

TR-069 CPE WAN Management Protocol

TR-069 is the industry standard CPE WAN Management Protocol defined by the Broadband Forum and has more than 350 million installations worldwide, intended for communication between a CPE and Auto-Configuration Server (ACS). The CPE WAN Management Protocol defines a mechanism that encompasses secure auto-configuration of a CPE, and also incorporates other CPE management functions into a common framework.

TR-069 specifies the generic requirements of the management protocol methods which can be applied to any TR-069 CPE. Other documents specify the managed objects, or data models, for specific types of devices or services.

Functional Components

The CPE WAN Management Protocol is intended to support a variety of functionalities to manage a collection of CPE, including the following primary capabilities:

- Auto-configuration and dynamic service provisioning
- Software/firmware image management
- Software module management
- Status and performance monitoring
- Diagnostics



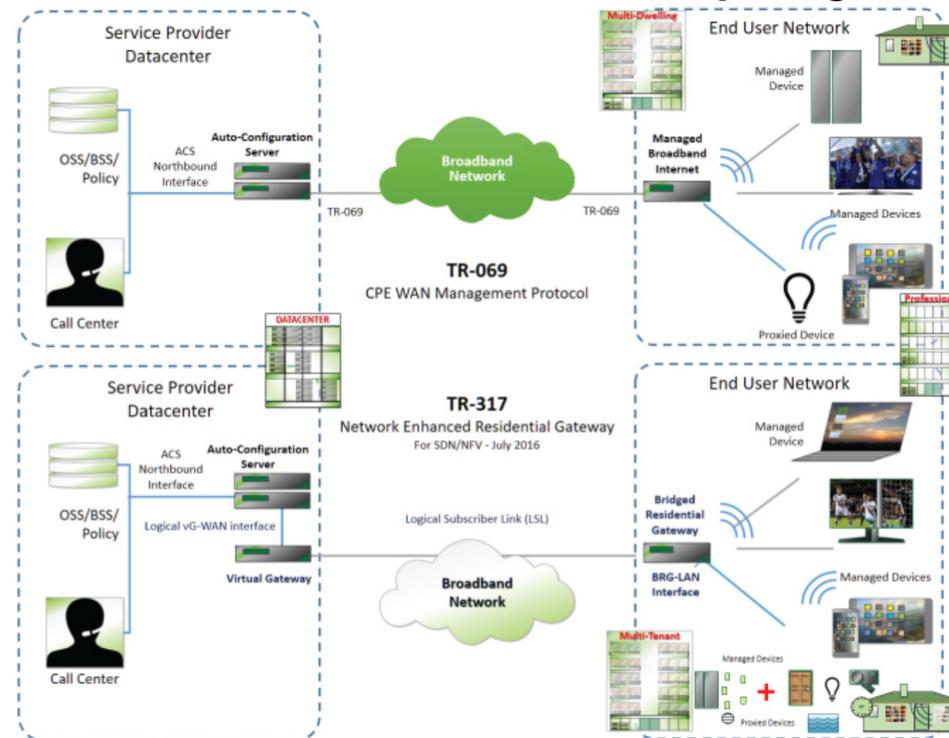
TR-069 Certification Program Overview

The program tests product functionality to certify that they are compliant to TR-069 protocol specifications.

Requirements documents associated with these specifications:
 ATP-069: TR-069 Abstract Test Plan.
 IR-069: TR-069 Conformance Test Plan - (members only access).

Companies with BBF.069 certification include: Actiontec, Broadcom, Calix, D-Link, Greenwave systems, Huawei Technologies, Intel, Sercomm and ZTE Corporation. Please see www.broadband-forum.org for details.

TR-069 and NFV Distributed Computing



TR-317 the Network Enhanced Residential Gateway (NERG)

The NERG introduces NFV distributed, virtualized compute, storage and network concepts and SDN style management. It provides continuity with existing TR-069 installations and also enables long term hybrid Broadband networking with seamless migration for installing service providers.

Bridged Residential Gateway (BRG) – the residual processing functions still located at the residential customer premises, configured as a managed bridge connecting its LAN/Wi-Fi interfaces and the BRG-LSL interface. (conforms to IEEE 802.1D and 802.1Q).

virtual Gateway (vG) – The set of networking and service related Network Functions that are hosted in the provider network. At a minimum, it provides Network Functions for the termination of the LSL in the NSP's network, IP address management.

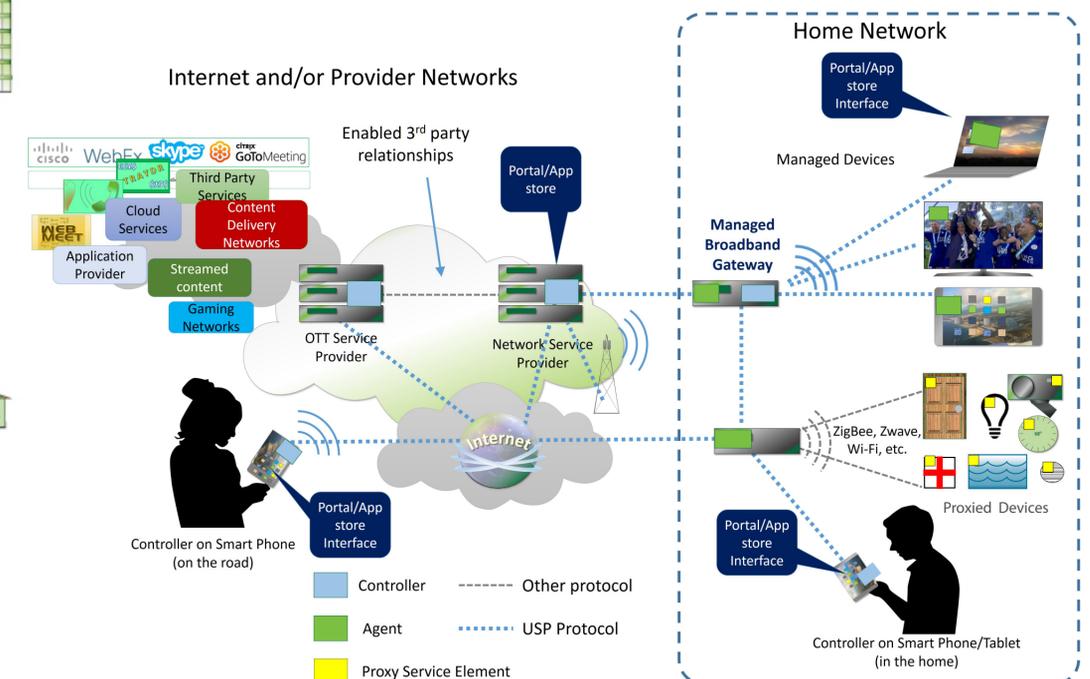
Logical Subscriber Link (LSL) – the subscriber specific logical point-to-point layer 2 connection between the BRG and the vG.

User Services Platform

This new Broadband Forum project defines a standardized mechanism by which a network of controllers and agents communicate to activate, manage, monitor, diagnose, and control a broadband user's network enabled services. This includes a wide array of use cases including managed broadband services, smart home and smart building applications, small business services, and management of multi-tenant facilities.

The project defines a data model, architecture, security and communications protocol to transform consumer broadband networks into an intelligent platform for the development, deployment, and support of broadband enabled applications and services.

It expands the concepts explored in TR-069 device management towards overall service management, leveraging technologies such as IoT, NFV and SDN in concert with other standards organizations.



Essential Reference Reading

- TR-069 Spec Amendment 5
- Root Data Models
- Device:1, Device:2, InternetGatewayDevice:1
- Service Data Models
- FAPService:1, FAPService:2
- StorageService:1, STBService:1, VoiceService:1, VoiceService:2
- Component Definitions
- Femto Components, Component Objects for CWMP
- Network Performance Tests
- Schema Files
- TR-069 RPCs
- IPDR Service Specification for Bulk Data Collection
- XMPP Connection Request
- UDP Lightweight Notification
- TR-069 Data Model Definition Schema (DM Schema)
- TR-069 Data Model Report Schema (DMR Schema)

- TR-069 DT (Device Type) Features Schema (DTF Schema)
- Support Files
- TR-069 Data Model Data Types
- TR-069 Data Model Bibliographic References

Related Documents

- WT- documents Work in Progress available to BBF members.
- TR-317: Network Enhanced Residential Gateway
- WT-328: Virtual Business Gateway
- WT-345: Broadband Network Gateway and Network Function Virtualization
- WT-348: Hybrid Access
- TR-358: SDN in Access Networks
- WT-359: A Framework for Virtualization
- WT-370: FANS Overall Architecture and Requirements (SD: Members'-only study documents):
- SD-357: 3GPP-BBF Common Functions
- SD-302: Framework for Cloud Services in Broadband Networks

TR-069 and User Services Platform in Context

The Broadband Forum is the defining body for today's Broadband Technologies and Software. The many areas and projects spanned include: TR-069 CPE WAN Management Protocol (highlighted here), Broadband user services, Broadband assured IP services, fiber access networks, fiber to the distribution point, SDN& NFV for Broadband networks, physical line transmission, broadband architecture and migration, network implementation Yang data models, hybrid wireless-wireline including 5G integration. In addition to technical work and implementation guidance the Forum is conducting initiatives aimed at increased growth of revenue generating services known collectively as Broadband 20/20.

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