# 5G Paves the Way

## to Operator Prosperity.

By Robin Mersh, CEO, Broadband Forum

## The industry is coming together to smooth out any bumps in the road...

### Robin Mersh,
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Robin Mersh joined Broadband Forum as Chief Operating Officer in July 2006 and was promoted to Chief Executive Officer in July 2010. Robin has authored many articles and has spoken at and chaired many broadband industry conferences and exhibitions. He has worked in the telecommunications industry for over 20 years, starting at Cable & Wireless and then moving on to BT before meeting his wife and moving to the U.S. in 1999.

Robin has worked in business development and alliance management for various OSS software companies in the United States, mainly in network and service provisioning and activation, where he negotiated and managed several large OEM agreements.

He is originally from Cambridge in the United Kingdom. He received a Bachelor of Arts degree with honours from Queen Mary and Westfield College, University of London in 1992.

As the rate of 5G adoption continues to climb, so too does the total operator-billed revenue from 5G IoT connections. Rising from US$ 525-million in 2020, the market is expected to see revenues grow 15-fold to more than US$ 8 billion by 2024, according to Juniper Research. Driven by unparalleled download speeds, increased bandwidth and lower latency, not only does the fifth-generation technology offer powerful new features that can enhance existing service value and revenues, but it also opens up opportunities for a host of different industries to realize the immense benefits that it offers.

Operators are keen to harness and deploy this emerging technology to exploit these new opportunities to both enhance existing revenue streams and to secure new ones by offering a host of new services and applications.

While 5G continues to transform the communications landscape and pave the way to new revenues and services, it brings with it a host of challenges which operators and service providers must consider to not fall victim to bumps in the road. The good news is that operators and vendors globally are coming together to smooth out these challenges through standards bodies such as Broadband Forum and 3GPP, expediting this transformation and facilitating its success.

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## A new era

Mass global rollouts of 5G will only succeed if the ecosystem of technologies, vendors and operator requirements necessary to deliver 5G services is properly aligned. One of the key areas of challenge is the transport network, where many of 5G's advantages – including increased capacity, reliability and performance, and a more consistent service – need to be addressed head-on to deliver a viable service. Implementing a converged and integrated core network capable of scaling to the increased number of connected devices and enhance the amount of data being consumed when making the leap to 5G, while enabling a truly unified experience, will be paramount.

Operator success in meeting these demands will require standardised interfaces and the support of a transformed transport network which can automate away complexity. 5G deployments will see the rapid growth of network traffic, and transport networks which interconnect the 5G Radio Access Network (RAN) and core networks will need to be capable of handling this efficiently.

The transport network is not only vital to achieving increased capacity, higher performance and an improved quality of service, but the new 5G radio plays a fundamental part in realizing the immense benefits of 5G and addressing the needs of current and evolving mobile networks. The RAN can be split for fronthaul and, in this architecture, point-to-point fibre is not necessarily collocated with the Centralised Unit (CU) and Distributed Unit (DU). Utilising the evolved Common Public Radio Interface (eCPRI), the Radio Unit (RU) and the DU can be separated, as can the split DU and centralised functions. However, this RAN split means that the performance requirements of capacity, latency and delay variation on the transport network between the equipment are significantly heightened and the backhaul interfaces must be enhanced to meet these criteria.

## Flexibility and dynamism

To support a range of newly introduced use cases, flexibility and dynamism will be key components for the new network of 5G architecture, helping to break the norm of previous generations of the transport network which were backhaul-focused and somewhat static.

New, high-bandwidth technologies such as 10G PON – which has the capacity to support most 5G requirements – will allow the transport network to be used for backhaul on a significantly larger scale. Network slicing and deterministic transport technologies will continue to play a crucial part in 2020, as they leverage the likes of 5G to ensure customer control capabilities.

For operators, one of the greatest challenges to overcome is the expense needed to build and fund the 5G network. While this is a notable factor that needs consideration, it is necessary to unlock the host of applications and new services that this new technology can deliver.

Operators are often faced with a conundrum in relation to evolving their transport networks, as they debate whether to migrate their existing networks or replace them entirely. Migration is often considered to be the most cost-effective option and systematically reduces the risk of major service disruption. Not only will this prevent operators having to get rid of existing investments, but it will allow them to add the enhanced performance, scalability and bandwidth capabilities to their current MPLS IP and ethernet-based transport networks in a controlled and cost-effective way.

## Broadband Forum and 3GPP

As 5G continues to be a keen area of focus for the industry, Broadband Forum is not only focused on standardising the transport architecture for operators, but also enabling the integration of wireless and wireline at all levels to allow carriers to manage all aspects of their services in a holistic way.

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In addition, its work includes the personalisation and application of common policies and its fundamental mechanisms allow operators to seamlessly evolve their networks and ensure fixed access is supported by a common unified core network.

Areas of focus for Broadband Forum include a 5G Access Gateway function that adapts fixed access onto the 5G core, architectural deployment options and underlying infrastructure aspects. Broadband Forum has worked in cooperation with 3GPP on Fixed Mobile Convergence (FMC), which has culminated in the development of a set of specifications to allow full convergence to happen, leveraging what is already in 5G networks while integrating existing fixed access deployments.

The recommendations made by Broadband Forum will be documented in Broadband Forum's technical recommendations and incorporated into 3GPP's Release 16 specifications, both due to be published this year. Trials are expected by 2021 and, together, Broadband Forum and 3GPP are on track for wide-scale, global 5G deployment by 2022. This ensures that fixed networks are prepared for the full realization of 5G connectivity.

## A 5G future

To harness converged networks in the new era of 5G, a single network is no longer enough. Utilising both fixed and mobile networks is essential for operators to deliver a cutting-edge experience for their customer base and due care must be taken to look at methods to seamlessly integrate wireline and wireless convergence at all levels of the broadband ecosystem. This must be backed by an enhanced transport network to effectively handle the rapid growth of network traffic.

Broadband Forum aims to continue to provide a global framework for operators to truly enhance their service offering, offer the best possible user experience for their customers and catalyse the mass deployment of 5G for all.

### Editor's Note

Broadband Forum is an open, non-profit industry organisation composed of leading broadband operators, vendors, thought leaders who are shaping the future of broadband and observers who closely track its progress. Its projects span 5G, Connected Home, Cloud and Access. Its working groups collaborate to define best practices for global networks, enable new revenue-generating service and content delivery, establish technology migration strategies and engineer critical device, service and development management tools in the home and business IP networking infrastructure.

It also develops multi-service broadband packet networking specifications addressing architecture, device and service management, software data models, interoperability and certification in the broadband market.

For more information on Broadband Forum's 5G initiatives, visit: **https://www.broadband-forum.org/projects/5g** or see **https://www.broadband-forum.org/**