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# Voice, Video, and Data Quality Testing Solutions

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# Topics

- Hardware Platforms – VQuad™ and vMobile™
- Voice Analysis Tool (VAT™)
- Voice Quality Testing (VQT) - POLQA and PESQ
- AutoVQT™
- Testing Environments – Mobile Phones, Analog, Radios, VoIP SIP
- Available Metrics
- WebViewer™ - Web Based Client for Voice and Data Quality Testing
- Data Testing
- Video Testing

# Hardware Platforms

# Dual UTA HD Hardware Unit



Back Panel

Front Panel

# VQuad™ Probe HD



Back Panel

Front Panel

# VQuad™ mTOP™ Specifications

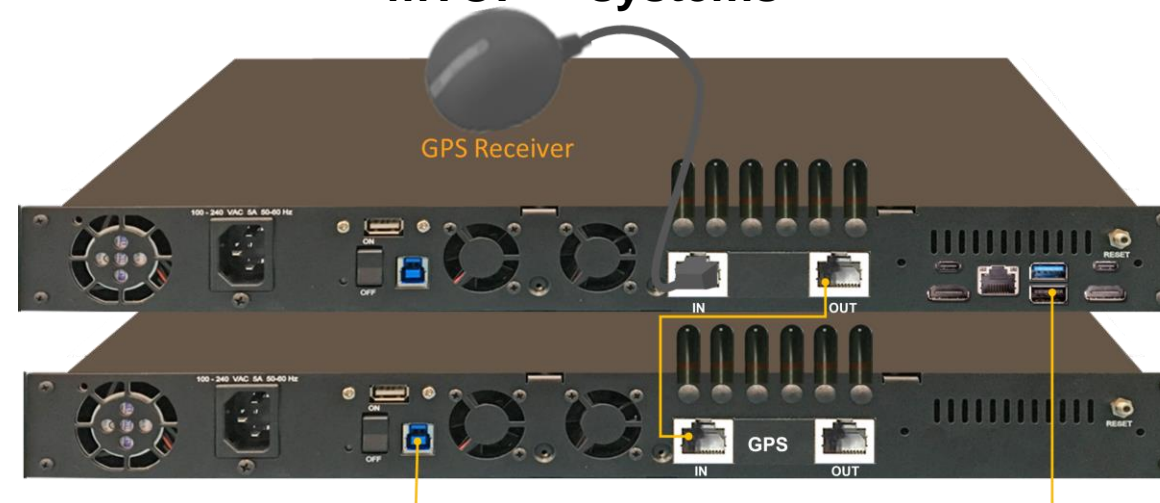
Front and Back Panel of VQuad™ mTOP™ 1



Front and Back Panel of VQuad™ mTOP™ 2



GPS connection on mTOP™ 1 daisy chains the GPS to multiple mTOP™ systems



# Current GL Mobile Test Hardware Platforms



vMobile™



vMobile™ Interfaces



Back Panel

Front Panel

VQuad™ Probe HD



Back Panel

Front Panel

Dual UTA HD



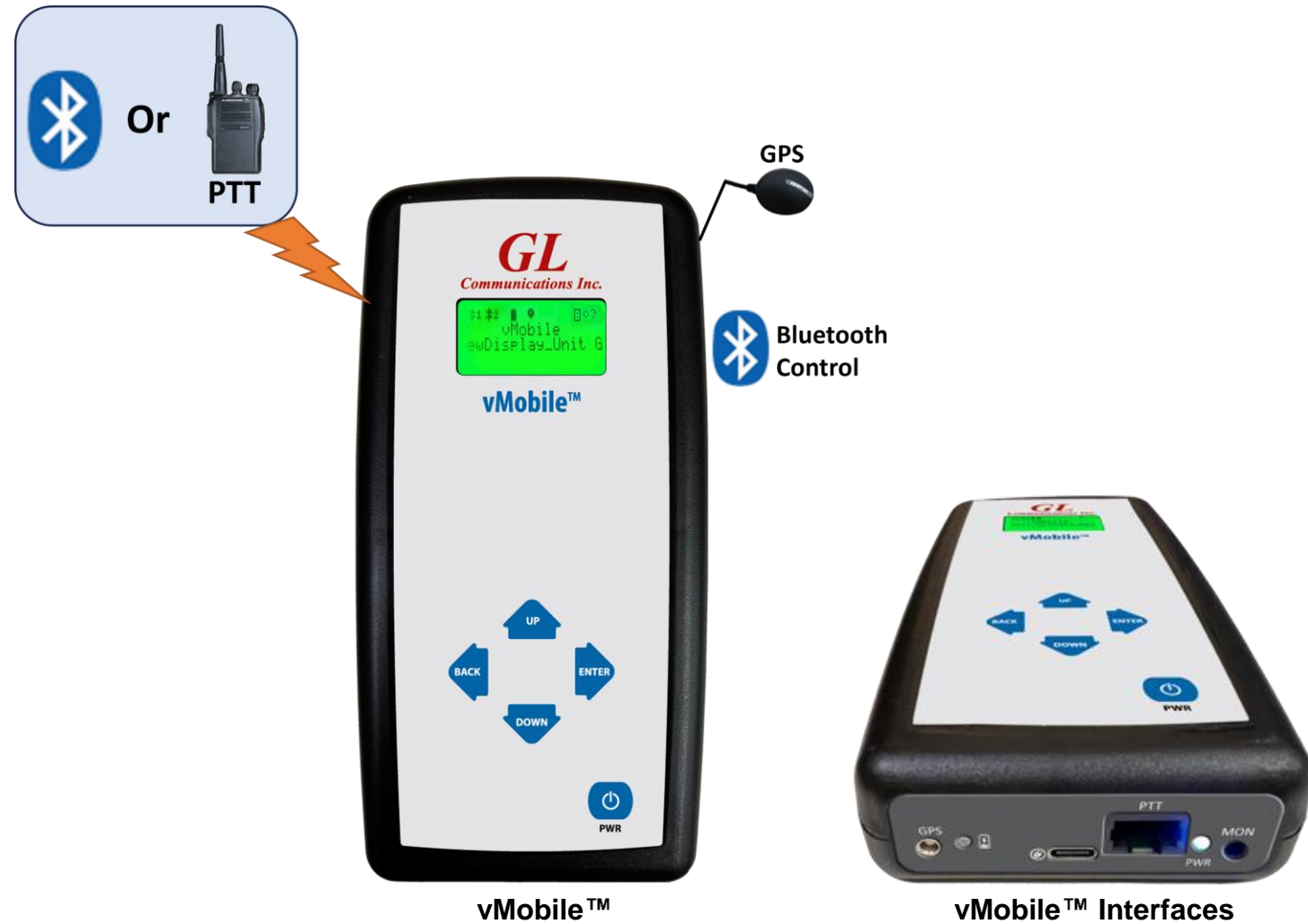
Front Panel

Back Panel

VQuad™ mTOP™

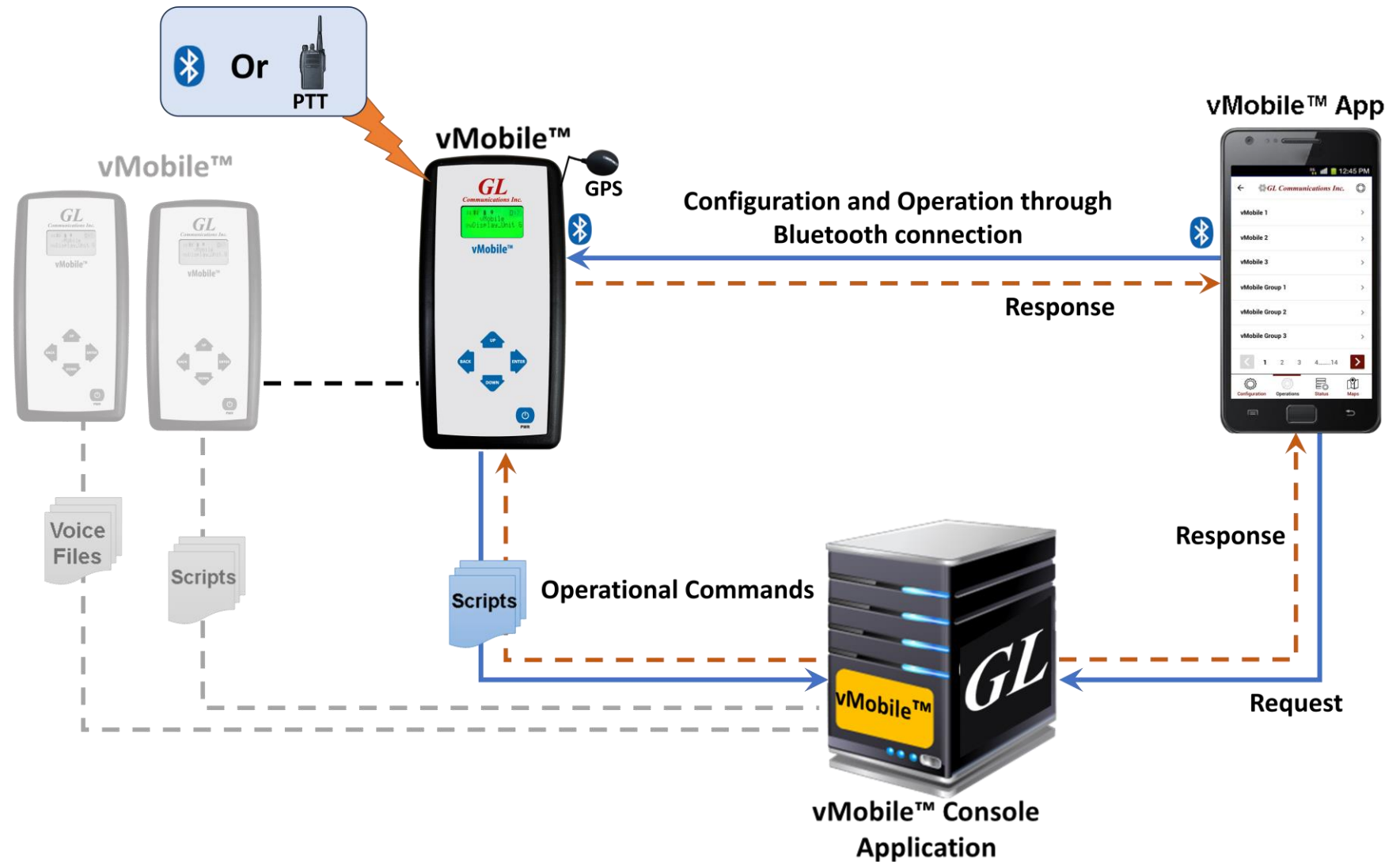
# vMobile™ Hardware Unit

- Fully Automated
- Mobile Phone and Mobile Radio Testing
- Both Bluetooth and Analog modes
- Drive and Walk Testing
- Voice Quality Testing
- Delay Testing
- Solution supports GL WebViewer™
- Works with GL VQuad™, Voice Analysis Tool (VAT™) and Voice Quality Testing (VQT) solutions
- GPS/WiFi Clock sync, High Precision Clock Oscillator with 40 ms daily precision



# vMobile™ Configuration and Operation using Console and Console App

- The vMobile™ Console can run from any web-browser or using the Console App from any Android/IOS device
- Used to Monitor, Configure, and Operate the individual vMobile™ units
- vMobile™ Console can be used to create and edit vMobile™ scripts as well as upgrade the vMobile™ software when available
- Multiple vMobile™ units can be controlled from a single Console or Console App
- Remotely Upgrade vMobile™ software and audio files
- vMobile™ Error logs can be accessed from the Console or Console App



# vMobile™ Control and Operation

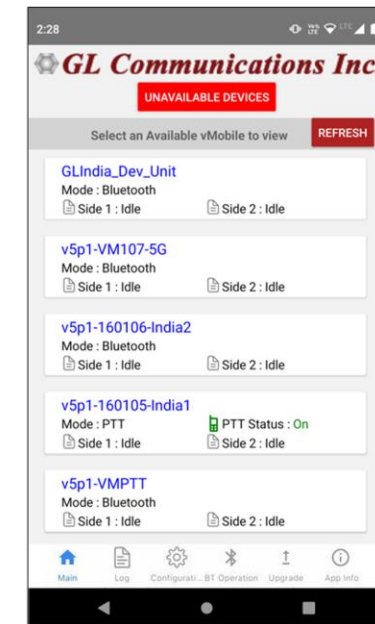
## vMobile™ Console

GL Communications Inc.

vMobile Status

vMobile Name	Wi-Fi Network	Side 1	Side 1 Script	Side 2	Side 2 Script	GPS Latitude - Longitude
GLIndia_Dev_Unit	DSPTeam	160073Dev1 ( MotoPhone1 )	answercallside1.vms	160073Dev2 ( motoPhone2 )	wbtxrxside2.vms	12.911302 , 77.89264
v5p1-VM107-5G	glimesh	US107Test1 ( VELVET )	central3000btxrxwbside1.vms	US107Test2 ( RobGalaxy )	answercallside2.vms	39.143362 , -77.215513
v5p1-160106-India2	DSPTeam	US109Test1 ( Q6 )	waiteventreceivetestside1.vms	US109Test2 ( Q6 )	answercall.vms	12.926155 , 77.601742
v5p1-160105-India1	DSPTeam	IN105Test1 <span>PTT On</span>	side1r.vms	NA	NA	12.926363 , 77.601412
v5p1-VMPTT	glimesh	USPTTTest1 ( Not Yet Connected )		USPTTTest2 ( Not Yet Connected )		39.1434 , -77.215535
Zhiyong22	Zhiyong_test	BTTest113 ( RobG8 )	central3000btxrxwbside1.vms	BTTest213 ( Zhi5g )	answercallside2.vms	39.143375 , -77.215552
RobvMobile3	glimesh	LTest1 ( RobGalaxy )		LTest2 ( ZDBTTest1 )		39.14334 , -77.215473
v5p1-VM101-rob	glimesh	US160101Test1 ( VELVET )	answercallrunscriptside1.vms	US160101Test2 ( RobGalaxy )	runscriptoptionside2.vms	39.1434 , -77.215525
Sonny50m	GURUMNARA	LTest1 ( SonnyiPhone )	side1r.vms	LTest2 ( GalaxyJ7Prime )	side2m.vms	39.104778 , -77.227892

## vMobile™ Console APP



Configuration and Operation  
through Internet connection

Internet

Configuration and Operation  
through Bluetooth connection



# vMobile™ Status

GL Communications Inc.							
vMobile Status							
vMobile Status							
vMobile Name	Wi-Fi Network	Side 1	Side 1 Script	Side 2	Side 2 Script	GPS Latitude - Longitude	
GLIndia_Dev_Unit	DSPTeam	160073Dev1 ( MotoPhone1 )	answercallside1.vms	160073Dev2 ( motoPhone2 )	wbtbxside2.vms	12.911302 , 77.89264	
v5p1-VM107-5G	glmesh	US107Test1 ( VELVET )	central3000txrxwbside1.vms	US107Test2 ( RobGalaxy )	answercallside2.vms	39.143362 , -77.215513	
v5p1-160106-India2	DSPTeam	US109Test1 ( Q6 )	waiteventreceivetestside1.vms	US109Test2 ( Q6 )	answercall.vms	12.926155 , 77.601742	
v5p1-160105-India1	DSPTeam	IN105Test1 <span>PTT On</span>	side1r.vms	NA	NA	12.926363 , 77.601412	
v5p1-VMPTT	glmesh	USPTTTest1 ( Not Yet Connected )		USPTTTest2 ( Not Yet Connected )		39.1434 , -77.215535	
Zhiyong22	Zhiyong_test	BTTest113 ( RobG8 )	central3000txrxwbside1.vms	BTTest213 ( Zhi5g )	answercallside2.vms	39.143375 , -77.215552	
RobvMobile3	glmesh	LTest1 ( RobGalaxy )		LTest2 ( ZDBTTest1 )		39.14334 , -77.215473	
v5p1-VM101-rob	glmesh	US160101Test1 ( VELVET )	answercallrunscriptside1.vms	US160101Test2 ( RobGalaxy )	runscriptoptionside2.vms	39.1434 , -77.215525	
Sonny50m	GURUMNARA	LTest1 ( SonnysiPhone )	side1r.vms	LTest2 ( GalaxyJ7Prime )	side2m.vms	39.104778 , -77.227892	

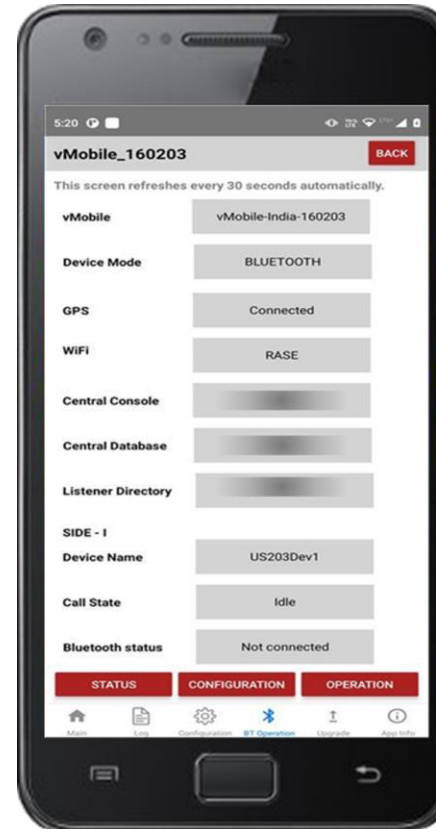
## Console Status

2:28		GL Communications Inc.	
UNAVAILABLE DEVICES		Select an Available vMobile to view	
REFRESH			
GLIndia_Dev_Unit		Mode : Bluetooth	
Side 1 : Idle		Side 2 : Idle	
v5p1-VM107-5G		Mode : Bluetooth	
Side 1 : Idle		Side 2 : Idle	
v5p1-160106-India2		Mode : Bluetooth	
Side 1 : Idle		Side 2 : Idle	
v5p1-160105-India1		Mode : PTT	
Side 1 : Idle		PTT Status : On	
Side 2 : Idle			
v5p1-VMPTT		Mode : Bluetooth	
Side 1 : Idle		Side 2 : Idle	
Main		Log	
Configurati...		BT Operation	
Upgrade		App Info	

## Console App Status

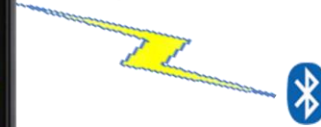
# vMobile™ Configuration, Status and Operation via Bluetooth

- Console App can be used to configure, get the status and operate vMobile™ via Bluetooth easily
- This feature helps the user to operate, configure, or view status during slow internet/no internet areas



Console App on  
Smartphone  
(Android/iOS)

Configuration,  
Status and  
Operation



vMobile™

# VQuad™ GUI with Script Editor

The screenshot displays the VQuad GUI with Script Editor interface, which is divided into several functional panels:

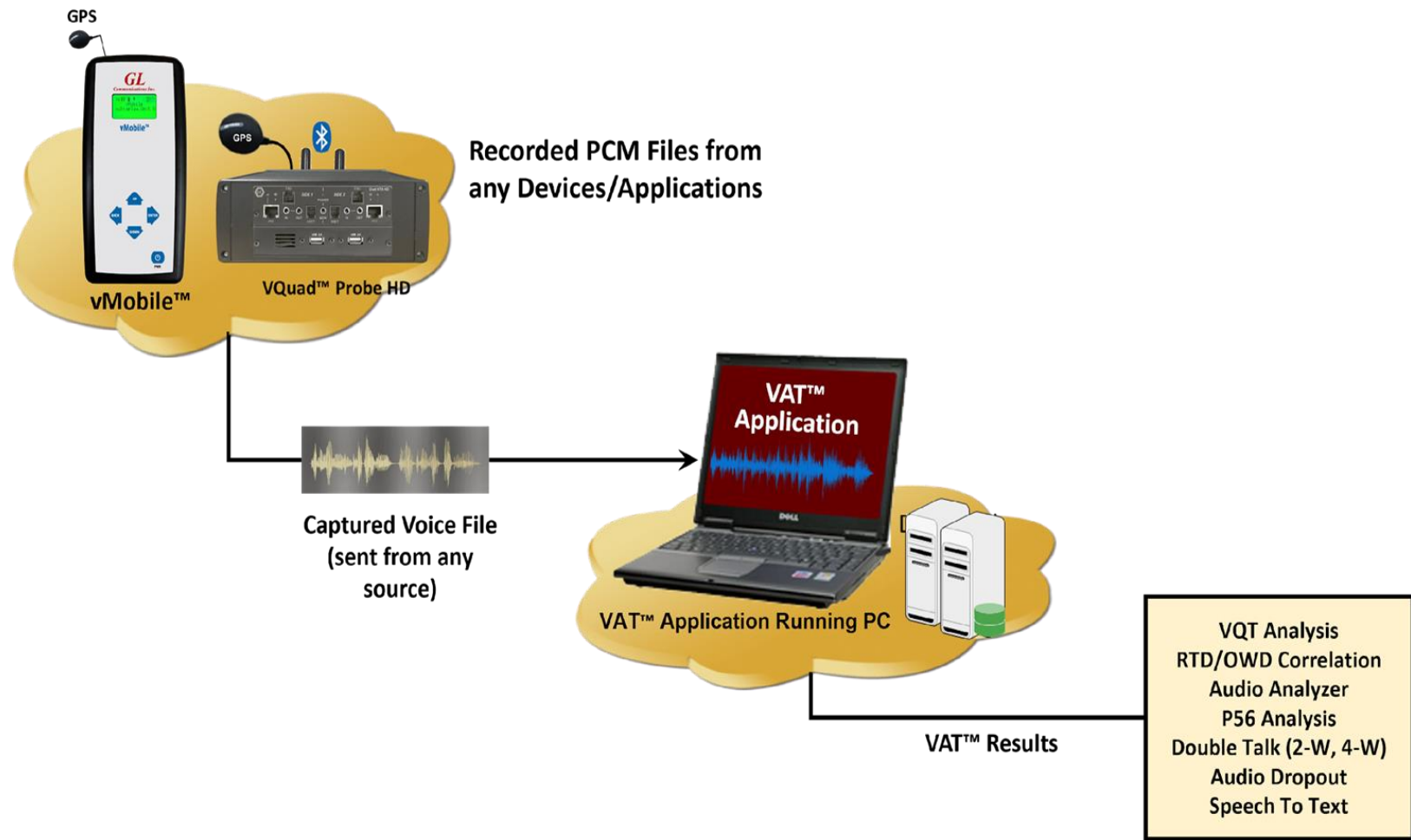
- Configure Panel:** Contains a 'Setup Devices' section with a tree view of devices including RealLineFX01, RealLineFX02, RealBT1(MotoPhone1), RealBT2(MotoPhone2), DataTesting1, UA1, PTI side1, and PTI side2. Below this is a 'Scripts' tab with a list of scripts and a 'Global Device' section.
- Script View Panel:** Shows the 'GL VQuad(TM) Script View' with a 'Terminal' window displaying the status 'READY'. It also includes an 'AT command' field and a 'Device Name' dropdown set to 'RealBT1'.
- Script Editor Panel:** Displays the 'GL VQuad(TM) Script Editor' with a 'Script File Name' field and a 'Script' tab showing a list of script items. The script content is visible in the main editor area.
- Events Panel:** Located at the bottom, it shows a table of events with columns for 'Timestamp', 'Device Name', and 'Events'. The table lists various events such as 'Stop All Traffic', 'TxRxSync Done', and 'VAC Socket Error: Connection timed out'.

The bottom status bar indicates 'CentralDB Connected'.

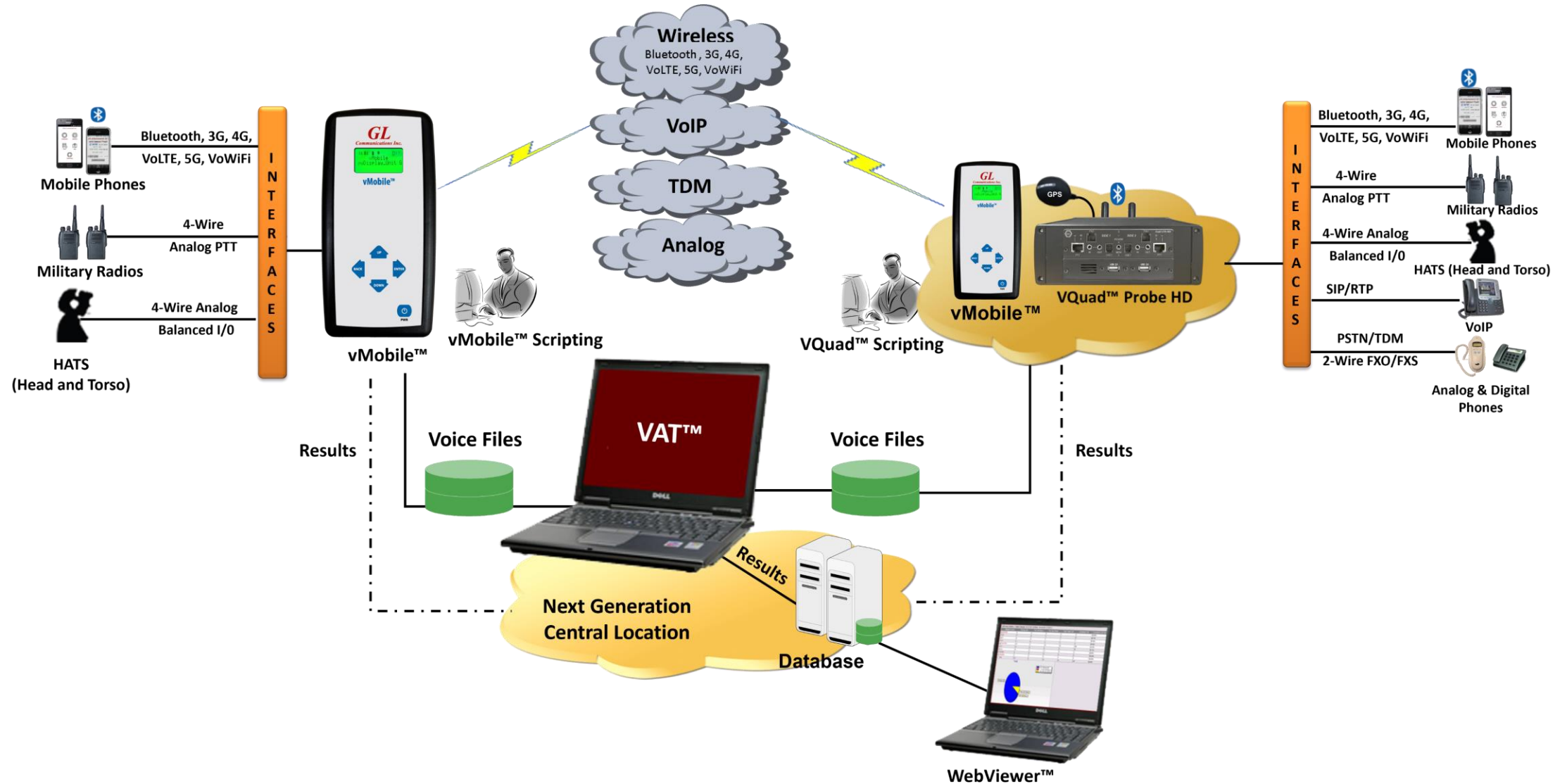
# Voice Analysis Tool (VAT™)

# Voice Analysis Tool (VAT™)

- GL VAT™ supports analyzing any Raw PCM voice file including NB, WB, and SWB. Audio files can be generated from any application including GL VQuad™ and vMobile™
- Fully automated operation with log file containing results and stored in the GL Central Database which can be accessed easily using the GL WebViewer™
- VAT™ CLI (Command Line Interface) supports remote operation
- Audio analysis includes, Round Trip and One Way Delay, Dropout Audio analysis, Double-Talk, Power Level and Frequency Analysis, Speech Activity, Active Speech Level and Noise Level, and DC Offset
- Supports VQT analysis when coupled with the GL VQT software
- Supports multiple analytical tests per individual voice file

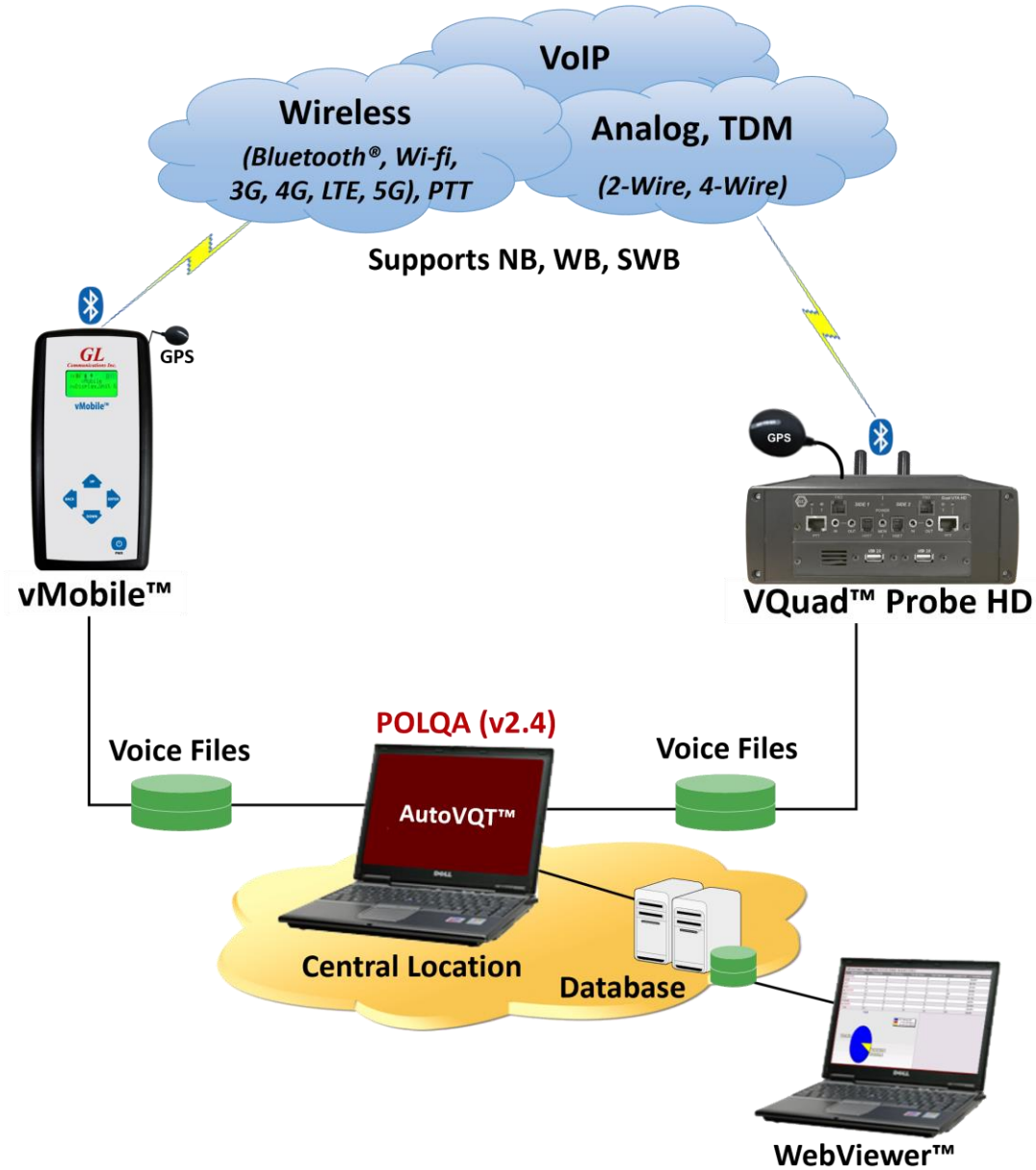


# VAT™ Operations



# Voice Quality Testing (VQT)

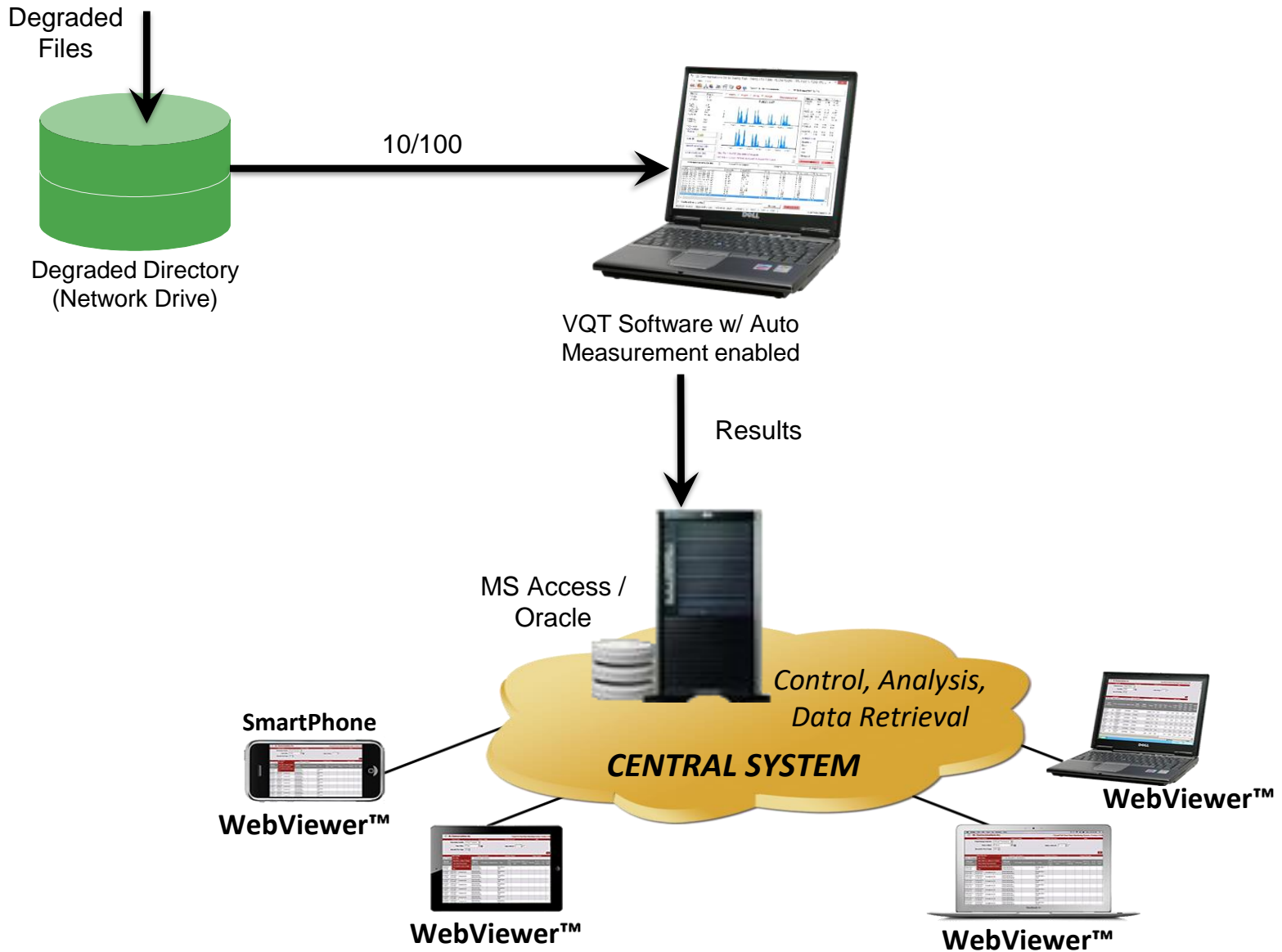
# Centralized Voice Quality Testing



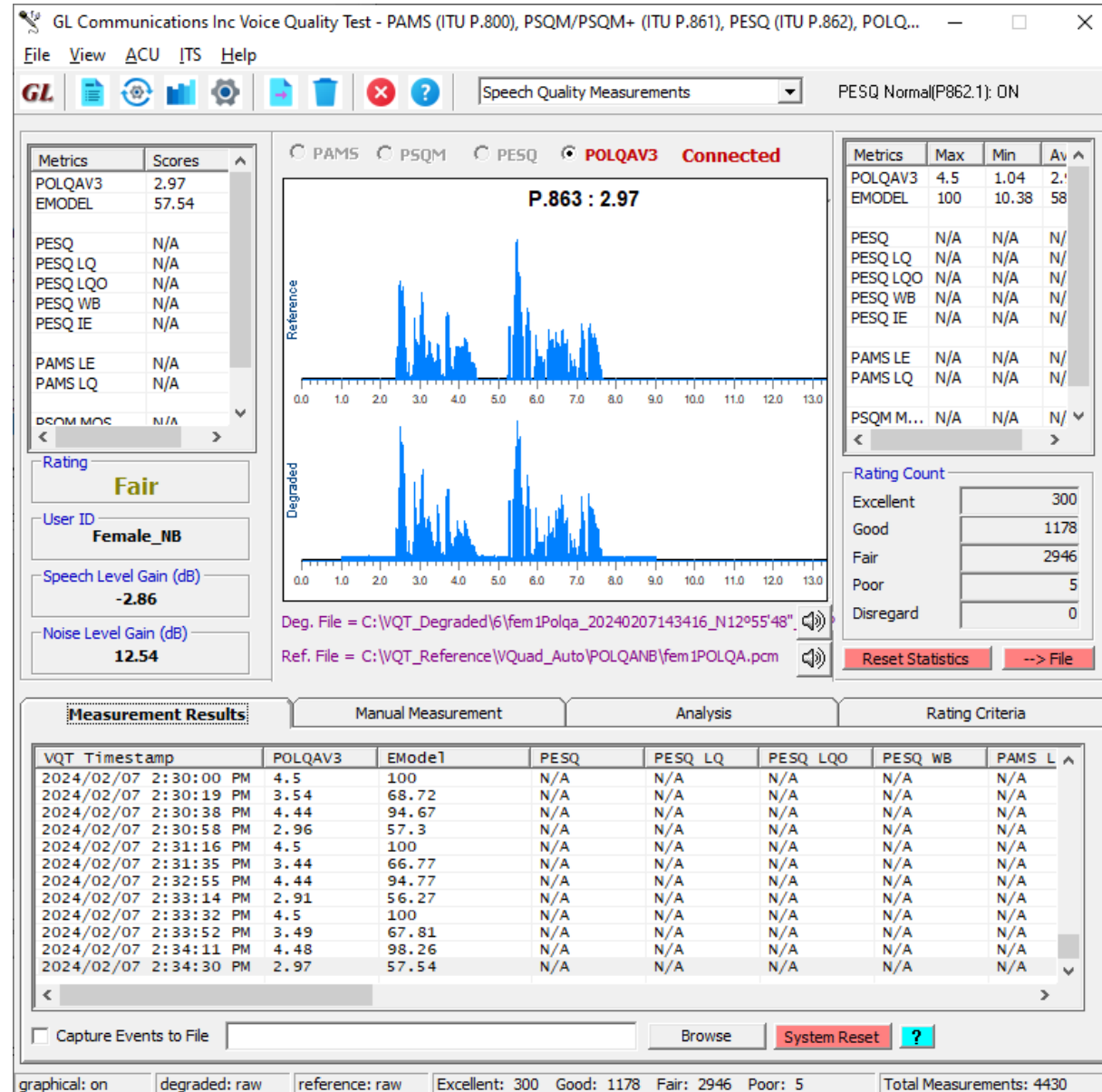
- POLQA, PESQ LQ/LQO/WB
- MOS, Jitter, Clipping, Speech and Noise Levels
- Data Testing - Wired and Wireless Networks
- Call Events - Progress & Failures
- Fax Events - Encoding, Resolution, ECM
- Delay Measurements – RTD, OWD
- E-Model, SNR, Signal Level
- Echo Measurements - ERL, Delay
- QoS, Timeouts, Retransmissions
- Google Mapping and Indoor Tracking System

# Auto Measurement

- Automatically analyze the degraded files using GL VQT Software
  - Detailed results including Jitter (min / max / avg), Clipping (front/back/all), Latency, and Noise / Signal Measurements (activity / peak)
  - VQT uses the File Monitor to perform automated measurements on remote locations
- VQT Solutions



# Voice Quality Test Software

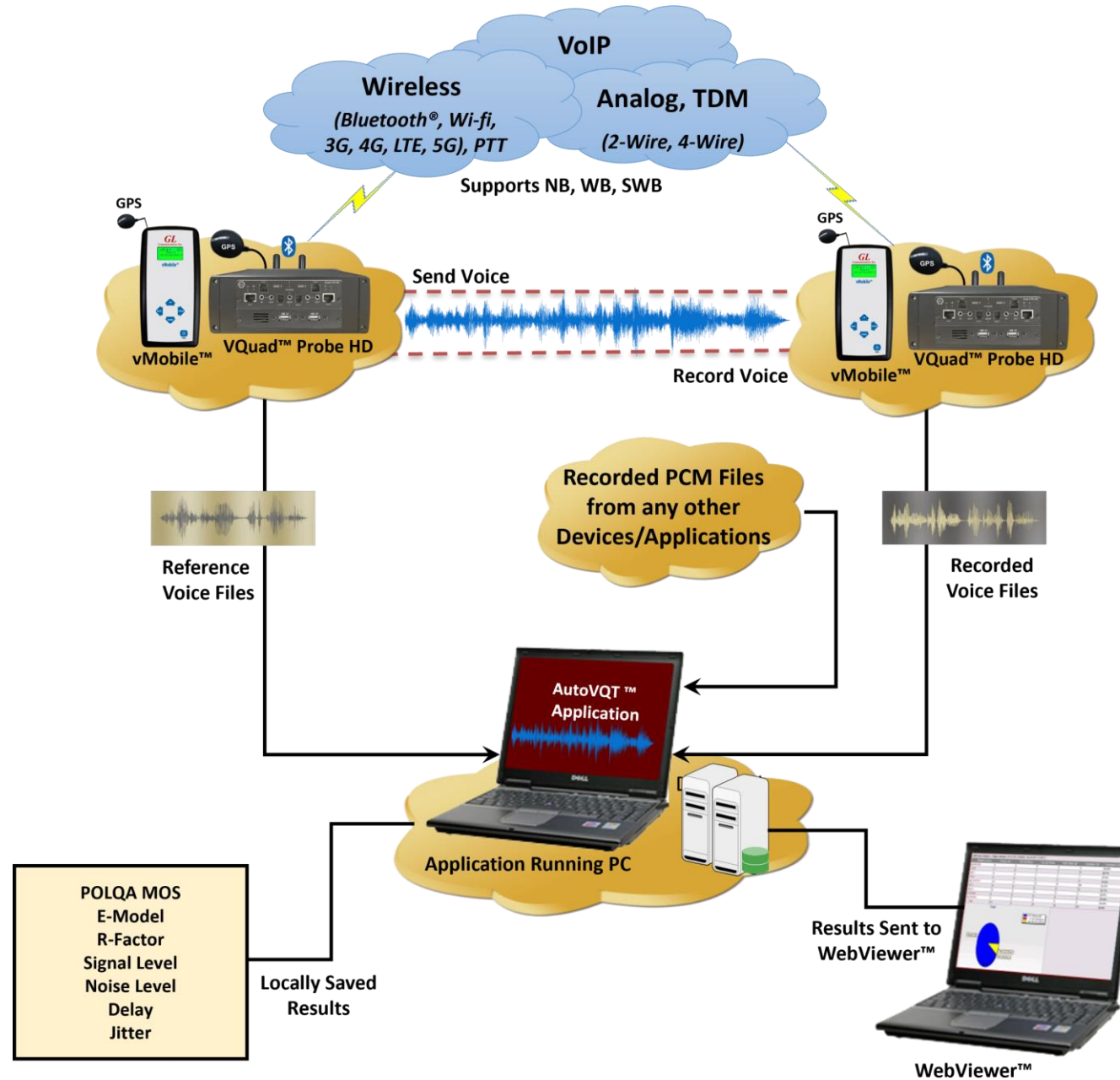


# VQT Highlights

- Supports ITU Standards (POLQA, PESQ LQ/ LQO / WB)
- Supports NB, WB and SWB codecs
- Auto-Measurement Capabilities
- Detailed Results / Statistics
- Criteria Rating System
- Remote Access Capabilities
- Delay Measurement
- Jitter (Min, Max, Average per Utterance)
- Clipping (front, back, all)
- Noise/Signal Levels (Activity, Peak, etc.)

AutoVQT™

# AutoVQT™ Operations



# AutoVQT™ Analysis Time

- The following table summarizes the average time taken to analyze PCM files when they are provided at the same time using Windows® 11 Pro 64-bit operating system, equipped with a 12th generation Intel® Core™ i9-12900K processor at 3.20 GHz and on 32 GB of RAM

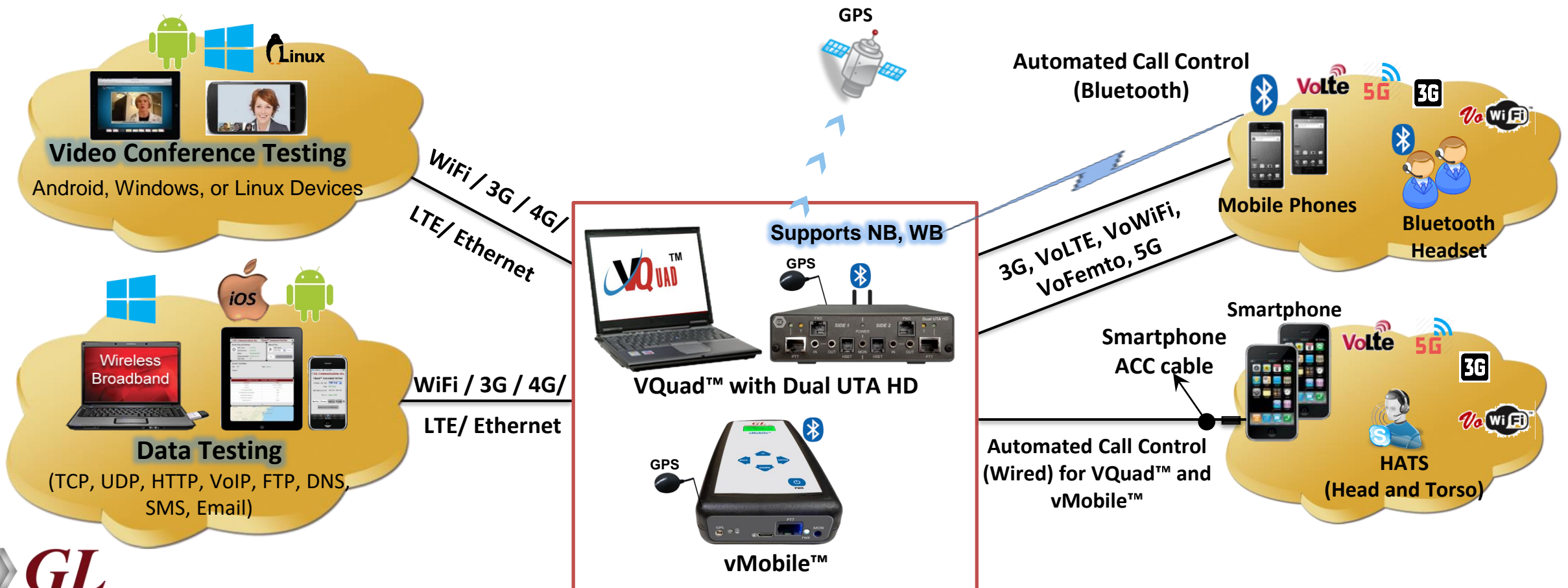
PCM Type	Approximate Time Required to Process 1000 PCM Files Simultaneously (Min : Sec)	Approximate Time Required to Process 1 PCM File (Sec)
Narrowband (NB)	02:01	0.12
Wideband (WB)	02:13	0.13
Super wideband (SWB)	02:26	0.14

- On average, when the application is required to analyze multiple PCM files with different sampling rates (300 NB, 300 WB, and 400 SWB files), the total time taken to analyze all the 1000 PCM files at the same time is approximately **02 minutes and 31 seconds**

# Testing Environments

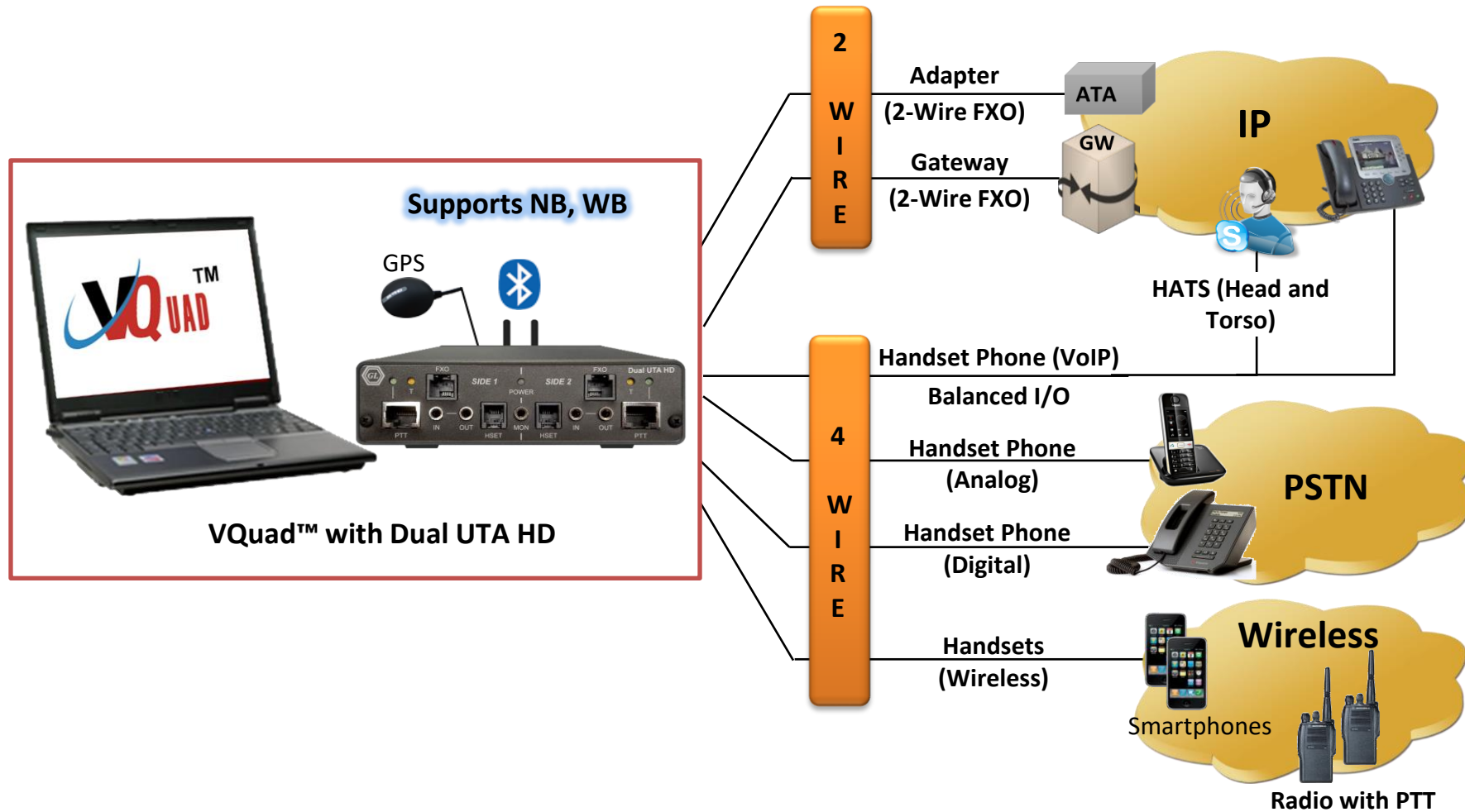
# Wireless Phone Network

- **Connectivity** - Bluetooth® NB & WB, PTT, GPS, Wired Headset Smartphone ACC, 4-wire Balanced I/O Interfaces on Dual UTA HD and vMobile™
- **Devices** – Military/Mobile Radios, 5G/4G/3G/WiFi Smartphones (all Mobile phones), Bluetooth® Headsets/Car Kits, Mobile devices with Smartphone ACC



# Analog Network (2-wire FXO and 4-wire)

- **Connectivity** – 2-Wire FXO, 4-Wire Balanced I/O, HSET Interfaces on Dual UTA HD
- **Devices** – Analog Phones, Next Generation Gateways, PBX, ATAs over PSTN network



# Mobile Radios (PTT)

- The vMobile™ and Dual UTA HD provides a contact-closure control to support the push-to-talk (PTT) function of a mobile radio
- Software (VQuad™/vMobile™) Script:
  - Enable PTT
  - Pause for User-Defined Period
  - Send Audio (VQT Reference) File
  - Pause for User-Defined Period
  - Disable PTT

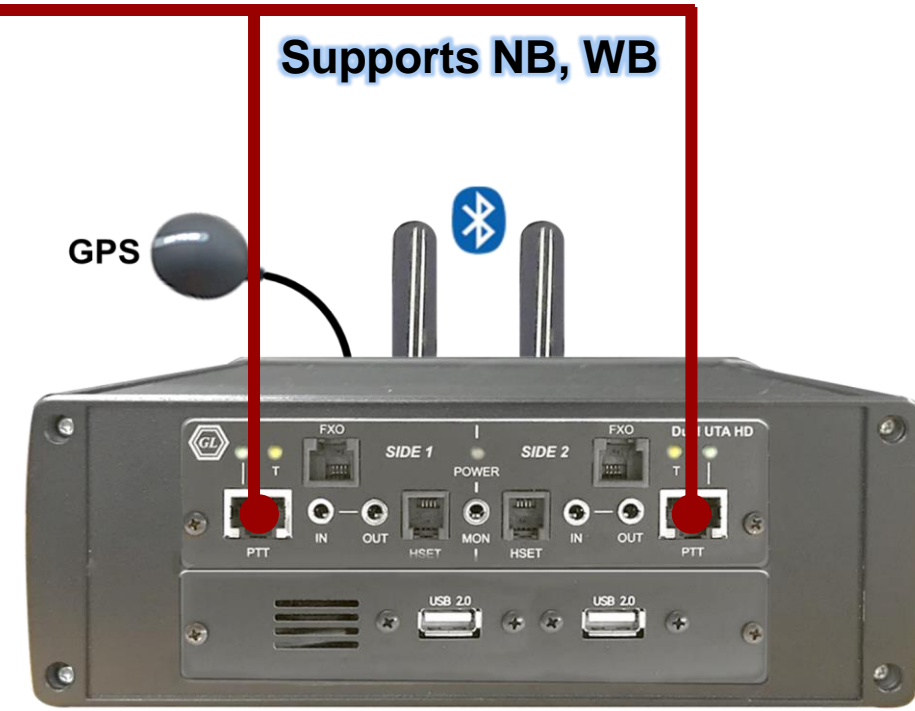


PTT Control Plus  
Audio IN/OUT



Mobile Radios

PTT Control Plus  
Audio IN/OUT

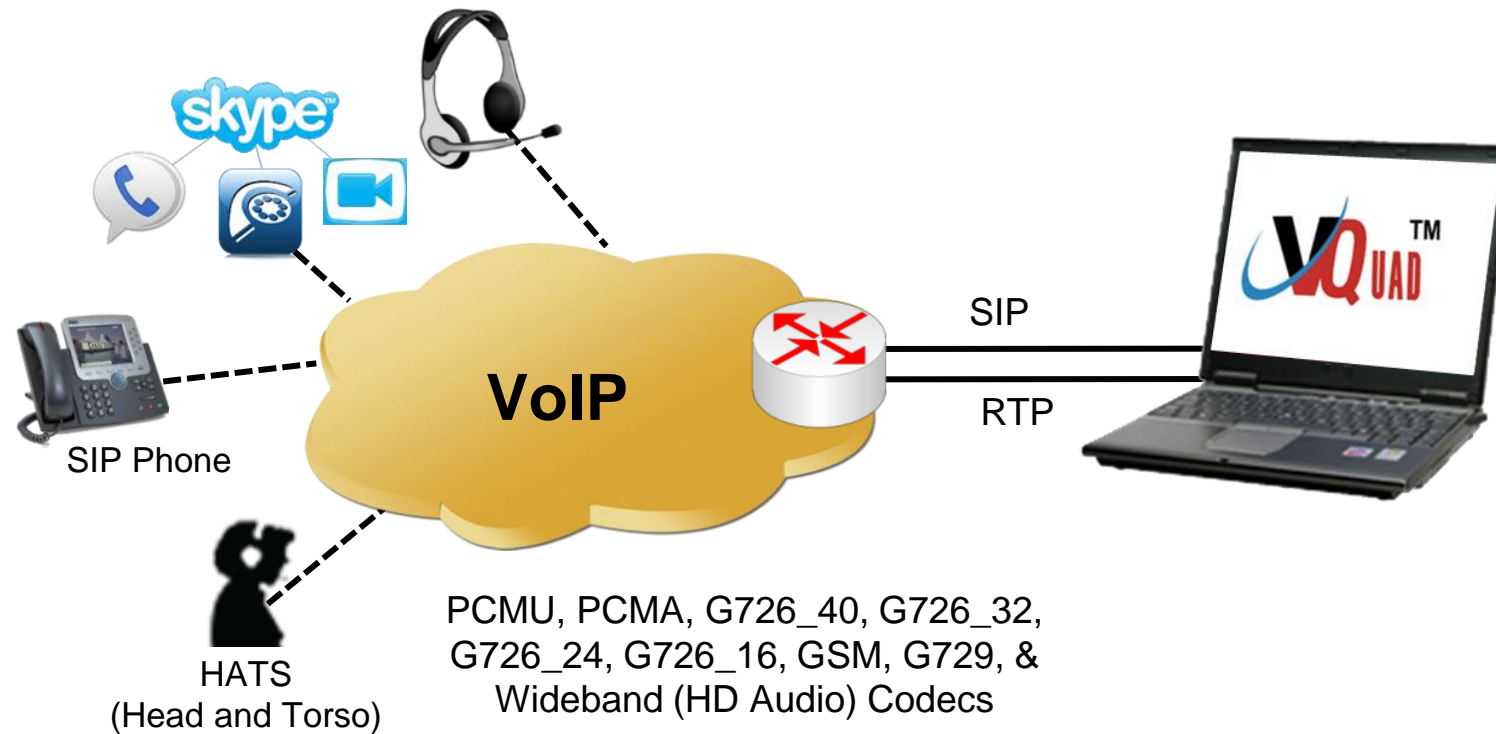


Supports NB, WB

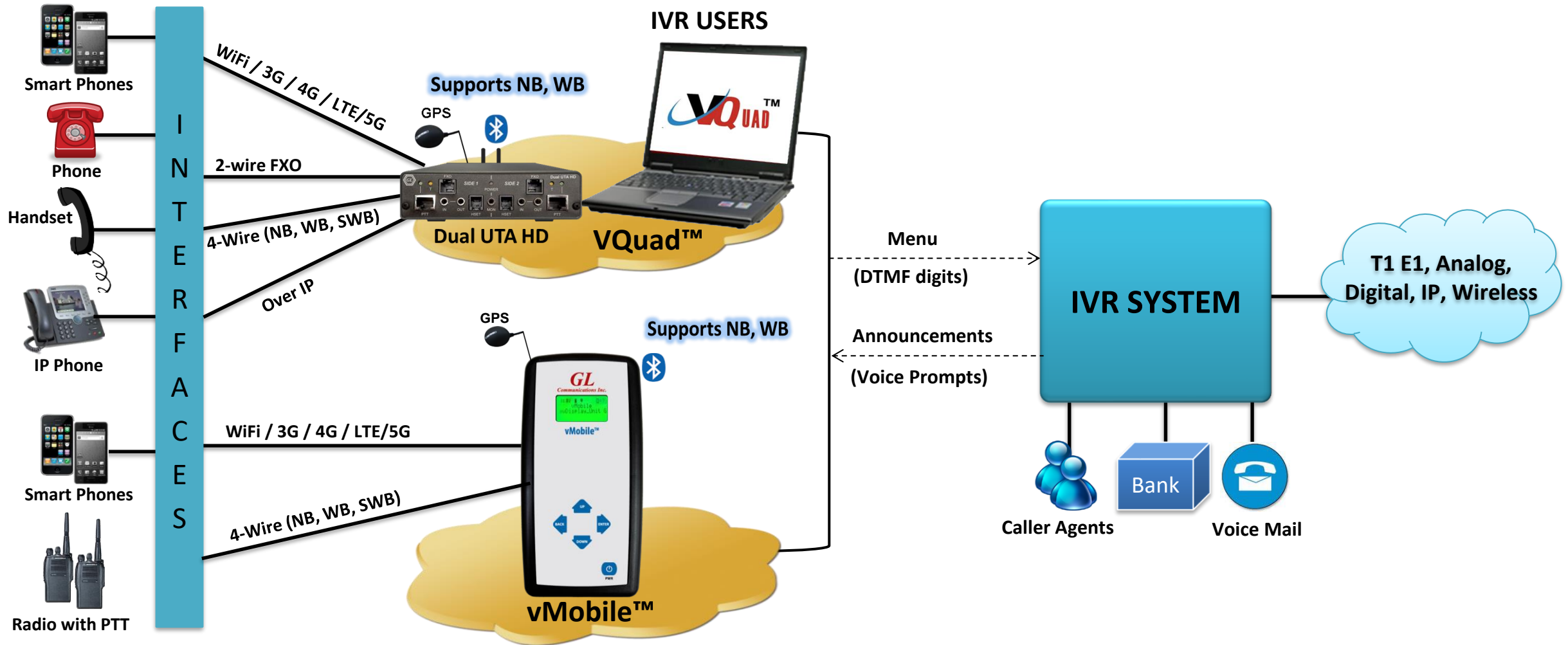
VQuad™ Probe HD

# VoIP (SIP) Interface, Digital VoIP Phones, VoIP Softphones

- **Connectivity** – Internal SIP cores within VQuad™ (SIP Signaling - Does not require Dual UTA HD), 4-wire Balanced I/O, HSET Interfaces on Dual UTA HD
- **Devices** – VoIP Phones, Soft Phone, HATS



# Interactive Voice Response (IVR) Systems



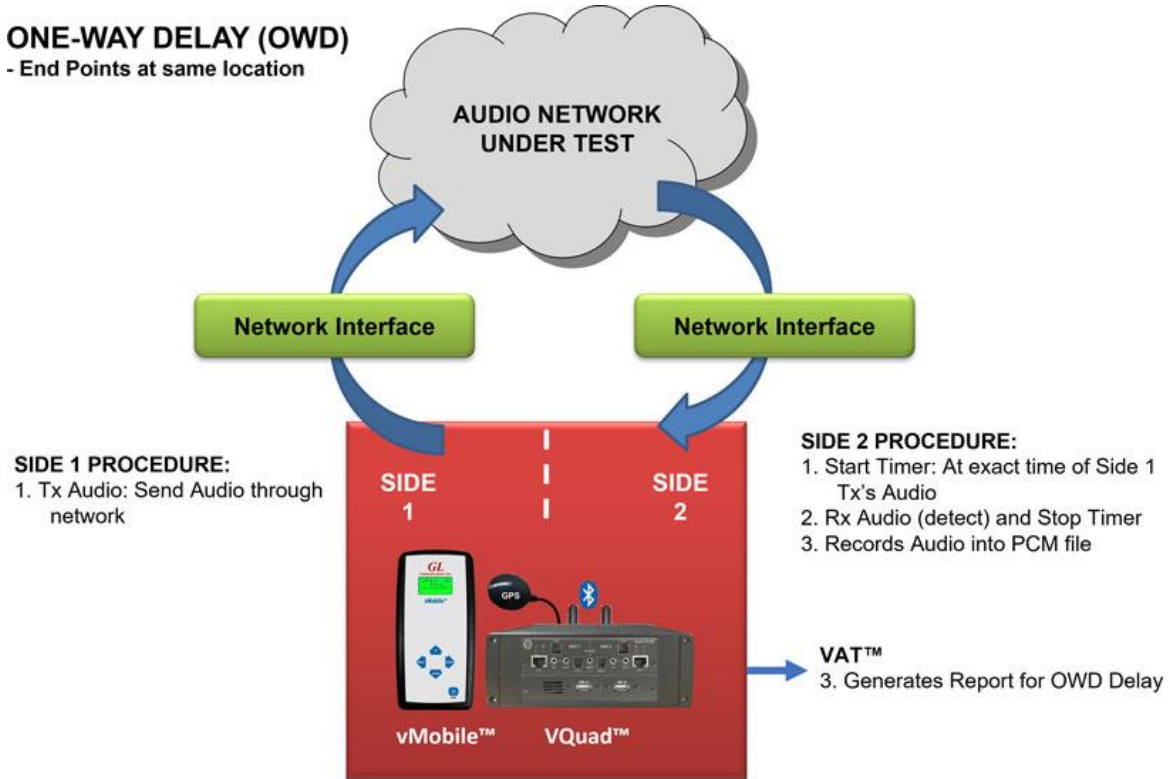
# Available Metrics

# Delay Measurements

## OWD - End points at same Location

### ONE-WAY DELAY (OWD)

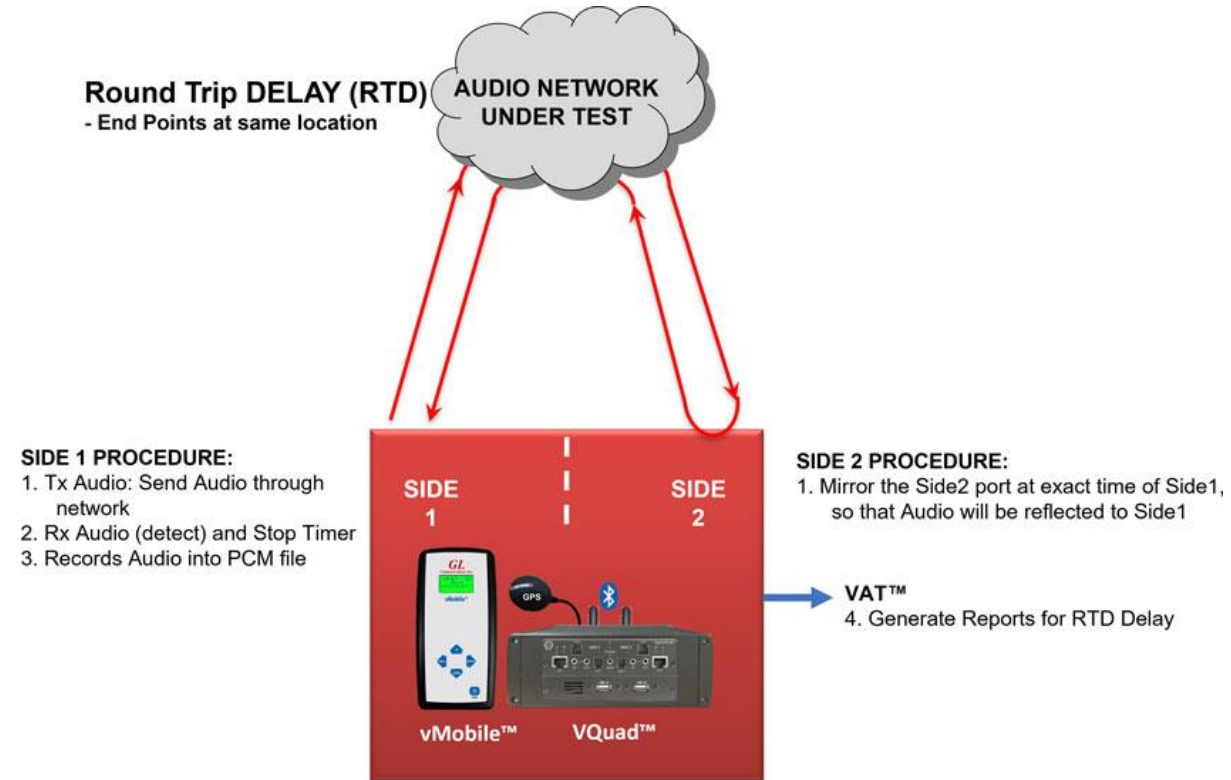
- End Points at same location



## RTD - End points at same Location

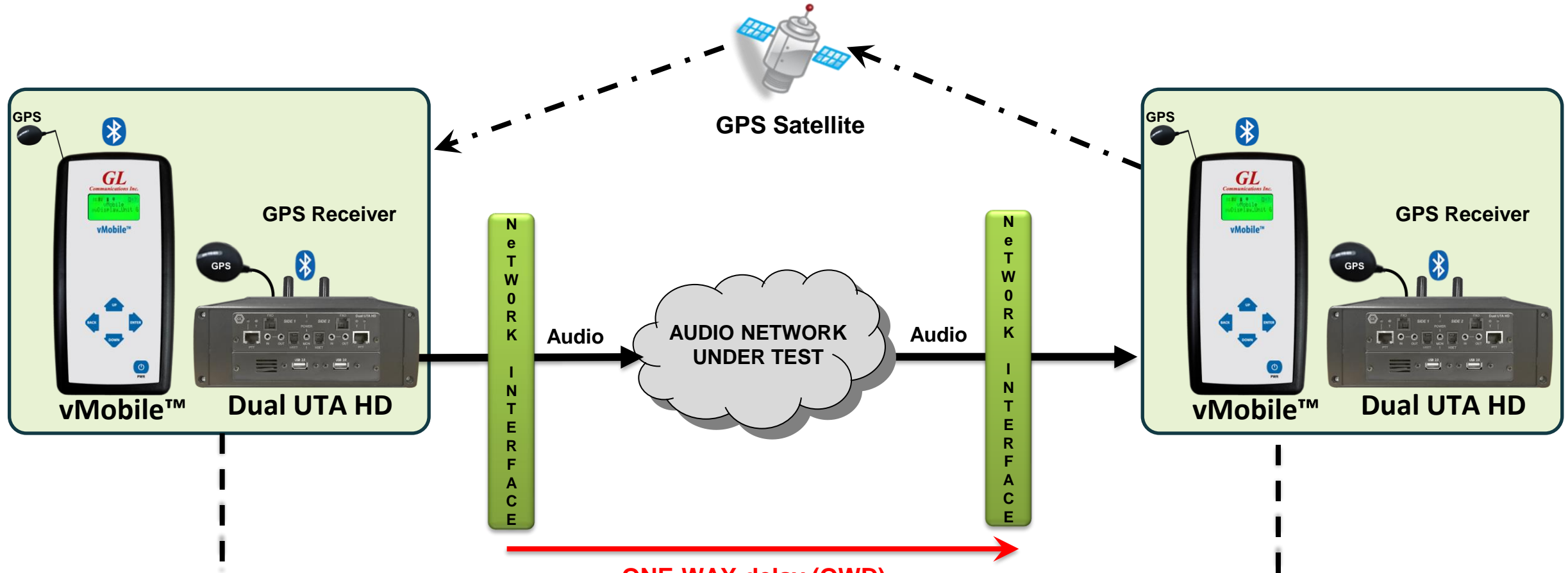
### Round Trip DELAY (RTD)

- End Points at same location



# One Way Delay (OWD)

End points at two separate locations

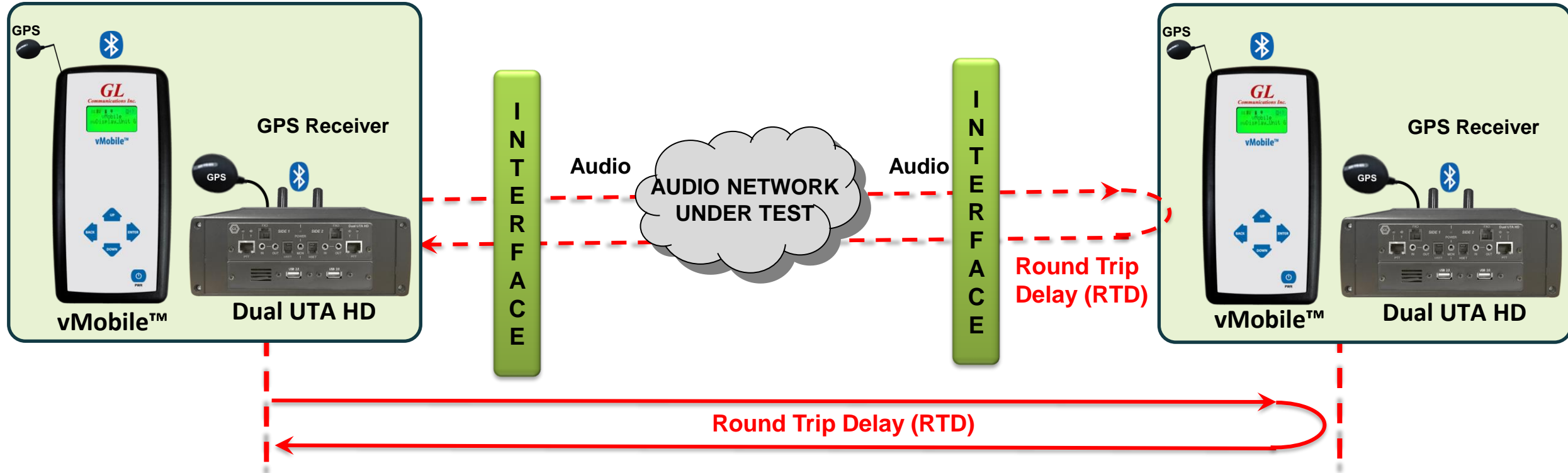


1. Tx AUDIO  
At pre-determined time (12:00:00.000)  
Send pulse through network

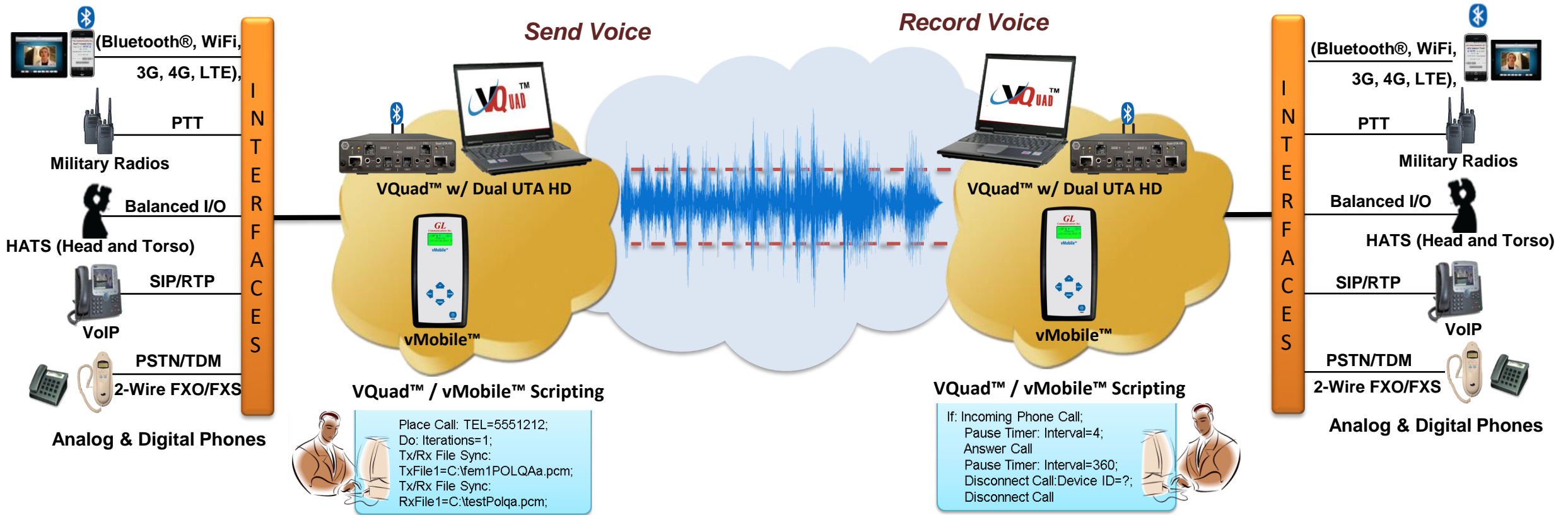
1. Start Timer  
At pre-determined time (12:00:00.000)
2. Rx (detect) pulse and Stop Timer  
Report delay (12:00:00.000 delay)

# Round Trip Delay Functionality

RTD on two systems (geographically separated)

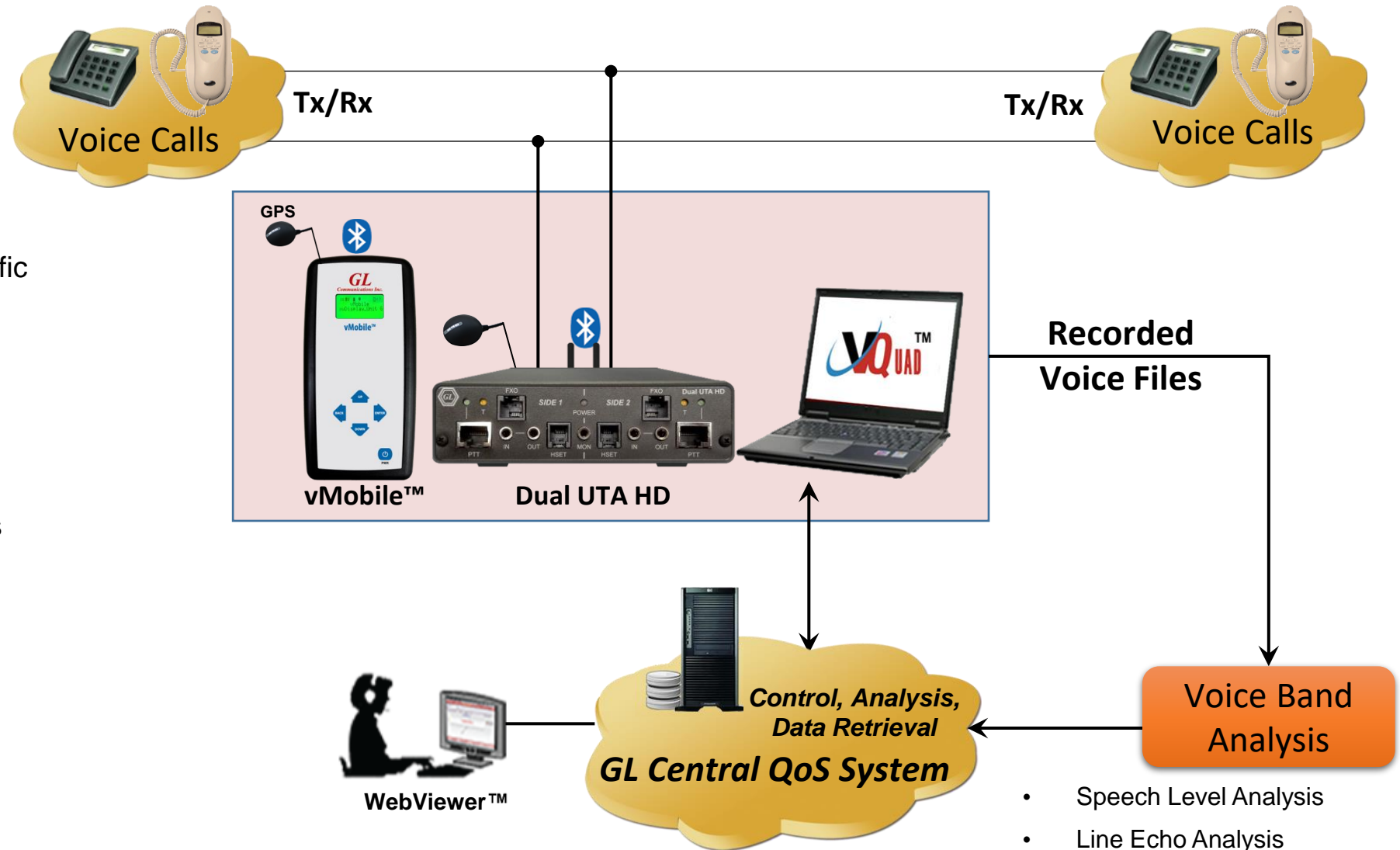


# Automated Voice Quality Testing



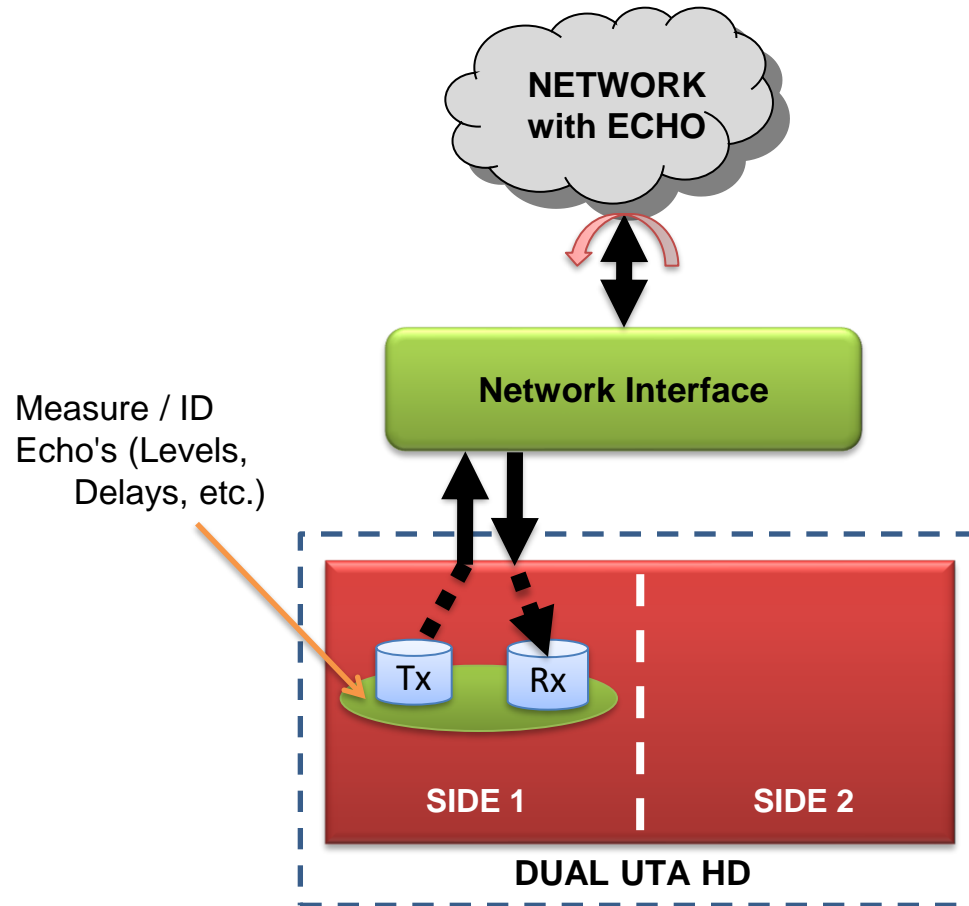
# Voice Band Analysis

- Monitor voice band traffic
- Active Speech Level
- Noise Level
- Power & Frequency
- Audio Dropout analysis
- RMS Factor
- DC Level

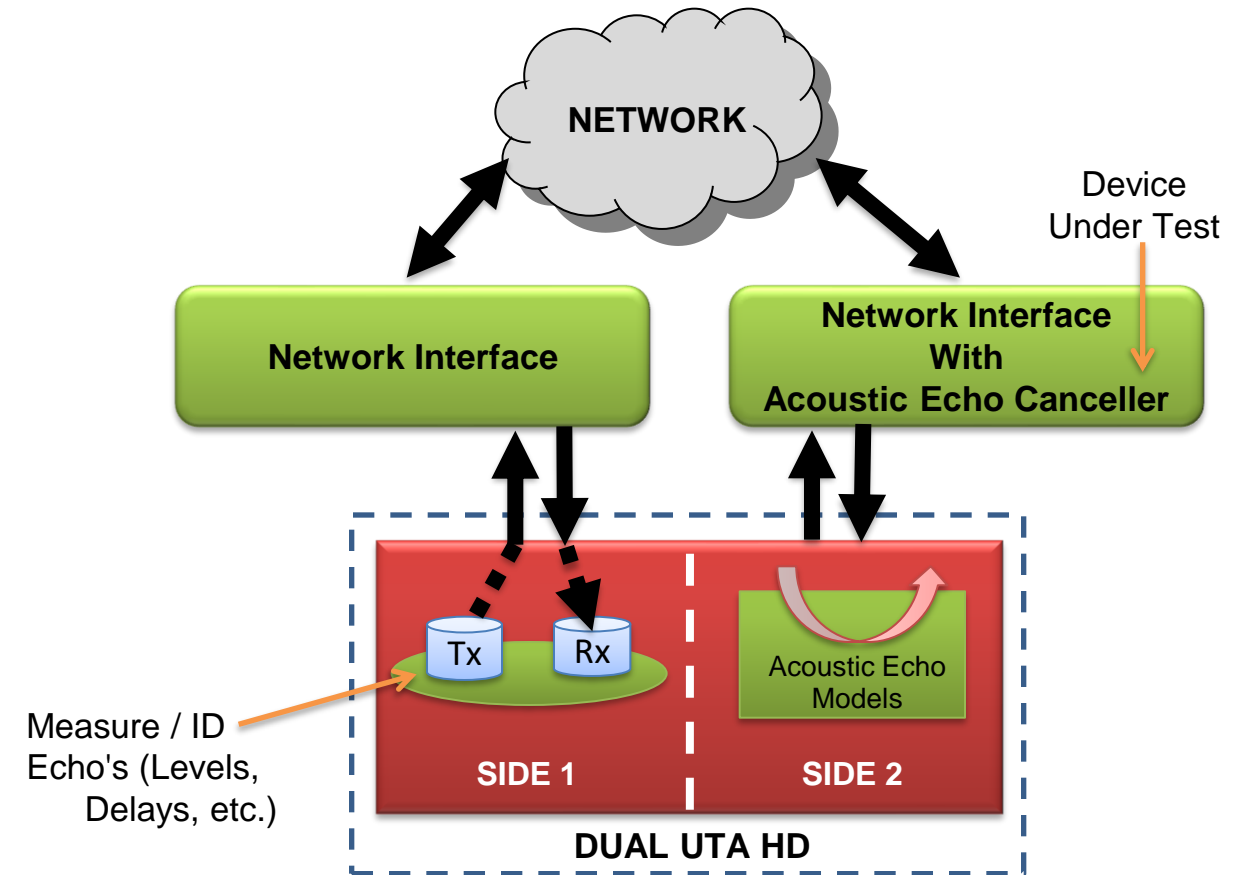


# Echo Measurements

## Echo Identification

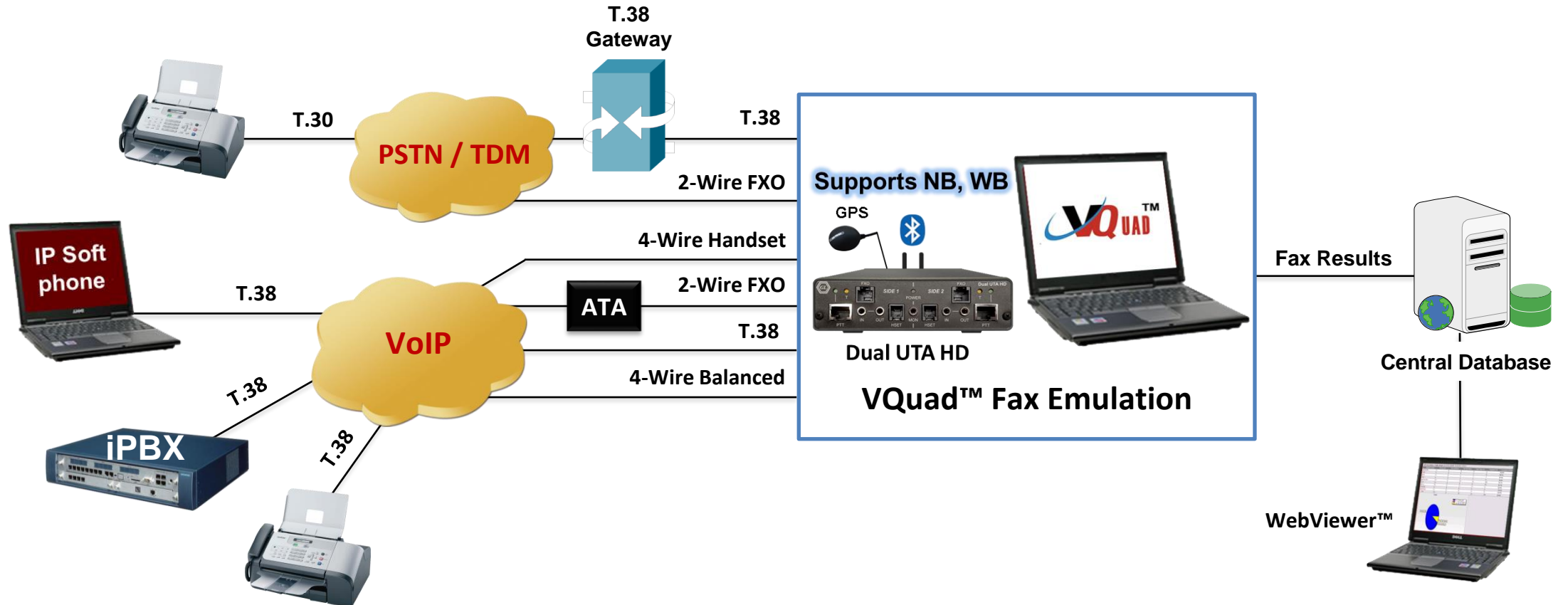


## Acoustic Echo Canceller Testing

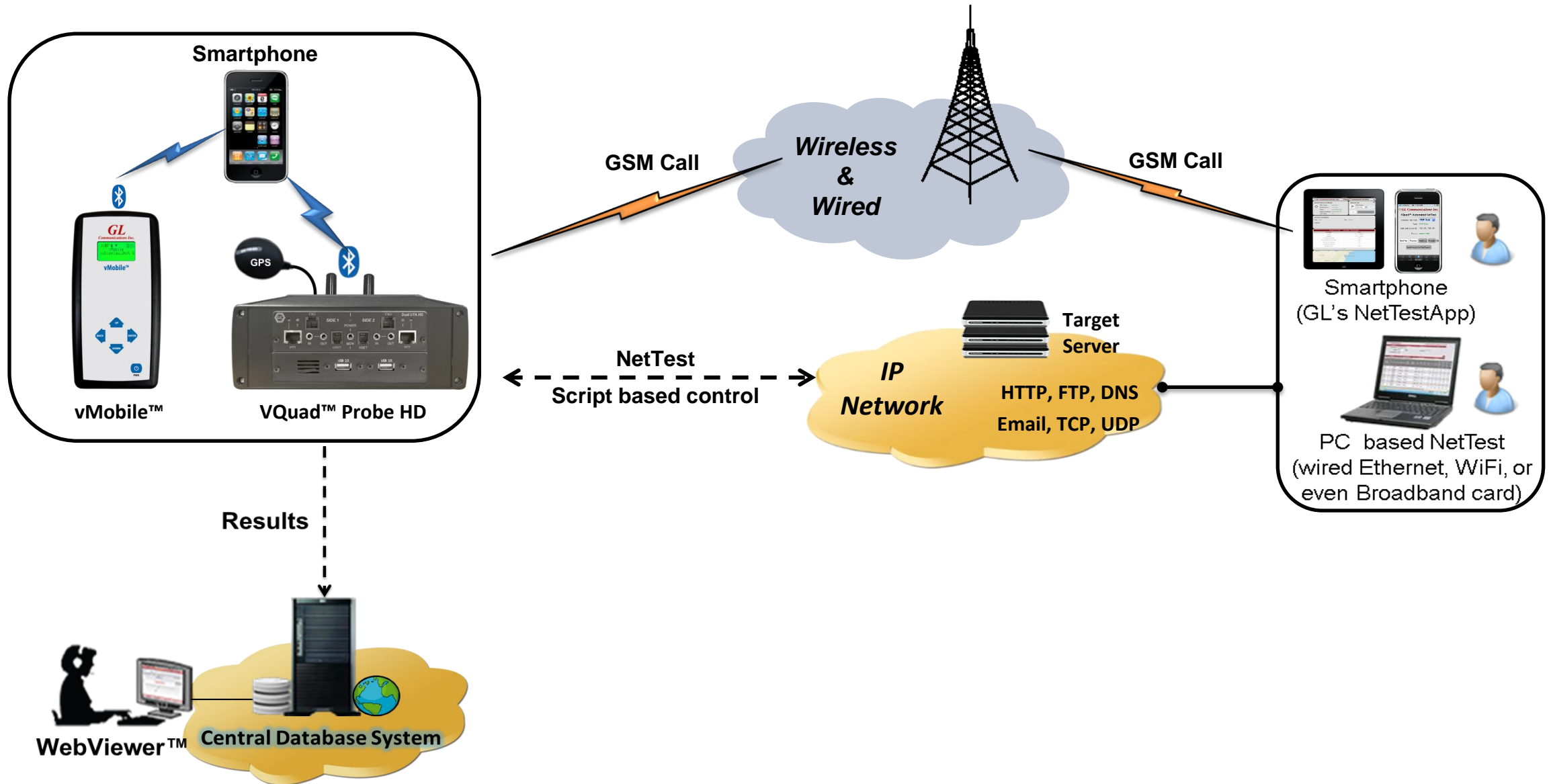


# Automated FAX Testing

- Sending and receiving 4 independent and simultaneous T.30 faxes (selectable up to V.34)
- Configurable Tx Rx fax rate from 2400 bps up to 33600 bps (V.34 fully supported)
- Fax Testing using the Dual UTA HD 2-wire FXO or 4-wire analog interfaces
- VQuad™ Fax events includes messages, summary, and errors log
- Ability to auto save fax (both East and West directions) to PCM file for enhanced analysis using GL Insight™ and GL Fax Demodulator/Decoder

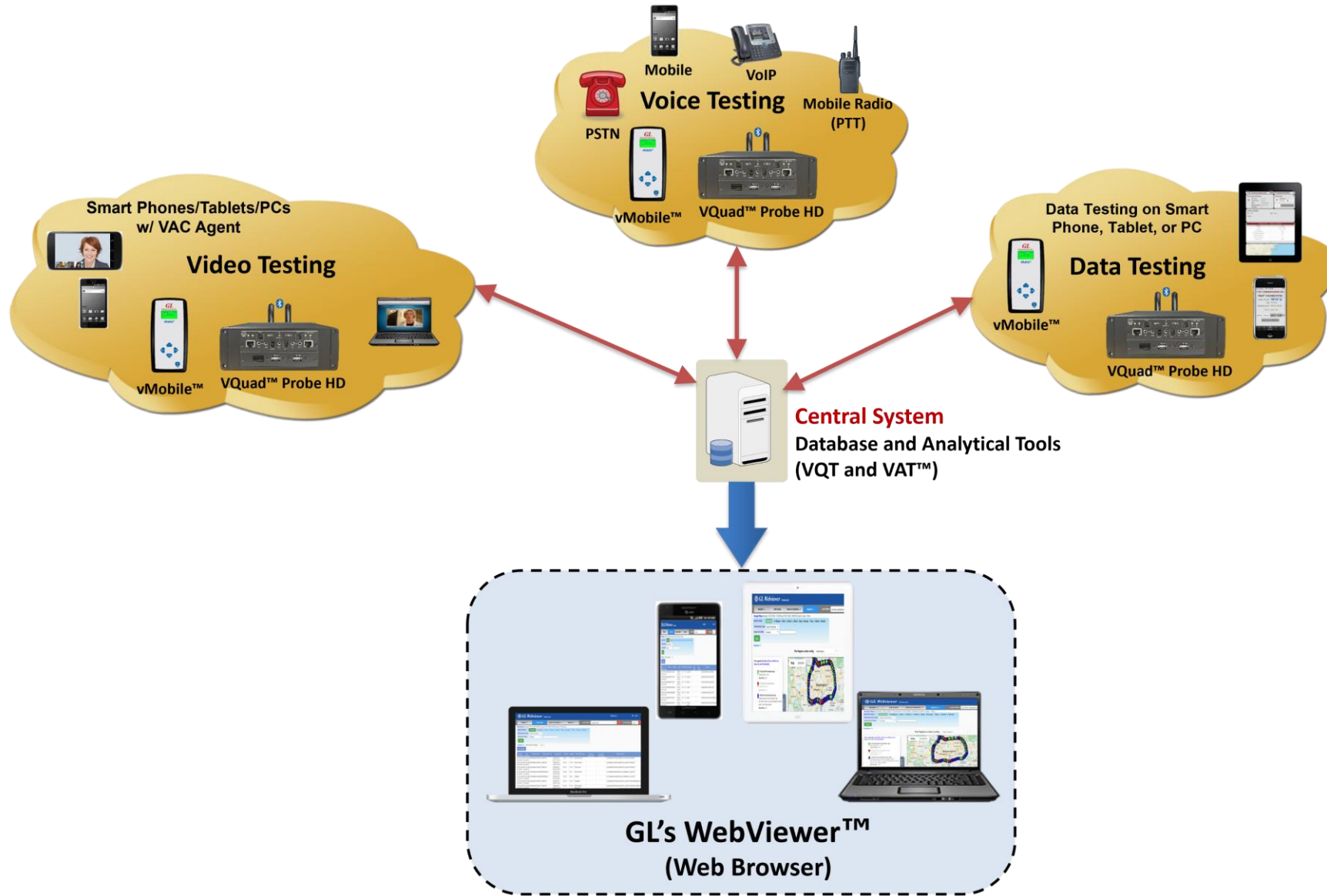


# End-to-End SMS Testing



# WebView™ (Web Based Client for Voice and Data Quality Testing)

# GL WebViewer™





# Network Status and Remote Access

- Displays status of all the VQuad™ probes (along with script running status), vMobile™, MDC, VQT, and File Monitor application status
- The VQuad™ and vMobile™ connected to the WebViewer™ can be accessed or controlled remotely through the web interface
- Various options are available to operate and control the systems remotely such as Load desired scripts along with script parameters, Start/Stop the scripts, and make configuration changes to the VQuad™ systems

VQuad

vMobile

MDC (NetTest)

VQT

File Monitor

✔

- Node Connected

✔

- Node Connected and Running Scripts

✖

- Node Disconnected

⛔

- Node Out of service

	PC Name	Version	VQuad Name	Latitude	Longitude	Devices Count	IP Address	Central IP Addresses	Location	Dual UTA	Last Active	Use BT Name	Grab Mac	Actions
^	✔ GLIN-23	V10.8 Release	Raga	12.93	77.6	7	AUTO GET LOCAL IP	PRIMARY IP	Fixed	Firmware version: 6/23/21 v72 Serial number: 157412 HV2	6/26/2023 7:43:46 AM	OFF	OFF	<div>✎</div> <div>✖</div>
∨	✔ ROBTOWER	V10.7.7	RBICHOFFTESTPC	39.14	-77.22	6	USE THIS AS LOCAL IP	PRIMARY IP	Fixed	Firmware version: 6/23/21 v72 Serial number: 157214 HV2	6/26/2023 7:43:46 AM	OFF	OFF	<div>✎</div> <div>✖</div>

VQuad Device Script Running Status

Device Type	Device Name	Script Name	Call Status	Call Type	Global Device & Start Variables	Start/Stop Script	Script Status	Actions
DuFxo	RobFXO1	TestSchedule1	CONNECTED		Variables	⏹ Stop	✔	<div>✎</div>
DuFxo	RobFXO2	VQuad Fax Emulation_FXOAnswerCall	CONNECTED		Variables	⏹ Stop	✔	<div>✎</div>
NetTest	PCNetTest	VQuad Fax Emulation_FXOAnswerCall	IDLE		Variables	▶ Start	✖	<div>✎</div>
NetTest	MDNetTest-Acer	UserEventTest_Control	IDLE		Variables	▶ Start	✖	<div>✎</div>
NetTest	VQNetTest-5	PCNetTest	IDLE		Variables	▶ Start	✖	<div>✎</div>
NetTest	MDNetTest-GS	VACTest1	IDLE		Variables	▶ Start	✖	<div>✎</div>

Bluetooth/FXO

^	✖ GLIN-07	V10.7.4	GLIN-07			2	AUTO GET LOCAL IP	PRIMARY IP	Fixed	Firmware version: 11/28/16 v20 Serial number: 156648 HV1	4/4/2023 3:45:12 PM	OFF	OFF	<div>✎</div> <div>✖</div>
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# Filters

**CLOSE**

**Modify filters**

Select Filter

VQT\_POLQA

X

Select dates Range

03/13/2023 01:00:00

03/15/2023 01:00:00

Clear

Select Map Region

Select

↓

☐ Omit Failed Calls

☐ Auto set to browser Timezone

Call Direction (Inbound / Outbound)

Both

↓

Results List

VQuad Call ID

↓

Operators

Starts with

▼

Criteria

Input

Save Criteria

Saved criteria

Note: Click on any row in the below table to Edit

Audio/Delay	OWD (ms)	In range of	0	400	AND	
VQT POLQA	Active Speech Ratio - Deg (%)	Greater than or equals	50	--	AND	
VQT POLQA	Active Speech Ratio - Ref (%)	Equals	57	--	AND	
VQT POLQA	POLQA MOS	Greater than or equals	4	--	AND	
VQT POLQA	Active Speech Level - Ref (dBm)	Equals	-24.28	--	AND	
VQT POLQA	POLQA OWD (ms)	Greater than or equals	600	--	AND	
VQT POLQA	Jitter Ave (ms)	Less than or equals	2	--	AND	
	VQuad DeviceID	Contains	FXO1		OR	
	VQuad Call ID	Contains	FXOPOLQATest		OR	

Save Filter

Delete Filter

Updated successfully

# Report Generation

- The user can save the search results to a local PC in \*.xls / \*.csv / \*.pdf formats. Custom reports are generated using DataImport for Events and Statistics, which can be saved to text or Excel output files via WebViewer™
- Google Maps plotting of various test results (VQT, VBA, VAC, EMU, NetTest, FAX, Call Control)
- Console View - customizing the threshold values for the test result parameters to populate the consolidated Average, Min, Max results in tabular format and plot corresponding graphics statistics

The screenshot displays the GL Webviewer interface, Version 6.1.11. The top navigation bar includes 'Results', 'Call Events', 'Status & Statistics', and 'Reports'. The 'Reports' menu is open, showing options: 'Call Process Graphics', 'Analysis Graphics', 'Custom Reports' (highlighted), 'Google Maps', 'ITS Viewer', and 'Console View'. The main content area shows filters for 'Date & Time' (Standard), 'Timestamp Type' (VQuad / vMobile Timestamp), and 'Event ID Filter' (Contains). Below these are 'Actions' for 'Method of Filtering' (Aggregate Based Results selected) and 'Select Reports' (RobVQuadTest). A table at the bottom shows test results for 'GLRobFaxVQTest'.

VQuad Call ID	Completed Calls	Connected Calls	Call Dropped	Incoming Calls	Fax Done	Fax Success	VQT POLQA	Call Failed	Speech Level Gain	Call Attempts
GLRobFaxVQTest	100%	100%	0	2441	2437	99.88%	4.23	0	-13.69	2440

## Call Events and Scheduling the Reports

## VQuad WebViewer - Real Time Monitoring System

Report Name : RobGroup1 (RobVQuadTest, RobDelayTest, RobNetTest, RobPOLQAResults)

End Datetime : 2021-10-20 00:30:02

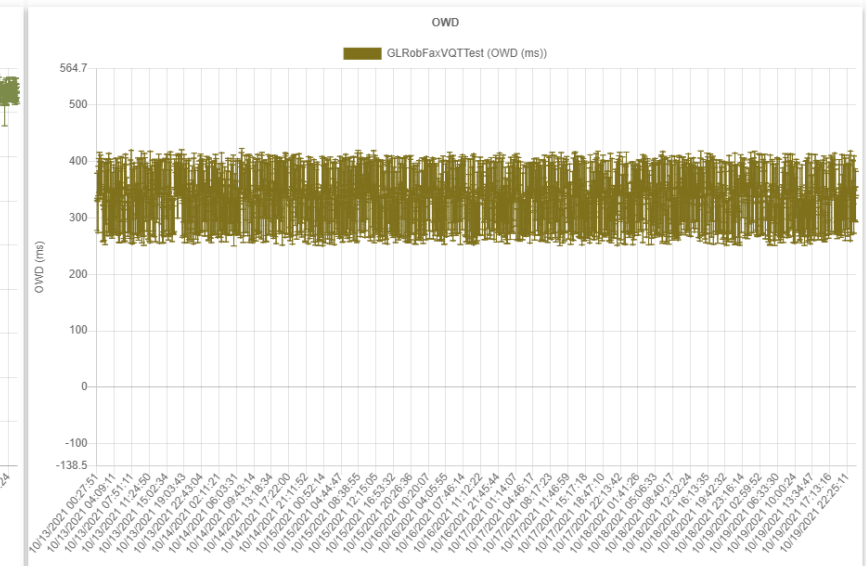
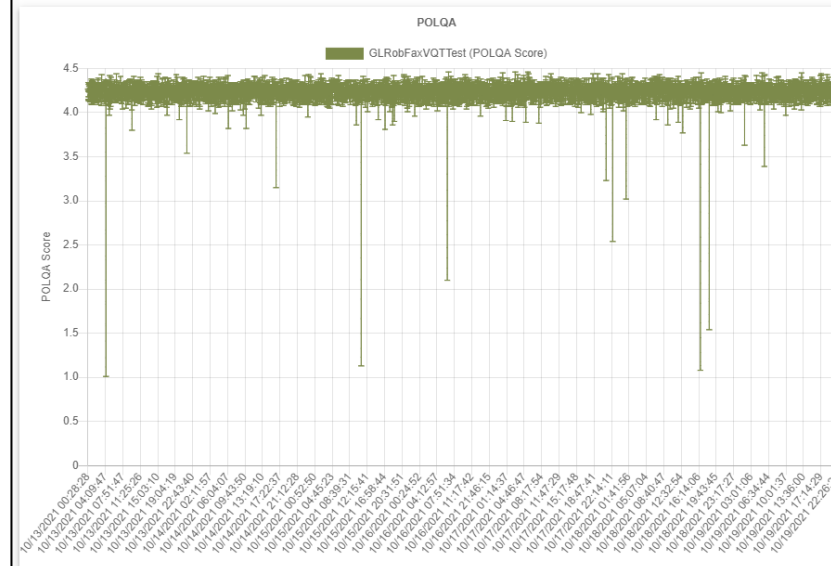
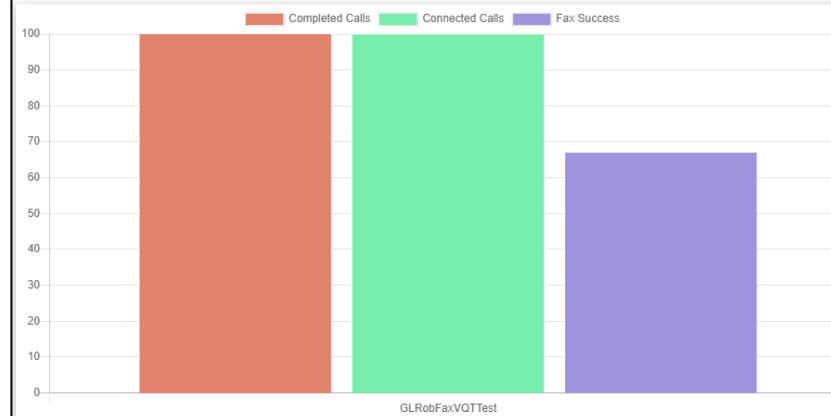
**GL Communications Inc.**

## Filters

Load Filter : Off

VQad Call ID	Completed Calls	Connected Calls	Call Dropped	Incoming Calls	Fax Done	Fax Success	VQT POLQA	Call Failed	Speech Level Gain	Call Attempts
GLRobFaxVQTest	100%	99.87%	3	1965	1565	66.99%	4.24	0	-13.79	2336

◀ ◁ ▷ ▶

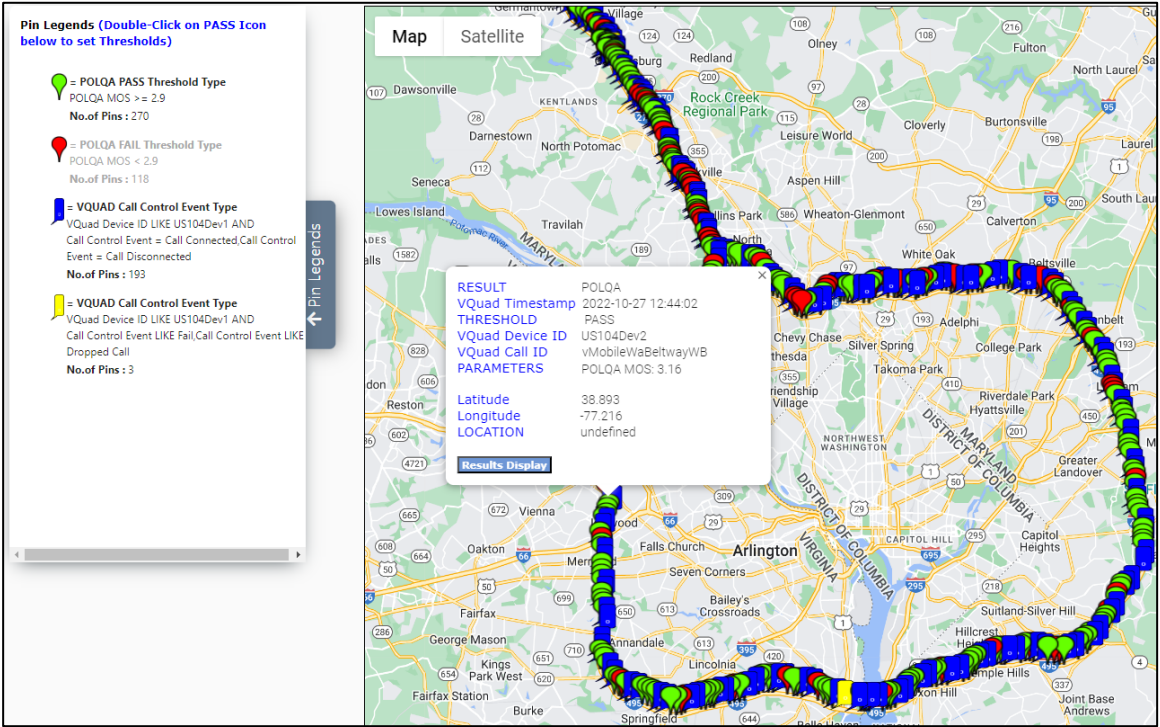


# Drive and Walk Testing for Wireless Networks



- Drive test with any Wireless device with real-time GPS mapping
- GPS connectivity for recording timing and location of tests performed
- The GPS mapping records and adds the real-time GPS information to all test results and vMobile™ call control
- GPS Location includes stamping each result with Latitude, Longitude, and GPS Time Stamp
- GPS information is automatically sent to central database and accessed via Google Maps feature in WebViewer™

# Real-time GPS and ITS Plotting

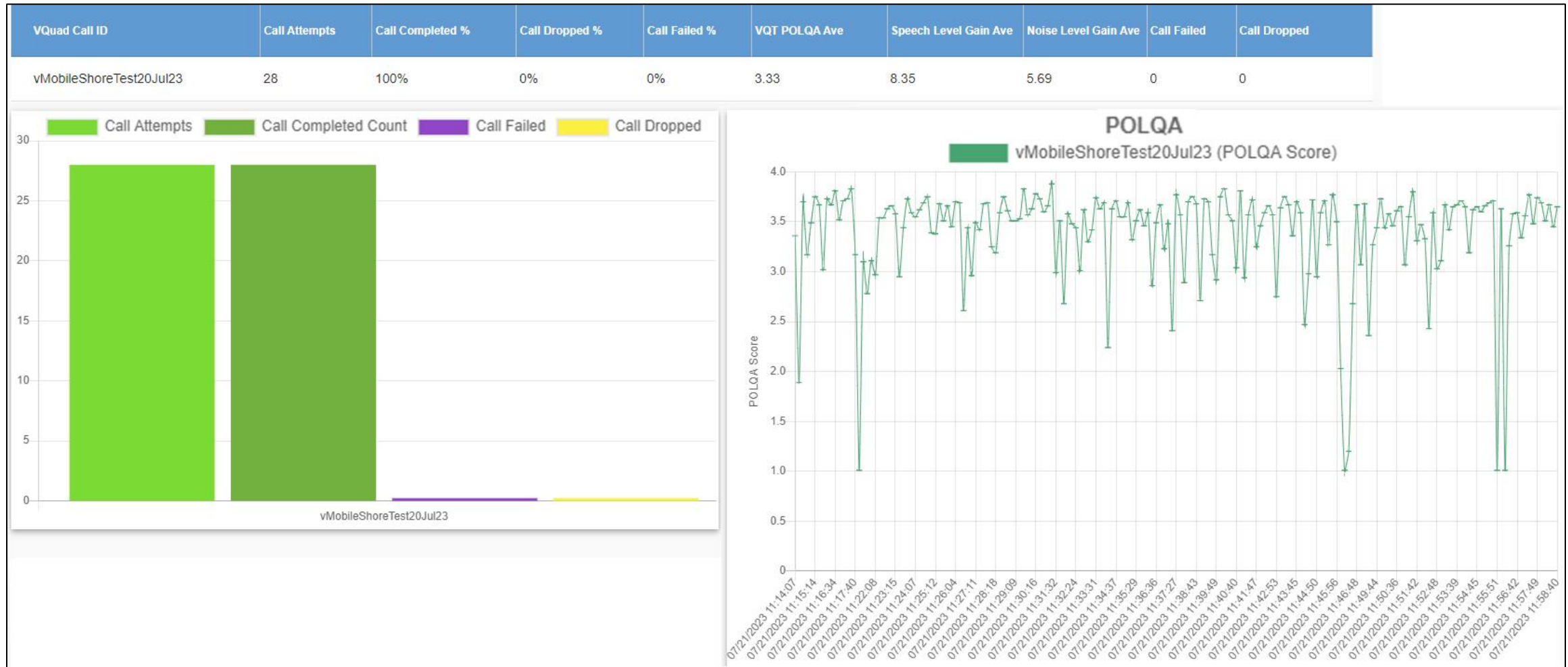


Real-time GPS Plotting

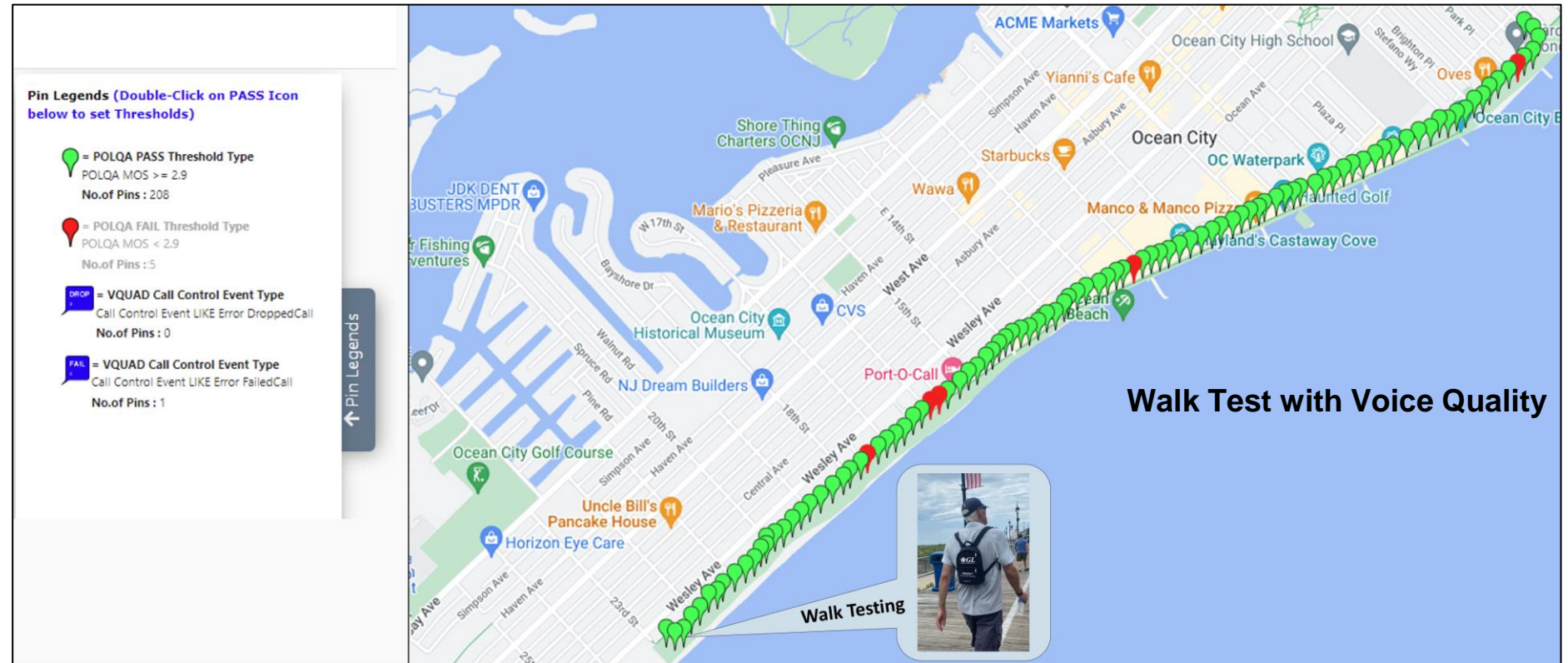
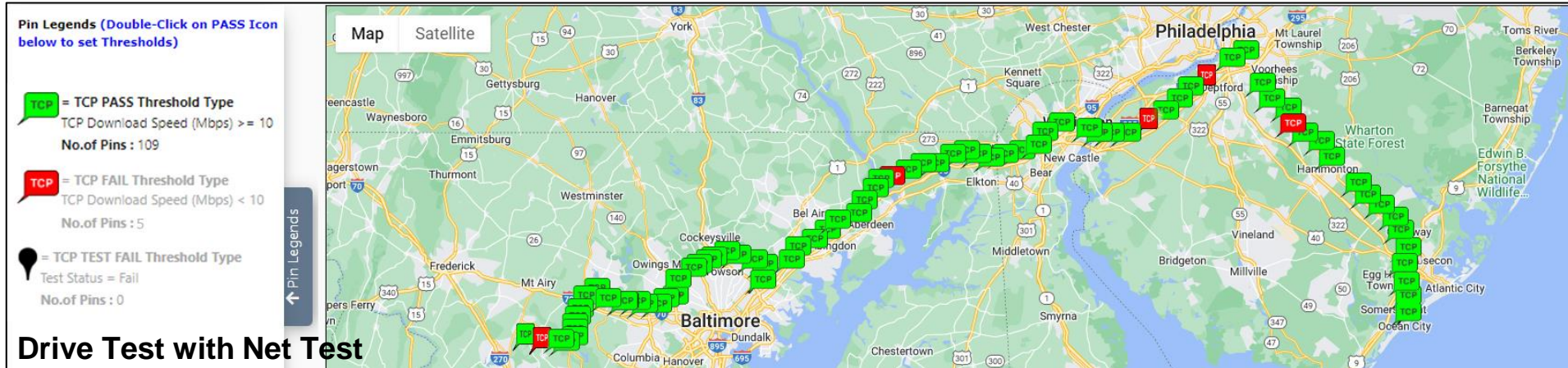


Real-time ITS Plotting

# Results in WebViewer™ - Custom Reports

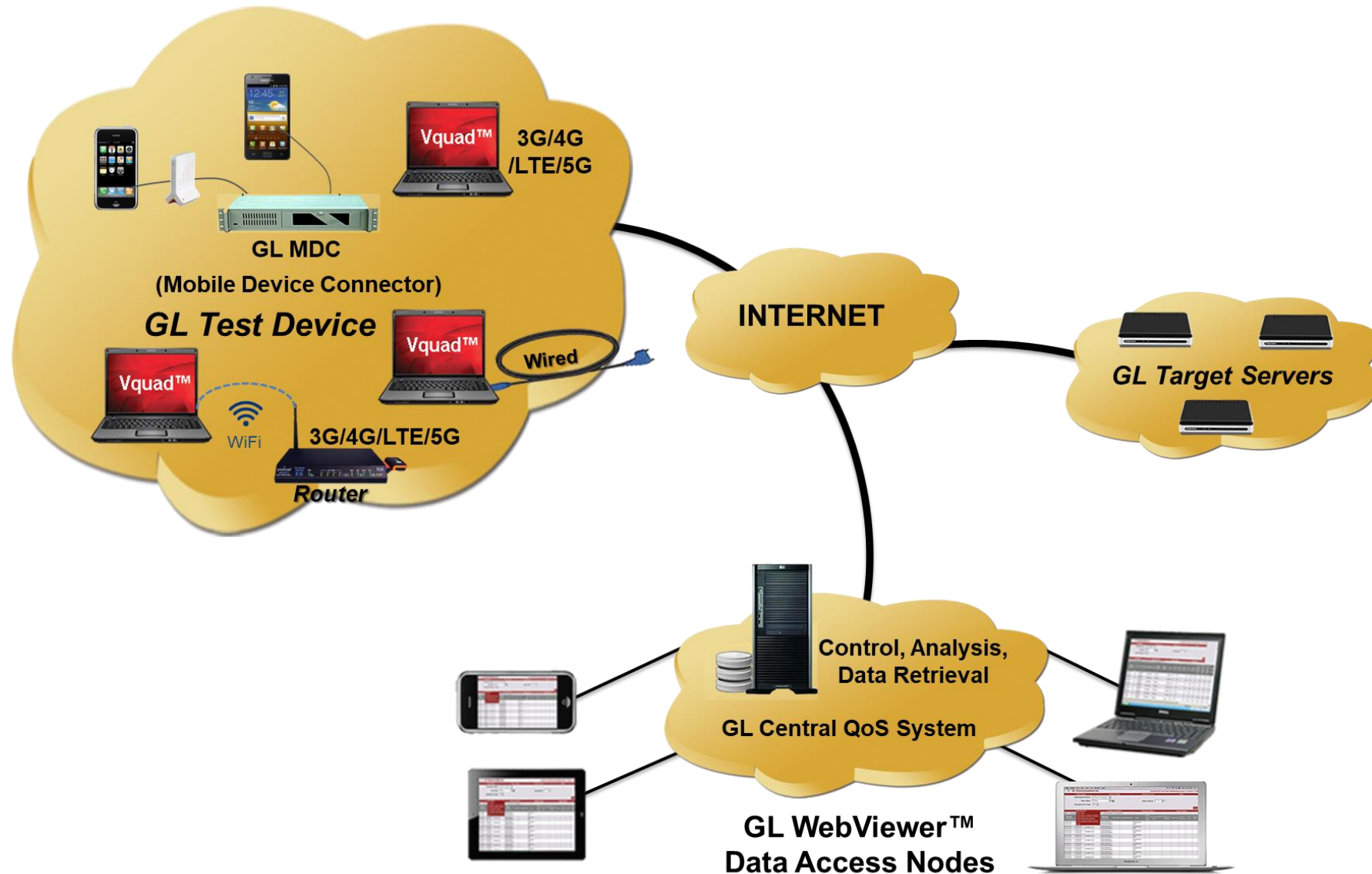


# Results in WebViewer™ - From Drive and Walk Test



# GL NetTest - Data Testing

# Automated Data Testing over Wired & Wireless (Bluetooth®, WiFi, 3G, LTE, 5G) Networks



# Mobile Device Controller (MDC) GUI

- GL's Mobile Device Controller application and the supporting downloadable apps on the Smartphones (iPhone, Android), can remotely perform the data tests when the phone is within a voice call or outside a voice call

The screenshot displays the Mobile Device Controller (MDC) GUI. At the top, there's a menu bar with 'File' and 'Help'. Below it, the 'PhoneApp Server IP' is set to '127.0.0.1'. The 'Command' dropdown is set to 'Start AutoTest'. The 'Device Name (UUID)' dropdown is set to '..U3NP - iphone3GS'. The 'Auto Test Parameters' section includes 'Call ID' set to 'MDCAutoTest', 'Loop' set to 'Continuous', and 'Time Interval (s)' set to '5'. A red 'Server Disconnect' button is visible. Below these are buttons for 'Perform Function', 'Refresh Phone List', and 'Manage Devices'. The 'Test Parameters' dropdown is set to 'TCP 122.181.135.187:81 8000 Both Off On'. The main section is a table with tabs for 'Phone List', 'Events', 'Client List', 'Received Message', and 'Audit Log'. The 'Phone List' tab is active, showing a table of connected devices. The table has columns: PhoneID, Device Name (UUID), Phone Number, Device Model, Device G..., Remote IP: Devi..., Test Status, Pr..., A..., and Last Activity. The bottom section contains 'Central Database Settings' with a checked box for 'Send Manual Results to Central Database', 'Central Database IP' set to '122.181.135.187', and buttons for 'Clear Local Event Log' and 'Resend Phone Info'. A status bar at the bottom indicates 'Central DB Connected'.

PhoneID	Device Name (UUID)	Phone Number	Device Model	Device G...	Remote IP: Devi...	Test Status	Pr...	A...	Last Activity
000003	..2925 - Nexus	NA	Nexus S	12.927,7...		PhoneIdleAutoTest		5	08/05/2014 12:00:12
000005	..8960 - iBall	NA	iBall Slide 3G Q...	12.927,7...		PhoneIdle		5	08/04/2014 18:48:08
000008	..DKPJ - GL's iPad	No Sim	iPad2 Wifi	12.926,7...	LocalHost	PhoneIdleAutoTest		5	08/05/2014 12:00:09
000004	..U3NP - iphone3GS	No Sim	iPhone3GS	12.926,7...		PhoneIdleAutoTest		5	08/05/2014 12:00:09
000007	..7047 - GT	NA	GT-I9060	0.0.0.0		PhoneSuspended		900	08/05/2014 11:45:59
000011	..hYU= - Nokia 630	NA	NOKIA RM-976...	0.0.0.0	LocalHost	PhoneIdle		5	08/05/2014 12:00:13
000002	..DTD0 - GLiphone4s	No Sim	iPhone4S	12.916,7...	122.181.135.18...	PhoneIdle		5	08/03/2014 22:13:18
000012	..0452 - motoe	NA	XT1022	12.926,7...	LocalHost	PhoneIdle		5	08/05/2014 12:00:10
000009	..3018 - HTC	NA	HTC Desire 60...	12.927,7...	LocalHost	PhoneIdle		5	08/04/2014 12:31:05
000006	..5103 - LG	NA	LG-P936	0.0.0.0		PhoneIdle		5	08/05/2014 11:49:24
000014	..e0dc - Nexus7Tab	NA	Nexus 7	0.0.0.0		PhoneIdle		5	08/04/2014 19:15:33

# VQuad™ NetTest Events Log

- Mobile Device NetTest and PC based NetTest Statistics and complete results are relayed back to VQuad™, which can be access via WebViewer™

**Note:** NetTest requires a GL Data Server at each target location, and the mobile device requires a GL deployed app (Apple or Android based) for operation

Timestamp	Phone ID	GPS	Test Type	Results
11/10/2011 2:27:01 PM	RobMDNetTest2	N39°08'40" W77°13'19"	TCP	Upload Window Probes Received=0
11/10/2011 2:27:01 PM	RobMDNetTest2	N39°08'40" W77°13'19"	TCP	Upload Zero Window Updates Sent=0
11/10/2011 2:27:01 PM	RobMDNetTest2	N39°08'40" W77°13'19"	TCP	Upload Bytes Lost=0
11/10/2011 2:27:01 PM	RobMDNetTest2	N39°08'40" W77°13'19"	TCP	Max Route Speed(Mbps)=4
11/10/2011 2:27:01 PM	RobMDNetTest2	N39°08'40" W77°13'19"	TCP	Round Trip Time(ms)=123
11/10/2011 2:27:16 PM	RobNetTest	N39°08'36" W077°12'57"	UDP	Download Capacity(Mbps)=92.3240
11/10/2011 2:27:16 PM	RobNetTest	N39°08'36" W077°12'57"	UDP	Download QOS(%)=96.8
11/10/2011 2:27:16 PM	RobNetTest	N39°08'36" W077°12'57"	UDP	Download Packet size(Bytes)=1400
11/10/2011 2:27:16 PM	RobNetTest	N39°08'36" W077°12'57"	UDP	Download kilopackets/sec=8.928

Device Id	Phone Name	Test Type	Status	Test Progress	Get Log
RobTest1					Get Log
RobTest2					Get Log
RobNetTest	PCNetTest	UDP	Running	<div></div>	Get Log
JobMDNetTest	RobAndroid	VoIP	Running	<div></div>	Get Log
JobMDNetTest	ATTPhone4	UDP	Started		Get Log

MDNetTest Status: UDP Started

# Data Tests running on Android and Apple Devices using GLNetTest App

\*\*\*\*\* Airtel 4:12 pm 100%

**GL Communications Inc.**

**VQuad™ Automated NetTest**

[Set FTP Params](#) ⓘ

FTP IP:

Port:

User Name:

Password:

Put File Size:

Directory:

Mode:  ⓘ

**GL Communications Inc.**

**VQuad™ Automated NetTest**

[Set Receive SMS Params](#) ⓘ

Number of Messages to read from each phone:

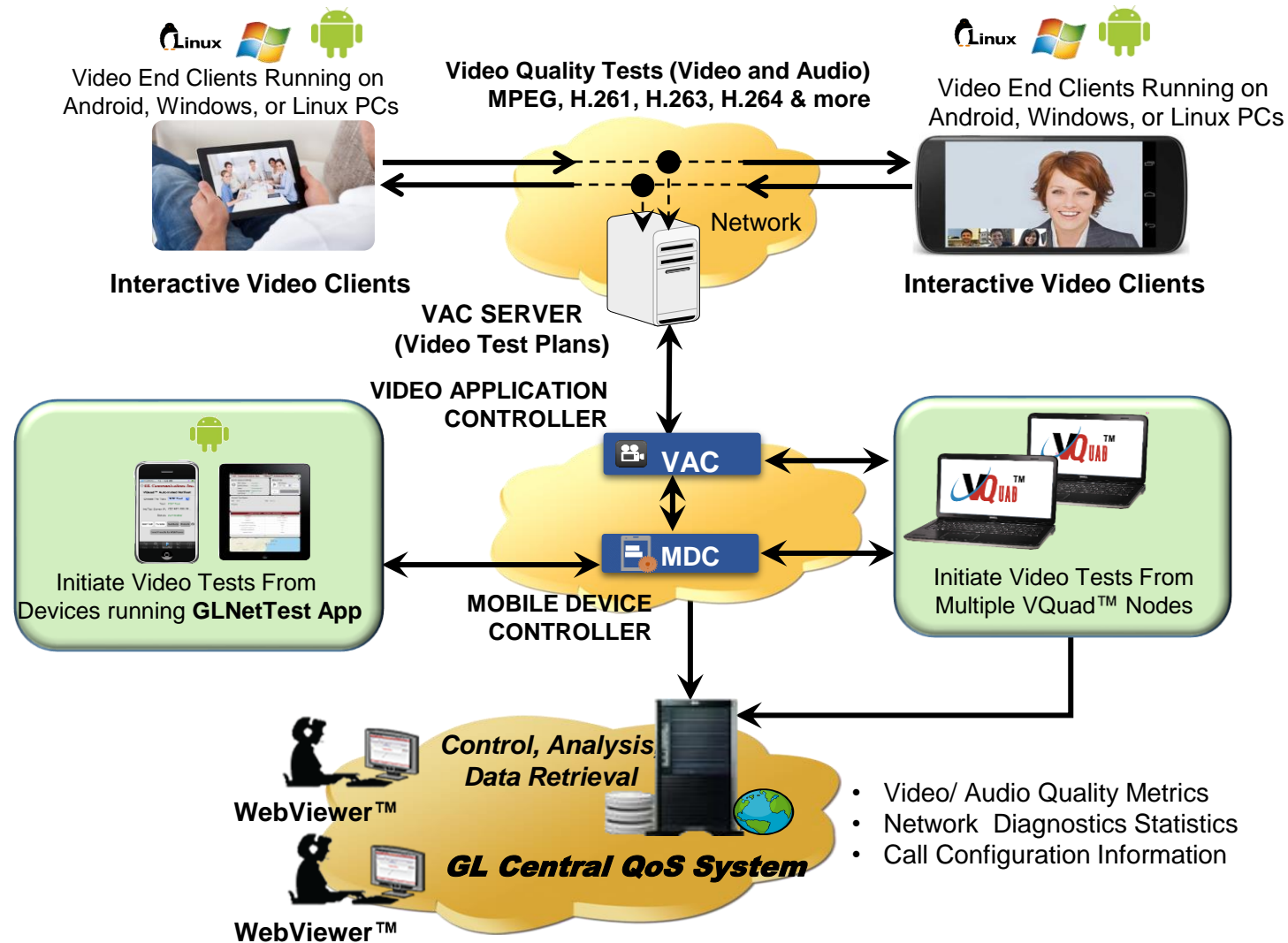
Timeout(of the Test):

Message: [Format](#)

Phone Number: [Manage List](#)

# Video Testing

# Automated and Manual Video Quality Testing (Android, Windows® and Linux Interface)



# Video Test Results in WebViewer™

VIDEO QUALITY							AUDIO QUALITY					AUDIO-VIDEO QUALITY		IP NETWORK HEALTH							CALL CONFIG INFO					
Absolute MOS-V	Relative MOS-V	Video Frame Rate (Frames per Second)	Impaired I Frames (%)	Impaired B/P Frames (%)	Loss Rate within B/P Frames (%)	EPSNR	Relative MOS-A	Audio Bitrate (kbps)	Audio Bandwidth (kHz)	Signal Level (dBm0)	Noise Level (dBm0)	Relative MOS-AV	End System Delay (ms)	Network Packet Loss Rate (%)	Network Packet Discard Rate (%)	Mean Burst Loss Rate (%)	Mean Burst Length (Packets)	Mean Gap Loss Rate (%)	Mean Gap Length (Packets)	Jitter (PPDV) (ms)	Image Resolution (Pixels)	GoP Length	Audio Codec Type	Audio Sample Rate	Video Codec PLC Type	Audio Codec PLC Type
4.38	4.5	30	0	0	0	36.9	3.84	5	3.5	-23	-61	3.69	166	0	0	0	0	0	8886	0.75	1280 X 720	15	AMR-NB 5.9Kbps	8000	standard	AMR-NB 5.9Kbp
4.38	4.5	30	0	0	0	36.06	3.84	5	3.5	-23	-61	3.66	166	0	0	0	0	0	8893	0.5	1280 X 720	15	AMR-NB 5.9Kbps	8000	standard	AMR-NB 5.9Kbp
4.37	4.49	30	0	0	0	36.8	3.84	5	3.5	-23	-61	3.69	166	0	0	0	0	0	8847	0.81	1280 X 720	15	AMR-NB 5.9Kbps	8000	standard	AMR-NB 5.9Kbp
4.31	4.43	30	0	0	0	35.94	3.84	5	3.5	-23	-61	3.64	166	0	0	0	0	0	8840	0.75	1280 X 720	15	AMR-NB 5.9Kbps	8000	standard	AMR-NB 5.9Kbp
3.86	4.16	30	0	0	0	34.02	4.2	64	3.5	-23	-61	3.46	113	0	0	0	0	0	83088	0.06	704 X 480	15	G.711 µ-law PLC 64Kbps	8000	standard	G.711 µ-law PLC 64Kbps
3.86	4.16	30	0	0	0	34.02	4.2	64	3.5	-23	-61	3.46	113	0	0	0	0	0	82549	0.06	704 X 480	15	G.711 µ-law PLC 64Kbps	8000	standard	G.711 µ-law PLC 64Kbps
4.3	4.3	30	0	0	0	34.95	4.2	64	3.5	-23	-61	3.77	166	0	0	0	0	0	38439	0.62	1920 X 1080	15	G.711 µ-law PLC 64Kbps	8000	standard	G.711 µ-law PLC 64Kbps
4.27	4.27	30	0	0	0	35.05	4.2	64	3.5	-23	-61	3.81	166	0	0	0	0	0	38389	0.56	1920 X 1080	15	G.711 µ-law PLC 64Kbps	8000	standard	G.711 µ-law PLC 64Kbps
4.34	4.46	30	0	0	0	36.45	3.84	5	3.5	-23	-61	3.66	166	0	0	0	0	0	8783	0.56	1280 X 720	15	AMR-NB 5.9Kbps	8000	standard	AMR-NB 5.9Kbp
4.31	4.43	30	0	0	0	36.45	3.84	5	3.5	-23	-61	3.64	166	0	0	0	0	0	8735	0.56	1280 X 720	15	AMR-NB 5.9Kbps	8000	standard	AMR-NB 5.9Kbp
4.32	4.44	30	0	0	0	36.45	3.84	5	3.5	-23	-61	3.64	166	0	0	0	0	0	8792	0.5	1280 X 720	15	AMR-NB 5.9Kbps	8000	standard	AMR-NB 5.9Kbp
4.37	4.49	30	0	0	0	36.45	3.84	5	3.5	-23	-61	3.66	166	0	0	0	0	0	8849	0.63	1280 X 720	15	AMR-NB 5.9Kbps	8000	standard	AMR-NB 5.9Kbp
4.34	4.46	30	0	0	0	36.38	3.84	5	3.5	-23	-61	3.65	166	0	0	0	0	0	8902	0	1280 X 720	15	AMR-NB 5.9Kbps	8000	standard	AMR-NB 5.9Kbp
4.37	4.48	30	0	0	0	36.45	3.84	5	3.5	-23	-61	3.66	166	0	0	0	0	0	8941	0.31	1280 X 720	15	AMR-NB 5.9Kbps	8000	standard	AMR-NB 5.9Kbp
4.65	4.65	30	0	0	0	39.06	4.2	64	3.5	-23	-61	4.16	146	0	0	0	0	0	76238	0.25	1920 X 1080	15	G.711 µ-law PLC 64Kbps	8000	standard	G.711 µ-law PLC 64Kbps

# Thank you!

For more information contact us at [info@gl.com](mailto:info@gl.com)

(Please subscribe to our newsletter: <https://www.gl.com/subscribe.php>)