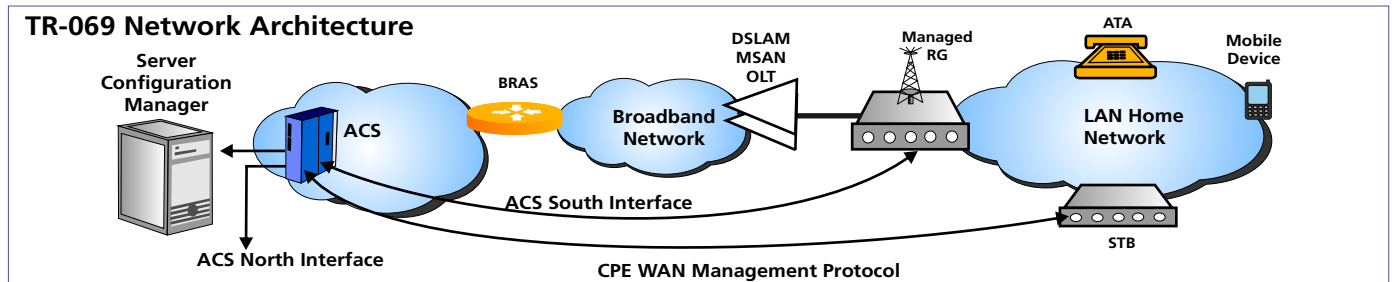




## Product Engineering Services (PES)

### TR-069 Client

L&T Infotech offers a TR-069 Client based on the Broadband Forum's CPE WAN Management Protocol, as a platform independent software component that can be easily integrated with CPE devices like Residential and Small Business Gateways, Set-Top Boxes and other home networking devices to make the device remotely manageable from an Auto Configuration Server.



#### Feature Set

- Auto Configuration of CPE at initial connection
- ACS initiated dynamic provisioning of CPE
- Status & performance monitoring of CPE parameters
- Diagnostics information reporting from CPE and diagnostic tests
- Software / Firmware image download and upgrade
- Web identity management for customizing web content with CPE user information
- Configurable transport level security through SSL/TLS with Certificates
- Authentication with shared secrets and MD5 Digest
- Configurable parameter change notifications
- Platform independent - integration layers provided for OS & Protocol integration
- APIs and Parameter Mapping for device specific integration
- Vendor specific parameter support
- Data Models support - IGD, STB, VoIP, NAS, PON devices
- Pass-through for LAN device management

#### Key Benefits

L&T Infotech's TR-069 Client component meets the highest standards of quality and together with our integration services is the ideal solution to meet your device management requirements. The benefits you gain are:

- Can be easily integrated, resulting in reduced time-to-market
- Platform independent, easily portable to different operating systems
- Security features for authentication and confidentiality
- SOAP interface layer facilitates usage of 3rd party components / libraries
- Data Model interface layer designed for device specific parameter mapping with flexibility for adding new parameters and devices
- Developed in 'C' for portability and best performance

# TR-069 Client

## Deliverables

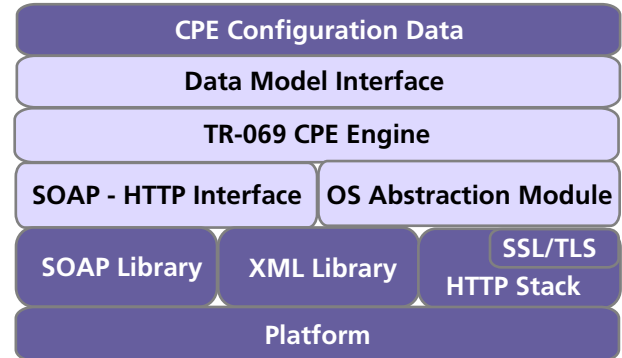
- TR-069 Client Component Library
- Integration Guide with Framework Source and Build Scripts
- User Manual
- Full Source Code License at Additional Cost
- Customization and Integration Services

## V1.0 Available Features and Roadmap

Features	Release 1.0	Release 2.0	Release 3.0
Auto configuration	✓		
Dynamic provisioning	✓		
Status & performance monitoring	✓		
Diagnostics		✓	
Software / Firmware upgrade		✓	
Web identity management			✓
SSL/TLS		✓	
Shared secrets authentication		✓	
MD5 Digest authentication		✓	
Parameter change notifications OS	✓		
Abstraction layer	✓		
Linux platform support	✓		
Windows platform support			✓
Protocol abstraction layer	✓		
Device specific Data Model interface layer	✓		
Vendor specific parameter support			✓
IGD Data Model support (TR-098/TR-106)	✓		
Set-top box Data Model support (TR- 135)		✓	
VoIP, NAS, PON Data Models support			✓
Pass-through (TR-111)			✓

## Architecture

L&T Infotech's TR-069 Client component is packaged as a platform-independent library that can be easily integrated with the target platform and the system and application software of the CPE.



## Highlights

- OS Abstraction layer specially designed to provide support to different operating systems with minimal efforts. Currently available with Linux platform support
- Data Model interface designed to provide supports for different CPE devices
- Multithreaded CPE Engine takes care of communication, sessions & timers

## Technical Specifications

- TR-069 CWMP v1.1 Amendment 2
- TR-111 LAN Device Management
- HTTP v1.1
- SSL 3.0 / TLS 1.0
- SOAP v1.1 (Using GSOAP v2.7.10)
- Linux Kernel v2.6
- Supported Data Models:
  - TR-098, TR-106 (IGD)
  - TR-104, TR-110 (VoIP)
  - TR-135 (STB)
  - TR-140 (NAS)
  - TR-142 (PON)

## About L&T Infotech

Larsen & Toubro Infotech Ltd (L&T Infotech), one of the fastest growing IT services companies, is ranked 11th by NASSCOM among the top software & services exporters from India in 2009. Our parent company, L&T, was ranked as India's Best Managed Company-2008 in a survey conducted by Business Today-Ernst & Young. L&T has been rated as No.1 in Quality in a 2008 survey conducted by the Wall Street Journal Asia. L&T is the only engineering & construction company in India to feature in the Forbes Asia Annual Fabulous 50 list.

As a full-service IT Firm with a blue-chip client roster, L&T Infotech offers comprehensive, end-to-end software solutions and services in these industry verticals:

- Banking & Financial Services
- Insurance
- Energy & Petrochemicals
- Manufacturing
- Product Engineering Services (Telecom)

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