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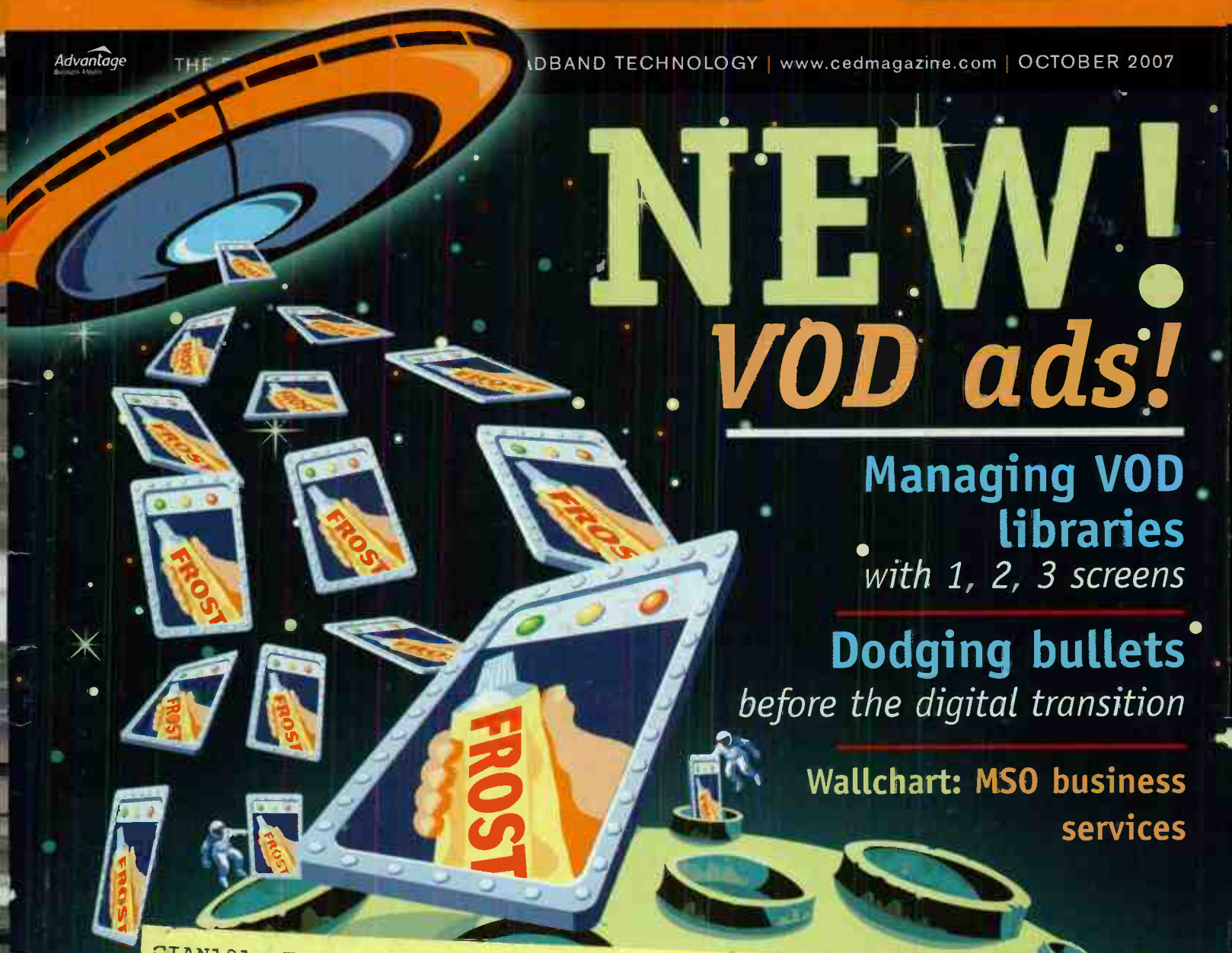

NEW! VOD ads!

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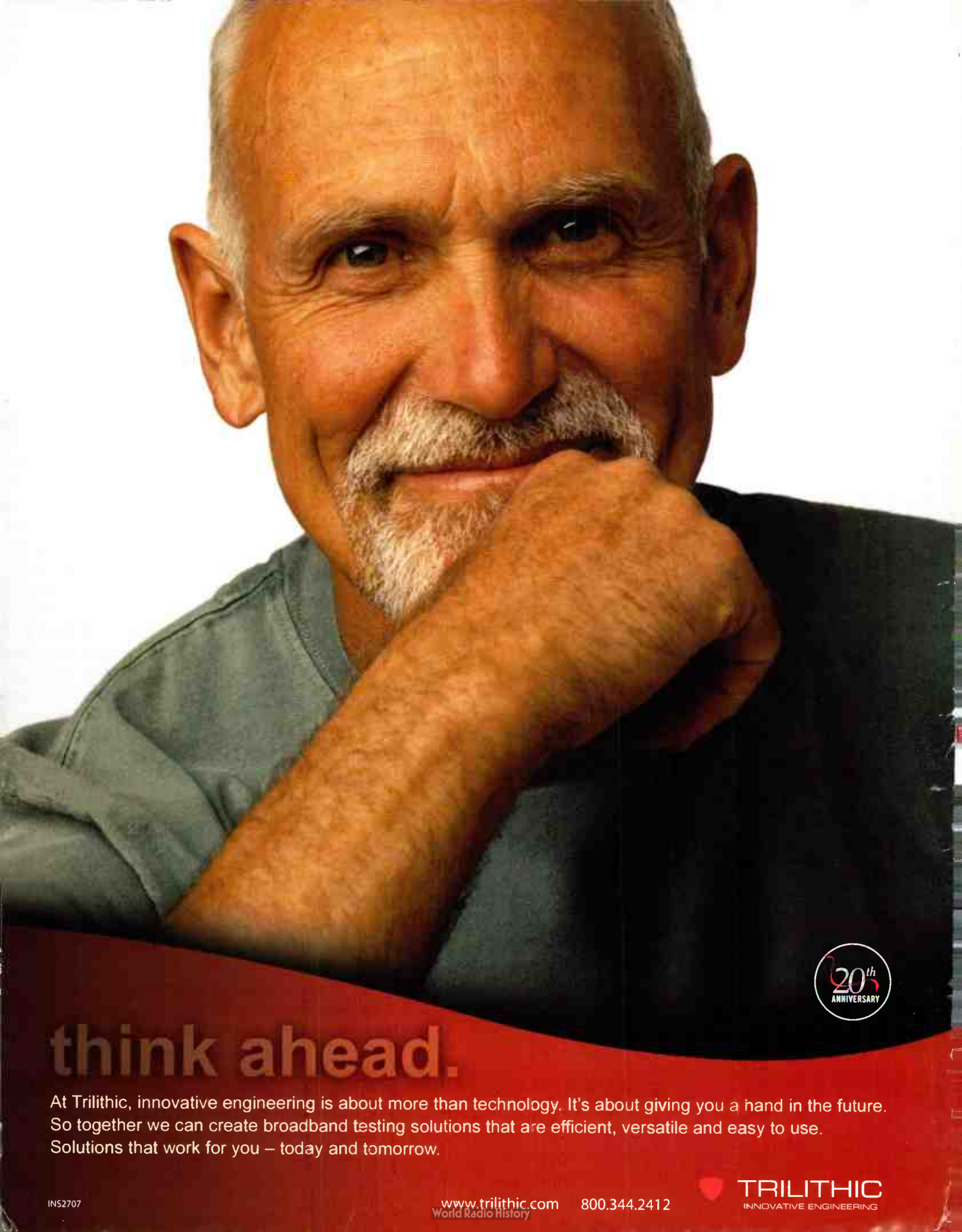
Dodging bullets
before the digital transition

Wallchart: MSO business services



Golden opportunity

By Brian Santo

Editor

With cable, you have to pay for TV, *and* you have to watch the ads...and I say cable broke the deal

The deal from The Dawn Of The Television Era was you get free TV in exchange for watching the ads. But cable changed the deal. With cable, you have to pay for TV, *and* you have to watch the ads.

Yeah, yeah, yeah, you pay for great reception, you pay for more channels, blah, blah, blah, *I don't care*. I'm old enough to remember the pre-cable era, and that makes me old enough to get a start on becoming cantankerous, and I say cable broke the deal.

Furthermore, I don't watch much TV.

Don't look so shocked. I've been asking some of you out there if you watch much TV either, and not very many of you do.

Anyway, not only do I begrudge the very concept of cable TV, and not only do I not watch much TV, I don't have HBO either, which means I've been watching "The Sopranos" on DVD, a season behind.

Until last season. I had to see the ending (which was brilliant) in near-real-time. A friend with VOD invited us over to see it. We started watching at a time that didn't end with a ":00" or ":30." It was weird.

But I liked it. In fact, I liked being able to see what I wanted when I wanted so much I would happily sit through an ad or two for that kind of convenience. Especially if the ad made me laugh.

What I'm saying is, the industry might have something with this VOD advertising thing, which *CED* Web/News Editor Traci Patterson investigates in our cover story this month.

* * *

And speaking of *CED* editors, I haven't.

Spoken of a particular editor, that is. I have, for several months, neglected to introduce the newest addition to the *CED* staff, Mike Robuck.

Some of you already know Mike, mostly from a venue which here shall remain nameless. But he did great work there, and he's already doing great work here.

Mike is a tenacious and diligent reporter, a personable guy, and an all-around great asset, and we are absolutely delighted to hoist his name on our masthead.

Welcome aboard, Mike.

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Features

Cover art designed by Don Ruth

Departments

Are you proactively monitoring and maintaining your HFC network's forward and return path?

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Cox adds third feather to BigBand's switched digital video hat

Cox Communications has joined the switched digital party by rolling out the technology with BigBand Networks in its northern Virginia system.

Cox is now the third feather in BigBand's switched digital video (SDV) hat after previous deployments with Time Warner Cable and Cablevision. TWC plans to have SDV in place in more than half of its divisions by the end of the year. Cablevision's deployment earlier this year was the largest single rollout of SDV to date for BigBand.

Comcast is conducting trials in Denver and New Jersey, and last month, it picked Arris' EdgeQAM offering to deliver SDV, VOD and other services over a shared infrastructure.

While cable operators like the bandwidth savings of sending just the digital channels that are being watched in a neighborhood or service group, they have different approaches on how to use that reclaimed bandwidth. For Cox, one immediate payoff from SDV is adding more HD channels to its lineup.

"Certainly that is one of our key plays across the company, to get more HD on the air," says James Kelso, Cox's VP of video engineering. "Cox intends to substantially expand our HD capacity."

Kelso says Cox is not divulging the number of new HD channels in northern Virginia for competitive reasons, but Cox President Pat Esser said earlier this year that the goal was to offer 50 additional HD channels by year's end and 100 HD channels two years down the road.

Cox is also using tools from BigBand to select the appropriate channels for the SDV environment. Typically, niche content is switched since it's not always being viewed by subscribers in a certain node, as opposed to network channels that are sent to most homes.

"When you have a robust solution, you don't have to be as careful about what you're doing," Kelso says. "If I have a switched digital video solution that doesn't affect channel change speeds and is pretty robust, then the decision on what to switch isn't as hard."

Kelso says Cox's roadmap includes rolling out SDV in two more systems by the end of the year. And next year, Cox will look at sharing resources between SDV and VOD via eQAMs.

"On the data front, it's unclear how big a benefit that will be over time, but there's always a benefit to knocking down walls between services," Kelso says.

Comcast plans to move TiVo software to Scientific Atlanta boxes, other platforms

TiVo says that Comcast has "agreed to fund significant additional development work to bring the TiVo service to other Comcast platforms, including Scientific Atlanta set-top boxes."

This will further develop the TiVo-on-Comcast service, which the two companies have been delaying for quite some time now, and increase the distribution opportunities that TiVo will have available, the company says. Currently, about 25 percent of Comcast's footprint is based on the SA digital platform.

TiVo, in its Q2 report, quotes Comcast as saying, "We will commence the TiVo rollout process shortly, which [we] will continue rolling out throughout the fall in Comcast's New England Division, including metro Boston, southeast Massachusetts and New Hampshire." The TiVo software will launch on Motorola STBs in Comcast's New England division.

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CableLabs DTCP-IP deal opens three-screen door

In August, CableLabs approved the DTCP-IP technology – for protection of cable content using IP for unidirectional and bidirectional digital cable offerings.

CableLabs made the announcement in conjunction with Paramount Pictures, Sony Pictures Entertainment, The Walt Disney Company, Warner Bros. and the Digital Transmission Licensing Administration (DTLA).

With DTCP (Digital Transmission Copy Protection) secure links among consumer electronics devices, cable subscribers will be able to access digital cable programming, including HD and VOD content, on consumer electronics devices and PCs via their digital home networks.

The approval permits CableLabs licensees – under DFAST, CHILA and DCAS – to protect PPV and VOD transmissions against unauthorized copying and unauthorized Internet retransmission while assuring the consumers' ability to record broadcast and subscription programming in digital formats.

"The agreement we reached today addresses the highly complex concerns raised by the affected parties – cable, content and consumer electronics – and brings benefits to consumers," says Richard Green, president and CEO of CableLabs. "Working together, we agreed on solutions that meet our respective business needs and serve the interests of consumers and content providers."

"DTCP-IP for home digital cable products opens the door for increased flexible use of protected digital cable content, providing opportunities for cable operators, content owners, device manufacturers and, most importantly, consumers," says Michael Ayers, president of DTLA. "This represents a real advancement for the protected home entertainment network."

DTLA and CableLabs also agreed to work on several forward-looking provisions to help implement the new developments and facilitate new businesses models. One of those provisions included "copy-never" content, which DTLA will make available to cable operators with the same level of protection it adopts for Blu-Ray and HD DVDs.

NCTA proposes 'tuning resolver' to aid CE devices with switched channels

On Aug. 24, the NCTA sent a 76-page filing to the FCC outlining three solutions for two-way cable services and devices.

While saying that the OpenCable Platform was still the best way for consumer electronics companies and cable operators to offer two-way services, the NCTA also says that it's willing to develop a "tuning resolver" to help consumer electronics devices receive switched linear channels.

There has been concern within the cable industry that switched digital video (SDV) won't work with third-party STBs, such as those developed by TiVo. Unidirectional digital cable products (UDCPs) aren't capable of accessing SDV channels.

In the filing, the NCTA says that it has worked with consumer electronics companies (it cites TiVo as one example) to find a solution that provides two-way SDV channels to one-way digital products through a small tuning resolver adapter. The resolver would require firmware modifications to new UDCP products and a USB 2.0 connection. The NCTA says current TiVo DVRs have USB 2.0 connections and may be able to upgrade with firmware for SDV.

The NCTA cites the OpenCable Platform as the second solution to providing two-way cable services. OpenCable already has consumer electronics companies such as Panasonic, Samsung and LG Electronics signed on.

The NCTA's third proposal is a new network interface device for interactive services that would work across a wide variety of multichannel video programming distributor networks, and not just cable.

TWC taps TandbergTV for small-market VOD deployment

In order to provide VOD services to its small-market subscribers, Time Warner Cable is utilizing Tandberg Television's OpenStream digital services platform.

With TandbergTV's system, TWC can manage the VOD services from its headquarters in Denver and deliver content nationwide via satellite distribution. TWC will also utilize TandbergTV's Xport Producer to provide local on-demand content tailored to each location.

Four markets – Clarksburg, W.Va.; Dothan, Ala.; Fort Benning, Ga.; and Terre Haute, Ind. – are now live, and the company plans to expand services to 10 additional cities by the end of the year, for a total of 14 deployments in 11 states.

Charter Communications and TWC have previously announced large-scale deployments of the OpenStream system.

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FCC puts dual-carriage onus on cable

The Federal Communications Commission has issued rules that direct cable operators to provide a viewable signal for every must-carry channel after the digital transition (Feb. 9, 2009) for their own analog customers; and extended for another five years the ban of exclusive contracts between vertically integrated programmers and cable operators.

The must-carry decision gives operators a choice "to either: (1) carry the digital signal in analog format, or (2) carry the signal only in digital format, provided that all subscribers have the necessary equipment to view the broadcast content."

As a practical matter, cable operators can either transmit at least two versions (analog and digital) of every must-carry channel, incurring expense and consuming precious bandwidth, or buy a converter or new set-top for each and every one of their analog customers, also incurring expense. Approximately 35 percent of all television homes, or approximately 40 million households, are analog-only cable subscribers.

The new rules conform to a proposal made by the NCTA, whose members acceded to dual-carriage for three years after the transition.

Smaller operators – and only those with plants of 522 MHz or less – have the option to apply for a waiver, but The American Cable Association says its members will still be hard hit: "The new carriage obligations now make it more difficult for operators of small systems to stay in business....Some very small systems will have no choice but to shut down because their small subscriber bases cannot support the costly equipment mandated by this order."

The Commission says it remains open to ways of minimizing any economic impact on small cable operators while still complying with the statutory requirements for carriage of local TV stations.

The second order, the FCC says, is meant to ensure competitive multichannel video programming distributors (MVPDs) continue to have access to essential programming by extending the ban of exclusive deals between programmers and MSOs. This keeps a company such as Comcast or Time Warner from denying access to channels they own to rival service providers.

The FCC says it will continue to review the related issue of program "tying" – when a programmer packages, or ties, a popular network channel to a set of other network channels, forcing the operator to broadcast additional channels that the operator (and its subscribers) might not want.

Thomson details chip for HD PVR set-top boxes

Thomson is preparing a high-end video decoder chip optimized for STBs with personal video recording (PVR) capability. The chip can be used in cable, satellite or IP boxes.

The chip, designated the 4230, will provide HD decoding for H.264, MPEG-2, MPEG-4 and DivX codecs, as well as SD streams. The company says the 4230 is able to output HD and SD video simultaneously.

The Thomson 4230 supports multiple security formats, as well as dual USB 2.0 and Serial Advanced Technology Attachment (SATA) interfaces that support PVR and DVR applications with or without a hard disk drive connection.

MSOs hook up with RHI for VOD movie premieres

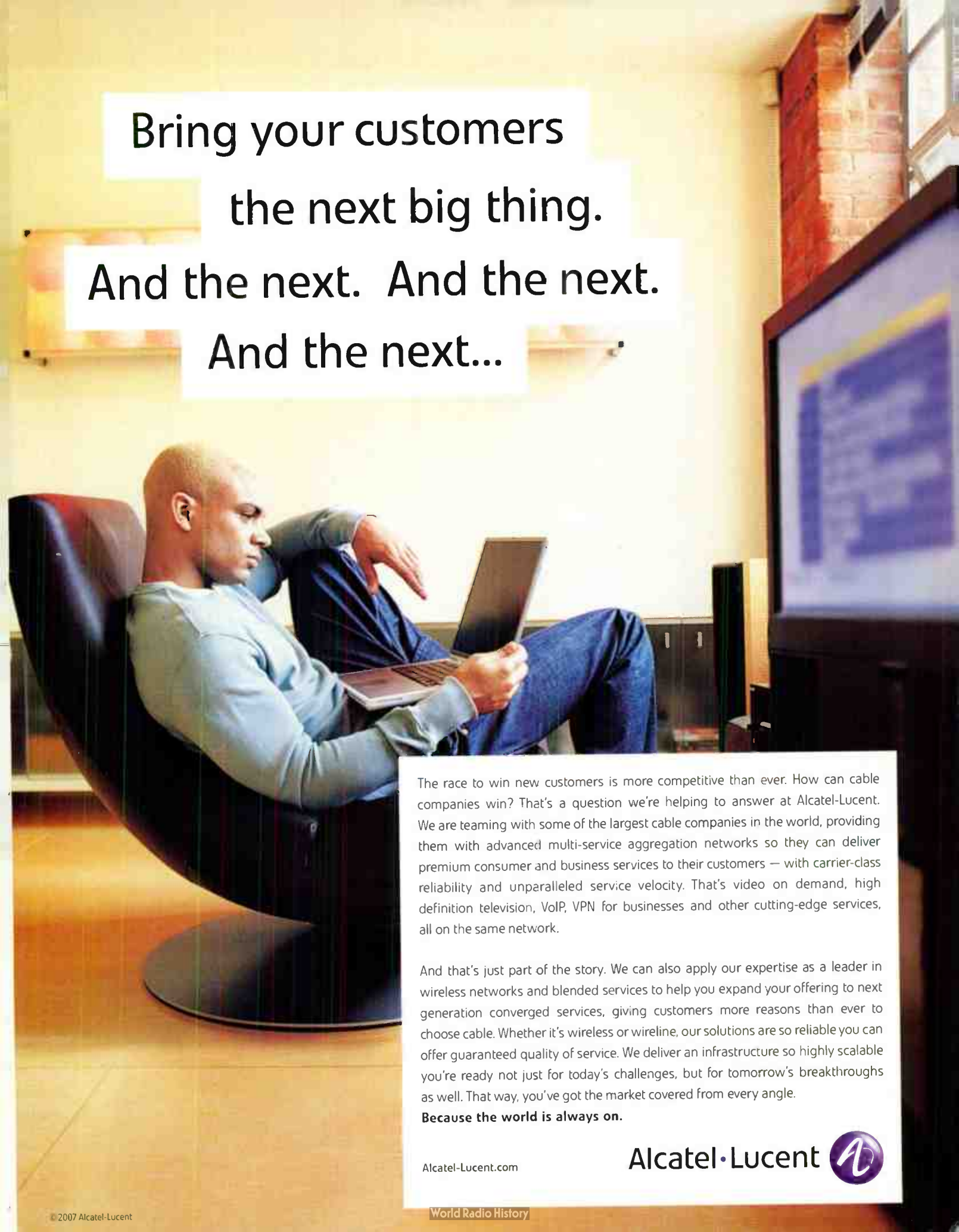
RHI Entertainment is giving several top cable operators access to never-before-seen movies by allowing the original movies to premiere on the MSOs' on-demand tiers.

RHI Entertainment signed early distribution agreements with Time Warner Cable, Bright House Networks, Cablevision and Cox Communications.

While cable operators have long wanted to offer movies-on-demand the same day they are released to movie theaters, Hollywood has resisted to date. The deal with RHI, a large producer of made-for-TV movies, bolsters the cable operators' VOD lineups.

A total of 24 original world premiere movies are being offered in the first year, with two new movies premiering each month. Cable TV customers will be able to choose from six RHI movies at any given time. RHI also lays claim to being the first company to produce and offer movies in both HD and SD for premiere on VOD.

After the movies premiere on the VOD platforms, they will become available for download on iTunes before cable networks such as SCI FI, Spike TV and Lifetime telecast the original movies in their broadcast/cable windows.



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Verimatrix, GoBackTV team up for IPTV security

While large, established cable operators don't see a compelling reason for full-scale IPTV deployments just yet, smaller operators and telcos are jumping on the IPTV bandwagon as a way to improve existing services or launch video for the first time.

So Verimatrix has hooked up with GoBackTV to develop a solution that bypasses the traditional cable modem termination systems (CMTSs) in an IP video architecture.

GoBackTV's GigaQAM IP

Verimatrix has integrated its video content authority system (VCAS) with GoBackTV's CMTS Bypass offering to create VCAS for Cable IPTV. GoBackTV's bypass product converts an existing cable system to an asymmetric IP network in order to deliver IPTV services.

According to the two companies, by enabling IPTV on existing cable plants, operators can avoid costly infrastructure upgrades, reclaim bandwidth for new services and reduce costs by gaining access to a wide variety of IPTV consumer premises equipment.

"We saw a gap in the market for an alternative solution designed for operators that want to 'turbo charge' their digital cable video services without expensive infrastructure costs," says Steve Oetegenn, chief sales and marketing officer at Verimatrix. "Whether you are a cable operator looking to upgrade or a telco wanting unified content security with your cable franchise, VCAS for Cable IPTV is a flexible and cost-effective solution that can be implemented today."

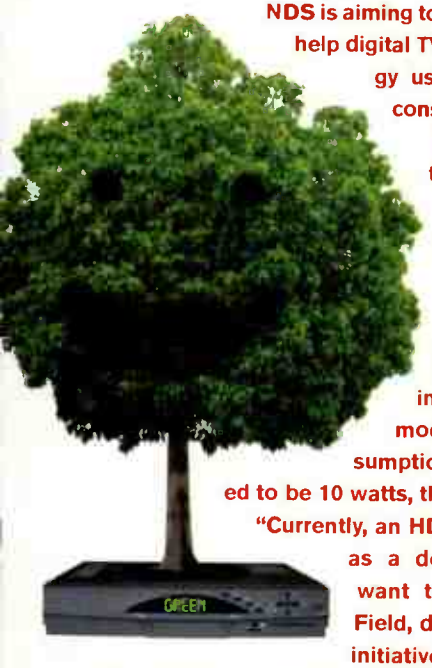
GoBackTV provides the CMTS bypass hardware infrastructure at the headend. Multicast and unicast IPTV streams are delivered to off-the-shelf IP STBs directly through DOCSIS-compliant cable modems and EdgeQAM devices, bypassing the CMTS core processor entirely.

Verimatrix says its VCAS software-based content security is already integrated with more than 70 IP STBs, which would give cable operators more choices than they currently have with Motorola and Scientific Atlanta.

Verimatrix says VCAS for Cable IPTV fulfills the FCC's separable security mandate, which requires the content security to be made available separately from the receiver devices. It's compatible with both the U.S. DOCSIS and EuroDOCSIS standards.

As part of the deal, Verimatrix is offering the integrated GoBackTV solution under its Verimatrix brand and will also provide installation, training and support on a global basis.

NDS aims to reduce STB, DVR energy consumption



NDS is aiming to reduce its carbon footprint and help digital TV subscribers reduce their energy usage by decreasing the power consumption of STBs and DVRs.

NDS has set out initiatives for this goal, which is in line with the global energy program of News Corp., NDS' parent company.

The first initiative is an auto standby solution developed to automatically switch inactive devices into standby mode overnight. The standby consumption of an STB has been estimated to be 10 watts, the company says.

"Currently, an HD DVR can use as much power as a domestic refrigerator, and we want to address this," says James Field, director of technology and new initiatives at NDS.

The company's R&D team is working with STB manufacturers and platform operators to develop more solutions that can reduce STB power consumption.

Qwest lays regulatory groundwork for video

Qwest is laying the regulatory groundwork to offer video services in several cities in its operating territory, even as its plans for video service deployment remain vigorously tentative.

Qwest planned to have video available to 8 percent of its customers by the end of this year, and to 24 percent of its customers by the end of 2008. Qwest had identified Albuquerque, N.M.; Des Moines, Iowa; Minneapolis; Portland, Ore.; Salt Lake City; and Seattle as its targets.

Iowa, in May, enacted legislation that will allow for statewide franchising; that will cover Des Moines. Qwest's recent attempt to secure a video franchise in Seattle was scuttled. Qwest may be closest to getting a franchise in Portland. The process there still has several steps to go, but the city could grant final approval as early as mid-November. And it looks as if Qwest will be utilizing fiber-to-the-node (FTTN) rather than to the home

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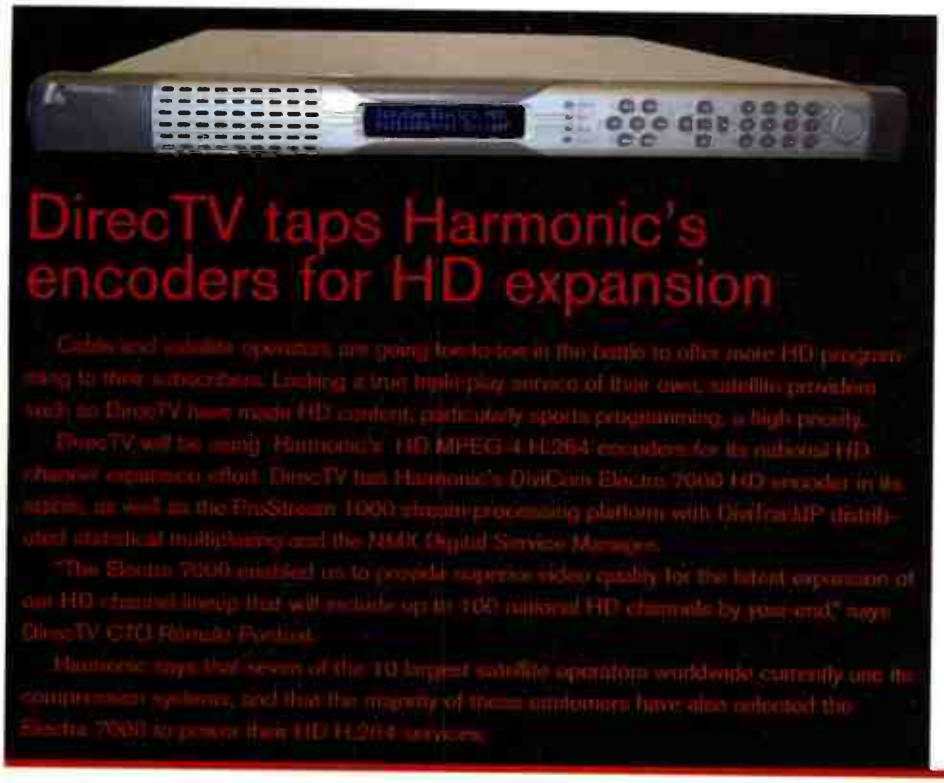

DirecTV taps Harmonic's encoders for HD expansion

Cable and satellite operators are going toe-to-toe in the battle to offer more HD programming to their subscribers. Looking a true triple-play service of their own, satellite providers such as DirecTV have made HD content, particularly sports programming, a high priority.

DirecTV will be using Harmonic's HD MPEG-4 H.264 encoders for its national HD channel expansion effort. DirecTV has Harmonic's DiviCom Electra 7000 HD encoder in its system, as well as the ProStream 1000 stream-processing platform with DiviTrackIP distributed statistical multiplexing and the NMX Digital Service Manager.

"The Electra 7000 enabled us to provide superior video quality for the latest expansion of our HD channel lineup that will include up to 100 national HD channels by year-end," says DirecTV CTO Romulo Pontual.

Harmonic says that seven of the 10 largest satellite operators worldwide currently use its compression systems, and that the majority of these customers have also selected the Electra 7000 to power their HD H.264 services.

MoCA adds its first European MSO

CAIW of The Netherlands has joined the Multimedia over Coax Alliance (MoCA), becoming the first European cable MSO to join the alliance.

The operator offers TV, Internet and digital radio services in The Netherlands, where there is nearly 100 percent cable penetration.

"MoCA is the clear standard in the U.S. for multi-room distribution of digital entertainment and networking," says Aart Verbree, CEO of CAIW. "This is why at CAIW, we believe MoCA could and should also work in The Netherlands and a substantial portion of Europe."

Small Asian STB makers challenging market leaders

Traditional STB manufacturers remained the leaders in the worldwide market last year, but they are facing increased competition from lower-tier manufacturers, according to IMS Research. This competition added to the strong growth of the worldwide STB market last year, which saw an estimated 122 million units shipped.

French STB-maker Thomson held on to the lead position with double-digit market share, due primarily to its dominant position in the U.S. pay-DTH market and its entry into the European IP STB market.

Motorola nearly doubled its digital cable STB output compared with 2005, and the company has further extended its share lead over Scientific Atlanta. And Philips Consumer Electronics has ascended into the top five by supplying the continued growth of pay-DTH markets in Europe and Asia.

Lower-tier Asian manufacturers – such as DVN, Changhong, Huawei, Skyworth, Jiuzhou and Gospell – have moved into the top 20 by capitalizing on the growth of digital cable TV markets in China, India and other parts of Asia. These manufacturers are poised to challenge the top 10 STB makers in the coming years as the need for conditional access and security, and the demand for increased functionality, drives these local markets, IMS says.

"Some of the lower-tier manufacturers that barely registered on the radar a few years ago are now moving into position to capture the low-end STB market in the quickly developing digital markets in Asia," says Connected Home Research Group analyst Mark Meza.

Market gets tricky as Cablevision buyout vote looms

Days after news dropped that a buyout of Insight Communications was on hold, another cable deal was bollixed, and for the same reason. The tightening credit market is undermining the financing of The Dolan family's attempt to take Cablevision Systems Corp. private.

Cablevision has called a special meeting of its shareholders on Oct. 24 to vote on the Dolan family's standing offer of $36.26 per share. But that deal is predicated on the Dolans' borrowing more than $15 billion, which is becoming increasingly more difficult given current credit market trends. The key factor is rising interest rates on the debt the Dolans would assume.

Shareholders of record at the close of business on Oct. 4 will be entitled to vote at the special meeting, which will be held at Cablevision's headquarters in Bethpage, N.Y.

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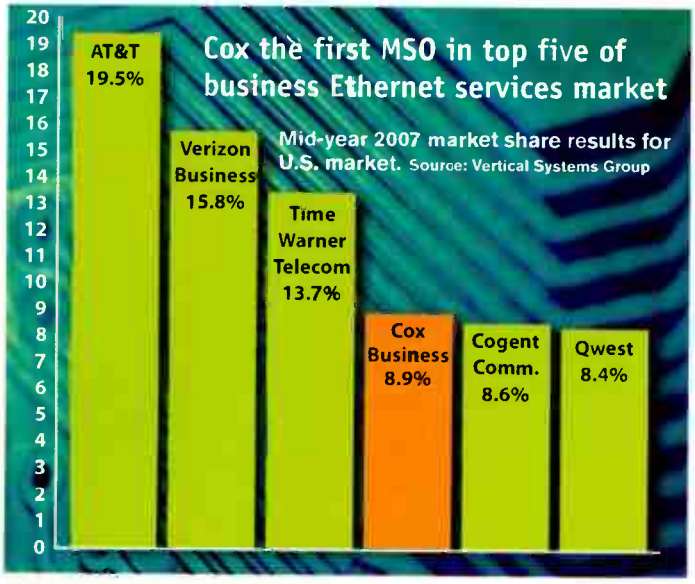

First MSO enters business Ethernet market's top five

Cox Business was the fourth-largest U.S. provider of retail business Ethernet services at mid-year 2007, marking the first time an MSO has reached the top tier, according to Vertical Systems Group.

Leading Cox Business were AT&T, with a 19.5 percent share of mid-2007 ports; Verizon Business, with a 15.8 percent port share; and Time Warner Telecom, with a 13.7 percent port share. Verizon's share was up 12.2 percent, and Time Warner Telecom's increased 10.7 percent, compared with year-end 2006 results. And although AT&T placed first, the company's share declined compared with the combined year-end 2006 shares for AT&T and BellSouth, which the company acquired in December.

Cox Business held an 8.9 percent share. Behind the MSO were Cogent Communications Inc., with an 8.6 percent share, and Qwest, in sixth place, with an 8.4 percent share.

"As anticipated, competition in the business Ethernet services market heated up during the first half of 2007, resulting in considerable port-share fluctuation," said Rick Malone, principal at Vertical Systems. "The dense availability of low-cost metro services boosted share for many regional U.S. Ethernet providers, including MSOs. Additionally, the aggressive deployment of new fiber infrastructure for residential applications enabled broader accessibility of native Ethernet services for adjacent business sites."

Other MSOs in the market were Bright House Networks, Charter Business, Comcast Business, Suddenlink Communications, SureWest and Time Warner Cable. Other noteworthy companies in the market were Alpheus Communications, CT Communications, FiberTower, Level 3 Communications, Optimum Lightpath, RCN, Sprint Telecom, Sprint and XO Communications.

WideOpenWest, DirecTV top J.D. Power poll

WideOpenWest was tops in one region for customer satisfaction, while DirecTV was rated highest in three regions, according to a J.D. Power and Associates study.

In the north-central region, WOW! ranked highest for the second consecutive year with an index score of 729 points, the highest satisfaction score in the study and 21 points higher than the provider's 2006 score. WOW! performed particularly well in the north-central region for all six factors driving overall satisfaction.

DirecTV took top honors in the eastern, western and southern regions. Although the satellite provider ranked highest in the 2003 and 2004 studies, 2007 marked the first year that DirecTV led in the western and southern regions, and the second consecutive year that it ranked highest in the eastern region since the study was changed to a regional one.

"The cable/satellite market has shifted to a service model based on the voice, video and data triple play," says Frank Perazzini, director of telecommunications at J.D. Power. "As providers focus on putting this new model into practice, service reliability – which includes reception clarity and minimizing the number of outages – is critical in maintaining a satisfied customer base."

The study found that as service options become more complex and multiple products are bundled into one bill with greater frequency, the importance of performance and reliability have increased considerably among cable and satellite customers – from 19 percent in 2006 to 24 percent in 2007. In addition, service reliability is the most frequently cited reason to switch carriers, with more than 80 percent of customers reporting that they would switch for this reason.

U.S. TV households rise 1.3 percent in 2007

The total number of TV households in the U.S. will number 112.8 million by Jan. 1, 2008, an increase of 1.3 percent compared with 2006, according to The Nielsen Company.

The number of viewers (ages 2+) increased 1 percent, to 286 million. One of the fastest-growing demographic categories was persons ages 55-64, which increased 3.9 percent. Young adults under the age of 50 grew by just 0.3 percent.

Many of the increases for local TV markets in Nielsen's Designated Market Area (DMA) ranks are in the southern and western regions of the U.S., which is consistent with the U.S. Census Bureau's most recent annual population estimates that indicate increased population growth in these areas.

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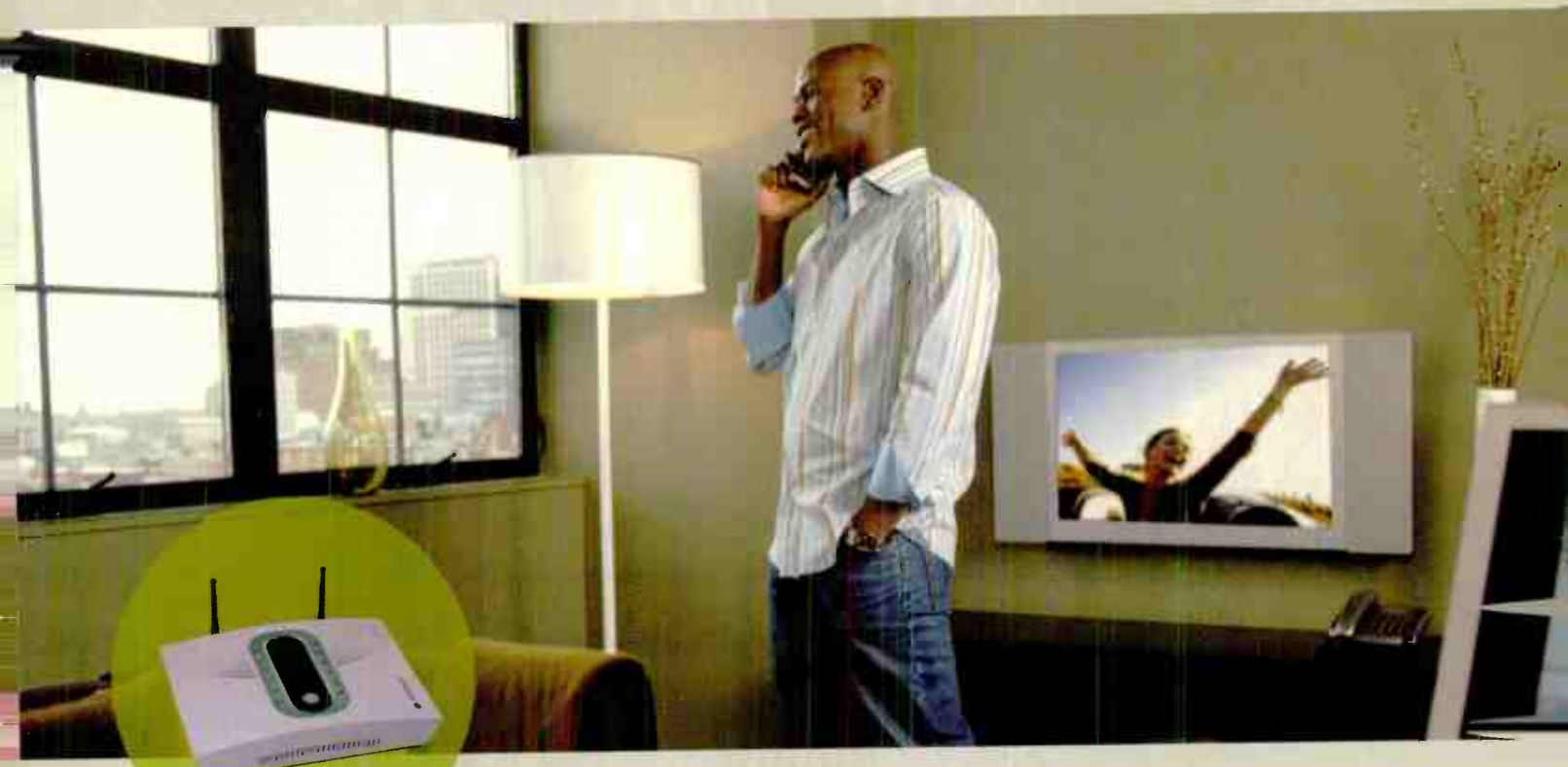

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Gored!

By Stewart Schley

Media & technology writer, Englewood, Colo.

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Sometime around 1989, construction crews for a cable television company owned by a New York investment firm tromped carelessly across the front lawn of a customer in Tennessee, generally making a mess of things. As it turned out, there was more at stake to the incident than an angry customer. The workers that afternoon had unwittingly contributed to a regulatory firestorm that would end up imposing severe restrictions on the way the entire U.S. cable industry operated. Turns out that particular Tennessee front yard belonged to the mother of U.S. Sen. Albert Gore, one of a handful of influential Senate democrats who had come to view cable as an out-of-control monopoly with growing market power and little restraint on its behavior.

It's a stretch to think that Gore, the man who later would describe himself as the man "who used to be the next president of the United States" was moved by his mother's complaints to challenge the regulatory approach governing an entire industry. But the incident in Tennessee certainly didn't help. Within a few years, Gore and a core group of allies in Congress had written and managed to pass federal legislation – the Cable Television Consumer Protection and Competition Act of 1992 – that slapped cable with a parade of in-your-face rules and restrictions. Among them: prescribed performance demands for customer service.

Turns out that particular Tennessee front yard belonged to the mother of U.S. Sen. Albert Gore

At the time, the cable industry had a problem, and everybody knew it – not just Al Gore's mom. The industry's record for customer service was pockmarked by slow response to signal outages, a steady diet of rate increases fed to customers, and perhaps most frustrating of all, a seeming invisibility to customers.

For an industry that was growing fast, delivered a service much in demand by the nation and was dependent on its individual relationships with customers, the seeming inattention to the basics of customer service was puzzling. But it wasn't unique. There is a long history of industries performing miserably in terms of service. Airlines shared with cable a peculiar habit of appearing indifferent to customers, for instance. Banks regularly score poorly in customer service rankings, and so do mobile telephone companies. Each deals with massive numbers of customers with services or products that touch lives frequently and in important ways. Consumers also tend to be frustrated because they find it difficult to change providers easily.

That, more than anything else, seemed to be at the heart of cable's service problem in the 1980s. What seemed to infuriate customers was the absence of an alternative. Although cable industry executives and public relations people denied it whenever the chance arose, the industry looked and behaved like a monopoly. Even the most angry and fed-up of customers usually had no alternative beyond the locally franchised cable company for watching, say, ESPN or CNN.

That began to change, of course, in the early 1990s with the launch of satellite television service from Hughes Aircraft Co.'s DirecTV, the PrimeStar satellite service and later, Dish Network. For the first time in most markets, customers had a choice in multichannel television services.

The 1992 Cable Act included a series of customer service standards designed to be enforced by local franchising authorities. Among them: Calls to a cable system must be answered within 30 seconds, service appointments must occur during a four-hour time block, and customers should hear a busy signal no more than three percent of the time.

But the sting of falling short on a published service pledge enforced – or not – by a local franchising authority felt nothing like the sting of losing a customer to a new competitor, especially at a time when thumbnail calculations of cable asset values began to soar past $3,000 per subscriber. The onset of meaningful competition, more so than the '92 Cable Act, propelled improvements in cable's customer service routines and the infrastructures behind them. Service windows shrank. Long hold times vanished. Pay rates for CSRs rose.

True, the industry has a long way to go. In the most recent American Customer Satisfaction Index published by the University of Michigan, cable remains behind its satellite rivals for overall customer service rankings. As cable's multiplicity of products grows, so have challenges in meeting customer expectations. But on balance, the industry is doing a better job today than it used to, mainly because there's no choice. Competition's tough, but it also has made cable better. It's also worth remembering that satellite television wasn't around with any degree of scale when construction crews dug up Mrs. Gore's lawn. If it had been, it's entirely possible Al Gore would have found another issue to pursue.

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You can make MONEY with VOD ads

By Traci Patterson, Web/News Editor

With operators giving viewers more on-demand choices, and viewers responding by ordering more and more on-demand titles, the time is ripe for inserting timely, pertinent ads in VOD sessions

The market for video-on-demand (VOD) advertising is raring to go. The technology is there, and the interest is definitely there, but there are several crucial stepping stones cable operators have yet to cross – namely negotiating business models and receiving premium VOD content.

Everyone in the value chain – from advertisers and ad agencies to networks and operators – realizes the huge revenue potential the technology holds for each one of them.

"This is the first time, in terms of a disruptive technology, that every constituent in the value chain benefits," says Scott Ferris, SVP and GM of emerging media at Atlas on-Demand. "This is a very unique advancement in television for everyone, especially the consumer."

Last February, Tandberg Television and Comcast Spotlight – the ad sales arm of Comcast Corp. – announced the deployment of TandbergTV's AdPoint platform for the placement and management of dynamic ads on VOD. And last September, Lawrence, Kan.-based Sunflower Broadband commercially launched the technology with the help of Atlas' automated campaign management, ad decision logic optimization and reporting tools, and SeaChange International's AdPulse on-demand advertising system.

In November, Charter Communications trialed the technology in its headquarters market of St. Louis with C-Cor's nAble on-demand ad-insertion solution, Atlas' technology and TVN's ad distribution system. Currently, many other hush-hush trials and tests are being conducted by operators nationwide.

"Operators are pretty much full-throttle, full-speed ahead with this," says John Morrow, VP of strategy development and execution for Scientific Atlanta, a Cisco company. "Everyone is on the edge of their seat, working hard to conduct trials and validate the attractiveness of the technology."

Custom orders!

Traditionally, ads have been pre-baked into the VOD content, so advertisers have to know what ads to place, and where to place them, months in advance. These monolithic, static assets have to be pulled from the video server and re-encoded with a new ad if the original one grows stale, and that process can sometimes take weeks.

With dynamic ad insertion, when a VOD stream is requested by a consumer, a campaign manager instantaneously picks the most relevant ad or ads to accompany the content, and a dynamic playlist is cre-

ated on the fly. "This creates a unique, one-to-one relationship that every advertiser dreams about because video-on-demand, by definition, is a unicast stream," SA's Morrow says. "Every time a consumer orders a movie or anything else, there is a definite link between the subscriber and the cable operator."

More and more consumers are time-shifting their TV-viewing experience, making traditional TV advertising an even more shot-in-the-dark proposition, and making addressable advertising extremely enticing. Instead of reaching a mass audience, the ad will reach a segmented – or niche – audience, increasing the CPM (cost per thousand) of the ad. When advertising on Sunflower's VOD offering, advertisers can easily see CPMs that are anywhere from 10 to 50 times higher than on linear channels, says GM Patrick Knorr.

And manufacturers are ready to make dynamic ad insertion a widely deployed reality. Vendors such as C-Cor, Cisco, Concurrent, Harmonic, Motorola, SeaChange and TandbergTV have developed ad-insertion solutions. Atlas provides ad-pairing abilities – and has a relationship with C-Cor, Concurrent, SeaChange and TandbergTV. And Everstream, along with Rentrak, fills in the measurement hole with granular data.

The Charter trial was successful thanks to the Internet-like metrics possible with the technology, says Atlas' Ferris. Ad agencies were able to see granular measurements on the viewership of their ads, which gives them the ability to pull or modify campaigns based on the results. Data available with dynamic advertising includes who is watching the ad, how long they watch it, what type of household they live in and what they do after watching it.


Knorr

The ability to fast-forward through ads – a highly debated topic – was allowed for the trial. Some operators think that the fast-forward capability should be disabled or advertisers won't stand for it, and others think that the fast-forward measurements show whether or not an ad is effective.

Also up for debate is the usage of "targeted" vs. "addressable" advertising. Most people in the industry agree that "targeted" sounds threatening to consumers, whereas "addressable" more aptly defines the architectural implementations of the tech-

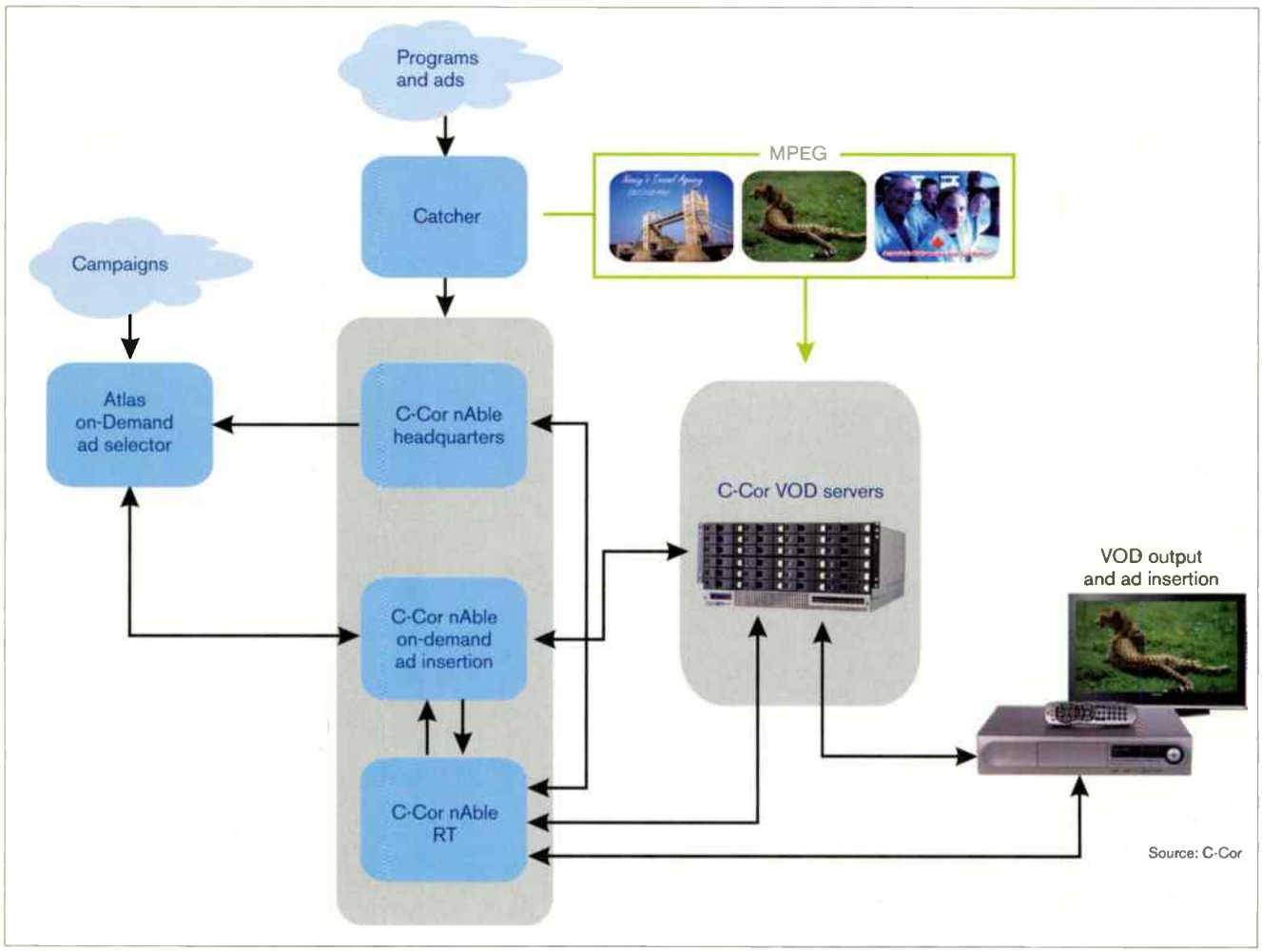

Figure 1: Charter Communications' dynamic, on-demand advertising architecture.

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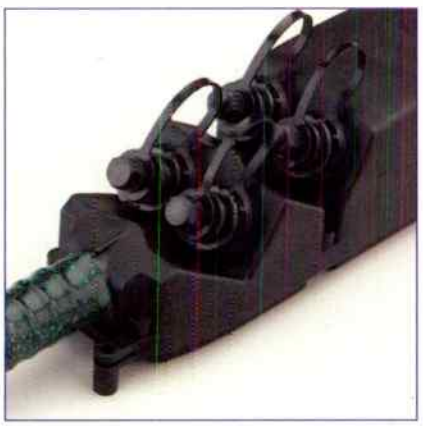

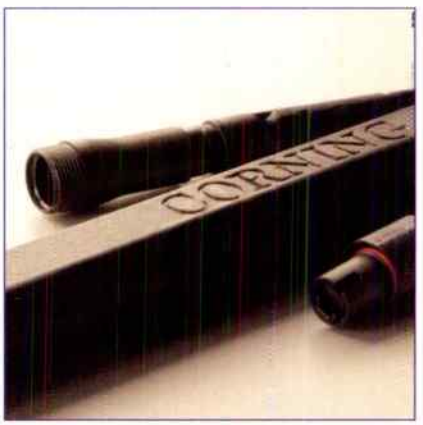

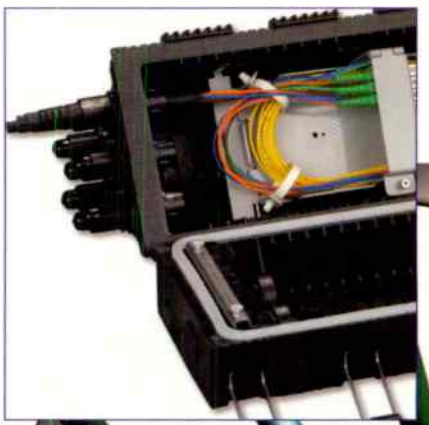

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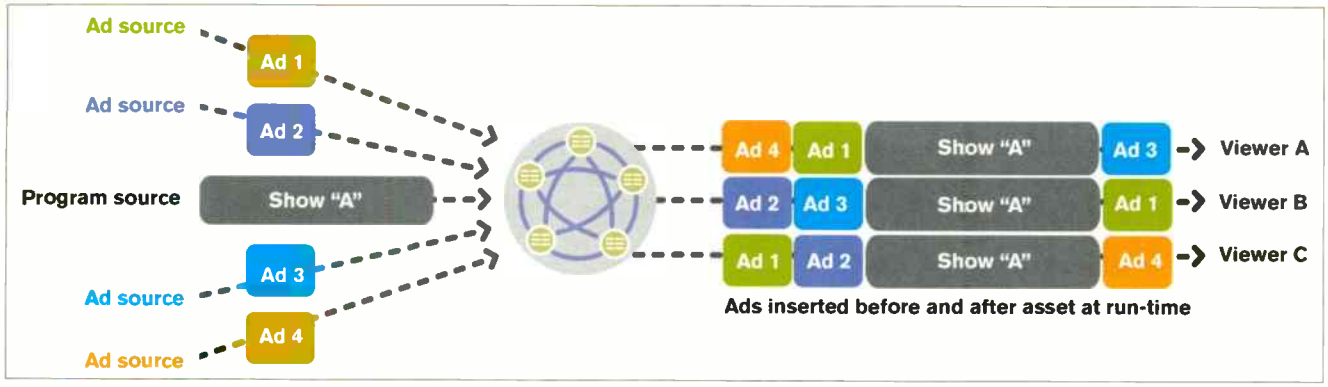


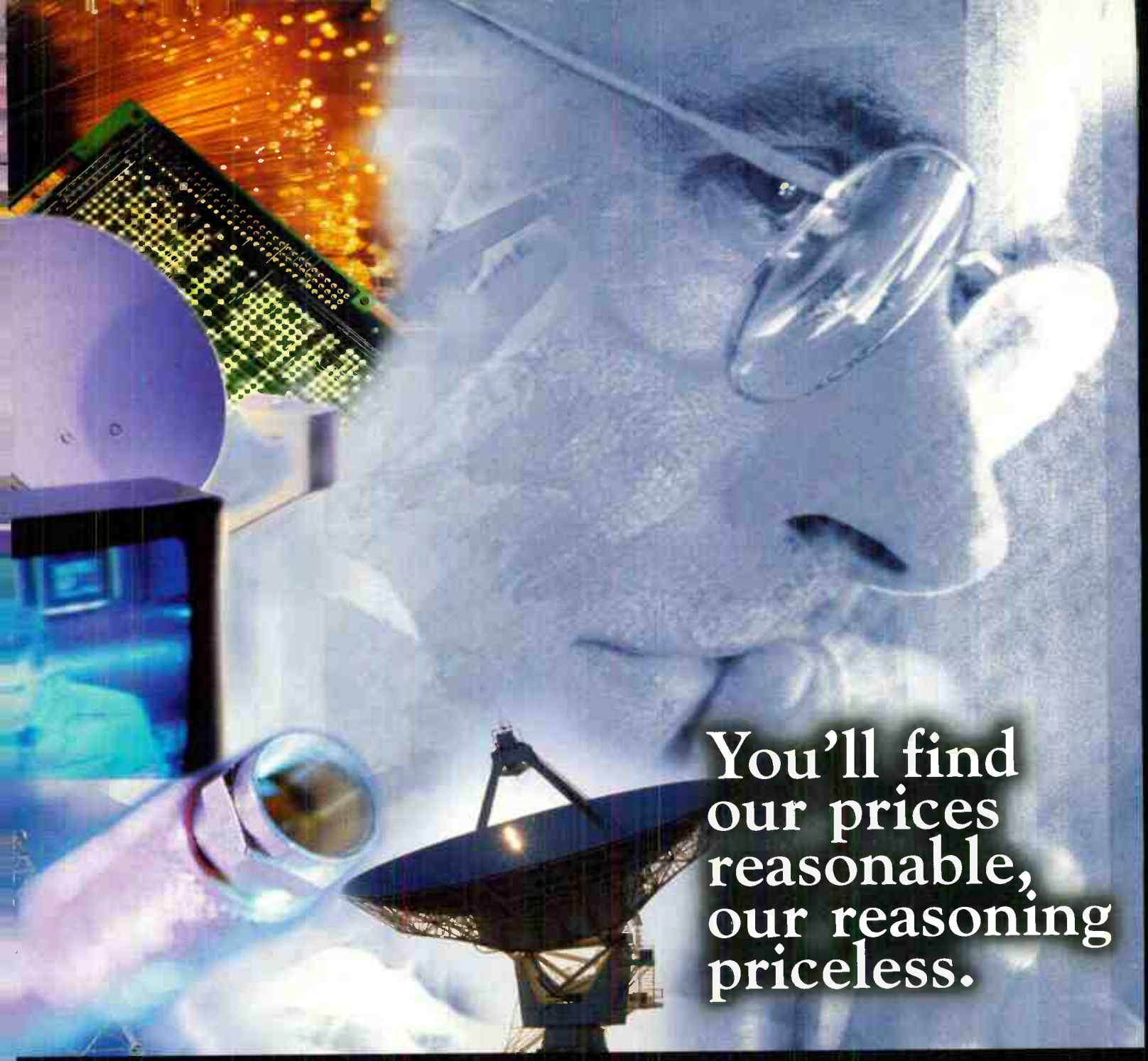
Figure 2: SeaChange's ad-insertion platform with Axiom Content Dynamics and the AdPulse on-demand advertising system.

nology. "'Targeted advertising' sounds like you're going to shoot somebody," says Jonathan Bokor, VP of business development for TandbergTV. "Certainly there are people who might not be happy about being targeted."

Another sensitive spot is the privacy issue that coincides with addressable advertising. The technology is available to telescope down to individual households, set-top boxes, and even individuals, but it is up to the operator to decide what information is collected and shared with advertisers, in accordance with the Cable TV Privacy Act of 1984, of course.

Cox Communications was one of the first MSOs to appoint a chief privacy officer, and now it's commonplace, says David Porter, Cox's VP of marketing and new media. "Our most valuable relationship is with our subscribers, and we don't want to jeopardize that.

"We're very cautious, but at the same time, we can do some pretty interesting things with data that we have access to," such as demographic – or upstream – information from companies like Claritas, and basic customer information, such as what types of services they subscribe to. "We can access that information in an anonymous format so that we're not divulging anything personal. We can assign attributes to [the subscribers], and there-



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fore, there may be ways to target certain ads to them," he says.

This addressability is similar to that found on the Internet, with the same privacy concerns, and vendors looked very closely at the online component when developing their products, and they will continue to monitor the ever-growing medium.

"Internet advertising has grown significantly in the past five years or so," says SA's Morrow. "The benefits of Internet ads, [which] advertisers appreciate and value greatly, will increasingly become available in the TV domain. On-demand advertising is a major step in that direction."

Cisco's CDE-400, a component of its Content Delivery System.

Advertisers are standing by!

One of the biggest holdups in the VOD advertising space is the business models that need to be worked out between the networks and the operators. "But once it's clear to the advertisers that they can place much more valuable ads in targeted ways – like with video-on-demand advertising – that the value is proven, that it's measurable...then of course the money will start to flow, and the ads will be purchased, and we'll all move forward," says Guy Cherry, principal architect of video systems for C-Cor.

Discussions between networks and operators are happening, and we're starting to see the first signs of agreement, says Ben Hollin, an advanced video advertising architect for Cisco. "It's just a matter of time and money." It's also a matter of working out the inventory-split deals on a network-by-network basis while honoring the multi-year arrangements already in place.

Hollin says another hurdle is the lack of industry standards for interoperability, although the SCTE, vendors and operators are hard at work to develop DVS-629 – a standard that allows for dynamic, addressable advertising – which will help manage the complex process of putting the right ad in front of the right subscriber. There are currently seven parts to the document, and four of those are almost ready for ballot, according to Tom Russell, director of standards at SCTE. At press time, the ballot is planned for early October.

And a third obstacle, Hollin says, is the infrastructure itself. This is a huge drift from the traditional TV advertising method, and right now there is a bit of a chicken-and-egg dilemma: until there is ad inventory to sell, are cable operators going to fill their VOD offerings

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with premium content from the networks, and vice versa?

Advertisers, networks and cable operators all agree that dynamic advertising poses a major growth and revenue opportunity. But, as with any new service, they want to make sure they get it right the first time – that it's integrated properly, that it's tested properly, and that it interfaces with the traffic and billing systems.

The future is now!

Broadcast TV won't be going away anytime soon, especially since it is still an efficient way to get content to consumers, says Tim Dodge, Concurrent's VP of sales and marketing for on-demand in North America. But addressable advertising will allow more content to stray from the constraints of linear television.

And dynamic advertising will allow operators and programmers to make money off of the on-demand platform, says TandbergTV's Bokor. If this happens, then they will place more and more content there, allowing consumers to receive the benefits of a DVR without having to record content, and leaving consumers without the ability to skip through ads.

"Dynamic ad placement offers a way to defeat ad skipping, it maintains the advantage that cable has over Internet distribution, and it provides new convenience to the viewer," Bokor says. "So everyone wins. I really believe we will get there."

And when you add in the ability to target *and* engage the user with interactive elements, then advertisers really win, says ICTV COO and EVP Ed Forman.

"Where I think things are going are toward ads that are far more engaging and actionable," he says, "that actually get the viewer to do things that further the knowledge of the product and their interest in the product – in some cases, even move forward and buy the product. The notion of just playing out assets in different ways really is only a limited view of the future." ■

Additional information

On Oct. 18, *CED* will host a one-hour Webcast entitled, "Advanced targeted advertising – Teaching the old dog new on-demand tricks." The presenters will discuss the opportunities presented by addressable advertising, infrastructure requirements and different ad models. Anyone interested in attending this free event can sign up at www.CEDmagazine.com. Attendees can ask specific questions about the subject in a live Q&A session that will follow the presentation. This Webcast is sponsored by Motorola.

CED provides news coverage and analysis of new developments in the on-demand space, including the latest in on-demand advertising, in *xOD Capsule*. Anyone interested in subscribing to this free weekly newsletter can sign up at our Web site, www.CEDmagazine.com.

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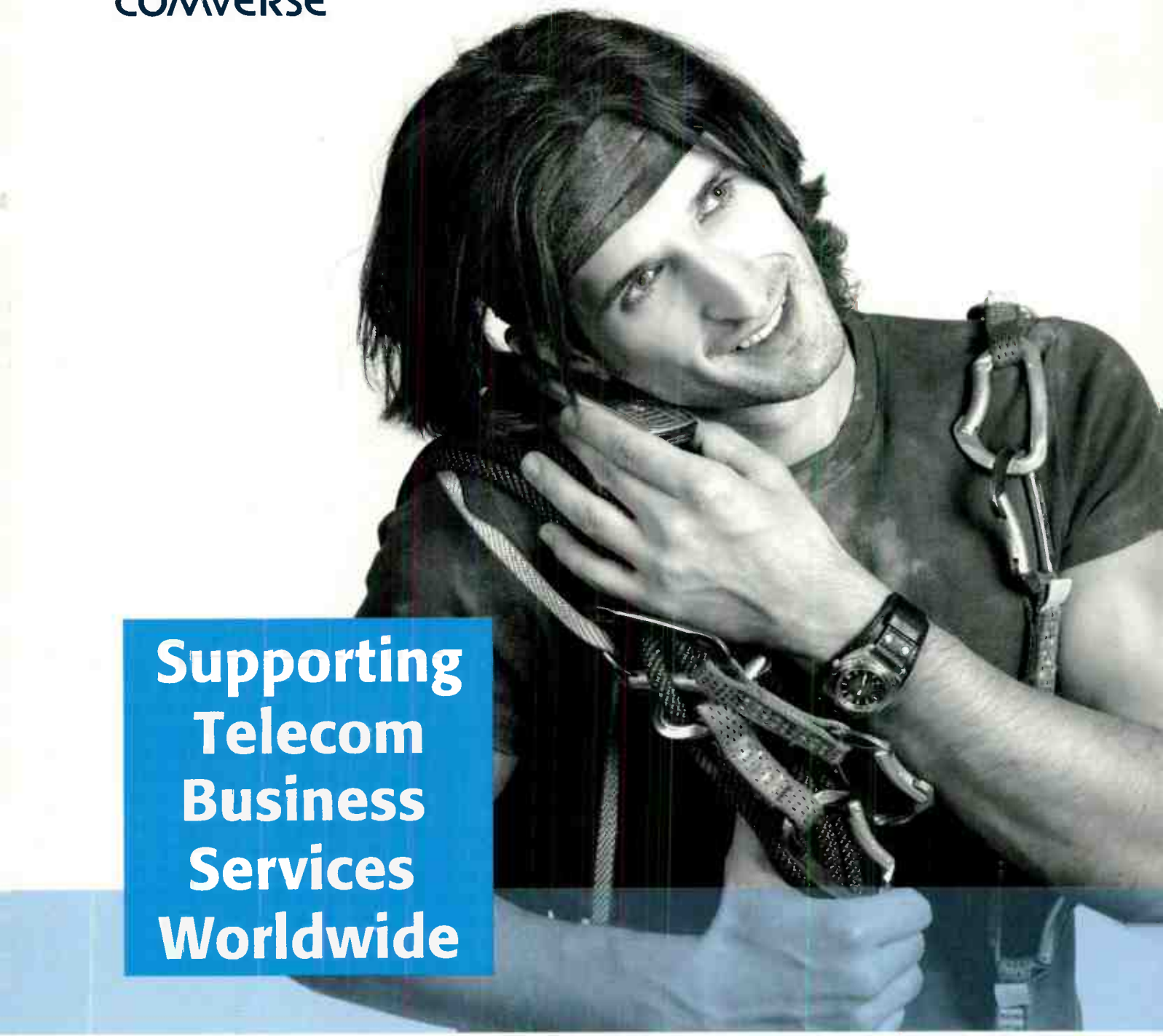

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THE DIGITAL TRANSITION WAS SUPPOSED TO HELP MSOs RECLAIM SPECTRUM, BUT NOW IT LOOKS LIKE THE OPPOSITE WILL HAPPEN

By Brian Santo, Editor

As recently as 2005, operators were eagerly anticipating the mandated broadcast TV digital transition. Operators' natural assumption was that since there would no longer be any terrestrial analog transmissions, they would be able to take the bandwidth used to transmit 60 to 80 analog channels – a vast allocation of spectrum 450 MHz to 550 MHz wide – and re-purpose it for any number of things. The day analog terrestrial TV went away – Feb. 9, 2009 – couldn't get here fast enough.

Yeah, well, so much for that. In the intervening months, events and circumstance have conspired to make it so that not only will MSOs not be able to fully reclaim that spectrum until 2012, but the digital transition is actually going to cost bandwidth until then.

There is some silver lining in the situation, to be sure, but it's meager compensation for the big, dark cloud.

A big chunk of the good news is that the bad news isn't as bad as it could have been.

On Sept. 11, the Federal Communications Commission (FCC) issued a decree that, in practical effect, obligates cable operators to transmit two copies of must-carry channels – the primary digital signal and an analog signal (see "FCC puts dual-carriage onus on cable," page 10). The same order says the cable industry has to carry analog signals through 2012.

So, instead of dedicating only about 3 MHz for the compressed digital version of each must-carry channel (that's for a high-definition signal; it could be less for a standard-definition signal), cable operators will have to devote up to 9 MHz – the 3 MHz or so for the digital signal, plus 6 MHz for the analog version they had hoped to drop.

Cable operators who aren't already simulcasting must-carry channels should expect to have to find, on average, an additional 42 MHz of spectrum somewhere to honor dual-carriage obligations.

From an objective standpoint, the dual-carriage decree was a bit odd. It appears to be a setback, but it was actually a reprieve. In fact, it was two reprieves wrapped up into one – for some.

Most cable operators will have to transmit two versions of every must-carry channel, one analog and one digital. That's not the worst thing that could've happened – in fact, it might be a good thing.

As of June, there were approximately 65.5 million cable subscribers, according to the National Cable & Telecommunications Association (NCTA). Of those, the NCTA says about 35 million are digital subscribers, which leaves about 30 million analog subs. (The FCC calculates there are approximately 40 million analog cable households.)

Ostensibly, the FCC's purpose with the dual-carriage decree is to ensure that cable operators do not leave their analog subscribers stranded without a usable signal.

But it's inconceivable that the cable industry would abandon and alienate any of its analog customers.

The cable industry long ago realized it actually wants the option to simulcast analog and digital signals for many channels after the digital transition, for reasons we'll get into shortly.

The FCC decision on Sept. 11 was less about protecting analog cable subscribers and more a negotiated settlement allowing cable operators to avoid triple carriage.

The FCC was actually considering dictating that for each must-carry channel provided in both standard definition (SD) digital, and HD digital, cable operators would have to transmit those two, plus the analog signal.

The NCTA got the FCC to back off of triple carriage as both an onerous and unnecessary burden. Now operators need only carry one digital version of any must-carry channel – the broadcaster's primary signal. If a broadcaster has both an HD and SD stream, it gets to designate which is its primary.

That was the first element of the reprieve. The second is the three-year extension that allows cable to keep analog customers through 2012. Explaining why requires a bit of backtracking in time.

When first proposed, the digital transition was popularly presumed to be for the entire TV industry, not just broadcasters. In fact, some cable operators were thinking about beating broadcasters to the punch, and going all digital well in advance of the deadline date.

Charter Communications led the charge in 2004 with an experiment in which it converted all of its customers in Long Beach, Calif., to digital – installing a digital set-top box (STB) with each – and ceased transmitting analog signals. Charter said it was satisfied with the technological aspect of the experiment, but did not replicate the transition through the rest of its systems.

What happened?

New technology combined with a proposed regulation that cable operators hoped to delay until it became moot, but which ended up being imposed after all.

There are several new STB technologies, but the most pertinent one in this context is the OpenCable Application Platform. OCAP, lately referred to simply as OpenCable, is a means of making all STBs – no matter who the maker, no matter who the user – appear to behave the same. It also requires more memory and in-

dicates more processing power, both of which increase the cost of a set-top.

Then there is the CableCard. The FCC insisted that as of last July, every new set-top deployed would have to have a separable security module, which added even more expense.

Suddenly, digital set-tops became much more expensive. Prohibitively so.

It was easy to imagine giving every subscriber a digital box when the price of digital STBs was going to remain modest, explains Wayne Davis, now the CEO of Vyyo but in 2004 the man at Charter Communications who pulled the trigger on the Long Beach experiment.

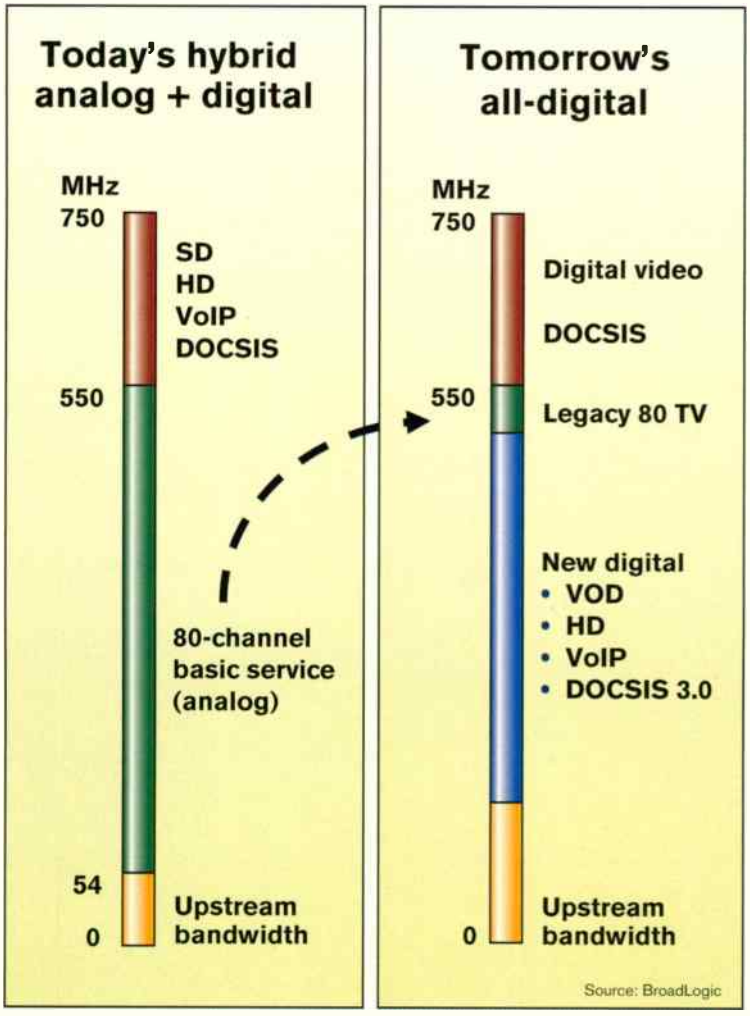
"'Let's put digital boxes everywhere' is an easy plan to have when they were all going to be $50 each. Now there's CableCard, OCAP stacks, more processing power, and they're more like $150," says Davis. "If, in half my market, I have to go from no digital set-top boxes to thousands at $150 each, plus $30 to $50 to install them, and another $30 to $50 any time you have to take them out – cable is a high-churn business – it becomes onerous."

Now multiply those numbers by the 30 million analog subscribers in the U.S. that have yet to be converted to digital. The cost of the boxes alone could reach $4.5 billion.

The fact is the cable industry actually can't afford for analog to go away in little more than a year. So the FCC's three-year extension compelling operators to continue with analog signals is both a reprieve and a deadline. It gives operators that much more time to convert to digital themselves, and do so more gradually, in three years rather than one.

In an odd twist, carrying analog signals for an additional three years may actually become a competitive advantage versus the direct broadcast satellite (DBS) providers and perhaps the telcos.

There are about 21 million households with analog TVs getting their signals over the air, according to a two-year-old report from the Government Accountability Office (GAO), the investigative arm of Congress.



The transition to all-digital will ultimately free up more than 450 MHz.

What happens to them? The plan is that the government will give everyone two coupons, each worth $40, to buy a digital-to-analog converter box that will translate terrestrial broadcast digital signals to make them comprehensible to legacy analog TVs.

It's one coupon per box. Aside from questions about whether the coupon program is adequately funded (and there are those questions), the other question is about those people who have more than two TVs.

There is an average of well over two TVs per U.S. household, which means there are plenty of homes that may have more TVs than they'll get converter coupons for.

Might some of those TV viewers convert to cable if doing so allows them to keep their existing TVs up and running?

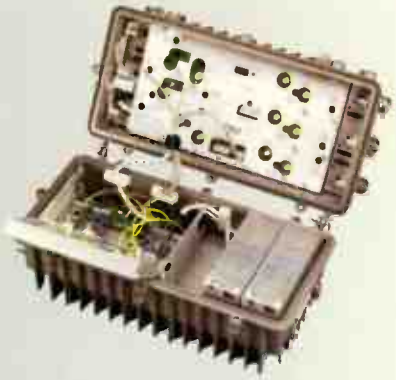
If a cable operator has an analog feed, "you don't need a set-top for the second, third, and fourth TV in the home," says Marc Tayer, Imagine Communications' SVP of marketing and business development. "And some analog subs don't want a set-top box. So having a core analog tier is advantageous."

But cable's dispensation to continue to offer analog channels is certain to last only until 2012. What then? Convert everyone to digital? Or petition to keep offering analog signals? What cable's options are at that point remain to be seen.

So the cable industry would no doubt prefer to carry only one signal from each must-carry broadcaster, but that issue is now completely decoupled from whether or not cable operators will continue to carry analog signals or not.

The FCC did provide for another option – a cable operator can carry only a digital signal only if every single customer can get the signal.

Given the economics of deploying digital set-tops, that's unlikely for many, but it is certainly within the realm of possibility for one major operator, Cablevision, which has a digital penetration rate exceeding 80 percent, far outstripping any other vendor.



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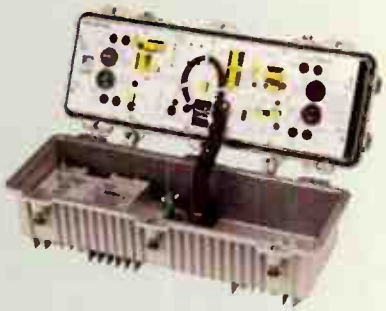

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SPECTRUM RECLAMATION?

That said, chip vendor BroadLogic is offering an interesting option. The company is developing a chip that can be put in the heart of a box (yet to be defined; it could be a set-top, a gateway, or something else) that will take up to 80 MPEG-2 streams and convert them all to analog at subscribers' homes.

So while the situation is not optimal, the cable industry has time to make its own digital transition, and meanwhile, by virtue of having several options for an analog tier, cable may be in the best position to attract many of the viewers who are now getting their signals over the air.

This is all true of the biggest cable operators, who may be squeezed hard by circumstances, but nonetheless have the resources to still negotiate the situation. There may be true peril for the thousands of small operators who count their customers in hundreds.

The American Cable Association, which represents 10,000 small operators, said the cost in equipment and labor required for some of its members to carry broadcasters' signals in multiple formats "could exceed $150,000 for systems that provide broadband, video, and voice services. The new carriage obligations now make it more difficult for operators of small systems to stay in business. If forced to comply with this order, small operators will have less capital to invest in broadband because they need to purchase costly equipment to provide the same must-carry channels in more than one format. Some very small systems will have no choice but to shut down because their small subscriber bases cannot support the costly equipment mandated by this order."

The FCC offered the potential for exemptions, but it's not clear how many small operators will qualify, nor how many will be able to afford to petition to qualify. And beyond that, the chance to get a waiver is just that: a chance, not a certainty.

Meanwhile, vendors are providing operators a multiplicity of options for managing bandwidth, including adding spectrum to reach 870 MHz or – though few have taken this option yet – 1 GHz, and node splits.

Vendors are providing operators a multiplicity of options for managing bandwidth, including adding spectrum to reach 870 MHz or – though few have taken this option yet – 1 GHz, and node splits.

Imagine Communications is offering a novel system for variable bit rate (VBR) statistical multiplexing – a means of optimizing the bandwidth a company already has.

Vyyo has its "spectrum overlay" approach. It has designed its UltraBand RF products to double downstream bandwidth and increase upstream bandwidth by a factor of up to four, allowing operators to deploy new bandwidth on a targeted basis for less (approximately $125 per home passed) than its $1,500 per home estimated cost for telco fiber builds.

Switched digital video has been a popular way to buy bandwidth. BigBand Networks has been notable finding success in that endeavor (see "Cox adds third feather...," page 6).

Of course, vendors such as Cisco/Scientific Atlanta and Motorola have a variety of approaches for increasing bandwidth and managing it better. ■

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Taming the set-top transition

The flexibility to execute in multiple network environments is key

By Chris Dinallo, VP Technology, Pace Micro Technology Americas

With the recent FCC mandate for separable security in full force, all in the industry are fully aware set-tops must now be deployed with CableCARDs (with the exception of the small handful of operators with rare FCC waivers). But that doesn't mean the situation is entirely clear.

There remains some confusion as to the connection of today's current environment – the "native" environment – with tomorrow's OpenCable environment, encompassing the OpenCable Application Platform (aka OCAP) software environment. There certainly isn't much clarity on when and how an operator should change from one to the other.

Having to deploy CableCARDs does not dictate an immediate move to OpenCable. But that leaves open a set of questions about the requirements for entirely new software stacks, electronic program guides (EPGs), video-on-demand (VOD) client applications, network servers, carousels, DOCSIS Set-top Gateway (DSG) infrastructure, and in some cases, new set-tops.

Although most of these changes are necessary for OpenCable set-top deployments, the CableCARD does not force all of these changes.

Transition complexity

Cable operators have made a tremendous investment in today's cable infrastructure. Currently, set-tops have security integrated; the FCC mandate requires that new CableCARD set-tops work in today's environments, but does not require a transition to OpenCable.

CableCARD set-tops that do not run OCAP, that still work in native environments, are best termed *native* hosts. Native host devices that run in existing networks represent a first stepping stone for a gradual transition to OpenCable. Most set-tops in this class follow CableLabs' OpenCable Host (OCH 2.0) specifications, and are able to execute the OCAP software stack.

Although it is important to transition to future technology initiatives like OCH/OCAP, many cable operators are taking a systematic and methodical approach in adopting such changes.

For example, there is no question the benefits of DSG, which makes use of the data channel for two-way communication between the set-top and the headend, far outweigh the out-of-band (OOB) return path traditionally used. Yet, switching over from OOB to DSG is quite a challenge - both logistically and financially - for the operator.

Now add in the new infrastructure necessary to support the transition to OpenCable, new host software (e.g. OCAP), and new applications (e.g. Java environment), and it becomes clear that doing the whole transition to OCAP in one shot is an overwhelming task for even the largest of operators.

Mode	Classification	Communications path	Application environment
Native	Native host	OOB	Native EPG & VOD
On-Ramp	Native or OpenCable host	OOB or DSG	Java
OCAP	OpenCable host	DSG	Java

Transition steps that flexible set-tops can achieve:

- Native -> OCAP
- Native -> On-Ramp
- Straight to OCH

Figure 1: Operating modes via software download.

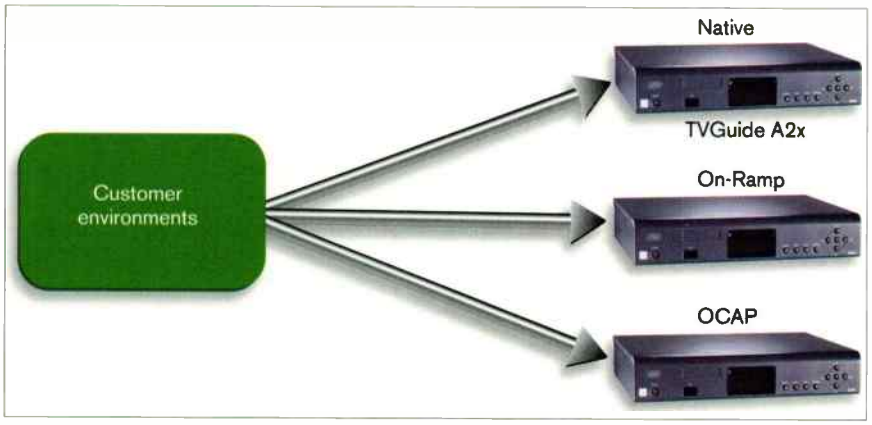

Figure 2: The flexible transition environment.

Protecting the investment

To find the optimal transition strategy, consider starting at the end of the delivery-chain and working upstream. In cable, the set-top can be the starting point and catalyst for change upstream.

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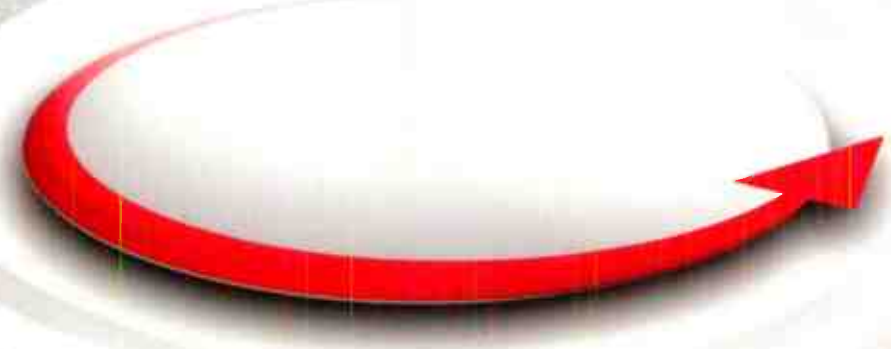

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for an influx of set-top suppliers. Many of them targeted the market based on the assumption that their customers will have made the transition to the OpenCable Platform, or that upon deploying their set-tops, their customers will immediately make the transition – a "flash cut" change.

Experience suggests the flash cut approach of a total and complete switch-over to OpenCable environments can be fraught with peril.

Pace is convinced the best approach for supporting operators is to support the option of a gradual transition. That means building CableCARD platforms with the flexibility to execute in native or OCH execution modes, thus easing the transition for the operator while also providing a choice of operating modes.

Selecting set-tops

Because the most sensible and safest transition is a gradual one, the best choice of platforms would be those that can operate in either environment – like a dual personality. From a set-top vendor perspective, one way to accomplish this is to (a) design the set-top hardware with this goal from the start, and (b) allow for the set-top to accept an over-the-cable software download of either software image necessary to execute in native or OpenCable environments.

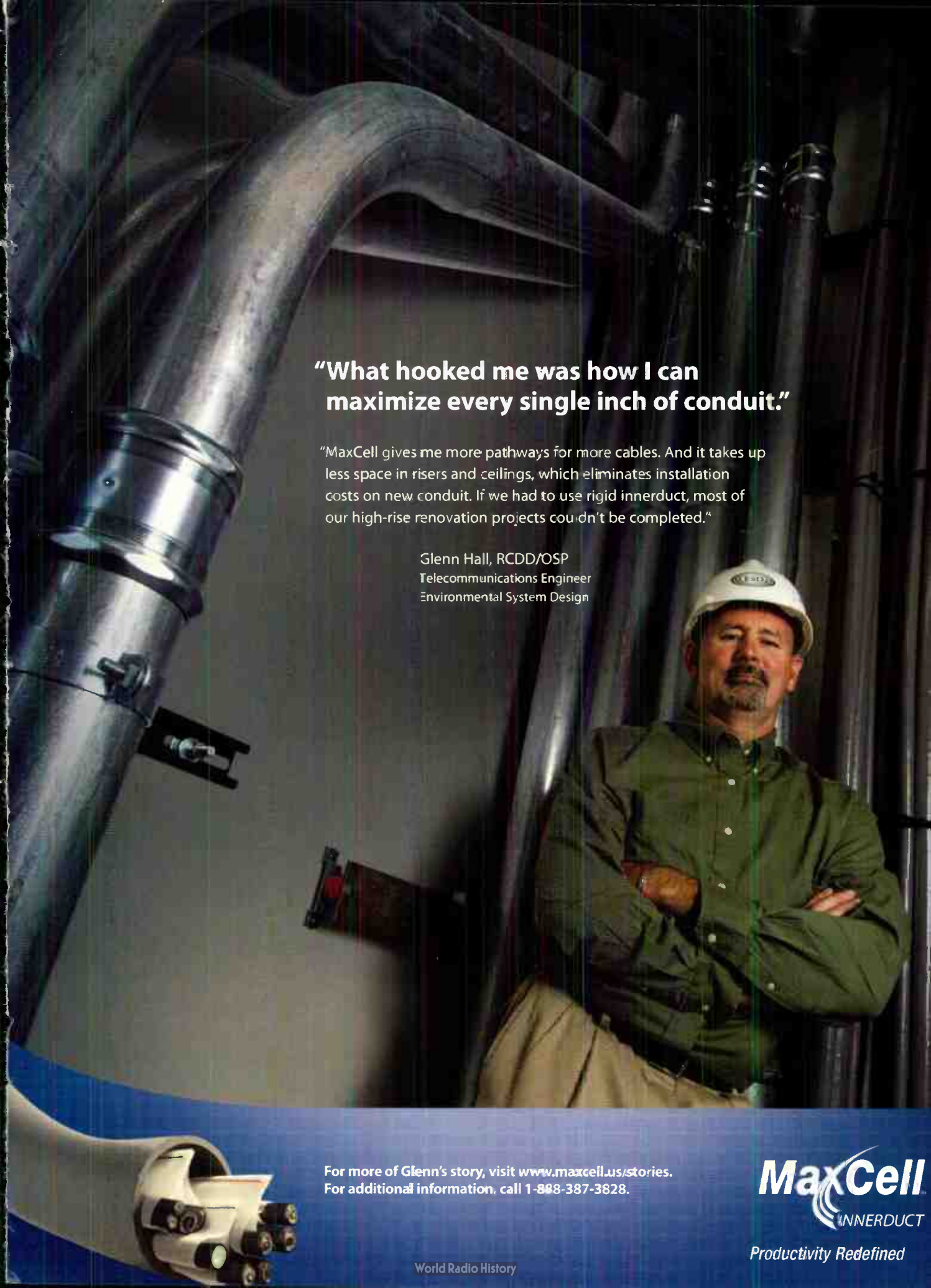
Many set-tops today (even some of the newer ones) do not have this dual personality; thus, the operator has no way to transition from native to OpenCable via over-the-cable software downloads. Many of the older legacy set-tops are not designed for OCH mode. Some of the new-to-market set-tops can only execute in the OCH mode because they were not designed to have this dual personality; thus, to deploy these set-tops, all of the infrastructure must be in place and operationally bug-free.

In addition to the benefit of being able to flip from one set-top operating environment to the next, these flexible platforms also provide expense relief for the operators because no new set-top investments are needed for OCH transitions, which leads to additional savings from not having to do truck rolls to swap out native set-tops.

Certain technologies are prerequisites for operating in either native or OCH environments. For native set-tops, the platform must have an out-of-band (OOB) tuner with a QPSK demodulator for downstream communication, and an upstream QPSK modulator for the return path.

Intelligent software is then required to allow the set-top to utilize this OOB hardware such that either the DVS-178 or DVS-167 message protocol is followed to achieve two-way communication.

Furthermore, Motorola and Scientific



Atlanta (Cisco) networks each have additional messaging requirements to process specific network and conditional access messages; thus, the set-top must be able to process these messages as well.

Native mode also has specific software requirements at the application level where there are specific EPG and VOD clients that must be ported to the set-top to complete the set-top's native software execution image.

For OpenCable environments, the set-top must be designed to adopt the technologies that are spelled out in the OCH hardware specifications. Such additional technologies include DSG as another mechanism for two-way communication (in place of the OOB communication used in native mode).

As mentioned earlier, DSG offers superior bandwidth and communication advantages, yet the benefits come with a cost of incorporating a DOCSIS cable modem, additional memory, an additional tuner and a 16-QAM modulator. Similarly, the overall OCH platform must have more memory and CPU processing capability (as opposed to native execution mode) to support the OpenCable software environment, which includes a Java Virtual Machine and Java applications.

Going a step further, a flexible set-top design should also include an intermediate step to OpenCable with the ability to again flip execution environments – this time, to an On-Ramp environment. Some in the industry refer to On-Ramp as a stepping stone to OpenCable, as it has many attributes of the OpenCable software requirements, yet with some concessions to allow less-capable platforms to retain the look-and-feel of the same applications executing on OCH platforms. Here again, it's about providing choice to operators of which environment they wish to execute without the set-top dictating the way.

One can start to see that supporting a dual-personality platform requires much upfront set-top design and not an afterthought of loading a new software image on the set-top. These are just some of the concepts operators must consider when making their set-top selection.

Contingencies

Set-top vendors must have design philosophies where they provide the operator with flexibility and choice – it's the best contingency plan an operator can have. And given today's changing environments, operators can take comfort in knowing their set-tops have what it takes to be a catalyst for future change regardless of its timing and direction. Flexible equipment suitable for any contingency is the basis for a solid return on investment. And that is what makes a win-win situation for both operators and set-top vendors. ■

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Brushing the dust off long tail VOD titles

Addressing the problem of accessibility in ever-growing VOD libraries

By Bruce Bahlmann, VP Data Technologies, Sedna Services

Video-on-demand has seen ever increasing numbers since its first deployments in 1999 en route to the 250 million monthly views received by Comcast alone in July 2007. However, as the popularity of this service continues to increase, VOD is becoming a victim of its own success, with a growing number of denied requests, increasing support costs for managing aging systems, and rising costs for marketing all the titles within growing libraries.

While upgrading the aging VOD platforms and allocating additional QAMs to the VOD service easily address the first two, the challenge of marketing the far reaches of VOD's growing library represents a problem that cannot be solved as easily.

Limitations of screen real estate

In VOD, the location of the title is very important in effectively marketing a growing list of video titles. The available screen real estate combined with the lower text resolution in standard definition (SD) television, however, limits the number of titles that can be effectively displayed on any resulting search to four to nine programs, depending on how much additional information is provided (e.g. title, box art, director, etc.).

High definition (HD) TV offers a marginal improvement by allowing for six to 15 titles to be displayed as part of a program search. But the high ranges of these numbers can be misleading due to the fact that listing more titles on a display means less additional information can accompany the program title in the display – thus reducing the effectiveness of each title in the listing.

Besides marketing titles within a dedicated search function of VOD found in the electronic program guide (EPG), operators are experimenting with various ways to slice and dice their library of available titles to make them more accessible (such as categorizing titles into genres or series). Genre and series filters are especially useful for accessing and listing available programs related to currently running broadcast programs displayed within the EPG or program schedule, but they don't address unrelated long tail content that can quickly become stale in the library due to its lack of recollection by the consumer or association with another currently broadcasted program.

VOD should benefit from SDV

VOD choices are also limited by how much memory individual STBs have to dedicate to VOD listing data, so that the data is readily accessible. The preferred choice is to push this metadata in a compressed format to STBs so that titles can be called up quickly from within the EPG.

However, as the number of VOD titles expand, the memory available must be divided among increasing numbers of titles, restricting the amount of metadata that can be associated with any one title in order for all titles to be stored on the STB.

"As the number of titles (linear or, more pertinent, on-demand) increases, cable server-hosted search scenarios become much more compelling," says Sean Duggan, senior product manager of Digeo.

These remote search applications are now available from every VOD vendor and

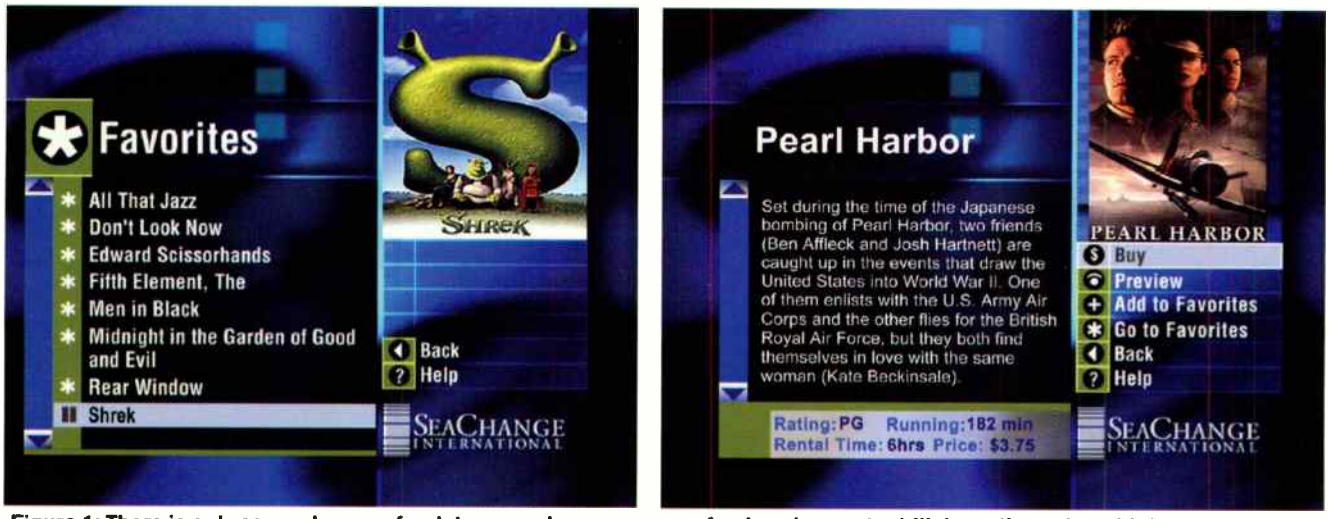

Figure 1: There is only so much space for data on each menu screen, forcing viewers to drill down through multiple screens to get more information on the choices they have. Source: SeaChange International

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provide adequate search capabilities for title libraries too large to push down to STBs – which results in a viable interim solution for VOD operators with greater than 1,000 titles.

As switched digital video (SDV) becomes ubiquitous, a much more feature-rich VOD search interface should evolve at the data center with no more than a 100 ms delay in registering remote control button pushes on the display. With this "hosted" search interface, intelligent searches can be completed, allowing real time searches to take place with each key press. That can include many other optional drop down program filters – by genre, release year, etc.

Such a display should enable VOD operators to expand their libraries to several thousand titles while providing a respectable level of accessibility. However, competing with Netflix's 80,000 title (and growing) library is currently out of the scope for current VOD services with searches limited to the confines of the television screen.

Using second and third screens

In light of the low text resolution of SD and even HD from a VOD title listing standpoint, VOD will need to look to second and third screens to make its expanding library more accessible.

"VOD movies scheduled via a computer for some time in the future (like current pay-per-view) will provide the high-resolution screen needed to access large VOD libraries," says David Stengle, VP of Distribution at Black Arrow.

It is believed that offering such a second screen as well as a cell phone screen to tap into more spontaneous movie selection requests such as those generated while shopping, or while reading a billboard could be a great way to maintain a "must-watch list." Such means of movie selections for VOD will provide an effective means of mining the far reaches of a comprehensive video library while further coupling multiple services – but in a different way than currently utilized because such selections happen "off-line" or outside of an engaging VOD session that ends with your viewing the selected movie.

Such "off-line" selections would ultimately enter a Netflix type queue or "my must-watch list" that can be accessed from the living room at the subscriber's convenience, much like a digital video recorder's (DVR) list of stored programs. A VOD "must-watch list" could be recalled by the VOD user interface so the consumer could select any title from their "must-watch list" (not all of which may yet be available on VOD) and watch it immediately rather than run to the store or wait for tomorrow's mail.

In fact, the same queue technology could result in a pretty interesting pseudo VOD offering by satellite companies if they could proactively download queued entries to the customer's DVR.

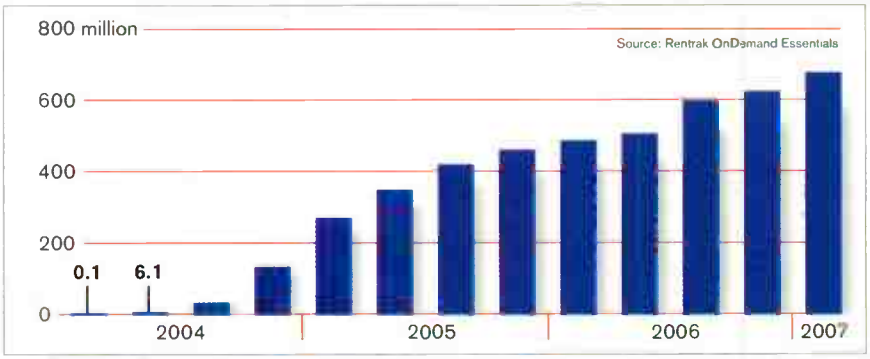

Figure 2: Increasing demand – total U.S. video-on-demand orders since 2004.

Differentiator: Number of titles

With the sheer numbers of titles becoming available in multiple formats (SD and HD), the notion of building out space for every available title begins to raise an interesting business question: At what point does it cost more to buy and maintain the additional disk space for any given title ver-

The Seven Myths of Fiber Deep Architecture

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Fiber deep approaches often are perceived as relatively straightforward ways to achieve more bandwidth. By combining the principles of node splitting with longer and more numerous fiber runs, they enable operators to bring some increased capacity and the benefits of reduced service group size closer to the subscriber. In the end, however, the plant remains the same 750 MHz/1GHz architecture that is in use today.

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sus what that title will capture in revenue?

Clearly a VOD title wouldn't be added to the library if there wasn't some chance that people would rent it, but when it comes to long tail content, would one or two views a year justify the cost of storing both formats of that title? Well, maybe ..

One might argue that once a title has been ingested and resources (disk space) have been allocated to store it, the major expense of hosting the title is behind you. However, as disk drives begin to fail and need replacing, current disk arrays need upgrading to faster ones, large video libraries require dedicated 24-hour staffing, etc., the real costs of maintaining large video libraries will become evident such that the revenue opportunity versus cost of hosting each title will be a factor in whether the title stays or gets archived or overwritten.

It is reasonable to assume that beyond the question of whether a title remains in the library or not, additional storage conscious options will be available to VOD operators. For example, VOD operators may elect to only store an SD version of the title rather than both HD and SD versions based on its viewing popularity.

It is realistic that after further business analysis, VOD operators will end up focusing on a very limited window of available titles (see Figure 1). VOD will likely end up covering all new releases and ride on the coattails of the marketing blitz that studios run as part of releasing new titles for purchase. These titles, along with subscription VOD and other content deals each VOD operator makes with their content providers, will make up a majority of its VOD library. Those titles that maintain some reasonable rental frequency, say 5-10 rentals a month, would likely remain within their video library due to popular demand, whereas those titles viewed much less frequently would either get pushed to some archive or get overwritten.

To effectively market their growing library, VOD operators must exploit the best features of online movie rentals, providing the ultimate in convenience, all the while zeroing in on movie rental's Achilles heel – time delays in obtaining the next title from the queue. While it may not ever be realistic for VOD to command an 80,000-title library, a reasonably

Have a comment? Contact Walt by e-mail at: wciciora@ieee.org

CICIORA'S CORNER

By Walter S. Ciciora, Ph.D., Recognized Industry Expert on Cable and Consumer Electronics Issues

'Clowns to the left of me, jokers to the right...'

The song "Stuck in the Middle With You" by Stealer's Wheel was a hit in the Summer of 1974. The most memorable line and one that seems to scream its appropriateness now is: "Clowns to the left of me, jokers to the right, here I am, stuck in the middle with you." The "left" and "right," as best I can tell, did not mean "conservative" and "liberal;" it just meant being surrounded by malevolent forces. And the cable industry certainly is "stuck in the middle" these days. One malevolent force wants to impose dual or even triple must-carry and even complete 6 MHz must-carry. Another malevolent force wants to severely limit cable's ability to innovate.

Here's another line from the song: "Trying to make some sense of it all, but I can see that it makes no sense at all." I guess I have an abiding belief that citizens should decide most matters rather than have them decided for them. That's why I wished for a marketplace approach to the transition from analog broadcast to digital rather than a mandatory February 19, 2009 shut down. It seems the politicians in Washington are getting a little nervous about the public's reaction.

A good friend, an educated, competent and accomplished woman, was a dinner guest just last week. She knows I'm an engineer and into technology. So she asked me what is new. I went down the list of some of the new devices and services and then mentioned as an aside the February 19, 2009 date for analog shut-off. She was stunned. She wasn't aware of it and what it means for her. Since we live in the People's Republic of Connecticut, her first reaction was over the "corporations" that were going to profit from all of this. It took a bit of doing to let her know that this is the work of the biggest corporation of all, the U.S. government. She is incredulous that this could happen.

These sorts of stories are pretty scary to the politicians. And they've come up with an idea they think will ameliorate the public's outrage: Let cable absorb the bulk of the cost and burden. They want cable to carry both the digital and analog versions of broadcast programs, so-called "dual must-carry." There's an out if the cable system is "all digital." To some in government, that means a digital set-top box supplied for every TV in the house. But wait. There's more. If an HDTV version is available, it may need to be carried as well: "triple must-carry." There are at least two big logical holes in this story. First, this tactic will do nothing for the most disadvantaged folks who depend on off-air reception for their television. Second, the only channels which select must-carry are the ones which would not gain carriage because of market forces; i.e. because people might actually want to watch them. I'll let you decide if these are "clowns" or "jokers," but in either case, they are unfair and dangerous.

And then there's the "a la carte" issue. Those who know me know I don't really follow sports closely. (When Time Warner moved us from Denver to Connecticut, they gave us a PrimeStar dish so we could follow the Broncos. After a game, I asked my wife, an EMT, to

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