



The Spectrum
Newsletter of the Rocky Mountain Chapter
<http://www.scte-rockymountain.org/>

October 2010
From the President:
Nick Segura

There is nine weeks remaining in 2010, but thanks to you we've all delivered the Strategic Plan of Event offerings for Colorado and New Mexico which were all decided in January by 'the people' – YOU!

But wait, the last two events are a must attend!

1. you'll want to 'save the date' for November 11th at Charter Communications where Cisco and Comcast will be delivering an 'intermediate' level IP seminar which is designed to step deeper from last year's IP Basics seminar. Make time to attend this next event so you're not too far behind next year as we move most content further to IP delivery.
2. you'll want to 'save the date' for January 13th at Comcast Iliff location where BICSI will be delivering expertise about Commercial Installations and Applications.

| Date | Location | Subject | Speaker |
|--------------|---|---|---|
| Nov. 11 | Charter Communications Greenwood Village, CO | Intermediate IP Networking Continuing the series with a step above 'Basic IP' and its application in our cable networks: <ul style="list-style-type: none"> o How TCP/IP, FTP, SMTP/mail, HTTP/Web work o Popular Protocols: OSPF, IS-IS, BGP o SNMP/IPDR use for monitoring and more o Practical applications - Special guest speaker Jim Fahrny, Senior Fellow at Comcast will share his valuable insight into future applications involving content delivery and technologies that will shape tomorrow's service offerings. Register here: http://www.scte.org/devams/cgi-bin/eventsdll.dll/EventInfo?sessionatcd=CHAP_RMTN_111110 | Dave Beebe, Systems Engineer, Cisco Systems Jim Fahrny, Senior Fellow and SVP, Comcast Cable |
| Jan 13, 2011 | Comcast Iliff, Englewood, CO | Commercial Installations & Applications <ul style="list-style-type: none"> • Customer Premise Equipment (CPE) Installations • Inside Wiring (IW) & Demarc Extensions • More about TIA (revision projects for 568-C.1, <i>Commercial Building Telecommunications Cabling Standard</i>) | BICSI (<i>Building Industry Consulting Service International</i>) |

“We’ve moved our website”. Please save this new URL: <http://www.scte-rockymountain.org/>
(old url = <http://chapters.scte.org/rockymtn/>).

You can find **past seminar presentations** here: <http://www.scte-rockymountain.org/page15.html>

As always, please write any of use with your questions and suggestions (see contacts at very bottom).

Also, please “save the date” for these next board meetings - your attendance is always welcomed:

| Date | Location | Agenda highlights |
|--------------|------------------------|-----------------------------|
| Nov 11, 2010 | Charter Communications | Board Election Preparations |
| Jan 7, 2011 | Champps Americana | 2011 Planning Session |

Attention Technicians, Installers and CSRs

SCTE is the technical leader in the cable telecommunications industry and can serve you through tools designed to make your job easier and better prepare you to succeed in your career – specifically through resources that you can use on your time.

The 6 Top Benefits for You:

- SCTE Chapters – Local networking and technical training opportunities design specifically for you
- SCTE TechTips – Online resource for relevant technical subjects/concepts that will help you in your everyday job
 - Available Topics: Metric Conversion Charts, Ohm’s Law Usage, Coax Attenuation Changes vs. Temperature
- SCTE Primer Series – Short online presentations that help to enhance fundamental knowledge to make your job easier
- Certifications – Showcase technical knowledge and improve your career opportunities
 - Relevant Certifications: Broadband Premises Installer (BPI), Broadband Premises Technician (BPT)
- SCTE LiveLearning™ Webinars – Interactive monthly webinars on issues you deal with daily
 - Recent Topics: IPv6, Signal Leakage, In-Home Networks, Ethernet testing
- SCTE InfoScope® - A searchable database of nearly 1,000 technical resources to provide you with troubleshooting assistance

For more information on any of these topics, please do not hesitate to contact me or any of your RMC board; we’re here to serve you.

Thank you for your support!

Nick Segura

Review of the 15th annual Vendor Symposium held June 15 & 16, 2010

The 15th annual Rocky Mountain CableTech/Vendor Symposium was held at the first class Inverness Hotel, Golf and Conference Center in Englewood, Colorado where over 225 attendees (vendors and participants) were in attendance to what would later be described as of the best shows to date.

After several days of cool rainy weather we woke up to bright sunny skies on Tuesday for the annual **Golf scramble** which was supported by over 140 golfers. Golfing at the Inverness Golf Club is always a highlight and once again it proved to be spectacular. While the golfers were out playing the course CommScope was delivering a **Drop fundamentals course** for more than a dozen technicians from US Cable, Bridgepoint Communications, Integrated Communications Services, SCTE and CableLabs.

The following day the show floor opened revealing a full showcase of the most reliable products and services staffed by able-bodied representatives. The exhibits were first class and foot traffic was steady. The technical lunch kicked off with Ajay Luthra (Motorola) and Mark Francisco (Comcast Fellow) presenting 3DTV – Bringing another dimension to you and your living room. The show floor setting met Rocky Mountain/SCTE’s goal for sharing knowledge and provided everyone an opportunity to efficiently hold business conversation and get up to speed on the newest offerings.

Later that evening after a very tasty welcome reception the annual **Cable Games** event kicked off with forty five technicians from US Cable and Comcast from locations in the Denver Metro locations (North, East, West), Northern and Southern Colorado and regional engineering. Chris Newport from Comcast West took first place honors with Josh Speiser from US Cable a close second.



2010 Cable Games winners

Row (Front) – (Josh Speiser – US Cable; Rick Shaver - Comcast; Joe Catlin - Comcast; Matt Maddock – Comcast.

Back Row - Joe Reiersen – US Cable; Nick Segura - Charter; Jason Patrick – US Cable; Matt Jones – US Cable; Rich Kotarek - Comcast; Joe Sigler – Comcast; Chris Newport – Comcast; Scott Sullivan – Comcast; Tony Griaego - Comcast; Rick Reed – Comcast; Dave Krook – Technetix

Top three

| | |
|----------------------|-----------------------|
| Chris Newport | Comcast - West |
| Josh Speiser | US Cable |
| Matt Maddock | Comcast-East |

Other event medalists

| | |
|----------------|---------------------|
| Rick Reed | Comcast-Engineering |
| Joe Reiersen | US Cable |
| Joe Catlin | Comcast-NOCO |
| Rich Kotarek | Comcast-West |
| Tony Griaego | Comcast - North |
| Joe Sigler | Comcast-North |
| Matt Jones | Comcast-NOCO |
| Jason Patrick | US Cable |
| Scott Sullivan | Comcast- |
| Rick Shaver | Comcast-West |

Once again, with the full support from our Vendor community and the organization of Dave Krook and other board members, the CableGame events were outstanding with the best of the best showing off their talent.

Thanks to all of you who attended and to the Rocky Mountain Board members, Board Associates and to the vendor community for your support and hard work to make this symposium once again one of the best shows.

Please mark your calendars – 2011 SCTE - Rocky Mountain Chapter Symposium - June 14 – 15, 2011

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 the <http://chapters.scte.org/rockymtn> web site for certification offerings. 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 expected to move into the double digits in 2009 and competition is only going to become fiercer. 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

“Certification demonstrates to a candidate's peers and company management that they have the initiative to acquire knowledge and improve their skills and abilities”.

Please contact us with any questions:

Rex Kohart (303) 603-2916 Rex_Kohart@comcast.com

Steve Murphy (720)267-3038 Steve_Murphy@comcast.com

Tech Forum

By Nick Segura

Welcome back to “The Tech’s Forum”. This section of the SCTE newsletter features articles and tips for technical personnel of the CATV Industry. Ideas and articles for “The Tech’s Forum” are always welcome. If you would like to contribute please contact Dave Robinson at [drobinson@ipitresources.com](mailto:d Robinson@ipitresources.com) or 303-537-5678

Supporting DOCSIS 3 speeds –

One key to quicker, more trouble-free implementation of 64 QAM upstream is to own a good preventative maintenance program to include a regiment of system sweeping, reverse spectrum monitoring and mitigation, end-of-line testing and an active RF Leakage monitoring program. Additionally, before turning up the 64 QAM service, some specific tests should be performed to “certify” that each node is ready. End-of-line tests are fairly comprehensive, and provide an important data point on the fitness of a node for 64 QAM signal carriage. Regular testing includes aligning signal levels, monitoring RF downstream stability over time/temperature and a myriad of end of line performance tests to include C/N, hum, 2nd and 3rd order distortions, MER, BER (pre and post FEC), VoIP MOS monitoring and periodic upstream testing using a constant carrier 64 QAM generator.

Did you know -

- ✓ Carrier complexity - 64QAM upstream carriers are a greater maintenance challenge; these higher orders of modulation are more vulnerable to noise, distortions and ingress and require that all company operations groups to team together to achieve the highest level of performance and greatest operating margin in the plant and premises networks.

- ✓ Carrier amplitude changes - Migrating from 3.2MHz wide to 6.4MHz wide carriers means a drop in amplitude by 3dB which places the carrier average peak closer to the noise floor/interference (note: the total power from Cable Modem and to CMTS remains the same, just wider and lower).
- ✓ Multiple carriers from one CM - Upstream channel bonding for DOCSIS 3.0 'extreme speeds' requires a single CM to transmit across two or more upstream carriers which will further reduce its amplitude above the noise floor (note: this is when CMTSs are configured for constant 'Power Spectral Density' (PSD) the CM will have 3 db lower transmit power across two carriers <54dB Tx max>, 6dB lower across four carriers <51dB tx max>). A CMTS configuration of 'Maintain Power Spectral Density' (MPSD) is said to make up the 3dB to 6dB transmit power differences.
- ✓ Upstream Loading – Best Practices suggest an RF level review of the input into the DFB laser transmitter inside of the Node. Additional carriers will further load the DFB laser which will increase the likely-hood of clipping (distortions which lead to packet loss). Engineering the reverse path for full loading (min of 16 MHz of DOCSIS, plus set-top box carrier(s) and status monitoring/tool telemetry carriers) is required to maintain a proper balance of Carrier to Noise and distortions. This will drive us to lower the amplitude of CW signal for return path alignment resulting in sacrificing a little C/N performance for better distortion margins.

Teams must work together to optimize upstream performance margin in order to be successful -

- ✓ Installers and Technicians – a) perform upstream path ingress check from the tap/demarc location before leaving each job, b) Monitor for egress and repair any leak, c) Assure acceptable RF levels in/out of CPE.
- ✓ System Technicians – a) work in conjunction with engineering and headend technicians to optimize upstream loading (DFB inputs), b) use a CW generator in at least two frequency locations to properly align return path and identify tilt (use reverse sweep equipment when available), c) use QAM generators (64QAM 6MHz or 6.4MHz wide) in the reverse path to properly troubleshoot low SNR(RxMER)/group delay issues and to characterize upstream paths prior to adding additional advanced upstream carriers.
- ✓ Headend Technicians – a) work in conjunction with system technicians to optimize Optical Rx outputs for highest C/N, b) account for losses to CMTS, set top demodulator, status monitoring, and remote-view test equipment, c) Keep documentation and meter channel plans up to date.
- ✓ Network Technicians – a) assure CMTS ports are set to engineered designed levels and configurations, b) Help technicians understand what pre-equalization and adaptive equalization is and how easily SNR (RxMER) performance numbers can shift in difference noise/distortion environments, c) Continue to work on tools to help technicians identify CMTS/CPE stress to they can pinpoint and correct plant impairments more quickly.

2010 Elected Board of Directors

| Name | email | Company | Position | Phone Number |
|------------------|--|------------------------|---------------------------------------|--------------|
| Steve Brown | Steve80134@comcast.net | InterMtn. Consult. | Board | 303-898-1027 |
| Frank Eichenlaub | eichenf@cisco.com | Cisco Systems | Board, Web Master, Region II Director | 303-790-6659 |
| Lane Johnson | l.johnson@cablelabs.com | CableLabs | Board | 303-717-5123 |
| Rex Kohart | Rex_Kohart@cable.comcast.com | Comcast | Board | 303-603-5639 |
| Dave Krook | David.Krook@technetix.com | Technetix | Board | 303-408-4116 |
| Hugh Long | hlong222@comcast.net | Charter Communications | Secretary | 303-323-6034 |
| Steve Murphy | Steve_Murphy@cable.comcast.com | Comcast | Treasurer | 720-267-3038 |
| Nick Segura | Nick.Segura@chartercom.com | Charter Communications | President | 303-669-3705 |
| Jim Stewart | jim_stewart2@cable.comcast.com | Comcast | Board | 303-603-5687 |
| Joe Thomas | Joseph.Thomas@us.fujitsu.com | Fujitsu | Vice President | 303-953-1386 |

Supporting Associate Board Members 2010

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 Number |
|------------------|--|------------------------|-------------------------------------|----------------|
| Alan Babcock | Ababcock.b4b@comcast.net | | Board Associate | 720.470.3434 |
| Kevin Bland | Kevin.Bland@chartercom.com | Charter Communications | Board Associate | (303) 588-0529 |
| Joe Coffey | | | Board Associate | 513-332-8051 |
| Donavan Conway | dconway@timesfiber.com | Times Fiber | Board Associate | 805-377-3023 |
| Richard Covell | rgcovell@msn.com | TTSI | Board Associate & Speaker | 303-646-5050 |
| Judy Donovan | 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 |
| Tom Gorman | Tom.Gorman@chartercom.com | Charter Communications | Board Associate & Director at Large | 303-323-1482 |
| Mike Guise | mguise4@aol.com | Radiant | Board Associate | 720-470-7147 |
| Sherisse Hawkins | sherisse.hawkins@twcable.com | Time Warner | Board Associate | 720-279-2810 |
| Ron Hranac | rhranaci@cisco.com | Cisco | Board Associate & Speaker | 720-875-1338 |
| Robert Kostelny | rob.kostelny@comcast.net | | Board Associate | 303-995-6689 |
| Debbie McManis | debbie_mcmanis@cable.comcast.com | Comcast | Board Associate | 720-267-3604 |
| James Neil | jim.neil@cablem.com | Cable Mgmt | Board Associate | 303-632-0506 |
| Joe O'Fallon | Joe.OFallon@lineagepower.com | Lineage Power | Board Associate | 303-670-7450 |
| Dave Robinson | drobinson@ipitresources.com | IPIT resources | Board Associate & Newsletter editor | 303-537-5678 |
| Neil Serafin | neil@cabtel.com | CabTel | Board Associate & Speaker | (720) 352-3319 |
| Steve Snider | stephen_snider@cable.comcast.com | Comcast | Board Associate & Speaker | 303-603-2167 |
| Mark Thompson | thompson@commscope.com | Commscope | Board Associate | 303-773-3003 |
| Roger Wade | Rwade@bresnan.com | Bresnan | Board Associate | 307-637-0172 |
| Frank Wimler | Frank.Wimler@Chartercom.com | Charter Communications | Board Associate | 720-250-7917 |