Society of Cable Telecommunications Engineers

Rocky Mountain Chapter

The Spectrum

Newsletter of the Rocky Mountain Chapter

http://www.scte-rockymountain.org/

May 2011

We have created a Rocky Mountain Chapter Facebook Page: http://www.facebook.com/#!/pages/SCTE-Rocky-Mountain-Chapter/158166457563716. If you use Facebook, click the "Like" button and you'll be sure to get any late breaking updates on Facebook.

Featured articles:

- **Tom Gorman**, Charter Cable - VP, Field Operations: **"SCTE update"**
- **Jorge Salinger**, Comcast Cable - VP, Access Architecture: **"CMAP"**
- **Derek Ferro**, Ubee Interactive - Vice President, Advanced Solutions Engineering: **"Service provider management of consumer premise devices"**

Save the date – June 14th and 15th
Vendor Symposium and Cable Tec Games

Your Rocky Mountain Chapter announces this year's:

ANNUAL CABLE-TEC SYMPOSIUM and GOLF OUTING

June14th and 15th, 2011
Inverness Hotel and Golf Club
200 Inverness Drive South
Englewood, CO 80112

It is once again time to mark your calendar for the best SCTE Symposium and Cable Tec Games. As you all know, our show has sold out for the last 10 years, so save the date for RMC's Annual Cable-Tec Symposium and Golf Outing to be held at the Inverness Hotel and Golf Club on Tuesday and Wednesday, June 14th and 15th.

If you wish to attend the technical session you must register for this session separately online like you have for previous sessions or seminars at the following link - Rocky Mountain Chapter Symposium TECHNICAL SESSION ONLY.

Tuesday, June 14th	***Wednesday, June 15th***
7:30 am Golf Tournament (Check in at 7 am)	7:30 am – Continental Breakfast (Sponsorship Available)
12:30 pm Lunch for Golfers (Sponsorship Available)	8:00 am – 11:30 am and 1:00 - 4:00 pm Exhibit Floor Open
2:00 pm – 5:00 pm Vendor Set up	9:00 am – 11:00 Technical Session (limited seating capacity) "Greening the Network" - From the Industry and By the industry. The core objective of these technical session is to review where SCTE/SEMI are moving in the Energy Revolution and how its impacting Outside plant, what we (MSOs) can and have been doing to change the energy consumption in the plant. Speakers from SCTE National, Coppervale, TWC, Charter and Emerson.
6:00 pm – 10:00 pm Cable Tec Games and Reception (Sponsorship Available)	11:30 am – Symposium Lunch (Sponsorship Available) Floor Closes from 11:30 – 1:00 for symposium lunch
	Throughout the day, we will offer short 15-20 minute technical discussion presentations about topics that are hot on peoples radar as well as what's the future look like from industry leaders.

Please contact me should you have questions:

Thank you,
Steve Murphy
SCTE Rocky Mountain Chapter
Office: 720-267-3038
http://www.scte-rockymountain.org/

SCTE update from Tom Gorman

The week of April 11 was a busy one. First, the board of directors met on Tuesday, April 12. We are continuing to work on the restructuring that was approved in January. But even more important, April 13 and 14 was SCTE's Chapter Leadership Conference (CLC). Frank Eichenlaub and I attended on behalf of the Rocky Mountain Chapter. This is a perfect example of why chapter leadership is so important. In these two days, chapter leaders from almost sixty chapters met to discuss everything from roles and responsibilities of each position on the board, to Robert's Rules of Order, to Anti-Trust responsibilities. Chapter awards were also given out and we received a special achievement award. Any chapter member can run for a seat on the chapter board and this is one of the great benefits of doing to. The information learned at CLC not only helps to ensure we have a great chapter, but it helps chapter leaders in their careers too!

On another great note, during the last week of April. the inaugural SCTE Leadership Institute was held at Tuck College of Dartmouth University. 40 SCTE members attended this incredible program and the early news is that it was a resounding success. One attendee told me that instead of listening to a person teach from a book on leadership, he learned it from the author of the book! How much does this program cost? It is pretty pricey at $10,000.00. This is where the SCTE Foundation comes in. A number of the attendees received grants from the Foundation to offset the cost of the program. That's one more great reason to be an SCTE member. If you're not interested in the Leadership institute, but want to take courses through NCTI, or technical courses at Arapahoe Community College, the Foundation can help with that too.

Tom Gorman | VP, Field Operations | 303.323.1482
6399 S. Fiddlers Green Circle. Greenwood Village CO. 80111

About your Rocky Mountain SCTE Chapter

The Rocky Mountain Chapter of the SCTE provides local networking, professional development, and SCTE certification opportunities to current members and prospective workers throughout Colorado and New Mexico. Sister chapters extend SCTE's reach to over 70 locations across the globe. SCTE's Chapter members are the most active in the Society and are dedicated to educating broadband technicians and engineers on the latest technologies and leadership skills necessary to be successful.

All SCTE members are invited and encouraged to participate in every chapter event. In addition to educational seminars, your Rocky Mountain Chapter also offers:

- Testing opportunities for SCTE Certifications
- Vendor interaction through the RMC Symposium
- Competitive broadband competitions including a national competition Cable-Tec Games
- Leadership opportunities through participation as an Officer of the Board
- Networking opportunities with local cable and broadband engineers

You can find past RMC presentations here: http://www.scte-rmc.org/page15.html

Awarded to the Rocky Mountain SCTE Chapter in April at the National Chapter Leadership conference

"In Recognition of their consistent efforts in providing value and excellence in their local area and enriching the careers of those in the Cable Telecommunications Industry"

Seminar Recap: Drop Hardening, April 14, 2011.

Held at Comcast Iliff office in Denver, CO.
55 attendees from:

- Comcast
- US Cable
- Charter
- Cable Labs
- PC Telecom
- Arapahoe Community College
- Vendor Partners (7)

Recently the Rocky Mountain Chapter hosted a training seminar in Denver, Colorado. The chapter hosted seminar on Drop Hardening reviewed how our drop infrastructure interacts with our advanced services. Charter Communications Nick Segura led 2 highly informative and interactive seminar sessions during the day – one in the morning and repeated in the afternoon. The training centered on recommended drop application practices and lessons learned from across the country. The sessions were lively and thought provoking. They hit on topics such as termination issues, ingress, leakage, bonding, and grounding issues to name a few. Nick introduced a catch phrase "an install for life" that really seemed to resonate with the audience. Nick showed numerous examples of how things go wrong with a drop, and some insightful, and technically disciplined approaches to remedy those occurrences. The seminar speaker offered a view of what the required state of readiness has to be in our premises drop networks to support past and future services. The venue, (Comcast Iliff Regional Theater) in which the seminar was held, was absolutely superb. With the wonderful turnout and positive feedback, the chapter will need to give serious consideration at repeating the topic in future years.

2011 Chapter Events

Pre-seminar openers (10 to 15 minutes) are planned before each event and subjects will include:

Telecom Industry current Events	*Professional Development, Benefits of Certification*	*Take-a-ways "Getting that one thing out of this seminar"*
Membership benefits	*Safety tie-in to seminar topic*	*Scholarship opportunities*

Date	**Location**	**Subject**	**Speaker**
May 19, 2011	Cable Labs Louisville, CO	Engineering for an all IP World	Dan Torbet, Director, Media Technology and Architecture Strategies, Arris Rob Horner, Architect, IP Video Systems, Cisco
June 14th & 15th	Inverness Hotel & Golf Club Englewood, CO	9:00 am – 11:00 Technical Session (limited seating capacity) "Greening the Network" - From the Industry and By the industry. (Stephanie Trotter)	Derek DiGiacomo Director, Information Systems SCTE
July 2011	Grand Junction, CO Albuquerque, NM	Digital Testing and Measurement – Hands On	Al Silva
Late Sept.	Comcast - 183 Inverness Englewood, CO	MoCa – Whole Home DVR, Home Networking	
October 13th	Comcast - Iliff Denver, CO	Did you know? – What's Happening all Digital World	Ron Hranac
February 2012	Charter Communications Greenwood Village, CO	Business Services	BICSI, Building Industry Consulting Services, International

May 19th Chapter Seminar event

Engineering for All-IP

Live in-person and simulcast via web conference!!!

- **When?** May 19, 2011 9:00 AM to noon
- **What?** Engineering the network for the move to all IP. This session will provide a futuristic view into the next generation of digital access networks, which as cable operators and vendors we may encounter sooner than we think.
- **Speakers:**

  Dan Torbet, Director, Media Technology and Architecture Strategies, Arris
  Rob Horner, Architect, IP Video Systems, Cisco

  Moderated by **Jorge Salinger**, VP, Access Architecture, Comcast

- **Where?** CableLabs, 858 Coal Creek Cir., Louisville, CO 80027 **MAP**
  This seminar will also be simulcast on the Web!!!
- **How Much? Free**
  Please register here:
  http://www.scte.org/devams/cgi-bin/eventsdll.dll/EventInfo?sessionaltcd=CHAP_RMTN_051911
  Webinar attendees will be sent an access URL the morning of the event.

Questions? Please contact:

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Lane Johnson (303)-717-5123 l.johnson@cablelabs.com
Nick Segura (303)-669-3705 Nick.Segura@chartercom.com

Technical Forum

CMAP – What is it and why do MSOs want it?

Jorge Salinger, Comcast Cable
VP, Access Architecture

For several years MSOs have been augmenting the number of QAM channels for narrowcast services in support of the growth of Video on Demand and Switched Digital Video, especially given the expansion of HDTV content, and the availability of channel bonding in DOCSIS® 3.0 to support newer, higher bandwidth data services. At the same time MSOs continue to reduce the size of service groups to make more efficient use of their networks. Improved service quality and reuse of spectrum for narrowcast service growth have been the key drivers for segmentation.

These trends result in a continuous increase in the number of QAM channels per service group. Moreover, current service projections indicate that such growth will continue and even expand as MSOs reduce analog channel line-ups in favor of deploying additional narrowcast QAM channels to support more HD programs on VOD and SDV, increase service tier speeds in HSD, and begin deploying additional narrowcast services such as network Digital Video Recorder and Advanced Digital Services over IP. As a result, denser QAM-per-RF-port equipment is needed to cap and even decrease environmental requirements (e.g., space, power, etc.), reduce capital and operational costs and simplify operations.

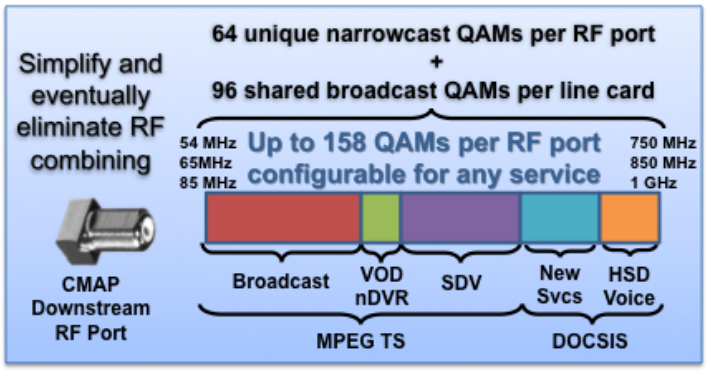
Modular CMTS and Universal Edge QAMs, as defined by the Modular Headend Architecture (MHA) developed by CableLabs, make it possible to achieve such higher densities. However, CMTS development focused on an integrated architecture does not inherently enable such architecture.

A new equipment architecture called Converged Multiservice Access Platform (CMAP) is being developed to enable the implementation of denser headend devices for today's all-digital cable networks. To do so, an industry-wide team has been gathered to develop the CMAP specifications. Initially led by Comcast in partnership with Cox and CableLabs, the team includes contributors from Cablevision, Charter, Liberty/UPC, NCTC, Rogers and European MSOs via representation from Cable Europe Labs, and all CMTS and Edge QAM suppliers. These specifications should be completed by mid-2011, including interface requirements in existing and new CableLabs specs, and product requirements available via MSO specifications.

CMAP implements the functions of both the Edge QAM and the CMTS in a consolidated platform. As a result a single CMAP downstream port will provide all the QAM channels for all digital services in a given service group, achieving maximum density, cost reduction, and operational simplification. CMAP is

designed for high availability, multi-vendor encryption support, full spectrum or overlay HFC networks, supporting any native QAM or DOCSIS service via configuration rather than equipment or RF combiner changes.

A typical CMAP downstream RF port would include 64 unique QAM channels for narrowcast and an additional 96 shared QAM channels broadcast services. Narrowcast QAM channels are individual for every port while broadcast QAM channels are shared on all the ports of a given line card.



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CMAP leverages existing technologies such as CableLabs' DOCSIS 3.0, DRFI, etc., incorporates newer ones such as dense Edge QAM architectures and Ethernet optics (EPON, in particular), and leverages the experience acquired over many decades of technology evolution for cable networks, including new functions and features described in the CMAP Specifications.

Given the cost and operational benefits, many MSO would begin deploying CMAP-type equipment immediately if possible. Because of such immediate benefits, equipment development is progressing at a very fast pace. Initial availability of equipment for laboratory and field tests is expected by late in 2011, and early deployments could begin as early as mid-2012. Substantial equipment availability is anticipated by 2013.

Hopefully this brief overview was useful. I'll cover additional details in future issues. In the meantime, feel free to reach out via Email for additional details, or visit CableLabs.com or CMAPworld.com.

Service provider management of consumer premise devices

Derek Ferro, Ubee Interactive
Vice President, Advanced Solutions Engineering

Over the last several years, there has been significant progress made relative to the management and configuration of in-home devices such as cable modems, residential gateways and IP Set-Top-Boxes. This service and management integration allows a common and standardized platform to be utilized across multiple devices within a consumer's home that are connected through the Internet. With the introduction of cable modems in the mid 90's, all service providers had utilized SNMP (Simple-Networking-Management-Protocol) to configure, manage and provision these devices. SNMP is still used today by many operators in one capacity or another and not only with cable modems. Looking at the overall capabilities of SNMP, the general consensus was that SNMP was cumbersome in many ways, especially when managing advanced devices with integrated wireless or in general, residential

gateways that include a myriad of capabilities to support a home network with multiple CPE's attached. The key concern from a service provider perspective has been the inability from being able to view the entire home network or individual devices attached to the network. The majority of trouble calls from subscribers are normally due to home networking problems such as connectivity, speed and coverage. Aside from troubleshooting these types of common problems, other aspects were considered relative to actual device configuration. With all the different home/residential gateways available on the market or those purchased directly from approved suppliers, how can the management and configuration become streamlined and more efficient for the service provider?

Approximately 7 years ago, the ADSL forum was established, later named to the DSL forum and today, the Broadband forum. As part of the Broadband forum, many technical working groups such as the Broadband Home group would formulate a "TR" also known as a "Technical Report". Within the Broadband Home group, a TR was generated named TR-069 (CPE WAN Management Protocol - CWMP) with many others following such as TR-098 (Internet Gateway Device Data Model) and TR-111 (Remote Management of Home Networking Devices).

In a nut-shell, CWMP and other TR's allow service providers a common platform to support device management, service management, firmware/software management and auto-provisioning (discovery of new devices). A significant piece to this platform which is the core element is called the "ACS" auto-configuration-service. With the ACS in place, normally at the head-end or central office, each device in the home will also include a TR-069 based agent which will "check-in" with the ACS at time of install where it will be configured with a set of parameters determined by the service provider.

With CWMP architecture in place, there are now improved methods and capabilities to help reduce overall support costs including truck rolls, enhance the user experience and proactively monitor devices before the customer reports an issue. With the recent addition of TR-111, service provides now have the capability of managing home networking devices connected to a residential gateway.

When compared to SNMP, TR-069/CWMP is more secure where SNMP is UDP based with no encryption unlike TR-069 which uses XML-SOAK-TCP with HTTP Digest Authentication/SSL Encryption. With TR-069, the need for proprietary MIB's from each supplier is no longer necessary where it is when using SNMP.

With all the different TR's available, one really jumps out which has been well received, that is TR-143. This allows the service provider to conduct network throughput performance testing in addition to statistical monitoring on an individual, as-needed basis on devices such as cable modems and residential gateways.

In general, TR-069 and the underlying technical reports have been in use for many years, predominately in the DSL space and most recently in the Cable/MSO area. Today, many MSO's are actively engaged with multiple ACS and gateway suppliers either evaluating or actively deploying one of the many solutions available. For more information, visit http://www.broadband-forum.org/

Scholarship Opportunity

By Joe Thomas

In these hard times job loss is collateral damage to the effects of the credit, housing, and energy issues affecting our country. The Rocky Mountain Chapter is proud to be in the position to offer its members a way of providing some security or opportunity in these times. We believe that through a scholarship program we can assist members wanting to differentiate themselves from their peers through education and certification.

Why does the RMC support a Scholarship Program for its Members?

We make it easy on our members to enroll, test, and certify for SCTE certifications covering a wide range of job classifications and skills. Certificates range from residential installation practices to digital video engineering and all points in-between. Visit our web site at http://www.scte-rmc.org/page10.html to get more details. Our scholarship application should take you less than 15 minutes to complete and you'll just need to add two letters of recommendation before sending to us.

Why should I certify with the SCTE?

The SCTE is the leading source of certification specific to our industry. There are over 15,000 worldwide members and more than 3,000 members enrolled in SCTE certification programs. It is the most comprehensive and widely recognized program in the industry.

In this competitive job market any edge you can give yourself will help you rise above the masses when being considered for a promotion or a new job. Believe me when I say, that experience and "time in the trenches" is invaluable to our employers and it has let many of us earn a great living in a great industry.

However, there are large numbers of people out there looking for job that have time and work experience on their side. Unemployment is regular and competition more fierce. How will you secure your current position or prepare yourself for the next promotion opportunity? Today you need something else to demonstrate your commitment to expanding your work knowledge and skills. Otherwise your resume looks just like the two dozen other ones sitting on a hiring manager's desk.

College classes are another avenue for motivated individuals. A college degree is a fantastic goal and the SCTE Foundation has funds available for grant to help you here as well. Consult the www.SCTE.org web site for more details. But College is not for everyone and the time, family responsibilities, and other constraints are endless. SCTE certification allows you to simply test at a local seminar after home studying for as long as you wish. There is no set class schedule or deadlines. The RMC offers testing at about every seminar. Certification is a viable route for many whom have full time jobs but yet want to advance and demonstrate their knowledge. The Rocky Mountain Scholarship program covers membership cost, testing fees, and peer recognition. The details of how to apply for a scholarship from the RMC is available on our web site: www.scte.org

2011 Elected Board of Directors

Name	email	Company	Position	Phone Number
Frank Eichenlaub	eichenf@cisco.com	Cisco Systems	Board, Web Master, Region II Director	303-790-6659
Tom Gorman	Tom.Gorman@chartercom.com	Charter Comm.	Board, Ntl At Large Dir and past Chair	303-323-1482
Lane Johnson	l.johnson@cablelabs.com	CableLabs	Board, Treasury Committee	303-717-5123
Rex Kohart	Rex_Kohart@cable.comcast.com	Comcast	Board	303-603-5639
Dave Krook	David.Krook@technetix.com	Technetix	Vice President	303-408-4116
Hugh Long	hlong222@comcast.net	Charter Comm.	Secretary	303-323-6034
Steve Murphy	Steve_Murphy@cable.comcast.com	Comcast	Treasurer	720-267-3038
Jorge Salinger	Jorge_Salinger@cable.comcast.com	Comcast	Board	
Nick Segura	Nick.Segura@chartercom.com	Charter Comm.	President	303-669-3705
Frank Wimler	Frank.Wimler@Chartercom.com	Charter Comm.	Board	720-250-7917

2011 Associate Board Members

Definition: Somebody who supports the functions of the local chapter by participating in meetings provides input that helps drive board decisions, volunteers, speaks supportive, and generally those who make an impact through their involvement.

Name	email	Company	Position	Phone #
James Baron	James.Baron@chartercom.com	Charter Comm.	Board Associate	303-323-6071
Kevin Bland	Kevin.Bland@chartercom.com	Charter Comm.	Board Associate	303-588-0529
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Richard Covell	rgcovell@msn.com	TTSI	Board Assoc.& Spkr	303-646-5050
Judy Donavan	jdon589029@aol.com	Donavan Consulting	Board Associate	720-870-2821
Paul Eisbrener	peisbrener@jonesncti.com	Jones/NCTI	Board Associate	303-209-1365
Rex Gerhardt	Rex@comtech-sales.com	ComTech Sales	Board Associate	720-254-3579
Ron Hranac	rhranacj@cisco.com	Cisco	Board Assoc.& Spkr	720-875-1338
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Dave Robinson	drobinson@ipitresources.com	IPIT Resources, Inc.	Board Associate & Newsletter editor	303-537-5678
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Mark Thompson	thompson@commscope.com	Commscope	Board Associate	303-773-3003
Stephanie Trotter	stephanie.trotter@twcable.com	Time Warner	Board Associate	303-880-9659