

Innovating in Broadcasting Media

From the Web to Digital Television

White Paper

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The New Era of Digital Broadcasting

Digital broadcasting — the transmission of digital media from one point to many points over diverse digital networks — is the new common ground of broadcasting, television and computers.

Digital broadcasting offers consumers an enriched experience via better pictures, enhanced programming and new services.

Digital broadcasting brings with it new opportunities for content producers, broadcasters and advertisers in the areas of new markets, new distribution channels and new audiences. For businesses, this means new and more cost-efficient means of communicating with customers and employees. For equipment makers, this means a new upgrade path for consumer electronics and computing devices.

The digital broadcasting infrastructure — multiuse, multinetwork and multiresolution — is evolving quickly from existing platforms, technologies and tools. And the key word is “evolving.” The new digital broadcasting infrastructure will be capable of carrying both traditional television video and newly popular, dynamic and timely Web-based data.

Several trends underlie the emergence of this new digital-broadcasting infrastructure, such as digital-video compression and transmission, the “Broadcast Web” (channels, media streaming and multicasting) and the parallel evolution of TVs and PCs. But the net of these trends is clear: The digital broadcasting era is here and offers the prospect of vast new possibilities for consumers and the industry.

Better PCs, Better TVs

Microsoft Corp. sees both televisions and personal computers improving and evolving to become receivers of the new digital broadcasts. Both will be capable of receiving the same types of enhanced content and programming, yet they will differ in that personal computers will continue to be “general purpose” devices that can be configured in many different ways, while televisions will be “special purpose” devices with far fewer configuration options.

Today, personal computers are capable of receiving digital broadcasts in the form of low-bandwidth, Web-based data and video. Over time, personal computers will add such features as broadband digital broadcast reception, distance viewing user-interface options and support for enhanced content.

Similarly, televisions will improve over time, adding capabilities such as Web access, broadband digital broadcast reception and support for enhanced content.

Microsoft is providing the implementation of channels in a host of key enabling technologies for this new digital-broadcasting era, including Microsoft® Internet Explorer 4.0, the NetShow™ server, and the Microsoft broadcast architecture for the Windows® and Windows CE operating systems. This document will explore these products in some detail, after first examining the impact of digital broadcasting on consumers, the industry and the infrastructure.

Enriching the Consumer Experience

Digital broadcasting provides first and foremost an opportunity to deliver more value to consumers. The new consumer experience can be thought about in terms of a richer display, enhanced programming and new services.

Better Pictures

Digital broadcasting will offer TV viewers and PC users a better viewing experience. This will be accomplished through the emergence of digital television formats that specify higher resolution digital-image display with a wide aspect ratio. This will allow the content-development community to give the viewer a richer experience by mixing text, graphics and video under the user's control.

Enhanced Programming

Digital broadcasting will offer consumers a combination of video, audio and Web data. This will open up a wealth of new content experiences. Existing broadcast shows can incorporate additional information and entertainment. For example, graphics and text generated on the viewer's television set can provide background story information, games and advertising that runs parallel with the broadcast show. News and information channels can dramatically increase their information content by combining the simultaneous broadcast of video and Web data. The mix of video, audio and Web data is equally important in computer and Internet venues, as Web sites increasingly include video, audio and streaming media.

New Services

Digital broadcasting will offer consumers a wealth of new services. The Web and the PC have proved that instant, on-demand access to critical news and information resonates with consumers. Additionally,

personalized information delivery such as daily delivery of personalized financial news is already popular on the Web and will likely be enhanced and delivered on both TVs and PCs in the future.

Creating Opportunities for the Industry

The enhancement of the consumer experience and deployment of the new digital broadcasting infrastructure presents an enormous opportunity for the industry. The Web has created new opportunities in production, publishing, advertising and commerce. The digital broadcasting era will create similar opportunities, including but not limited to the following:

- **Targeted advertising.** New local and national advertising opportunities will arise, allowing advertisers to target ads at consumers asking questions that range from “I want to find out more about that cool car I just saw” to “What toys for 12-year-old girls are on sale this weekend at the local shopping mall?”
- **Mass-reach digital publishing.** Multimedia magazines and Web channels back-cast with (i.e., transmitted simultaneously behind) TV shows that can be perused at the viewer’s convenience
- **Subscription services.** Fee-based information and entertainment services
- **Content aggregation.** Special-interest broadcast micronetworks or tuning spaces of popular Web sites — the digital stream opens a host of new networklike opportunities

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