

Cable Industry Creates 'OpenCable™'; Goal Is Interoperable Set-Top Boxes

Cable Television Laboratories, Inc. (CableLabs®) and its members have established "OpenCable™," a project aimed at obtaining a new generation of set-top boxes that are interoperable. These devices will enable a new range of interactive services to be provided to cable

customers.

The open specifications project is patterned after the industry's successful Data-Over-Cable Service Interface Specification (DOCSIS) process which continues within CableLabs.

The first task of OpenCable will be to evaluate responses to a

request for information (RFI) that was sent to leading computer and consumer electronics companies. The RFI seeks their input into the open specification process and the creation of a draft specification for advanced set-top boxes.

The OpenCable effort will in-

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CableLabs® Summer Conference Looks At Broadband Services

CableLabs®' annual summer conference "Cable's Broadband Services Get Ready for Prime Time" drew about 185 to Vail July 21-23. The conference focused on the key issues of digital television and high-speed data delivery by cable system operators. Organizing the confer-

ence was Dr. Jerry Bennington, CableLabs senior vice president of Internet technologies.

All of the presentations of July 22 were videotaped as part of a videostreaming experiment at CableLabs, and are available for viewing on CableLabs' Members Only web site (this Web site is only available to

CableLabs member companies). To view, one must first download Progressive Networks' player, which can be found by visiting <http://www.real.com> or by clicking on the link within the Members Only site. For a password to enter the site please contact Eady Broscheit at 303-

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Panelists at CableLabs' summer conference discussing high definition TV. From left: Robert Zitter, HBO senior vice president; NCTA President and CEO Decker Anstrom; Microsoft Senior Vice President, Consumer Platform Division, Craig Mundie; Robert Seidel, CBS vice president engineering, advanced technology; and Howard Miller, consultant to CableLabs.



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661-3798 or via e-mail at e.broscheit@cablelabs.com.

The conference opened with a session by CableLabs' Strategic Assessment Department. Dr. David Reed, vice president of strategic assessment, moderated the panel. Dr. Terry Shaw, project director of network systems, discussed the economics of return path transmission and, in a second presentation, reported on digital subscriber line technology.

Laurie Schwartz, project director of digital video technology, reviewed work she has done on direct broadcast satellite. Mike Laflin, project manager for wireless technologies, discussed broadband local multipoint distribution service (LMDS) and wireless local loop.

CableLabs Senior Vice President and General Counsel Dorothy Raymond moderated a panel on the Washington scene. Speakers were NCTA President and CEO Decker Anstrom and U.S. WEST Vice President of Federal Relations Brenda Fox.

The first day concluded with a briefing by @Home Networks Vice President, Networks, Milo Medin.

The second day of the conference highlighted a high number of speakers from industries other than cable. It opened with a panel on high definition television moderated by Howard Miller, a consultant to CableLabs.

Speakers included Craig Mundie, a senior vice president of Microsoft's Consumer Platform Division; Bob Zitter, a senior vice president with HBO; Robert Seidel, vice president of engineering with CBS; Decker Anstrom, NCTA president and CEO; and John Sie, chairman and CEO of Encore.

Dr. Robert Lucky of Bellcore delivered the keynote address that focused on high-speed data delivery.

The afternoon continued with a panel moderated by Bennington and dealing with computer technology and televisions. Speakers were Robert Siegel, general manager of the Intel Desktop Products Group PC Theatre products and technologies; and Tom Gershaw, senior product manager of the Windows Operations Division, Microsoft.

MediaOne Senior Vice President of Engineering and Technology David Fellows moderated the next panel, which dealt with web

Navio Communications.

The day concluded with a presentation on Internet Protocol Telephony by Dr. Ed Szurkowski, director of the Interactive Services Delivery Laboratory of Lucent Technologies.

CableLabs Director of Network Operations Doug Semon began the final day of the conference with a report on the enhanced services guide project.

Don Dulchinos, CableLabs director of business development and technology transfer, moderated a session on set-top box technologies. It included as speakers Pat Ransil, engineering vice president with Wink Communications; Ken Soohoo, engineering vice president and chief technical officer of PlanetWeb; and Greg Wolff, vice president of business development with Diba.

Bob Cruickshank, CableLabs director of digital network technologies, moderated the next session. It dealt with Internet deployment. Cruickshank provided a modem deployment update and introduced MediaOne's

Fellows, who spoke on that company's modem efforts.

The day concluded with a meeting of the CableLabs Technical Advisory Committee (TAC). Nick Hamilton-Piercy, senior vice president of engineering and technology with Rogers Cablesystems Limited, chairs the TAC. The meeting involved reports to the membership by CableLabs staff.

CableLabs CTO Dr. Rich Prodan addressed the technology development initiative that he is heading. Cruickshank spoke next on the Data Over Cable Service Interface Specification (DOCSIS) process. Associate Member of

CableLabs summer conference attendees are shown viewing demonstrations. The numerous demonstrations were a highlight of the three-day conference.



browsers. Geoff Roman, senior vice president and general manager of the Satellite Data Networks Group, provided NextLevel Systems' vision. He was followed by Dr. Allen Ecker, senior vice president of Technical Operations and Chief Technical Officer of Scientific-Atlanta, along with Michael Harney, vice president and General Manager of S-A's Digital Video Systems Division.

Other speakers on the panel were Tim Saeger, manager of the Interactive Systems Group at Thomson Consumer Electronics; Alan Yates, a senior product manager with Microsoft, and Bruce Leak, chief operating officer of WebTV Networks; and Mark Vickers, director of technology for

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CableLabs is a non-profit, research & development consortium founded in 1988 to enable the cable television industry to use technology to improve its business. CableLabs members serve more than 85% of U.S. cable subscribers, more than 70% of Canadian cable subscribers and 10% of the subscribers in Mexico.

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State Department Concurs

SCTE Approves Data Standards

The Society of Cable Telecommunications Engineers (SCTE) has approved a technical standard regarding compatibility for the design and manufacturing of cable modems. CableLabs® has participated in the interface specification process, also known as MCNS/ DOCSIS, since its inception in late 1995.

The SCTE standard is called DSS-97-2, "Data Over Cable Radio Frequency Interface Specification." The U.S. State Department approved it for submittal to the International Telecommunications Union Telecommunications Standardization Sector (ITU-T) on August 13. The ITU-T will then consider it a U.S. contribution for recognition as an international standard.

This standard specifies radio frequency (RF) interface data transmissions as they originate at cable television headends and go into customers' homes and businesses. It defines the characteristics of the RF interface on the cable system and the signaling sequences between the headend and the subscriber's equipment as part of the overall data over cable specifications.

The standard will enable the interoperability of cable modems from one cable system to another. By having a standard modem, cable customers may enjoy better prices and more choice in purchasing cable modems. The customers also will have some assurance that the cable modems will work on any cable system. Customers also will have access to a new family of services and options that may be enabled by high-speed access to the Internet.

SCTE Activities

The imminent advent of digital television and data transmission in the industry made essential having

formal cable standards for these new services. SCTE was established as a standards setting body for the cable industry in August 1995. SCTE created two new subcommittees: the Digital Video Subcommittee (DVS) to address cable industry standards for digital television transmission, and the Data Standards Subcommittee to set the standards for cable-based digital data modems.

Dr. Paul Hearty of NextLevel Systems (formerly General Instrument Corporation) was tapped to lead the DVS effort, and David Fellows, senior vice president of engineering and technology at MediaOne, to lead the cable modem standardization. Both groups are organized as open-membership, due-process standards bodies in accordance with the ANSI rules. Members of the two groups are drawn from among cable operators, equipment vendors, programmers, consumer electronics manufacturers, telephony support organizations, and commercial vendors of communications products and services.

Digital Video Subcommittee

The DVS effort has resulted in an essentially complete specification for the application of digital television services over the cable infrastructure. The technical specifications are as follows:

- a. MPEG-2 Main Profile @ Main Level with B-Frames for Standard Definition. (Tier 1)
- b. MPEG-2 Main Profile @ High Level with B-Frames for High Definition. (Tier 2)
- c. Dolby AC-3 5.1 Audio
- d. ITU J.83 Annex B - 64 QAM with a fixed interleaver depth of I/J=128/1 and 64/256 QAM with

variable interleaver depths of I/J=8/16, 16/8, 32/4, 64/2, and 128/1,2,3,4.

- e. Conditional Access interface as per IS-679, NRSS (Part B) for digital, and for analog, IS-105.1 and .2, the Decoder Interface Specification, as developed in EIA/NCTA Joint Engineering Committee (JEC).
- f. Provisions for both in-band and out-of-band control channels.

The above specification also has been included by the ITU-T for the secondary delivery of television programming over cable delivery systems.

CableLabs has been very active in JEC, ITU-T, and DVS activities. Dr. Richard Green, CableLabs President and CEO, is Vice President of ITU-T Study Group 9, which is responsible for worldwide standards relating to television delivery on cable, microwave, and satellite master antenna TV (SMATV) systems. Dr. Richard Prodan, the Chief Technical Officer of CableLabs, is also active in Study Group 9, and heads a very important working group in the DVS effort.

Claude Baggett, CableLabs director of industry relations, has been active in all JEC work for over 10 years and co-chairs the NRSS subcommittee that developed the IS-679 specification. Baggett is also a Rapporteur to the ITU-T Study Group 9 on a variety of questions, and chairs the DVS working group related to conditional access.

Several parts of the DVS standard are now out for ballot to the subcommittee participants. Pending the results of that voting, the specification will be ready for final editorial preparation and will be sent forward to the SCTE Engineering Committee for approval. ▼

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clude an intellectual property (IP) pool and a certification process for testing vendor compliance.

CableLabs executives and board members have held a series of meetings with the CEOs of companies in the computer and consumer electronics industries on the topic of set-top boxes over the past few months. A CableLabs Task Force on Advanced Set-Top Boxes, chaired by MediaOne President and COO William T. Schleyer, a

member of the CableLabs Board of Directors, has overseen the effort.

"It appears that consumers will benefit from the capabilities that the computer industry can provide to the cable set-top boxes of the future," Schleyer said. "In order to spur demand for new services that would take advantage of the new set-top architecture, and to further congress's and the FCC's mandate of retail availability, advanced set-top boxes should have functionality within a common framework that allows different levels of com-

plexity. The boxes also should be interoperable," he added.

"Our meetings with other industries have shown us that microprocessor and semiconductor technology are advanced to the point where a set-top box can become a digital set-top computer very soon," said Dr. Richard R. Green, president and CEO of CableLabs. "That will give the cable industry a tremendous platform from which to provide a whole new level of services to its customers," Green said. ▼

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Technical Staff Ty Pearman then reported on modem testing in CableLabs' facilities.

Mike Schwartz, senior vice president of communications, reported on preliminary plans for the CableNET™ '97 demonstration. Jones Intercable Group Vice President of Technology Chris Bowick addressed Year 2000 software issues and Bennington and Dr. Richard R. Green, CableLabs president and CEO, reported on activities of some CableLabs-organized task forces.

Brian James, vice president of the TAC Test Centre, updated the TAC on the laboratory's activities. Craig Chamberlain, project director, engineering, talked about return path engineering work being done by CableLabs staff. Dr. Majid Chelehmal discussed research and development projects in the Engineering Department. Senior Member of Technical Staff Rhonda Hilton discussed some issues surrounding Moving Pictures Expert Group (MPEG) compression.

Streaming Media

As part of the conference, CableLabs wanted to showcase streaming audio and video. Many companies provide tools for streaming audio and video across

the Internet, including Precept Software, Vosaic, Vxtreme Inc., and Progressive Networks, Inc. Each has a unique solution to the problem of huge files consuming large amounts of bandwidth while streaming to the desktop.

CableLabs streamed the July 22 conference presentations live over the coaxial network CableLabs created for the conference as a way to illustrate videostreaming to the attendees.

Two cameras inside the main conference room passed video signals to a mini recording studio, created by Garkie Communications of Boulder, Colo. Garkie supplied CableLabs with an audio and video stream to an Osprey-1000 capture card inside the encoding computer, a Dell 266 MHz MMX Pentium II with 64 MB RAM running Progressive Networks' live encoder. The software relayed the encoded live signal to a streaming server (a Sparc ULTRA1 with 128 MB RAM), where it could then be viewed on the Web using the "surf" stations located at the conference.

Preliminary results of the experiment included a finding that the broadcast quality is a direct function of the CPU power and the amount of RAM in the encoding computer. A 266 MHz Pentium II with 64 MB RAM is not powerful enough to encode high-quality content. A dual 200

MHz Pentium Pro machine with at least 64 MB RAM is required to achieve a broadcast of 10 frames/sec or better.

Demonstrations

In addition to the Internet demo produced by CableLabs, eight companies provided exhibits. Among the highlights was a display by Panasonic which demonstrated high definition and standard definition material, both compressed and uncompressed. The demonstration showed progressive scan and interlace scan and conversion formats side by side for viewers to see if there were any discernible differences.

Other demonstrations: Lucent Technologies showed cable modem management tools; AMP displayed an in-home wiring system; Diba showed an advanced web browser.

interTECH Corp. demonstrated a satellite-based high-speed data service targeted at small and mid-size cable systems, Scientific-Atlanta showed digital video, graphics and an interactive program guide; Tut Systems displayed technology using xDSL technology over cable and Wink exhibited enhanced broadcasting.

Most of these demonstrating companies had responded to a CableNET™ year-round RFP. ▼