



Broadband Forum brings NFV home

Landmark technical specification defines industry's first virtualized Residential Gateway

10 August 2016: The first ever specifications for the virtual Residential Gateway were released today, as the Broadband Forum concluded work on a landmark project to bring the potential of virtualization into the home.

The Network Enhanced Residential Gateway (TR-317) provides requirements for an end-to-end architecture, creating a flexible and agile environment. TR-317's virtual Customer Premises Equipment (CPE) eliminates the need to provision and attach new services directly to an end-user's Residential Gateway and enables Service Providers to do this centrally from their Cloud infrastructures, giving the potential for an enhanced customer experience and significant cost savings.

Service Providers will be able to deploy new services faster and personalize end-user packages, eventually creating significant additional revenue streams. Quality of Service could also be enforced on a per device, per user and/or per service basis, improving the broadband customer experience, which is particularly important with the advent of new and more demanding services.

"This work is extremely significant because many broadband operators are already working on the delivery of some flavors of cloud-based virtual residential gateway services," said David Minodier, Network Architect at Orange, the Broadband Forum member which led the development of TR-317. "Network Functions Virtualization (NFV) and Software Defined Network (SDN) techniques allow the delivery of such innovative services from a Point of Presence (PoP) or data center to be envisaged, which was not possible before. TR-317 provides CPE manufacturers with a first set of specifications to ensure interoperability between the bridged residential gateway at the customer premises and the virtual gateway hosted in the Service Provider's cloud infrastructure."

The new specification is one of the enablers for the Broadband Forum's Broadband 20/20 vision which focuses on specific new broadband home and business opportunities that leverage SDN, the NFV distributed compute / network model, Internet of Things and ultrafast technologies.

TR-317 addresses the current heterogeneous nature of the residential gateway which makes it difficult for a telco to evolve existing gateway models, meaning the deployment of new features or services is often delayed, expensive and sometimes not even possible as some old CPE may not have sufficient resources to support a given set of features.

'Local services' will be shifted from the home to the network, providing users with highly reliable and expandable virtual storage, which can be provisioned on a 'pay-as-you-grow' basis. The machine-to-machine (M2M) Home Automation Box will also move to the network, providing enhanced and easily-upgradeable M2M services.

Parental control per device – for example, to limit services accessed by children – will also be enabled, along with improved diagnosis/troubleshooting/maintenance services due to operators being able to virtually insert a diagnosis tool in the extended home network to troubleshoot problems and support the customer.

Broadband Forum CEO Robin Mersh said: "While the end-to-end architecture has remained fundamentally the same, the business ecosystem has changed significantly, with flagship value-added telco services becoming commoditized and over-the-top companies going from small startups to financial giants. At the same time the consumer electronics industry is flooding

residential home networks with new devices. Alongside this, the IT ecosystem has changed and cloud services for residential customers have become commoditized as a result of virtualization and new generation technologies and network concepts such as NFV and SDN.

“Enabling operator gateway services with the agility of cloud-based software and supporting some new use cases is the purpose of the Network Enhanced Residential Gateway architecture which TR-317 provides.”

Following the release of this initial document, further work to extend its capabilities, as well as new work around the Cloud Central Office (CO) project, will be carried out. This will include evolving the TR-069 protocol to manage the Network Enhanced Residential Gateway components (the Bridged Residential Gateway and the virtual Gateway) and associated services. Requirements for the design of the virtual gateway itself are also being discussed, while the possibility of adding in a capability to allow third parties to provide services via the operator is also being looked at.

For more details on TR-317 and how it will impact the industry, watch this video interview with Broadband Forum member Gregory Dalle: <https://youtu.be/buOd6YWKSlo>

For more information on the Broadband Forum’s work, visit: www.broadband-forum.org.

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