0.8825 shares of Fifth Third common stock to be exchanged for each outstanding share of CNB stock.

Fifth Third expects to achieve significant growth by pushing its larger portfolio of financial products through the Evansville

Please see BANK, 9A

### A buying spree

Fifth Third Bancorp has been on an acquisition spree. In the last year, it has acquired:

- Vanguard Financial Co., a commercial mortgage company based in Cincinnati.
- W. Lyman Case, a commercial mortgage company based in Columbus.
- Enterprise Federal Savings Bank in Cincinnati.
- South Florida Bank in Fort Myers, Fla.

Emerald Financial Corp., the parent of Strongsville Savings Bank, in Cleveland.

Ashland Bankshares Inc. of Ashland, Ky.

Citied Bancorp, the parent of Citizens Federal and Citied Mortgage, in Dayton, Ohio.

State Savings Co. of Columbus.



## Bone drug cuts risk of cancer

### Estrogen sub shows promise

Associated Press

CHICAGO — Medical researchers have found a dramatic drop in the risk of breast cancer for women who take an estrogen substitute prescribed to prevent brittle bones.

The three-year study of 7,705 women found a 76 percent lower risk of breast cancer among postmenopausal women taking Raloxifene compared with those given a placebo. The report was published in today's Journal of the American Medical Association.

"It's a very exciting beginning," said lead researcher Dr. Steven Cummings, a professor of medicine at the University of California at San Francisco. "But we've only had 3 1/2 to 4 years of experience with this. I think women should be cautious about any medications used for prevention."

Raloxifene is part of a new generation of drugs scientists hope will mimic the good effects of estrogen — stronger bones and a lower risk of heart disease — while inhibiting the possible harmful effects, which may include promoting breast and uterine cancer.

The University of Cincinnati Medical Center will coordinate local participation in a national study that will compare Raloxifene and another drug, Tamoxifen, to determine which works best in preventing breast cancer with the least side effects.

### A chill in June

After flirting with record heat last week, Cincinnati may see a record cool temperature this week. The National Weather Service and AccuWeather both predict a low of 50 degrees Friday morning. The record low for that date was 51 in 1974. Story, Page 16A.



Houses on Lakewater Drive are being rebuilt after the April 9 tornado that also knocked down trees in the adjacent UC Nature Preserve.

## Tornado victims find aid abundant

### Church sends money to Okla.

By Andrew Conte  
Post staff reporter

The tornado that bounced across the Cincinnati region in early April blew through the Montgomery Community Baptist Church, destroying a brand-new recreation center and causing \$1.75 million damage.

But when the time came for parishioners to rebuild, they raised enough money to restore the building — and

had enough left over to help tornado victims in Kansas and Oklahoma.

"We were able to send some of the funds that were over and above what we needed," said Debbie Handkins, associate pastor at the Symmes Township church. "God blessed us in such a way that we were able to help those folks."

That has been a common theme in the wake of the April 9 tornado: Donations have totaled into the hundreds of thousands and allowed relief agencies to pro-



Montgomery Community Baptist Church is rebuilding its education wing, which was damaged in the April 9 tornado that left a path of destruction throughout the area.

## TriHealth is hit by big loss

### Moody's changes its bond outlook

By Cliff Pease  
Post staff reporter

The partnership of Good Samaritan and Bethesda hospitals lost nearly \$15 million for the eight months ended in February, officials confirmed Tuesday.

The partnership, called TriHealth, was budgeted to make about \$3 million, but fell far below expectations, spokesman Jeff Blunt said. Its full fiscal year ends June 30.

Like many U.S. hospital groups, TriHealth is suffering from the effects of managed care and lower Medicare reimbursements, Blunt said.

"It's very indicative of the hospital market," Blunt said. "Reimbursements are dropping quickly. You can work on cutting costs, but the problem is with a hospital, quality has got to be the first thing you look at," he said.

TriHealth has already tried to cut costs. Last year, it eliminated about 400 positions in an effort to save about \$40 million. It employs about 7,000 now, Blunt said.

The confirmation of the losses came after Moody's Investors Service changed its outlook to "negative" from "stable" on bonds issued by Catholic Health Initiatives, the Denver-based owner of Good Samaritan. The change was based on heavy operating losses in several markets where CHI operates hospitals, including Cincinnati.

A bond rating generally refers to the credit quality of the organization that issued the bonds and can have an impact on how much the debt will cost them.

Reductions in federal Medicare reimbursements and the impact of managed care, which negotiates discounts on hospital prices, has affected many hospital groups around the country, said Kay Shifferman, a vice president and senior credit officer at Moody's.

In Greater Cincinnati, managed-

Please see HOSPITALS, 3A

### INSIDE THE POST

© Copyright 1999, The Cincinnati Post

3 sections, 44 pages	Local News 16A-18A
Ann Landers 2B	Lottery 18A
Business 8C-7C	People 22A
Classified 19A, 8C-13C	Race 4C
Comics 6B	Sports 1C-5C
Deaths 19A	Stocks 7C
Editorial 20A, 21A	Television 7B
Living 19-7B	Weather 2B

Portions of today's Post were printed on recycled paper.

Weather: Mossy sunny, dry today; high 71, low 55. Sunny, nice Thursday; high 73, low 53. Details, Page 2B.

Weatherline® 241-1070  
Sportsline® 721-0700  
Internet  
1090130101 http://www.cincinnati.com

## Reds farm system went to seed in late '80s

By Sean Keeler  
Post staff reporter

At the offices of Baseball America magazine, managing editor Will Lingo has heard just about every conceivable minor-league horror story.

Every franchise in Major League Baseball has a few skeletons.

Except the Reds.

The Reds have an army of the dead.



LAST FOUR PARTS

1998, just 33 were originally drafted by the Reds.

The only teams which sent fewer draftees to the majors than the Reds are the four expansion teams of the '90s.

What went wrong? Money. Specifically, money for scouting, the backbone of any player-development system. Owner Schott slashed staff. All they do is sit around and watch baseball games, she said. The Reds pulled scouts off the road for several months in 1994 and 1995.



Making young fans happy, Cincinnati Reds pitcher Pete Harnisch autographed baseballs Tuesday night.

Please see REDS, 4A



BUSINESS REPORT

LOS ANGELES

Gas station owners sue 3 major firms

Three major gasoline companies are trying to push independent service stations out of business by conspiring to fix prices, according to a lawsuit filed by a group of California station owners.

The federal antitrust suit filed Tuesday contends Shell Oil Co., Texaco Inc. and Sudd Refining Inc. have tried to use joint marketing agreements to fix prices while raising rents and the wholesale price dealers must pay for gas.

The lawsuit alleges that prices have been fixed since 1996 through joint refining and marketing ventures established by the companies. It seeks unspecified damages and to have the joint ventures dissolved.

The lawsuit alleges that prices have been fixed since 1996 through joint refining and marketing ventures established by the companies. It seeks unspecified damages and to have the joint ventures dissolved.

The lawsuit alleges that prices have been fixed since 1996 through joint refining and marketing ventures established by the companies. It seeks unspecified damages and to have the joint ventures dissolved.

Digital music recorders OK

Not long ago, digital copying of music from the Internet was the province of high-tech pirates. Gradually, the recording industry has come to terms with the fact that it cannot prevent a threat. And now a federal appeals court has given the process a legal stamp of approval.

The court upheld a federal judge's refusal last fall to issue an injunction sought by the Recording Industry Association of America. After losing the earlier ruling, the industry has sought to develop a version of the device that would prevent illicit copying.

Heinz profit up 12 percent

H.J. Heinz Co.'s profit before a restructuring charge rose nearly 12 percent for its fourth quarter based on strong growth in its core products, including the company's signature ketchup brand and its seafood division, which is based in Newport, Ky. The company reported a profit before the charge of \$219.4 million or 60 cents a share, for the three months ended April 28 compared to \$192.2 million or 51 cents a share in the same quarter a year ago.

Heinz said it sold 11 percent more ketchup in the fourth quarter, 6 percent more seafood and had higher sales at its weight loss clinics. Pet food sales, also based in Newport, fell 4 percent. For the year, Heinz reported income of \$1.65 billion or \$2.10 a share before charges compared to \$1.52 billion or \$2.15 a share a year earlier. With charges, Heinz earned \$474.3 million, or \$1.29 a share in the last year.

Reynolds Tobacco starts up

R.J. Reynolds Tobacco, the nation's second-biggest cigarette company, is expected to be a tougher competitor now that it's no longer a part of a heavily indebted food and tobacco conglomerate. The maker of Winston, Camel and Salem cigarettes began operating on its own Tuesday after being spun off from R.J.R. Nabisco Holdings Corp. The tobacco company had been the foundation for R.J.R. Nabisco and now trades on the New York Stock Exchange. The spinoff left R.J.R. Nabisco with an 80 percent stake in Nabisco Holdings Corp., which makes Oreo cookies and Planters nuts. So it remained food Nabisco Group Holdings Corp. and will also trade on the NYSE.

Report: patch helps sex drive

Middle-aged women who said their sex drives were stuck in park after they underwent hysterectomies found that a testosterone-laced skin patch increased their libidos, according to a new study. Women naturally produce the male sex hormone, which controls sexual desire, but that drops when the ovaries are removed. The study's primary author, Dr. Glenn Braunstein of Cedars-Sinai Medical Center in Los Angeles, presented the data Tuesday at the Endocrine Society's annual meeting. Cincinnati-based Procter & Gamble, which makes a testosterone patch for men experiencing sexual dysfunction, funded Braunstein's study to see whether similar patches would help women.

Prices remain calm

Consumer prices held steady in May following a major jump in April and the good news today set off a buying spree on Wall Street. Falling energy prices balanced rising food costs to help keep the Consumer Price Index flat last month, the Labor Department said. Core prices — which exclude the volatile energy and food categories — are the most closely watched by economists — rose a modest 0.1 percent as clothing and auto prices declined and medical and housing costs edged up.

Amazon.com, Sotheby's join

Internet superpower Amazon.com is investing about \$45 million for a 17 percent stake in Sotheby's, and they will cooperate in developing an on-line auction service that will sell art and collectibles. The centerpiece of the alliance will be a jointly run Web site that will be called sothebys.amazon.com.

Bottom Line

FINH Third Bancorp Tuesday declared a dividend of 20 cents per share on its common stock, 18 percent higher than the previous 17 cents per share. The dividend is payable on July 15, 1999, to shareholders of record as of June 30, 1999.

Midwest Payment Systems, a subsidiary of Fifth Third Bancorp, has renewed a five-year contract to provide electronic funds transfer and ATM processing services to Commonwealth Credit Union. Based in Frankfort, Ky., Commonwealth Credit Union has \$284 million in assets.

Ford Motor Co. plans to install satellite radio receivers in its vehicles that can tune in to 100 commercial-free channels delivered by CD Radio Inc. New York-based CD Radio plans to offer its programming for a monthly subscription fee of \$9.95.

Readers' choice NYSE

Table with columns: 52 week, Stock, PE, Last, Chg. Lists various stocks like AFLAC, AMER, ASA, etc.

Table with columns: 52 week, Stock, PE, Last, Chg. Lists various stocks like AMZN, ANET, ARB, etc.

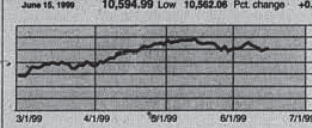
Table with columns: 52 week, Stock, PE, Last, Chg. Lists various stocks like BAC, BAX, BCI, etc.

Table with columns: 52 week, Stock, PE, Last, Chg. Lists various stocks like C, CAG, CAL, etc.

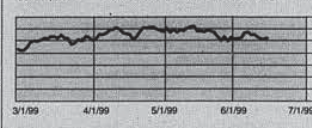
Table with columns: 52 week, Stock, PE, Last, Chg. Lists various stocks like D, DAI, DAL, etc.

Daily markets roundup

Dow Jones Close High 10,662.06 Net change +31.86 June 15, 1999 10,594.99 Low 10,562.06 Pct. change +0.30



S&P 500 Close High 1,310.75 Net change +7.16 June 15, 1999 1,301.16 Low 1,294.00 Pct. change +0.55



Stocks of local interest

Table with columns: 52 week, Stock, PE, Last, Chg. Lists various local stocks like A, AAL, ABB, etc.

Table with columns: 52 week, Stock, PE, Last, Chg. Lists various local stocks like B, BAC, BAX, etc.

Table with columns: 52 week, Stock, PE, Last, Chg. Lists various local stocks like C, CAG, CAL, etc.

Dow invigorated by inflation news

NEW YORK — Stocks moved sharply higher today, drawing strength from a consumer price report that calmed investor fears about inflation.

At 11 a.m. on Wall Street, the Dow Jones industrial average rose by 131.08, or 1.23 percent.

Broader stock indexes also rose. The Standard & Poor's 500 index was up 24.09 at 1,325.25, and the Nasdaq composite index rose 71.18 to 2,491.85.

The stock market jumped after the Labor Department reported that May consumer prices, excluding the volatile energy and food categories, rose a modest 0.1 percent. Clothing and auto prices declined, while medical and housing costs edged higher.

Technology stocks saw big gains. America Online rose 9% to 104 1/4, and Oracle rose 7 1/4 to 32 1/4.

Advancing issues outnumbered declining by a 2-to-1 margin on the New York Stock Exchange, where volume came to 268.8 million shares, up from Tuesday's pace.

The NYSE composite index was up 7.85 at 630.13, and the American Stock Exchange composite index was up 5.62 at 769.52.

Table with columns: 52 week, Stock, PE, Last, Chg. Lists various stocks like A, AAL, ABB, etc.

Table with columns: 52 week, Stock, PE, Last, Chg. Lists various stocks like B, BAC, BAX, etc.

Table with columns: 52 week, Stock, PE, Last, Chg. Lists various stocks like C, CAG, CAL, etc.

NASDAQ

Table with columns: 52 week, Stock, PE, Last, Chg. Lists various NASDAQ stocks like A, AAL, ABB, etc.

AMEX

Table with columns: 52 week, Stock, PE, Last, Chg. Lists various AMEX stocks like A, AAL, ABB, etc.

Most widely held stocks

Table with columns: STOCK, Last, Net Chg, Div, Div Yld. Lists common stocks like A, AAL, ABB, etc.

Biggest winners/losers

Table with columns: STOCK, WINNERS, LOSERS. Lists various stocks and their percentage changes.

Metals/dollar

Gold closed Tuesday in London at \$359.75, down \$1.55 in ounce. Silver closed on the New York Mercantile Exchange at \$5.64, down 5 cents.

Footnotes

Stock prices and volume are as of 4:00 p.m. Eastern time. All prices are in U.S. dollars unless otherwise noted. Dividend yields are based on the most recent dividend payment.



since 1996 through joint refining and marketing ventures established by the companies. It seeks unspecified damages and to have the joint ventures dissolved.

■ SAN FRANCISCO

### Digital music recorders OK

Not long ago, digital copying of music from the Internet was the province of high-tech pirates. Gradually, the recording industry has come to terms with a practice it once denounced as a threat. And now a federal appeals court has given the process a legal stamp of approval. In a 3-0 ruling Tuesday, the 9th U.S. Circuit Court of Appeals said a 1992 federal music piracy law does not prohibit a palm-sized device called MP3 that can download high-quality digital music files from the Internet and play them at home. The court upheld a federal judge's refusal last fall to issue an injunction sought by the Recording Industry Association of America. After losing the earlier ruling, the industry has sought to develop a version of the device that would prevent illicit copying.

■ PITTSBURGH

### Heinz profit up 12 percent

H.J. Heinz Co.'s profit before a restructuring charge rose nearly 12 percent for its fourth quar-

48%  
27%  
11%  
20%  
88%  
6%  
78  
-----  
67%  
30  
13%  
65%  
51%  
50%  
57%  
70  
-----  
42%  
26  
23  
31%  
98%  
50%  
48%  
53%  
-----  
49%  
59%  
12%  
52%  
53%  
49%  
46%  
30%  
-----  
40%  
29%  
104%  
51%  
57%  
122%  
43  
88%  
41%  
81%  
105%  
63%  
59%

11/15/99 PR Newswire 00:00:00

PR Newswire

Copyright (c) 1999 PR Newswire. All rights reserved.

November 15, 1999

Microsoft and BMG Move Digital Music Into Mainstream

REDMOND, Wash. and NEW YORK, Nov. 15 PRNewswire

Microsoft Corp.

(Nasdaq: MSFT) and BMG Entertainment today announced the launch of the BMG Artist Showcase program to promote BMG performers' use of Microsoft(R) Windows Media(TM) formats and the WindowsMedia.com media guide, part of the MSN(TM) network of Internet services. Downloadable digital music, streaming audio and music videos from two top BMG artists from around the world will be featured each month on the BMG Artist Showcase at WindowsMedia.com, exclusively in Windows Media formats.

The BMG Artist Showcase kicks off with The Artist (formerly Prince), who is currently making available a song for download as well as a streamed video and previews of songs from his new album, "Rave Un2 the Joy Fantastic." On Nov. 22, Foo Fighters will be featured in the showcase with music from their new album, "There Is Nothing Left to Lose."

Today's announcement builds on the recent collaboration between BMG and Microsoft to distribute music from 14 BMG artists on the Microsoft Windows(R) 98 Play Pack CD-ROM. The Play Pack CD-ROM is being distributed through nationwide retail locations this holiday season with Windows 98 Second Edition, the update to the popular Windows 98 operating system. This is the first time that popular music has been distributed with a Microsoft operating system.

"Together, the initiatives demonstrate an ongoing commitment by both BMG and Microsoft to bringing digital music to mainstream audiences around the world," said Will Poole, general manager of the Streaming Media Division at Microsoft. "BMG is a leader in the music industry in embracing new technologies to bring its artists and fans closer together. For the BMG Artist Showcase, BMG provides great artists and great content, and our superior Windows Media formats guarantee that fans will have the best-possible listening experience."

"The BMG Artist Showcase program and the Play Pack CD-ROM promotion

represent a significant expansion in efforts by BMG's worldwide marketing group to reach more music fans in a way that adds value to their music experience," said Kevin Conroy, senior vice president, Worldwide Marketing, BMG. "Our collaboration with Microsoft on efforts like the Artist Showcase and the Play Pack CD-ROM promotion brings important exposure to our artists and ensures that music fans benefit from the excellent audio and video quality of Microsoft Windows Media."

Technologies critical to the widespread adoption of digital music include high-fidelity compression, which makes it possible to stream music and videos across the Internet in real time, and content protection and rights management, which help artists and labels limit pass-around piracy. Windows Media offers both flexible digital rights management and state-of-the-art sound compression, providing CD-quality sound at half the file size of MP3, reducing disk space needs and doubling the speed of downloads.

Through the efforts of BMG's worldwide marketing team, BMG-distributed artists account for 14 of the 18 songs offered on Microsoft's Play Pack CD-ROM, which will be distributed to more than 8,000 retail outlets in North America. BMG artists on the CD-ROM include Brooks and Dunn, Puff Daddy, Dido, Eurythmics, Foo Fighters, Lit, Martina McBride, Sarah McLachlan, Beth Orton, Pink, The Verve Pipe and Barry White. The BMG Artist Showcase program will bring fresh content from two popular artists to consumers every month during the first half of 2000.

### About BMG Entertainment

BMG Entertainment is the \$4.6 billion worldwide music and entertainment division of Bertelsmann AG, one of the world's leading media companies, with annual revenues of \$16.4 billion. BMG owns more than 200 record labels in 53 countries, including Arista Records, RCA Records and Ariola Music. BMG also owns the world's largest music club, one of the world's largest music publishing companies, and has interests in television and compact disc and cassette manufacturing.

### About WindowsMedia.com

WindowsMedia.com ( <http://windowsmedia.com/> ), part of the MSN network of Internet services, is among the fastest-growing major audio and video guides on the Internet. WindowsMedia.com provides access to localized audio and video content worldwide, including major music and video events and entertainment from more than 1,000 radio stations and more than 1,000 content providers.

### About Windows Media Technologies

Windows Media Technologies is the leading digital media platform that provides consumers, content providers, solution providers, software developers and corporations with unmatched audio and video quality. Windows Media Technologies 4, which includes Windows Media Player, Windows Media Services, Windows Media Tools and the Windows Media SDK, is available for free\* download at <http://www.microsoft.com/windows/windowsmedia/>. More than 50 million copies of the free\* Windows Media Player have been downloaded to date -- growing by

more than one every second.

#### About Microsoft

Founded in 1975, Microsoft is the worldwide leader in software for personal and business computing. The company offers a wide range of products and services designed to empower people through great software -- any time, any place and on any device.

NOTE: \* Connect-time charges may apply.

Microsoft, Windows Media, MSN and Windows are either registered trademarks or trademarks of Microsoft Corp. in the United States and/or other countries. Other product and company names herein may be trademarks of their respective owners.

SOURCE Microsoft Corp.

NOTE TO EDITORS: If you are interested in viewing additional information on Microsoft, please visit the Microsoft Web page at <http://www.microsoft.com/presspass/> on Microsoft's corporate information pages.

CONTACT: press only, Bryan Taback, 503-443-7000, or [bryant@wagged.com](mailto:bryant@wagged.com), Ryan James, 503-443-7000, or [ryanj@wagged.com](mailto:ryanj@wagged.com), or Rapid Response Team, 503-443-7000, or [rrt@wagged.com](mailto:rrt@wagged.com), all of Waggener Edstrom, for Microsoft Corp.; or Dennis Petroskey of BMG, 212-930-4961, or [dennis.petroskey@bmg.com](mailto:dennis.petroskey@bmg.com)  
Web site: <http://www.microsoft.com>  
(MSFT)

#### ---- Index References ----

Company: **MICROSOFT** CORP; **BMG** ENTERTAINMENT

News Subject: (Major Corporations (1MA93); Digital Rights (1DI36); Intellectual Property (1IN75); Economics & Trade (1EC26))

Industry: (Software (1SO30); Internet Service Providers Equipment (1IN52); Application Software (1AP32); Internet Service Providers (1IN56); Multimedia Peripherals (1MU17); Application Software Development (1AP78); Software Products (1SO56); I.T. Regulatory (1IT67); Internet Servers (1IN10); E-Commerce (1EC30); I.T. Multimedia (1IT53); Audio Technology (1AU01); Internet Regulatory (1IN49); I.T. (1IT96); Internet Services (1IN96); Entertainment (1EN08); Multimedia Production, Graphics & Publishing Software (1MU67); Music (1MU57); Multimedia Software Applications Development (1MU49); Video in Software (1VI78); Streaming Audio & Video (1ST18); Internet (1IN27); Advanced Digital Technologies (1AD50); Software O/S Platforms (1SO68); E-Commerce Industries (1EC99); Audio Recording (1AU32))

Region: (North America (1NO39); Americas (1AM92); USA (1US73))

Language: EN

Other Indexing: (ARTIST; ARTIST SHOWCASE; **BMG**; **BMG** ARTIST SHOWCASE; **BMG** ARTISTSHOWCASE **BMG**; **BMG** ENTERTAINMENT; **BMG** ENTERTAINMENT **BMG** ENTERTAINMENT; BMGAND **MICROSOFT**; BMGARTIST SHOWCASE; CD; CD ROM; DIDO; DINNIS PETROSKEY OF **BMG**; DUNN; EURYTHMICS;

JOY FANTASTIC; MEDIA; **MICROSOFT**; **MICROSOFT** CORP; **MICROSOFT** FOUNDED; **MICROSOFT** WEB; **MICROSOFT** WINDOWS; MSN; NASDAQ: MSFT; PLAY PACK; PLAY PACKCD ROM; RAPID RESPONSE TEAM; RCA; ROM; STREAMING MEDIA DIVISION; VERVE PIPE; WINDOWS; WINDOWS MEDIA; WINDOWS MEDIA PLAYER; WINDOWS MEDIA SERVICES; WINDOWS MEDIA TECHNOLOGIES WINDOWS MEDIA TECHNOLOGIES; WINDOWS MEDIA TOOLS; WINDOWSMEDIA COM) (Ariola Music; Arista Records; Barry White; Beth Orton; Digital Music; Foo Fighters; Kevin Conroy; Martina McBride; Puff Daddy; Ryan James; Sarah McLachlan; Taback; Technologies; WindowsMedia; Worldwide Marketing)

Word Count: 1210

---

End of Document

© 2015 Thomson Reuters. No claim to original U.S. Government Works.

**NewsRoom**

MICROSOFT: Microsoft and Diamond Multimedia showcase Rio player in live demonstration of Windows Media .....

2



**MICROSOFT: Microsoft and Diamond Multimedia showcase Rio player in live demonstration of Windows Media**

722 words

16 November 1999

M2 PRESSWIRE

MTPW

English

(c) 1999 M2 Communications, Ltd. All Rights Reserved.

\* Rio Player's Support for Windows Media and Digital Rights Management Technology Highlighted at Webnoize

LOS ANGELES -- Microsoft Corp. (Nasdaq "MSFT") and Diamond Multimedia Inc., a division of S3 Inc. (Nasdaq "SIII"), today showcased at Webnoize the first live demonstration of Microsoft Windows Media Technologies 4 on a Secure Digital Music Initiative (SDMI)-capable portable music device. The third-generation Rio players will support Windows Media and Windows Media Digital Rights Management (DRM). This marks a significant step toward the mainstream adoption of secure digital media devices and software by consumers.

The Rio player and Windows Media deliver CD-quality audio from music files half the size of MP3 files. As a result, Rio users will be able to store twice the amount of CD-quality music compared to MP3 without adding extra memory. For the music industry, Windows Media features DRM technology, which provides a secure format for protected distribution of music over the Internet or between PCs and portable devices.

"The success of our Rio players has helped fuel the growth of music online," said Mike Reed, director of marketing for Diamond Multimedia. "This rapid growth will continue with music from top artists once labels are able to protect digital music from piracy. Microsoft and Diamond Multimedia have taken a leadership role in enabling protected music with Windows Media format, Digital Rights Management technology and the third-generation Rio players."

The third-generation Rio player will include software with built-in support for Windows Media Device Manager technology. This new Windows Media technology, combined with Microsoft DRM technology, allows secure Windows Media-based music files downloaded from the Internet to be transferred to a Rio player while preventing replication of the music to other PCs and media storage. Once the customer obtains the rights to the music, the use and transfer of that music is limited to his or her personal use.

"The third-generation Rio player is the first SDMI-capable device using Windows Media ever demonstrated, setting it apart from other players of its kind," said Anthony Bay, vice president, Streaming Media Division at Microsoft. "Coupled with Diamond's proven history of developing wildly popular players such as the Rio PMP 300 and the Rio  
Page 2 of 4 © 2015 Factiva, Inc. All rights reserved.



500, the third-generation Rio players are an obvious choice for demonstrating the secure capabilities of Windows Media."

Microsoft and S3's Diamond Multimedia will continue to showcase this new functionality this week in Los Angeles at Webnoize and in Las Vegas at COMDEX/Fall '99.

#### About Windows Media Technologies

Windows Media Technologies is the leading digital media platform and provides consumers, content providers, solution providers, software developers and corporations with unmatched audio and video quality. Windows Media Technologies 4, which includes Windows Media Player, Windows Media Services, Windows Media Tools and the Windows Media SDK, is available for free\* download at <http://www.microsoft.com/windows/windowsmedia/>. More than 50 million copies of the free\* Windows Media Player have been downloaded to date -- growing by more than one every second.

#### About Diamond Multimedia

Recently acquired by S3 Incorporated, Diamond Multimedia has been the leader in digital music players and home networking since its introduction of the Rio player in November 1998 and the HomeFree product line in January 1999.

#### About S3

Building on the technology, distribution and brand strengths of its Communications, Multimedia and Professional Graphics divisions, S3 is committed to delivering targeted products for the personal computer and consumer/Internet appliance markets. Rounding out its PC silicon offerings, S3's recent acquisition of Diamond Multimedia adds consumer brands such as the Viper and Stealth series of graphics accelerators, Rio series of Internet audio appliances, the Supra series of modems and the HomeFree line of home networking products.

#### About Microsoft

Founded in 1975, Microsoft is the worldwide leader in software for personal and business computing. The company offers a wide range of products and services designed to empower people through great software -any time, any place and on any device. Note to editors: If you are interested in viewing additional information on Microsoft, please visit the Microsoft Web page at <http://www.microsoft.com/presspass/> on Microsoft's corporate information pages.

\*M2 COMMUNICATIONS DISCLAIMS ALL LIABILITY FOR INFORMATION PROVIDED WITHIN M2 PRESSWIRE. DATA SUPPLIED BY NAMED PARTY/PARTIES.\*

Document mtpw000020010828dvbg01cd9

Page 3 of 4 © 2015 Factiva, Inc. All rights reserved.

### Search Summary

Text	"Microsoft and Diamond Multimedia Showcase"
Date	All Dates
Source	All Sources
Author	All Authors
Company	All Companies
Subject	All Subjects
Industry	All Industries
Region	All Regions
Language	English
Results Found	1
Timestamp	23 April 2015 10:23

INTERNET ARCHIVE  
**WayBackMachine**  
157 captures  
15 Jan 98 - 7 Jul 14


http://www.ascap.com/licensing/about.html

OCT MAR MA  
1999 2000 200

SEARCH: GO

The American Society of Composers, Authors and Publishers

Playback | Art & Commerce | Membership | ACE on the Web | Licensing | Legislative | News



# ASCAP Licensing

american society of composers, authors and publishers

## ASCAP

### Since 1914 the Leader in Music Licensing

**ASCAP licenses the right to perform songs and musical works created and owned by songwriters, composers, lyricists and music publishers who are ASCAP members and members of foreign performing rights organizations who are represented by ASCAP in the United States.** It is impossible for individual composers and publishers to monitor the hundreds of thousands of businesses that use music. It would be equally difficult, time consuming and expensive for business owners to locate and negotiate with all the owners of the music that might be used. There is a simple, fast and reasonably priced alternative. Through ASCAP, in one simple transaction, businesses can obtain the right to perform the millions of songs created or owned by more than 80,000 of America's and hundreds of thousands of the world's best songwriters, composers, lyricists and publishers. Founded in 1914, and still owned by and managed for its writer and publisher members, ASCAP grants businesses the permission they need to perform music publicly. The money collected is distributed, after deducting operating costs (approximately 16.5%), directly to ASCAP members and to affiliated foreign performing rights organizations for their members.

**Music is a vital part of the total service businesses offer to customers.** ASCAP's licensees recognize that using music benefits their businesses because music, like other amenities or products, pays off in heightened customer satisfaction, increased profits, and improved employee morale and productivity.

**Tens of thousands of businesses find the ASCAP license the most convenient and economical way to gain access to the bulk of America's finest music.** ASCAP's customers include major television networks, local television and radio stations, cable and satellite networks and systems, public broadcasters, internet web sites colleges and universities, night clubs, taverns and restaurants, background music services, fitness and health clubs, private clubs, hotels, conventions and trade shows, concert presenters, dance halls, shopping centers and malls, theme and amusement parks, airlines, skating rinks, retail stores, and music users in a



wide variety of other industries. There are over one hundred different ASCAP rate schedules covering almost all businesses that perform music. **See the complete list of ASCAP license types** on this website. The fees for similar businesses with the same type of usage are the same, but the fees vary among the different industries. For example, a local radio station will pay a lower fee than a television network; a neighborhood tavern pays much less than a Las Vegas hotel.

## WHAT ASCAP LICENSES

You drive to work with the radio on, listening to music carefully chosen by a radio station to keep you tuned in for the ads it sells;

Theme music identifies your favorite television program and background music stimulates your reaction to car chases and love scenes, medical emergencies and family reconciliations;

The music tempo is used to influence your buying decisions at the supermarket, clothing or other store;

At a nightclub, music creates that party atmosphere;

Music on hold makes the time you are on hold pass more quickly and pleasantly;

Have you ever been at a restaurant and wondered why it was so uncomfortable only to later realize it was because you thought everyone could overhear your conversation? Music surrounds you, creating the privacy you desire.

Music sets the mood and helps emphasize a corporation's message at company events on or off premises such as management conferences, sales meetings and training seminars. Imagine a company picnic, holiday or retirement party without music.

Those are all public performances. Business owners recognize that because music so strongly affects people, it can also help make their business successful. And, like other products, music is not free.

Whenever music is performed publicly the songwriter and music publisher, who created and own that music, have the right to grant or deny permission to use their property and to receive compensation for that use.

## WHAT ASCAP DOES NOT LICENSE

ASCAP **does not** license "**dramatic**" rights, sometimes called "grand" rights. ASCAP members who write musical plays, operas or ballet scores deal directly with those who want to perform their works "dramatically." The ASCAP license **does** authorize non-dramatic performances of songs from dramatic productions. For example, our bar/nightclub license authorizes a piano-bar

performance of an individual song from a Broadway show.

ASCAP **does not** license the **right to record** music on a CD or tape or as part of a multi-media or an audio-visual work such as a motion picture, video or television program. Those rights, known in the music industry as mechanical and synchronization(or "synch") rights, are licensed by writers or publishers.

ASCAP **does not** license the **right to print** copies of musical works, nor does it license rights to make adaptations or arrangements.

ASCAP **does not** license rights for recording artists, musicians, singers or record labels. However, **artists or musicians who are songwriters can become ASCAP members.** ASCAP licenses the performance rights for the music of ASCAP members.

## **ASCAP Licensing**

[ASCAP HOME](#) | [PLAYBACK MAGAZINE](#) | [ART & COMMERCE](#) | [MEMBERSHIP](#)  
[ASCAP'S ACE ON THE WEB](#) | [LICENSING](#) | [LEGISLATIVE](#) | [NEWS](#)  
[SEARCH ASCAP](#) | [SITE GUIDE](#)

Copyright 1999-2000 ASCAP | [Privacy Policy](#) | <http://www.ascap.com> | [info@ascap.com](mailto:info@ascap.com)  
Reproduction or use of editorial or pictorial content in any manner is strictly prohibited  
without express written permission from ASCAP.

INTERNET ARCHIVE  
**WayBackMachine**

216 captures  
15 Jan 98 - 15 Sep 14

http://www.ascap.com/licensing/licensingfaq.html


Go

OCT MAR M  
2  
1999 2000 20

SEARCH: GO

The American Society of Composers, Authors and Publishers

Playback | Art & Commerce | Membership | ACE on the Web | Licensing | Legislative | News



# ASCAP Licensing

american society of composers, authors and publishers

## Frequently Asked Questions About Licensing

**ABOUT LICENSING ... BROADCAST ... RADIO ... TELEVISION ... GENERAL**

### QUESTIONS ABOUT LICENSING

#### 1. Why should I pay for playing music in public?

- 2.
- 3.

1. Music is property that belongs to those who create or publish it. We often use the expression "they're playing my song," not always remembering that while we may have emotionally adopted the song, it is still legally belongs to the songwriter who created it, and the music publisher who markets it. When you use other people's property, you need to ask permission.

Writers and publishers earn their living from commercial uses of their songs. Payment they receive from "**public performances**" is their primary source of income. If they were not paid, they would have to look for other work and the world would be deprived of great and new music.

#### 2. What is a public performance?

- 3.
- 4.

5. A **public performance** is one that occurs either in a public place or any place where people gather (other than a small circle of a family or its social acquaintances.) A public performance is also one that is transmitted to the public by, for example, radio or television, music-on-hold, cable television or over the Internet.

Generally, those who publicly perform music obtain permission from the owner of the music or his representative. However, there are a few limited exceptions, (called "exemptions") to this rule. Permission is not required for music played or sung as part of a worship service unless



that service is transmitted beyond where it takes place (for example, a radio or television broadcast). Performances as part of face to face teaching activity at a non-profit educational institutions are also exempt.

We recommend that you **contact your local ASCAP representative** who can discuss your needs and how ASCAP can help you.

**6. I bought the record or sheet music. Why do I need permission to perform the music?**

7.

8.

9. Copyright owners enjoy a number of different rights including performance rights, print rights and recording rights. Rental or purchase of sheet music or purchase of records does not authorize its public performance.

**10. I want to record or videotape a song or record. Do I need permission, and how do I obtain it?**

11.

12.

13. **ASCAP does not license recording rights.** If you want to make copies of, or re-record an existing record, tape or CD, you will probably need the permission of both the music publisher and the record label. A music publisher owns the song (that is, the words and music) and a record company owns the "sound recording" (that is, what you hear .. the artist singing, the musicians playing, the entire production).

If you plan to hire your own musicians and singers and create an original recording of a copyrighted song, then you need the permission of only the music publisher.

Recording rights for most publishers are represented by the Harry Fox Agency:

Harry Fox Agency, Inc.  
711 Third Avenue  
New York, N.Y. 10017  
Tel: (212) 370-5330  
Fax: (212) 953-2384  
<http://www.nmpa.org/hfa.html>

The name and address of the record company should appear on the record label. The Recording Industry Association of America, a trade organization for record labels, can provide you with more information on the rights of record labels.

Recording Industry Association of America (RIAA)  
1020 19th St. NW, Suite 200  
Washington, D.C. 20036  
Tel: (202) 775-0101  
Fax: (202) 775-7253  
<http://www.riaa.com>

**14. Where does the money go?**

15.

16.

17. Quite simply, to our members. All the fees we collect are distributed as royalties, after deducting operating expenses (approximately 16.5%).

**Information on the distribution systems is available in the Membership area.**

18.

**19. What songs are in the ASCAP repertory?**

20.

21.

22. ASCAP represents works of all genres from all over the world. Check out **ACE (ASCAP Clearance Express)**, ASCAP's searchable database of performed works, and writer, publisher and recording artist information.

**TOP**

## **ASCAP BROADCAST LICENSING**

**1.**

**2. What does the ASCAP Radio or Television License give you?**

3.

- 4.
- Access to every variety of music you need to attract and entertain your listeners.
  - The immediate right to perform great new music written or published by our members.
  - Access to perform music in the repertories of nearly 60 affiliated foreign societies.
  - The right to perform music in commercials and jingles.
  - **An indemnity** if a claim for infringement is made against you, your staff or your advertisers based on the performance of our member's works.
  - A fee that has not increased in 11 years, even though the ASCAP repertory has grown.

**5.**

## 6. What doesn't the ASCAP broadcast license do?

7.

8.
  - o The ASCAP license does not provide the right to authorize retransmissions of broadcasts of ASCAP music over loudspeakers in stores, restaurants or other locations open to the public, or by means of music-on-hold systems.
  - o The ASCAP license does not provide the right to record copyrighted music, or change the lyric of a copyrighted work and use it in a commercial jingle or station promotion. These are known as "mechanical" and "synchronization" rights and you should deal directly with the copyright owners for permission to record music or change a song. You may also want to contact the Harry Fox Agency at (212) 370-5330.

[TOP](#)

## ASCAP RADIO LICENSING

1.

### 2. How are radio fees determined?

3.

4. ASCAP's license fees for radio are the product of negotiations between ASCAP and an industry-wide committee, the Radio Music License Committee (RMLC), which is appointed by the National Association of Broadcasters. All the of the Committee's members are broadcasters, and represent the entire spectrum of the radio industry. While a court is available to determine fees if necessary, over the years ASCAP and the committee have always been able to agree on license fees and terms.

5.

### 6. What is the term of the radio license?

7.

8. ASCAP and the current RMLC-negotiated license agreements cover the period January 1, 1996 through December 31, 2000.

9.

### 10. What is the cost of an ASCAP radio license?

11.

12. ASCAP offers two types of license agreements for **commercial radio stations**.

The **Blanket License** is intended for stations which broadcast music frequently. The annual fee is a percentage of the station's annual



revenues and is billed monthly. The rate for 1996 through 2000 is 1.615% for stations that have annual gross revenue over \$150,000 or a minimum of 1% of adjusted gross income. For stations that bill less than \$150,000 there is a flat fee schedule:

> 50,000	\$ 450
50,0001 - 75,000	800
75,001 - 100,000	1,150
100,001 - 125,000	1,450
125,001 - 150,000	1,800

The **Per Program License** is primarily used by stations that use less copyrighted music, such as those with News/Talk formats. Under this license a station pays a base fee which covers incidental uses of music (such as jingles, themes, background music or signatures), plus an additional fee for "feature" music uses.

The base fee is .24% of Adjusted Gross Revenue. (Adjusted Gross Revenue is gross revenue less certain deductions such as Advertising Agency Commissions, Bad Debts or Net Revenue for Political Broadcasts.) The additional fee for "feature" uses has two components: a rate of 4.22% applies to a station's first 10% of weighted hours subject to fee up to a maximum of 400 hours. (A weighted hour is the time of broadcast weighted for the time period. For example, programs broadcast during weekday mornings have a greater weight than programs broadcast during the weekends.) The rate for all additional hours that are subject to fee is 2.135%.

Overall, under the new terms, stations who use ASCAP music in up to 55% of their programs schedule will pay a lower fee on the per program license than on a blanket agreement.

**Noncommercial radio stations** pay an annual fee determined by the U.S. Copyright Office. Contact your ASCAP representative for this year's rate.

**TOP**

## **ASCAP TELEVISION LICENSING**

- 1.**
- 2. How does ASCAP license broadcast television?**
- 3.**
4. ASCAP licenses several elements of the broadcast TV industry including the three major networks (ABC, CBS, NBC), the approximately 1,000 local commercial television stations, the Public Broadcasting System (PBS) and will soon offer a license to low power television (LPTV)

stations.

**5.**

**6. How are the networks and PBS licensed?**

7.

8. Each of the networks have negotiated **blanket** license agreements with ASCAP.

**9.**

**10. How are local television stations licensed?**

11.

12. The local stations may choose between two license types -- Blanket or Per Program. Both licenses give the user full access to the ASCAP repertory. However, the Per Program License requires the licensee to report to us the music content of all of its local and syndicated programs (non-network) on a monthly basis, and the fee is based in part on that report.

**13.**

**14. How are fees calculated?**

15.

16. An industry-wide flat dollar annual fee has been negotiated between ASCAP and the Television Music License Committee, which is made up of representatives from local television stations. The industry wide fee is adjusted annually based upon the number of licensed stations in the country and changes in the Consumer Price Index. The industry wide fee is then allocated among individual stations, in accordance with a methodology devised by the Committee (and approved by a federal court) to produce each station's annual blanket license fee.

There are two steps to the Committee's allocation formula. First, the industry wide fee is divided among all the television or "ADI " (Areas of Dominant Influence) markets across the country. For example, Omaha is a market; Dallas-Fort Worth is a market. The share of the total for each market is weighted according to size. The Dallas-Fort Worth market is weighted higher than Omaha, for instance, because Dallas-Fort Worth has more stations and more viewers. The result is that total fees paid by all of the stations in the Dallas market are greater than total fees paid by all of the stations in the Omaha market.

Once the total fee for a market has been calculated, it is allocated to the individual stations in that market. This allocation is based on verified household ratings: that is, how many people watch each station. A highly rated station in a market will therefore pay a greater fee than a station with a low rating. And, overall, a highly rated station in a large market will have a higher blanket fee than a highly rated station in a small market.

**17.**

**18. How is the Per Program fee different than the Blanket fee?**

19.

20. All stations electing the Per Program license use their allocated **blanket fee** as a part of the calculation of their monthly Per Program fee. Each per program licensee reports the music content and the advertising revenue associated with each of its local and syndicated programs on a monthly basis. The station's monthly per program fee is determined in part by the amount of ASCAP music in those programs and the amount of revenue generated by those programs for the station. The per program fee also includes an "incidental use" component which is 15% of the station's allocated blanket fee. Monthly per program reports must be submitted electronically. No paper reports are accepted.

•

• **Can a station switch from one license to the other?**

•

- Stations can switch license types twice in a calendar year, so the numbers vary from month to month. Generally, about 12 % of the local television industry has chosen the per program option.

•

• **What reporting requirements are there for blanket licensees?**

•

- None. Stations operating under the blanket license do not have to submit reports to ASCAP in order to determine their fee because the fee is not based upon actual usage.

•

• **How do I know which of the two licenses is right for my station?**

•

- Call an ASCAP broadcast licensing representative toll free at **1-800-99-ASCAP**. We will be happy to explain in greater detail the options available to you. Each station should choose the license most advantageous for its needs.

[TOP](#)

## **ASCAP GENERAL LICENSING**

1.

2. **I'm interested in playing music in my restaurant or other business. I know that I need permission for live performances. Do I need permission if I am using only CD's, records, tapes, videos?**

3.

4. Yes, you will need permission to play CD's, records, tapes or videos in your establishment.

[Contact ASCAP](#)



A representative will get in touch with you.

5.

**6. Do I need permission to use radio or TV in my establishment?**

7.

8. ASCAP's licenses with radio and television stations and cable and satellite services do not cover their performances in public establishments. Whether you need permission for radio and television transmissions in your business usually depends on the size of your business, the number of speakers used, the number of televisions used (and their screen size), whether the reception is further transmitted, whether there is an admission or other charge and whether the original transmission is properly licensed.

Two types of music users do not require licenses for radio and TV reception: a **food service or drinking establishment** (defined as "a restaurant, inn, bar, tavern, or any other similar place of business in which the public or patrons assemble for the primary purpose of being served food or drink, in which the majority of the gross square feet of space that is nonresidential is used for that purpose, and in which non-dramatic musical works are performed publicly") and an **other establishment** (defined as "a store, shop, or any similar place of business open to the general public for the primary purpose of selling goods or services in which the majority of the gross square feet of space that is nonresidential is used for that purpose, and in which non-dramatic musical works are performed publicly").

**A food service or drinking establishment** is eligible for the exemption if it (1) has less than 3750 gross square feet of space (in measuring the space, the amount of space used for customer parking only is always excludable); or (2) has 3750 gross square feet of space or more and (a) uses no more than 6 loudspeakers of which not more than 4 loudspeakers are located in any 1 room or adjoining outdoor space; and (b) if television sets are used, there are no more than 4 televisions, of which not more than 1 is located in any 1 room and none has a diagonal screen size greater than 55 inches.

**An other establishment** is eligible for the exemption if it (1) has less than 2000 gross square feet of space; or (2) has 2000 or more gross square feet of space and satisfies the same loudspeaker and television set requirements as for food service or drinking establishments. Your ASCAP licensing manager can discuss your needs and advise how ASCAP can help you.

You may also wish to consult your own attorney if you have questions about this or other exemptions under the Copyright Law.

9.

**10. How much will it cost to obtain an ASCAP license to perform music?**

11.

12. The annual rate depends on the type of business. Generally, rates are based on the manner in which music is performed (live, recorded or audio/visual) and the size of the establishment or potential audience for the music. For example, rate factors for restaurants, nightclubs, bars and similar establishments include whether the music is live or recorded, audio only or audio visual, the seating capacity of the bar or restaurant, the number of nights per week music is offered, the number of musicians, whether admission is charged, etc.

Concert rates are based on the seating capacity of the facility and the highest ticket price. Rates for music used by corporations ("Music In Business") are based upon the number of employees. Retail store rates depend on the number of speakers; hotel rates are based on a percentage of entertainment expenses and an additional charge for recorded music .

Because ASCAP has over one hundred different licenses and rate schedules, one will likely fit your needs. ASCAP operates under the principle that similarly situated licensees should be treated similarly. This assures fairness and consistency in our licensing. For example, rates for restaurants of the same size, with the same use of music are the same regardless of whether the restaurant is in Oshkosh or New York City.

**13.**

**14. I want to use music-on-hold in my business. Do I need permission?**

15.

16. Yes. When you place a caller on hold and transmit music via your telephone lines, that is a **public performance** of the music. It is your responsibility to obtain permission to perform ASCAP songs from ASCAP or directly from the copyright owner.

**17.**

**18. Do I need permission to perform music as part of a presentation in class or at a training seminar?**

19.

20. If the performance is part of face to face teaching activity at a non-profit educational institution, permission is not required. Permission is required when music is used as part of training seminars, conventions, speeches or other commercial presentations.

**TOP**

## **ASCAP Licensing**

**[ASCAP HOME](#) | [PLAYBACK MAGAZINE](#) | [ART & COMMERCE](#) | [MEMBERSHIP](#)  
[ASCAP'S ACE ON THE WEB](#) | [LICENSING](#) | [LEGISLATIVE](#) | [NEWS](#)  
[SEARCH ASCAP](#) | [SITE GUIDE](#)**

**Copyright 1999-2000 ASCAP | [Privacy Policy](#) | <http://www.ascap.com> | [info@ascap.com](mailto:info@ascap.com)  
Reproduction or use of editorial or pictorial content in any manner is strictly prohibited  
without express written permission from ASCAP.**







## Performing-Right Payments

One of the greatest sources of long- and short-term income for songwriters and publishers is the money in royalty payments received from performing rights societies around the world. Of the \$2-billion-plus generated worldwide each year, the U.S. organizations account for approximately \$900 million in collections, with writer- and publisher-owned ASCAP accounting for 55% of the total. These organizations negotiate license-fee agreements with the users of music (radio and TV stations, cable stations, concert halls, wired music services, airlines, etc.), which give the user the right to perform the music and lyrics of any member of these organizations. The license fees collected are then distributed to the writers and publishers whose works are performed in these various areas. This *performing right* is one of the most important rights granted by a country's copyright laws. It's based on the concept that a writer's creation is a *property right* and that a license must be acquired by *any* user of music in order for that user to perform a copyrighted musical work.

In the United States, the primary types of music use which generate performance royalties are feature performances (a visual vocal or visual instrumental on TV, a radio performance of a song, etc.), background music on television series, specials, movies of the week and feature films, theme songs to TV series, TV logos and promos, advertising jingles, and copyrighted arrangements of public-domain compositions. The value of each type of music use varies depending on which performing-right organization the writer and publisher belong to. Complicating matters further is the fact that two of the three organizations (ASCAP being the exception) change their payment rules without notice to their writers and publishers. Considering these numerous variables and nuances, it should be obvious that knowledge of the U.S. rules is absolutely essential for any creator, representative, or publisher.

The financial importance of the performing-rights area cannot be overemphasized -- the fact is, a fortune can be made from a single composition. For example, in just a few years, the #1 song of the year can generate a \$2-million writer and publisher payout, a successful TV series theme song can generate numbers in excess of \$1.5 million over a 10-year period, and the background score of a top box-office film can generate well over \$2 million in performance income during its copyright life. Although most writers never achieve this level of success, it's helpful to know what is possible at the top end.

**...CD, Tape and Record Sales**

... [Intro](#) / [Performing-Right Payments](#) / [CD, Tape and Record Sales](#) / [Controlled Composition Clauses...](#)  
...[Television](#) / [Motion Pictures](#) / [Home Video](#) / [Commercials](#) / [Broadway Musicals](#) ...  
... [Recording Artist Royalties](#) / [Foreign Country Royalties](#) / [Finally...](#)

---

## **Art and Commerce**

---

[ASCAP HOME](#) | [PLAYBACK MAGAZINE](#) | [ART & COMMERCE](#) | [MEMBERSHIP](#)  
[ASCAP'S ACE ON THE WEB](#) | [LICENSING](#) | [LEGISLATIVE](#) | [NEWS](#)  
[SEARCH ASCAP](#) | [SITE GUIDE](#)

Copyright 1999 ASCAP | <http://www.ascap.com> | [info@ascap.com](mailto:info@ascap.com)  
Reproduction or use of editorial or pictorial content in any manner is strictly prohibited  
without express written permission from ASCAP.



US005778187A

# United States Patent [19]

Monteiro et al.

[11] Patent Number: **5,778,187**

[45] Date of Patent: **Jul. 7, 1998**

- [54] **MULTICASTING METHOD AND APPARATUS**
- [75] Inventors: **Antonio M. Monteiro; James F. Butterworth**, both of New York, N.Y.
- [73] Assignee: **Netcast Communications Corp.**, New York, N.Y.
- [21] Appl. No.: **644,072**
- [22] Filed: **May 9, 1996**
- [51] Int. Cl.<sup>6</sup> ..... **H04L 12/00**
- [52] U.S. Cl. .... **395/200.61; 370/351**
- [58] Field of Search ..... **395/200.15, 285, 395/200.61; 348/7, 10, 12, 16, 17; 370/351, 355**

D.P. Brutzman et al., "MBONE Provides Audio and Video Across the Internet." *IEEE Computer*, vol. 27, No. 4, pp. 30-36 (Apr. 1994).

PCT International Search Report, International Application No. PCT/US97/07893.

*Primary Examiner*—Emanuel Todd Voeltz  
*Assistant Examiner*—Thomas Peeso  
*Attorney, Agent, or Firm*—Pennie & Edmonds LLP

## [57] ABSTRACT

A scalable architecture is disclosed for delivery of real-time information over a communications network. Embedded into the architecture is a control mechanism that provides for the management and administration of users who are to receive the real-time information. In the preferred embodiment, the information being delivered is high-quality audio. However, it could also be video, graphics, text or any other type of information that can be transmitted over a digital network. Preferably, there are multiple channels of information available simultaneously to be delivered to users, each channel consisting of an independent stream of information. A user chooses to tune in or tune out a particular channel, but does not choose the time at which the channel distributes its information. Advantageously, interactive (two-way) information can be incorporated into the system, multiple streams of information can be integrated for delivery to a user, and certain portions of the information being delivered can be tailored to the individual user.

## [56] References Cited

### U.S. PATENT DOCUMENTS

5,105,184	4/1992	Pirani et al.	345/115
5,220,501	6/1993	Lawlor et al.	364/408
5,283,731	2/1994	Lalonde et al.	364/401
5,305,195	4/1994	Murphy	364/401
5,319,455	6/1994	Hoarty et al.	348/7
5,347,632	9/1994	Filepp et al.	395/200
5,361,256	11/1994	Doeringer et al.	370/60
5,414,773	5/1995	Handelman	380/49
5,446,919	8/1995	Wilkins	455/52
5,493,514	2/1996	Keith et al.	364/514 R
5,604,542	2/1997	Dedrick	348/552
5,617,565	4/1997	Augenbraun et al.	395/604

### OTHER PUBLICATIONS

K. Savetz et al. *MBONE Multicasting Tomorrow's Internet* (IDG Books WorldWide Inc., 1996), Chapters 1-3; Appendixes A and B.

51 Claims, 23 Drawing Sheets

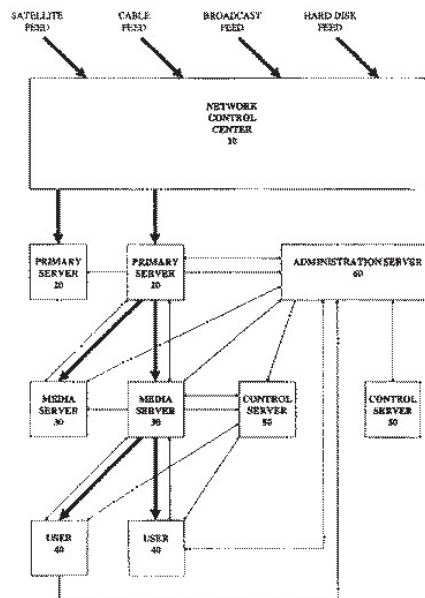




FIGURE 1

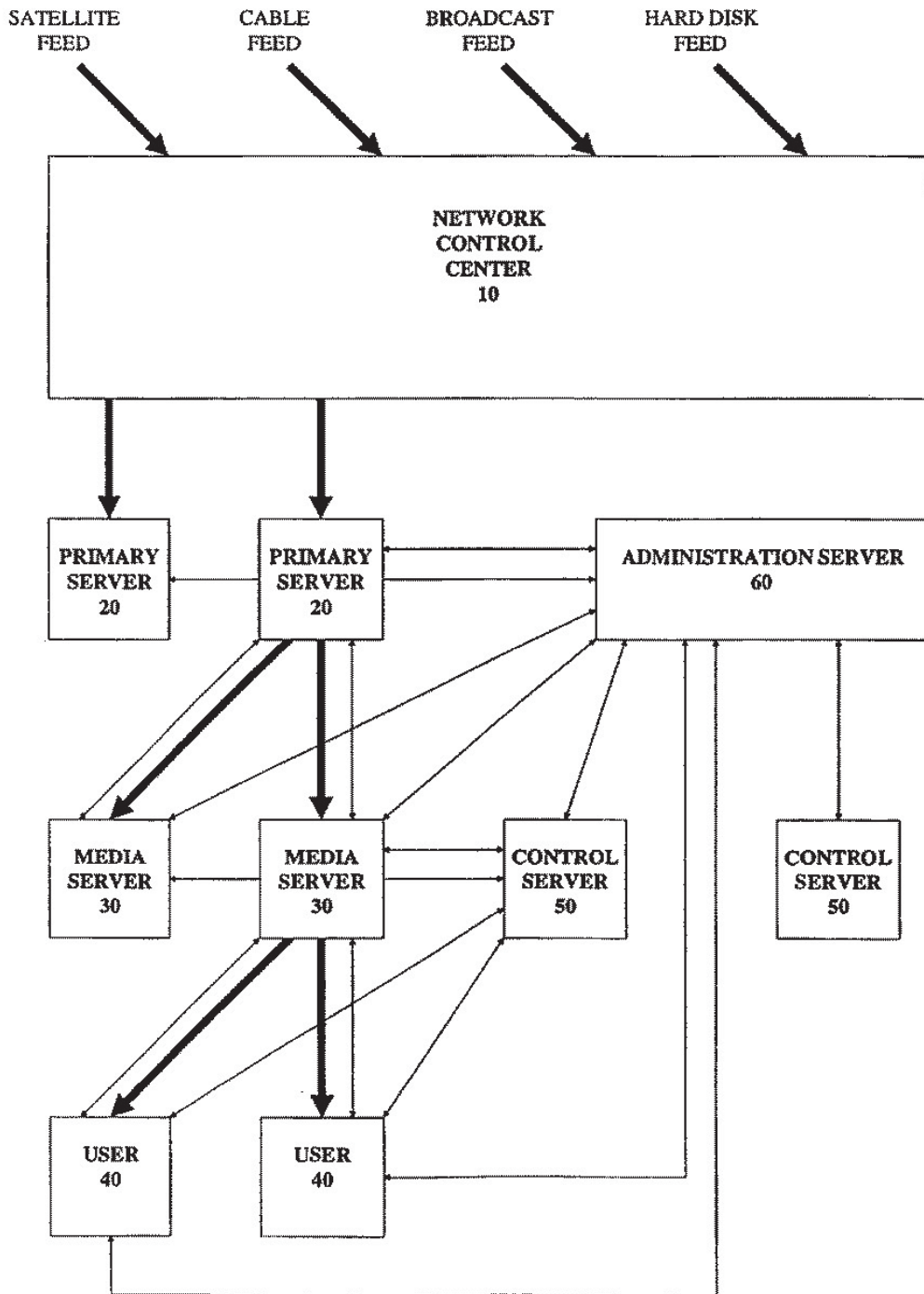


FIGURE 2

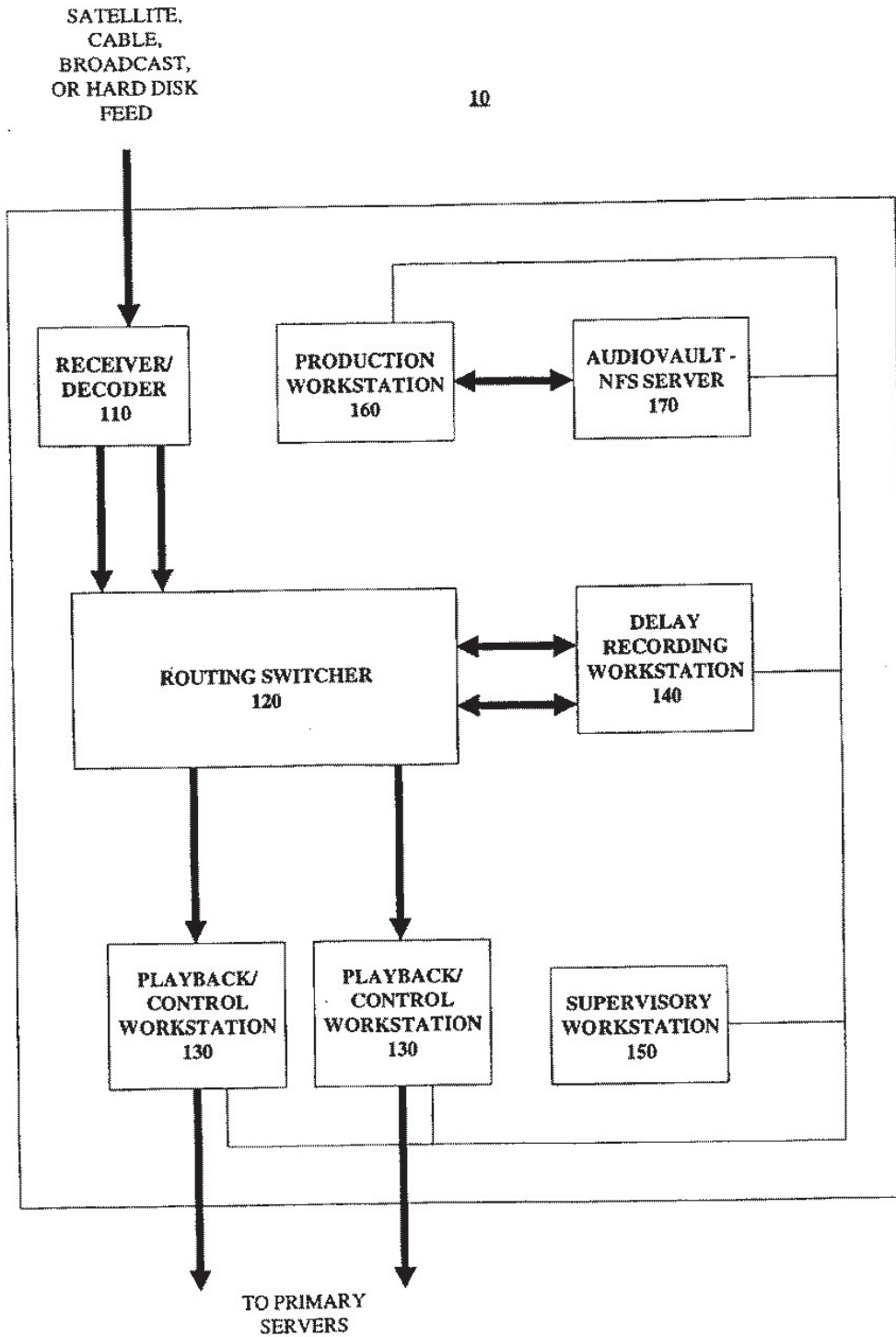


FIGURE 3

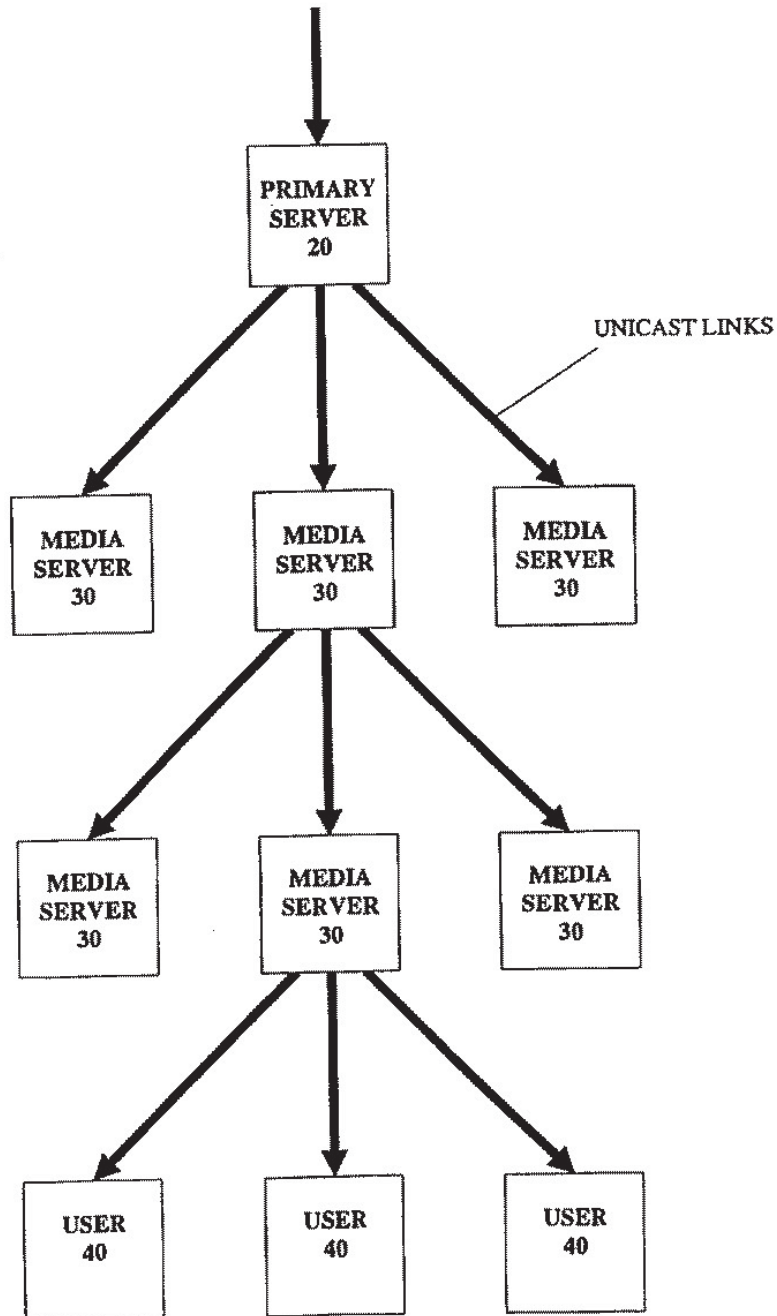




FIGURE 4

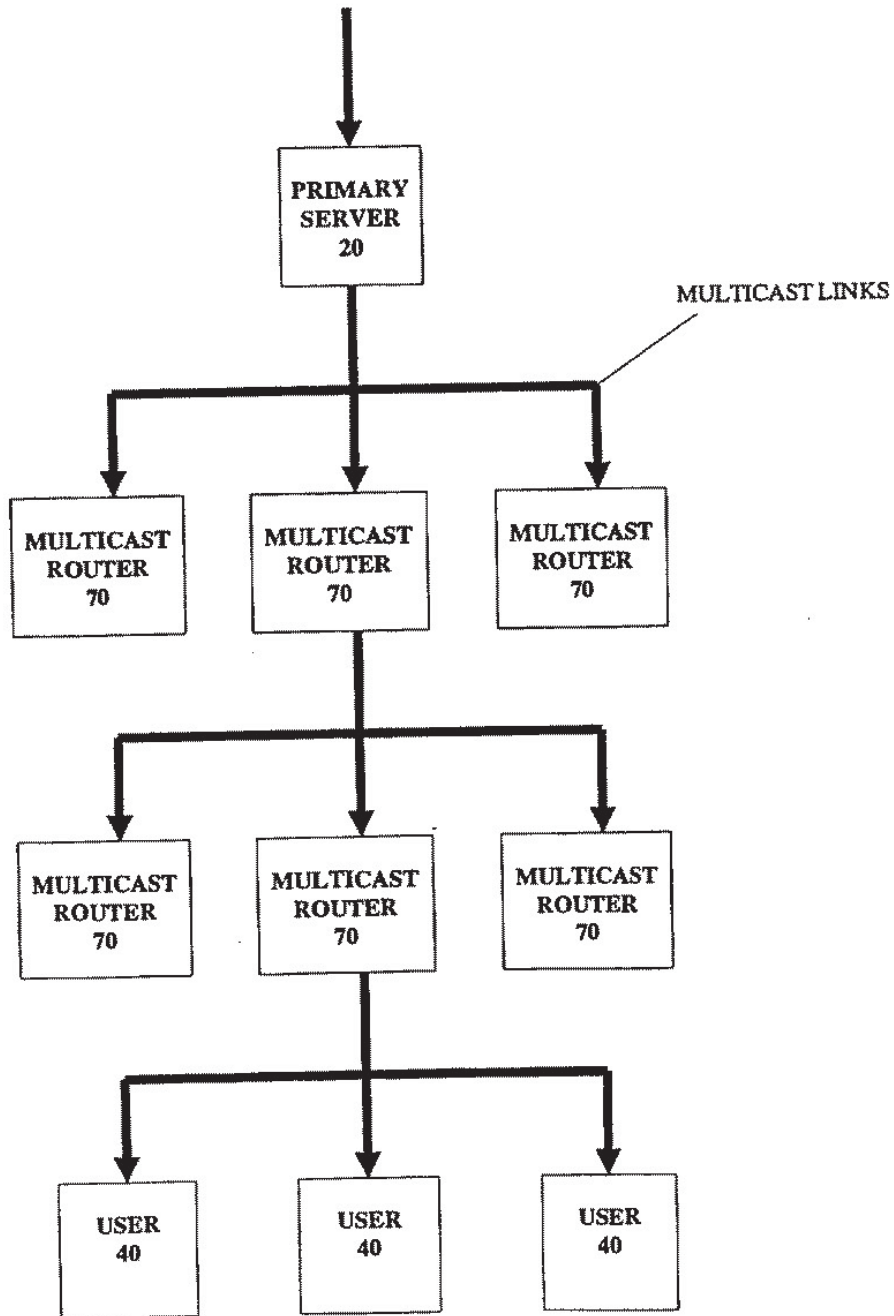
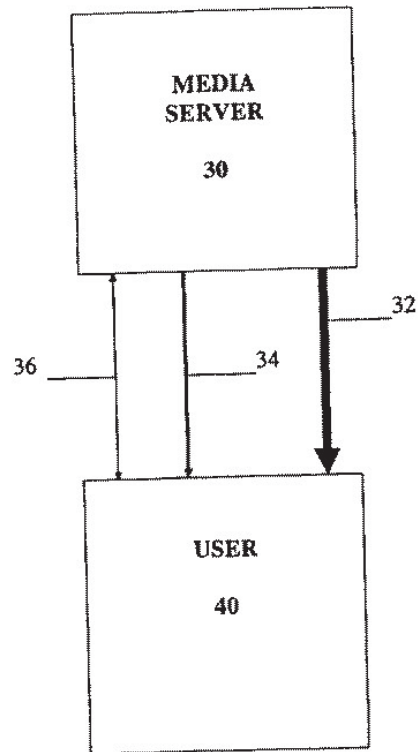


FIGURE 5



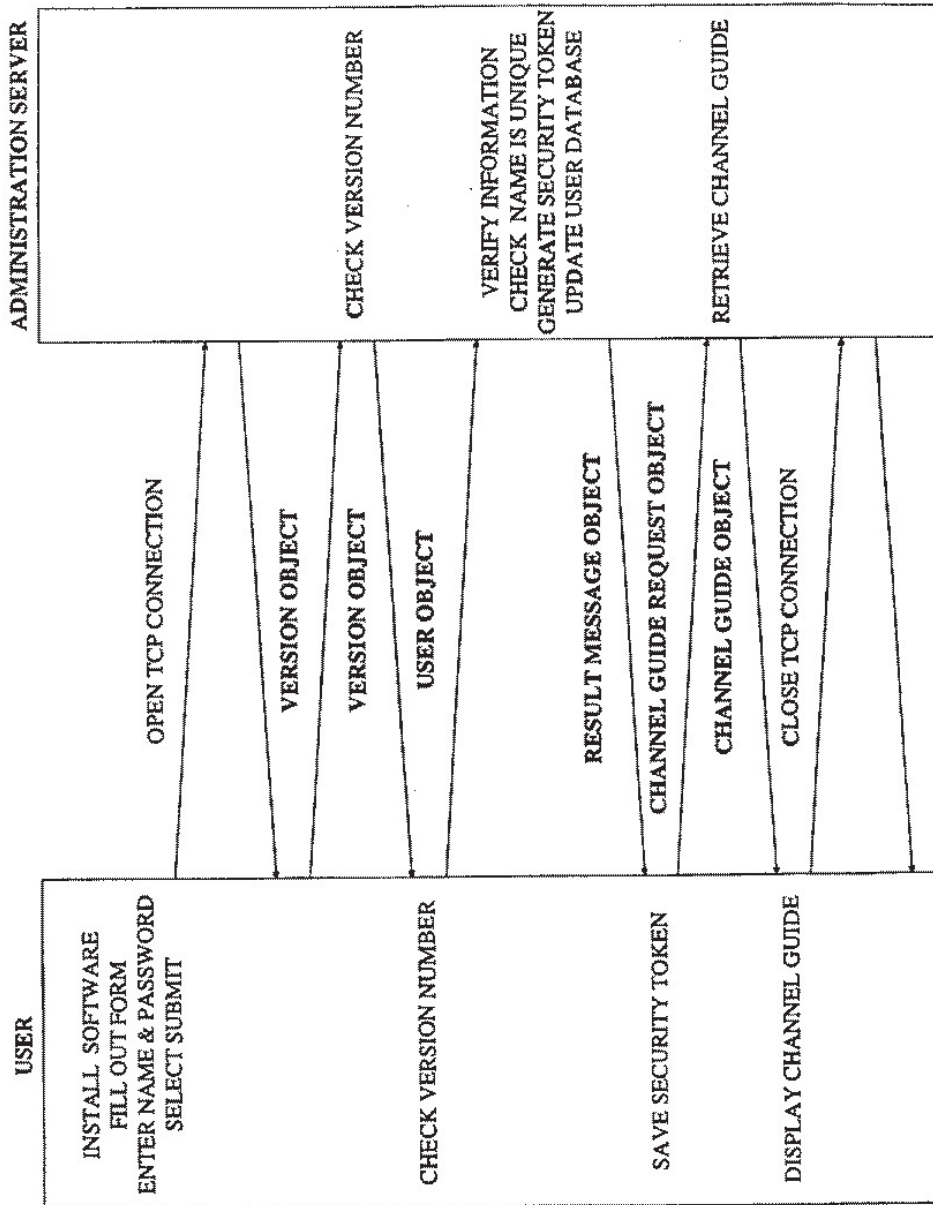


FIGURE 6



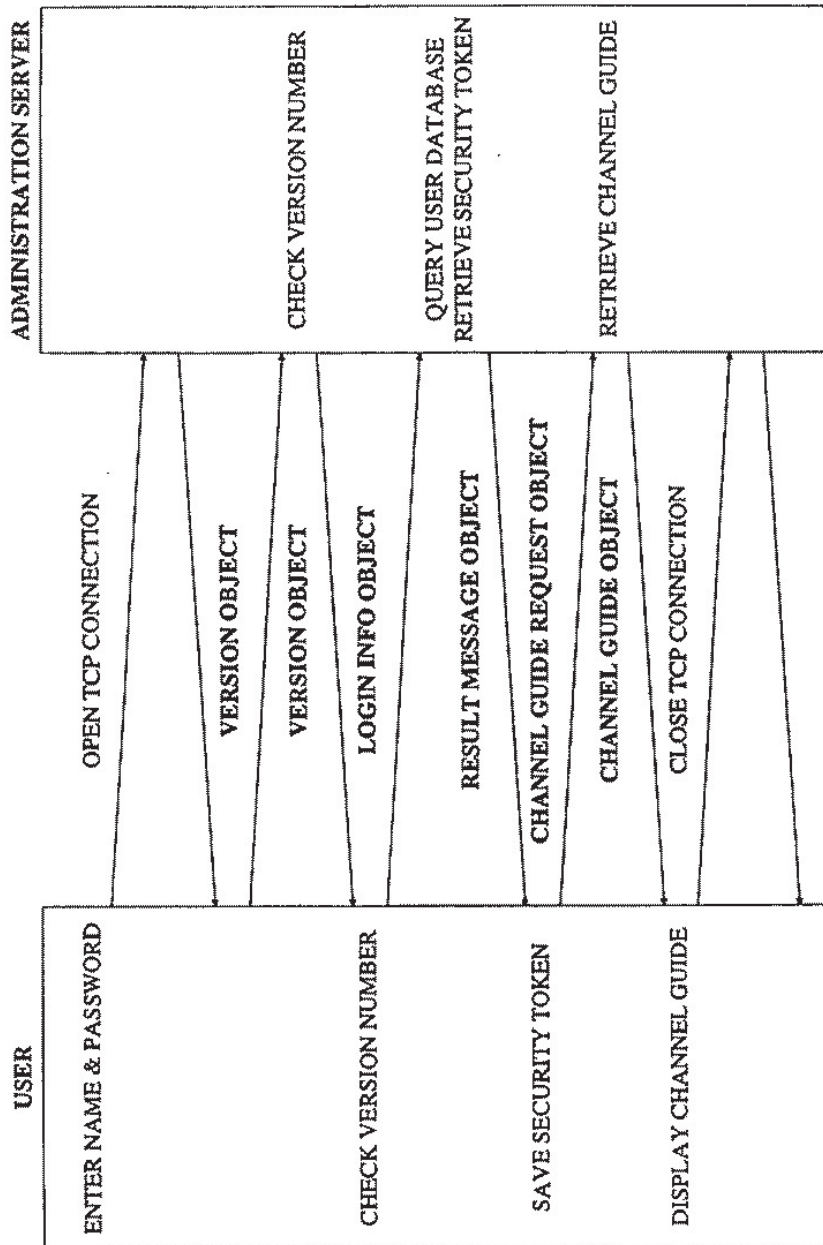


FIGURE 7

FIGURE 8A

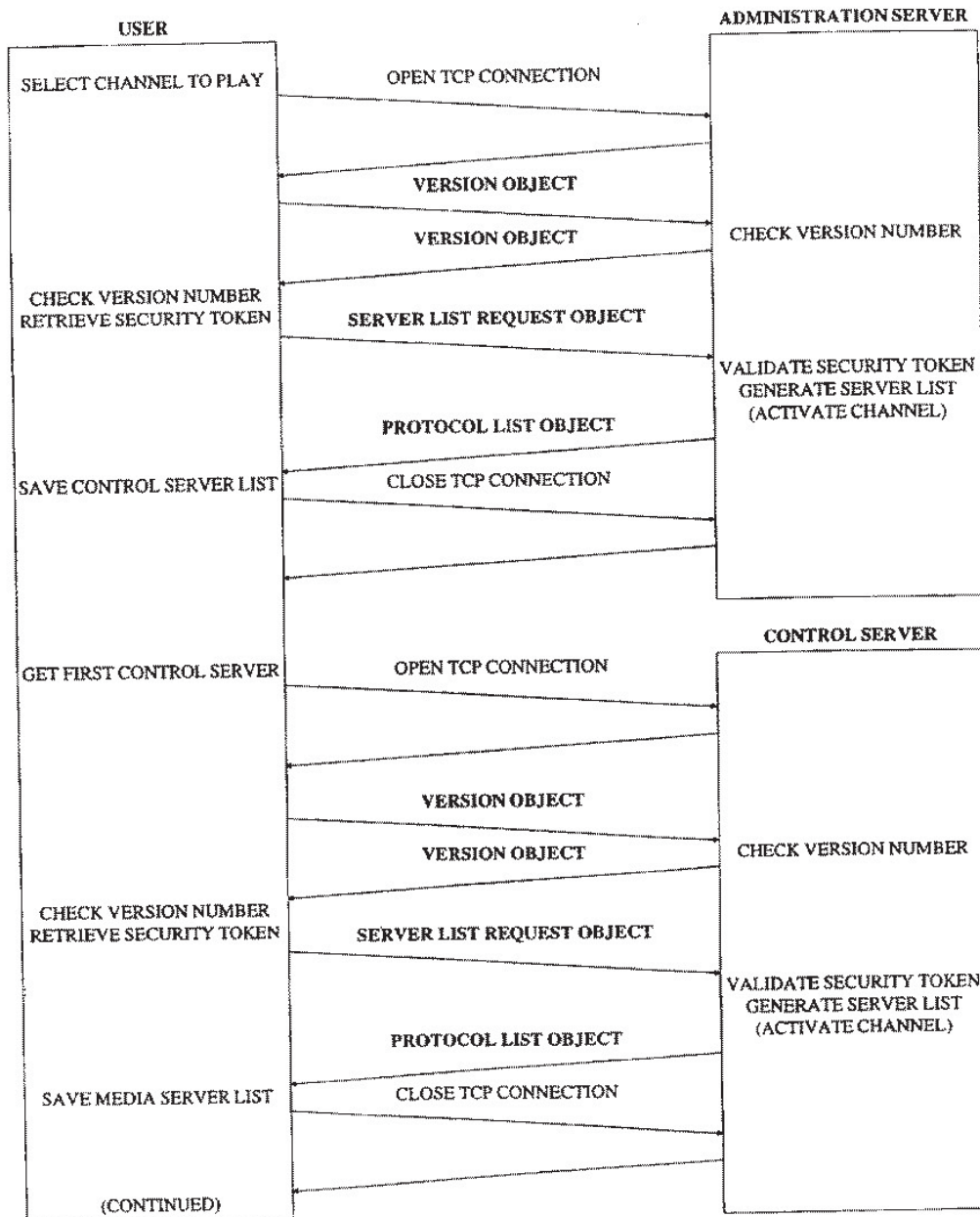
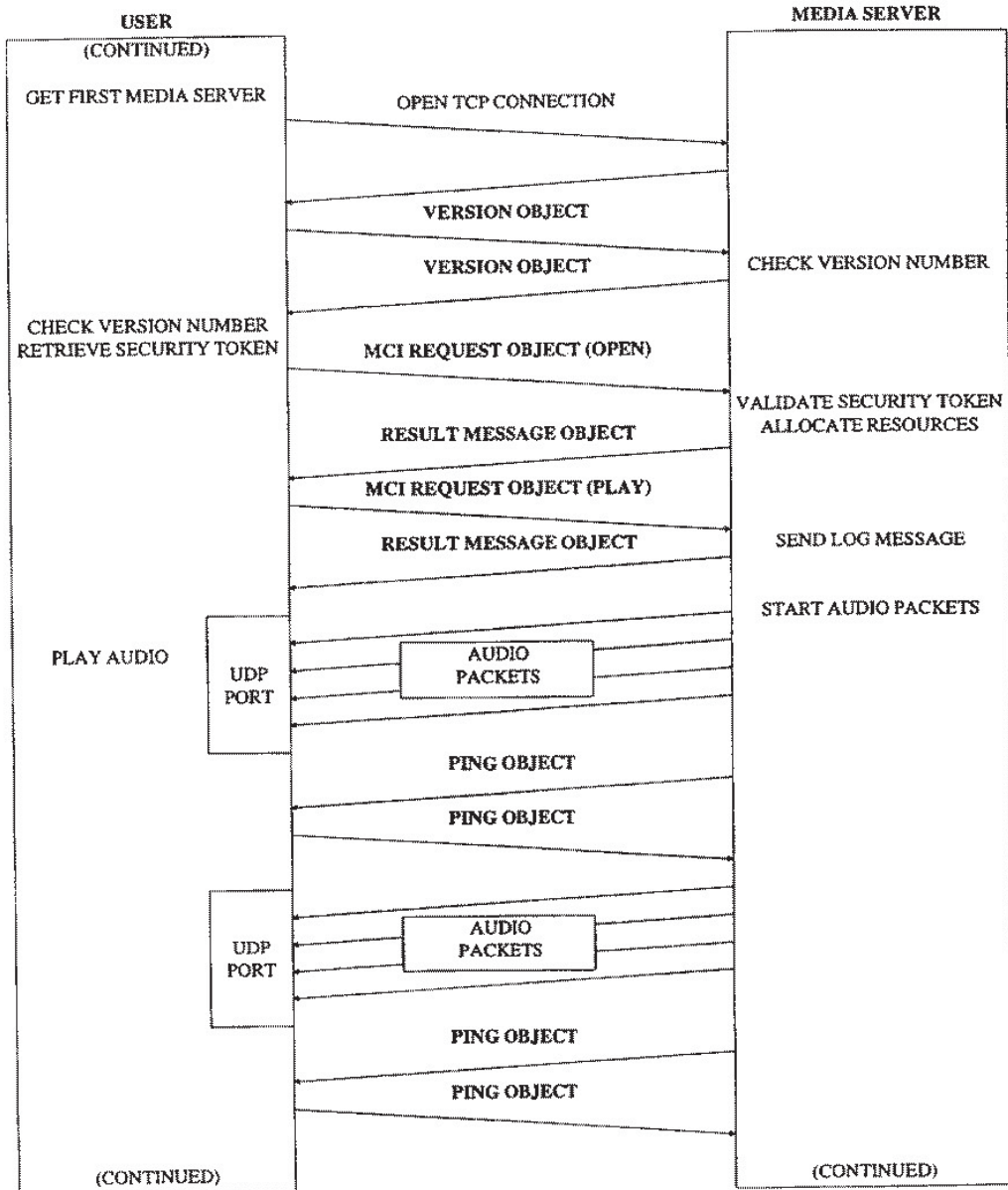


FIGURE 8B





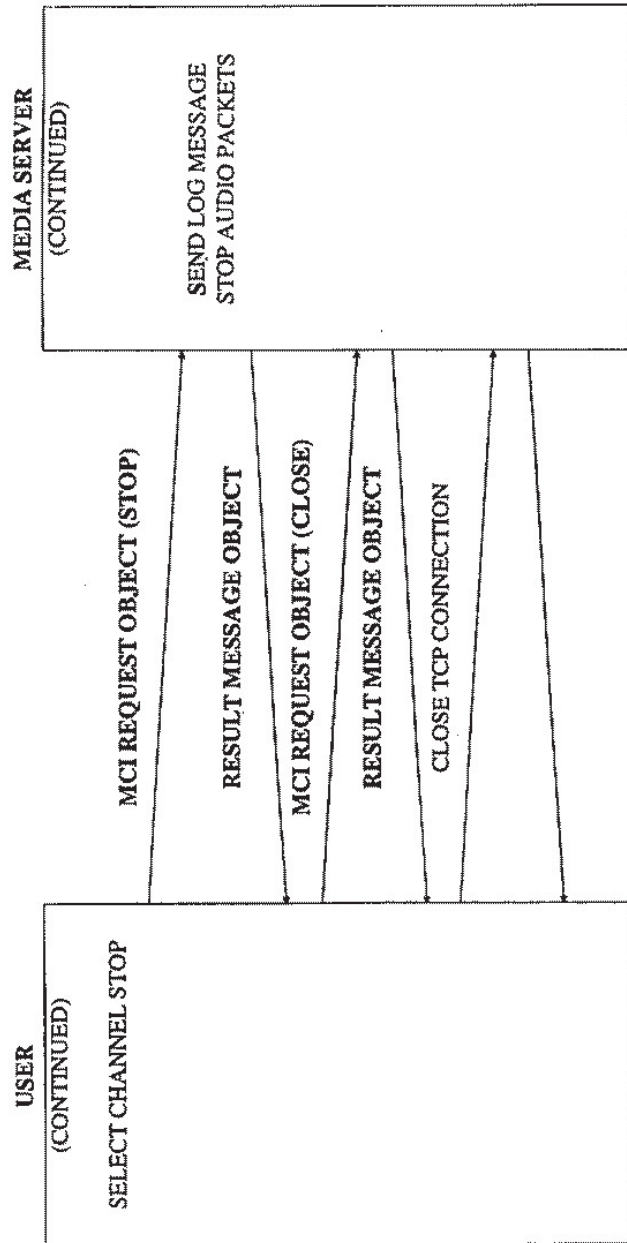


FIGURE 8C

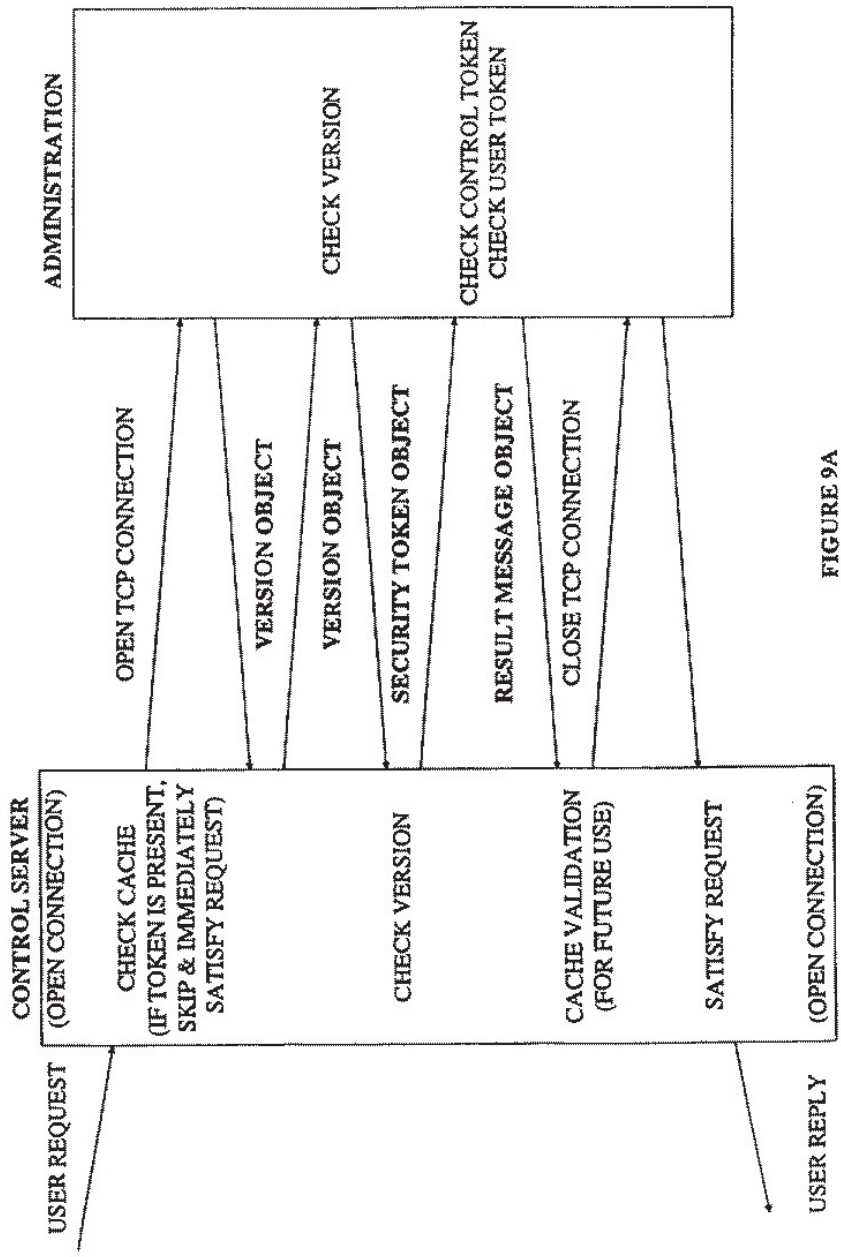


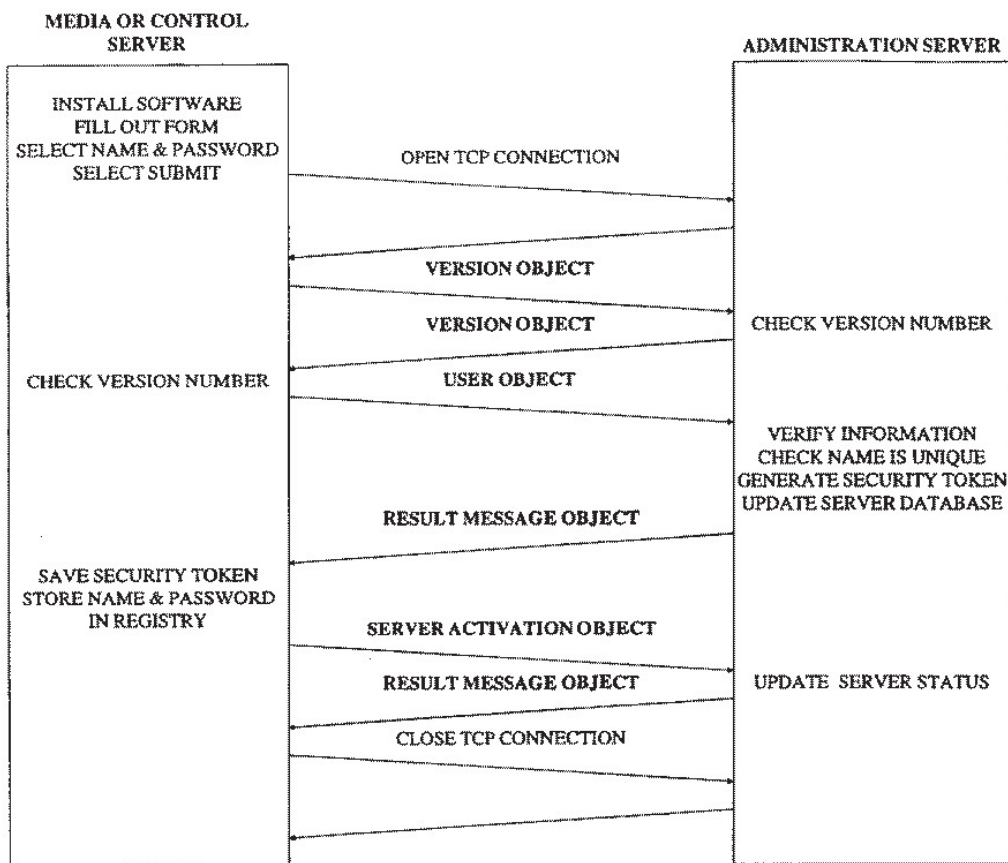
FIGURE 9A

FIGURE 9B

(SHOWN ABOVE)

REQUEST FROM	REQUEST TO	VALIDATION WITH
USER	CONTROL SERVER	ADMINISTRATION SERVER
USER	MEDIA SERVER	CONTROL SERVER
MEDIA SERVER	MEDIA SERVER	CONTROL SERVER
MEDIA SERVER	PRIMARY SERVER	ADMINISTRATION SERVER
MEDIA SERVER	CONTROL SERVER	ADMINISTRATION SERVER
CONTROL SERVER	MEDIA SERVER	ADMINISTRATION SERVER

FIGURE 10





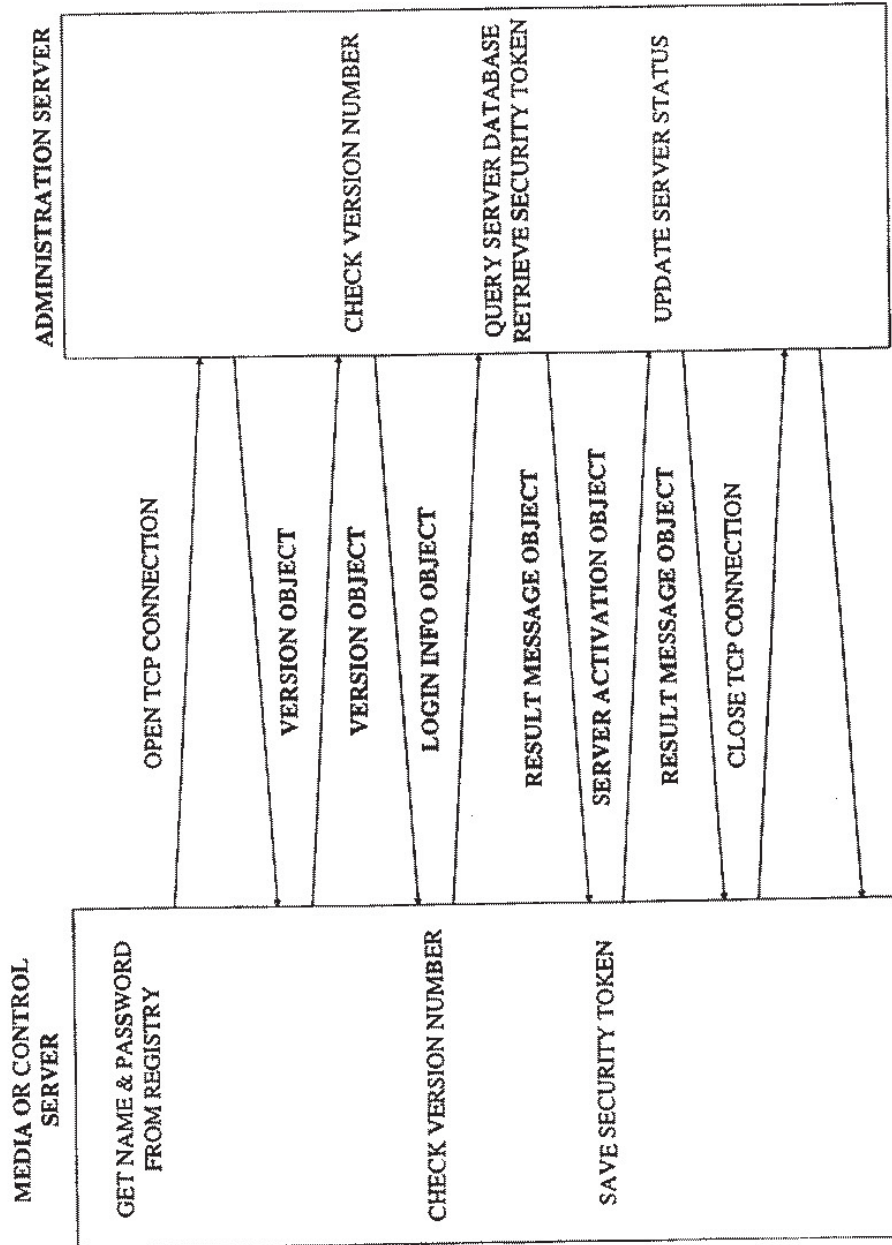


FIGURE 11

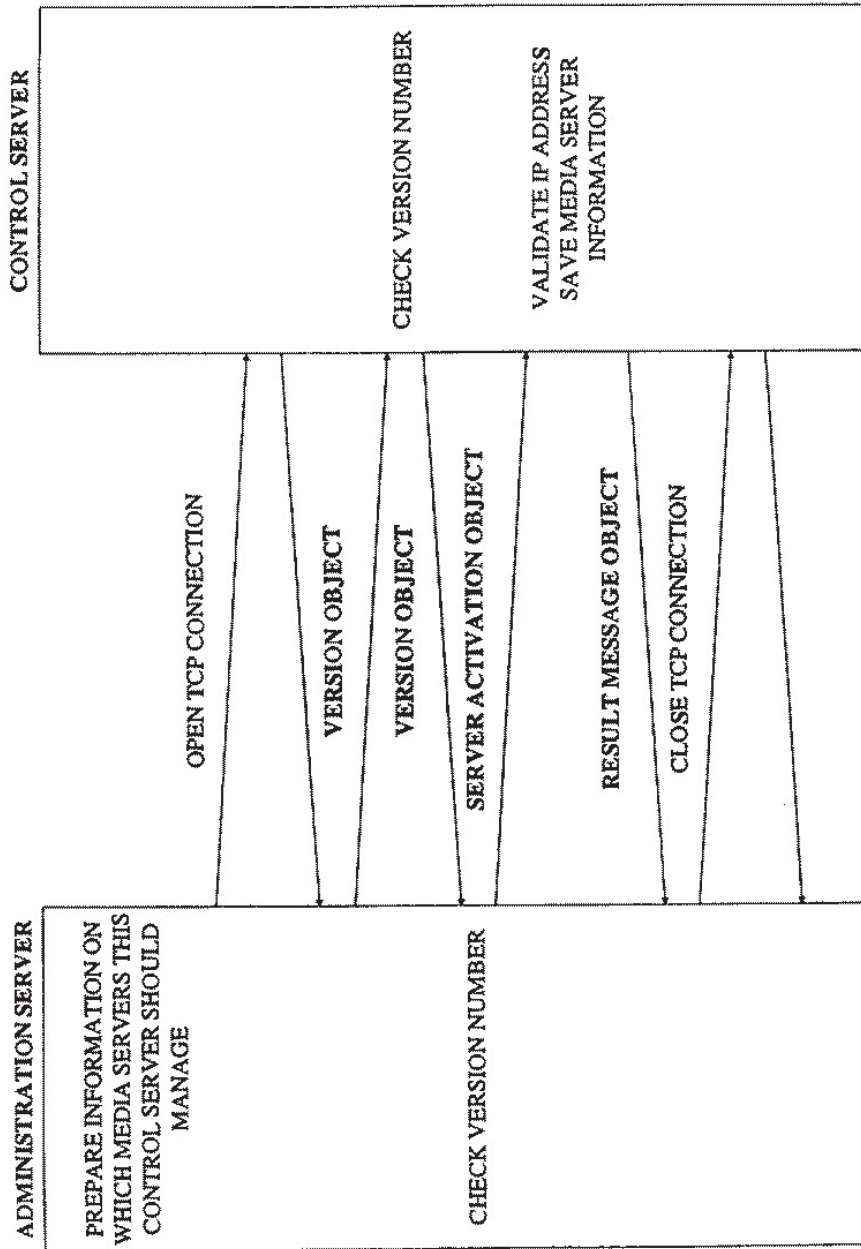
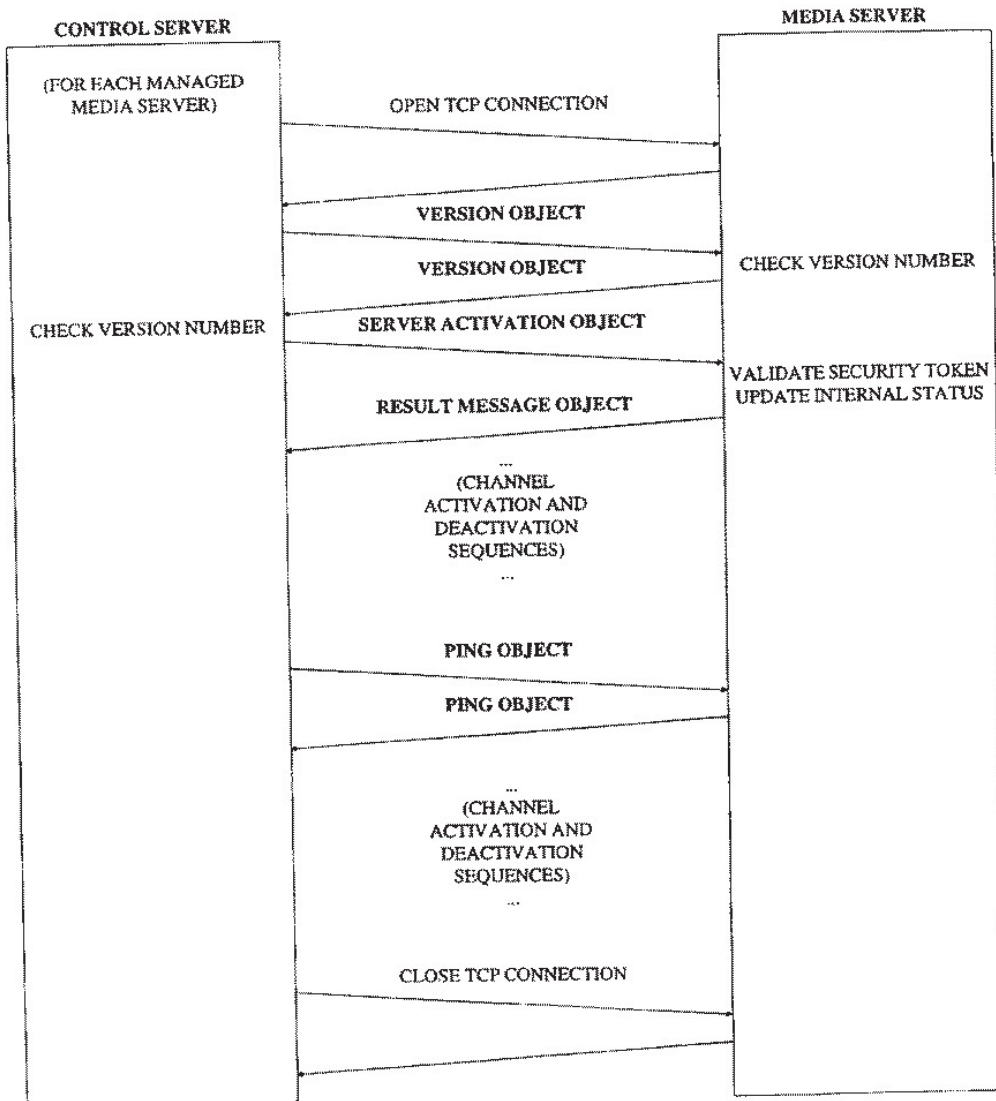


FIGURE 12

FIGURE 13



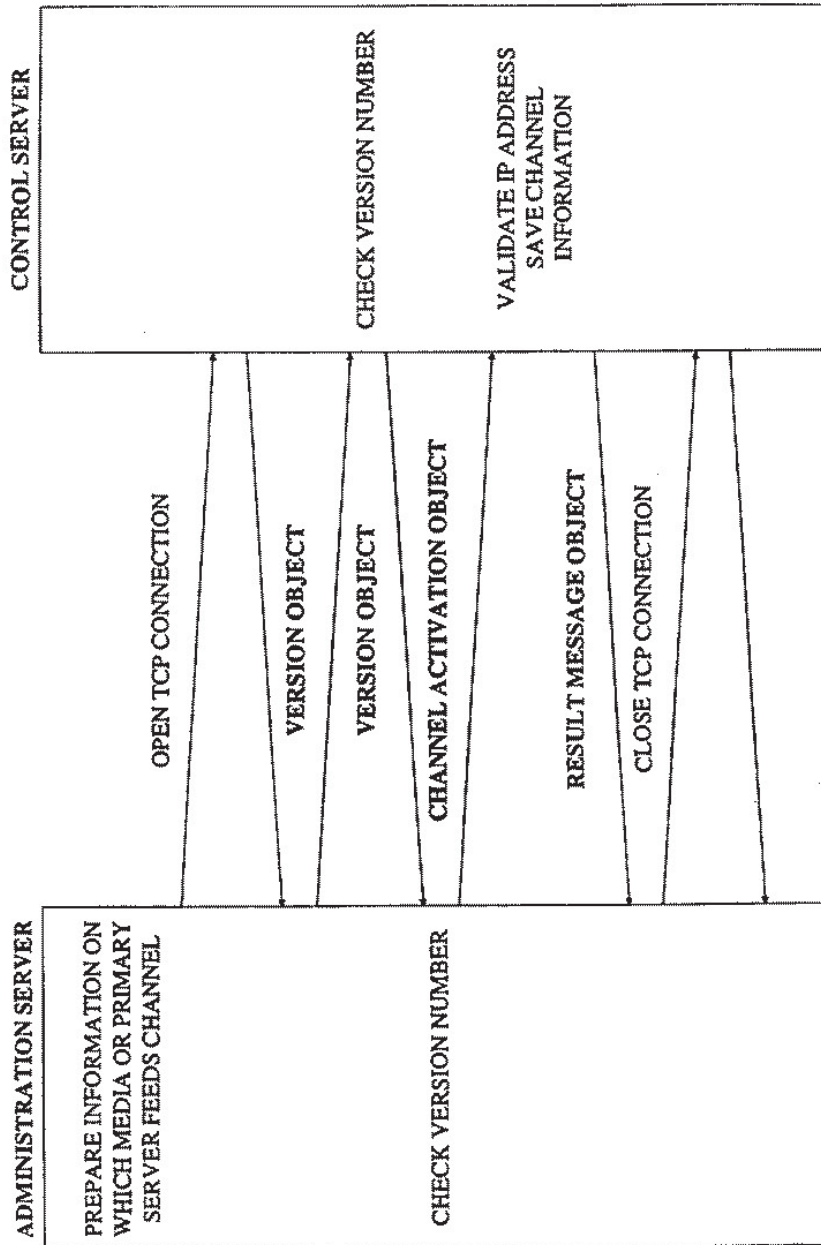


FIGURE 14



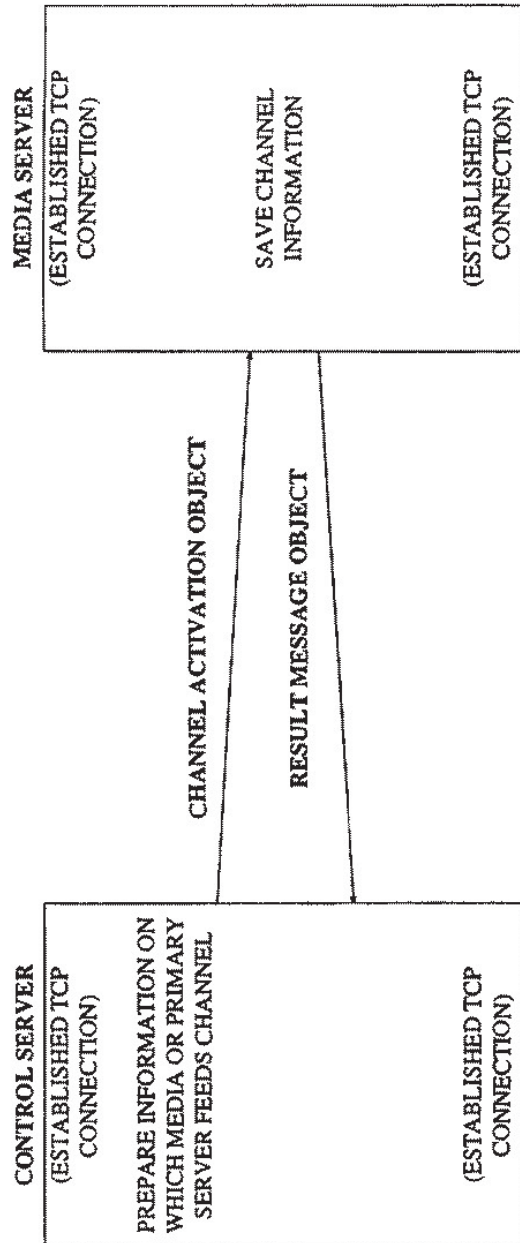
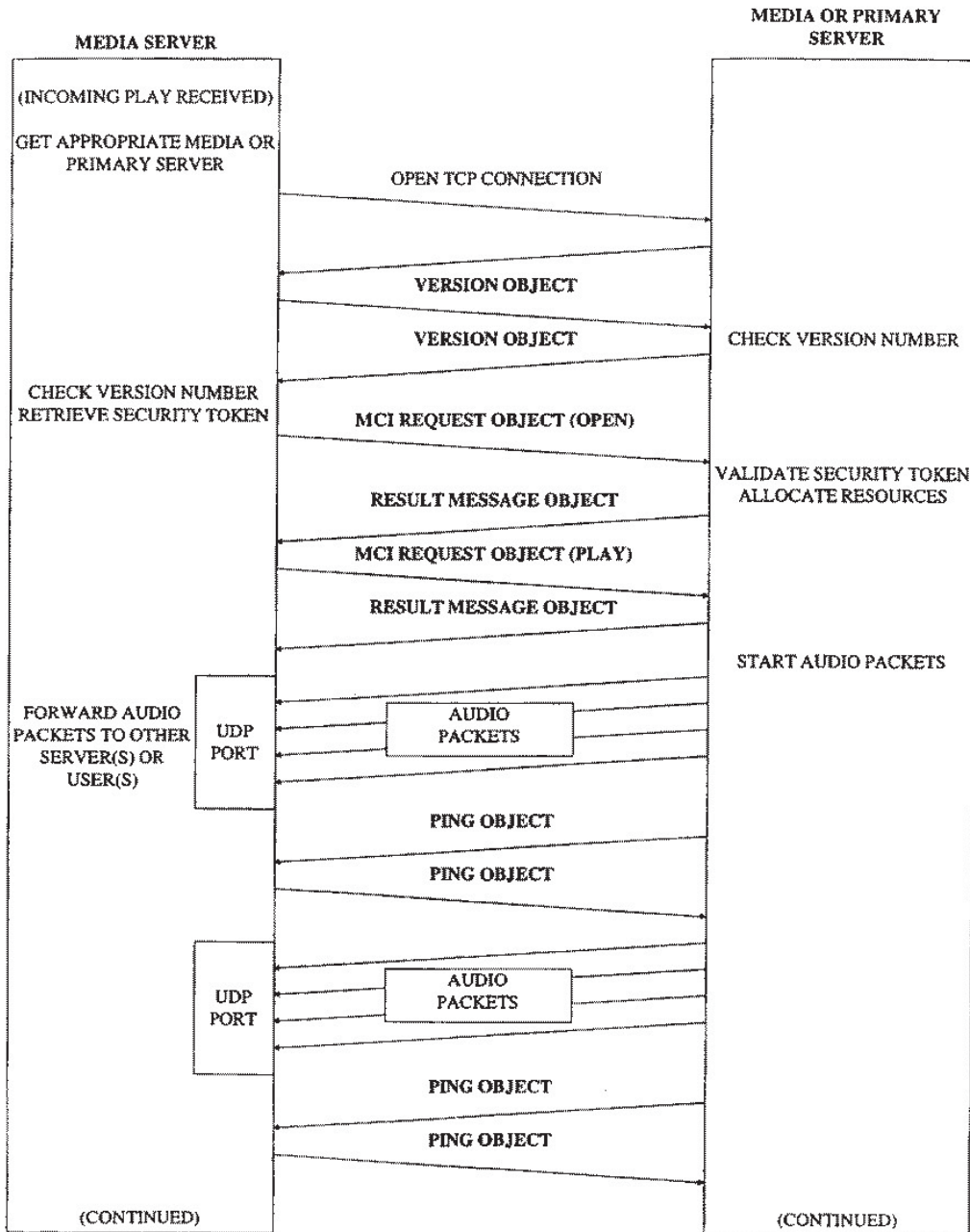


FIGURE 15

FIGURE 16A



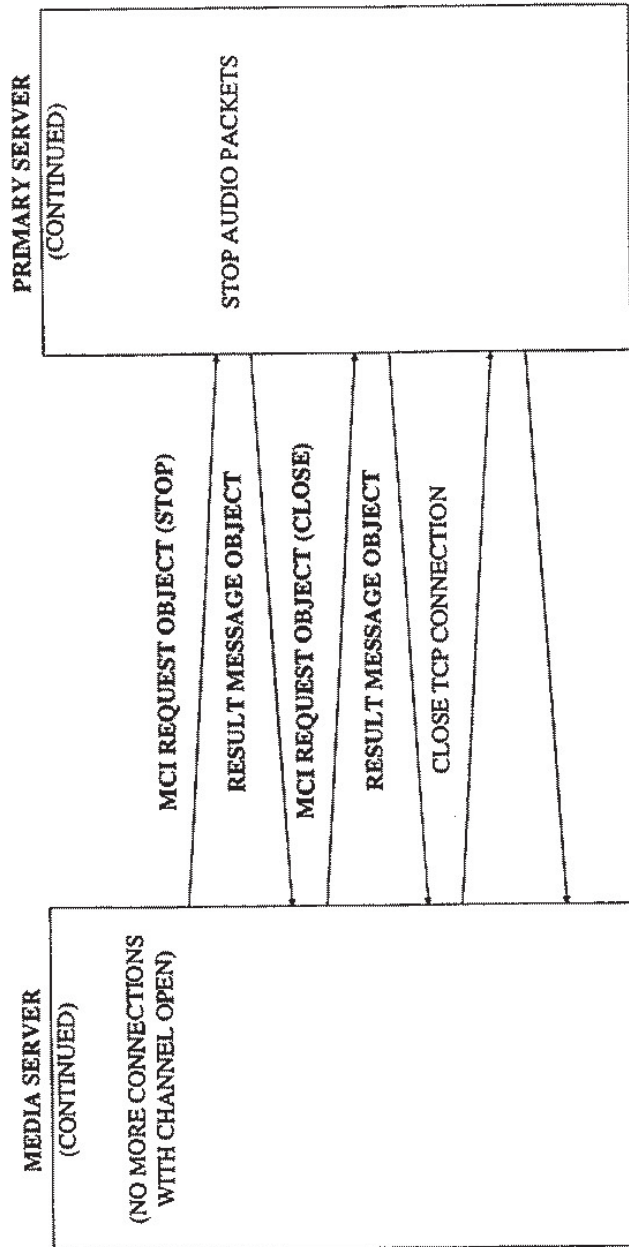


FIGURE 16B

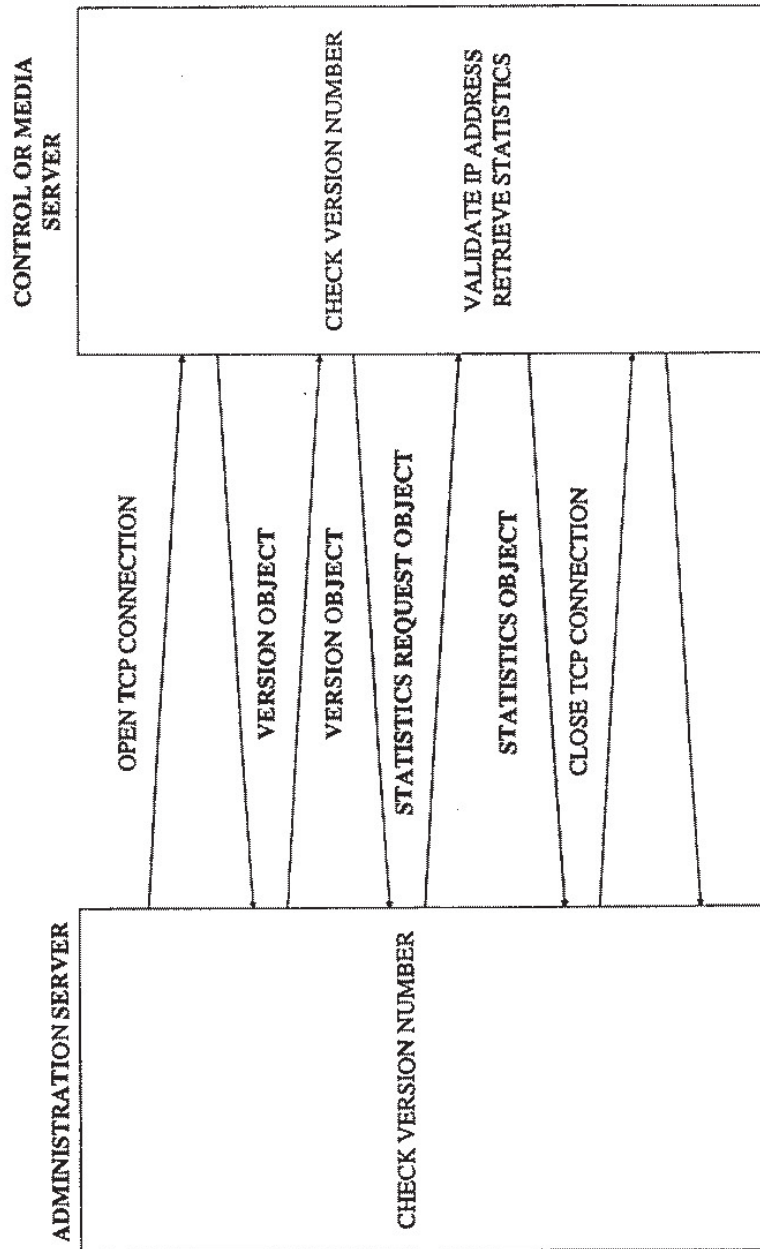
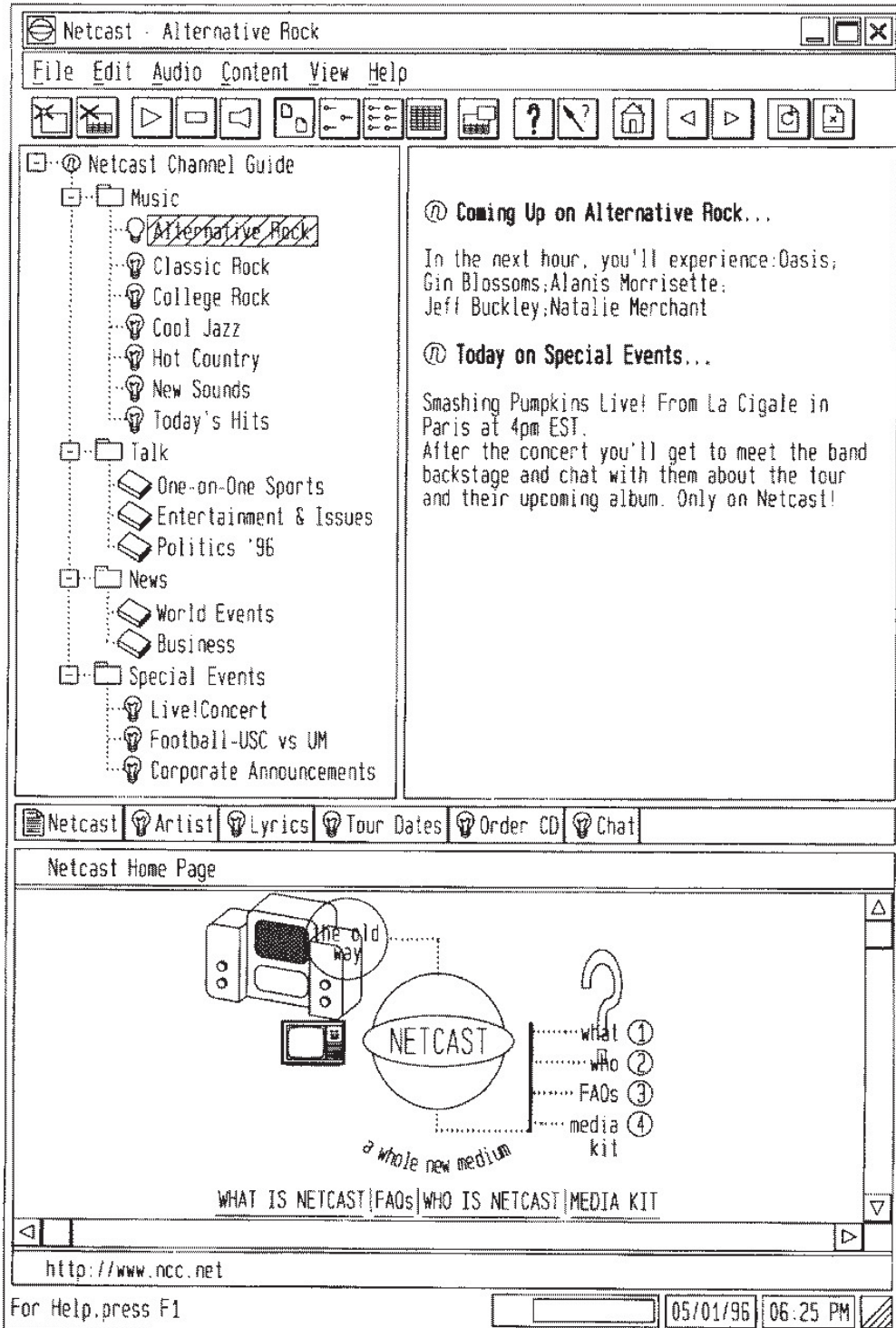


FIGURE 17



FIG. 18

MAIN USER SCREEN



**Figure 19**  
**Key Pull-Down Menus on Main User Screen**

<b>File</b>
Login
Logout
Register
Close
Exit

<b>Edit</b>
Copy
Properties

<b>Audio</b>
Play
Stop
Mute

<b>View</b>
Tool Bar
Status Bar
Web Bar

<b>Help</b>
Help Topics
About...

## MULTICASTING METHOD AND APPARATUS

### FIELD OF THE INVENTION

This relates to a method and apparatus for providing audio and/or visual communication services, in real-time to a multiplicity of identifiable users on a communications network, such as the Internet. In a preferred embodiment, the invention monitors which users are receiving signals on which one of a plurality of channels and modifies the content of at least some signals in response thereto. A particular application is to provide services akin to multi-channel radio or television with commercial programming content adjusted in accordance with the identity of the individual user.

### BACKGROUND OF THE INVENTION

Systems such as the Internet typically are point-to-point (or unicast) systems in which a message is converted into a series of addressed packets which are routed from a source node through a plurality of routers to a destination node. In most communication protocols the packet includes a header which contains the addresses of the source and the destination nodes as well as a sequence number which specifies the packet's order in the message.

In general, these systems do not have the capability of broadcasting a message from a source node to all the other nodes in the network because such a capability is rarely of much use and could easily overload the network. However, there are situations where it is desirable for one node to communicate with some subset of all the nodes. For example, multi-party conferencing capability analogous to that found in the public telephone system and broadcasting to a limited number of nodes are of considerable interest to users of packet-switched networks. To satisfy such demands, packets destined for several recipients have been encapsulated in a unicast packet and forwarded from a source to a point in a network where the packets have been replicated and forwarded on to all desired recipients. This technique is known as IP Multicasting and the network over which such packets are routed is referred to as the Multicast Backbone or MBONE. More recently, routers have become available which can route the multicast addresses (class D addresses) provided for in communication protocols such as TCP/IP and UDP/IP. A multicast address is essentially an address for a group of host computers who have indicated their desire to participate in that group. Thus, a multicast packet can be routed from a source node through a plurality of multicast routers (or m-routers) to one or more devices receiving the multicast packets. From there the packet is distributed to all the host computers that are members of the multicast group.

These techniques have been used to provide on the Internet audio and video conferencing as well as radio-like broadcasting to groups of interested parties. See, for example, K. Savetz et al. *MBONE Multicasting Tomorrow's Internet* (IDG Books WorldWide Inc., 1996).

Further details concerning technical aspects of multicasting may be found in the Internet documents Request for Comments (RFC) 1112 and 1458 which are reproduced at Appendices A and B of the Savetz book and in D.P. Brutaman et al., "MBONE provides Audio and Video Across the Internet," *IEEE Computer*, Vol. 27, No. 4, pp. 30-36 (April 1994), all of which are incorporated herein by reference.

Citation of the foregoing documents is not to be construed as an admission that any of such documents is a prior art publication relative to the present invention.

## SUMMARY OF THE INVENTION

The present invention is a scalable architecture for delivery of real-time information over a communications network. Embedded into the architecture is a control mechanism that provides for the management and administration of users who are to receive the real-time information.

In the preferred embodiment, the information being delivered is high-quality audio. However, it could also be video, graphics, text or any other type of information that can be transmitted over a digital network. This information is delivered in real-time to any number of widely distributed users. It is real-time in that for a given channel of information, approximately the same information is being sent at approximately the same time to everyone who is enabled to receive the information.

Preferably, there are multiple channels of information available simultaneously to be delivered to users, each channel consisting of an independent stream of information. A user chooses to tune in or tune out a particular channel, but does not choose the time at which the channel distributes its information. Advantageously, interactive (two-way) information can be incorporated into the system, multiple streams of information can be integrated for delivery to a user, and certain portions of the information being delivered can be tailored to the individual user.

### BRIEF DESCRIPTION OF THE DRAWINGS

These and other objects, features and advantages of our invention will be more readily apparent from the following Detailed Description of a Preferred Embodiment of our invention in which

FIG. 1 is a schematic diagram depicting an overview of the system of the present invention;

FIG. 2 is a schematic diagram depicting the network control center for the system of FIG. 1;

FIG. 3 is a schematic diagram depicting a unicast distribution structure;

FIG. 4 is a schematic diagram depicting a multicast distribution structure;

FIG. 5 is a schematic diagram depicting the connection between the media server and the user in the system of FIG. 1;

FIGS. 6, 7, 8A-8C, 9A, 9B, 10-15, 16A, 16B, 17 are timing diagrams which depict various aspects of the operation of the system of FIG. 1; and

FIGS. 18 and 19 depict the user interface for control of the system of FIG. 1.

Where the same reference numerals appear in multiple drawings, the numerals refer to the same or corresponding structure in such drawings.

### DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to FIG. 1, the system of the present invention comprises a Network Control Center 10, a plurality of Primary Servers 20, Media Servers 30, Users 40 and Control Servers 50 and an Administration Server 60. The servers are interconnected by a communications network, which in the preferred embodiment is the global connected internetwork known as the Internet. The Network Control Center 10 is the source of the information being distributed. It receives audio feeds from satellite, over the air broadcast or in other ways and processes this information for delivery over the network on multiple channels of information. This processing con-



sists of optionally recording the information for future broadcast and dynamically inserting paid commercial advertisements.

For each channel of information, there is a Primary Server 20 that receives the stream of information from the Network Control Center 10 and compresses the information stream to allow for more efficient transmission. The Primary Servers 20 are directly connected to the network.

The Primary Servers forward information via the network to a number of Media Servers 30. There may be a large number of Media Servers and in fact there may be many levels of Media Servers. For example, a Media Server which receives a stream of information from a Primary Server may forward that stream via the network to another Media Server which then forwards it to a User 40. This multilevel hierarchical structure is described in more detail below.

The topology of the Internet dictates the ideal placement of Media Servers, the fan-out of each Media Server and the number of levels of Media Servers between the Primary Server and Users. For example, the Media Servers which feed from a Primary Server might be placed at a major points of presence (POPs) of each of the large Internet service providers. These Media Servers might also be placed near clouds which serve as high bandwidth exchange points between the major carriers. Similarly, Media Servers which feed to Users might be placed on or close to networks which have a large number of subscribers to minimize the distance and number of data streams being transmitted.

Control Servers 50 are responsible for keeping track of which Users are listening to which channels and for directing the Media Servers to start and stop streams of information to those Users. The Control Servers are also responsible for handling other interactions among the various components of the system as will be described in more detail below. Each Control Server is responsible for managing a cluster of Media Servers; and each Media Server is managed by a single Control Server at any given time. As a result, the Control Servers are distributed throughout the Internet, preferably located close to the Media Servers.

The Administration Server 60 is responsible for registering new Users, authenticating Users who want to log onto the system, and maintaining audit logs for how many Users are listening to which channels and at which times. Maintaining audit logs and gathering statistics are features critical to monitoring the delivery of paid commercial messages as well as for other purposes. For example, for purposes of assessing copyright royalties, the audit logs can record the number of listeners for each musical or video selection that is distributed by the system. Another application is to determine the percentage of listeners who are interested in listening to a particular musical selection by determining how many listen to the entire selection and how many turn it off.

The system of the present invention can be considered a distribution architecture integrated with a control architecture. The distribution architecture handles scalable real-time delivery of information to any number of Users on a packet switched network, such as the Internet.

The control architecture represents a second scalable system integrated with the distribution architecture for managing and administering the delivery of that information.

The remainder of this description is divided into three sections. In the next section the distribution architecture will be described in more detail. Following that, the control architecture will be described. In the third section the User interface will be illustrated.

#### I. Distribution Architecture

The distribution architecture provides for the delivery of real-time information to any number of Users distributed throughout a network. As will be described in detail below, the distribution architecture is scalable to allow for efficient delivery of multiple simultaneous information channels in real-time to a large number of Users.

In the preferred embodiment, the information which is being distributed consists of high-quality audio in addition to other information. It should be appreciated that the basic architecture and other general principles set forth herein would also apply to the delivery of video, graphics, text or any other type of information that can be delivered over a digital network. In addition, it should be appreciated that an information stream can consist of audio with supplemental information such as text and graphic images and commands to control software running on the User's computer.

The source of information in the preferred embodiment is the Network Control Center 10, depicted in the schematic diagram of FIG. 2. Control Centers of this type of design are available from Broadcast Electronics, Inc. and are similar to what would be found in a conventional radio station serving multiple frequencies.

Referring to FIG. 2, the incoming signal can be received in a variety of ways such as from a satellite, over-the-air broadcast, cable or hard disk. It is then processed by Receiver/Decoder 110, which decodes the signal and provides an incoming audio stream. Routing Switcher 120 is responsible for routing the incoming audio feed from the Receiver to either Delay Recording Workstation 140 or to one of the Playback/Control Workstations 130. Real-time insertion of paid commercial advertising takes place at the Playback/Control Workstations and the resulting integrated audio stream is delivered to the Primary Servers. The Delay Recording Workstation is responsible for recording an incoming broadcast so that it can be played back at a later time.

Supervisory Workstation 150 is responsible for managing and controlling the Playback/Control Workstations. Delay Recording Workstations and other computers as may be connected to the local area network within the Network Control Center. Production Workstation 160 and Audio-VAULTNFS Server 170 are used to manipulate audio samples, such as commercial messages for use by the Playback/Control Workstations. The audio being delivered can consist of syndicated TV or radio programs, such as would be received over satellite or cable and delivered as described above. These can be delivered live and/or played back at a later time. It is also possible for the delivery of information, such as music, to take place from information that is all stored locally such as on a hard disk. A new play list and its associated music data can then be downloaded periodically to update the channel. Additionally, it is possible to deliver commercial-free programming, for example public service announcements or label-specific music.

In the preferred embodiment the Primary Servers are responsible for compressing the audio stream using an advanced perceptual technique developed and licensed by AT&T Corp. and Lucent Technologies, Inc. This highly sophisticated algorithm is used to maximize the benefit of the bandwidth available. Advantageously, two bitrates are available, a first rate of approximately 20Kbps and a second rate of approximately 56Kbps. Using the perceptual technique, the quality of the first rate is similar to FM monaural (with a sampling rate of approximately 22,000 16-bit samples per second) and the second rate is close to



CD quality stereo (with a sampling rate of approximately 32,000 16-bit samples in stereo each second). The signals at the two different bitrates comprise two different audio channels and thus require two different compression processes.

The computational requirements of compressing an audio stream in real time using techniques such as the advanced perceptual technique are approximately 100% of a Pentium-Pro 200Mhz computer and the computational requirements of decompressing an audio stream in real time are approximately 30% of a Pentium 75Mhz computer. Future improvements and/or changes to the algorithm could significantly change these requirements. For the present, a dedicated computer is required within the Primary Server to compress the audio stream. The decompression process takes place on end Users' computers and preferably would use only a portion of the computers' computational requirements, allowing the computers to be used for other tasks while they are processing the audio stream.

It is important to appreciate that the compression and decompression techniques employed by the present invention are not critical to the overall operation of the system and the advantages obtained therefrom could be obtained with other compression methodologies. Advantageously, the identity of the compression technique used can be encoded into the audio stream in the packet header. This makes it possible to identify to the receiver the nature of the decompression algorithm to use; and thereby make it possible for the computer within the Primary Server to select an optimum compression algorithm depending on the nature of the audio stream to be compressed.

The remainder of the distribution architecture comprises the multilevel hierarchy of data transmission originating at the Primary Server 20 and terminating at the Users 40 as shown in FIG. 3. In the preferred embodiment, the network is the global connected Internet. It can also include private networks which are connected to the Internet and it could be implemented on any packet switched network, cable-modem-based or satellite-based cable system. It is possible that certain links within the overall system, for example, the link between the Primary Server and the first level of Media Servers, are private data links which carry only data associated with this system. This could also be true of other data transmission paths in the distribution architecture. The User receiving the information preferably can be anyone who has access to the Internet with sufficient bandwidth to receive the resulting audio data.

It should be appreciated that the distribution architecture of the present invention provides for scalability. Using such a structure, any number of Users, and as widely distributed as necessary, can be accommodated. In the preferred embodiment, the fan-out at each level of Media Server (given the state of technology today) is on the order of ten, but the same structure could be applied with other fan-outs. The location and fan-out of the Media Servers is chosen to minimize overall network bandwidth consumed.

The flow of information from Primary Server 20 through network to User 40 is based on the delivery of a continuous sequence of individual pieces of information, or packets. Thus the distribution architecture implements a form of multicast packet delivery to a group. The group in this case is the set of all Users who are listening to a given channel at a given time. Group membership is dynamic. Users can start and stop listening to a channel at any time.

Multicasting can be implemented in a variety of ways, any or all of which can be used in the present invention. In the preferred embodiment, the Media Servers receive unicast

packet streams and they then duplicate these streams into more unicast streams to other Media Servers which are in the membership group for that stream. The lowest level Media Servers use hardware broadcast, multicast and/or unicast to reach all Users served by that Media Server.

If the Media Server is directly connected to the same physical network as the User, hardware broadcast or multicast can be used to transmit the packet stream to all Users listening at that time on that network. In this case the Media Servers can translate the incoming packets into broadcast or multicast packets for transmission on the local network. Only a single packet is transmitted at-a-time on the local network and any computer directly connected to the local network can receive that packet. Hardware multicast is built into most networks and it is lower in overall overhead than hardware broadcast since computers not interested in a transmission do not have to process the packets. In the case that a Media Server is serving a User who is not on the same physical network, a unicast transmission is used to reach that User, which requires a separate packet transmission for each User so connected. In the preferred embodiment, the assignment of Users to Media Servers is done using control transactions among the User 40, Control Servers 50, and Administration Server 60. This system will be described more fully in the following section. Multicasting can also be implemented within the Internet at the IP level using IP class D addresses and the IGMP group control protocol. FIG. 4 illustrates how the multilevel hierarchical distribution architecture would operate using IP multicast delivery. Under this system, a packet is transmitted with a multicast address for a destination and each router maintains group membership lists for each interface that it is connected to and will forward packets across the Internet to other routers such that all Users within the global group eventually receive a copy of the packet. Unless and until all routers within the Internet understand multicasting in this way, it is necessary to supplement it with IP tunneling in which multicast packets are encapsulated in unicast packets and routed by unicast routers to a multicast routers. The present invention can and will be able to take advantage of IP multicasting as it becomes widely available. Each channel of information would be given its own class D address and the Media Server would then simply transmit packets using the appropriate IP destination address. In this case no Media Servers would be used as this function would be accomplished by the routers in use to store and forward other IP packets. Thus it can be appreciated that the implementation of the multicast delivery structure can be implemented using a combination of IP unicast, IP multicast and hardware multicast or any other system which provides for distributed delivery of information to a specific group of destinations. It is expected that special relationships with Internet providers will be established so that delivery of the audio streams can take place with a guaranteed bandwidth and in the most efficient way possible.

In the preferred embodiment, packets of information for distribution use the UDP protocol under IP rather than the TCP protocol. TCP provides for reliable stream delivery but at the cost of retransmission and delays. For real-time information, it is usually more appropriate to use UDP since the information is time critical and low latency is more important than reliability. Since TCP is a point-to-point protocol, it is incompatible with IP multicasting. However, TCP could be used on the IP unicast links between Media Servers which are expected to have very low packet loss. In order to handle out of order, lost, duplicate and corrupted packets, the UDP packets are serialized.



In the preferred embodiment the size of the audio packets being transmitted is variable and can change on a packet by packet basis. It is expected that when using compression schemes that have a fixed bit rate, such as ADPCM, all packets for that stream would be the same size. Alternatively, when using a variable bit rate compression algorithm, it is expected that packet size would vary so as to establish approximately the same amount of time for each sample. For example, if each packet corresponds to a 20 millisecond segment of speech, this could correspond to 100 bytes during one time period and 200 bytes during another.

Additionally, the Media Server may choose to dynamically vary the packet size to accommodate changes in network conditions.

Since the resulting playback of audio information is sensitive to packet loss and network congestion, software running on the various computers which make up this system monitor the ongoing situation and adapt to it in the best possible way. This may involve using different Media Servers and/or lowering the data rate to the User. For example, similar to analog dynamic signal quality negotiation present in many analog radio receivers, the User software may request a lower bitrate until the situation is improved. Also, note that the audio information being delivered to the User is preferably interleaved so that a contiguous segment of the audiostream is distributed for transmission over several packets. As a result, the loss of one packet is spread out over multiple audio samples and causes minimal degradation in audio. Advantageously, a small degree of redundancy may be incorporated within the audio stream to further guard against packet loss.

Preferably, there are two bitrate options available to the User for audio delivery. These are approximately 20Kbps for standard audio and approximately 56Kbps for high quality audio. Thus, a 28.8Kbps modem connection over an analog phone line is sufficient to listen to standard audio broadcasts. To listen to high quality audio, an ISDN connection to the Internet is required, or some other connection with greater than 56Kbps bandwidth. It should be appreciated that higher bandwidths are currently becoming available to end Users. In particular the use of cable modems and residential fiber networks are enhancing the bandwidths available to Users and thus making broadcasts of higher bitrates more practical. In addition to the content of the audio channel being delivered, it is also possible to deliver out of band of side-bar information such as graphics, images and text.

This side-bar information is synchronized with the audio channel. This may only involve small increases in bandwidth requirements, such as 1-2Kbps. For example a music program could deliver images of an album cover, the text of song lyrics, or URLs for use by a Web browser. The User can preferably choose to have the side-bar information show up automatically or be hidden. It is also possible to incorporate two-way interaction into the system, such that for example Users can participate in a global chat session during the audio broadcast. These and other details are explained in more detail below under the description of the User interface.

The delivery of paid commercial advertising information is an important aspect of the present invention. Advertising may be incorporated into the audio stream within the Network Control Center as described above. It may also be incorporated into the audio stream at the User level, or at some intermediate point in the distribution architecture. In addition, the side-bar information discussed above can also include advertising content. FIG. 5 illustrates the provision

to the User of two separate streams 32, 34 of packets, one of which may be used for advertising. In this case the insertion of the stream of commercial advertising into the non-commercial stream occurs on the User's computer. FIG. 5 also illustrates packet stream 36 which identifies the User to the system. This enables the system to monitor which Users are listening to which channels and also allows the system to vary, for example, the advertising content delivered to a User.

One advantage of this alternative is to allow targeted commercial delivery based on the individual User.

That is, an individual User would receive the main audio feed plus a particular advertising stream unique to his demographic group. Note that the advertising stream typically is lower in overall bitrate and generally does not require real-time delivery, thus lowering the overall load on the network. For example, the advertising stream could be delivered to the User in advance of the regular programming, stored in a buffer in the User's computer and inserted into the stream of regular programming upon receipt of a cueing signal embedded in the stream of regular programming. Thus, a substantial number of targeted groups, perhaps 10 or 100 or even more could be accommodated without an impractical increase in network load.

## II. Control Architecture

The control architecture described in this section is responsible for managing and administering the Users who are receiving the information being delivered by the distribution architecture described in the previous section. The control architecture handles new User registration, User login, the starting and stopping of audio streams and the monitoring of ongoing transmissions. The control architecture is scalable just as is the distribution architecture so that any number of Users can be managed.

This section describes the control protocol, which consists of the format and sequence of control messages that are exchanged among Users, Control Servers, Media Servers, Primary Servers and the Administration Server. These messages are in the form of objects, which have specific data formats. Objects are exchanged preferably using the TCP protocol although other options are possible. Below we describe the sequence of objects passed among the various computers and detail the internal structure of each object.

The major objects used in the present embodiment of the invention are set forth in Table I. For each object, Table I provides a brief description of its function, identification of the names of the fields in the object, their types and a brief description of their function.

TABLE I

Field Name	Field Type	Remarks
<u>Channel Activation Object</u>		
Contains information used for channel activation/deactivation. It is sent to Media and Primary Servers to tell them to carry or stop carrying a specific channel. Media Servers get the channel from another server in the system hierarchy and Primary Servers get and encode the feed from the actual input source.		
Token	Security Token Object	
Moniker	Moniker Object	unique channel identifier
Activate	Int	action flag (activate/deactivate)
CompressType	Int	type of compression to use
Host	Host Object	host carrying the channel

TABLE 1-continued

Field Name	Field Type	Remarks
<u>Channel Guide Object</u>		
Contains analytical and descriptive information for an item requested that is uniquely identified by a moniker. It is usually the reply to a Channel Guide Request object.		
Token	Security Token Object	
Type	Int	type of content
Result		the content data itself
<u>Channel Guide Request Object</u>		
Conveys a request for analytical and descriptive information about an item uniquely identified by the contained moniker. The reply is in the form of a Channel Guide Object.		
Token	Security Token Object	inherited from base class
Type	Int	type of content
Moniker	Moniker Object	unique identifier
<u>Host Object</u>		
Encapsulates the attributes of a networked computer related to the operation or services it offers or requests.		
Token	Security Token Object	
HostName	String	computer name and domain
PortNumber	Int	port number for service
DisplayName	String	descriptive computer name
<u>Login Information Object</u>		
Encapsulates the name and password by which a User is known to the system.		
Token	Security Token Object	
Login	String	User's system login name
Password	String	User's system password (possibly encrypted)
<u>Media Control Interface (MCI) Request Object</u>		
Encapsulates a multimedia control command, such as play and stop, and any extra information that may be necessary to perform the requested service.		
Token	Security Token Object	
Command	Int	multimedia command
String	String	command-specific extra info
<u>Moniker Object</u>		
A moniker encapsulates the name of an object or process with the intelligence necessary to work with that name. In other words, it provides naming and binding services. The Moniker Object is used in the system for unique identification of various components, parts or features, such as a channel, a directory, or a computer list.		
Token	Security Token Object	
ID	String	unique string identifier
DisplayName	String	User-readable name
<u>Ping Object</u>		
Ping is the name given to the "Are-You-Alive?" operation useful in determining if a specific computer is up and running. This object is used in the system when a server has to be queried for its operational status. It can also provide timing information for statistical purposes and quality of service evaluations.		
Token	Security Token Object	
Date	Date	system date
Time	Time	system time
<u>Protocol List Object</u>		
Encapsulates a general purpose collection object.		
Token	Security Token Object	
Type	Int	type of object list
<u>Result Message Object</u>		
Acts as the acknowledgment for a requested service successfully carried that out or reports errors that occur in the system during a client/server transaction.		
Token	Security Token Object	
Code	Int	result code
Message	String	message corresponding

TABLE 1-continued

Field Name	Field Type	Remarks
5		
<u>Security Token Object</u>		
Contains the authorization key for a transaction. The key must be validated before any service is performed.		
ID	String	authorization key/transaction ID.
10		
<u>Server Activation Object</u>		
Contains information used in the server activation/deactivation process. Used for announcement as well as command purposes (e.g., a server can notify the administration database that is now activated or a server can be instructed to manage someone else).		
15		
Token	Security Token Object	
Active	Int	action flag (activate/deactivate)
Manage	Int	control flag (manage/associate)
Type	Int	server type
Host	Host Object	host to be controlled
20		
<u>Server List Request Object</u>		
Encapsulates a request for a list of available server resources for an identified service (e.g., a request for a list of Control Servers for a specified channel).		
25		
Token	Security Token Object	
Type	Int	type of service
Moniker	Moniker Object	content/channel unique identifier
Host	Host Object	local host information
30		
<u>Statistics Object</u>		
Contains system-related information that can be used by load-balancing algorithms and for statistical purposes.		
Token	Security Token Object	
Load	Int	load on the system
Threads	Int	number of threads running
35		
Users	Int	number of Users being serviced
Uptime	Int	amount of time running
NumberManaged	Int	number of managed servers
NumberAssociated	Int	number of associated servers
40		
<u>Statistics Request Object</u>		
Encapsulates a request for system-related information that can be used by load-balancing algorithms and statistical purposes.		
45		
Token	Security Token Object	
Load	Int	request flag (on/off)
Threads	Int	request flag (on/off)
Users	Int	request flag (on/off)
Uptime	Int	request flag (on/off)
NumberManaged	Int	request flag (on/off)
NumberAssociated	Int	request flag (on/off)
50		
<u>User Object</u>		
Users and Servers use this object to register themselves with the administration database. They provide the information for subsequent logins (name, password) and other system-related info. The end-Users provide personal, demographic, and system-related information.		
55		
Token	Security Token Object	
Login	Login Information Object	login information(name, password)
FirstName	String	User's first name
LastName	String	User's last name
Title	String	User's job title
Company	String	User's employer
60		
Address1	String	User's home street address
Address2	String	User's address extra
City	String	city, village
State	String	state, province or foreign country
65		
ZipCode	String	zip or postal code
Age	String	User's age



TABLE 1-continued

Field Name	Field Type	Remarks
Gender	String	User's gender
PhoneNumber	String	telephone number
FaxNumber	String	fax number
Email	String	email address
Demographics	Dictionary	market-targeting extra
SystemInfo	Dictionary	User info system-related information
<b>Version Object</b>		
All components of the system use this object to report their versioning information to the party they transact with in order to use a protocol they both understand. They are also given the chance to update themselves if a newer version exists.		
Token	Security Token Object	
Major	Int	major protocol version number
Minor	Int	minor protocol version number
Type	Int	sender type
Client	Version	client version information

Unlike traditional protocols based on state computers, the control protocol of the present invention is a light-weight, stateless protocol comprising simple sequences of objects. It is light-weight in that in most sequences only two objects are involved in the transaction and after a sequence is completed the connection can be reused. It is also stateless in that the server maintains no information about the client. Every transaction is handled independently of the previous ones. States exist in the lower levels, for example within the TCP layer, to express logical states of a network connection but they are not actually part of the control protocol.

In the preferred embodiment, the software running on the Control Servers, Media Servers and Primary Servers is programmed for Windows NT and UNIX environment using the OLE environment. In addition, COM interfaces are used between components. The Rogue Wave system is used to transfer objects between the applications running on the various computers. The software running on the User computer is preferably programmed for a Windows 32-bit environment, so it will run on a Windows 95 or Windows NT computer. Alternatively, Macintosh and UNIX environments can be accommodated by other User software.

The basic process of a control transaction consists of a version sequence followed by one or more protocol sequences. The version sequence starts after the computer initiating the transaction, the client, has established a connection with the computer completing the transaction, the server. The client sends a Version Object (defined in Table 1) and in response the server then sends back its own Version Object. This version sequence is used so that both client and server are aware of the version numbers of the software they are using. If a version number is older than expected, either client or server can choose to conform to the previous version or abort the transaction, depending on its needs and capabilities. If a version number is newer than expected, in most cases the current transaction can be completed since the software systems are designed to be fully backward compatible with previous versions. Additionally, in the case that the server of the transaction is the Administration Server, the client receives information about what the latest version number is and thus the client can be informed that a software update is needed. The process of handling automatic updating of User software is described more fully below.

After the version sequence, one or more protocol sequences occur in which other objects are exchanged between client and server. When a particular protocol sequence is completed, another independent protocol sequence can be serviced. The protocol sequences that are part of the control architecture of the present invention are summarized in Table 2 and described below in conjunction with FIGS. 6-17.

TABLE 2

Summary of Protocol Sequences				
Control Sequence	Client	Server	Main Objects Exchanged	
15 User Registration and Login (see Fig. 6)	User	Administration	Version Object User Object Channel Guide Object	
20 User Login (see Fig. 7)	User	Administration	Version Object Login Information Object Channel Guide Object	
25 Channel Play (see Figs 8a, 8B, 8C)	User	Administration	Version Object Server List Object	
		Control Media	Version Object Server List Object Version Object MCI Objects - OPEN/PLAY/ STOP/CLOSE Ping Objects (TCP connection stays open)	
30 Token Validation (see Figs. 9A, 9B) Server Registration and Login (see Fig. 10) Server Login (see Fig. 11)	Control or Media or Primary Media or Control	Administration or Control	Version Object Security Token Object	
		Administration	Version Object User Object Server Activation Object	
40 Control Server Activation (see Fig. 12) Media Server Activation (see Fig. 13)	Administration Control	Control	Version Object Server Activation Object	
		Media	Version Object Server Activation Object Ping Objects (TCP connection stays open)	
50 Control Channel Activation (see Fig. 14) Media Channel Activation (see Fig. 15)	Administration Control	Control	Version Object Channel Activation Object	
		Media	Version Object Channel Activation Object (open TCP connection) Channel Activation Objects	
55 Distribution Activation (see Fig. 16)	Media	Media or Primary	Version Object MCI Objects - OPEN/PLAY/ STOP/CLOSE Ping Objects (TCP connection stays open)	
		Administration	Version Object Statistics Object	
60 Statistics Request (see Fig. 17)	Administration	Control or Media	Version Object Statistics Object	

The User registration and login sequences are the processes by which a new User registers with the system, logs in and retrieves programming information. The channel play sequence takes place when a User asks to listen to a particular channel. The token validation sequence is used to verify that a computer requesting a service is authorized to



do so. The Server registration, login and activation sequences are used by Control and Media Servers when they become active. The Control Server and Media Server activation sequences are used to manage the Control and Media Servers. The control channel, media channel and distribution activation sequences are used to cause a channel to be distributed to a Media Server. Finally, the statistics request is used for administrative purposes.

FIG. 6 illustrates the User registration and login sequence in more detail. This sequence takes place after the User has installed the User software on his/her computer. It is expected that the User will download the software from the Internet and then invoke it which in the preferred embodiment will use the Windows Wizard interface. This will guide the User through the installation process including filling out the registration form, which we will describe more fully in the next section. After the User has selected a name and password and selected the option to register, the User computer opens a TCP connection to the Administration Server. Advantageously, the full domain name of the Administration Server is embedded into the User software, although it could be discovered in other ways. The User and Administration Server then exchange version objects with the Administration Server as described above. If the version numbers meet expectations, the User sends a User Object to the Administration Server. The format of the User Object is shown in Table 1. Once the Administration Server receives the User Object, it verifies that the information is filled in properly and that the selected User name is unique. If the User Object is invalid for any reason, the Administration Server returns a Result Message Object with a code indicating the reason. The format of the Result Message Object is shown in Table 1. If the User information is valid, the Administration Server updates the global database of User names and passwords and then generates a security token for that User. This security token is then returned to the User in a Result Message Object. Upon receiving the Result Message Object, the User saves the security token for future use. This token is an identifier that allows the User to request services from the Administration Server and other computers within the overall system. The security token is not saved permanently or registered on the User computer. Normally, the User software then immediately sends a Channel Guide Request Object to the Administration Server and a Channel Guide Object is returned.

The format of these objects is also shown in Table 1. Note that in principle, this is a separate transaction and could take place in a separate TCP connection to the Administration Server. In particular, once the User has registered and logged in, he/she can request the Channel Guide Object again since it may have been updated since the previous request.

At this point the TCP connection to the Administration server is closed.

The process of User registration only needs to take place once for each User. However anyone can re-register at any time, even after the software has been installed. In particular, it is expected that if multiple persons use a computer, each person will register and obtain his/her own User name and password. If the registration process is not completed successfully, the User software saves the registration information and ask the User if they would like to try again the next time the software is invoked.

Since the security token is not permanently saved by the User software, it is lost when the User software is closed, and the security token must again be retrieved from the Administration Server the next time the User wants to use

the system. This process is the purpose of the login sequence illustrated in FIG. 7. This sequence is used if a User has already registered and needs only to retrieve a valid security token. In this case the sequence consists of the User's sending a Login Information Object to the Administration Server. The Administration Server then queries the User database to validate the login name and password. If the login name and password are correct, then a security token is returned to the User. Normally the receipt of the security token will immediately be followed by a channel information request sequence, just as in the registration sequence described previously.

The control sequence that takes place when a User initiates a channel play operation is illustrated in FIGS. 8A, 8B and 8C. First the User software requests a Control Server List from the Administration Server. Note that the Server List Request Object, illustrated in Table 1 contains a channel identifier. The Administration Server generates a sorted list of Control Servers based on overall system load and the location of the User on the network and returns this list to the User using a Protocol List Object. Once the Control Server List is returned to the User, the Administration Server is no longer needed and the TCP connection is closed.

The User software then searches the list of Control Servers and opens a TCP connection to the first host listed.

If that host computer does not respond, then the next Control Server on the list is tested and so forth in succession.

Upon obtaining a response from a Control Server, the User software uses a Server List Request Object to request a Media Server List from the Control Server. If the Control Server is too busy to service the User, it returns a Result Message Object so indicating and the User software tries the next Control Server on the list. However, in the likely scenario that the Control Server is able to handle the User's request, a sorted list of Media Servers is generated and returned to the User computer using a Protocol List Object. The TCP connection to the Control Server is then closed by the User software.

At this point the User software initiates a TCP connection to the first Media Server on the list provided by the Control Server. As in the previous case, it attempts to connect to the first host on the list and if unsuccessful tries the next hosts in succession. Once the Version Objects are exchanged, the User software sends an MCI Request Object to the Media Server. An MCI Request Object can be used for four basic commands: OPEN, PLAY, STOP and CLOSE. The User software must first send an OPEN command for the desired channel. If the returned Result Message Object indicates success, the User software then sends a PLAY command. When the Media Server receives a valid PLAY command, it initiates the delivery of audio information to the User as described in the previous section. Note that this could be in the form of broadcast, multicast or unicast packets to a specific UDP port. The TCP connection through which the MCI Request Objects were sent stays open during the audio play operation. In addition, Ping Objects are sent to the User on a periodic basis to verify that the computer is still working and active. When the User software receives a Ping Object, it simply returns it. The Media Server uses the Ping Objects to measure round trip time and also to determine when a User's computer has terminated abnormally. In that case the audio stream is terminated.

In the case of normal termination of the audio stream, the User makes an explicit selection to stop and this causes a STOP command to be sent to the Media Server in an MCI Request Object. The Media Server then terminates the audio



stream to that User. When the User closes the application software or selects another channel to play, the User software will send a CLOSE command to the Media Server in an MCI Request Object and the TCP connection is closed.

The initiation of the audio stream by the Media Server causes a log entry to be generated and sent to the Administration Server. This information is important so that the Administration Server can update its database to indicate which Users are listening to which channels. The security token is used to identify the User initiating the audio stream. Additionally, when the audio stream is terminated to any User, another log message is generated and sent to the Administration Server.

FIG. 9A illustrates the process by which security tokens are validated. The Administration Server is the only server that can validate a security token. Thus, when a User requests services from a Control Server or from a Media Server, that server must go back to the Administration Server with a token validation sequence. However, Control Servers and Media Servers are allowed to cache validations of security tokens so that they do not have to validate tokens repeatedly once they have validated it the first time. In the case where a Media Server receives a request, the token will be validated with the Control Server that is managing that Media Server. FIG. 9B identifies the various token validation scenarios.

FIG. 10 illustrates the process by which a new Server is registered. This process is similar to new User registration. It is expected, however, that the server installation will be through a Web interface rather than a Wizard. The Administration Server, upon receiving a User Object from a Media Server or Control Server validates the User name and password and generate a security token just as in the case of User registration. Normally the Server then immediately sends back a Server Activation Object indicating that it is ready to be used as a system resource. Once this process has been completed, the TCP connection to the Administration Server is closed.

If a Media Server or Control Server that has sent a Server Activation Object to the Administration Server becomes inactive, it will send another Server Activation Object indicating this condition. In the case of a Media Server, this object is sent to the managing Control Server. In the case of a Control Server, this object sent to the Administration Server. As in the case of User registration, Media Server and Control Server registration needs only take place once per computer. However, if the computer is restarted, the server must login and again retrieve a security token. This is the server login and activation sequence shown in FIG. 11.

Once a Control Server has indicated to the Administration Server that it is ready, the Administration Server can activate that Control Server by sending the Control Server a Server Activation Object as illustrated in FIG. 12. This is a separate transaction and is used to tell the Control Server which Media Servers it is supposed to manage. Recall that a Control Server and a number of Media Servers form a cluster of Media Servers. The single Control Server that manages that cluster must be given a list of host computers corresponding to the Media Servers in that cluster.

The process by which a Control Server activates the Media Servers that it manages is illustrated in FIG. 13. The Control Server sends a Server Activation Object to the Media Server indicating that it is responsible for channel management. This TCP connection between the Control Server and the Media Server stays open during the time that both servers are active. The Control Server periodically

sends Ping Objects to the Media Server across this open TCP connection to verify that the Media Server is still running.

FIG. 14 illustrates the process by which a given channel is activated by the Administration Server. The Administration Server opens a connection to a Control Server that it wishes to have carry a given channel and provide a Channel Activation Object. This object indicates to the Control Server which Media or Primary Server the Control Server should direct its Media Servers to get the feed from. At this point the Control Server is said to be carrying that channel and it will be a valid host on a list of Control Servers requested by a Channel Play sequence.

FIG. 15 illustrates what happens when a Control Server needs to provide a channel. First it sends a Channel Activation Object to one of the Media Servers that it manages across the open TCP connection described previously. This object indicates to the Media Server that it should start receiving the channel identified and from where it should receive it.

In FIGS. 16A and 16B depict how the Media Server requests distribution of an audio channel from another Media Server or from a Primary Server. This sequence is much the same as that in which a User requests the distribution of audio information from a Media Server. Note that a Media Server receives a single incoming stream for each channel that it is carrying and will then redistributes this stream to all Users or other Media Servers that request it.

Finally, FIG. 17 illustrates the statistics request sequence. This sequence is used by the Administration Server to gather information from the Media Servers and Control Servers in order to manage the overall system. It can use this information to detect failures and to balance load as the dynamic conditions change. As indicated above, it can also use this information to monitor which Users are listening to which channel or whether Users stop listening to a channel at any time, such as during the play of a particular song. It can also use this information to control the advertising content that is downloaded to a particular User in advance of receipt of regular audio programming and/or monitor the delivery of advertising to the Users.

The control architecture described in this section is scalable to handle any number of Users. Note that the User registration process only happens once for each subscriber and the login process only happens once per session. These interactions, which require the Administration Server are expected to constitute a very small percentage of the overall system bandwidth. If the Administration Server were to become a bottleneck, however, it would be possible to duplicate it and to have the database it maintains distributed and automatically updated to guarantee consistency.

The Control Servers are distributed throughout the network and can handle the lower level interactions with the Users and the Media Servers. A single Control Server can handle preferably on the order of ten Media Servers up to several hundred Users. The bitrate among the Users, the Control Servers and the Media Servers is expected to be small in comparison to the audio transmission bitrate. The Ping Objects normally only involve the User and the nearest Media Server. They are also low in overhead since they are small and only get transmitted infrequently.

### III. User Interface

The User interface is provided by the client application running on an individual computer and its associated graphical interface. In the preferred embodiment the User interface is available for 32-bit Windows (95 and NT), Macintosh and



UNIX platforms. Preferably anyone on the Internet can freely download a copy of the client software and install it in their computer.

FIG. 18 illustrates the main User screen in the preferred embodiment. The screen is composed of three sections: channel guide (upper left frame), program guide (upper right frame), and multimedia frame (lower half of screen). The channel guide lists, as a tree hierarchy, the channels that are available from the system. The User selects a channel from the list of those displayed on the channel guide. The program guide provides information pertaining to the channel selected. This information can be a detailed schedule of the programming that has played or will be playing on the channel selected. Additionally, other relevant information will be displayed in this frame. For example, a notice regarding an upcoming special event on another channel. The multimedia frame provides an integrated web browser that displays information via a series of tabbed sections.

The information contained in the channel guide, program guide, and the tabs of the multimedia frame is dynamically transmitted to the client. For example, if a new channel begins operation, the client application can immediately display it as being available. Furthermore, the tabs displayed can be specifically relevant depending on what song is playing. For example, tabs displaying the album cover, information on the artist, song lyrics, tour dates can be displayed. Additionally, as shown in the example in FIG. 18, a tab can be available allowing the User to place an order for the CD or allowing the User to participate in a chat session related to the channel.

FIG. 19 illustrates the key pull-down menus available in the main User screen in the preferred embodiment. Table 3 provides a description of each of the functions available through the pull down menus, as shown in FIG. 19.

As will be apparent to those skilled in the art, numerous modifications may be made within the spirit and scope of the invention.

TABLE 3

Pull-Down Menu Functions		
Menu Choice	Menu Sub-Choice	Description
File	Login	Allows the User to login to the system.
	Logout	Allows the User to logout from the system.
	Register	Brings up a dialog so that the User can register with the system for the first time.
Edit	Close	Minimizes the screen.
	Copy	Allows the User to copy the selection on to the clipboard.
Audio	Properties	Allows the User to set various properties.
	Play	Begins playing the selected channel.
	Stop	Stops playing the selected channel.
View	Mute	Stops the playing of audio
	Tool Bar	Display or hide the tool bar (providing access to pull-down menu functions).
	Status Bar	Display or hide the status bar normally situated at bottom of the screen.
	Web Bar	Display or hide the tool bar

TABLE 3-continued

Pull-Down Menu Functions		
Menu Choice	Menu Sub-Choice	Description
Help	Help Topics	section that provides access to the web browser functions. Brings up a list of available online help topics.
	About . .	Displays summary information regarding this application, such as version number, copyright information, and so on.

What is claimed is:

1. A method for transmitting message packets over a communications network comprising the steps of:

converting a plurality of streams of audio and/or visual information into a plurality of streams of addressed digital packets complying with the specifications of a network communication protocol.

for each stream, routing such stream to one or more users, controlling the routing of the stream of packets in response to selection signals received from the users, and

monitoring the reception of packets by the users and accumulating records that indicate which streams of packets were received by which users, wherein at least one stream of Rackets comprises an audio and/or visual selection and the records that are accumulated indicate the time that a user starts receiving the audio and/or visual selection and the time that the user stops receiving the audio and/or visual selection.

2. The method of claim 1 further comprising the step of including in at least one stream of packets at least some advertising information.

3. The method of claim 2 further comprising the step of varying the content of the advertising information with the identity of the user to whom the advertising information is provided.

4. The method of claim 2 wherein the advertising information is inserted into the stream of audio and/or visual information before such stream is converted into a stream of packets.

5. The method of claim 2 wherein the records that are accumulated indicate how many users received specific advertising information.

6. The method of claim 2 wherein the records that are accumulated indicate which users received specific advertising information.

7. The method of claim 1 further comprising the step of generating an audio output and/or a visual display from the stream of packets received by the user.

8. The method of claim 1 further comprising the steps of: storing a first stream of packets received by the user at a first time and at a later time, inserting the first stream of packets into a second stream of packets received at the user.

9. The method of claim 8 further comprising the step of converting the combined first and second streams of packets into an audio output and/or visual display.

10. The method of claim 8 wherein the first stream of packets contains advertising information.

11. The method of claim 8 wherein the content of the advertising information is varied depending on the identity of the user.

## 19

12. The method of claim 1 wherein at least one stream of packets comprises copyrighted music selections and the records that are accumulated indicate how many users received specific music selections.

13. The method of claim 1 wherein at least one stream of packets comprises music selections and the records that are accumulated indicate how many users did or did not listen to the entire selection.

14. The method of claim 1 further comprising the steps of: compressing the stream of packets in their passage from source to user, and

decompressing the stream of packets near the user.

15. The method of claim 14 wherein the compressing step uses a compression algorithm that is selected in accordance with the content of the information being communicated in the stream of packets.

16. The method of claim 15 wherein the compressing step inserts into each packet an identification of the compression algorithm used and the decompressing step monitors each packet to read such identification and to vary its decompression algorithm in response thereto.

17. The method of claim 1 wherein at least one stream of packets comprises copyrighted music selections and the records that are accumulated indicate which users received specific music selections.

18. The method of claim 1 further comprising the steps of: storing a first stream of packets received by the user at a first time and

inserting the first stream of packets into a plurality of streams of packets received at the user at a plurality of later times.

19. A method for transmitting at least one stream of audio and/or visual information over a communications network to a plurality of users comprising the steps of:

controlling the routing of the stream of information through the network in response to selection signals received from the users, and

monitoring the reception of the stream of information by the users and accumulating records relating to the reception of the stream of information by the users wherein at least one stream of information comprises an audio and/or visual selection and the records that are accumulated indicate the time that a user starts receiving the audio and/or visual selection and the time that the user stops receiving the audio and/or visual selection.

20. The method of claim 19 further comprising the step of including in at least one stream of information at least some advertising information.

21. The method of claim 20 further comprising the step of varying the content of the advertising information with the identity of the user to whom the advertising information is provided.

22. The method of claim 20 wherein the records that are accumulated indicate how many users received specific advertising information.

23. The method of claim 20 wherein at least one stream of information comprises copyrighted music selections and the records that are accumulated indicate how many users received specific music selections.

24. The method of claim 20 wherein at least one stream of information comprises music selections and the records that are accumulated indicate how many users did or did not listen to he entire selection.

## 20

25. The method of claim 20 further comprising the steps of:

compressing the stream of information in its passage from source to user, and

decompressing the stream of information near the user.

26. The method of claim 25 wherein the compressing step uses a compression algorithm that is selected in accordance with the content of the information being communicated in the stream of information.

27. The method of claim 20 wherein the records that are accumulated indicate which users received specific advertising information.

28. The method of claim 19 further comprising the steps of:

storing a first stream of information received by the user at a first time and

at a later time, inserting the first stream of information into a second stream of information received by the user.

29. The method of claim 28 wherein the first stream of information contains advertising information.

30. The method of claim 19 wherein multiple streams of audio and/or visual information are transmitted over the communications network and the user can select which stream to receive.

31. The method of claim 19 wherein at least one stream of information comprises copyrighted music selections and the records that are accumulated indicate which users received specific music selections.

32. The method of claim 19 further comprising the steps of:

storing a first stream of information received by the user at a first time and

inserting the first stream of information into a plurality of streams of information received at the user at a plurality of later times.

33. A communication system comprising:

means for converting at least one stream of audio and/or visual information into a stream of addressed digital packets complying with the specifications of a network communication protocol.

means for routing such stream via a communication network to selected users,

means for controlling the routing of the stream of packets in response to selection signals received from the users, and means for monitoring the reception of packets by the user and for accumulating records that indicate which streams of packets were received by which users, wherein at least one stream of Rackets comprises an audio and/or visual selection, and the means for monitoring further includes means for accumulating records that indicate the time that a user starts receiving the audio and/or visual selection and the time that the user stops receiving the audio and/or visual selection.

34. The communication system of claim 33 further comprising means for including in the stream of packets at least some advertising information.

35. The communication system of claim 34 further comprising means for varying the content of the advertising information with the identity of the user to whom the advertising information is provided.

36. The communication system of claim 34 wherein the means for monitoring further accumulates records that indicate which users received specific advertising information.

37. The communication system of claim 33 wherein at least one stream of packets comprises copyrighted music



selections and the means for monitoring further accumulates records that indicate which users received specific music selections.

38. The method of claim 33 further comprising means for storing packets received at the user during a first time period and means for inserting such packets into other packets received at the user at a plurality of later time periods.

39. The communication system of claim 33 further comprising means for generating from the stream of packets received at the user an audio output and/or a visual display.

40. The communication system of claim 33 further comprising means for storing packets received at the user during a first time period and means for inserting such packets into other packets received at the user at a later time period.

41. The communication system of claim 40 wherein the stream of packets received during the first time period contains advertising information.

42. The communication system of claim 41 wherein the content of the advertising information is varied depending on the identity of the user.

43. The communication system of claim 33 further comprising:

- means for compressing the stream of packets in their passage from source to user, and
- downstream of the compressing means, means for decompressing the stream of packets.

44. The communication system of claim 43 wherein the compressing means is located near the converting means and the decompressing means is located at the user.

45. The communication system of claim 43 wherein the compressing means uses a compression algorithm that is selected in accordance with the content of the information being communicated in the stream of packets.

46. The communication system of claim 43 wherein the compressing means inserts into each packet an identification of the compression algorithm used and the decompressing means monitors each packet to read such identification and to vary its decompression algorithm in response thereto.

47. A method for transmitting message packets over a communications network comprising the steps of:

- converting a plurality of streams of audio and/or visual information into a plurality of streams of addressed digital packets complying with the specifications of a network communication protocol.

for each stream, routing such stream to one or more users, controlling the routing of the stream of packets in response to selection signals received from the users, and

monitoring the reception of packets by the users and accumulating records that indicate which streams of packets were received by which users, wherein at least one stream of packets comprises music selections and the records that are accumulated indicate how many users did or did not listen to the entire selection.

48. A method for transmitting at least one stream of audio and/or visual information over a communications network to a plurality of users comprising the steps of:

- controlling the routing of the stream of information through the network in response to selection signals received from the users, and

monitoring the reception of the stream of information by the users and accumulating records relating to the reception of the stream of information by the users, wherein at least one stream of information comprises music selections and the records that are accumulated indicate how many users did or did not listen to the entire selection.

49. A method for transmitting message packets over a communications network comprising the steps of:

- converting a plurality of streams of audio and/or visual information into a plurality of streams of addressed digital packets complying with the specifications of a network communication protocol.

for each stream, routing such stream to one or more users, controlling the routing of the stream of packets in response to selection signals received from the users, and

monitoring the reception of packets by the users and accumulating records that indicate which streams of packets were received by which users, wherein at least one stream of packets comprises an audio and/or visual selection and the records that are accumulated indicate the elapsed time that a user received the audio and/or visual selection.

50. A method for transmitting at least one stream of audio and/or visual information over a communications network to a plurality of users comprising the steps of:

- controlling the routing of the stream of information through the network in response to selection signals received from the users, and

monitoring the reception of the stream of information by the users and accumulating records relating to the reception of the stream of information by the users, wherein at least one stream of information comprises an audio and/or visual selection and the records that are accumulated indicate the elapsed time that a user received the audio and/or visual selection.

51. A communication system comprising:

- means for converting at least one stream of audio and/or visual information into a stream of addressed digital packets complying with the specifications of a network communication protocol.

means for routing such stream via a communication network to selected users,

means for controlling the routing of the stream of packets in response to selection signals received from the users, and

means for monitoring the reception of packets by the user and for accumulating records that indicate which streams of packets were received by which users, wherein at least one stream of packets comprises an audio and/or visual selection, and the means for monitoring further includes means for accumulating records that indicate the elapsed time that a user received the audio and/or visual selection.

\* \* \* \* \*

UNITED STATES PATENT AND TRADEMARK OFFICE  
CERTIFICATE OF CORRECTION

PATENT NO. : 5,778,187  
DATED : July 7, 1998  
INVENTOR(S) : Monteiro et al.

It is certified that errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Column 1, line 18: change "pointto-point" to --point-to-point--.

Column 4, line 44: change "VAULTNFS" to --VAULT-NFS--.

Claim 1, line 30: change "Rackets" to -packets-.

Claim 24, line 67: change "he" to -the-.

Claim 33, line 50: change "Rackets" to -packets-.

Claim 42, line 19: "cntent" to -content-.

Signed and Sealed this  
Eighteenth Day of May, 1999

Attest:



Q. TODD DICKINSON

Attesting Officer

Acting Commissioner of Patents and Trademarks

UNITED STATES PATENT AND TRADEMARK OFFICE  
**CERTIFICATE OF CORRECTION**

PATENT NO. : 5,778,187  
DATED : July 7, 1998  
INVENTOR(S) : Monteiro et al.

Page 1 of 2

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Column 1,

Lines 20, 23, 24 and 43, "which", each occurrence, should read -- that --;  
Line 32, "capability analogous" should read -- capability, analogous --;  
Line 34, "nodes are" should read -- nodes, is --;  
Line 59, "1458 which" should read -- 1458, which --.

Column 2,

Lines 32 and 47, "which", each occurrence, should read -- which: --

Column 3,

Lines 12, 15, 20, 24, 25 and 26, "which", each occurrence, should read -- that --;  
Line 21, "at a major points" should read -- at major points --.

Column 4,

Line 8, "which" should read -- that --.

Column 5,

Lines 36 and 41, "which", each occurrence, should read -- that --;  
Line 63, change "dynamic, Users" to -- dynamic; Users --.

Column 6,

Line 2, "which" should read -- that --.  
Line 25, begin new paragraph at the sentence beginning with "Multicasting".  
Line 39, "to a multicast" should read -- to multicast --.  
Line 46, begin new paragraph at the sentence beginning with "Thus".  
Lines 50 and 65, "which", each occurrence, should read -- that --.

Column 7,

Line 17, "which" should read -- that --;  
Line 18, "monitor" should read -- monitors --;  
Line 26, "audiostream" should read -- audio stream --.

Column 8,

Line 5, "36 which" should read -- 36, which --.

Column 13,

Line 13, "invoke it which" should read -- invoke it, which --;  
Line 62, "ask" should read -- asks --.

UNITED STATES PATENT AND TRADEMARK OFFICE  
**CERTIFICATE OF CORRECTION**

PATENT NO. : 5,778,187  
DATED : July 7, 1998  
INVENTOR(S) : Monteiro et al.

Page 2 of 2

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Column 15,

Line 33, "Server validates" should read -- Server, validates --;

Line 34, "generate" should read -- generates --.

Column 16,

Line 26, "and will then" should read -- and then --;

Line 46, "Server are" should read -- Server, are --.

Column 18,

Line 11, Table 3, "infirmation" should read -- information --.

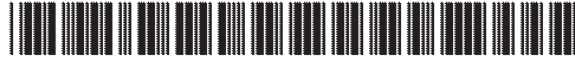
Signed and Sealed this

Sixth Day of May, 2003



JAMES E. ROGAN  
*Director of the United States Patent and Trademark Office*





US005778187C1

(12) **EX PARTE REEXAMINATION CERTIFICATE (5425th)**  
**United States Patent**

**Monteiro et al.**

(10) **Number:** **US 5,778,187 C1**

(45) **Certificate Issued:** **Jun. 27, 2006**

- (54) **MULTICASTING METHOD AND APPARATUS**
- (75) Inventors: **Antonio M. Monteiro**, New York, NY (US); **James F. Butterworth**, New York, NY (US)
- (73) Assignee: **Netcast Innovations Ltd.**, Boulder, CO (US)

4,602,279 A 7/1986 Freeman  
 4,816,904 A 3/1989 McKenna et al.  
 4,829,569 A 5/1989 Seth-Smith et al.  
 4,850,007 A 7/1989 Marino et al.  
 5,027,400 A 6/1991 Baji et al.  
 5,081,680 A 1/1992 Bennett

(Continued)

**FOREIGN PATENT DOCUMENTS**

EP 97 92 4648 6/2004  
 WO WO 95/15658 8/1995

**OTHER PUBLICATIONS**

Vashaspathi et al., "Multicast Routing for Multimedia Communication", IEEE/ACM Transactions on Networking vol. 1, No. 3 Jun., 1993, pp. 286-292.\*  
 Almeroth et al., "Collecting and Modeling the Join/Leave Behavior of Multicast Group Members in the MBONE", IEEE Proceedings of HPDC-5'96, May 1996, pp. 209-216.\*

(Continued)

*Primary Examiner*—Bunjoo Jaroenchonwanit

(57) **ABSTRACT**

A scalable architecture is disclosed for delivery of real-time information over a communications network. Embedded into the architecture is a control mechanism that provides for the management and administration of users who are to receive the real-time information. In the preferred embodiment, the information being delivered is high-quality audio. However, it could also be video, graphics, text or any other type of information that can be transmitted over a digital network. Preferably, there are multiple channels of information available simultaneously to be delivered to users, each channel consisting of an independent stream of information. A user chooses to tune in or tune out a particular channel, but does not choose the time at which the channel distributes its information. Advantageously, interactive (two-way) information can be incorporated into the system, multiple streams of information can be integrated for delivery to a user, and certain portions of the information being delivered can be tailored to the individual user.

**Reexamination Request:**  
 No. 90/007,054, May 28, 2004  
 No. 90/007,445, Mar. 4, 2005

**Reexamination Certificate for:**  
 Patent No.: **5,778,187**  
 Issued: **Jul. 7, 1998**  
 Appl. No.: **08/644,072**  
 Filed: **May 9, 1996**

Certificate of Correction issued May 18, 1999.

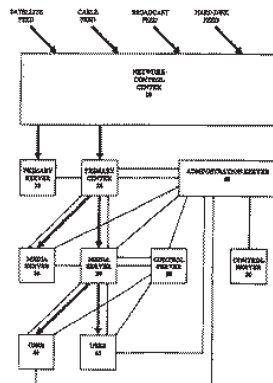
Certificate of Correction issued May 6, 2003.

- (51) **Int. Cl.** *G06F 15/16* (2006.01)
- (52) **U.S. Cl.** ..... **709/231; 370/351**
- (58) **Field of Classification Search** ..... **709/204, 709/206, 231**  
 See application file for complete search history.

(56) **References Cited**

**U.S. PATENT DOCUMENTS**

2,674,512 A 4/1954 Bogert et al.  
 2,957,046 A 10/1960 Freeman et al.  
 3,126,513 A 3/1964 Kamen  
 3,230,302 A 1/1966 Bruck et al.  
 3,368,031 A 2/1968 Eisele et al.  
 3,733,430 A 5/1973 Thompson et al.  
 4,245,245 A 1/1981 Matsumoto et al.  
 4,264,924 A 4/1981 Freeman  
 RE31,639 E 7/1984 Nicholson  
 4,546,382 A 10/1985 McKenna et al.  
 4,558,358 A 12/1985 Onda



U.S. PATENT DOCUMENTS

5,105,184 A	4/1992	Pirani et al.	5,673,254 A	*	9/1997	Crayford	370/231
5,132,992 A	7/1992	Yurt et al.	5,675,510 A		10/1997	Coffey et al.	
5,155,591 A	10/1992	Wachob	5,694,334 A		12/1997	Donahue et al.	
5,155,762 A	10/1992	Croquet et al.	5,706,290 A		1/1998	Shaw et al.	
5,195,086 A	3/1993	Baumgartner et al.	5,715,336 A	*	2/1998	Tanaka	382/301
5,220,420 A	6/1993	Hoarty et al.	5,717,923 A		2/1998	Dedrick	
5,220,501 A	6/1993	Lawlor et al.	5,727,002 A	*	3/1998	Miller et al.	714/748
5,231,494 A	7/1993	Wachob	5,734,719 A		3/1998	Tsevodos et al.	
5,245,429 A	9/1993	Virginio et al.	5,745,837 A	*	4/1998	Fuhrmann	725/114
5,251,324 A	10/1993	McMullan, Jr.	5,751,336 A		5/1998	Aggarwal et al.	
5,267,032 A	11/1993	Van Cang	5,760,838 A	*	6/1998	Adams et al.	348/460
5,283,639 A	2/1994	Esch et al.	5,771,073 A	*	6/1998	Lim	348/390.1
5,283,731 A	2/1994	Lafonde et al.	5,774,664 A	*	6/1998	Hidary et al.	725/110
5,289,271 A	2/1994	Watson	5,778,182 A		7/1998	Cathey et al.	
5,305,195 A	4/1994	Murphy	5,778,187 A		7/1998	Monteiro et al.	
5,309,433 A	5/1994	Cidon et al.	5,790,541 A	*	8/1998	Patrick et al.	370/392
5,319,455 A	6/1994	Hoarty et al.	5,793,980 A		8/1998	Glaser et al.	
5,347,304 A	9/1994	Moura et al.	5,812,545 A	*	9/1998	Liebowitz et al.	370/337
5,347,632 A	9/1994	Filepp et al.	5,838,683 A	*	11/1998	Corley et al.	370/408
5,353,218 A	10/1994	De Lapa et al.	5,848,396 A		12/1998	Gerace	
5,355,371 A	10/1994	Auerback et al.	5,862,329 A		1/1999	Aras et al.	
5,361,091 A	11/1994	Hoarty et al.	5,872,588 A		2/1999	Aras et al.	
5,361,256 A	11/1994	Doeringer et al.	5,878,384 A		3/1999	Johnson et al.	
5,371,532 A	12/1994	Gelman et al.	5,892,535 A	*	4/1999	Allen et al.	725/36
5,387,927 A	2/1995	Look et al.	5,894,480 A	*	4/1999	Hoffert et al.	370/389
5,410,698 A	4/1995	Danneels et al.	5,923,853 A	*	7/1999	Danneels	709/238
5,412,416 A	5/1995	Nemirofsky	5,928,331 A		7/1999	Bushmitch	
5,414,773 A	5/1995	Handelman	5,930,254 A		7/1999	Liron et al.	
5,418,559 A	5/1995	Blahut	5,930,493 A		7/1999	Ottesen et al.	
5,421,024 A	5/1995	Faulk, Jr. et al.	5,931,961 A		8/1999	Ranganathan et al.	
5,422,674 A	*	Hooper et al.	5,936,940 A		8/1999	Marin et al.	
5,424,770 A	6/1995	Schmelzer et al.	5,953,350 A	*	9/1999	Higgins	370/524
5,426,637 A	6/1995	Derby et al.	5,960,006 A	*	9/1999	Maturi et al.	370/509
5,428,606 A	6/1995	Moskowitz	5,983,005 A		11/1999	Monteiro et al.	
5,430,716 A	7/1995	Pawelski	6,002,393 A		12/1999	Hite et al.	
5,432,542 A	7/1995	Thibadeau et al.	6,005,560 A	*	12/1999	Gill et al.	715/500.1
5,440,548 A	8/1995	Denissen	6,009,096 A	*	12/1999	Jaisingh et al.	370/310.1
5,442,390 A	*	Hooper et al.	6,115,750 A	*	9/2000	Dillon et al.	709/235
5,446,489 A	8/1995	Egendorf	6,119,163 A		9/2000	Monteiro et al.	
5,446,490 A	8/1995	Blahut et al.	6,122,668 A	*	9/2000	Teng et al.	709/231
5,446,919 A	8/1995	Wilkins	6,208,656 B1	*	3/2001	Hrastar et al.	370/401
5,453,779 A	*	Dan et al.	6,434,622 B1		8/2002	Monteiro et al.	
5,455,619 A	10/1995	Truckenmiller et al.	6,539,022 B1	*	3/2003	Virgile	370/401
5,459,725 A	10/1995	Bodner et al.	6,560,707 B1	*	5/2003	Curtis et al.	713/163
5,481,297 A	*	Cash et al.	2003/0140159 A1	*	7/2003	Campbell et al.	709/231
5,485,464 A	1/1996	Strodtbeck et al.	2004/0255148 A1		12/2004	Monteiro et al.	
5,488,408 A	1/1996	Maduzia et al.					
5,493,514 A	2/1996	Keith et al.					
5,497,502 A	3/1996	Castille					
5,508,732 A	*	Bottomley et al.					725/93
5,515,098 A	5/1996	Carles					
5,517,494 A	*	Green					370/408
5,521,927 A	*	Kim et al.					370/474
5,555,244 A	*	Gupta et al.					370/397
5,559,549 A	9/1996	Hendricks et al.					
5,559,999 A	*	Maturi et al.					713/400
5,588,029 A	*	Maturi et al.					375/364
5,592,486 A	*	Lo et al.					370/389
5,594,732 A	*	Bell et al.					370/401
5,600,364 A	2/1997	Hendricks et al.					
5,604,542 A	2/1997	Dedrick					
5,610,920 A	*	Doll et al.					370/389
5,617,565 A	4/1997	Augenbraun et al.					
5,634,334 A	*	Hehl					60/328
5,636,346 A	6/1997	Saxe					
5,649,013 A	7/1997	Stuckey et al.					
5,652,615 A	*	Bryant et al.					725/35
5,652,749 A	*	Davenport et al.					370/466
5,666,487 A	*	Goodman et al.					709/246
5,671,226 A	*	Murakami et al.					370/474

OTHER PUBLICATIONS

Park et al., "Fault-tolerant Real-Time Synchronous collaboration environment using WWW\*", IEEE, 1996, pp. 226-231.\*

Pullen, "Synchronous Distance Education Via the Internet", FIE'96 Preceedings, IEEE, 1996, pp. 285-288.\*

Munzner, "Visualizing the Global Topology of the MBONE", IEEE, 1996, pp. 85-92 and 129.\*

Shin, "Internet Multimedia Application Technologies Current Practice and Future Directions", IEEE 1996, p. 225.\*

Chaddha et al., "A Frame-work for Live Multicast of Video Streams Over the Internet", IEEE 1996, pp. 1-4.\*

Macedonia et al., "MBone Provides Audio and Video Across the Internet", computer, Apr. 1994, pp. 30-35.\*

*Two-Way Media LLC v. America Online, Inc.*, Civil Action No. C-04-089, S.D. Texas, Complaint, Mar. 9, 2004.

*Two-Way Media LLC v America Online, Inc.*, America Online, Inc.'s Answer to the Complaint and Counterclaim, Civil Action No. C-04-089, S.D. Texas, May 20, 2004.

*Two-Way Media LLC v America Online, Inc.*, Order, Civil Action No. C-04-089, S.D. Texas, Jun. 9, 2004.