(19) **United States**

(12) **Patent Application Publication** (10) Pub. No.: US 2004/0090924 A1

Giaimo et al. (43) **Pub. Date:** **May 13, 2004**

(54) **METHOD AND APPARATUS FOR WIRELESS ROUTHING ON A PLURALITY OF DIFFERENT WIRELESS CHANNELS**

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(21) Appl. No.: **10/701,762**

(22) Filed: **Nov. 4, 2003**

Related U.S. Application Data

(63) Continuation-in-part of application No. 10/428,218, filed on May 2, 2003.
Continuation-in-part of application No. 09/953,980, filed on Sep. 17, 2001.
Continuation-in-part of application No. 09/954,087, filed on Sep. 17, 2001.

Publication Classification

(51) Int. Cl.^{7} H04L 12/26; H04Q 7/00
(52) U.S. Cl. 370/252; 370/338; 370/328

(57) **ABSTRACT**

To provide enhanced quality of service (QoS) communication capability, a wireless network is implemented in which different channels are used for conveying different types of data and in which wireless devices are selectively operated in either an infrastructure or ad hoc mode automatically selected to make best use of the available communication bandwidth. For example, a wireless device for a computer can be operated selectively as a client wireless device that is in communication with a legacy access point in an infrastructure mode on one channel, while using one or more different channels to communicate selectively in either ad hoc mode or infrastructure mode with client devices. To make efficient use of wireless devices, IEEE 802.11a or 802.11g wireless devices are used for communicating audio/video data on one channel, while an IEEE 802.11b wireless device is used on a different channel for communicating web page data.
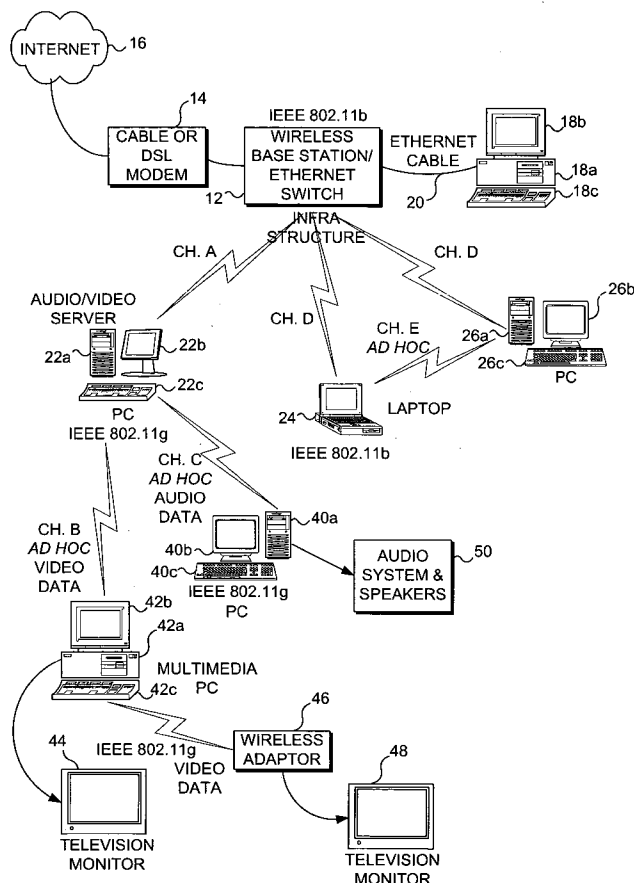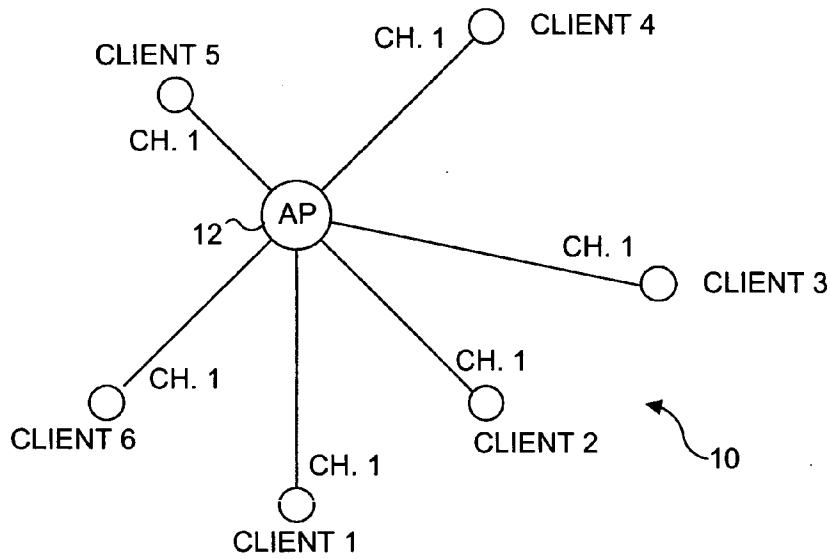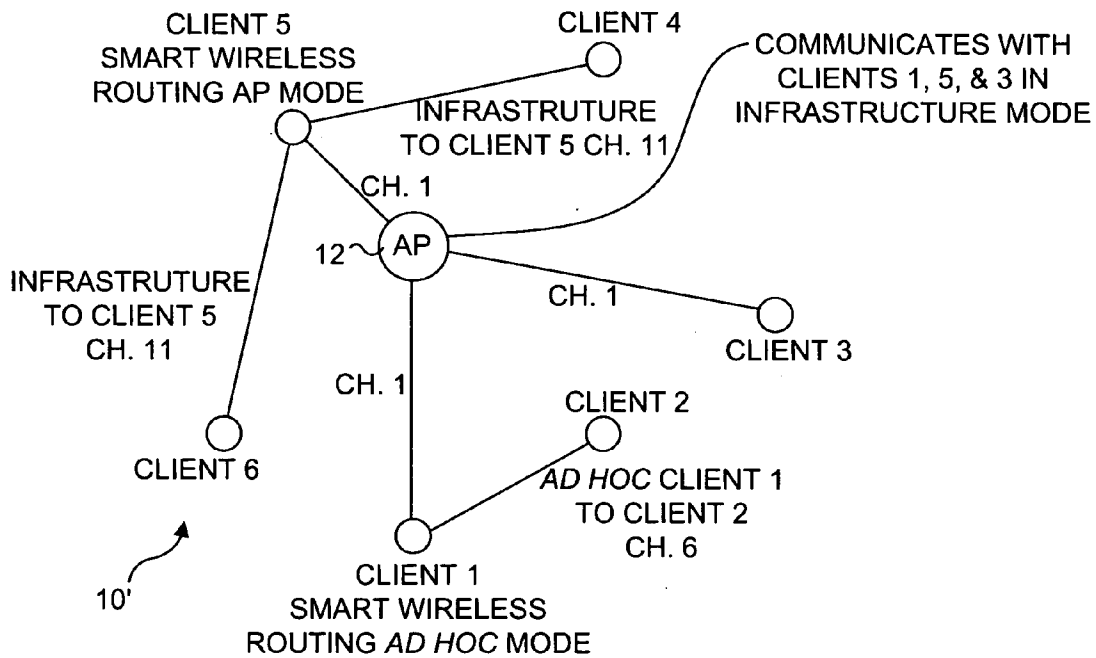
CLIENT 5

CH. 1

CLIENT 4

CH. 1

12

AP

CH. 1

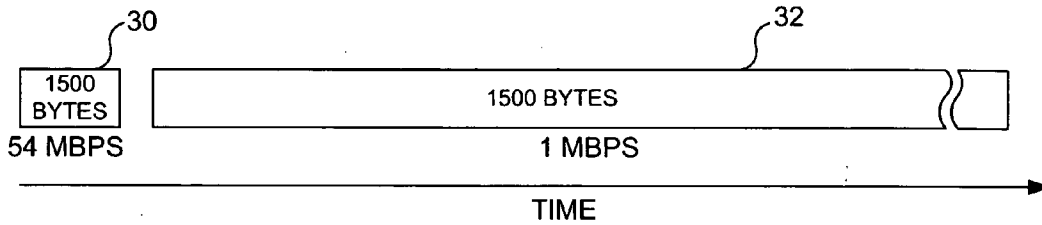CLIENT 3

CH. 1

CLIENT 6

CH. 1

CLIENT 2

10

CH. 1

CLIENT 1

ALL CLIENTS COMMUNICATE IN
INFRASTRUCTURE MODE WITH AP

FIG. 1A (PRIOR ART)

CLIENT 5
SMART WIRELESS
ROUTING AP MODE

CLIENT 4

COMMUNICATES WITH
CLIENTS 1, 5, & 3 IN
INFRASTRUCTURE MODE

INFRASTRUTURE
TO CLIENT 5 CH. 11

CH. 1

12

AP

INFRASTRUTURE
TO CLIENT 5
CH. 11

CH. 1

CLIENT 3

CLIENT 2

CH. 1

CLIENT 6

AD HOC CLIENT 1
TO CLIENT 2
CH. 6

10'

CLIENT 1
SMART WIRELESS
ROUTING AD HOC MODE

FIG. 1B

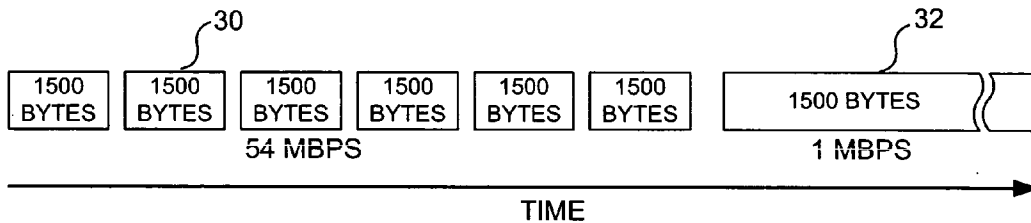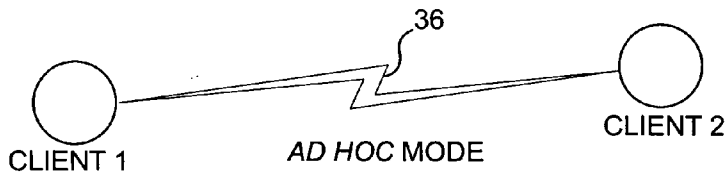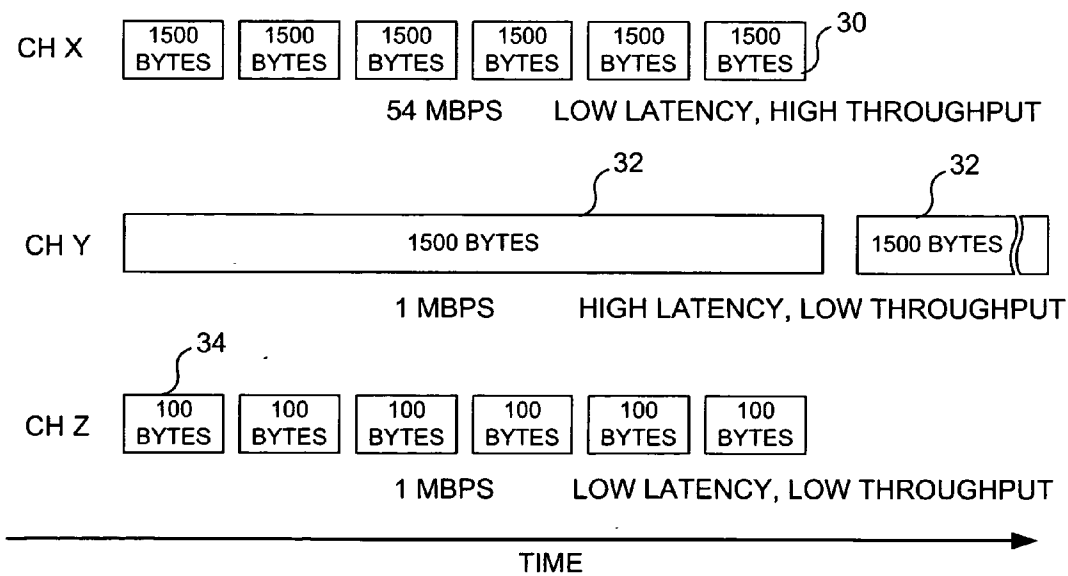**FIG. 2A (PRIOR ART)**

FIG. 2B (PRIOR ART)

FIG. 3 (PRIOR ART)

FIG. 4

FIG. 5

TO BROADBAND
CONNECTION OR LAN

LEGACY
WIRELESS
ACCESS
POINT ~ 60

CH. Y

DATA
CLIENT ~ 66

LEGACY LINK
INFRA STRUCTURE

LEGACY LINK
INFRA STRUCTURE

CH. Y

CLIENT/
MEDIA
SERVER ~ 62

CH. X (Z)

MEDIA
CLIENT ~ 64b

AD HOC OR INFRA
STRUCTURE MODE

OPERATES AS AN ACCESS
POINT (MEDIA SERVER) OR AS
A CLIENT DEVICE & IN EITHER
AD HOC OR INFRA STRUCTURE
MODES

CH. X

MEDIA
CLIENT ~ 64a

FIG. 6

77 ~ WAN
INTERFACE (IF
BASE STATION)

~ 73

69

65

PROCESSOR

68

ETHERNET
TRANSCEIVER

71

MAC & PHY

67 ~

MEMORY

802.11 RF
TRANSMITTER/
RECEIVER

75 ~

ETHERNET
SWITCH (IF
BASE STATION)

BASE STATION/
ACCESS POINT

FIG. 7

DOCKET ALARM
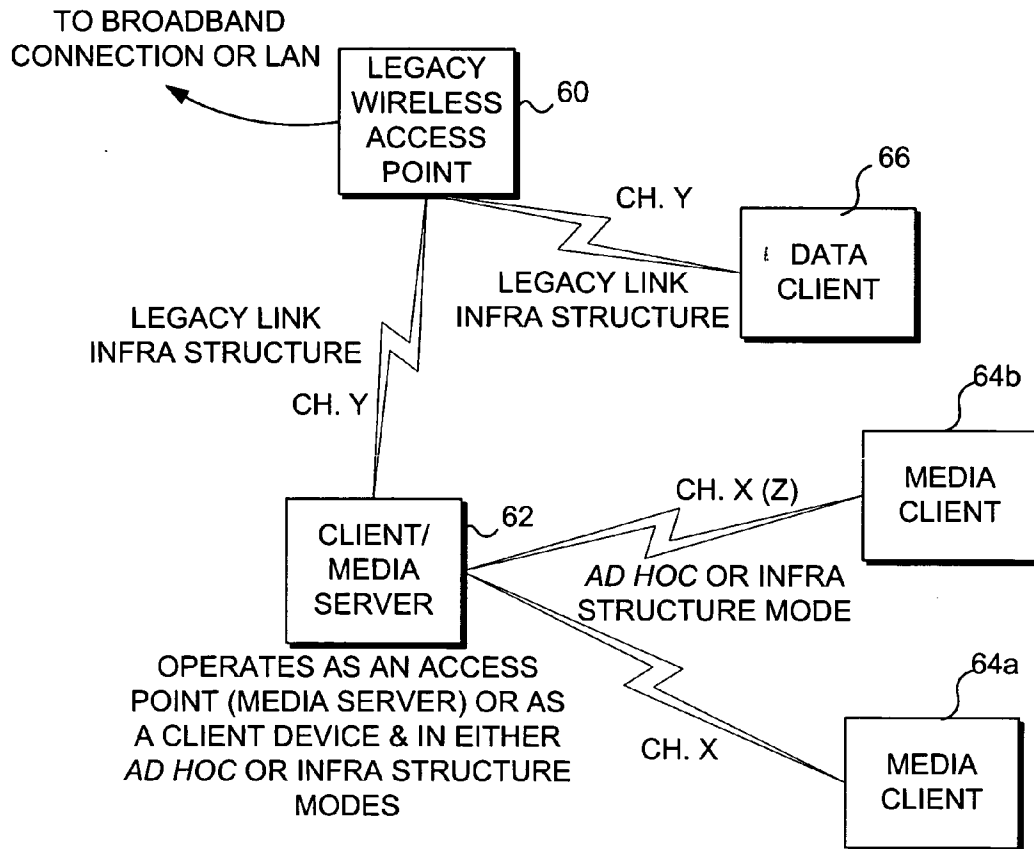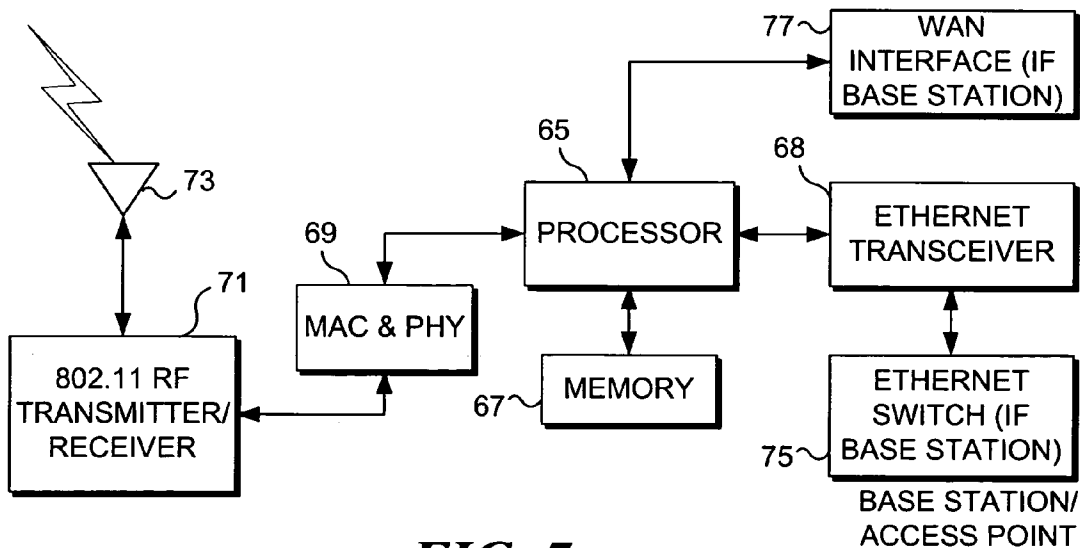
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