



## Rocky Mountain Chapter

### The Spectrum

Newsletter of the Rocky Mountain Chapter

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

August-September 2012

## Featured article: Jorge, Salinger – CCAP Deployment Planning \*\*\*Parts 1 and 2 from Broadband Library

A special “Thank You” to Motorola:

Members of the Rocky Mountain Chapter of the SCTE participated in an offsite teambuilding event August 17th, 2012. We were honored to have Motorola sponsor this event which promotes out of the box thinking and stimulates motivation to meet the Chapter's year end goals in serving SCTE members in Colorado and New Mexico. We would like to recognize Motorola's Sal Ternullo and Jeff Phillips for arranging this great event and for past seminar events and Vendor symposium support - THANK YOU!

### Upcoming Seminars

Date	Location	Subject	Speaker
September 13 <sup>th</sup>	DU	Home Security	TBD
October 25 <sup>th</sup>	Cable Labs	Whole Home Wireless/ MOCA	
November 8 <sup>th</sup>	Comcast on Iliff	Fiber Based Services Metro E	John Quesenbury
January 2013 (17 <sup>th</sup> ??)	Comcast on Iliff	Working in an All-Digital World	Ron Hranac

## **“Home Security Seminar”**

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

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**When?** Thursday, September 13th, 2012

8:30 AM to 9 AM – On-site registration and check-in

9:00 AM to noon – **Presentations and discussion**

**What?** Home security is going to be the basis for the broadband home and total home management. There are complementing initiatives about applications not only related to energy management but home healthcare. There are many home monitoring and elderly home healthcare device manufacturers that are waiting to enter partner program and become authorized manufacturers. And this resonates with consumers. They are the ones who should start looking for those types of capabilities in a home security platform.

**Where?** University of Denver Sturm Hall Davis Auditorium

2000 E Asbury Ave (corner with S High St), Denver, CO 80210

**This seminar will also be 'web-conferenced'**

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Certification testing will be available - Get Started: <http://www.scte.org/content/index.cfm?pID=1179>

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

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**How Much? Free - for SCTE Members** (if not already a member become one for \$68)

\$10 for non-members.

**Questions?** Please contact:

**Idilio Moncivais** (303) 952-4918 [idilio@moncisoft.com](mailto:idilio@moncisoft.com)

**Jorge Salinger** (215) 286-4122 [Jorge\\_Salinger@cable.comcast.com](mailto:Jorge_Salinger@cable.comcast.com)

**Phillip Yang** (720) 267-xxxx [Philip\\_Yang@cable.comcast.com](mailto:Philip_Yang@cable.comcast.com)

Also, visit our SCTE Rocky Mountain chapter website at:

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

#### Event Summaries

1. 2012 RMC Symposium
2. TV/CDN and Advanced Coding
3. Digital Testing

**2012 RMC Symposium  
June 12/13, 2012  
Inverness Hotel – Englewood, CO.**

- 400+ attendees, including 70+ vendors, 5 demo vans, and 15 speakers
- Vendor exhibits / roundtables / workshops / Cable-Tec games / Golf tournament

The Rocky Mountain Chapter recently hosted its 2012 Symposium. The 2-day event took place at the Inverness Hotel in Englewood, CO, occupying over 9,500 sq. ft. of floor space, and included the following activities, in chronological order:

Tuesday, June 12<sup>th</sup>

1. Golf tournament
2. Lunch and golf awards
3. Vendor exhibits set-up
4. Cable-Tec games
5. Reception and Cable-Tech awards

Wednesday, June 13<sup>th</sup>

- Breakfast and Symposium Chair welcome
- Exhibit hall with 70+ vendors
- On-site demonstration vehicles (5 vans)
- Engineering roundtables (3 panels)
- MPEG 101 workshop
- Lunch reception and donation raffles
- IP Video 101 workshop
- Operations roundtables (3 panels)

All of the symposium activities outlined above were concentrated in a 2-day schedule without

any overlaps and including late hours on Tuesday, as we continue to accommodate the business needs for our respective companies.

Given the richness of the program this year, and the support from local MSO executives, the attendance this year was far larger than expected. Registration materials were exhausted, for which a precise count of attendees was difficult to establish. It was estimated that attendance exceeded a total of 400 participants, including representatives from the 70 vendors, 15 speakers, and the honorary chairs.

Once again the Symposium started with a golf tournament on Tuesday morning. A shotgun start allowed 18 teams of 4 participants each to all start and end the event simultaneously. Prizes through sponsorships were available for multiple activities, such as hole-in-one, closest to pin, longest drive, etc.

The Cable-Tec games were conducted on Tuesday evening, to allow the largest possible attendance from MSO's technical staff. 10 teams, each with 4 participants, competed to obtain the highest scores in the following categories: fiber splicing, coaxial splicing, meter reading, TDR/OTRD and jeopardy. Prizes were given in several categories, 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> place winners for each game and 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> place winners for the overall event. The 1<sup>st</sup> place winner for the overall event was awarded a free attendance to the 2012 Cable Expo in Orlando, including travel expenses paid by the RMC.

Among the several additions this year, the Symposium included local industry executives as honorary chairs. Jay Rolls, CTO of Charter Communication, served in the role of Honorary Symposium Chair. Chris Cholas, Sr. Director of IP Video Services, and Wayne Davis, VP of Field Operations, served as Honorary Chairs of the Engineering and Operations Roundtables respectively. In these roles, Jay, Chris and Wayne helped us draw attendance from their respective companies, and elevated the quality and expectations from the participants of the event.

The exhibit area, including 70+ vendors, was sold-out long before the date of the symposium. In addition, 5 companies brought custom-built vehicles to provide on-site demonstrations.

Exhibit tables were provided to SCTE National, and to industry partners CableLabs and WICT.

Given the success Tom's Tent, a series of panels that was added to the program last year, this year the RMC expanded on the concept by creating two sets of panels, which we called Roundtables. Each set of roundtables included 3 sessions, as follows:

#### Engineering Roundtables

"HE Monitoring and Testing" Panelists: Eric Olsen, JDSU and Stuart Brager, QUEST

"Leakage Detection" Panelist: Dick Shimp, ComSonics

"Improving Customer Care" Panelists: Karl Weber, SageQuest and Tony Holmes, Trilithic

#### Operations Roundtables

"How to deal with the QAM Explosion" Panelists: Francois LaFlamme, CommScope and Bob Scott, Harmonic

"Network Design" Panelists: Tom West, Motorola and Mike Kelly, Infinera

"MSO Perspectives" Panelists: Wayne Davis, Charter and John Heslip, Comcast

This last panel, as expected, drew the largest attendance.

In another addition to this year's Symposium, two workshops were offered, one in the morning following the conclusion of the Engineering Roundtables and one in the afternoon before the Operations Roundtables. The morning workshop, attended by 20+ symposium participants, included Ruben Araza, from Triveni, who presented an overview of MPEG, including MPEG-1/2/4, MPEG-TS, and related topics. In the second workshop, attended by 35+ symposium participants, Dan Torbet, from Arris, provided an overview of IP Video, including encoding, transport, CPE devices, and related topics.

In addition to representatives from the vendors, the symposium attendance included technical, engineering, and executives from local and regional cable companies.

The on-site and post-event feedback from vendors and participants was excellent, citing the organization and contents both having been excellent. The location, once again being the Inverness Hotel, is a first class site, perfect for hosting an event of this kind. The hotel has outstanding facilities to host the golf tournament. The RMC contracted for over 9,000 sq. ft. of space in multiple rooms that were nicely grouped to allow the audience to see all activities without difficulty. Audio visual equipment was available for all activities, allowing the audience to see and listen to all presentations without difficulty.

To defray costs, in addition to the low fees for tables and ancillary services (power, cable, etc.), a multitude of inexpensive sponsorships were offered. Virtually all of them were sold. Vendors' names sponsoring the event were prominently displayed within the Symposium area, which vendors appreciated.

The event was, once again in 2012, a resounding success.      Jorge Salinger



## TV/CDN & Advanced Encoding

Denver, CO. July 19, 2012

35 attendees / 3 speakers

One of the goals from the Rocky Mountain Chapter's Board of Director's meeting in January 2011 was to provide insight into some of the up and coming technologies. With that in mind, the Rocky Mountain Chapter hosted a training seminar in July that focused on the CDN implementations and advanced encoding solutions. Each of our three presenters focused on different aspects of the technologies including an overview of the basics as well as understanding how these technologies can be leveraged, pit falls of deployments and items that need to be considered while implementing.

The presentations were arranged so that the concepts continually built upon the topics as hand, thus supporting varying engineer areas covered by the audience. **Jaime Miles**, VP TWC Engineering & Operations, was our first presenter and spoke in general regarding the history of Video over IP and process the technology has made over time. **Jamie Panagos**, Principle Engineer for TWC, spoke next on the CDN, including an over view of what the CDN does, why MSOs are implementing and understanding key factors and considerations when implementing a CDN. **John Patti**, Engineer, Time Warner Cable, wrapped up the session explaining the advanced encoding (and transcoding) necessary to support high quality video being provided via IP and some of the challenges facing the MSO and Programming community within these technologies.

The experience and diversity of our speakers kept the audience engaged through their comments and ability to completely answer questions concerning their topics. We thank Charter for their use of their tiered-seating training room that continually fosters two-way interaction and is a well received venue. Additionally, the Chapter continues to offer webinar sessions to allow all (local and remote) members greater access to the training seminars when applicable.

The total attendee list is broken down as follows:

Speakers	3
Members	32
Others	3
TOTAL	38

13 of the 38 attended via webinar- Submitted by: Stephanie Trotter

## **SCTE Rocky Mountain Chapter Seminar** **August 17<sup>th</sup> 2011, in *Albuquerque New Mexico***

The very successful event was held on August 17<sup>th</sup> by the Rock Mountain Chapter in Albuquerque New Mexico.

Al Silva from JDSU once again was fantastic in delivering 2 very compelling and informative sessions with the audience of 64. The audience was comprised of technicians from across New Mexico from operations in Albuquerque, Santa Fe, Farmington, Las Cruces, Las Vegas, Grants, Portales, Tucumcari and many more locations. By utilizing technician focused terminology, examples, displays and hands on practices the audience walked away with additional tools and understanding to help them support their customer's needs. Al's point of (with digital it is about the "quality" of the signal more than the "quantity" of the signal) really resonated with the professionals in attendance. Through his use of theory, RF spectrum analysis, digital signal analysis, and troubleshooting tips, certainly cemented the value of the lessons learned.

The feedback from the participants in the sessions was very positive. The chapter would like to thank the New Mexico team for being such wonderful hosts. The venue, facility support and the positive reception for the training is greatly appreciated. Rex Kohart and Steve Murphy would like to give a very special thank you to Theresa Guereca. Without her help and involvement, the event would never have been successful. It is truly a wonderful to work with professionals such as Theresa.

### **Technical Forum**

#### **Jorge, Salinger – CCAP Deployment Planning**

**Operating CCAPs should be the same as CMTSs and EQAMs, right? WRONG!!!**

If you were able to attend the 2011 Cable-Tech Expo show you might have had the opportunity to see and touch several vendors' CCAP equipment in their private rooms. While the equipment is still under development, it is certainly valuable to see how the chassis and line cards are being implemented. Perhaps by the time of The Cable Show in May, 2012 we may see them in operation.

The form factor of the various devices shown at Cable-Tech Expo confirms the implementation of a significantly denser device than the traditional CMTS and Edge QAM. This equipment can supply 32 and/or 64 narrowcast QAMs, plus

broadcast QAMs, supporting both DOCSIS and MPEG-TS simultaneously. The space and power savings that CCAP promises should be a huge operational benefit to MSOs as narrowcast services grow and service group segmentation increases rapidly as usage demand spreads.

CCAP has the potential to redefine how operators deploy, scale, and manage edge network access. Video QAM and CMTS infrastructure is currently deployed across a multitude of separate platforms, and edge capacity is managed manually and configured mechanically by connecting the various wires to the signal combining networks, which is operationally inefficient. One aspect of the CCAP is that it will allow MSOs to streamline their ability to bring new video, voice, and data services to market quickly. CCAP can generate all QAMs used in the cable network, both broadcast and narrowcast, for MPEG-TS or DOCSIS. The use of each QAM within each service group is simply configured via the operational support system interface. A QAM can be changed from broadcast video to narrowcast video to DOCSIS literally instantly via a change in the CCAP configuration.

But, are the deployment and operation of CCAP equipment the same as that of a CMTS and/or an Edge QAM with more QAMs? The early findings from an Operational Readiness Trial (ORT) being conducted by Comcast show that this is not the case. Some changes are known, but others will be found during the trial.

Already several months into the ORT, the results already show that there will be several challenges to deploy and operate CCAP devices. One will be to get the network operations organization and processes ready to support CCAP devices from a range of suppliers. The CCAP ORT is keenly focused on ensuring that engineering and operations teams for the various services, which have traditionally worked independently given the different equipment they have managed, operate together and coordinate activities around CCAP's unified platform.

The trial also takes a deep dive into backend systems, including how CCAP services will be configured, monitored and managed. There are many systems that will need to be adapted, such as create XML interfaces for configuration, modify SNMP interfaces for monitoring, change alarm receivers, and adapt trouble ticket systems, to name a few.

Starting with access to the device, and troubleshooting service configuration and upgrade, deployment of CCAPs will require coordination that was not needed before. Actions related to a single service could potentially have impact on other services for which such work will need to be coordinated, and network events will need to be correlated for all services since a given alarm may or may not impact multiple services.

When equipment becomes available depends upon vendors' equipment readiness, but some gear should be ready in time to start modest deployments in 2012. Deployment of CCAPs will likely follow a cap-and-grow approach, with purchases migrating to CCAPs while current equipment is relocated as has been done with many other evolving technologies in the past.

It will be interesting to revisit this topic in a year, and again in two. Will migration occur faster or slower than expected? Time will tell, but changes are generally slower than planned but far more extensive than expected.

## **Operating CCAP-based access networks – part II**

In the first issue of the year we discussed the topic of operating an access network equipped with CCAPs. I explained in that



column that, based on early findings, it does not seem to be the same as operating an access network with traditional CMTS and Edge QAM equipment. At the time Comcast was just starting with a CCAP-like operational readiness trial (ORT), intended to help us get ready for CCAP equipment deployment.

We are not yet done with the ORT, but we now have a lot more information than we did initially. The findings are still the same: operating an access network based on CCAP devices will be different than operating networks today with current CMTS and Edge QAM equipment.

Here are 3 of the key operational aspects that will be different for most MSOs.

### 1. Configuration, Maintenance and Trouble Resolution:

It is clear that some of network operations' organization and processes might need to be adapted to support CCAP devices. Today, services are delivered through devices isolated by the services they deliver. Most MSOs separately configure and manage services, including linear video, VOD, voice and data. Services are segmented from a network infrastructure perspective, as well as leverage different tools for each service.

With CCAP, one of the biggest challenges will be to more closely coordinate configuration, maintenance, troubleshooting and upgrade activities so as to not impact other services provisioned on the platform. Traps and alarms will also need to be correlated across the platform since the CCAP will have the ability to create alarms for multiple services, which could be destined to a variety of support tools and groups within the operator's environment. Controlling access and privilege levels within the CCAP will be crucial to management of services since multiple groups could be working on the platform at the same time. This could prompt a review of the roles and responsibilities of many of the support organizations that will manage the platform.

In the end, there will be one "reset button", and its use will have to be coordinated.

### 2. Operational Support Systems

Due to the number of services planned to be configured on a single CCAP platform, service configuration processes will need to be implemented which will aid in the initial configuration, any periodic changes in configuration to support changes as required, and realignment of services as new narrowcast services are expanded.

There are many systems that will need to be adapted, such as creating XML interfaces for configuration, modifying SNMP interfaces for monitoring, changing alarm receivers, and adapting trouble ticket systems, to name a few. Additional tools for augmentation will be required, and existing tools will need to be modified.

### 3. Acquisition, Deployment and Growth

How will CCAPs be bought, paid, and deployed will likely be another set of operational decisions moving forward.

In the past, if DOCSIS QAMs were needed, those would be usually purchased from the HSD growth budget. And if VOD or SDV QAMs were needed, those would be purchased from the video growth budget. And, likely, different groups within an MSO would carry out those purchases and the subsequent deployments.

Moving forward, when a CCAP is purchased and deployed, one group within the MSO will have to carry out the

tasks. And when capacity augments require it, service group segmentations will require the addition of a CCAP port for all services. So these tasks will likely result in organizational and budgeting process changes.

For all the above reasons, MSOs planning to take advantage of the CCAP benefits as soon as the equipment becomes available might chose to address the operational changes that could be required as soon as practical.

We hope that this summary helps identify the specific areas where coordination of activities and/or procedural changes could be required. As always, please feel free to Email me at [jorge\\_salinger@cable.comcast.com](mailto:jorge_salinger@cable.comcast.com) **This email address is being protected from spambots. You need JavaScript enabled to view it.**> with any comments or suggestions.

## Scholarship Opportunity

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://scte-rockymountain.org/education-opportunities/chapter-scholarship> 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](http://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.

2012 Elected Board of Directors				
Name	email	Company	Position	Phone Number

Dave Krook	<a href="mailto:David_Krook@cable.comcast.com">David_Krook@cable.comcast.com</a>	Comcast	President	303-408-4116
Frank Wimler	<a href="mailto:Frank.Wimler@Chartercom.com">Frank.Wimler@Chartercom.com</a>	Charter Comm.	Board	720-250-7917
Idilio Moncivais	<a href="mailto:idilio@moncisoft.com">idilio@moncisoft.com</a>	Unison Systems	Board	303-952-4918
Jorge Salinger	<a href="mailto:Jorge_Salinger@cable.comcast.com">Jorge_Salinger@cable.comcast.com</a>	Comcast	Board	215 439-1721
Lane Johnson	<a href="mailto:l.johnson@cablelabs.com">l.johnson@cablelabs.com</a>	CableLabs	Secretary	303-717-5123
Nick Segura	<a href="mailto:Nick.Segura@chartercom.com">Nick.Segura@chartercom.com</a>	Charter Comm.	Board, Region II Representative	303-669-3705
Rex Kohart	<a href="mailto:Rex_Kohart@cable.comcast.com">Rex_Kohart@cable.comcast.com</a>	Comcast	Vice President	303-603-5639
Steve Murphy	<a href="mailto:Steve_Murphy@cable.comcast.com">Steve_Murphy@cable.comcast.com</a>	Comcast	Treasurer	720-267-3038
Stephanie Trotter	<a href="mailto:stephanie.trotter@twcable.com">stephanie.trotter@twcable.com</a>	Time Warner	Board	303-880-9659
Tom Gorman	<a href="mailto:tom@opxl.net">tom@opxl.net</a>	opXL	Board	303 502-4982

#### Supporting Associate Board Members 2012

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. *Associate Board Members do not have the ability to vote.*

Name	email	Company	Position	Phone Number
Cathy Wilson	<a href="mailto:cathy@broadbandlibrary.com">cathy@broadbandlibrary.com</a>	Broadband Library	Board Associate	303 759-2405
Dave Robinson	<a href="mailto:drobinson@ipitresources.com">drobinson@ipitresources.com</a>	IPIT Resources, Inc.	Board Associate & Newsletter editor	303-537-5678
James Baron	<a href="mailto:James.Baron@chartercom.com">James.Baron@chartercom.com</a>	Charter Comm.	Board Associate	303-323-6071
Joe O'Fallon	<a href="mailto:Joe.OFallon@lineagepower.com">Joe.OFallon@lineagepower.com</a>	Lineage Power	Board Associate	303-670-7450
Joe Thomas	<a href="mailto:jthomas@infinera.com">jthomas@infinera.com</a>	Infinera	Board Associate	303-953-1386
Kevin Bland	<a href="mailto:Kevin.Bland@chartercom.com">Kevin.Bland@chartercom.com</a>	Charter Comm.	Board Associate & Webmaster	303-588-0529

Maria Popo	<a href="mailto:maria.popo@ubeeinteractive.com">maria.popo@ubeeinteractive.com</a>	Ubee Interactive	Board Associate	303-683-5205
Mark Thompson	<a href="mailto:thompson@commscope.com">thompson@commscope.com</a>	CommScope	Board Associate	303-773-3003
Neil Serafin	<a href="mailto:neil@cabtel.com">neil@cabtel.com</a>	CabTel	Board Assoc./Spkr	720-352-3319
Richard Covell	<a href="mailto:rgcovell@msn.com">rgcovell@msn.com</a>	TTSI	Board Assoc./Spkr	303-646-5050
Rex Gerhardt	<a href="mailto:rgerhardt@terabitcomm.com">rgerhardt@terabitcomm.com</a>	Terabit Comm.	Board Associate	720-254-3579
Ron Hranac	<a href="mailto:rhranacj@cisco.com">rhranacj@cisco.com</a>	Cisco	Board Assoc./Spkr	720-875-1338
Robert Kostelny	<a href="mailto:rob.kostelny@comcast.net">rob.kostelny@comcast.net</a>	Tetrattech	Board Associate	303-995-6689
Sally Kinsman	<a href="mailto:s.kinsman@comcast.net">s.kinsman@comcast.net</a>	Kinsman Design Associates LLC	Board Associate	(425) 402-8014
Steve Snider	<a href="mailto:stephen_snider@cable.comcast.com">stephen_snider@cable.comcast.com</a>	Comcast	Board Assoc./Spkr	303-603-2167
Philip Yang	<a href="mailto:Philip_Yang@cable.comcast.com">Philip_Yang@cable.comcast.com</a>	Comcast	Board Associate	720-267-7170