Reed Business Information.

THE PREMIER MAGAZINE OF BROADBAND TECHNOLOGY • WWW.CEDMAGAZINE.COM

Inside: Frequency allocation wallchart

CED®

JULY 2005

THE BIG PLUNGE

DTVs of all shapes and sizes are diving into digital simulcast

- Dealing with foul weather foes
- Cable's Texas technology shoot-out
- Keeping up with CableLabs

To realize
your **VoIP** vision,

you need to see the whole picture.

Testing subscriber connections is critical to a successful VoIP launch. But you can't test what you can't see.

Trilithic technology lets you run a more comprehensive battery of VoIP installation tests, including MOS, so you can see critical information others can't – to minimize truck rolls and keep subscribers satisfied.

Best of all, with Trilithic's DSP technology, you can see all this information in the time it takes other meters to warm up.

The bottom line? Clear voice requires clear vision.

Visit **www.VoIP-vision.com** to find out more.

(800) 344-2412

TRILITHIC
INNOVATIVE ENGINEERING

www.trilithic.com

in perspective

Who needs 100 Mbps?

With the groundswell of activity around DOCSIS 3.0 these days, everyone is asking the all-important question: What applications and services are going to require 100 Mbps (or more), and just who on this Big Blue Marble is actually going to need that much speed?

This is usually the place where you see someone dig out the early '80s-era quote (or misquote) from Bill Gates that "640K of memory should be enough for anybody." Okay, so I'm guilty of it, too. Chide me if you must.

A 100 Mbps data connection may sound ridiculous now, but it may not seem so crazy sooner than some people might believe.

The 100-meg question is a valid one, and ripe for debate, because the DOCSIS 3.0 spec is not yet finalized and pre-specified versions of channel bonding technologies are just beginning to seep into Europe and Asia, where operators are literally begging for it as they match speed-for-speed with DSL and fiber providers. Japan's largest cable operator, J:COM, plans to launch a symmetrical 100 Mbps service this month to MDU customers.

The 100-meg question is a valid one, and ripe for debate

JEFF BAUMGARTNER, EDITOR

The story is similar in North America, though the speed bars aren't being set so high as they are abroad. Here, operators are not clamoring for channel bonding and DOCSIS 3.0 yet, but there's lots of discussion about how that pipe will be filled–with commercial services, video download applications, and VOD traffic in the DOCSIS domain, to name a few.

While those will certainly do their part to absorb 100 Mbps, I think they miss the mark in answering the question in the near-term. The more relevant answer today seems to be: It doesn't really matter how or if that pipe gets filled right now. Just making it available at a reasonable price is apparently enough to win in the public perception arena, where more is always better. And more at a low price is even better than that.

If a fiber or DSL service provider comes out with a 50-meg service for $30, cable had better be ready to respond posthaste or suffer the perception that it is somehow behind the technology curve.

And speaking of perception, I find it interesting that cable plant today is already delivering much more than 100 Mbps of capacity–multiple Gbps, in fact, if one were to sum up all of the channels being used by operators to deliver broadcast video (SD and HD), VOD, VoIP and other services.

But not that anyone in the mainstream would notice that, or give cable much credit for it. No, they pay much more attention to figures specifically linked to the high-speed data service: 5-meg, 10-meg, 15-meg, and so on and so forth.

Like EchoStar's new play on "VOD," which actually amounts to a push-DVR service, the cable industry has found itself again in the middle of a tricky perception game–providing yet another reason why it is imperative for cable's technology and marketing leaders to be on the same page.

CED®

PUBLISHER/EDITORIAL DIRECTOR
Roger Brown • Rbrown@reedbusiness.com

EDITORIAL
EDITOR • *Jeff Baumgartner*
Jbaumgartner@reedbusiness.com
SENIOR EDITOR • *Karen Brown*
klbrown@reedbusiness.com
EXECUTIVE EDITOR • *Dana Mendell*
Dmendell@reedbusiness.com
CONTRIBUTING EDITOR
Craig Kuhl, craigkuhl@comcast.net
TECHNOLOGY ANALYST
Leslie Ellis, Ellis299@aol.com

CONSULTING ENGINEERS
CHAIRMAN • *Dr. Walt Ciciora*, Technical Consultant
MEMBERS
Chris Bowick, CTO & SVP of Engineering, Cox Communications
Jim Chiddix, Exec. Chairman & CEO, OpenTV
Wayne Davis, CTO, Charter Communications
Stephen D. Dukes, President & CEO, Imaginary Universes Inc.
Marwan Fawaz, CTO, Adelphia
David Fellows, CTO, Comcast Corp.
Nick Hamilton-Piercy, Senior Technology Advisor, Rogers Cablesystems
Tom Jokerst, CTO, Broadbus Technologies
Dave Large, Chief Technical Advisor, Entone Technologies
Joe Van Loan, Senior VP & COO, Mediacom LLC (Ret.)

SALES
SENIOR SALES MANAGER • *Todd Marquez*
Tmarquez@reedbusiness.com
SENIOR SALES MANAGER • *Bill Parker*
Bparker@reedbusiness.com
CLASSIFIED SALES • *Brian Tellinghuisen*
btellinghuisen@reedbusiness.com
MARKETING DIRECTOR • *Glenn Comar*
Gcomar@reedbusiness.com

ART & PRODUCTION
PRODUCTION MANAGER • *Angela Coleman*
Acoleman@reedbusiness.com
SENIOR ART DIRECTOR • *Don Ruth*
Druth@reedbusiness.com
SENIOR DESIGNER • *Rick Gaither*
Rgaither@reedbusiness.com

ADDRESS
Mailing address: P.O. Box 266007, Highlands Ranch, CO 80163-6007
303/470-4800; Fax: 303/470-4890

WEB SITE: www.cedmagazine.com

CIRCULATION & SUBSCRIBER SERVICES
CIRCULATION MANAGER
Marketa Dixon; 303/470-4620
CIRCULATION DIRECTOR
Simon Young; 303/470-4495
CUSTOMER SERVICE
For subscription inquiries and changes of address: www.getfreemag.com/ced.
Customer Service, Reed Business Information
8878 S. Barrons Blvd., Highlands Ranch, CO 80129-2345
Tel: 303/470-4445; Fax: 303/470-4280
e-mail: subsmail@reedbusiness.com;
Back issues 800/446-6551
For custom reprints call Valeo IP
at 888/825-3647; or
e-mail: rbireprints@valeoIP.com

MORRIS PLAINS DIVISION
COLIN UNGARO • *President*
LORI EPPEL • *VP Finance*
STEVE WIRTH • *VP/Publishing Director*

REED BUSINESS INFORMATION
JIM CASELLA • *CEO*

CED is an officially recognized publication of the SCTE
Reed Business Information.

july 05

CED MAGAZINE Volume 31, number 7

features

When lowering your repeat service rate is a priority...
You can depend on Acterna.

DSAM

An integral part of Acterna's VoIP Test and Measurement Solution

- Only meter with an embedded PacketCable™ MTA
- Measure - and listen to - call quality, including MOS, on real–time phone calls
- Only meter with closeout test efficiency reports
- Integrated with PathTrak

Acterna's VoIP Test and Measurement Solution is the most complete package from the HFC to the IP core. A key tool in this solution is the versatile, award winning DSAM Digital Service Activation Meter. Incorporating state-of-the-art DSP and DOCSIS® technologies along with custom testing capabilities, ***DSAM delivers***! Both the consistency and flexibility that you need to test all of your services are at your fingertips. In addition, a ***breakthrough in productivity*** has been developed with Acterna's unique RF Quick Sync feature. This feature provides a basis for centralized management of your DSAMs over the HFC plant and sets the stage for ***revolutionary*** Acterna TechComplete closeout reports, providing efficiency data on each and every installation. ***No other supplier can provide this combination of testing and reporting capabilities that effectively lower your repeat service rate.***

A trusted communications test partner for more than eight decades Acterna offers the most complete testing portfolio from the HFC to the core. All Acterna products are backed by the same market leading service, support, and expertise you experienced from Wavetek. It is the Acterna Advantage. To learn more, call 1-866-ACTERNA or e-mail cable.info@acterna.com. For all the details, please visit **www.acterna.com/VoIP**.

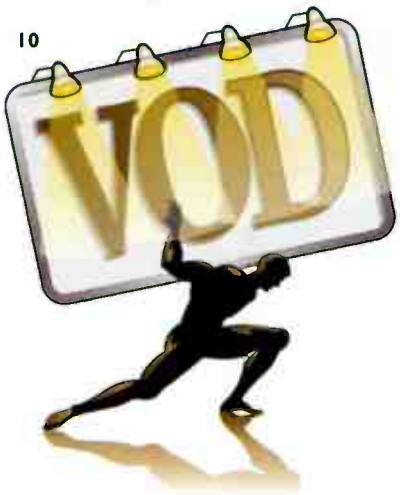
ACTERNA

Communications Test and Management Solutions

CA06

departments

CED MAGAZINE Volume 31, number 7



10

UPFRONT

12

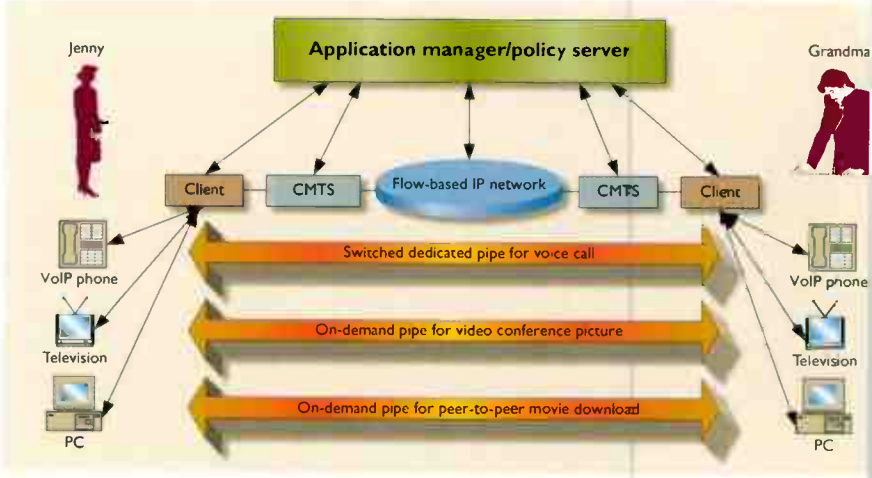
ADVANCED NETWORKING

PacketCable Multimedia (PCMM) and per-flow IP networking can complement each other, enhancing the consumer's Quality of Experience, and helping cable companies to earn their loyalty.

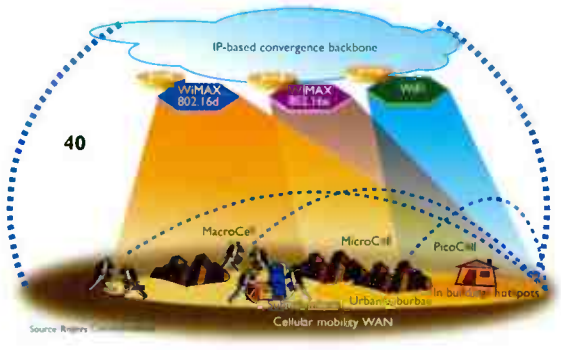
BROADBAND BUSINESS

PacketCable 2.0, downloadable security, and DOCSIS 3.0 are at the top of the cable industry's technical agenda, as revealed at the recent CableLabs media briefing.

37



COLUMNS



40

ALWAYS ON

Headend Amplifiers Have Evolved...™

CHAS® Headend Amplifiers are a family of high density, modular headend amplifiers engineered specifically for the challenges of modern headend design.

Compact
Hot Swappable
Modular
Return Distribution
Signal Source Redundancy
Cool without use of fans
Return Isolation
Group Amplification
Power Redundancy
Narrowcast Isolation
Multiple Powering Options
Laser Driver
Status Monitoring Interface

CHAS®
HEADEND AMPLIFIER SYSTEM

Modern Headends...
Modern Headend Amplifiers™

For more on CHAS® Headend Amplifiers call
1-800-668-2033 or visit us at www.cableserv.com

upfront

LATEST NEWS AND INSIGHT

FCC rules on e911

The Federal Communications Commission ruled in late May that certain classes of VoIP providers must supply enhanced 911 (e911) emergency calling capabilities as a mandatory service feature within 120 days.

Claiming a "balanced approach," the order obligates "interconnected VoIP service providers that are similar to traditional telephony companies."

The definition includes services that receive calls and terminate calls to the public switched telephone network (PSTN), but does not apply to instant messaging applications or Internet gaming services. By way of example, the ruling impacts cable VoIP, and services like Vonage, but does not affect Microsoft Corp.'s Xbox Live service.

The Agency remarked that it has maintained a largely light touch on VoIP regulation, "but e911 service is critical to our nation's ability to respond to a host of crises," the FCC said. Even before it was formally issued, there has been rampant concern that the order could hamstring smaller VoIP service providers.

Jeff Pulver, CEO of pulver.com and founder of Free World Dialup, blasted the decision, claiming that the ruling could make VoIP startups vulnerable, especially those without the "deep pockets, resources and political connections."

He also complained that the order leaves many VoIP providers at the "mercy or goodwill" of telecom carriers that control access to the emergency response network, noting that the FCC instead could have stopped so-called "port blocking" and forced the telcos to provide access to the emergency network.

Meanwhile, National Cable & Telecommunications Association (NCTA) President & CEO Kyle McSlarrow applauded the FCC "for taking action on this important public safety issue, which is of critical importance for every telephone customer, no matter what technology is used." He added that the "cable industry has and will continue to provide this essential [e911] service to our VoIP customers."

JDS Uniphase deals for Acterna

JDS Uniphase Corp. (JDSU) has put up $760 million to acquire closely held optical test and measurement firm Acterna Inc.

The deal is comprised of $450 million in cash and $310 million in JDS Uniphase common stock. With regulatory approvals, the deal is expected to close by the end of September.

The acquisition will give JDSU a company with combined annual revenues of over $1 billion, and expand its portfolio to include test and measurement gear for a range of IP-based data, voice, and video services.

While JDSU historically has placed plenty of test and measurement focus on equipment manufacturers, its purchase of Acterna will give it a line into service providers, as well, including Comcast Cable, BT, Verizon and SBC.

Following the deal's closure, John Peeler, Acterna's president & CEO, will head up JDSU's Communications T&M product group.

JDSU's test and measurement business, primarily with manufacturers, "has not been a major sales focus," but that will change under Peeler, said JDSU President & CEO Kevin Kennedy, during a call with reporters and analysts.

Kennedy did not downplay the integration challenge that lay ahead, but noted, "we believe this is the right acquisition at the right time."

The JDSU acquisition will end yet another chapter in the evolution of Acterna, which was created in May 2000 via the merger of Wavetek Wandel Goltermann and TTC.

Workforce Performance Solutions

- **Job-Specific Products** to develop and improve skills
- **Professional Services** to evaluate, identify, and improve workforce competencies
- **Professional Education** to advance knowledge and careers

Contact Information:

Call: (303) 797-9393
E-mail: info@ncti.com
Visit: www.ncti.com
Write: NCTI
8022 Southpark Circle, Suite 100
Littleton, CO 80120

SCTE Certification Preparation

In the broadband world it's becoming increasingly difficult to set yourself apart from the competition. One of the best ways to do so is through professional certification. It provides credibility, recognition of achievement, and assures others of your commitment to excellence.

WHY SCTE CERTIFICATION

SCTE's certifications are the benchmark for cable engineering expertise and help you demonstrate your technical knowledge – and that may lead to higher pay, promotions, and new job opportunities. Plus, SCTE offers the only industry certifications that cover the entire HFC network. The certifications are:

- **Broadband Premises Specialist (BPS)**
- **Broadband Distribution Specialist (BDS)**
- **Broadband Transport Specialist (BTS)**
- **Broadband Telecom Center Specialist (BTCS)**
- **Broadband Communications Technician (BCT)**
- **Broadband Communications Engineer (BCE)**

USING NCTI TO PREPARE FOR SCTE CERTIFICATION

NCTI provides you with the most complete approach to prepare for SCTE certification exams. You can utilize the industry's most comprehensive training courses available, or you can build a Prep Guide that contains only the information you need. Regardless of where you are in your career — new to the job or a veteran technician with years of experience and knowledge — you'll find an option that suits you.

Choose Your Path to SCTE Certification

NCTI Courses

Comprehensive, Job-specific, Accredited

In addition to having a great way to prepare for SCTE's certification exams, graduates of NCTI courses also receive vouchers to help with SCTE membership and testing fees. And since NCTI courses are fully accredited, you can pursue college certificates and an associate's or bachelor's degree while preparing for your SCTE exam. You can even earn up to four industry-recognized NCTI Master Technician Awards.

The self-study format allows you to enroll in courses through a clear, career-oriented progression or á la carte. All courses include lesson tests, online final exams, and customer support. Many can also be taken in either paper-based or online formats. And with each course completion, you will receive a valuable NCTI certificate of graduation.

Use NCTI courses to prepare for SCTE certification if you:

- Are employed by companies that use NCTI course completion as a part of career progression.
- Need comprehensive training prior to sitting for an exam.
- Want to earn college credit.
- Wish to use company tuition reimbursement.
- Aspire to earn an NCTI Master Technician Award.
- Need an overall, comprehensive understanding of your profession.
- Wish to use NCTI's voucher system to offset SCTE membership and certification expenses.
- Want a permanent record of your training progress.

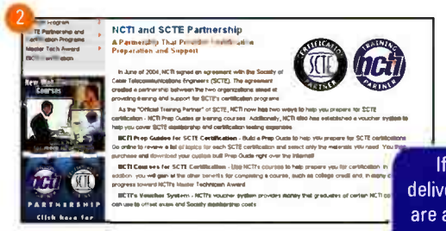
To use NCTI courses to prepare for SCTE certification:

1. Go to the Education Section of NCTI's Web Site and click SCTE Partnership and Certification Programs.
2. Click the tab NCTI Courses for SCTE Certification.
3. Select the certification that interests you and enroll in the applicable courses.
4. To enroll in these courses fill out an NCTI enrollment application and mail it to:

   NCTI
   8022 Southpark Circle, Suite 100
   Littleton, CO 80120-5658

1

2



If multiple delivery methods are available for your course don't forget to choose one

3

Your order will be processed within 48 hour of receipt of your application

4

NCTI Prep Guides

Flexible, Personalized, Targeted

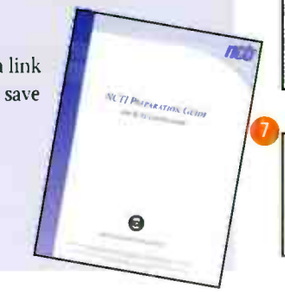
Building your own NCTI Prep Guide puts you in complete control of preparing for SCTE certification exams. As you build your custom guide, you'll be able to see all the topics on which you will be tested within each SCTE certification category. You select learning materials on only the topics you choose. And since you build, buy, and receive these with a few clicks of a mouse, it's the quickest way to get exactly the information you need.

Use NCTI Prep Guides to prepare for SCTE certification if you:

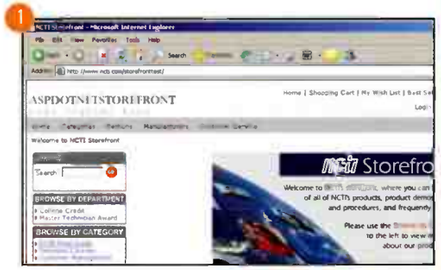
- Need to fill gaps in knowledge for which you've received prior training.
- Wish to pick and choose from specific topics of study.
- Know your strengths and weaknesses relative to knowledge needed for SCTE certification.
- Want quick access to targeted information.
- Prefer a learning experience without ongoing testing and record keeping.

To use NCTI Prep Guides to prepare for SCTE certification:

1. Go to www.ncti.com and click the Products tab. Click SCTE Prep Guide.
2. Select the certification in which you are interested.
3. You will see all the categories that are covered within the certification exam. Each Prep Guide covers one category. Select the category in which you are interested.
4. You will see all the topics that are covered within a category. Click on only the topics for which you wish to purchase reference materials. This can be as few or as many as you would like.
5. First click the Update Kit Price button and then the Add to Cart button.
6. You can edit your purchase or click the Continue Shopping button to build another Prep Guide. When you are done simply click the Continue Checkout button.
7. You will receive an e-mail with a link to your purchase. You can then save and print your documents. The cover of each Prep Guide looks like this:



1



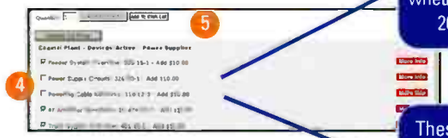
2

These are identical to the category listings of SCTE

3

Choose only the modules you need, whether that's 1, 10, 20, or more

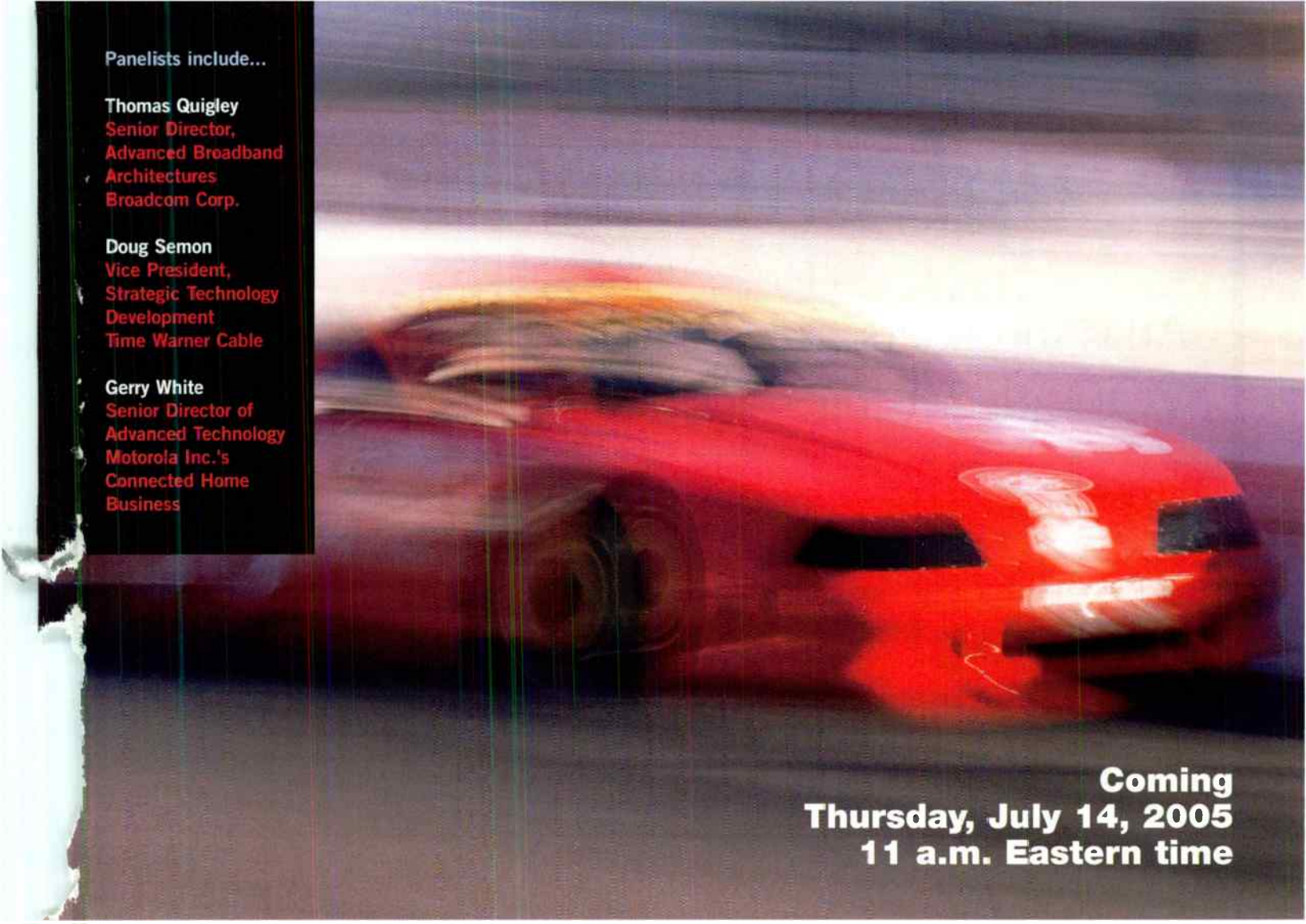
4 5



These are all the topics against which you will be tested

6

7



The Need for (More) Speed

Scaling bandwidth and services using DOCSIS 3.0 channel bonding

The broadband competition continues to nip at cable's heels with faster and faster DSL and fiber technologies.

How can you maintain your lead and make sure they don't steal your most desirable residential data—or even video—subscribers? Find out, **FREE**, at *CED's* upcoming live Webcast.

Promising speeds well above 100 Mbps, the emerging DOCSIS 3.0 specification is the next step in cable's data platform evolution—and its best defense against competing platforms. This information-packed Webcast will explore the origins of DOCSIS 3.0, cover the advanced services and benefits it enables, and detail how the technology is being designed to integrate into your existing broadband architecture.

By the conclusion of this one-hour live event, you'll have a firm grasp of...

- The speed and bandwidth management advantages of DOCSIS 3.0.
- How DOCSIS 3.0 will harness IP video applications and complement your existing VOD platform.
- The expected implementation costs.
- A likely timetable for DOCSIS 3.0-based technologies.

Moderated by *CED's* Editor, Jeff Baumgartner, whose decade plus experience in the industry includes a stint as broadband editor at *Multichannel News* and as the Denver Bureau Chief for *CableFAX Daily*.

For further information, or to register for this invaluable *CED* Webcast, go to ***www.cedmagazine.com/webcast***

Sponsored by

MOTOROLA

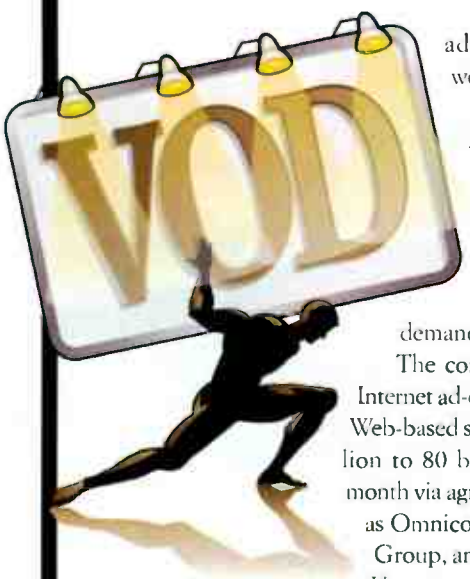
Planned and produced by

CED

upfront

LATEST NEWS AND INSIGHT

Atlas shoulders VOD advertising



Atlas is bringing its Internet-advertising pedigree to the world of video-on-demand.

Atlas, a division of AQuantive Inc., already works with hundreds of media buyers in the Internet advertising arena, but is complementing those efforts with an on-demand division.

The company has repurposed its Internet ad-delivery system for VOD. Its Web-based service handles about 70 billion to 80 billion advertisements per month via agreements with agencies such as Omnicom Group and Inter Public Group, and direct advertisers such as Vonage and Kraft Foods.

Atlas' VOD platform, which serves as an electronic media buyer desktop, includes a range of workflow tools designed to help ad agencies handle the entire lifecycle of their media placements for VOD. As it is with the Web, VOD advertising could offer several elements that advertisers salivate over: it is impression-based, and measurable in ways linear advertising is not.

Although the division is new to the on-demand world, two of the people running it have plenty of cable VOD experience.

Scott Ferris, Atlas On Demand's senior vice president and general manager, was part of a cable consortium that created Telewest, and was involved in the early deployment of Time Warner Cable's Full Service Network trial in Orlando. He later went on to MediaOne to help the company develop its high-speed and digital video products. He's joined by Jay Schiller, Atlas On Demand's vice president of business development. Schiller's recent cable experience was with nCUBE and C-COR Inc., which closed a deal to acquire nCUBE in January.

Ferris said Atlas' new venture was built at the request of ad agency customers determined to mitigate ad-skipping, take advantage of VOD technology, and create new advertising inventory.

SeaChange International was the first video-on-demand vendor to ink a co-development agreement with Atlas On Demand.

Motorola unveils new BSR products

Motorola Inc. is adding to its Broadband Service Router family again, this time unveiling a major software upgrade for the 64000-series cable modem termination system (CMTS), as well as a new economy-size chassis.

The new software, version 4.1, includes a raft of new updates aimed at helping operators deliver voice, video, and data applications. Not only does it triple the upstream bandwidth and add advanced spectrum management, but it also sports virtual private networking support and dynamic voice and data traffic balancing capabilities. It also adds support for PacketCable Multimedia

Motorola also unveiled the BSR 2000, a more compact version of its BSR 64000 sibling that can be deployed solo or in clusters to power small- to medium-sized distribution hubs, multifamily apartment units or hotels. The one-rack-unit "pizza box" chassis is DOCSIS 2.0-based, and, with an extra receiver port, it can support advanced spectrum management through built-in RFSentry capabilities.

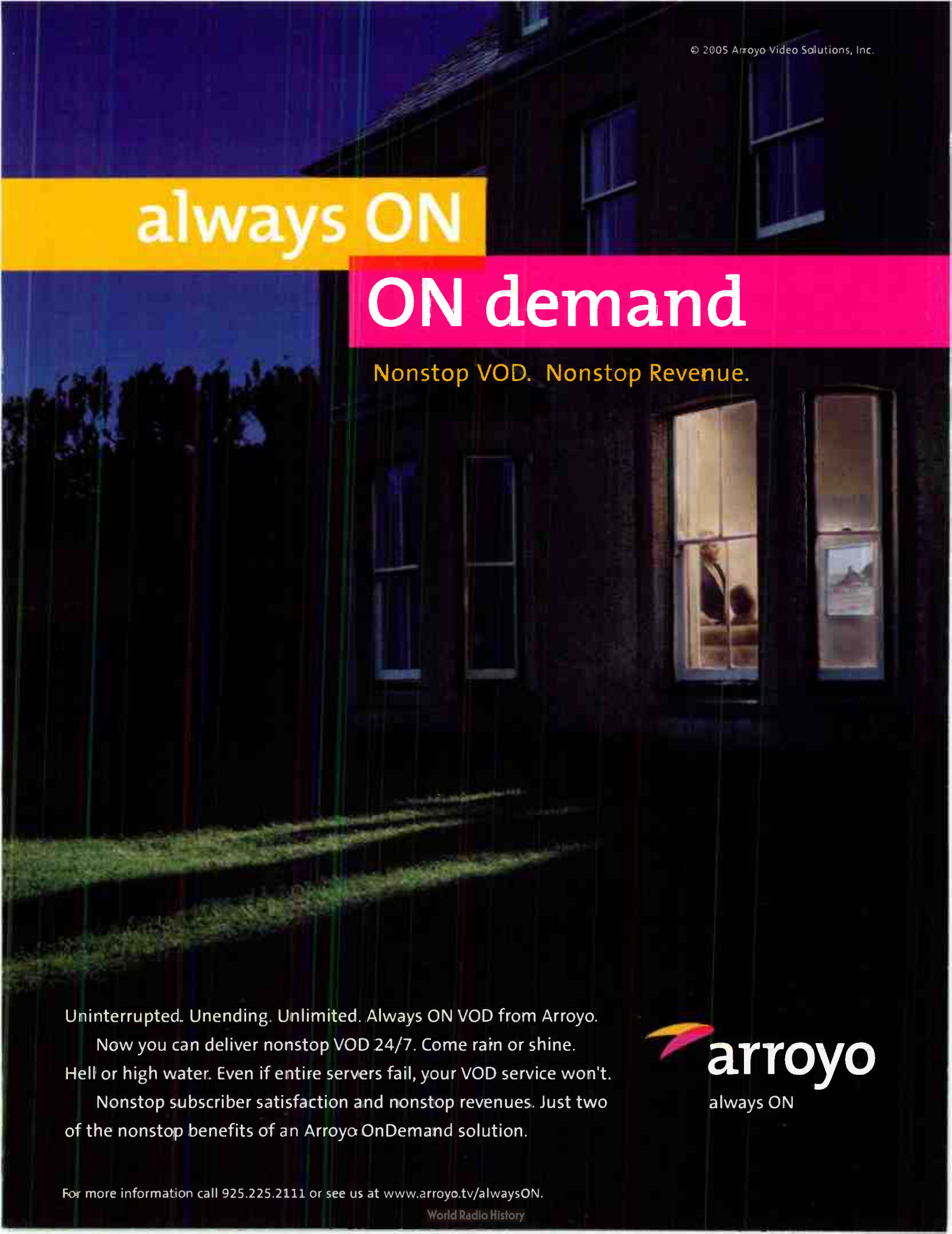
Motorola's BSR 2000

Adelphia goes with Gotuit guide

Adelphia Communications Corp. is giving Gotuit Media Corp.'s video-on-demand navigation guide a go, starting with deployments in the MSO's Northeast Region system.

Adelphia is using the core Gotuit On Demand guide, as well as specialty content libraries Gotuit Music on Demand, Gotuit News On Demand and Gotuit Sports On Demand.

The Gotuit guides are aimed at helping Adelphia digital cable customers more easily find content from the expanding library of on-demand titles and linear channels.



upfront

LATEST NEWS AND INSIGHT

Wedding bells for CableMatrix and Xinnia

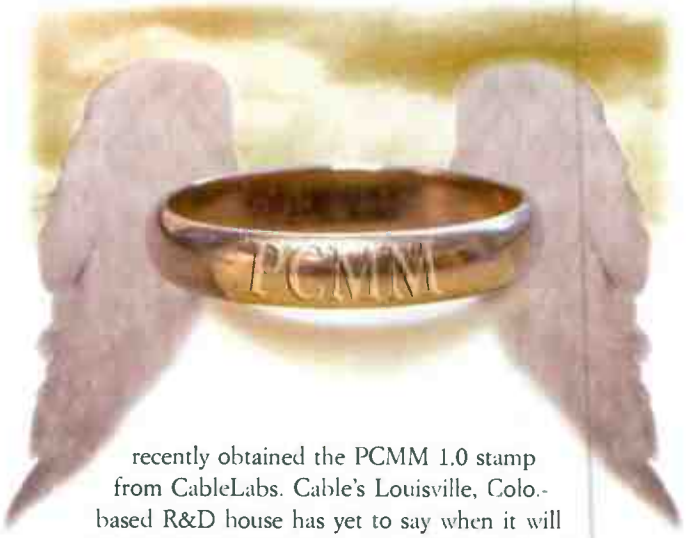
In what could be considered a match made in PacketCable Multimedia heaven, CableMatrix has inked a deal to acquire Xinnia Technology for an undisclosed sum.

The deal will give CableMatrix two primary elements of the PCMM architecture: the policy server (its existing ODSP Policy Server), and the application manager (Xinnia's Network Smart). PCMM is designed to inject QoS into a range of IP-based applications, and can be used to support broadband network security services.

In February, CableMatrix and Xinnia announced a successful integration of their respective PCMM products.

On the personnel front, Xinnia CEO Jay Malin will become vice president of business development at CableMatrix, and Xinnia Chief Technical Officer Matt Tooley will join CableMatrix as its vice president of technology. CableMatrix will also move its corporate offices to Chicago, but retain its R&D center in Israel. The combined company will have north of 30 employees.

CableMatrix was among a handful of policy server vendors that recently obtained the PCMM 1.0 stamp from CableLabs. Cable's Louisville, Colo.-based R&D house has yet to say when it will conduct official qualification tests on PCMM-based application managers.



Motorola plugs into BPL

Motorola Inc. gave the much-hyped Broadband Over Powerline (BPL) sector a jolt of legitimacy with the introduction of a platform that combines the company's "Canopy" wireless platform with "enhanced" HomePlug technology.

Motorola's Powerline LV (Low Voltage) system will target the utility sector.

The Canopy HomePlug system platform uses low-voltage powerlines, making it less susceptible to interference found in medium-voltage environments, the company said. The system also uses RF notch filtering to provide additional protection for amateur radio transmissions.

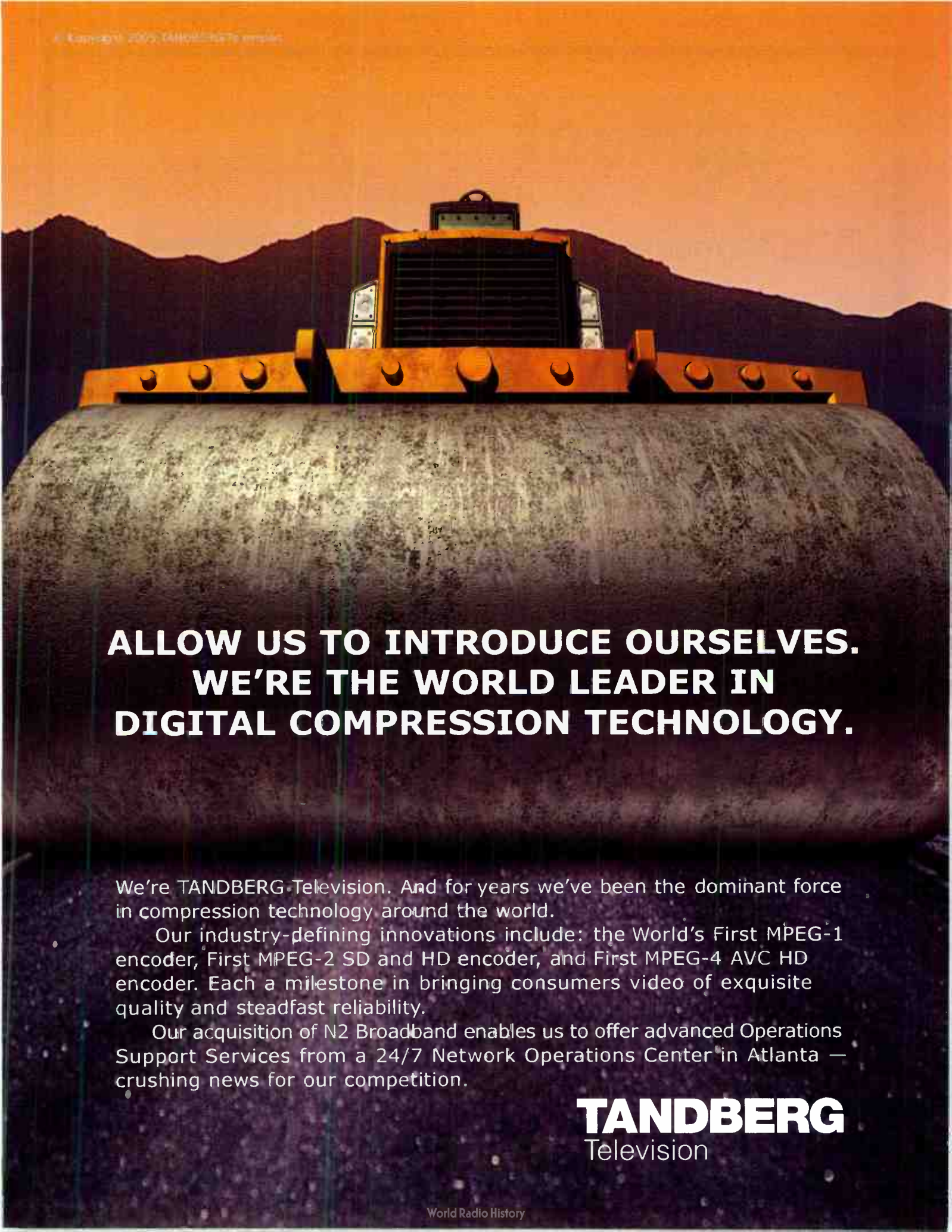
The platform taps Motorola's wireless point-to-multipoint Canopy technology as a dedicated data link or as a backup network. Motorola today has about 15,000 Canopy sites deployed worldwide.

The Powerline LV platform is comprised of three parts: an access point cluster, an integrated antenna and bridge router, and a HomePlug modem.

Broad River Electric, a rural utility that serves 25,000 customers in upstate South Carolina, is among the first to deploy Motorola's BPL technology.

GFC hails new chief

Cable installer/contractor GFC has appointed Peter Michel as its new president and chief executive officer, replacing Murat Aslansan. Michel, a former chief executive officer of Brinks Home Security, comes to Conshohocken, Pa.-based GFC from NEP Broadcasting LLC in Pittsburgh, where he served as CEO. He also recently was chairman of the Homeland Security Advisory Council in Washington, D.C.



ALLOW US TO INTRODUCE OURSELVES. WE'RE THE WORLD LEADER IN DIGITAL COMPRESSION TECHNOLOGY.

We're TANDBERG Television. And for years we've been the dominant force in compression technology around the world.

Our industry-defining innovations include: the World's First MPEG-1 encoder, First MPEG-2 SD and HD encoder, and First MPEG-4 AVC HD encoder. Each a milestone in bringing consumers video of exquisite quality and steadfast reliability.

Our acquisition of N2 Broadband enables us to offer advanced Operations Support Services from a 24/7 Network Operations Center in Atlanta — crushing news for our competition.

TANDBERG
Television

upfront

LATEST NEWS AND INSIGHT

Time Warner puts eBay on screen

An extended partnership between Time Warner Cable and BIAP Systems Inc. will ensure that eBay users can safely watch TV without worrying about being outbid for that vintage G.I. Joe with the Kung-Fu grip.

Time Warner Cable is testing the TV-based eBay application in Austin, Texas with the MSO's DVR customers. The MSO presently has about 50,000 customers in the market who fit the bill. The expanded rollout follows a smaller, more technical market trial that involved several hundred cable customers.

Although the application can run on just about any set-top, Time Warner is offering it only on DVR-enabled boxes.

BIAP's set-top software platform uses artificial intelligence techniques to acquire news and information from the Internet and other sources. When discussing next steps for the platform, the company thought it would be interesting to bring eBay to the television, and, after approaching eBay about the idea, was asked to join the auctioneer's development program, explained BIAP Chief Product Officer Ellen Dudar.

In the trial, Time Warner customers have buyer's side eBay functionality, including access to the user's eBay watch list. The application also sends alerts to the TV screen if the customer has been outbid, or if an auction has come to an end. Users can also boost their bids via the TV interface. Later on, BIAP hopes to add search and other eBay functions.

The BIAP-eBay application uses a specially-built user interface (rather than an HTML browser) to display information. The app does not require a separate 6 MHz channel, but instead uses out-of-band signaling to retrieve and send data. BIAP's system also incorporates a headend component as a bridge to the outside world.

Time Warner Cable is no stranger to the BIAP system. In addition to Austin, the MSO has been using the company's PITV (Personalized Information TV) application in El Paso, Portland, Waco, and San Antonio. The PITV app also is installed and ready to go in Corpus Christi, Minneapolis, Columbia (S.C.) and Green Bay, BIAP officials said.

Pace lands Comcast box deal

In a move that adds momentum to its play in the North American market, Pace Micro Technology aced a new multi-year set-top box and software licensing deal with Comcast Corp.

The deal replaces and expands a previous agreement between the two companies, said Michael Pulli, president of Pace's Americas division, which will make boxes for Comcast that work with the Motorola and Scientific-Atlanta conditional access systems.

Pace's Tahoe set-top

The new, three-year deal is valued at $375 million to $550 million, depending on the mix of Pace boxes that Comcast orders. Comcast has plans to purchase a range of Pace boxes, including its Tahoe HD-capable digital video recorder.

Comcast also has opted to license Pace's EngineWare software and certain set-top box designs for North America. In addition, the two companies will jointly fund a non-exclusive development project led by Pace's engineering team that will seek to create next-generation set-tops and related technologies.

WildBlue signs up first customer

David and Theresa Tuttles of rural Strasburg, Colo. last month became the first to travel into the yonder of WildBlue Communications Inc.'s long-anticipated satellite broadband service.

Without access to cable modem or DSL service, the Tuttles have had access to the Internet via a syrupy-slow dial-up phone connection.

WildBlue also gained some political clout out of the event, which compelled Colorado Governor Bill Owens to declare May 30-June 4 "Rural Broadband Week."

WildBlue kicked off with three service tiers starting with a 512 Kbps/128 Kbps service for $49.95/month.

Where 7,000 cable systems go to buy their hardware

A programming and hardware buying cooperative, the National Cable Television Cooperative has served independent cable operators for the past 20 years, helping them bring entertainment, news, and value into the homes of more than 14 million cable subscribers.

NATIONAL CABLE TELEVISION COOPERATIVE, INC.

11200 Corporate Avenue
Lenexa, KS 66219-1392
Phone: (913) 599-5900
Fax: (913) 599-5903
Web: www.cabletvcoop.org

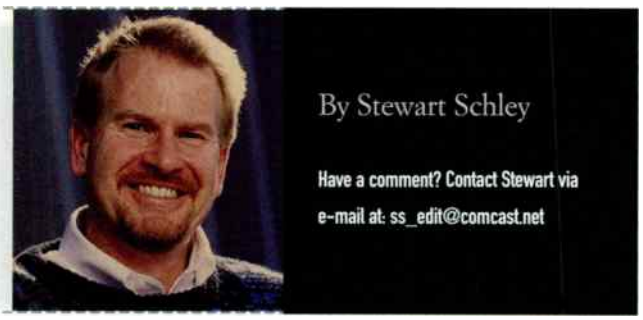
memory lane

We are what we search

The Internet was barely born as a publicly accessible network of networks when a flash of inspiration came to innovators like McGill University student Peter Deutsch: somebody needed to organize this thing.

Thus sprouted, in basements and garages and college laboratories, a fury of Coca-Cola-fueled work aimed at figuring out ways to let Internet users burrow through the maw to come up with a singular gem of an informational result. It could be an article, a cooking recipe or a photo of Madonna from her experimental film days, but there it would appear, almost magically, as if plucked from the ether by a knowing hand.

Reciting the litany of search agents that were produced to plow through the online thicket produces a sense of profound



nostalgia, and reminds us how fast this digital world has grown up around us. The detritus of largely forgotten search engines includes once-promising names like Alta Vista, Northern Lights, Excite and Lycos.

Preceding these commercially-minded vehicles were the awakening agents of Internet search: 1989's Unix-based search system Archie; the University of Minnesota-bred Gopher tool in 1991; and, later, from the University of Nevada-Reno, the Very Easy Rodent-Oriented Netwide Index to Computerized Archives, or, blessedly, "Veronica." (The derivation of the "Archie" label remains one of the irresistibly quaint tales of Internet lore. Its creators, including McGill students Deutsch and Alan Emtage, originally wanted to use the generic name "Archives," but were proscribed by Unix standards to a limited character count. Deutsch reportedly hated the contrived "Veronica" name that followed.)

With its $78 billion market capitalization, the reigning category giant, Mountain View, Calif.-based Google Inc., seems today to be an unstoppable force in online search, but even it faces challenges from newcomers like Wisenut and Teoma, both of which purport to be able to sniff through an even more astonishing volume of Internet content to produce what it is that users seek.

Maybe so. But to displace Google from the hearts and souls of modern-day netizens will take some doing. The organic ascension of Google from humble search technology to widely adopted verb ("I made sure to Google him before we went out on our first date.") testifies to the special place this particular brand has earned. It also offers an instructive lesson in software development. Much of Google's appeal stems from a genuine and unusual obsession with its customer base. Among the "Ten Things" that serve as the foundation of the Google development philosophy (published, in signature Google style, on the company's own Web site) is this nugget: "Focus on the user and all else will follow." To make good on the mandate, Google employs a very simple feedback loop. It publishes experimental versions of new tools on its Web site and invites users to critique them.

This sort of willingness to let users do some of the guiding of what ends up being a *tour-de-force* Internet offering could be instructive for those creating a new class of video content searching tools. A fresh array of startups–today's incarnations of Alta Vista and Lycos–are now building tools to help viewers identify and watch programs within the new sea of video plenty.

If the world has learned anything from Google's spectacular run, it's that attempting to cash in by organizing the digital world according to selfish interests won't work. Woe be to any cable executive foolish enough to sully his or her vocabulary with the term "walled garden" that once seemed a perfectly reasonable model for corralling content.

Instead, the emerging schemes for navigating video in all its forms and housings–linear channels, on-demand menus, digital video recorder vessels and online repositories–need to take into account habits we've all internalized from our daily Google harvests. If it's out there, we want to know about it and we want to find it. And we want to find it within two sips of coffee, if you please.

That's the real legacy of our pals Archie and Veronica. They and their offspring have trained us to understand we can peek behind the digital curtain anytime we want. Video navigation technology that fails to comply with the "feed me now" ethic of the Google generation is destined for that special place that businesses go when they ignore history's lessons. You'll find it three years from now by typing the words "video navigation" and "failure" into a search engine. Even by then, I bet you'll still be using Google. ■

Stewart Schley writes about media and technology from Englewood, Colo.

Comfortable Size
Even More Comfortable Price

Now you can get the CATV industry's smallest handheld signal level meter with a price to match.

The latest development from Trilithic's new **XFTP** division, the **TR-2** performs fast, efficient signal level measurements and other basic HFC installation tests.

- **5-870 MHz standard frequency coverage**
- **Dual channel display**
- **Tilt display**

Plus, with **XFTP** products, you also get excellent quality, service and technical support. Because being comfortable is about more than a comfortable price.

XFTP
TRILITHIC

TR-2
Installer's Signal Level Meter

$399.00

To find out more about the **TR-2** and the entire **XFTP** product line, contact one of the distributors below or visit www.FieldTechProducts.com.

SCOTT CABLE COMMUNICATIONS, INC
FARMINGDALE, NY
PH: 631-694-7157
web: www.members.aol.com/scnewyork

JONES BROADBAND INTERNATIONAL
OCEANSIDE, CA
PH: 760-631-2324 or 800-397-8897
web: www.jonesbroadband.com

COMMUNICATIONS & ELECTRICAL SUPPLIES, INC
NEOSHO, MO
PH: 417-451-1789
web: www.ceslive.com

PTL TEST EQUIPMENT, INC
JUPITER, FL
PH: 561-747-3647
web:www.ptltest.com

CUSTOM TOOL SUPPLY
AURORA, CO
PH: 800-784-2163
web: www.customtoolsupply.com

VISIONCORP DISTRIBUTION
DALEVILLE, IN
PH: 800-721-0025
web: www.visioncorpdistribution.com

*These distributors are only authorized to sell Trilithic's XFTP products. For all other Trilithic products, please visit www.trilithic.com

DIVING IN

By Karen Brown, Senior Editor

Operators are starting to offer digital simulcast service, but they are also adding their own twists

With a deep pool of new services and the prospect for better bandwidth management awaiting, it is not surprising cable operators are diving into simulcast deployments left and right.

But how they execute that dive is not entirely uniform–depending on their size and overall service goals, some are adding their own twists and tricks. Others are still deciding how to best enter the digital TV waters.

Adelphia Communications is the latest major MSO readying to take the plunge, with plans to bring about 10 of its 26 markets up by the end of the year, says Doug Ike, vice president of advanced video engineering. The actual markets have not been announced as yet.

Equipment is being installed and tested in the first of those markets now, and it should be ready to bring on line in July or August. As for what channels will be simulcast, it depends on the market and how many local broadcasters and public access channels there are.

"The goal is to digitize as many markets as possible," Ike says. "However, it may not be possible to do 100 percent of the whole market in the first year."

One factor playing into that is the public, educational and government (PEG) access channels that would need to come along for the simulcast ride. In major metro areas, Adelphia is dealing with a flock of such channels–in the Cleveland metro area alone there are more than 200, Ike notes.

"We clearly want to get to the all-digital package, and all-digital means all of the PEGs. So it is our every intent to get there, but we may do it hub by hub," he says. "For example, we may take a segment of the city where we know we have to digitize those PEG channels–maybe the core or downtown or something–so we can get the message out that we are all digital in a decent segment of our market."

Adelphia also is looking at centralizing encoding wherever possible, and that may mean two large encoding centers in a larger metropolitan market. It has evaluated stand-alone and loop encoders, the latter of which consist of a bank of encoders controlled by a central management system. The management system dynamically allocates encoding horsepower to the high-action channels that need it–effectively stat-muxing at the ingest to create more efficient multiplexed signals.

At the same time, Adelphia is now trialing stat muxing equipment from BigBand Networks Inc., but it is also looking at other stat-mux vendors, Ike says.

Ad insertion also plays into Adelphia's simulcast plans. While an expensive project given the equipment and management systems needed, digital ad insertion "is our intent," Ike says.

"We are re-doing most of our ad insertion in these markets to be inserted in the digital realm. So we are moving to DPI in these markets and replacing the analog gear," he adds.

Eventually, Adelphia would like to bring simulcast to all of its markets, but that plan is in limbo given the MSO's pending acquisition by Comcast Corp. and Time Warner and their plan to divvy up the Adelphia systems between them. Simulcast in some markets, therefore, will depend more on Time Warner or Comcast's own plans, Ike notes.

Smaller players take the digital dip

Smaller cable operators are also diving into simulcast–and their size doesn't necessarily mean they are less ambitious. Take the always-creative Alaskan cabler GCI, which has essentially leapfrogged over simulcast directly to all-digital in parts of its sprawling northern territory.

It's a case of timing, according to Gary Haynes, GCI's vice president of cable operations. Two years ago, the cable operator had an old Zenith analog system in Anchorage that it had to replace anyway, so rather than continue with analog, it decided to make the all-digital leap. GCI made a significant investment and deployed more than 100,000 Motorola DCT-1200s and DCT-2000s, and has since expanded that to include the HD/DVR-capable DCT-6208. That box swap was completed last August.

GCI started digitizing the analog broadcast channels in late January

with the Fox affiliate in Anchorage and has since brought all of the local broadcast affiliates into digital. It uplinks Anchorage local broadcast channels for statewide distribution, so it uses the digital encoders for that to also provide its local simulcast streams, Haynes says.

The all-digital impact is clear in the bandwidth. In Anchorage, the cable system is built to a modest 550 MHz, although a forthcoming VoIP launch will extend the plant to about 625 MHz. By using 256 QAM modulation and eliminating much of the analog channel load,

MSO	Rollout status	Markets	Number of channels	Simulcast local channels	Triplecasting	Stat muxing	Encoders
Comcast	Underway	Plans to expand to 80 to 85 percent of its markets by year's end.	Average 80 channels per market.	Yes	In some markets	Yes	Harmonic, EGT, Scientific-Atlanta
Charter	Underway	Long Beach & Madison, Wis.	96 in Long Beach; 85 in Madison.	Yes	No	Yes	Harmonic
GCI	All-digital and some simulcast underway.	All-digital in Anchorage & Fairbanks. Convert Juneau starting in Q4.	Approximately 150 channels.	Yes	Yes	Yes	Scientific-Atlanta, Motorola & Harmonic
Sunflower Broadband	Launched in May.	Lawrence, Eudora & Douglas County, Kan.	65 channels	Yes	Yes	Yes	Tandberg
Adelphia	First market goes live in July/August.	10 markets online by year's end.	78-80 channels	Where possible	Not initially	Trialing stat muxers now	N/A
Insight	In planning stages.	N/A	50 channels plus on average 20 local channels/market.	Still evaluating	Testing equipment now	N/A	N/A
Time Warner Cable	Raleigh-Durham set to roll out as early as July.	Simulcast to at least half of TW's markets by year's end.	About 78 channels/market.	Yes	Yes	Evaluating	S-A, Harmonic & others

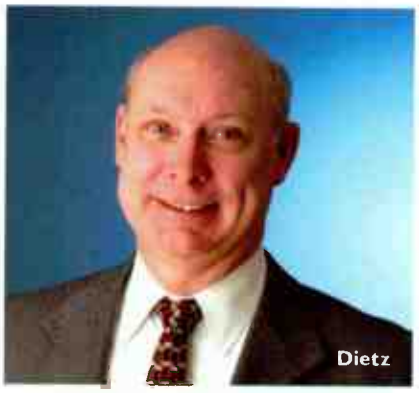
A digital simulcast cross-section.

there is bandwidth leftover for expanded HD and future VOD services.

"It's actually positioned us pretty well," Haynes says. "Now that we've turned off the old analog platform...we have extra bandwidth to work [with]."

The MSO is now turning its attention to Fairbanks, which should this month move to all-digital service, except for the local broadcast stations. Juneau will follow, and the plan there is to start the digital conversion in the fourth quarter.

The digital march will be somewhat slower for the smaller systems outside of GCI's core cities, where the MSO is only digitizing pay-per-view and movie channels. By the end of the year, GCI will have some form of digital programming in all of its 18 systems–the question now is when the outlying systems progress toward simulcast or digital-only for the main cable channel lineup, says Bob Ormberg, GCI's vice president of cable marketing.



Dietz

Kansas cable operator Sunflower Broadband has also made the leap, rolling out its simulcast service in May to customers in Lawrence and the surrounding area, banking on the Motorola DCT-700 box. The service offers duplicate digital streams for Sunflower's 65 analog channels and triplecast analog, SD and HD feeds for ESPN, Fox, CBS, NBC and ABC.

Sunflower will offer an additional 12 channels in digital format on the expanded basic tier "and we are in negotiations with some others," says Patrick Knorr, Sunflower Broadband's general manager, adding that going forward the channels will launch digital-only.

Sunflower is encoding the digital streams at its central headend, and it is using statistical multiplexing to funnel up to seven SD channels onto a single QAM channel. But even at that, simulcast has a price–Sunflower's 750 MHz spectrum is now completely filled. As with others, the MSO hopes to slowly pare down the analog channel load as it encourages more customers to sign on to digital service.

"So what we are doing is [enticing] customers to get boxes or actually move some channels down off of digital tiers to expanded basic, but in a digital format," he says.

It also is looking to winnow down the triplecast load.

"Right now we are digitizing the analog signal and we are looking at ways that we can downconvert the HD signal," Knorr says.

In the planning stages

Others, including Insight Communications, are still planning how to best dive into digital simulcast. For the last six or nine months it has been testing a handful of encoders by connecting them to its Sonet fiber ring to see how the transport affects

video quality, says Charlie Dietz, Insight's senior vice president and chief technology officer. But the greater issue now for Insight is its own priority list.

"At this point, we are still wrestling with the when and the business plan," he says. "It's in this year's budget, but frankly, with our push for VoIP this year, I'm not sure we'll get to it."

Technically and financially, one major issue for Insight will be integrating simulcast and digital ad insertion, given the fact that 99 percent of its signals and ad insertion are now analog, Dietz says.

"We've got some new equipment; we've got some old equipment, so we've got a big upgrade there," he notes. "It's probably in the 40 to 45 percent range of the cost that we have assumed is upgrades to the VOD infrastructure."

On the other hand, if the MSO does opt for the digital upgrade, it can start inserting ads on the rest of the digital channels fairly easily, Dietz says.

"We've got a nice advantage in that so many of our districts are connected by our own fiber infrastructure now," he adds.

Insight's simulcast rollout would likely include 50 common cable channels and 20 or so local channels for each market. The common cable channels can be digitally encoded once and transported around the fiber ring, but it is also considering a central encoding service proposed by the Colorado-based Comcast Media Center.

"They're talking about doing something on a national basis," Dietz says. "We've still got all of those options open to us."

As with others, Insight will probably pare the channel load down through statmuxing, and it has been testing such systems along with the digital encoders. Even with that, duplicating the analog signals in digital will be somewhat problematic.

"At the same time as we are doing this, we are transitioning customers today over to our digital platform, where they can get 10 or 12 HBOs, for instance," Dietz explains. "As soon as we are comfortable with that in each district [and] the migration percentage is high enough, then we'll start recovering those channels and have them ready for the digital simulcast."

Despite the problems, Dietz says it really isn't a matter of whether but when Insight will move to simulcast.

"It's just a matter of timing to pull the trigger," he says.


Ike

Weathering the worst

New power strategies arise in the wake of foul weather and lifeline VoIP services

By Craig Kuhl, Contributing Editor

The harsh, bitter cold of Barrow, Alaska, and South Florida's menacing hurricanes, are two powerful forces fueling next-generation powering strategies and back-up systems. Those systems are now being outfitted to cope with nature's unpredictable, and at times cruel, assault on cable networks and the communities they serve.

Mix in the added power needed to service the Yankee Group's prediction of 18 million cable voice subscribers by 2009, and the pressure to cost-efficiently sustain and back up power systems 24/7 (all while satisfying 911 and emergency requirements) becomes a high voltage issue.

And the stakes are rising. Total consumer spending in communications services–voice, cable TV, dial-up and broadband–was $115 billion in 2004, with 50 percent of it for voice services, states a report from In-Stat, a sister company to *CED*.

The addition of VoIP, data and IP-based services, along with the severe weather lessons learned in Barrow and South Florida, are prompting more cable operators to re-evaluate their powering and back-up power strategies and push for more reliable, cost-effective powering systems, including network-based power.

"Operators now recognize they are competing against the telcos and others, but weren't sure of the revenue opportunities of VoIP upfront. Now, with significant VoIP customer projections, it's easier for them to get ROI for network-based powering strategies," says Lindsey Schroth, senior analyst, broadband access technology for the Yankee Group.

The cost of batteries and eMTA (embedded multimedia terminal adapter) equipment, Schroth notes, is still relatively high. Yet the migration to a more expensive network-based power system remains a long-term decision based on economies of scale. "It's more expensive for a network-powered base, but easier to justify when penetration levels rise for VoIP. But, we're not past the battery back-up phase yet, especially in severe weather regions, where powering is even more of a challenge."

Challenge, indeed. In 2004, hurricanes Frances and Jeanne blasted ashore on Florida's Treasure Coast north of Miami just two weeks apart, stressing to the max Comcast Cable's network there and exposing just how vulnerable networks are to foul weather–from lightning strikes and ice storms to hurricanes.

And more hurricanes are expected, with seven to nine predicted this season, according to the National Oceanic and Atmospheric Administration (NOAA).

"Power was the key from day one. We looked at each node to determine if the power was out, and from the first day, 90 percent of our plant was down and all commercial power was impacted. We had standby batteries for several hours and emergency installed generators at each plant, but with an event of this magnitude (Frances and Jeanne), it was nowhere near enough." recalls Sue Reinhold, vice president of operations for Comcast South Florida.

With no standard number of emergency batteries or generators in the powering/emergency strategy, and fuel to operate the generators at a premium, or non-existent, Reinhold and Comcast found themselves far short of the necessary equipment to quickly recover from the hurricane's force, which Reinhold says takes a full two quarters to repair damage, replace batteries and power supplies.

"In the aftermath, we thought we had enough. We didn't. But we learned a valuable lesson, and have incorporated into our revised emergency plan a 100 percent battery backed-up system with several additional generators. We know exactly where they are and where the fuel is for generators. Our emergency plan is now creative and responsive," she explains.

Comcast has since deployed a three-pronged emergency plan that stresses preparation, internal and external contact information and updated powering strategies, and post-hurricane deployments. "There just wasn't enough continuity once the system started coming back, so the first step is to assess the damage and stay in communication," concludes Reinhold.

Adelphia Communications' West Palm Beach cable system was hit hard as well, and has since added a 275 kw trailer-housed generator that can quickly power up its remote hub sites. And by year's end, the system will have launched VoIP service along with VOD, adding to its power and back-up system requirements.

"We're pushing for monitoring all the

power supplies remotely at the headends to switch and re-evaluate the power, and preparing for powering loads for VoIP. That is critical. When we can monitor real-time information, that's the key. It's a battle to justify added power, but when it goes down, like in the hurricanes, that's the payoff," says Skip Buck, system engineer for Adelphia of West Palm Beach.

All of Adelphia's generators are diesel, Buck explains, since diesel fuel is easier to obtain than propane during hurricane season, and 90 percent of its power supply is checked at least twice a year, with the focus being on hospitals, community centers and other critical services. Its master headend has two 400 kw generators.

"Each system has a power supply team, which monitors run cycle times, battery replacements and load voltages. We also do quarterly load tests, when we shut down commercial power and switch the load to generators to check them. If the generators don't start, we can run 45 minutes of UPS, which is loaded to carry about 55 percent of the powering load," adds Buck.

Squeezing every minute of additional run time from battery back-up is an ongoing challenge as well, Buck notes. "If we can increase run time, it gives us more time to respond and make sure the system is up and running."

The growing awareness of increased power and back-up power needs is not lost on cable's vendors. More power and battery manufacturers are devising methods of squeezing additional run times into their batteries to help deal with severe weather emergencies, while attempting to keep the costs down, which is admittedly a tricky proposition.

"Hurricanes, ice storms and bitter cold are difficult, so operators are asking us to provide more intelligence on the run time side in the design. This is not earth-shaking technology, but if we improve a battery's run time by 15 minutes, it can reduce the number of technicians and generators. But it costs about 10 percent more to get those 15 extra minutes, so we have to keep the cost down," says John Hewitt, vice president of cable sales for Alpha Technologies.

Alpha recently added a 28-generator trailer equipped with additional cable equipment to its power supply line.

Adds Hewitt: "There's a push to add more batteries as voice is deployed, but when a storm hits, network reliability and customer expectations are still crucial. So, status monitoring will continue to grow, and we must continue to improve at less cost and with more reliability."

And with more back-up power, says Dave Hebert, vice president of operations for Supply Performance Testers Inc. "The major engineering standards had eight hours of back-up power time and maintenance for networks. Now, cable has rebuilds completed, but not eight hours built into the networks. They're not designed for that, so the standards are changing to monitor power supplies."

The standard, Hebert insists, must include a better managed battery program. "MSOs can get a lot of additional life from batteries–five to eight years–with a good maintenance program. With batteries costing around $100, and with a thousand services for six-battery packages, the 'swapping-out batteries' mentality is going by the wayside. And when you add logic circuitry to interface with status monitoring, more can go wrong, especially in harsh weather conditions."

And Alaska should know about harsh conditions (see sidebar below). From Juneau, with its wildly fluctuating temperatures of 50 below zero to 100 above, to frigid Barrow, GCI's 16 cable systems are spread across Alaska and routinely deal with treacherous weather, outages and battery back-up/powering issues.

"We're adding status monitoring and using Lithium-Metal-Polymer (LPM) batteries, which we expect to last 8 to10 years. By getting a view of the network, especially with three product lines, status monitoring has helped more than anticipated, and batteries are smarter. But if they're not maintained, they'll fail," says Gary Haynes, vice president of operations for cable and entertainment for GCI.

Ice storms in Kentucky will cause power outages and batteries to fail as well. And quickly. "We're in the belt where ice storms

Northern exposure

Barrow, Alaska sits high atop the Arctic Circle on the frigid shores of the Arctic Ocean, a three-hour flight from Anchorage.

When GCI, an MSO serving 135,000 subscribers in 16 systems across Alaska, acquired the Barrow cable system, it brought a whole new meaning to the terms maintenance and power supplies.

With winter temperatures routinely dropping to 50 below zero, just negotiating through the bone-freezing cold streets of Barrow can be an adventure. For 82 days during the winter, the sun never rises above the skyline, and in summer, it never sets.

So it's no far stretch to say keeping the system's power on and backed-up in Alaska's most northern outpost is a chilling proposition. "We can only work the plant from June to September; then it's frozen. It's an arctic desert," says Gary Haynes, vice president of operations for cable and entertainment at GCI.

Walk-out crews need heaters to keep the hydraulics working in their vehicles, and at least eight hours of back-up power is essential to keep the system up and running, along with hardened power schemes and transformers, Haynes says.

In the unforgiving, brutal climate of Barrow, a little innovation is needed as well, Haynes adds. "During our walk-out, we saw an old oil burner on the side of a lift-van. It was belching smoke to keep the hydraulics going. They had modified old coal burners. Later, a Polar bear casually strode through town. Our technician struggled to pay attention to the lines he was checking," Haynes relates with a laugh. –CK

happen (Illinois, Indiana, Kentucky, Ohio) and now include in our business plan alarm systems and status monitoring. That's been the biggest improvement in our power system," explains Jerry Knights, vice president of telephone engineering for Insight Communications.

Insight, Knights adds, is testing its VoIP network using generators and back-up battery units, which he says have performed admirably. "They have performed better than expected, giving us about 18 hours of back-up time. We change one-third of our battery base each year. Even in generator plants, we have three standby batteries to transition power until generators come up. The batteries are much better than before."

Most operators agree back-up battery systems and generators are better than ever, but is it enough to cost-effectively satisfy the growing power and back-up power needs to future-proof triple play networks?

"Back-up power systems have definitely improved, and MSOs want heat-resistant, longer-lasting, reliable batteries, but there's only so much power you can stretch, and cost is a concern. Does it pay to carry a product that produces revenue with off-the-shelf battery back-up? That's where the economics are–for both manufacturers and MSOs," says Farah Saeed, program manager for back-up power solutions for Frost & Sullivan, a media research and analyst firm.

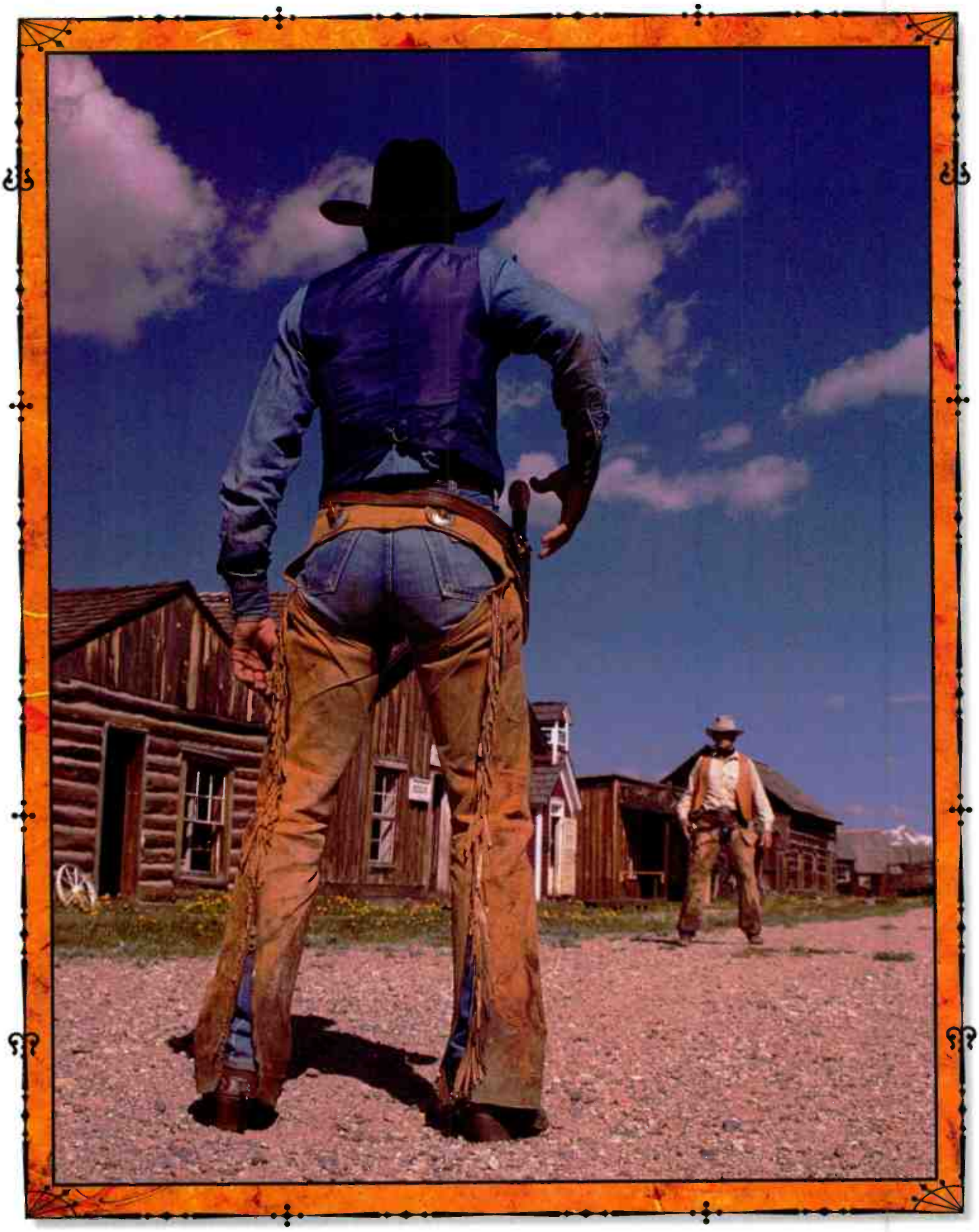
Moving to network power is the ultimate answer, most experts admit, but that option will only become viable once certain VoIP economies of scale are reached–about 30 percent penetration, industry observers estimate.

"Standby power protection is being driven by VoIP and weather-related issues, so portable generators and battery back-up systems are still being sold. And we're seeing a migration to DOCSIS standby monitoring equipment," says John Precopio, senior product manager for broadband power systems at American Power Conversion Corp.

In the meantime, the real thing in power and back-up power systems is likely to remain batteries, generators and various fuel cell and other technologies, with subtle changes in run times and output to deal with the added power requirements of services such as VoIP and severe weather issues.

"The issue now is protecting VoIP service from lightning and other weather issues. How do you plan for battery back-up for phone service that's out for five days?," asks John Chamberlain, president of Broadband Telecommunications, a provider of VoIP lightning protection equipment.

There are few answers to that question once the fury of a hurricane or dangerous ice storm is in full force. No protection, however, isn't the answer. Concludes Schroth: "Clearly [having] no battery back-up is not an option. The key is finding the tipping point to cost-effectively manage back-up power with all the new subscribers." ■



A Texas-sized technology SHOOTOUT

SIMULCAST, BANDWIDTH MANAGEMENT AND WIRELESS CROSSOVERS LEAD THE WAY AT 2005 CONFAB

BY CED STAFF

San Antonio, Texas–Although the show floor and sessions ran the gamut on cable technology, two trends seemed to rise to the surface at the 2005 SCTE Cable-Tec Expo: digital simulcast and the industry's crossover into the wireless world of voice.

And while the theme might have been "Technology as Big as Texas," the show once again was more dominated by herds of incremental updates and upgrades indicative of a maturing technology. There might not have been any huge "gotcha" revelations at the show; it nevertheless was a good sampling of what cable operators are eyeing for their next-generation of voice, video and data services.

Bandwidth management again crept to the forefront, as operators mull how they will gain efficiency out of what they have, to serve up growing (and bandwidth-eating) services such as VOD and high-definition television. Bandwidth expansion is yet another option, but it has yet to become an option that operators are ready to roll with–or at least that is the MSO-wide consensus on the subject when discussed in public forums.

Cellular backhaul and dual WiFi/cellular platforms also played a big role this year as MSOs shift from the "triple play" of voice, video and data, to a "Fantastic Four" that puts wireless voice into the mix.

CEOs speak up

The cable industry may be fighting with foes on the ground and in the sky, but that doesn't mean cable's existing networks aren't up to the challenge.

"The [HFC] platform is enormously capable," said Time Warner Cable Chairman and CEO Glenn Britt, who spoke at Expo's annual CEO panel.

Cisco Systems Chairman and CEO John Chambers, meanwhile, continued (via satellite) his stance that all-IP, all of the time, is the wave of the future, because it is flexible enough to work with myriad consumer devices–everything from digital video recorders, to PCs and mobile phones.

"You will have a convergence of a lot of devices," Chambers said.

Britt, meanwhile, addressed the current telco/cable battle, and downplayed popular thoughts that the two are now locked in a battle to the death. He said there will be plenty of business to go around for both industries, but added that cable must continue to innovate at a rapid clip.

"We do have formidable competition," added ARRIS Chairman and CEO Bob Stanzione, noting that telcos have been accelerating speeds by moving DSLAMs closer to subscribers.

Chambers said the telcos have little choice but to expand their strategies at this point in the game. If they aren't successful with their new video and broadband strategies, "they will be left behind," he said.

But one area that cable is already behind on is wireless voice services. Several operators are already seeking to fill that gap. Time Warner Cable, as one example, has taken some early steps in the form of a reseller partnership with Sprint in some markets. But further activity could involve additional partnerships with providers or spectrum ownership in partnership with other cable MSOs.

"We are having active conversations on all of those," Britt said.

SHOOTOUT

CTOs gauge the challenges ahead

With competition heavier than it has ever been, the cable industry has more than enough challenges on its hands. But that didn't stop a handful of the industry's top technologists from winnowing down those that are highest on the list.

For Mike Hayashi, Time Warner Cable's SVP of advanced engineering and subscriber technology, the top challenge is to create a "national footprint" for the industry's array of services. For digital video, he would love to see a day when digital cable set-tops work on every cable system across the nation, but are flexible enough to accept the local operator's look, feel and interactive program guides. Although the cable industry was relatively uniform before digital video and DBS entered the picture, building cable industry consensus "is a tall order," Hayashi acknowledged.

Analyst and CED contributor Leslie Ellis, far left, moderates the CTO panel.

Dr. Richard Prodan, the VP and CTO of Broadcom Corp.'s broadband communications unit, expressed that one of the industry's toughest tasks is to migrate to digital while also accounting for millions of deployed set-tops.

Taking a more international tack on the subject was Liberty Media SVP and CTO Tony Werner, who noted that a big challenge is to remain a growth industry on a cash flow basis. The trick, he said, is to rollout new services and generate new revenue while also retaining the existing subscriber base.

Paul Woidke, the vice president of technology for Comcast Spotlight, meanwhile, centered his concerns on one of this year's biggest technology issues: the deployment of digital simulcast networks and its impact on the advertising model.

According to Woidke, the bigger advertising piece of the puzzle will have to redefine itself over the next three to five years, or people will be forced to pay substantial sums for the type of programming they are getting today under the traditional ad model.

Werner noted that simulcast scenarios look a bit different outside North America. Systems in Europe, for example, do not have to simulcast as many channels as their U.S. counterparts. Rather than 80 channels, a European deployment might only have to replicate 30 or as few as 20 analog channels in the digital domain in order to satisfy existing analog customers.

Cable competition was also a key discussion point. Although fiber-fed services won't hold a technology advantage over traditional cable architectures for some time, it does have some marketing cache that HFC does not. "That is something I think Verizon will have some luck with," Werner said.

Operators on the panel also once again dispelled the notion that they will have to expand bandwidth in order to accommodate deeper HDTV lineups and new, capacity-heavy services.

Hayashi, for example, pointed out that cable has several bandwidth saving tools–including switched digital broadcast and advanced video codecs–at its disposal.

Werner echoed that he sees more upside in the use of these tools versus adding bandwidth–a technique that "is not in our forecast."

News of note

Although a host of cable modem and headend gear suppliers eventually will throw their hats in the DOCSIS 3.0 ring, ARRIS is

Gordon-Kanouff takes gavel as SCTE chairwoman

With a goal to focus on emerging technologies, Yvette Gordon-Kanouff took the gavel as the first woman elected to chair the SCTE executive board.

Gordon-Kanouff, the SVP of strategic planning at SeaChange International, said SCTE's role in emerging technology for the cable industry is growing, and through educational events, specifications and certification programs "we will continue that," she said. "I think that's what our members want."

Meanwhile, the board also put the finishing touches on the charter for the SCTE Foundation. In planning for more than a year, the nonprofit foundation will support educational and assistance programs, supply research and information on cable telecommunications technology and preserve SCTE history.

"It's pretty exciting," Gordon-Kanouff said. "We have been talking about it for a long time."

The board has appointed the initial set of the foundation board of directors, including Keith Hayes of Adelphia Communications to a 4-year term; Bob Macioch of Time Warner Cable's Southwest division to a 2-year term; SCTE Scholarship Subcommittee Chair Mike Phebus of NCTI to a 3-year term; and SCTE President and CEO John Clark to a 4-year term. Other board members are expected to be named by the end of the year, and following that, a program plan will be developed.

Gordon-Kanouff

The SCTE board also made its own executive leadership appointments for 2005, including Region 5 director Vicki Marts of Cox Communications Inc. as Western vice chairwoman. In that position she will preside over board meetings when Gordon-Kanouff is not available.

Other appointments included Bob Foote of ARRIS, Eastern vice chairman; Tom Maguire of CommScope, secretary; and Bob Macioch of Time Warner Cable's Southwest division, treasurer. Time Warner Cable's Steve Johnson was also elected to a term as an additional executive committee member. –KB

NCS Industries
An ADDvantage Technologies Company

Your *lifeline* for system critical network components.

Stocking Distributor
MOTOROLA

Distributor
C-COR

Master Stocking Distributor
PROMAX

NCS Industries

On Hand. On Demand.™

Motorola DSR 4400

Motorola BLE

Motorola MiniBridger

Motorola SG1 & 2 Optical Nodes

Value, Quality and Service - NCS Industries Delivers It All!

New, surplus and remanufactured CATV equipment

The largest in-stock inventory of Motorola products

World-class technical repair centers

- Fiber Optic Repairs
- Headend Repairs
- Distribution Repairs
- Test Equipment Repairs

Motorola Taps & Line Gear

Promax 25
DOCSIS Signal Analyzer

Prolink 1B
Signal Level Meter

800-523-2342

375 Ivyland Rd, Unit 11 Warminster, PA 18974
www.ncsind.com sales@ncsind.com

ADDvantage Technologies Group

Tulsat NCS Industries Com Tech Services Lee Enterprise
Tulsat-Texas Tulsat-Atlanta Tulsat-Phoenix

SHOOTOUT

already touting how it will approach the market with products that will fuse channels together and help cable operators stay in stride (or even ahead) of its high-speed competitors.

Tom Cloonan, the chief technology officer for ARRIS' broadband division, said the initial version of ARRIS' pre-DOCSIS 3.0 gear will bond up to four channels–enough for a 160 Mbps downstream pipe–and become commercially available by the fourth quarter of 2005. ARRIS, like other vendors in the sector, will eventually support the bonding of more than four channels. In ARRIS' case, he added, "nothing precludes us" from bonding up to 32 channels, which would support about 1.28 Gbps, a future-proofing move in case there's a need for such capacity sometime well down the road.

Pace Micro Technology launched the DC551 PFD, an all-digital set-top with on-board high-definition television capabilities. It complements the Pace "Chicago" DC501, a standard-definition-only all-digital box introduced at the National Show in April. The DC551 comes equipped with HDMI (high-definition multimedia interface) and supports an optional 1394 5C-protected interface. Pace also jumped into the embedded multimedia terminal adapter (eMTA) game with the DV315. At the show, Pace demonstrated a prototype of the unit featuring wideband technology.

SCTE and The Walter Kaitz Foundation added two elements to their Supplier Diversity Connection initiative: an MSO workshop and a supplier exhibit hall. The organizations again offered a panel discussion and a networking reception for the program, which debuted at the 2004 show. The Society also used this year's show as a platform to launch a revamped Web site that features an updated look, navigation and events calendar. It also features enlarged buttons and photos of SCTE members.

Decent draw

Expo in San Antonio drew about 10,000 attendees, down two percent from last year's show in Orlando, Fla., which drew 10,200. Despite the small dip in attendance, the show did see exhibitors shoot up five percent to 394, including 69 first-timers, and see a 10 percent increase in attendance compared to 2002, the last time Expo was held in San Antonio.

The show will shift to the Mile High City of Denver, Colo. next year, slated to run June 20-23. Chris Bowick, the SVP of engineering and CTO of Cox Communications, has agreed to serve as chair of the 2006 Cable-Tec Expo Program Subcommittee. Bowick, a former *CED* Man of the Year, has been an SCTE member since 1981 and presently serves on the CableLabs Technical Advisory Committee. ■

Foote leads honors as 'Member of the Year'

As befitting the "Big as Texas" theme of this year's Cable-Tec Expo, the Society of Cable Telecommunications Engineers didn't skimp on the kudos hardware, handing out a slew of honors to members at the annual awards luncheon.

After the traditional slide show that served as both a tribute and mild roast, ARRIS' Bob Foote was named the 2005 SCTE Member of the Year. Foote began his career in cable in the 1980s, and through a series of mergers, came to work for ARRIS Telewire Supply. A Region 12 representative to the SCTE board of directors, Foote has been a key member of the New England Chapter.

"We certainly have looked up to him–his drive, enthusiasm and creativity have made SCTE into the world-class organization that it is," said Dan Moloney, president of Motorola Inc.'s Connected Home Solutions, as he presented the award to Foote.

Foote shook his head as he accepted the award, which according to tradition, was not announced prior to the ceremony.

"My wife did it to me twice," he said of the surprise award. "She got me on my 40th birthday, and now she got me here." –KB

Egloff takes Games title

Jim Egloff, a network maintenance specialist with Insight Communications of Northern Kentucky, took home the hardware as the overall, first-place winner of the 2005 SCTE International Cable-Tec Games.

Egloff (right) took the big prize at Expo '05.

Egloff secured his place in Cable-Tec lore after placing among the top three in two of the Games' five events. Right behind him were two Comcast Cable techs: Nick Stewart, who took second overall, and Craig Vavruska, who took third.

First-place finishers of each event were:

- Fiber Splicing: Matt Dodwell of Cox Communications.
- Meter Reading: Jim Egloff of Insight.
- Cable Jeopardy: Will Huffman of Time Warner Cable.
- Coax Splicing: Mike Davidshofer of Cable One.
- MTDR: Bud Hathaway of Astound Broadband.

The 2005 event featured 28 contestants from the U.S. and Canada.

Please visit us on the Web (http://www.cedmagazine.com/cable-tec-05/index.htm) to access all of the show dailies and obtain a comprehensive view of products and services unveiled at the show.

Make their business your business with Aurora's

Commercial Services Solutions

Aurora Networks enables reliable protocol transparent delivery of commercial services over existing residential service delivery fibers, dark fibers or WLAN.

Aurora's Integrated DWDM Ethernet Platform

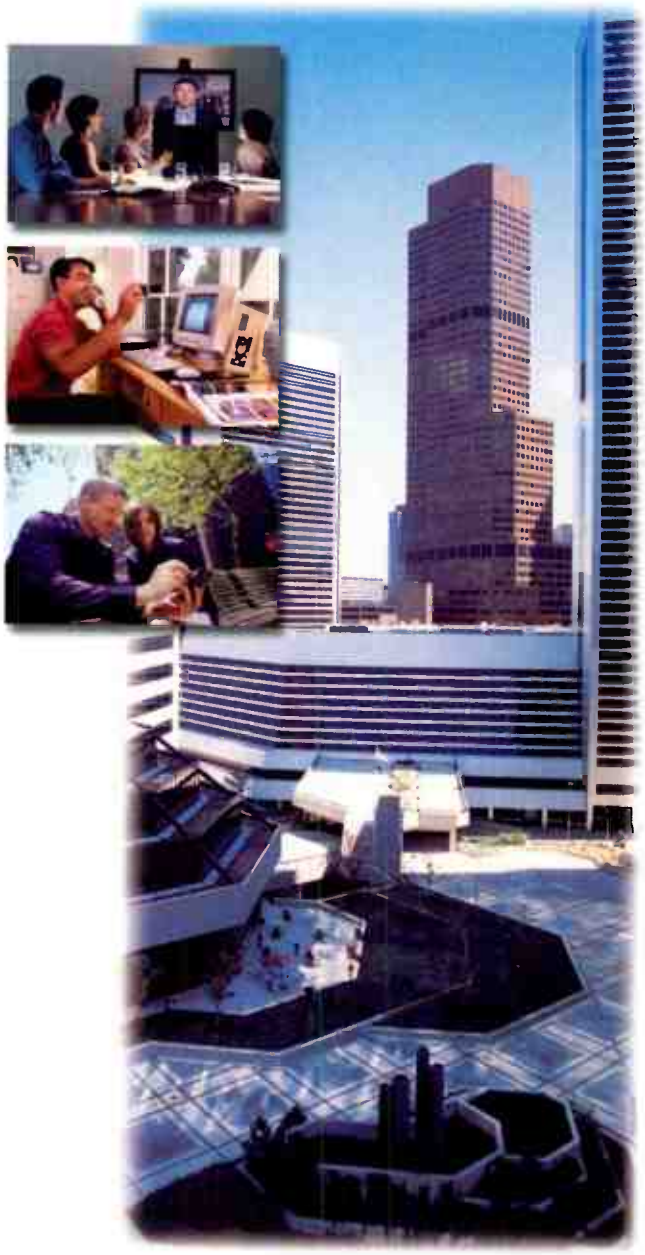
- Fast Ethernet embedded over Digital Return/DWDM
- TDM-based for best possible VoIP performance
- Telco grade active network monitoring
- Scales to 16 customers per wavelength (640 ports per fiber pair)

Aurora's SMART CWDM Ethernet Access System

- Fast Ethernet and Gigabit Ethernet over CWDM wavelengths
- Dedicated wavelength per commercial customer
- Fully managed solution
- Field hardened passives
- Deployable over existing 1310/1550nm analog fiber

Aurora's 802.11-based Wi-Fi Access Platform

- Rapidly deployable hotspot service or point-to-point bridging solutions
- Backhaul over RF DOCSIS channel or CWDM/DWDM fiber applications
- Network-powered for maximum reliability and cost effectiveness
- Full range of outdoor-rated radio transceivers, access points, antennas and outdoor cables



aurora NETWORKS

A whole new light, growing brighter!

www.aurora.com | 408.235.7000

2005 PACESETTER AWARDS

Leaders from Adelphia, Cablevision, Cox, Charter and Time Warner Cable recognized for innovation in advanced services and applications

CED magazine is proud to present the winners of its second-annual Pacesetter Awards, which are bestowed on individuals at cable and other broadband service providers who have taken leading positions or innovative "first steps" with advanced services, applications or technologies.

Now in its second year, the Pacesetters are awarded in five distinct categories: Digital Video, Video-on-Demand, Cable Telephony, High-Speed Data and Commercial Services. In its inaugural year, the editors of *CED* determined the Pacesetter winners. This year, readers were invited to nominate their colleagues.

By Jeff Baumgartner, Editor; and Karen Brown, Senior Editor

Time Warner Cable flips the video switch

Pacesetter: Digital Video

(Sponsored by Pace Micro Technology)

Paul Brooks, senior network architect, Time Warner Cable; and Matthew Stanek, vice president of engineering, Time Warner Cable

Switched broadcast video (SBV) is not necessarily a new technology (it's a central component of the IPTV rage), but cable's use of it certainly is.

But it wasn't that long ago when cable engineers offered the industry an early glimpse of how the technology works and how it might help cable operators conserve bandwidth by switching, rather than broadcasting, some of channels in their digital lineups.

In early 2003, Paul Brooks, presently the senior network architect for Time Warner Cable, graced the stage of the SCTE Conference on Emerging Technologies to declare SBV as a potential "disruptive technology." Back then, SBV, at least in the cable sense, was full of potential but still lacked field punch as there was little to speak of in terms of trials and deployments.

Turning the clock to 2005, it's clear that much has changed on that last count.

Although Cox Communications was the first to publicly disclose its involvement in SBV trials at the ET 2005 confab in January, Time Warner was also there–as the "undisclosed operator" subject cited in the second part of a groundbreaking study on SBV.

Stanek (left) and Brooks of Time Warner Cable.

And, following those early trials, the word is out that Time Warner Cable will deploy SBV in several markets this year, and follow with a wider rollout in 2006.

These early moves with SBV are key reasons why Brooks and Matthew Stanek, Time Warner Cable's vice president of engineering in Austin, Texas, are both being honored as Pacesetters in the digital video category.

Stanek, who oversaw the preparation, requirements, installation and operation of the SBV trial system, noted that the MSO had different code running on set-tops, and that had to be accomplished without affecting the customer's ability to view programming. "Equipment installation was straightforward, but required a lot of man hours," he explained, in a written statement.

But that work has paid off, as Stanek

(continued on page 36)

Out in front with VOD

Pacesetter: Video-on-Demand

(Sponsored by Arroyo Video Solutions)

Stephanie Mitchko, vice president of interactive platform development and technology, Cablevision Systems Corp.

Well before she entered the cable fold "completely by accident," Stephanie Mitchko ran an electronic warfare division, developing kill assessment technology. Though these jobs are in two different sectors, they do share at least one similarity: each has to take on new challenges and figure out how to implement the best system and technology toward the final goal.

"The challenge [in the electronic warfare division] was to take something that didn't exist and make something that fits [the] requirement," she recalls.

Some of that does apply to Mitchko's role at Cablevision with video-on-demand, still a nascent service in many respects. At Cablevision, Mitchko, who helped the MSO get its cable modem service off the ground, has been a pioneer of sorts in the development of several significant VOD-related initiatives, including HD-VOD (Cablevision was the first to deploy such a service), a popular gaming package, and an innovative, in-house asset management system. She is also a driving force behind

Mitchko

Cablevision's Emmy Award-winning iO Interactive Optimum Digital Cable service, and an application that enables customers to upgrade to subscription-VOD on-the-fly via their remotes.

Although the VOD backoffice has since grown to near-maturity, Mitchko and her team initially had to create one from scratch.

"When we started to look at how to manage VOD, there wasn't as much off-the-shelf stuff as there is today," says Mitchko.

That groundwork has enabled Cablevision to manage the VOD backend and tie it into the operational systems, which allow the MSO's product group to easily manage content offerings and how they are displayed and marketed to the consumer.

(continued on page 36)

McLeod shifts Cox into VoIP

Pacesetter: Cable Telephony (sponsored by Acterna)

Bruce McLeod, engineering manager for VoIP, Cox Communications

Changing technology horses midstream is never easy, and for Cox Communications Inc.'s drive to transition from analog voice to voice-over-IP, that required a steadying hand riding herd on the project.

The MSO found it in Bruce McLeod, its engineering manager for VoIP. His efforts in planning, testing and implementing Cox's growing VoIP service make him *CED's* 2005 Pacesetter for cable telephony.

More than three years ago, Cox realized that the cost-to-benefit equation for circuit switched voice didn't add up for about 50 percent of its cable subscriber footprint. McLeod, meanwhile, was working for a media gateway startup involved in Cox's Oklahoma City hybrid switched-VoIP network trial, and when the opportunity arose to work for the MSO, he made the leap.

McLeod

As engineering manager for VoIP, McLeod was put in charge of the VoIP network design, testing and launch. That included assembling an engineering team and building a lab facility from scratch to test the myriad VoIP call management, media gateway and servers.

McLeod wanted to ensure that the VoIP components Cox used were rock solid–and that philosophy soon paid off. McLeod decided further to test the Syndeo Corp. softswitch chosen to power the VoIP plant, and after an ad-hoc lab trial "we quickly discovered that it didn't have the capabilities that we needed in terms of stability, robustness and performance–as well as lacking in features," McLeod notes.

That did force Cox to reassess the VoIP rollout timeline and the business, but in the end, the MSO's decision to align itself with pure PacketCable systems and best-of-breed gear led to a smoother rollout. McLeod also has overseen the transition of circuit-switched TDM customers to the VoIP platform, with the first market set to start that process soon. "I'm very grateful for the things that he and his team did. Certainly it was a team effort and there were a lot of people involved, but I would say that Bruce's leadership has been key," says Jay Rolls, Cox's vice president of telephone and data engineering. While Cox may have indeed been late coming to the VoIP rollout, because of McLeod's careful design and testing work "that translated into a very pristine rollout–frankly probably more pristine than we typically have. We typically hit more bumps on an early rollout than we do with this." *–KB*

Adelphia catches up, then overtakes

Pacesetter: High-Speed Data

(Sponsored by BigBand Networks Inc.)

Tom Buttermore, vice president of data engineering and operations, Adelphia Communications

Tom Buttermore may be the winner of the Pacesetter for high-speed data, but he jokes that it should more likely be "a catching up award."

Catch up, indeed. The vice president of data engineering and operations at Adelphia Communications, Buttermore and his engineering team have managed in two years to turn a rag-tag network of rickety, undersized CMTS units into a modern cable modem plant, with high reliability and a DOCSIS 2.0 heart to fuel future growth.

Buttermore

It wasn't easy. Buttermore signed on at Adelphia two years ago and faced a data network that had no real provisioning other than what was contained in the billing system. Network monitoring also was minimal, with a mash of 750 proprietary and DOCSIS 1.0 cable modem termination system units from 13 vendors.

The first task was to install a solid provisioning system.

"I think we kind of set land-speed records in terms of getting a solid provisioning platform in place from an OSS perspective," he says.

Next the team brought online its home-grown "Nemos" network monitoring system, able to oversee signal-to-noise levels, traffic congestion and individual modem performance levels.

"Across the board we gained 70 to 80 percent improvement on that just by being able to provide the systems with the data necessary to go out and target problem areas and make those changes," Buttermore says.

On the CMTS front, Adelphia has been able to swap out all of its DOCSIS 1.0 and older CMTS units, and now 90 percent of the customer base is supported by high-capacity DOCSIS 2.0 units. Backbone capacity has also doubled.

The results are in the numbers. Two years ago Adelphia had about 700,000 high-speed data customers, and that has since doubled to 1.5 million customers–but remarkably with the same customer call volume.

All in time to see it handed over to Comcast Corp. and Time Warner Cable when their joint acquisition of Adelphia is finalized by the end of the year. But Buttermore is philosophical.

"It's been incredibly fun. You rarely get the opportunity to come into a situation like this," Buttermore says. "It was a wonderful opportunity for me." *–KB*

Digital Simulcast

The bridge to cable's all-digital future

It's happening today with cable operators of all sizes—from the smallest independents to the biggest MSOs.

What are the benefits and strategies behind digital simulcast? How are operators introducing simulcast to their networks today? Find out, **FREE**, at this special live Webcast from *CED*.

By the conclusion of this one-hour live event, you'll know...

- The current and future benefits of digital simulcast
- The speed with which major, mid- and small-sized MSOs are deploying digital simulcast/simultrans networks
- Similarities and differences in how cable operators are deploying the technology—and the reasoning behind the different approaches
- The necessary steps for a successful digital simulcast rollout
- Operational and technical challenges that must be addressed in duplicating analog channels in the digital tier
- The role of advertising insertion in the digital domain
- The real cost of digital simulcast deployments
- The right timing and strategic approach for cutting-over analog subscribers to an all-digital tier.

Moderated by *CED*'s Editor, Jeff Baumgartner, whose decade-plus experience in the industry includes a stint as Broadband Editor at *Multichannel News* and as the Denver Bureau Chief for *CableFAX Daily*.

For further information, or to register for this invaluable *CED* Webcast, go to ***www.cedmagazine.com/webcast***

Sponsored by

rgb NETWORKS · MOTOROLA · EGT · TERAYON · Scientific Atlanta

Planned and produced by

CED

Charter: At your [commercial] service

Pacesetter: Commercial Services
(Sponsored by Xtend Networks)

Steve Santamaria, formerly the corporate vice president of commercial services, Charter Communications Inc.

Under the guidance of Steve Santamaria, Charter Communications has turned a passing interest in commercial services into a growing revenue driver. In the first quarter, the company posted a commercial services revenue rise of 20 percent to $11 million–a healthy growth rate no matter what line of business you might be in.

Santamaria, the former corporate vice president of commercial services, has also helped Charter leverage its existing network to deliver services to small- and medium-sized businesses. And where its plant doesn't reach, the company has been a pioneer in the use of wireless extension technologies, with about 400 customers already getting data services from Charter in this way.


Santamaria

Those wireless extension deployments "are operating perfectly for us," Santamaria says. "Now we can go places where we can't extend plant."

The operator is also offering fiber-type services with SLAs (service level agreements) over its HFC network, a strategy "that opens up the market for us," Santamaria says.

Although Charter has plans for bigger commercial entities, and has hired three people just for "elephant hunting," the SMB sector offers plenty of low-hanging fruit. SMBs are "completely ignored by our competition," Santamaria says. "We're local...and [that] is huge for those customers." *–JB*

Brooks and Stanek...
(continued from page 33)

prepares to oversee the launch of SBV across the division. "We developed tools as a result of this trial, which are now used daily by our engineering and operational teams," he wrote.

For Brooks, seeing SBV evolve from a trade show presentation more than three years ago into a deployable technology certainly serves as sweet validation to a person who has been a "big believer" in SBV almost from the get-go. *–JB*

Mitchko...*(continued from page 33)*

These days, Mitchko and Cablevision are noodling a network-based digital video recording system that places a sharper focus on content produced specifically for television. *–JB*

A marriage made in QoE heaven

Flow-based IP and PacketCable Multimedia

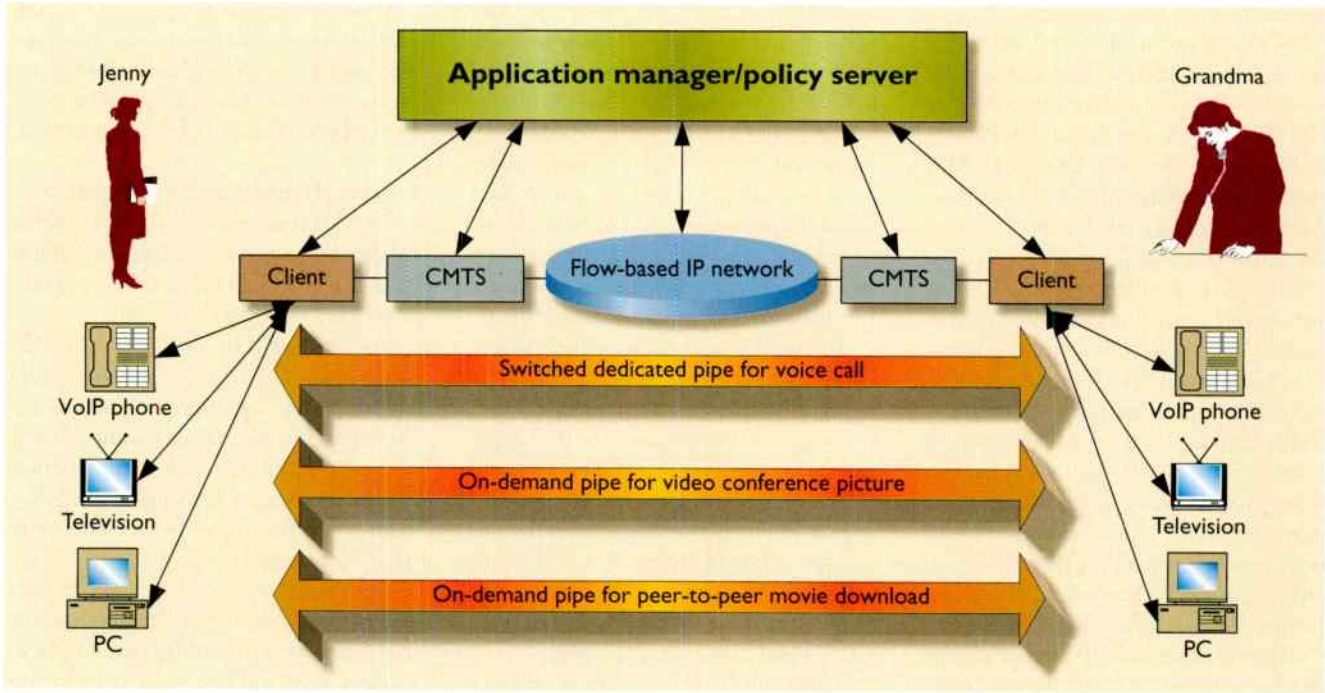


Figure 1. A multimedia call in the near future–voice, video and data with end-to-end Qos.

By Kshitij Kumar, Director, Technical Marketing, C-COR Inc.

The cable industry is not alone in defining the next generation of video and high-speed data services. Telcos are fast catching up, and are poised to leapfrog MSOs by deploying vast amounts of fiber to the home and business.

MSOs have an advantage–the HFC plant is capable of being extended to 1 GHz bandwidth. They also have home field advantage with existing customers. However, the ability to provide innovative new features and services, while maximizing the use of existing infrastructure, will ultimately be the winning card in this game.

This article ventures into the wonderful world of possibilities enabled by the use of PacketCable Multimedia (PCMM) and per-flow IP networking.

Defining Quality of Experience (QoE)

The quality of the total experience is a key factor when a customer decides which package of services to stay with–that from an MSO or a comparable package from a telco. "Quality of Experience" (QoE) can be defined as the qualitative measure of the daily experience the customer gets when he uses the services he is subscribed to–including experiences such as outages, quality of picture, speed of the high-speed Internet service, latency and delay, customer service, etc. The better the consumer's experience, the higher his QoE. And that has an effect on customer loyalty.

Some critical components of QoE are the quality and flexibility of high-speed Internet service, the ability to self-provision services on-demand, and the ability to provide "carrier-grade" VoIP and video service.

A gaming user will experience improved QoE if he can increase bandwidth and reduce latency of his connection to the gaming server–allowing an improvement of a fraction of a second in response times, on-demand or with a monthly "gaming" HSI service.

An avid P2P (peer-to-peer) enthusiast will find his QoE improves if he is able to request, on-demand, a "speed-up" of his Internet access service when he wants to download music or multimedia content–on a pay-per-use basis.

A doting grandmother may find her QoE to peak when she can request video-conference-quality Internet access when dialing a "video-call" to her grandson across the country. Similarly, a business may prefer to obtain high bandwidth multi-point VPN access on-demand or a video-VPN

E-mail: KKumar@c-cor.com

between its multiple locations on-demand when it is having a video conference call.

The QoE in these scenarios is maximized when a service is available on-demand–when they need it, and when it works reliably. MSOs providing such services can in fact nullify the competitive threat from telcos by using such advanced features to attract and retain customers.

PCMM is a CableLabs initiative that can enable us to enhance the customer experience. Customers may prefer to stay with MSOs for some of the services PCMM enables the end customer to avail. PCMM specifies a way of using hardware and software to provision a level of service for a specific application, on-demand.

Myriad applications are in use today, each having its own bandwidth requirements. Many applications have the potential of being unfriendly to other applications active on the same network at that time.

For instance, the teenager downloading a movie using a P2P application may be playing havoc with the bandwidth available for the VPN connection being used by his mother to check e-mail. He may also be unfairly using shared bandwidth needed by the next-door neighbor surfing the Web.

This will cause both the mother and the neighbor to be unhappy with the level of service they are getting at the expense of the P2P user–reducing their individual QoE.

P2P takes over the network

Publicly available studies estimate that anywhere from 60 percent to 95 percent of network capacity is being used by P2P traffic today. And P2P users usually pay only for a basic high-speed Internet connection–the network provider today makes no per-use revenue from this popular use of the Internet.

P2P users pay for the application–and may be willing to pay a reasonable amount for being able to complete their download quicker. Should MSOs not allow such users access to a wider pipe (more bandwidth) on-demand, and charge them for it–garnering extra revenue from the infrastructure?

Some network operators have tried to limit P2P traffic by utilizing expensive traffic inspection devices that detect offending applications. Some traffic (possibly P2P applications) may then be rate limited.

Such approaches work reasonably well in controlled, enterprise environments. However, there are serious legal and privacy concerns with limiting specific user traffic that goes on the Internet, as recent lawsuits have indicated.

On the other hand, it should be acceptable for MSOs to provide better service to an application a customer is paying the MSO for, as the traffic traverses the operator's network (VoIP on the same data network used for HSI, for instance). An MSO's VoIP customers should get good service–leaving third-party VoIP service over the same broadband network to compete in a best-effort fashion for resources as usual. (Note: this article is not intended to provide legal advice; please consult appropriate legal experts before using any suggestions in this article.)

Using intelligent packet sniffers to limit P2P traffic is a reactive approach–akin to trying to stop a virus from spreading after it has already happened–since P2P applications frequently change their behavior. It requires laboriously following and updating patches regularly from vendors. P2P traffic changes protocols often, and in the time while vendors scramble to create patches to stop P2P traffic when the protocols change, P2P wreaks havoc in the network.

Intelligent IP transport devices are now available that allow the operator to provide a specific Quality of Service (QoS) to specific application traffic for a specific customer, while sharing the rest of the available bandwidth fairly between other "best-effort" applications. This allows the MSO to ensure that customers who are paying them for a certain service get the service consistent with their expectations–while all other traffic gets to compete for resources in an essentially best-effort environment as usual.

Everything-on-demand

Enabling bandwidth on-demand becomes critical as users get used to the availability of movie downloads or other popular content from legitimate, legal sources. Users will want to be able to ensure they can download these movies in real time and play them on their TV–enabling an IPTV-based "everything-on-demand" service.

MSOs have the opportunity to participate in this phenomenon as it happens, to charge users for the video and to also charge them for the bandwidth they use in downloading video on a pay-per-use basis over their HSI connection.

MSOs may also be in danger of slowly becoming just a provider of a conduit for media that customers will get from other providers. By creating an everything-on-demand network, cable operators can provide users with the choice of the best content, over the best broadband pipes, when the users want it–while still preserving current business models for broadcast content.

The role of PacketCable Multimedia

PCMM is an enabling technology that appears set to create a fundamental differentiator that MSOs will lead with and other network providers will follow.

As vendors start rolling out PCMM software and hardware, users will be able to self-provision appropriate per-flow QoS for different applications. Bandwidth will be available on-demand in conjunction with an application manager and a policy manager in the access network, thereby improving overall QoE.

End users will soon be able to self-provision services–they will not be aware of the tremendous technology enabling these services–they will just see a videophone service, a movie download service, etc. Each user application flow will get the QoS that the application flow needs.

Providing consistent QoE

All high-speed data customers need to get service consistent with the service plan they are paying for–whether it is tiered high-speed data service for residential customers or a committed-rate, multi-site VPN service for business customers.

Businesses require that they are guaranteed the bandwidth they are paying for. When large files are downloaded by a residential customer, or when a business user puts large amounts of bursty traffic on the network, a QoE issue is created for other high-speed data customers.

While power users–whether business or residential–need to get the bandwidth they want on-demand, regular users, in turn, need to be assured that they will get their fair share of bandwidth at all times–even

Keeping up with CableLabs

Downloadable security, PacketCable 2.0 on cable's R&D plate

By Jeff Baumgartner, Editor

New York–The annual CableLabs media briefing is typically a fount of news and fresh initiatives that will drive the industry forward for the rest of the year and into the foreseeable future. In 2005, the event did not disappoint, as CableLabs presented several new projects–including PacketCable 2.0 and downloadable security–and cast more light on DOCSIS 3.0, a key subject of last year's briefing.

Spotlighting downloadable security

A panel of key cable executives shed more light on the industry's plans for downloadable conditional access (CA) systems for digital set-tops and televisions. If all goes as planned, a CA system largely based in software will someday handle the same security functions of the CableCARD, a key cog in the current OpenCable platform and Plug & Play agreement. In fact, such a system could replace the CableCARD altogether as the industry's "removable" CA platform of choice.

Some of this work stems from a recent decision by the Federal Communications Commission to maintain a ban on cable set-tops with integrated security, but extend the deadline 12 months to July 2007. Cable is using this time to develop a downloadable security system, and to prove to the FCC that such a system is viable. The cable industry must file a feasibility report with the FCC by Dec. 1.

The cable industry maintains that a software CA, plus an inexpensive security processor in the set-top or TV, is the most secure and efficient way to go. And that includes the whole food chain–from cable operators and consumer electronics companies to the consumers themselves.

"No matter your constituency...downloadable security is better than the solution we have had in the past," said Mark Coblitz, Comcast Corp.'s senior vice president of strategy planning.

The CableCARD, he added, is much more complex to install and manage versus a software-based system because the card itself is a physical device. With software, "there are no...inventory control issues," Coblitz added. Plus, "it's more secure than the system we have today."

The downloadable CA CableLabs is noodling will embed five different core encryption engines, according to Mike Hayashi, Time Warner Cable's SVP of advanced engineering and subscriber technology.

The first three comply with existing encryption systems from Motorola Inc. (Mediacipher), Scientific-Atlanta (PowerKEY), and CSA (Common Scrambling Algorithm, for DVB-based cable systems). The other two are Triple DES and AES (Advanced Encryption System).

PacketCable 2.0 targets mobile voice, more SIP support

CableLabs is also cooking up a new version of PacketCable that will incorporate support for mobile voice services and place more attention on SIP-enabled devices such as videophones.

According to CableLabs Vice President of Advanced Network Systems Ed Miller, the forthcoming PacketCable 2.0 specification will build on the voice-centric PacketCable 1.0 and PacketCable 1.5 architectures.

It marks a second coming of sorts for PacketCable 2.0. At a media briefing held in 2002, CableLabs also announced plans for a spec called PacketCable 2.0, which later morphed to become PacketCable Multimedia (PCMM), a platform that injects QoS into a wide range of IP-based applications, including voice and video.

Miller noted that the 2.0 spec is in its "beginning stages," but expectations are that it could be ready by early 2006.

The spec will support several modules. The first will handle enhanced voice and video telephony services (TV-based caller ID, and voice messaging), and new

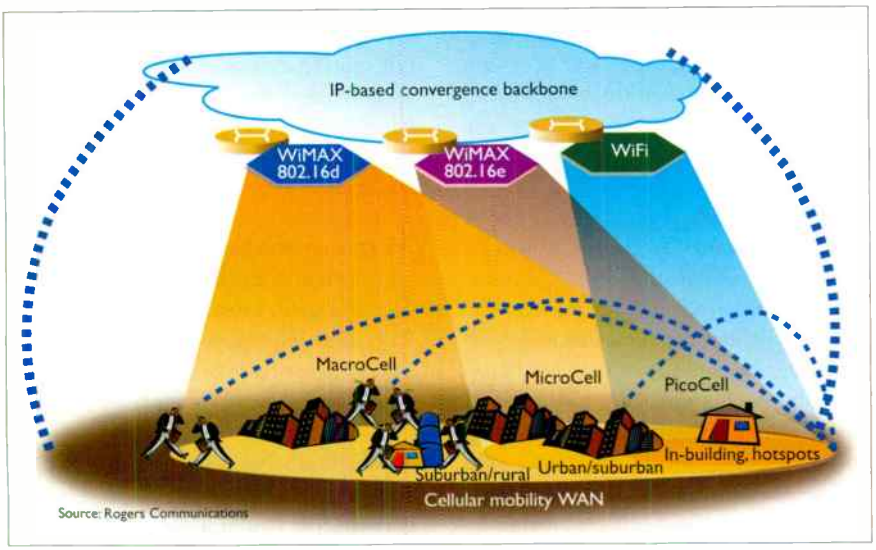


Figure 1: Although Rogers is starting off with a "roam-to-home" trial with friendlies, the company also envisions a much larger, converged network that supports 3G, WiMAX and WiFi on a common IMS backbone.

when the power users are hogging as much bandwidth as they can.

It is possible to enable this by putting in humungous amounts of bandwidth into the network, but this does not appear to be a viable, long-term option.

Flow-based networking in the IP network

The PCMM approach is a correct first step. However, it does not enable end-to-end QoS, even across the single MSO's network. The bandwidth bottleneck does not end at the CMTS, and the problem also needs to be tackled in the metro or regional transport networks. The IP transport network carries multiple services from many different sources–data, voice and commercial services–and throwing bandwidth at the problem in the transport network does not guarantee that applications will get the QoS they require.

PCMM alone does not prevent P2P traffic from reducing QoE for other users. An intelligent, flow-based, IP transport network is needed to complement the PCMM-capable access network. The IP network needs to be capable of identifying regular users vs. power users and giving the power users the bandwidth and service they are signed up for, while ensuring the regular users get a fair share of the bandwidth available (per-flow QoS). In combination with the appropriate use of some deep packet inspection devices, the right IP network is created.

PCMM specifications point to an interface needed to an IP network that could control the IP network the same way as the CMTS. An intelligent flow-based IP network needs to work in conjunction with the PCMM-capable CMTS and policy manager in order to extend the QoS on a per-application flow basis, end-to-end.

Figure 1 shows how an end-to-end flow-based IP network may enable applications in the near future. Jenny calls Grandma on an IP phone. As today, the bandwidth for this call is dedicated over the coax, but is switched over the IP network. However, Grandma wants to have a more interactive experience, and clicks a button on her phone to indicate that she wants to additionally convert this into a video call.

An application manager and a policy manager work together to request and reserve enough bandwidth end-to-end in order to support videoconferencing. Voila, Grandma and Jenny can now see each other in pristine full-motion video on their respective TVs. The MSO charges Grandma for this video call.

Jenny now offers to send Grandma the movie she made from their last vacation. Jenny starts a P2P session, and an on-demand channel is created, in order to complete the video download in a few minutes. The MSO charges Jenny for the P2P session.

Bandwidth that was dedicated for the VoIP call was set up on-demand with high priority and low jitter/delay for the video and with high bandwidth for the P2P file transfer. However, the P2P bandwidth does not interfere with the video or voice traffic.

Intelligent IP networks

When a business user or a paying power user is not using the chunk of the bandwidth allocated to him on the IP network, the networks can let the P2P traffic from a residential customer "borrow" that bandwidth, and share that in a fair manner with all other best-effort traffic on the network, if the MSO so desires. This allows the residential customer to get an enhanced level of QoE, and the QoE increases fairly–based on what the customer is paying for his bandwidth.

Higher tier HSI customers can be allowed to reclaim bandwidth from other power users (while the power users are not using their bandwidth), while "light" HSI customers may be restricted to only getting a best effort service within their allocated tier.

To top it all off, the business or power user gets his bandwidth back as soon as his traffic comes online–thereby not even realizing that his bandwidth was loaned away to the residential users. Having an intelligent transport also allows re-use of bandwidth by time-of-day. During the night, the time when most P2P and Web surfing traffic starts up, and business users are off-line, the above mechanism allows sharing the unused bandwidth fairly among eligible active HSI users.

During the daytime, when business users are using the system, the same transport and access network serves the business users with a "committed" level of service, while sharing available excess bandwidth among fewer active HSI users.

DoS attacks–prevention is better than cure

This mechanism for prevention of misbehaving P2P sessions by ensuring that paying users get their commitments also works for preventing Denial of Service (DoS) attacks. DoS attacks are a steady stream of packets that are intentionally sent by an end-user into a certain network or to a specific Web site with the express intention of overwhelming network resources or in order to bring the Web site down for extended periods of time.

DoS attacks are extremely difficult to identify and limit. The attackers can purposefully use different end user computers to launch attacks, making them more difficult to stop for an MSO. However, in a flow-based approach ensuring that "known" traffic gets its contracted QoS, such DoS attackers would be allowed their fair share of bandwidth, without significantly impacting other users.

Because a specific customer will never get more than his allowed fair share of bandwidth, the DoS attacker gets limited to his fair share of bandwidth, and all other customers (especially the paying customers) get their fair share–thus providing a QoE that is consistent with their expectations.

This method of DoS prevention does not require expensive stateful packet inspection devices, since the use of a flow-based, intelligent IP network makes that unnecessary, thereby reducing MSO capex and opex.

The consumer is king–and needs high QoE

Consumers will have all the choices–of what to watch, when to watch it and how. It becomes imperative for MSOs to evolve their IP networks in order to support these choices and enhance the end user's Quality of Experience.

A new generation of products already available will enable MSOs to leverage PacketCable Multimedia to harness the real power of IP-based flow networking. And that will help to ensure customer loyalty in this looming fight to the finish. ■

SIP-based clients, including those based in software.

The new platform will also give special attention to mobile voice services supported by dual-mode WiFi/cellular handsets.

One MSO that's already taking convergence to the test is Rogers Communications of Canada, which is in the unique position of owning cable and cellular service platforms.

In a "roam-to-home" trial with friendlies, Rogers is testing handsets that can identify a home's WiFi or Bluetooth network, and backhaul traffic on the cable network to the cellular switch. Such a set-up is important in residential areas where cellular signals historically are weakest, said Michael Lee, Rogers Cable's vice president of strategy and development.

Lee estimated that Rogers is still 12 to 18 months away from a commercially-deployable platform that marries wireline and wireless voice services. Rogers is also exploring how WiMAX technology might fit into this convergence scenario, as well.

Although PacketCable 2.0 and seamless mobility is a look forward, there's plenty going on today with the 1.x architecture. Time Warner Cable, which has made VoIP available across the majority of its footprint, is signing up 15,000 VoIP subs per week, with 70 percent taking a "triple play" of voice, data and video services, said Sam Howe, the operator's SVP of marketing, voice. He added that the MSO hopes to be close to 90 percent to 95 percent VoIP-enabled by year-end.

More on DOCSIS 3.0

Cable engineering executives also discussed DOCSIS 3.0, an emerging CableLabs spec that will use "channel bonding" techniques to boost speeds to 100 Mbps and higher. It also supports IPv6, which will give MSOs the ability to better manage their IP address pools and gain more sophisticated provisioning tools.

DOCSIS 3.0 is in the final review period, and a final spec could be ready by early 2006, according to CableLabs Chief Technology Officer Ralph Brown.

Although DOCSIS 3.0 is cable's answer to fiber-fed data services, current DOCSIS technology is more than enough to fend off DSL performance, according to Marwan

In the loop

Have a comment? Contact Tom by e-mail at: robinson@cbgcommunications.com

That old familiar feeling

By Thomas G. Robinson, Executive Vice President, CBG Communications Inc.

There was something about SCTE Cable-Tec Expo this year. There was an excitement that pervaded the conference that had not been there in recent times. Some might call it, in holistic terms, a "positive energy flow."

Managing bandwidth was a huge topic, with the focus squarely on systems migrating to 1 GHz and implementation of a host of efficient bandwidth utilization methodologies. Operators and vendors discussed the merits of technologies such as Switched Digital Broadcast (SDB), dual pass encoding, transrating, and statistical multiplexing.

Another notable area was wireless extension of the cable plant. Although the technologies discussed (essentially the use of microwave-delivered QAM-based services) have been around for awhile, an increased focus on the need to deliver residential and business services where wired plant extensions are not cost-effective, together with the ultimate consumer's greater understanding and use of wireless data networking, have converged to result in a bigger emphasis on this segment of the marketplace.

There was also significant discussion concerning a greater push to obtain customers from the commercial marketplace. As traditional telephone players expand their reach into residential video service, a logical countermove is to compete in an area where telephone companies have long been dominant–commercial business services. This includes support for today's largely Ethernet-based business networks and high-speed Internet access, as well as providing T-1 circuit emulation for legacy applications. It also undeniably includes support for the growing Voice-over-IP (VoIP) market and delivery of advanced interactive, IP-based services in the future. The resounding conclusion from the conference presentations and discussions was that the cable industry has the advanced platform and bandwidth, between the high-capacity HFC connections it already delivers to many businesses and those that it could reach through wireline or wireless extension, as well as tremendous backbone capacity, to deliver the services that all forms of businesses need. What it takes beyond the technology, though, is a back-office structure, technicians, CSRs, salespeople and an engineering staff that understand the distinct difference between the commercial and residential markets. Equal attention needs to be placed on the support mechanisms and the technologies in order to be successful in the business marketplace. To that extent, the telcos have something of a lead, since while they admittedly are novices in the provision of video, they have long provided voice and data services equally well to the residential and business marketplace.

Of course, all things digital and IP were all the rage, with digital simulcast being one of the hottest topics. What was notable was that there appeared to be an equal focus on voice services this time around, as well as the traditional emphasis on video and data services. Truly, the "T" in SCTE has evolved far from the old "Television" moniker.

Continued on page 42

Fawaz, chief technology officer and SVP of engineering and technology for Adelphia Communications.

"DSL can't match our speeds," he said, noting that faster ADSL2+ technology is still based on customer distance from the central office. "DOCSIS can provide the same speeds throughout any service area," Fawaz added.

To cement that point, Fawaz announced that Adelphia is preparing to launch a pair

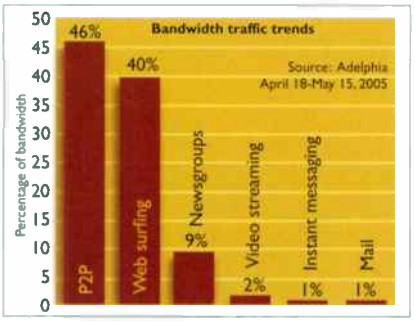


Figure 2: Traffic trends: As this traffic snapshot indicates, peer-to-peer applications are eating up the most bandwidth. "We'd like to see [traffic] evenly distributed...but that's not reality," Adelphia's Marwan Fawaz says.

of "Extreme" cable modem service tiers. Set for a third quarter debut, those "Extreme" tiers will cap speeds at 15 Mbps/2 Mbps and a 10 Mbps/1 Mbps service.

Fawaz did not specify which cities would be the first to receive Extreme. "We'll target certain markets for competitive reasons," he said.

Earlier this year, Adelphia raised speeds in all its markets. Its "Premier" tier was raised to 6 Mbps/768 kbps from 4 Mbps/512 kbps; the flagship product was increased to 4 Mbps/384 kbps from 3 Mbps/256 kbps; and "Basic" was upgraded to 256 kbps symmetrical from 128 kbps symmetrical.

Because it was later than many other MSOs with upgrades, Adelphia has standardized on DOCSIS 2.0, complimented by 256 QAM in the downstream, and 64 QAM in the upstream. Fawaz said the capital cost of doubling bandwidth (on just one 6 MHz channel) runs between $4 to $5 per home serviced. ■

In the loop

Have a comment? Contact Tom by e-mail at: robinson@cbgcommunications.com

Continued from page 41

One of the most remarkable acknowledgements at the conference was that for all the focus on set-top boxes (STBs), consumers still largely do not want to have to deal with them. Although this at first seems like a near-fatal conundrum concerning the deployment of advanced services, another acknowledgement was that it also presents a competitive advantage for the cable industry over its competitors.

Essentially, the cable industry is the only one that can easily supply the services that the majority of multi-channel video consumers want in the simplest way possible–directly into the back of over 400 million television sets. When all is said and done, the simplest of technologies, analog video, may be the savior of the cable industry until the consumer catches up to advanced STB technology.

That will happen, of course. Today's information-absorbing, multi-tasking teens are tomorrow's advanced service purchasers. Ultimately, they will break the mold of today's majority consumer that still needs end user devices to be as easy to use as the telephone.

Overall, Expo attendees seemed to realize that they have the tools and the wherewithal to cover all the bases that they need to, both present and future. Even near the end of the conference, when the incessant Texas heat threatened to finally sap some of the positive flow of energy, it was notable that you met and saw people at the airport who clearly expressed the polar opposite of disappointment; in fact, they exuded a confidence that they were on the right track.

You know, engineers are usually such straight-line, linear thinking people that the term "warm and fuzzy" isn't often connected with them. However, departing from San Antonio it sure seemed...well, maybe it was just the Texas heat.

newproducts

PRODUCT REVIEWS

Triple play platform

SAN DIEGO–IPITEK has launched its new 10 Gigabit Optical Ethernet Transport Platform, the MSP-10G, which provides the ability to deliver triple play services. The platform features all-rate multiplexing, transponding, regeneration and wavelength conversion of any Ethernet signals in a 1 RU package.

"This product was designed from the ground up to specifically address cable operators' need for multi-service aggregation of triple play data and business VLAN data," said IPITEK Product Manager Don Buell.

The MSP-10G is an optical transponder designed for carrier-class provider Ethernet transport in edge and core networks. The unit accepts 24 client interfaces and two 10 GbE optical trunk interfaces, each supporting 100 GHz-spaced ITU wavelengths. Featuring a low-latency, non-blocking switch architecture, the platform can be programmed to almost 10 Gigabit Ethernet at wire-speed in the optical network. The client interfaces can also be managed for granular controls at 10/100 Megabit Ethernet and 1 Gigabit Ethernet. Service-oriented provisioning capabilities enable trunk aggregation of multiple ports while remaining transparent to user VLAN tags.

The platform is designed to support a range of applications including edge networks, metro core networks, and an alternative to OC-192c/STM-64 Packet over Sonet.

Visit www.cedmagazine.com/products

Compression assembly tool

CROMWELL, Conn.–Ripley Company's Cablematic division is unveiling the latest in its Compression Assembly Tool line, the CAT-AIO, which assembles series 59/6, 7 and 11F, BNC, RCA, IEC and Mini drop connectors from connector manufacturers including ARRIS/Telewire, Corning Cabelcon, Corning Gilbert, PCT, PPC and Thomas & Betts.

The tool is available with up to 12 Interchangeable Plunger Tips (IPT), each compressing a distinct set of connectors. The IPT can be changed to another IPT to assemble a different series of connectors. The CAT-AIO is shipped with two IPTs to assemble the universal series of 59/6, 7 and 11 connectors, as well as the 59/6 PPC-EX and PCT-TRS connectors.

One IPT is installed in the tool; the second IPT can be stored within the tool's body. The 10 additional IPTs are available for RCA, BNC IEC and other F-connector applications.

Visit www.cedmagazine.com/products

Data manager

INDIANAPOLIS, Ind.–Trilithic has launched its TDM (Trilithic Data Manager), a server application that enables configuration of 860 DSP or 860 DSPi field analyzers and measurement record collection, as well as instrument update and feature addition. The user can accomplish these tasks remotely, via the Internet, eliminating the need for a trip to the office.

Linking software (called WorkBench Component) gives a field technician access to WorkBench, the company's configuration and data management application, for communicating technical data and instrument configurations, and for uploading and downloading work orders and measurement results to the TDM server for documentation and further analysis. A WorkBench operator can use the TDM as an ingoing and outgoing "mailbox" containing work orders, instructions, channel configurations, group or individual messages and other traffic.

Visit www.cedmagazine.com/products

MONITORING

Remote monitoring system

Radiant's RM1100

SOUTH PLAINFIELD, N.J.–Radiant Communications has upgraded its RM1100 Real-Time Remote Monitoring System with the addition of PCVision 3.0 software. The new package enables up to three users in different locations to simultaneously observe as many as four customers' visual and audio experiences using any computer with Internet access and remotely control the converter box to start, stop and view VOD streams. Users can also remotely switch between RTP and TCP packets by tunneling into the company's network via a VPN line. The enhanced RM1100 also features faster IR blaster and device searches in WAN and NAT environments.

The RM1100 has cable system applications for field technicians, headend engineers, call centers, and advertising account executives. The device features the ability to pinpoint the origin of a technical issue without a truck roll, expedite problem resolution to improve customer service, and provide advertisers with quality assurance, according to the company.

Visit www.cedmagazine.com/products

BusinessShowcase

Products & Services

CATV Supplies

Career Opportunities

ProductShowcase

Professional Directory

company index

advertising index

nextmonth

ARTICLES

August CED's features examine on-demand trends, VoIP testing, ad insertion and the Global IP Summit. And, you won't want to miss CED's exclusive Digital Video Testing pull-out wallchart.

Keeping up with on-demand–Top trends

Now that video-on-demand is widely deployed, what business drivers are most promising for the platform as it stands today–and in the not-too-distant-future? Which service offerings hold the greatest promise for keeping usage up and revenues flowing?

Putting VoIP to the test

Sure. VoIP provides a clear path to revenue growth, but how can you be sure all of its network and customer premise components are working together to produce the best possible subscriber experience? CED examines this burgeoning technology's unique testing requirements and procedures.

C-COR's Global IP Summit–A first-hand report

CED travels to Barcelona for the inaugural edition of this international event. How is IP technology impacting cable's competitive landscape? What is cable's current standing against DSL and other competing high-speed technologies? What are the driving forces behind the migration to HDTV? We'll seek out the answers to these questions and more at this remarkable gathering of industry leaders.

Big Talk–Ad insertion

Leslie Ellis sits down with Paul Woidke, Comcast Spotlight's CTO, to discuss the inner-workings of ad insertion and its all-important role in cable operators' deployment of digital simulcast networks.

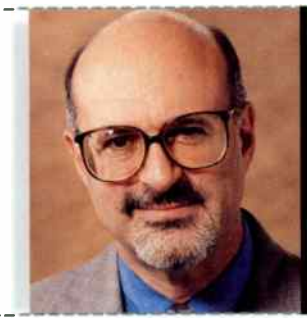
CED
Phone (303) 470-4800
Fax (303) 470-4890
www.cedmagazine.com

capital currents

Fallout from the Broadcast Flag decision

Some folks are rejoicing that the Court overturned the FCC's Broadcast Flag rules. But it seriously constrains the usefulness of the flexible digital broadcasting technology now rolling out in this country. The FCC has a lot of authority over cable set-top boxes, but very little authority over TV receivers. Consequently, improvements to the broadcast Emergency Alert System (EAS) that take advantage of the capabilities of digital broadcasting cannot be implemented.

Let's review. The FCC adopted the Broadcast Flag rules because broadcasters said there was a need to control the redistribution of broadcast programming over the Internet. This wasn't about copy protection, because TV programs can legally be copied to your heart's content. It was about controlling where a program (or portion of a program) can be viewed. It was about viewing a New York City news program in Miami. Or adding part of a TV soap opera to your blog. Or adding short clips of Univision's Spanish language TV programming to a distance-learning course in the Spanish language.



By Jeffrey Krauss, President of Telecommunications and Technology Policy

Have a comment? Contact Jeff via e-mail at: jkrauss@krauss.ws

In order to control this sort of redistribution, two things were needed. First, the ATSC, the standards body that writes the standards for digital television, had to define a standard way to carry the Flag within the digital TV signal format. It did this, setting aside one bit in the bitstream. If the bit is set equal to 1, that means that redistribution control is asserted. If the bit is 0, there is no redistribution control. Presumably broadcasters would set the bit at the time they broadcast the program, but there is nothing prohibiting a Hollywood studio from adding it to the bitstream when they distribute their movies to the broadcasters.

The second necessary requirement was that TV sets (and tuner cards in computers) would have to respect the Flag setting. Any device that received digital TV signals and had a digital output port would have to check the bitstream to see if the Flag bit was set. If so, the device would have to refuse to allow the bitstream to be redistributed. The requirement would apply to any device with a digital TV tuner and demodulator. Limited redistribution would be allowed if there was a protection technology (meaning some form of encryption) embedded in the output device, in order that a TV receiver could deliver the bitstream to a digital video recorder for later playback. The FCC established a cumbersome program for approving protection technologies, which was a separate area of controversy.

The District of Columbia Federal Court of Appeals said the FCC overstepped its jurisdiction. The FCC has full jurisdiction over broadcast television signals. But it has only limited jurisdiction over TV receivers. It can regulate the receivers' RF emissions to prevent them from causing radio interference, just like personal computers and any other electronic device. It can require them to tune and demodulate analog and TV broadcasts, because of authority granted in the 1962 All Channel Receiver Act. It can require them to decode and display closed captions, because of authority granted in the 1990 Television Decoder Circuitry Act. It can require them to be equipped with V-chip program blocking capability, because of authority granted in the 1996 Telecommunications Act. It can regulate whether a TV set can be labeled "cable-ready" because of Sections 624A and 629 of the Communications Act, the Navigation Device sections.

But the Court said there was nothing in the Communications Act that gives the FCC authority to impose other requirements on TV receivers, including in particular the requirement to respect the setting of the Broadcast Flag.

So what does this mean for the EAS? The FCC has authority over broadcasters' transmission of Emergency Alert messages, because it has broad authority over virtually everything a broadcaster transmits. But the FCC has no authority to require TV receivers to display Emergency Alert messages. When a broadcaster includes the message as a video overlay on the TV program, the issue doesn't arise because the TV set displays the full video picture that includes the Emergency Alert message.

But suppose the broadcast industry decides to follow the cable industry's approach. The cable industry adopted a standard, SCTE 18, that defines how Emergency Alert messages can be carried in digital cable bitstreams. The set-top box or cable-ready receiver decodes the coded bits and either displays the message or tunes to another channel that displays a message. There was a voluntary agreement between the cable and consumer electronics industries to support this approach, and then the FCC made it mandatory for TV sets labeled as "cable-ready." The FCC has the authority to do that because of the Navigation Device provisions.

The FCC has a proceeding underway to modernize the EAS. The Association of Public Television Stations proposed a data broadcasting approach like the cable industry adopted to deliver Emergency Alert messages to the public. The NAB supported a Common Alerting Protocol to be carried within digital TV bitstreams. Good idea! But too bad. Digital TV sets don't have to decode those messages. And the FCC has no authority to require digital TVs to comply. That's the fallout from the Court's decision. ■

Tulsat

An ADDvantage Technologies Company

Tulsat Appointed Exclusive Distributor For System III

PRISMA

PASSIVES

GAINMAKER

LASERLINK

CONTINUUM

POWERVU

DEMODULATORS

STEREO ENCODERS

Master Stocking Distributor

Scientific Atlanta

- New, surplus and remanufactured CATV equipment
- The largest in-stock inventory of Scientific-Atlanta products
- World-class technical repair centers
- Fast, dependable turnaround
- Expert knowledge and personal service

Your *lifeline* for system critical network components.

800-331-5997

1605 East Iola • Broken Arrow OK 74012

www.tulsat.com • tulsat@tulsat.com

PRESS RELEASE: FOR IMMEDIATE RELEASE

Tulsat, a Master Stocking Distributor of Scientific-Atlanta current and legacy equipment, has exclusive distribution rights for select Scientific-Atlanta products. Scientific-Atlanta has appointed Tulsat as an exclusive distributor of its System Amplifier III RF platform for U.S. and Latin America customers.

TULSAT

On Hand. On Demand.™

Line Extender III Modules

574754 LE III, 750 MHz, 40/51, 37dB GaAs FET, with Reverse
573900 LE III, 750 MHz, 40/51, 35dB PHD Forward, 19dB Reverse
590523 LE III, 750 MHz, 40/51, 35dB PHD Forward, 19dB Reverse, 40V Low
545397 LE III, 750 MHz, 40/51, Type 3M, PHD Manual with Reverse
545297 LE III, 750 MHz, 40/51, Type 3T, PHD with Thermal & Reverse
545197 LE III, 750 MHz, 40/51, Type 3A, PHD with Automatic Gain Control & Reverse

Line Extender III Housings

545443 LE Current Line Extender Uncoated Housing
545444 LE High Current LE Coated Housing

System III Amplifier Modules

545185 SA III, 750 MHz, 40/51, Type 1A, Unbalanced Triple with Reverse
545191 SA III, 750 MHz, 40/51, Type 2A-2, High Gain Dual, w/Reverse
562402 SA III, 750 MHz, 40/51, Low Gain Dual, with Mid-Gain Reverse
562462 SA III, 750 MHz, 40/51, High Gain Dual, with Mid-Gain Reverse
573965 SA III, 750 MHz, 40/51, Type 2A-3, High Gain Dual with Reverse
590532 SA III, 750 MHz, 40/51, High Gain Dual, Reverse Conditioned
590533 SA III, 750 MHz, 40/51, Unbalanced Triple, Reverse Conditioned

System III Amplifier Housings

545435 SA III, High Current Housing with External Test Points, Uncoated
545436 SA III, High Current Housing with External Test Points, Coated
564387 SA III, High Current Low Profile Housing with Status Monitoring Lid, Uncoated
564388 SA III, High Current Low Profile Housing with Status Monitoring Lid, Coated
564390 SA III, High Current Housing without External Test Points, Uncoated
564391 SA III, High Current Housing without External Test Points, Coated
564394 SA III, High Current Low Profile Housing with Status Monitoring Lid, Side Entry, Coated

ADDvantage Technologies Group

Tulsat NCS Industries Com Tech Services Lee Enterprise
Tulsat-Texas Tulsat-Atlanta Tulsat-Phoenix

evolve.

think video. think Terayon.

Digital video changes everything - how we brand, communicate, entertain and inform. Terayon accelerates your ability to evolve and capitalize on new business opportunities brought on by this digital revolution. Terayon enables you to deliver picture perfect results where it matters most - on the screen and on your bottom line.

TERAYON

evolve faster.

www.terayon.com • info@terayon.com