

A Digital Parallel Play

By Matt Stump

2/21/2005

Dotcast, the company that supplied underlying technology for The Walt Disney Co.'s MovieBeam service, is pitching cable operators on a plan to conserve bandwidth in all-digital systems by transmitting digital channels embedded into existing analog signals.

In this story:
[NO SIMULCAST NEEDED
made for cable](#)

Dotcast said it uses its own, patented dNTSC technology to place a 3.9-Mbps digital stream inside each analog signal.

In effect, each analog signal would carry its own parallel digital channel in the same 6-Megahertz slot, said Leo Hoarty, chief technology officer and one of Dotcast's founders.

NO SIMULCAST NEEDED

The first step in that transition has been digital simulcasting, in which operators add the digital signals of all analog channels.

Although that effectively provides an all-digital lineup for digital set-top owners, it uses a greater amount of bandwidth. A 160-channel cable system with 40 analog channels becomes a 200-channel system once digital simulcast is employed. The Dotcast technology keeps a 160-channel system at 160 channels.

A Dotcast dNSTC modulator is required at the headend to receive analog signals, either off a satellite or from local broadcasters. It then encodes those signals digitally.

Digital signals are placed with the quadrature portion of the analog signal, and both signals ride together to the home in the same 6-MHz channel.

Corresponding Dotcast dNTSc technology built into future set-top boxes would extract digital signals for display on TV sets. Analog TV sets would receive the traditional analog signals.

Dotcast said the new approach has obvious bandwidth savings, as operators look to add HDTV channels and more video-on-demand content.

Set-top boxes built by leading manufacturers with dNTSC technology are also notably less expensive than current digital-analog hybrids, according to Dotcast.

Dotcast uses several techniques to get the digital signal inside the analog feed without interference. The digital signal is placed inside the visual spectrum of the analog signal, not in sidebands or the vertical blanking interval, Dotcast said. "Everything we do is digital," Hoarty said. Engineers have tried similar techniques in the past, only to run into interference problems with the analog signal.

To avoid impairment to the analog programming in the channel and improve reception performance, Dotcast pre-shapes the bandwidth of the digital stream to account for distortions that occur in the cable system.

Using proprietary synchronization and timing recovery and equalization techniques, the digital signal can be inserted at very low power, Dotcast said.

made for cable

The technology is similar to what Disney is using for MovieBeam, which embeds a digital signal of a movie that's broadcast through a TV's station's spectrum to a set-top in the home.

In fact, Dotcast originally developed the technology for cable in the early part of this decade, but the industry wasn't ready for the jump. Dotcast then found a willing partner in Disney.

But with the influx of wide-screen and plasma TVs in the marketplace, operators are taking a hard look at the quality of analog signals, Hoarty said. "The satellite guys are picking off their high-end customers."

In general, cable is a cleaner environment than satellite to integrate digital signals into analog. "The pass-through of cable is clean, more or less, and the noise is very predictable," Hoarty said.

Hoarty has started talks with cable MSOs and several set-top vendors, including Motorola Inc. and Scientific-Atlanta Inc.

To prove the concept, Dotcast is testing the technology at Cablevision Systems Corp.'s labs in Long Island, N.Y.

[<<< Back](#) | [Print](#)

© 2005, Reed Business Information, a division of Reed Elsevier Inc. All Rights Reserved.