Home Networks

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Industry stakeholders in home networking include cable, satellite, and telecoms operators, consumer electronics (CE) suppliers & retailers, and content providers.

Home networks for Internet access & shared use of printers by multiple household PCs already are commonplace. Now, industry stakeholders are focusing on the next more challenging stage, on how to integrate home networks with cable, satellite and/or telecoms services. Given such integration, service providers can manage and to a certain extent guarantee delivery of services to a proliferation of consumer devices.

The next generation of home networking will need more capacity to support high-bandwidth multimedia applications consistent with growth of higher capacity, more converged cable & telecoms services. For example, interest in multi-room access to digital video recorders (DVRs) will increase now that cable operators have joined DirecTV and Echostar in offering DVR-equipped settop boxes. Major suppliers of cable STBs report that over 30% of their digital STB shipments now include DVRs.

Cellular/WiFi integration is another home networking frontier. Approximately 25% of cellular traffic occurs in the home; operators & consumers can realize cost savings by transferring some of this traffic to local fixed line networks off of wireless operators' precious wide-area spectrum. A recently announced deal between Sprint and major cable operators includes co-development of combo-phones that will use in-home WiFi to access cable's quality-of-service (QoS)-managed fixed broadband connections to the Sprint network.

Equipment suppliers and service providers tend to be agnostic about which transport will be used as long as capacity, reliability, and cost are in line with requirements.

The most pervasive home networking technology today is WiFi 802.11g/b (IEEE wireless Ethernet standards), now included in almost all cable/DSL routers. While adequate for shared Internet & printer access, WiFi will choke on in-home video transport, especially of HD video content.

Other notable technologies:

- **In-home coax (Multimedia Over Coax Alliance, or MoCA).** Members include Comcast, Cox, Echostar, Cisco, Panasonic, Verizon, Motorola and others. MoCA is developing specifications and will certify products to make use of 100Mbps of usable capacity above 860MHz on typical home coax networks. After recent initial inter-operability testing involving HD and SD video and interactive gaming, the first certification wave for MoCA-certified products is expected in 12/2005.
- **HomePlug (home electrical lines)**. HomePlug's advantage is that it is available everywhere there is a electric outlet. It currently supports only 8Mbps data throughput but its promoters claim that chipsets and hardware are being built that will support 100Mbps data rates.

Home networking standards are critical so that multiple consumer electronics devices can communicate with each other with minimal consumer exertions. Reducing complexity is key to mitigating the potentially unsustainable cost of installation & support. The cable industry has encouraged CE suppliers to incorporate OpenCable Application Platform (OCAP) into their devices so that OCAP-compatible apps can run on multiple devices. Cable has joined CE and PC suppliers in specifying UPnP (universal plug and play) standards so that different devices can recognize each other.

Cable operators are working on defining service authorization and management conditions for different devices connected on next gen home networks. For example, the cable operator may provide QoS guarantees for content received on certain devices, authorization to other (or the same) devices to access DRM-protected content, while allowing still other devices to connect to the network on a best-efforts basis without receiving protected content nor benefiting from QoS guarantees.