

HOME NETWORKING

The Inevitability of Network DVRs

Network DVRs would seem to be an inevitable occurrence when the benefits for consumers, the cable (and telco) TV operator and the content owner are considered.

A network DVR service would help cable companies compete against satellite TV operators such as **DirecTV** and **EchoStar**. That's what **Comcast** COO Stephen Burke told attendees at the **Bank of America Media, Telecommunications and Entertainment Conference** in March.

The satellite TV services cannot deploy network DVR capabilities because of the one-way nature of their video delivery. They must incur the expense of installing a DVR box, and maintaining it, in every subscriber's home.

Cablevision is the only cable TV operator that has so far announced it intends to launch a network DVR capability. It calls its service "RS-DVR" (remote-storage digital video recorder). It says that like a DVR box installed in a consumer's home, nothing will be recorded on its network DVR unless the viewer orders it from the remote control. That, **Cablevision** says, is the difference from other attempts to store programs for later viewing such as **Time Warner Cable's** **Maestro** service.

Other cable companies such as **Comcast** and **Time Warner Cable** have said they intend to deploy network DVRs if **Cablevision** makes it through the legal and technical hurdles. "It's a great idea. I applaud it. If it happens, which I predict it will, I'm sure the rest of the industry will follow," Burke said.

"Our lawyers say **Cablevision** is on very firm footing so long as it's fair use by the customer," added Burke. The major TV networks have not publicly commented on **Cablevision's** network DVR announcement. They are, however, rushing to get their content on the Web where consumers can watch what they want when they want. **ABC TV** and **CBS TV** are aggressively making content available on the net, both free ad-paid content and pay-per-view programs.

The satellite TV services are forced to pay for, then ship and install DVR boxes. They typically pay local third-party service com-

panies to do the delivery and installation. DVR boxes are also less likely to be as reliable as network DVR capabilities because of scale and the centralization of equipment and maintenance.

If the cablecos offer a network DVR service with the same consumer functions as current DVR boxes and at reasonable rates, they will find a high-level of consumer acceptance.

Consumer Considerations

Factors that the consumer will consider include:

- What happens to the recorded library if the subscriber cancels the cable TV service? Can it still be accessed?
- Can the recorded shows be copied to a DVD as most current DVRs allow?
- How much recording time will the subscriber get? Can he get more storage for a reasonable fee?
- How long will recorded programs be kept?
- Can a user's other content such as songs, home videos and digital photographs be stored on the network DVR? How many? For how long? Can they be retrieved from locations other than the consumer's home?
- Can PCs and portable media players be connected, such as **Motorola** was showing in its booth at the NCTA show with its new DVR box?

Consumer Advantages

Advantages for the consumer include:

- More reliable storage. The cablecos and telcos can afford to buy the very best file servers and hard drives, whereas the drives in DVRs are not always top-of-the-line.
- Better backup. Users who've had their DVR blow its hard disk have found that: a) they have no back-up copy of all the shows they recorded to watch later, say 50 episodes of "Law and Order" or the "Star Trek" series of movies, and b) there was no way to do a back-up that was easy other than shuffling tens, perhaps hundreds, of DVDs. That assumes the customer had a DVD recorder attached to the

DVR, a task made more difficult if HD shows are involved.

- Availability of recorded shows from other locations, say from the summer home or vacation spot. Perhaps access from a mobile phone would make that photo collection more useful.

An Overriding Case for Content Owners

For the content owners, there's one overriding reason they should be pushing the cable and telco TV operators to deploy network DVRs as soon as possible. Centrally stored content can be protected better than content scattered over millions of DVRs around the world. Secondly, they can also monitor the consumers' viewing habits.

Consumers Warned to Stay Off Pre-standard 802.11n Purchases

- **Broadcom** hopes to repeat 802.11g pre-standard success in 802.11n
- **Linksys** and others start to ship pre-certified equipment
- **But consumers warned of risks of buying fast Wi-Fi too early**

Standards bodies move far more slowly than the market for fast wireless products, and the concept of the "pre-standard" or "standards-ready" product has become a common one. Such products are built to the official specifications, but may be a year or more ahead of an official certification program for that spec.

The latest category at the heart of the debate on whether it is wise to buy non-certified kit is the emerging 100 Mbps-plus Wi-Fi standard, 802.11n, which will be heavily geared to home digital media networks.

The practice of launching pre-standard gear has caused enormous controversy in Wi-Fi and WiMAX, ever since **Broadcom** put it on the map with the 802.11g Wi-Fi upgrade in 2004, with claims that pre-standard products carry high risk because they may have to be altered to gain certification,

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and may not be interoperable with other devices. Much of this scare mongering is marketing-driven, usually coming from vendors that have slipped behind in rolling out new generation products. For many consumer users, interoperability is not a major issue – they just want increased speed but are happy to buy from a single vendor (of course this is not true of the enterprise, but few companies are inclined to buy cutting edge wireless technology). With the price pressure in the consumer Wi-Fi sector, even if the devices prove obsolete once fully standard kit emerges, the user's financial risk runs only to \$100 or so.

Broadcom, which launched pre-certified 802.11g chips in 2004 – a gamble that paid off to the extent that it propelled the company from nowhere to the top two in WLAN silicon – has now shipped uncertified 802.11n chips to several customers. In fact, the company has been fairly slow in this market, by its standards. Start-up **Airgo**, which specializes in the MIMO smart antenna technology that lies at the heart of 802.11n, illustrated the dark side of the pre-standard gamble. It shipped its chips, dubbed pre-N but in fact not built to any standard, since the specification had not been finalized, to several tier one customers, including **Linksys** and **Belkin**. But it then faced the prospect of a group led by **Intel**, **Atheros** and **Broadcom**, in effect forcing the IEEE standards body to adopt their preferred approach to 802.11n and MIMO, rather than an Airgo-based option. This will force the smaller player to re-engineer its products to be compliant, and it will lose its head start in the market and, potentially, some of its big name customers.

Consumers may not care too much about standards, but the other risk of pre-standard products is that the technology may not have matured enough to guarantee robust performance.

Early tests carried out by the **Farpoint Group** suggest that 'draft N' products fall short of requirements.

The consultancy's CEO **Craig Mathias** said the products tested could not communicate with each other when in the high speed

MIMO mode used by 802.11n. There was no interoperability when the competing products had the same chip, even when the products were from the same vendor.

Other problems with pre-certified equipment include lack of a guarantee on upgradeability; possible interference with existing WLAN equipment – a debate that has raged for two years between the major vendors; and the need for Gigabit Ethernet to get the speed benefit, and the current expense of the equipment. Home networking products using Draft N, mainly wireless routers around \$150 and PC Cards for notebooks for about \$120, have appeared from **Netgear**, **Buffalo Technology** and **Linksys**, with **D-Link** and **Belkin** to launch soon.

Ironically, the best performer in the Farpoint trial was the **Linksys SRX 400**, which uses the **Airgo True MIMO** chips and did not even try to conform to the 802.11n specs.

However, **Broadcom** has shipped its **Intensi-fi draft N** chips to **Buffalo**, **Netgear** and **US Robotics** already, and hopes the draft specification will be formally adopted by the IEEE next year, with **Wi-Fi Alliance** conformance testing and certification to follow later in 2007. **Atheros** is also sampling its **XSpan draft N** products.

This article originally appeared in **Rethink Research's Wireless Watch** newsletter. To get a complete copy, e-mail paperboy@riderresearch.com.

Is Now The Time When Everything Changes?

"The future is like the past only up to the time when it isn't." – **George Will**, political pundit and part owner of the **Baltimore Orioles** baseball team.

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APPLE SLICES

All's Right with the World: Apple, Labels Renew iTunes Deals

Without much fanfare, **Apple** has renewed contracts with the four major record labels that will allow its iTunes Music Store to continue selling individual song downloads at a fixed price of 99 cents (70p in the UK) and most albums for \$9.99 each.

Remember a couple of months back when three of the four major labels were belly aching about wanting to make Apple increase what it charged for new hit tunes? Well they all backed down. **Universal**, the world's largest label, was the only one that did not whine in public.

The public bickering became so heated that Apple chief **Steve Jobs** accused the labels of being greedy for wanting to raise prices. He frightened them by saying that raising prices or introducing variable pricing would drive music fans back to illegal downloading.

the same fixed price for all songs

The four companies included in the deal are **Universal**, **Warner Music**, **EMI** and **Sony BMG**.

The three "greedy" labels wanted to charge higher prices for new releases that were likely to be hits, rather than charge the same fixed price for all songs. **Universal** said it was too early in the Internet era to make such a radical change, arguing that more people needed to become comfortable with buying downloads as opposed to CDs.

Apple had the upper hand, of course, because its iTunes account for 80% of the download market. It's iPods are seemingly attached to the ears of half the population, old and young.

Online music sales account for about 5% of the big four label's recording revenues. (Readers may put "only" or "already" in front of "account," depending on their view of the music world.)