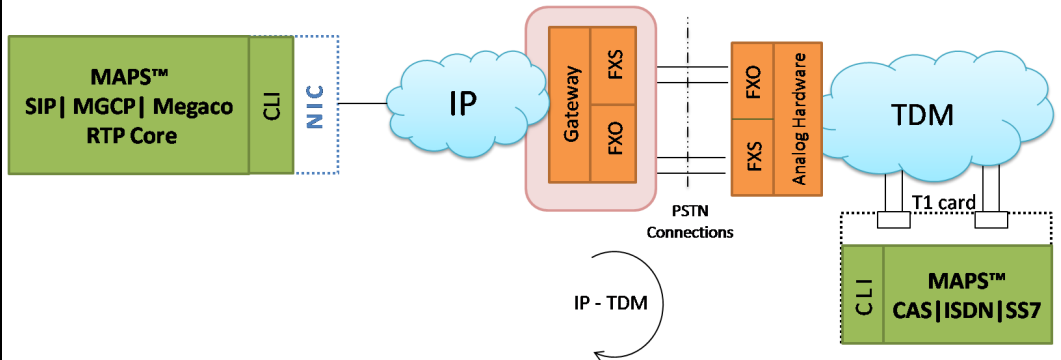


Automated Call Simulation and Protocol Tester using MAPS™ (Analog, and IP Networks)



Overview

GL's **MAPS™** (Message Automation and Protocol Emulation) is a protocol and traffic simulation and conformance test tool that supports a variety of protocols such as SIP, MEGACO, MGCP, SS7, ISDN, GSM, MAP, CAS, LTE, UMTS, SS7 SIGTRAN, ISDN SIGTRAN, SIP I, GSM AoIP, Diameter and others.

Along with user friendly GUI and scripting operation, **MAPS™** supports a **Command Line Interface** such as the Python, TCL Scripting (Tool Command Language), and others. **MAPS™ TCL Interface (MAPS Client IFC)** application includes a **MapsClientIfc.dll** file, a packaged library that enables communication with the MAPS™ Server from a TCL environment. The advantage of such communication enables user to control MAPS™ by sending commands and receiving responses in a scripting language already familiar with many users. TCL Client runs TCL scripts which executes commands, that instructs the MAPS™ CLI Server to run a particular script that emulates the state machine to place or answer calls for the protocol specified.

With **MAPS™ CLI** it is possible to achieve network wide automation for testing telecom services and telecom network equipment.

For more information, visit www.gl.com/maps.html.

Main Features

- MAPS™ CLI offers complete Lab Management, Device Provisioning and Test Automation solutions.
- A unified solution for advanced testing with intuitive drag and drop user interface
- Tests can easily be executed over multiple test stations and at distributed testing labs.
- Support for a wide range of test setups, interfaces, protocols, and script languages. Examples include CAS and SIP Test Systems that permit automated testing of network devices.
- MAPS™ CLI streamlines both the source script and the output by executing only user requested messages.
- Simultaneous bulk calls capability.
- Remote monitoring capability.
- All script commands are simple and self-explanatory.
- Compatible with Windows® 7/XP Operating System.

Remote Accessibility



Test Automation Solutions



Simple Scripting Languages



End-to-End Network Testing



Configure Test Systems



Simultaneous Bulk Calls



Event Driven Scripting



Signaling & Traffic User Events



GL Communications Inc.

818 West Diamond Avenue - Third Floor, Gaithersburg, MD 20878, U.S.A

(Web) <http://www.gl.com/> - (V) +1-301-670-4784 (F) +1-301-670-9187 - (E-Mail) gl-info@gl.com

CAS Test System

As depicted in the figure below, MAPS™ CAS CLI test system consists of the following -

- TCL interface communicating over TCP/IP
- MAPS Client IFC, MAPS™ CAS CLI Server, T1 Software (including Windows Client Server software) and a Dual T1 Card
- Analog Hardware with FXO Cards
- A patch panel for RJ-11 connections to the outside world

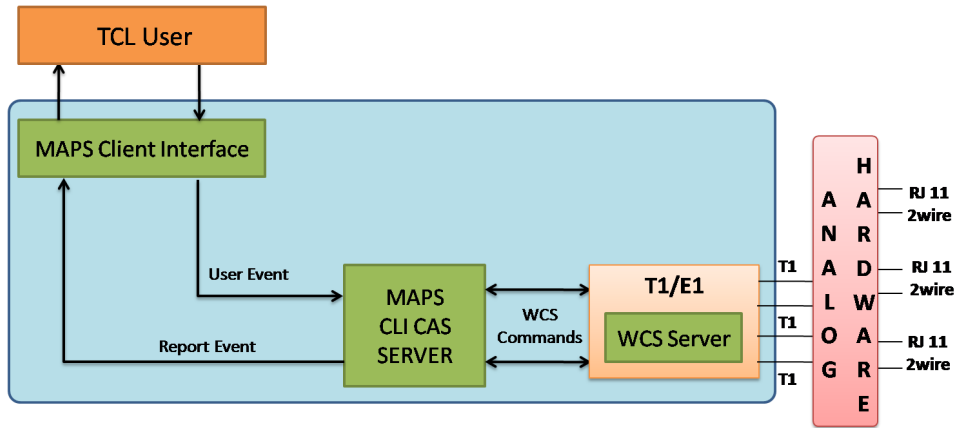


Figure: CAS Test System Modules

SIP Test System

As depicted in the figure below, MAPS™ SIP CLI test system consists of the following -

- A TCL interface communicating over TCP/IP
- MAPS Client IFC, and MAPS™ SIP CLI Server

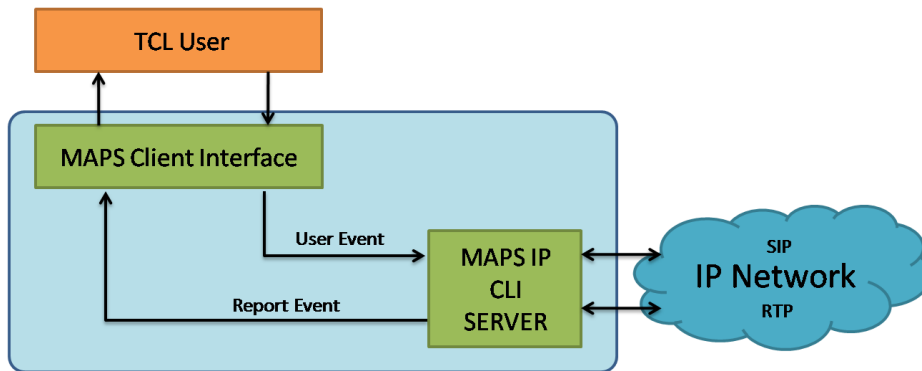


Figure: SIP Test System Modules

Voice Quality Analysis using VQT

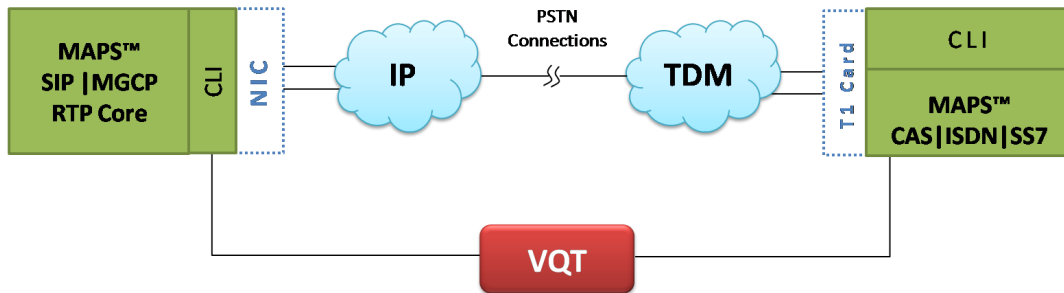


Figure: VQT Analysis



Working Principle

Shown below is the working principle of the MAPS™ CLI Test System.

- TCL Client runs TCL scripts which executes the command, that instructs the MAPS™ CLI Server.
- MAPS Client IFC interface interprets the User Events from TCL to MAPS™ CLI Server and vice versa.
- MAPS™ CLI Server runs the CLI script which emulates the state machine to place/answer the Call and send/receive traffic.
- In case of T1 E1 CAS, MAPS™ CLI Server interacts with the WCS server to perform the requested task.
- The reports are generated for the events performed and is sent back to TCL user via MAPS Client IFC.

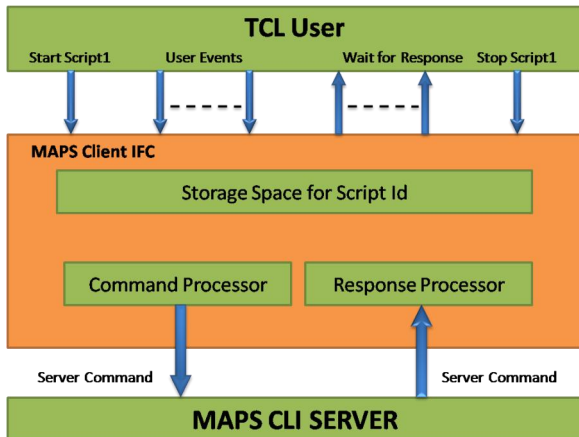


Figure: Working Principle

TCL Client and TCL Scripting

TCL (Tool Command Language), a client application that includes a *command-line* interface (Tclsh85.exe) into which client users may key in commands or load commands from previously saved files. MAPS TCL interface includes **MapsClientIfc.dll** file, a packaged library that acts as an interface between MAPS™ Server and its client (TCL).

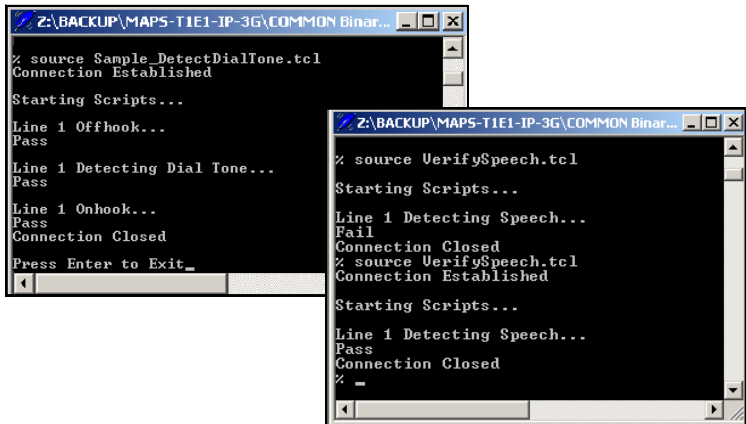


Figure: TCL Client

MAPS™ CLI Server

MAPS™ CLI Server is an executable which inherits all features of MAPS™ without GUI. It listens to a TCP message socket to receive and execute commands from client and sends the responses back to client.

CLI Server script execution is Event Driven, i.e., Server detects the Events such as Tone, Digits, Tx File Rx File, Signals etc., and sets or resets predefined Variables.

- **Signaling Events:** Signal Events are triggered when any CAS Signaling is detected such as Offhook, OnHook, Seizure, etc and SIP Signaling User Events such as Answer Call, Place Call, & Terminate.
- **Traffic Events:** Traffic Events are triggered when any traffic other than signaling are detected such as Tone, Digits, File, and others.

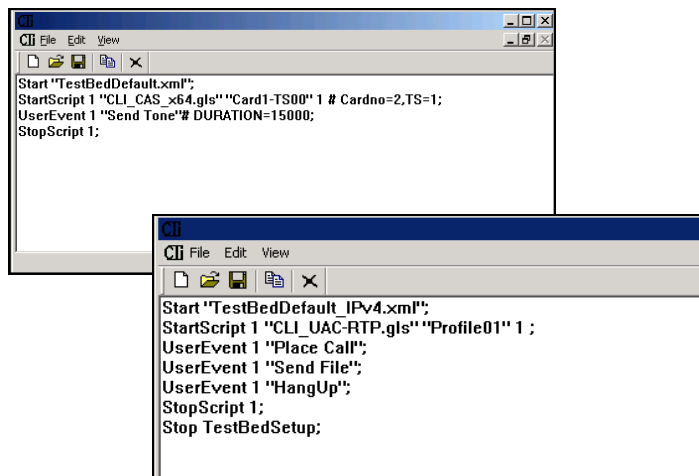


Figure: MAPS™ CLI Server

T1 E1 WCS Server (applicable only for CAS Test System)

Windows Client/Server software performs all CAS emulation primitives including signaling, tone detection, call progress signals, file transfer, and many more functions.

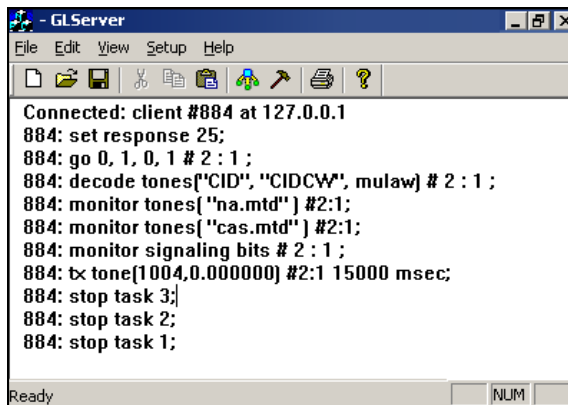


Figure: T1 E1 WCS Server



Sample TCL Script (Send_File.tcl)

```

set cliMapssip 1
set Line1 1
set ipaddr "192.168.1.78"
set port 10024
load mapsclientifc.dll

##### Connecting to MAPS SIP CLI Server #####
puts "Connecting to MAPS SIP CLI Server..."
maps Connect $cliMapssip $ipaddr $port

##### Starting TestBedSetup #####
puts "\nStarting TestBedSetup..."
maps Cmd $cliMapssip {Start
"TestBedDefault_IPv4.xml"}
set StartStatus "Null"
waitforevent $cliMapssip StartStatus 10 sec
if { $StartStatus == "started" } {

##### Sending File #####
puts "\nSending File from Line1..."

##### Applying Send File UserEvent #####
maps cmd $cliMapssip UserEvent $Line1 {"Send File"}
set TrafficStatus "null"

##### waiting for Traffic Status #####
waitforevent $cliMapssip $Line1 TrafficStatus 50 sec
    if { $TrafficStatus == "RTP File Sent" } {
        puts "\nRTP File Sent" }

##### Stopping Script #####
    maps cmd $cliMapssip StopScript $Line1
    puts "\nScript Stopped" }

##### Stopping Script #####
maps cmd $cliMapssip Stop TestBedSetup
puts "TestBedSetup Stopped"

#### Disconnecting from MAPS SIP CLI Server ####
maps Disconnect 1

```

Buyer's Guide[XX651](#) - MAPS™ CAS[XX651](#) - MAPS™ CAS CLI Server[XX600](#) – Basic Client/Server Scripted Control Software[PKS120](#) - MAPS™ SIP[PKS120](#) - MAPS™ SIP CLI Server[PKS121](#) - MAPS™ SIP Conformance Scripts