WEDNESDAY, OCT.2

SCTE·ISBE CABLE-TEC EXPO 2019 DAILY

NEW ORLEANS · SEPT 30-OCT 3

CableLabs pres/CEO Phil McKinney interviews inventor Dean Kamen, founder of DEKA Research & Development, during Tuesday's General Session.

Telling the 10G Story in Washington

By Sara Winegardner

One year ago at Cable-Tec Expo, 10G was hinted at as the next step forward for cable, but chatter surrounding the platform and its potential was still largely exclusive to industry circles. Now, it's becoming a conversation starter in Washington about cable as a whole, proving that the industry is anything but old school.

"In many ways, it really is our battle flag. It is the stake we put in the ground to rally around and to demonstrate our rightful place on the cutting edge of the future of this country's information ambitions," NCTA pres/CEO Michael Powell told attendees at Expo's Tuesday general session.

Bringing attention to 10G has reminded policymakers of the continued critical importance of fixed networks, despite all the buzz around wireless networks and 5G, he said. "It's important to understand that this country needs both of those infrastructures to be making quantum leaps… for our economy and our nation," said Powell, who chaired the FCC from 2001-2005.

Thus far, 10G's reception has been largely positive, according to Powell. When the 10G initiative was formally announced back in January at CES, some raised concerns surrounding its chosen name. Would it be confused with 5G, and would it hurt the technology's momentum? "What we did on purpose by calling it 10G was to invite the comparison to 5G," Powell said. In fact, the goal was to get into conversations where 10G could be shown to be a companion to 5G and the advancements in wireless networks. Now, it's seen as a pathway to the future with milestones along the way, such as the spread of 1 gig service.

A question that still pops up during every 10G talk surrounds the use cases for the technology. Do cable operators and their customers really need 10 gigabits/second symmetrical? The truth is that with growing customer demands and the continued proliferation of devices, cable players need to begin looking at what will come next after 10G. "We need to be the ones that are innovating what these new technologies and products and services we can carry on the 10G platform," Liberty Global vp, technology and program co-chair Bill Warga said. "But I want to say that it's not all about capacity and speed. It's about what the consumer wants. I want to challenge you to always think about what we can be doing to be on the forefront. We need to play more offense than defense."

It's important that the industry doesn't get too lost in the future though, with Powell reminding the crowd that rural broadband is just as important a topic in DC as that of 10G. It will only gain momentum as we inch closer to the 2020 presidential elections. "We are the leading provider of fixed broadband services and we want to be a good partner and a leader in continuing to find a way to reach everyone no matter where they live," Powell said. ■

Net Neutrality Comes to Expo

By Amy Maclean

The news that the DC Circuit mostly upheld the FCC's 2017 Restoring Internet Freedom order hit as NCTA pres/CEO Michael Powell was on the stage at SCTE-ISBE's Cable-Tec Expo Tuesday. Despite what was mostly a win, the former FCC chmn said cable's not cheering and celebrating.

"We are exhausted by what has been a decade-long struggle on net neutrality; we are frustrated that the United States Congress, which is the only institution that has the authority to finally stop this, continues to be stuck in doing so," Powell said from the show stage. "We remain anxious to remain a good partner and try to get legislation that will solve this issue, but the world is going to move on, and it is moving on. 10G proves that the world is moving on."

While the court upheld the FCC's repeal of a Title II classification of broadband services, it vacated the preemption provision that would have barred states from imposing any rule or requirement that's more stringent than the FCC rules. FCC officials said Tuesday morning that they are studying the preemption order, calling it a "nuanced decision" that they don't believe prevents the agency from preempting conflicting state laws. If the decision stands, FCC officials said their early interpretation is that the agency can examine state statutes on a case-by-case basis to see if the order is undermined.

Net neutrality may seem like more of a Washington issue, but it has cropped up a few times during this week's tech conference, with technologists wrestling with issues such as whether prioritization for gaming and other features could get them smacked by the government. Tuesday's ruling may have provided some cover, but some are concerned that it could all change again depending which party is in power.

"Reversing the Obama-era FCC's top-down utility-style approach has led to increased investment that ultimately benefits consumers. That being said, the uncertainty that continues to plague this issue needs to come to an end. Congress should pass bipartisan legislation that protects a free and open Internet while providing regulatory stability to providers," House Communications Republican Leader Bob Latta (OH) said in a statement.

Tuesday's DC Circuit opinion also remanded portions of the order back to the FCC, declaring that it failed to examine the implications of its decisions for public safety, didn't sufficiently explain what reclassification will mean for regulation of pole attachments and didn't adequately address petitioners' concerns about the effects of broadband reclassification on the Lifeline program. FCC officials seemed confident on addressing the issues on remand. ◼

Outsiders Look in the 10G Window

By Sara Winegardner

Industry outsiders joined some of cable's biggest names onstage to talk about how 10G and other innovations have the possibility to impact the future of technology and our country's connected future.

FedEx vp, enterprise network and communications services Preetha Vijayakumar, this year's keynote speaker, admitted that she knows nothing about what it takes to keep a cable company running. "So why am I here? I'm here because the things that you're talking about, the telecommunications technologies that you're working on have such great potential to change the pace of human existence," Vijayakumar said.

Though they may seem worlds apart, she said that what the transportation industry does on a daily basis isn't that much different from what cable operators do every day. Both industries focus on delivery of products and services to their customer bases and the connected future offers unique opportunities for the industries to work together to solve problems, like truck driver shortages.

She hopes that one day soon, for the sake of transportation and cable, we'll all be moving around in autonomous vehicles. "When autonomous vehicles are the norm in America, that means that every road, every highway has to have connectivity," Vijayakumar said. "They will have small cell towers or some way to connect to the internet, and you guys will provide the backhaul capability for that kind of connectivity."

DEKA Research & Development Corp founder Dean Kamen, who is arguably best known as the inventor of the Segway, spoke to how today's innovators need to do more to inspire children, especially women and minorities, to become the next generation of technologists.

"The tech community of the world is the one that should be not just building technology… but we should be connecting the world's kids, having them realize that they're all on the same team," Kamen said. "Let them have the tools and the courage to solve those problems together. Let them at an early age see the power of tech and have them see you as their role models." ◼

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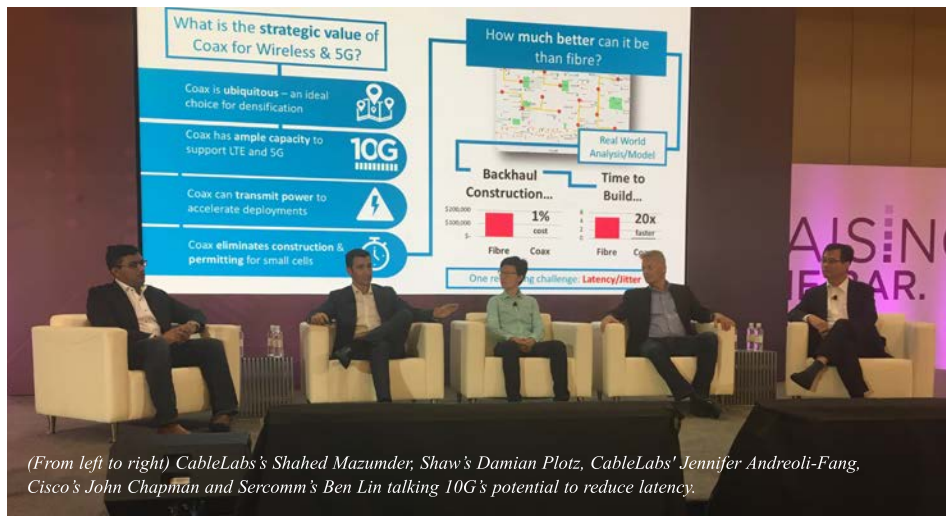**Booth #1539**

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10G's LLX Spec Cuts Latency in Early Trials

By Terry Sweeney

(From left to right) CableLabs's Shahed Mazumder, Shaw's Damian Plotz, CableLabs' Jennifer Andreoli-Fang, Cisco's John Chapman and Sercomm's Ben Lin talking 10G's potential to reduce latency.

NCTA senior director, technical operations Wyatt Barnett spreading the message of low lag for gamers after 10G.

With all the pieces of 10G starting to fall into place, it was only a matter of time until operators and technology innovators looked at latency and jitter—the lag time and out-of-sync signal problems that plague any high-volume production network.

And on Tuesday at Cable-Tec Expo, an operator, a vendor and a couple CableLabs engineers deconstructed Low Latency Xhaul (LLX), a key element of 10G for cost-effective mobile deployments to handle backhaul, midhaul and fronthaul—aka Xhaul.

LLX will help operators realize sub-5 millisecond latency for DOCSIS upstream, an important threshold for parity with the imminent rollout of 5G mobile services, according to Shahed Mazumder, principal strategist, technology strategy, for CableLabs.

"LLX enables DOCSIS for most mobile Xhaul use cases—it's faster and cheaper than fiber," he told SCTE attendees. "It's rather simple to implement with software at the CMTS and RAN." The LLX spec has been released and lab tested and is now waiting field trials and implementation, he added.

Damian Plotz, vp of technology systems and strategy for Canada's Shaw is ready to test, and ultimately, deploy LLX.

"Latency and jitter are big challenges, and we as a mobile and cable operator are interested in LLX," he said. "We think there's strategic value in coax—our coax infrastructure is ubiquitous and runs down every back alley into every house and business—almost an ideal solution for small-cell deployments," he continued, adding that coax also has ample capacity to support LTE and 5G.

"Most importantly, coax can transmit power to accelerate deployments" of mobile infrastructure, Plotz added. "Coax eliminates construction and permitting for small cells," a competitive and fiscal boon for coax-rich operators.

But he called on other operators to step up and start testing LLX. "We need to build industry awareness so people know the value. We also need to drive MSO/MNO interest," Plotz said. Operator and vendor trials can help showcase the power of 10G, he added.

Another panelist, Cisco's John Chapman, said early tests are proving the LLX concepts. LLX uses a new L3 request message called bandwidth report (BWR) that is sent between LTE and DOCSIS parts of the network. BWR asks for a number of bytes at a future point; the BWR also connects the mobile scheduler to the DOCSIS scheduler to create a scheduler pipeline that effectively decreases DOCSIS latency to 1-2ms. "When packets come in they go sailing all the way through," he laughed.

"With a higher DOCSIS traffic priority for mobile, LLX ensures a 1~2ms delay, even under high background traffic load with high contention," he told the audience on the exhibit hall show floor. "At the 95th percentile, LLX reduced upstream latency 10 times from 21ms to 2.5ms."

The LLX spec as issued by CableLabs in June requires no change to modem hardware, and implementations are already available on some commercial CMTS and RAN equipment, according to Jennifer Andreoli-Fang, distinguished technologist from CableLabs.

"LLX using the BWR protocols is designed to work for nearly everything that MSOs need—backhaul, midhaul and fronthaul" she explained. "It's agnostic and will work with DOCSIS and PON. BWR works for LTE today and will also scale to 5G," Andreoli-Fang said, an important competitive feature for cable operators.

She also pointed to a more recent development with the ORAN Alliance, a mobile industry standards group, which is working with CableLabs and several other MNOs to create cooperative transport interface. "It's similar to BWR, but is specifically designed for fronthaul," Andreoli-Fang said, adding that CableLabs and Cisco are largely driving the new spec. ∎

Cable Ready to Play When It Comes to Gaming

By Sara Winegardner

Netflix CEO Reed Hastings shocked many when he said in the company's 4Q18 letter to shareholders that the streaming giant competes with (and loses to) popular video game Fortnite more than it does HBO. But the truth is that the gaming industry is one of the largest businesses on the internet and is set to bring in nearly $200bln in revenues by 2022.

"Gaming traffic's effect on the network can be dramatic depending on the type of games, depending on whether the game is being played, downloaded or just viewed," Cisco Systems CTO/distinguished engineer Rajiv Asati said at a Monday Cable-Tec Expo panel on Low Latency DOCSIS. And the industry is becoming more download-based by the day, demanding more bandwidth just to start a game, let alone keep it running. With the upper limit of game sizes only increasing and the potential for cloud gaming, cable MSOs need to prepare for greater strain on their networks and demands from players for consistent fast speeds and low latency.

Luckily, gaming companies have done some of the work for them. Most games are already programmed with lag compensation algorithms, formulas meant to balance the experiences of all players no matter the net-work latency. And while those help, the formulas lose their effectiveness when networks experience intermittent delays during data transfers or packet loss.

So while it's great if an operator can keep its latency below 30 milliseconds (what's perceived to be great from the gamer's perspective), what could be preferable is to ensure that latency stays within certain bounds and allow the lag compensation algorithms to take the wheel from there.

Cable operators also have an opportunity to get ahead of network congestion by working hand in hand with gaming companies through peering. "Many gaming companies have started to build their own network… with peerings that would get closer to the high-speed networks," Asati said. "If you can reduce the number of hops within the gaming service and the gaming client as a cable MSO, you have much better control over the gaming quality of experience of your customers." Other options include data centers to host their own game servers.

More MSOs are taking a look at how they can better serve their gamer customers and other niche groups, but it's easy to get cold feet if any of those products begin leaning towards a paid prioritization model given the ever-changing nature of net neutrality discussions and regulations. CableLabs distinguished technologist Greg White said that when it comes to the rollout of Low Latency DOCSIS and other tools meant to help MSOs manage their network, managing the messaging so that the story being told is one explaining the technology and how it works will be key.

"What could be a concern is when a different type of gaming traffic gets prioritized, another type of gaming traffic doesn't get prioritized," Asati said. "But just prioritizing all types of gaming traffic for the benefit of the cable MSO's customer should not raise any concern from a net neutrality point of view." ◼

Expo News Bytes

- Plan on hitting Denver for Cable-Tec Expo 2020. Ed Marchetti, svp, operations for Comcast, and Tom Monaghan, svp, field operations for Charter, will co-chair the program committee for next year's conference, slated for Oct 13-16 at Denver's Convention Center.

- Plume announced it has snagged a partnership with NCTC, giving co-op members access to smart home services powered by its mobile app. Plume drew a big crowd on the Independent Show's exhibit floor in July. Its service includes whole-home Adaptive WiFi, AI cybersecurity protection, and parental controls with content filtering as well as management tools for QOE monitoring and network visibility. Plume has a range of pods for whole-home WiFi coverage, including its tri-band Super-Pod.

- Altice USA partnered with Cisco to expand the scale of its SD-WAN service offerings. Cisco's Managed Services Accelerator (MSX) platform will allow ways to develop and deploy multiple managed services quickly, easily, and cost-effectively, according to Altice. MSX will ultimately enable Altice to provide a new set of infrastructure and platform services.

- Consolidated Communications selected the MobiTV Connect Platform to power its new TV service, CCiTV. This new service will deliver content from nearly 200 live local, national, and premium channels such as A+E Networks, Crown Media, Disney and ESPN Media, FOX, HBO, Turner, Viacom, local broadcast channels, regional sports networks and others. Consolidated's service initially is available to subscribers in Southern Maine with plans to expand service later this year. The broadband and business communications provider serves up HSD, managed services, cloud services and more to a 23-state area.

- OpenVault has extended its longstanding relationship with WOW!. The two signed a deal that will give the latter access to an expanded array of OpenVault operations, analytics and policy products that will offer the operator visibility into its subscribers broadband usage and the impact on the WOW! network.

- Midco is partnering with Evolution Digital to deploy the latter's eSTREAM 4K Android TV set-top. Midco plans to deploy the IP video platform in early 2020 on Evolution's managed streaming box. The operator will also use Evolution Digital's Device Manager to deploy device-specific software, firmware and security updates. ◼

Customer Service Pivots to Proactive Approach

By Terry Sweeney

Experts have long encouraged the cable industry to train more and better service and support personnel to improve the customer service experience. But it turns out that technology—specifically, geo-spatial data combined with analytics—can reduce service calls and truck rolls, according to a couple panelists at Monday's Cable-Tec Expo.

For Cox Communications, that meant moving to a more proactive model for customer service, said Joe Keller, Cox's executive director, analytics. "What if a provider could detect and correct issues before customers contacted us?," he asked. "This is the promise of proactive customer engagement and moving away from reactive management," a transition that was once dismissed as too expensive, Keller added.

A proactive approach meant adopting three strategies for communicating with customers. First was using inbound contact mitigation to alert subscribers to outages or intermittent network issues. Second was not doing outbound contact for actions like rebooting, re-authorizing or re-provisioning a device

And third was outbound contact, where Cox contacted subscribers because there was no other way to swap out a device swap, pair a remote or change an HDMI input.

"Going proactive also means identifying real-time data sets that are the leading indicators of customer issues," Keller explained. While Cox considered using set-top boxes and WiFi data, the provider instead chose to work with real-time data gleaned from cable modem termination system (CMTS) traps in its technology pilot. Leveraging CMTS

trap data, Cox started in August to see if it could improve outage detection and staging capabilities.

In a nutshell, the project looks at streaming data that originates at the CMTS, with Net Cool collecting messages, which are then forwarded on a Kafka topic. A virtual machine running the model processes the incoming messages and then the model's logic determines whether to stage the outage, clear it or take no action, Keller explained.

The project can easily be extended and migrated up to the cloud, and in fact a build-out is in progress on Amazon Web Services' cloud platform.

Cox has already chalked up some early successes. In addition to an annual projection of 160,000 fewer service calls, Cox estimated it would tally almost 39,000 fewer truck rolls annually. "Our new model is also detecting outages 7-10 minutes faster" than the call-driven model used historically, Keller told SCTE attendees.

"Proactive network monitoring still has untapped potential," said Todd Kuty, director, customer integration, IQGeo, whose geo-spatial analytics software is being used in the Cox trial. "Effective use of geo-analytics has proved to be a real game changer. Big data and analytics can have a real impact by identifying signatures and using automation."

Kuty foresees geo-spatial software helping to address three of cable's biggest business challenges with regard to improving the customer experience. He told SCTE attendees that geo-analytics can help with the explosive growth in data—both in terms of volume and the need for high quality. Increased network complexity is also difficult for field personnel who have to support these services. And field personnel are constantly being measured against operational productivity and key performance indicators (KPIs) and are expected to do more with less. "Lean culture is the norm now… if you didn't have time before, you're going to have even less now," Kuty added. ◾

Joe Keller, executive director of analytics for Cox Communications

Cablefax's Cable-Tec Top Picks

Cablefax's Top Picks are the panels you won't want to miss for everything from IoT to 10G. The schedule may still change! To get the most up-to-the-minute changes and full explanations of these panels and more, go to expo.scte.org.

WEDNESDAY

SHAKEN/STIR at the ACA Connects Breakfast
Room: R01
Time: 8 - 10am
Participants: Mark Dzuban, SCTE-ISBE; Matthew Polka, ACA Connects; Ross Lieberman, ACA Connects

Powering the IoT
Room: 243-244
Time: 9 - 10am
Participants: Derek DiGiacomo, SCTE-ISBE; Joe Rodolico, Comcast Cable; Patricio Latini, CASA Systems

The Goldilocks Band
Room: 228-230
Time: 10:15 - 11:30am
Participants: Stephen Rayment, Ericsson; Bill Chotiner, Ericsson; Craig Schwechel, inCode Consulting; Dave Morley, Shaw Communications

SCTE-ISBE Annual Awards Luncheon
Room: The Great Hall
Time: 11:30am - 1pm

ACA Connects Discussion on Network Management and Growth for Mid-Size and Small Operators
Room: Exhibit Hall – Innovation Theater
Time: 1:30 - 2pm
Participants: Cash Hagen, Evolution Digital; Ken Johnson, Cable ONE; Tom Williams, Schurz Communications; Josh Barstow, OpenVault; Matthew Polka, ACA Connects

Canoe Ventures - This Ad's For You: Enabling Linear Addressable Advertising Across a National Unified Cable Footprint
Room: Exhibit Hall - Innovation Theater
Time: 3:00 - 3:30pm
Participants: Ed Knudson, Canoe Ventures; Gerritt Niemeijer, NCC; Jason Manningham, Blockgraph; Sid Gregory, Canoe Ventures; Steve Reynolds, Imagine Communications; Brad Danaher, Experian

Winning Through Consumer Experience in the Highly Competitive Smart Home
Room: Exhibit Hall – Innovation Theater
Date/Time: 4:15 - 5pm
Participants: Leslie Ellis, Ellis Edits Inc.; Michael Scardina PE, Armstrong; Tyson Marian, Plume

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Cable TV Pioneers Salutes Leaders, DOCSIS Innovators

By Amy Maclean

It takes at least 20 years in the industry to be considered for inclusion in the Cable TV Pioneers, which got organizers thinking as they made plans for the annual Pioneer induction dinner. 2019 marks the 20th anniversary of the first DOCSIS 1.0 certifications.

"I did a quick perusal of MSO Annual reports and saw that the industry will have $40 billion in revenue this year, and as you know, data customers outnumber video subscribers. We thought it important to recognize the people who pioneered this change in the industry," said Dave Fellows, who is both the Pioneers chair and a founding member of team DOCSIS.

With the Pioneers Annual Banquet attaching itself to the tech-focused SCTE-ISBE Cable-Tec Expo since 2017, some DOCSIS appreciation is especially apropos. Just before Wednesday night's dinner at the Ritz Carlton New Orleans, Stewart Schley will give a short speech on the import contributions of these DOCSIS trailblazers, with a list of their names appearing behind him. Thirty-seven of those DOCSIS team members will now be considered Cable TV Pioneers. Another 20 or so of the DOCSIS innovators, including Rouzbeh Yassini, Dick Green and Fellows, are already Cable TV Pioneers. (Don't worry… One speech will cover all the DOCSIS pioneers!)

During DOCSIS' advent, the team probably didn't envision a need for 1Gbps speeds. Back in the early days of personal computers, "storing kitchen recipes" was a popular answer for why a household would want one, quipped Fellows. "Social media was in the future and not on our radar, but the benefits of finding stuff out, connecting computers together, was clear. It was mostly a group of engineers set loose to change the world—we felt that," he said. "When these unsung heroes—male and female—were told the Pioneers were honoring them in this fashion, some broke down in tears. They have dedicated their lives to this innovation, and have never received recognition or rewards, except from knowing they have made a difference."

That emotional feeling is one often shared by Cable TV Pioneers. The annual black tie gala routinely draws a few tears as inductees reflect on their careers and the people who shaped them. This year marks the 53rd Cable TV Pioneer Banquet, with 25 members of the cable industry to be inducted. The class includes Liberty Global technology vp and Cable-Tec Expo co-chair Bill Warga along with former Time Warner Cable top negotiator Melinda Witmer.

The Pioneers was founded in 1966 during the NCTA convention in Miami. It has grown from a group of 21 entrepreneurs to more than 700 men and women over the past 50 years. With the demise of NCTA's annual tradeshow, the Pioneers Banquet moved to Cable-Tec Expo in 2017, drawing a record crowd that necessitated an overflow ballroom.

"We are very excited about having a full house for our upcoming Pioneer Induction Dinner. This year's class is reflective of the evolving nature of our industry and we are thrilled to be highlighting DOCSIS Pioneers, along with our outstanding inductees from the operating, programming, marketing, and technology sectors of the cable industry," said Susan Bitter Smith, immediate past chair, Cable TV Pioneers.

This year's event kicks off with a cocktail hour at 6pm, with the dinner and awards program slated to wrap around 9:30pm. Attire is black tie/dressy cocktail. ∎

DOCSIS PIONEERS BEING INDUCTED INTO THE CABLE TV PIONEERS

Pamela Anderson*	Dave Fellows	Michele Kuska*	Henry Samueli*
Bill Bauer*	Jack Fijolek*	John Leddy*	Bill Schleyer*
Alex Best	Paul Glist	Kevin Leddy	Doug Semon
Paul Bosco*	Joe Godas*	Stu Lipoff*	Tom Staniec
Chris Bowick	John Goddard	Rickey Luke	John Ulm*
Roger Brown*	Dick Green	John Malone	Jay Vaughan
Charlie Cerino*	Chris Grobricki*	Susan Marshall*	Mario Vecchi*
John Chapman	Levent Gun*	Tom Nagel*	Tony Werner
Jim Chiddix	Nick Hamilton-Piercy	Paul Nikolich*	Gerry White*
Mark Coblitz*	George Hart*	Howard Pfeffer*	Rich Woundy*
Kip Compton*	Wilt Hildenbrand*	Cathleen Quigley*	Rouzbeh Yassini
Steve Craddock*	Ed Holleran	Bruce Ravenel*	
Bob Cruickshank*	Victor Hou*	Dorothy Raymond*	*Indicates a new Cable TV
Steve Dukes*	Doug Jones*	Jay Rolls*	Pioneer
Tom Elliot*	Tom Kolze*	Carl Rossetti	

Cable TV Pioneers Class of 2019

Brian Bane
Comcast

Dick Beard
Ervin Construction

Thomas Cloonan
Arris

Marc Cohen
Evolution Digital

John DiCandilo
Dycom

Duane Dick
Sand Cherry Assoc.

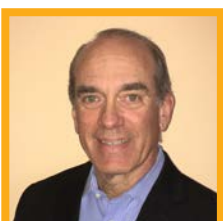**Marty Dominguez**
C-SPAN

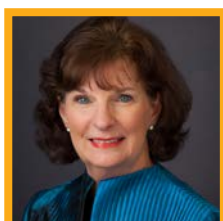**Barry Elson**
Retired

Jim Faust
Retired

John Fellet
Retired

Chris Fenger
Patriot Media

Ralph Galione
Hewlett Packard

Jean Gay
Commscope

Sandra Howe
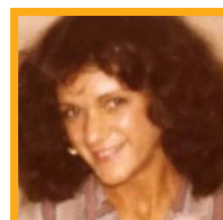Technetix

Ricardo La Guardia
Arris

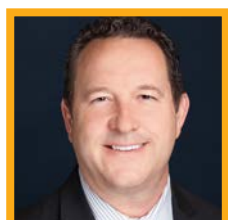**Gary Lauder**
Lauder Partners

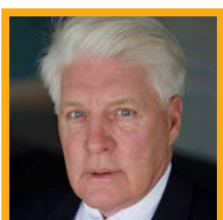**Ed Marchetti**
Comcast

Himanshu Parikh
iOPENC, LLC

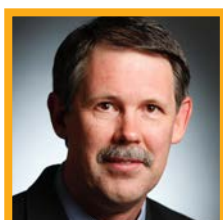**Catherine Rasenberger**
Rasenberger Media

Joyce Reitano-Salaj
Posthumous

Matt Stanek
Charter

Tim Vaas
Cableserv

Bill Warga
Liberty Global

Tom Williams
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