

OFFICIAL SHOW DAILY  
FROM THE EDITORS OF

**Cablefax**

SCTE • ISBE CABLE-TEC  
**EXPO**  
2019  
**DAILY**

NEW ORLEANS • SEPT 30-OCT 3

**TUESDAY, OCT. 1**

**WIT  
WINNER  
Q&A**

**COUNTDOWN TO 10G**

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**THE AGE OF AGING IN PLACE**

Using IoT, AI and more for eldercare assistance.

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**AN A FOR Z**

Zenita Henderson's journey to WIT Award Winner.

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*SCTE-ISBE pres/CEO Mark Dzuban (center) joined by Cable-Tec Expo co-chairs Tom Adams of Charter (left) and Bill Warga of Liberty Global.*

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A portrait of Zenita Henderson, a woman with dark curly hair and glasses, smiling. The image is overlaid with a magenta tint.

# CongratulationZ

Cheers to **Zenita Henderson**, SCTE•ISBE's VP, Marketing and Business Development  
for winning the **2019 Women in Technology Award!**

At **DeLeon Group**, we've had the pleasure of working closely with Zenita  
for many years, so we know there's no one more worthy of this honor.

Here'z to you, Z!

A silhouette of the Chicago skyline, including the Willis Tower, reflected in water.

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# Mission 10G: How Cable Gets There and Why

By Amy Maclean & Sara Winegardner



Sure, the name 10G implies super-fast speeds, but the technology is about much more than that. “As we look to the future, latency is going to become as important as speed,” Bob Ferreira, gm of Intel’s Connected Home division, said at SCTE-ISBE’s “Mission 10G” Cable-Tec Expo preconference Monday in New Orleans.

One of the natural early targets for improved latency is gaming. Recent tests in Intel’s low latency DOCSIS gaming lab show it can support latencies of less than 10 milliseconds across a congested network,

Ferreira said. (Heads up for gamers: Intel tested Insomniac Games’ “The Unspoken,” an action game.)

Low latency DOCSIS field trials are set for mid-2020 with a short-term focus on online gaming. An important activity for the working group will be identifying the classification framework and low latency flows. “Longer term, I think it’s going to be really important to work with some of these industries, particularly the gaming industry, to connect packet marking on their applications... so the network doesn’t have to be trying to identify the traffic itself,” Ferreira said.

He added that failing to fit Wi-Fi 6 into this picture would be a serious misstep. Technologies like Google Stadia and Microsoft xCloud are now being tested, but it will be a while before gamers are primarily choosing the cloud as their place to play.

The push for lower latency, the need for speed and shifts in the way cable operators offer their services will all mean more strain

on an operator’s network. And it won’t be long before 10G won’t be enough to handle it all.

“There will be a need for 10 gigabits/second by 2035,” CommScope’s Network Solutions CTO Tom Cloonan told 10G preconference attendees. IPTV and HSD will help drive the need for 10G, so will 8KTV, VR, AR and what Cloonan described as a need for “snappiness.” Think downloading the latest IOS upgrade file in seconds vs minutes.

While cable has carved out a 10G roadmap, competition—whether through PON or 5G—could drive it there sooner rather than later. Another catalyst could be the aging cable plant, which is nearing the 20-year mark for many. “It’s kind of time to replace it. The operators know this and they’re figuring out what they’ll replace it with,” Cloonan said, adding that they’ll want something that can live for 10-15 years like its predecessor.

How does the industry get to 10G? “DOCSIS 4.0 and Wi-Fi 6 with 6Ghz is a

Continued on p4

## A Proactive Approach to the Network

By Sara Winegardner

Every operator is trying to do two things: maintain high customer satisfaction and cut service costs. Enter proactive network maintenance, a way for the industry as a whole to identify issues in the network and fix them before a customer ever notices a disruption to their service.

And while that may sound simple, it’s really anything but. Comcast fellow Larry Wolcott told the crowd at the “Mission 10G” preconference session that proactive network maintenance doesn’t just happen. “It’s a mindset, it’s a culture and it requires a lot,” Wolcott said.

Proactive network maintenance (PNM) is included in DOCSIS 3.1, but Wolcott explained that it has the capability to become much more than just a part of a specification. “Think about the depth of what 10G is as an ecosystem, and what we’re talking about... is the tremendous work and opportunity we have to keep carrying PNM

forward so we can provide our customers with an experience that’s more seamless for them,” Wolcott said.

The use cases for artificial intelligence and machine learning in PNM are many, and Wolcott said their role is only growing. Their continued implementation will change the game for employees on the frontline, and not because it will eliminate the need for them. It’s about allowing the technology to find and pinpoint the problems so a technician doesn’t have to.

“What ends up happening is you get to focus on the fun part of the job, which is fixing stuff, and spend a lot less time finding and interpreting,” Wolcott said.

So what does PNM look like on a 10G network? It gets more complicated because of the larger ecosystem, but you can’t go wrong if you keep the customer’s perspective front and center and think about it as a service-oriented dependency chain, Wolcott said. ■



match made in heaven,” explained Charles Cheevers, CommScope CTO, Customer Premise Equipment. Not only are they a powerful blend, but the timing of release dates is in sync and there is a consumer capacity and latency match. His take is that WiFi is a key component in the last 20 feet of DOCSIS 4.0 delivery.

There’s a lot of buzz over Wi-Fi 6, but Cheevers argued that it’s the addition of 6GHz spectrum that creates the real magic—

urging the room to lobby Washington to free up spectrum in the band. Wi-Fi 6 can take operators to about 2.5Gbps Ethernet, while Wi-Fi 6 with 6GHz can get them to 10Gbps, he said, adding that 6GHz is deployable in the US within the next 18 months. Driving his point home was a PowerPoint slide featuring a baseball cap with the words: “I love my network operator who uses DOCSIS 4.0 and 6GHz Wi-Fi.”

Of course, you can’t have a conversation

about 10G without getting into Full Duplex DOCSIS and Extended Spectrum DOCSIS. “We need to embrace Full Duplex and Extended Spectrum as the next evolution of HFC,” said John Williams, Charter’s vp, outside plant engineering and architecture. “It’s not one or the other. It’s being able to support both and having the flexibility to use either at whatever is the right time to do that.” ■

# Eldercare Gets Networked in Tech Trials

By Terry Sweeney

Can cable television operators be brokers or clearinghouses for technologically advanced healthcare services for the elderly and homebound? Engineers reporting in on separate technology trials on Tuesday suggested that they can.

As usual, all it will take is time and money—time to develop the necessary levels of customization and reliability, and investment to help drive down costs for more affordable hardware and services, noted Thomas Priore, vp of architecture at iEldra, a maker of connected independence platforms for these services.

As Priore described it, his company’s platform consists of multiple Internet of Things sensors deployed around the home to detect motion, temperature, light (visible, UV, IR), contact on doors and windows, as well as smoke and gas detection, for example. Sensors funnel their data to an IoT interface, then to a broadband gateway and on to the cloud.

“Connectivity, IoT and AI can help us continue to live our lives as life happens,” Priore told the Cable-Tec audience. “By using the latest technology, we can connect remote caregivers and allow people to live independently and age in place, and do so safely.”

Statistics Priore presented were persuasive: 45 million Americans will be caring for 117 million seniors by 2020, and at present, only 7% are using any kind of advanced technology. And the Baby Boomers are aging; by 2030, 20% of the US population will be 65 or

older. “The longer people can stay in their homes, the better they’ll be financially, but also physically and mentally,” Priore added.

Henk Heijnen, project leader at Technicolor, discussed the use of Alexa-like listening devices to detect and report abnormal situations in the home environment. But unlike Amazon’s eavesdropping assistant, Technicolor’s trial doesn’t use the cloud and handles all processing locally.

“Our audio recognition identifies sounds using thousands of sound clips,” Heijnen told SCTE attendees. This ranges from dogs barking to babies crying for too long, even fire detection and freeze warnings, he added. “We can recognize sounds... it’s not patterns, it’s the actual sound.”

The device in the Technicolor trial “learns” during the first month what is normal in that particular household. Someone cooking may not be unusual, he explained. But someone cooking at 3am may well deserve a closer look.

Bringing this solution to market has an immediate challenge, though. “We are always listening to what’s happening in the room and this can create privacy issues,” he said. That’s particularly problematic in regions like Europe where privacy standards are quite a bit higher than North America, for example.



L to R: iEldra’s Thomas Priore, Technicolor’s Henk Heijnen

With both models, handling rare and exceptional events is a central challenge, since sensors can’t be programmed for every possible emergency or anomaly. “Existing security and elder care systems mainly report pre-configured events,” Heijnen said. “We wanted people not to have to create scenarios or set up anything. We wanted the device to be autonomous.”

But if technical, legal and commercial issues can be addressed, elderly subscribers, their extended family members, professional caregivers, healthcare organizations and insurance companies are all potential customers, Priore said.

And it’s wrong to assume that the only end-user is the subscriber themselves. “Distant relatives are willing to pay money to know that their parents or loved ones are safe,” he said. “Someone across the country—or across the world—may be the real target customer.” ■

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# Cablefax's Cable-Tec Top Picks

*Cablefax's Top Picks are the panels you won't want to miss for the latest on everything from IoT to 10G. The schedule may still change! To get the most up-to-the-minute changes and full conference schedule, go to [expo.scte.org](http://expo.scte.org).*

## TUESDAY

### The Rule of 6: WiFi 6 and 6GHz

**Room:** 228-230

**Time:** 8 - 9am

**Participants:** Mark Poletti, CableLabs; David Urban, Comcast; JR Flesch, CommScope

### Opening General Session

**Room:** The Great Hall

**Time:** 9 - 11:15am

**Participants:** Jeff Baumgartner, Light Reading; Tony G. Werner, Comcast Cable; Preetha Vljayakumar, FedEx; Mark Dzuban, SCTE-ISBE; Bob Ferreira, Intel; Dean Kamen, DEKA Research & Development Corp; Phil McKinney, CableLabs; Michael Powell, NCTA

### 10G After the Launch: So Here's What You Might Have Missed

**Room:** Exhibit Hall – Innovation Theater

**Time:** 12 - 12:30pm

**Participants:** Leslie Ellis, Ellis Edits Inc.; Brian Dietz, NCTA; Rachel Beisel, CableLabs

### Building a 10G Network

**Room:** Exhibit Hall – Innovation Theater

**Time:** 12:45 - 1:15pm

**Participants:** Elad Nafshi, Comcast Cable; Jan Hofmeyr, Comcast Cable

### 5G Security

**Room:** 221-222

**Time:** 1 - 2pm

**Participants:** Steve Goeringer, CableLabs; Max Pala, CableLabs; Tao Wan, CableLabs

### Managing the IoT

**Room:** 211-213

**Time:** 2:15 - 3:30pm

**Participants:** Ed Shrum, Cox Communications; Brian Scriber, CableLabs; Michael Shaw, Axiros; Ryan Cunningham, Comcast

### Leading Ladies: Climbing the Corporate Ladder as a Woman in Technology

**Room:** Exhibit Hall – Innovation Theater

**Time:** 5 - 5:30pm

**Participants:** Jana Henthorn, The Cable Center; Holly Hinze, Charter; Refugio "Kukis" Moran, Comcast; Tonya Adams, Comcast; Sara Winegardner, Access Intelligence

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# Q&A with WIT Award Winner Zenita Henderson

By Sara Winegardner



*The annual Women in Technology Award, presented jointly by WICT, SCTE-ISBE and Cablefax, is given to a woman whose professional achievements have extended beyond her company to impact and advance the cable telecommunications industry as a whole. This year's recipient, Zenita Henderson of SCTE-ISBE, always has her finger on the pulse of what's popping in the world of technology. As SCTE's vp, marketing and business development, Henderson's responsibilities include the planning and execution of SCTE-ISBE Cable-Tec Expo, the largest cable telecommunications event in the Americas. Her passion for technology began more than 30 years ago when she took a summer job at Toner Cable. The rest is history.*

*Henderson has dedicated her spare time to bettering the opportunities for others. She*

*is the former president of WICT's Greater Philadelphia Area chapter, is a board member for BeachGlow: Concerts for Charity and develops programs for New Media & Technology students as a committee member at the Emma Bowen Foundation. She also holds a seat on the executive committee of New York's One Day Immersion in TV, Cable & Digital Entertainment, an event designed to encourage college students to pursue careers in technology and the cable industry. Henderson joined SCTE from Arris (formerly Motorola Mobility).*

*We spoke with Henderson about her career path, the biggest myths surrounding the cable industry and how everyone should be watching what's happening with 10G. Edited excerpts of the conversation follow.*

**Take me back to the dreams of young Zenita. Did you always want to be involved in the technology or cable sectors?**

No. Actually, my life's goal was to be a nurse. I had always wanted to be a nurse. My girlfriend and I in high school went to the local Air Force office and signed up to go in the Air Force and do nursing. My mom went down to the recruitment office and told them off. So I ended up not doing that and staying home and going to nursing school. I ended up going on summer break and I needed a job. I took a job at Toner Cable as an entry operator and thought 'this will be a good summer thing.' About a year and a half later, I applied for a job in customer service at General Instrument, or Jerrold/General Instrument as it was known back then. It was a summer job in cable that ended up being a career in cable.

**Was there something about those early jobs that kept you around?**

I went to Jerrold/General Instrument and into customer service, and I think once I got there and I loved the environment... you know how they say the work culture is key? The teamwork and the camaraderie and the entrepreneurship that was in Jerrold/General Instrument back in the 1980s was amazing. ... It was just a really entrepreneurial period that I came into and that's what made me stay because No 1: Jerrold/General Instrument was so inclusive about bringing everybody in. They didn't care what color you were, how young or old you were. If you had expertise in an area and you felt like you could help them to bring something to market, you were on that team.

**How has being a woman shaped your experience rising up in the tech industry? Did you experience any challenges?**

I think it might have been harder for women engineers. I was in a spot where they needed to get something done that was not technical. They had already come up with the idea. But when the product was



developed and ready to go out the door, I was always part of the team that got it done. We worked with all the other departments... General Instrument called me in to do international when all of our products were made out of the country and shipped in, but we had never shipped anything back. Nobody knew what to do. Here's where I think I was good coming from outside of the industry. I went home and talked to my mom... and she said 'Why don't you contact our local state representative? They probably could help.' That's how we learned for the first three or four years of doing international—making calls to our local state representative.

Being an African American woman in the cable industry and just coming off of Diversity Week... I am very proud of the accomplishments that I have been able to make in this industry and that in our industry as a whole, we are so much further ahead than what Silicon Valley is in that respect around diversity and inclusion. I am so happy to have just been a part of this. We still have work to do in that area, but we're working on it. Michael Powell said it best [at the Kaiz Dinner]. I'm very proud to be in this industry where we know that we need to make changes, that we all are making changes and they're good changes. I am a very proud African American woman working in the cable industry and I want to make sure that other young people and more diverse people get into our industry and know how fun it is. You don't have to be an engineer to be in the cable industry.

**Are there any myths about the industries that you've worked in that have been busted for you since getting that first job at Toner Cable?**

Absolutely. I get very upset when I hear people say that cable sounds old school. Cable is not old school. If it were not for cable and the foundation and the networks that have been built by the cable industry, there would not be a Verizon FiOS, an AT&T U-verse, a DirecTV. There would not be a Hulu, Netflix. Everything that these services are operating on our networks. Cable never lost its cool. I think that we need to do a better job at touting ourselves as being that foundational support and also being the foundation for all these new technologies. They wouldn't be here if it wasn't for us. I hate when I hear people say that because the cable industry has led the way for all this great technology that's here

now, but we're not getting the credit for that. We're told we're old school, but we're not. You wouldn't even be you without us. So that is the one thing that I think next year I would love to do some sort of a campaign across the year that really does up a big vanity play on the history of cable and all the technologies now that have happened since its creation and how all these other sorts have been layered on top of it. I want to bust the myth.

**This has been a huge year for you: a major promotion, this award, receiving WICT's Woman of the Year - Technology honor. How do you summarize it and what do you take away from it?**

My mom passed away two years ago now. She was my biggest motivator and she didn't think there was something I couldn't do. If I went home and even voiced that I couldn't do something, she'd be like 'What?' She was just such a big motivator for me and I know that across my career I have really worked on some extraordinary things. I never really thought about why I wasn't a vice president. At one point when I was at Motorola, I was promoted to senior manager and was asked if I wanted an office. I said, 'No. I'm happy right here in my cubicle.' I never thought that power or influence was based on where you sat or what your title was.

This year, with everything that's happened, with my mom passing and me just rethinking life—I think this helps. To realize that 'Yes, you have had a great career, life is way too short and that you should really and truly just latch onto all of your fabulosity.' I know that I have the executive presence, but I'm just not that person that's going to be in your face... the whole bravado thing, that's just not me. It would be unauthentic for me to even be that way. So I have to stay my authentic self, but I think what has been proven to me in this last year is that me staying my authentic self and picking up the acumen to improve my business skills and to have the executive presence and to really deliver for my customer, my boss and my company... you can still get all of this that I'm getting this year and still stick to your authentic self. I do believe that you can be nice and successful and humble.

**What tech trend or innovation are you keeping an eye on?**

10G. Obviously having 10G of broadband power is amazing, but actually the experience



*Henderson and her mother Dorothea Roberts aboard the Spirit of Philadelphia in 1992.*

that 10G could bring around everything—smart cities, autonomous cars, your health. It's going to take all these Apple Watches to a whole other level. I am super excited to see all the technology that is going to come out of that and also the improvements. What we have now is amazing technology, but to see what we can do in the future, in the next five years with 10G is super exciting to me. I want to uncover everything we can possibly do not just for the benefit of the cable industry, but we're bringing in to Cable-Tec Expo an executive from FedEx. She's looking at this as well.

10G is going to help revolutionize the way that FedEx does business, and that's what I need, for the cable industry to hear from other companies. Not just for us to talk to each other about how great the industry is and how it's benefiting us, but what the industry needs to hear more of is how the work you're doing every day is helping IBM with their artificial intelligence, FedEx with what they're looking to do in that space, Amazon... they need to hear from these other companies about how the cable industry's technology and something we are leading is helping their industries to also move into the future of innovation. That's what I'm super excited about - us maybe changing things a little bit with Expo and bringing other industries in to show our people how what you do every day, how you are living, working, playing... that you are actually making a difference not just to the cable industry, but to other industries as well. ■

# Network Reliability in the Age of 10G

By Chris Bastian  
Cablefax Guest Columnist



Network reliability may not be the first thing that customers think about when they use their broadband services. After all, they just expect the services they paid for to work at anytime and anywhere. How the network supports those services is nebulous to most customers. However, reliability, or lack thereof, is what keeps the network operators up at night.

The cable network has gone through a metamorphosis from simply delivering video services for entertainment purposes to supporting services of ever-increasing importance, such as home security, remote learning and telemedicine. Network reliability has correspondingly grown in importance given the criticality of these new services.

## How is network reliability defined, and how is it different than network availability?

Network reliability in a general sense is a measure of how all of the network's end-to-end components (CMTSes, fiber nodes, amplifiers, cabling, etc.) perform according to their specifications, without failures or impairments. The official ITU definition for reliability is "the probability that an item can perform a required function under stated conditions for a given time interval." Reliability takes into account the design of the system, the components used (such as silicon and cabling) and the environment around the network. A robust reliability model estimates or predicts the reliability

of the entire network and its surroundings, including facilities, power grid, threats from external attacks, etc. Given the extent that reliability models can measure, they can become exceedingly complex.

Network availability is the direct measurement or prediction of the percentage of time the network infrastructure is functional without interruption, or simply uptime divided by the measured time interval. Availability = (total elapsed time minus total downtime)/total elapsed time

We often hear, especially in service level agreements (SLAs), that a network needs to be 99.999 percent available. This means that in a year, the network could be unavailable for a little over 5 minutes. Usually this refers to service availability but can be stated in terms of the network or the portion of the network providing the service. Likewise, reliability SLAs can be defined in terms such as a defective call rate, or a probability of successfully delivering service for a given mission duration such as an average 3-minute call. Both reliability and availability can be measured and modeled, and each complements the other to provide service assurance.

The legacy telco network reliability standards were developed by Bellcore, which was a telecommunications R&D company that provided standards for its co-owners, the Bell regional holding companies. Bellcore, which became Telecordia and in the present day operates as part of Ericsson, created and continues to update reliability standards for commercial telecommunication networks. These reliability standards rival military and avionic standards and are considered the "gold standard" for commercial network reliability models. While telco is an "adjacent" network to cable, there are best practices which can be shared between the two. Reliability standards provide service providers with tools to monitor, measure and understand the performance of network elements. Feel free to read more about this at [www.cablelabs.com/cable-centric-reliability](http://www.cablelabs.com/cable-centric-reliability).

Redundancy is a key factor in improving overall network reliability. Should one part of the network fail, with designed-in redundancy, there should be one or more elements

to back it up, whether it's a redundant network route, chassis card or cooling fan.

The cable industry's HFC networks, using DOCSIS as the fundamental access standard, have long been architected, designed and maintained with high network reliability as a key objective. DOCSIS incorporates requirements for network management, profile management, frequency spectrum management, load management, energy management, upstream and downstream scheduling, and error correction (not an all-inclusive list) all aimed at improving network reliability.

A more recent addition to the network reliability formula is Proactive Network Maintenance (PNM). PNM has been a part of DOCSIS since 2013, and constantly inspects the network, searching for network degradation or impairments, while preventing network failures. The goal of PNM is to detect and correct the network impairment before the customer even notices. In 2017, PNM concepts expanded to apply to Wi-Fi access networks. Optical networking PNM is being developed too.

Network reliability is one of the fundamental elements in the rollout of 10G, along with greater speeds and capacity, lower latency, and enhanced security. 10G networks will usher in support for all types of new services including aging in place, remote learning, and Smart Cities. For more information about 10G reliability, check out [www.10gplatform.com](http://www.10gplatform.com) and a recent Cable-Labs blog at [www.cablelabs.com/10g-reliably](http://www.cablelabs.com/10g-reliably)

One of our tracks this week at SCTE-ISBE Cable-Tec Expo 2019 is focused on Operational Transformation, addressing how operators need to rethink how they train and inform the workforce to install, maintain and repair increasingly complex technologies such as DAA, FDX, 5G and Wi-Fi6. Expo also is hosting a pavilion for Smart Cities and IoT services.

- Chris Bastian is *svp, engineering and CTO for SCTE-ISBE*. He joined SCTE-ISBE in 2015 following three decades of leadership in advanced cable and network security technologies. ■





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**MOST POWERFUL WOMEN**

# *Awards Luncheon*

**Thursday, December 5**

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