

Title

The Evolution of In-Premise Networks in the Era of Immersive Services: From Copper to Fiber-to-The Room

Speaker

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Abstract

The telecommunications industry is transitioning towards an experience-driven era, shaped by immersive and interactive applications that place increasingly stringent demands on network performance. Over the past two and a half decades, passive optical network (PON) based Fiber-To-The-Home (FTTH) networks have been central to delivering high-capacity broadband access to homes and businesses. However, the growing performance gap between the access and in-premise indoor networks creates an impetus for driving fiber into home and buildings. Complementing rather than replacing copper cabling solutions and wireless access technologies, e.g. WiFi, the Fiber-to-the-Room (FTTR) solution is set to accelerate over the next few years. This plenary talk examines the immersive applications, in particular the multi-modal traffic characteristics of collaborative extended reality (XR), its Quality-of-Experience (QoE) requirements, corresponding implications on network performance along with emerging solutions including robust resource allocation aimed at meeting QoE requirements.

Biography

Elaine Wong received her Ph.D. (2002) degree in Electrical Engineering from the University of Melbourne, Australia. She is a Redmond Barry Distinguished Professor and is currently Pro Vice Chancellor (People & Equity) of the University. Her current research interests include low-latency communication networks and prescriptive analytics to facilitate human-to-machine applications over the Tactile Internet. Elaine currently serves on the ARC College of Experts, the IEEE Photonics Society



Board of Governors, the IEEE Technical Activity Board, Committee of Diversity Equity and Inclusion, and is Chair of the IEEE Communication Society Optical Network Technical Community. She is Technical Editor of IEEE Network, General Chair of Opto Electronic Communication Conference (OECC) 2024, and General Chair of Optical Fiber Communication Conference (OFC) 2025. She has previously served on many editorial boards including IEEE/Optica Journal of Optical Communications and Networking, and IEEE/Optica Journal of Lightwave Technology.