



Call for Papers 2024

Submissions close April 5, 2024

TechExpo.SCTE.org

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Share your Expertise

Each year TechExpo presents an inspiring content line-up drawing on the unique experiences and perspectives of our community. We invite members to submit papers or presentations to feature in technical sessions, with particular interest in forward-looking technologies and solutions that will help power the industry's IOG initiative and move its technical foundation forward.

In addition to English submissions, SCTE is also encouraging presentations delivered in Spanish, focusing on Latin American concepts, technology, and innovation.

The program committee believes that innovation is powered by diverse perspectives and experience. We encourage and support representation and inclusivity of all people. Our call for papers reflects our goal to include submissions from across our industry's diverse expanse of professions, and we commit to considering all entries equally.

2024 Topics

The Program Committee is targeting papers in the following nine key areas:

-  — 1. Wireline Network Evolution
-  — 2. Wireless Networks and Convergence with Wireline
-  — 3. Construction and Networks Planning
-  — 4. Security and Privacy
-  — 5. Data Analytics, Artificial Intelligence (AI) and Machine Learning (ML)
-  — 6. Cloud Services
-  — 7. Commercial and Business Services
-  — 8. Operational Transformation and Workforce Learning
-  — 9. Energy Management and Sustainability

While submissions on the above topics will be given priority, other topics addressing broadband industry technical, engineering, and business issues will also be considered.



I. Wireline Network Evolution

➤ **Strategies and challenges for broadband build-out in the Broadband Equity, Access, and Deployment (BEAD), Rural Digital Opportunity Fund (RDOF) and other government programs.**

➤ **Network evolution and planning**

- Upgrade strategies on the journey to 10G capable access networks; what steps to take on the multi-year journey towards 10G networks
- Planning, optimization, quality assurance and inventory management strategies when doing major upgrades
- Migration strategies between access media, for example from HFC to XGS-PON
- Spectrum management automation
- Impact of bonding group selection on system performance

➤ **DOCSIS® 4.0 deployment**

- FDD: first experiences of deploying 1.8 GHz amps & passives in existing coax infrastructure; comparing theoretical calculations, lab evaluations, and live networks
- FDX: first experiences of deploying FDX nodes and amps in existing coax infrastructure; comparing theoretical calculations, lab evaluations, and live networks
- Automating the deployment & testing of DOCSIS® 4.0 networks
- Update on 1.8GHz amplifiers for extending DOCSIS® spectrum
- Band split operational use cases, while preparing for DOCSIS® 4.0

➤ **Convergence of last-mile technologies:**

- CIN network architectures serving DOCSIS®, mobile, and RemoteOLT
- CIN design examples and considerations
- Optimal fiber migration scenarios in brownfields
- Management, control, and data plane synergies
- Common back-office and OSS solutions

➤ **Low latency**

- The path to ultra-low latency on DOCSIS®
- Measuring latency across multiple ISP networks and assessing the user benefit of AQM and DOCSIS® Low Latency deployment in live networks
- Key outcomes of low latency DOCSIS deployments

➤ **Optimal ways to build 10G connectivity in multiple dwelling units (MDUs) and campus networks**

- Who owns the MDU cabling and networking infrastructure?
- Regulatory framework for MDUs
- Technology choices (DOCSIS®, PON, MoCA, G.hn, G.Fast etc) and integration to service provider legacy back-office service platforms
- End to end architectural considerations when there are multiple competing network operators in the region

➤ **Fiber to the home (FTTH) and passive optical networks (PON)**

- Analysis of advantages, disadvantages, and growth of the latest FTTH options
- Integration of PON in cable networks
- Optical operations and maintenance
- Outside plant innovations

➤ **Regional and backbone network design and performance to support the evolving access networks**

➤ **MPLS and segment routing optimization and performance**

➤ **Latest trends in routed optical networking**





2. Wireless Networks and Convergence with Wireline

➤ Convergence

- Convergence roadmap of networks (DOCSIS®/PON, wireless/wireline, IP/optical etc.)
- Convergence use cases from wireline/mobile wireless operators
- Operator use cases for incorporating multi access technologies including mobile, FTTH and fixed wireless access
- Beyond wireless wireline convergence, a wider arrange of cases in which different network functions/layers can serve multi-propose deployments

➤ O-RAN planning and deployment strategies; lessons learned from CBRS trials and deployments

➤ Performance differences between DOCSIS® networks & 5G fixed wireless access

➤ Performance differences between DOCSIS® networks & Starlink

➤ RF Spectrum

- Analysis of spectrum bands on the horizon for licensed, unlicensed and shared use
- Opportunities with C-band radio spectrum

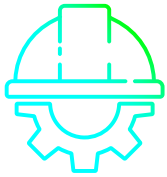
➤ 5G fixed wireless access deployment models and use cases

➤ Fixed wireless access as an opportunity versus a competitive threat

➤ Does mobile make economic sense for smaller providers?

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- **Private wireless monetization in vertical industries**
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- **Wireless failover to a wired network**
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- **Network slicing and implications/applications within next generation wireless and wireline networks**
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- **Applicability of 5G advanced features such as AI/ML, eXtended reality, metaverse, ambient IoT, and sensing**
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- **Residential networks**
- Growth and technologies for residential broadband such as Certificate Management Protocol (CMP) and Simple Object Access Protocol (SOAP)
 - Impact of Metaverse on residential network sizing
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- **Wi-Fi**
- How to leverage Wi-Fi 7 to improve home wireless experience
 - Wi-Fi 7 home connectivity architectures
 - Performance of Wi-Fi 7 access points with mixed Wi-Fi client generations
 - Mastering the complex Wi-Fi 7 scheduling modes for cable operator services
 - Troubleshooting Wi-Fi 7 networks
 - Mobile/Wi-Fi integrated communication and sensing use cases and value for operators
 - How to leverage new 6 GHz spectrum for new applications
 - Standard power, Super Wi-Fi, or an extender mesh solution
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- **Development of deterministic wireless applications; is low latency Wi-Fi gaming and mixed reality services to the home a business opportunity or table stakes for Wi-Fi performance**





3. Construction and Network Planning

- Adopting technologies such as LiDAR and drones to support network planning, design and construction
- New tools and techniques being deployed and new standards for fiber construction from long haul backbone all the way to the drop
- Learning from trends, tools, techniques, and innovations in international fiber construction
- Operational best practices for construction
- Tools overview (GIS, software, etc.)



4. Security and Privacy

- Managing the complex security realm
- Network and security convergence
- Risk quantification
- Security first architectures

➤ **Security compliance management**

➤ **Evolution of cryptography and how it may impact cable**

- Crypto-agility
- Post-quantum cryptography
- Quantum key distribution

➤ **Security in the modern work environment**

➤ **Security of broadband infrastructure**

- Securing the distributed access network
- Trusted boot on evolving architectures
- Security of the core and advances in security BGP and DNS
- Traffic management, DNS over HTTPS, route hijacks, route advertising and trust
- New approaches to scalable and secure software updates of cable infrastructure

➤ **Security of AI/ML**

➤ **Privacy concerns of broadband services**

- Evolving privacy regulations
- Technologies to help assure privacy compliance
- Privacy: KPIs, compliance, and market differentiation

➤ **Supply chain security and risk assessment of hardware and software**

- The security of open-source software
- Supply chains and global politicization of security
- Supply chain insecurity impact on hardware-based roots of trust
- Software bill of materials (SBoM) and embedded security threats in deployed devices

➤ **Secure network automation**

➤ **IoT networks**

- Managing connectivity, device and data management, data integrity, and security
 - Multi-ecosystem trust solutions – how does cable trust and enable IoT solutions?
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➤ **Managing cybersecurity as an enterprise risk issue**

➤ **3rd party security such as security as a service (SaaS) impacting economics of the ecosystems**

➤ **New identity management solutions**

➤ **Security for mobile and cable convergence; common approaches to identity management**

➤ **Security in customer owned devices; technical, regulatory, and legal challenges to trust management**

➤ **Wi-Fi security evolution**



5. Data Analytics, Artificial Intelligence (AI) and Machine Learning (ML)

- AI/ML techniques to predict network performance and drive network efficiencies
- AI/ML success stories: Use cases from the cable industry
- Discoveries made with streaming telemetry, artificial intelligence, and machine learning
- The journey from “white paper” to realizing value from operationally-focused AI/ML (moving from theory to initiatives/projects)
- Use of Automation and AI/ML in network operations
- AI/ML at the:
 - Network/MAC level
 - Node level
 - Gateway and connected home device level
 - Customer service level



6. Cloud Services

- Role of public clouds and private operator clouds in access network and operations; comparisons of choosing one or using a hybrid approach
- Cloud-managed networking

➤ **Network as a Service (NaaS) and Network as a Platform (NaaP): Use cases, development community, and open frameworks**

➤ **Cloud versus edge**

- Define the debate
 - All one or some of both? When? Why?
 - Is there something that needs changing for cloud to make more sense?
 - What is the solution for in-country data requirements?
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➤ **Automating and orchestrating next generation network infrastructures**

➤ **Hyperscaling as a broadband operator**

➤ **Virtualizing and automating the core network**

➤ **How OSS is evolving**

➤ **Automation**

- What is it? How does it work?
- Good and bad examples of automation.
- What's worked, what hasn't? What is the measure of something working?
- What protocols are involved in automation? Why?
- How do you automatically test automation?
- What is the list of tasks/projects that should move to automation in the future? Will new automation technologies be required?
- What is the business case for automation? How does it save money?
- What is the difference between automating machines versus automating people?



7. Commercial and Business Services

➤ Operator use cases in:

- Industrial IoT
 - Connected healthcare
 - Connected remote learning
 - Smart cities
 - MDU smart communities
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➤ Service convergence for residential, mobile, and business services

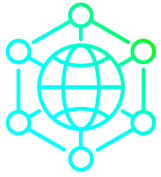
➤ Leveraging and optimizing the network for both residential and business service requirements

➤ Impact of Wi-Fi 6, Wi-Fi 7, and 5G on the business environment

➤ The opportunity for small and midsize business (SMB) mobility

➤ The present and future of SD-WAN

➤ Managed business service offerings



8. Operational Transformation and Workforce Development

➤ Considerations of telemetry and smart amplifiers for the outside plant

- How network upgrade deployments and maintenance processes would benefit from telemetry visibility of the outside plant
- Re-defining network maintenance business processes (preventive / reactive) with greatly improved visibility to the outside plant conditions
- Automation opportunities, including AI/ML applications leveraging overflooded data lake

➤ Proactive Network Maintenance (PNM) and Reliability

- New tools, techniques, and best practices for improving network and service reliability
- New PNM analytics using DOCSIS timing
- PNM in smart amps and nodes
- Designing networks for more resilience

➤ The future of work and embracing AI/ML

➤ Work Force Management enabled by AI/ML

➤ How AI/ML powers digital transformation and enhances productivity

➤ Network intelligence (i.e.: automation, self-healing, elasticity, etc.)

➤ Tools that drive automation and remote detection



- Training the workforce of the future including alternate ways to train, skill sets needed in an automated world, and expanding training scope and frequency
- Migration and orchestration for big projects, and between projects
- How are we embracing new technologies to increase efficiency and improve the customer experience as we transition away from being a traditional cable company
- The human role in automation and new skills required
- Developing and hiring critical skills for the future; how is the traditional cable associate changing to embrace the needs of the future work force?
- Methodologies, actions, technologies, and activities to improve the learning experience and learner results
- SCTE career path journeys
- Leveraging AR/VR in the workforce for operational efficiency



9. Energy Management and Sustainability

- Network infrastructure energy management
- Broadband and Wi-Fi consumer premises equipment (CPE) energy management

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- **Field power supply considerations for a distributed access architecture (DAA) world**

 - **Smart grids and microgrids**

 - **Power reliability and availability**

 - **Power sustainability**

 - **New business opportunities in power and energy for cable operators**

 - **Impacts of cooling technologies on power demands**

 - **Changes in outside plant power consumption for next generation networks**

 - **Emerging trends in alternate energy solutions**

 - **Cloud energy management solutions**

 - **Cable operator and utility company interactivity (Grid Metrics)**

 - **Impact and reality of carbon neutral by 20xx**
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How to submit

All our applications are submitted online [HERE](#). Enter each submission separately, limited to 2,000 characters including spaces. Previously published papers and product-specific presentations will not be accepted.

Submission Requirements

- Paper title
- Brief description of proposed session
- Name of author/presenter
- Job title
- Company
- Email
- Telephone number
- Address

What if you are chosen

The committee will notify authors of selected applications by **May 3, 2024**.

Selected participants will be required to complete and submit a digital version of their paper and associated presentation by **July 26, 2024**. Both assets will be published prior to the start of TechExpo 2024.

For event related questions, our content operations team will be your point of contact to ensure you have a successful and rewarding experience. You can reach them at speakers@scte.org.