

# How OB-BAA is redefining access as we know it

By Robin Mersh, CEO, Broadband Forum



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**Robin Mersh joined the 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 US 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 honors from Queen Mary and Westfield College, University of London in 1992.**

**T**oday's access and edge network segments within the central office make up a collection of application-specific, purpose-built devices. This architecture has been the foundation for the vast majority of the more than 1 billion broadband connections deployed today. Key successes have been where the adoption of the architectural patterns and associated standards, defined by industry organizations like the Broadband Forum and its many sister organizations (both Standards Defining Organizations and Fora), have enabled an ecosystem where solutions provided by different vendors interoperate and coexist for the benefit of stakeholders, equipment manufacturers, service providers, system integrators and, most importantly, end-users. These architectural frameworks, standards and activities such as certification have been important enablers in developing ecosystems that operate at scale.

However, as new approaches and technologies evolve, a reexamination of existing networks is needed to ensure a more responsive, agile ecosystem, capable of encouraging new revenue opportunities while reducing operational costs.

## Networking revolution

The proliferation of Network Functions Virtualization (NFV) and Software Defined Network (SDN)-based automation and the use of open source software in the access network have been a direct result of this reexamination. These technologies have been key enablers at the heart of the revitalization of the broadband ecosystem. They also are the foundations for the next step in the broadband access network evolution – the Broadband Forum's Open Broadband – Broadband Access Abstraction (OB-BAA) project. This initiative – which has just published its first code release – has been created to enable standardized, automated and accelerated deployment of a new cloud-based access infrastructure.

The reexamination of the access network has also created a more open, agile broadband solution which can respond to continued growth, brought about by the impending arrival of 5G and the IoT-enabled Connected Home. Consequently, the central office has taken on a new architecture. Functions are being disaggregated and moved into the cloud to increase business agility for the deployment of new services, to lower operational costs, to improve the network's reliability and boost levels of customer satisfaction.

### Basis for growth

The foundation of this new architecture is built on the notion of SDN-controlled life-cycle services and functions that can be up or downscaled, depending on the requirements of each networking customer. Open source is also a crucial component, changing how solutions are developed and deployed. Fundamentally, open source principles encourage open APIs that are programmable and standard, using open data that separates data and application logic. They also encourage open specifications that can be controlled to achieve interoperability and facilitate an open ecosystem.

These capabilities provide flexible deployment options with virtualized network functions; enable responsive scaling to optimize capacity utilization, ease on-boarding and upgrading of network functions, and give increased automation of the services being provided to the customer.

### Think like a data center

What will be essential as this plays out, however, is that telecoms must adopt practices currently used in the data center environment.

As we know, information and communications rely on the telecom industry's highly valuable infrastructure, spanning not just millions of devices, but billions, with endless locations being reached and services by a myriad of connected devices. To minimize the risk to business viability and technical stability that the introduction of new technologies and open source initiatives bring, a seamless migration of the existing network to a next-generation architecture will be essential. Operators should also plan for long-term coexistence to protect investments and local conditions, while infrastructures also need to be agile and capable of responding to rapidly emerging software defined access models.

This is where OB-BAA comes in. Specifying Northbound Interfaces (NBIs), core components, and Southbound Adaptation Interfaces (SAI), BAA creates the possibility

of pulling differing access device types, including legacy implementations, under a single network and service management and control umbrella. This opens them up to key management elements such as SDN management and control, and Element Management Systems. The project leverages the use of existing Broadband Forum and non-Broadband Forum YANG models, along with NETCONF for the SAI.

A new set of YANG models for the NAI provides the aggregate description of the underlying access network assets that are made up of specialized PNFs and VNFs. The NAI data models will cover a complete set of functionalities to enable automated access inventory, service provisioning and monitoring, as well as network commissioning functionalities. Because the NBI and SAI utilize standardized models and the core make up of BAA is designed as virtualized micro-services with specified interfaces, the components can be easily adapted and deployed in a variety of virtualized environments.

### End gains

The benefits this will bring to operators are significant. Service Providers will have the ability to introduce new infrastructures incrementally, as opposed to previous total replacement requirements. OB-BAA will also make it possible for Service Providers to migrate to and manage programmable network environments, where new services can be deployed rapidly through interaction with the common abstraction of Access Nodes. Service Providers and equipment manufacturers will also benefit from the flexibility of being able to streamline development by implementing standard interfaces. Differentiated service offerings will also be established via stable standardized platforms.

Ultimately, it will offer Service Providers more choice than before, allowing them to weigh up the benefits of local vs. system-wide implementations, while the layering aspect means it is coordinated with other industry initiatives, such as Open Networking Foundation (ONF), Open Platform for NFV (OPNFV), and Open Network Automation Platform (ONAP). With an agile, flexible and integrated approach like the one facilitated by BAA, service providers can embrace the best of both open source and open standards to create a programmable broadband network which delivers on the promise of next-generation broadband while also protecting their investment.

**For more information:** [www.broadband-forum.org](http://www.broadband-forum.org)

