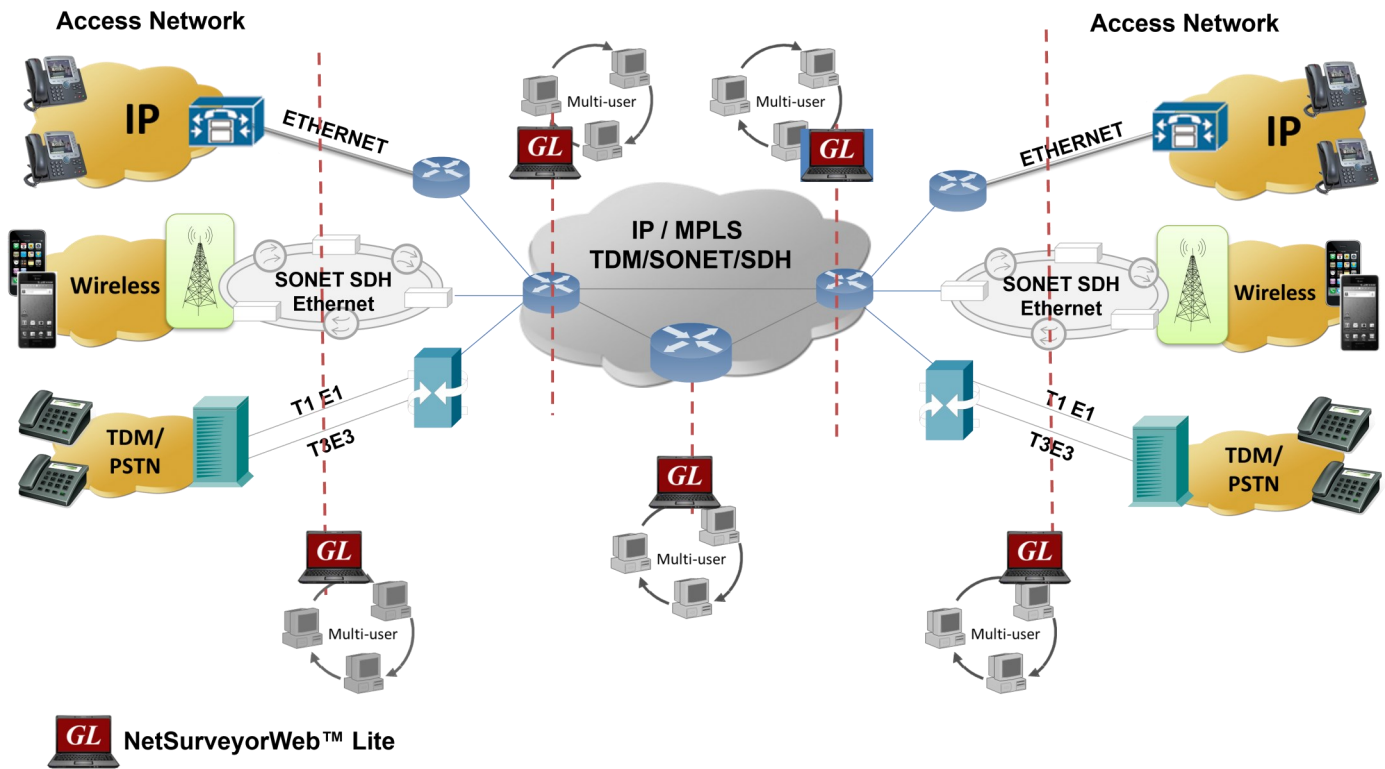


NetsurveyorWeb™ Lite

(Distributed network surveillance system for TDM / Wireless/ IP Networks)



Overview

NetSurveyorWeb™ Lite (PKV169), is an integrated and a cost-effective monitoring system, that includes multiple protocol analysis probes, and components such as database engine, and web server running on a single system. The system allows for easy plug-and-play and simplified deployment process to start monitoring the networks.

NetSurveyorWeb™ Lite application is designed for a simple plug-and-play system with Web Server + Database Engine + Protocol Analyzers on a single system deployed at various location at probe level.

NetSurveyorWeb™ Lite application provides flexible options to view call flow, call summary, record and play voice for all the captured calls. This helps the user to get in-depth analysis of each and every call for troubleshooting. The call data records and call flow of the selected protocol can be exported in CSV format or as a PDF for further analysis.

For more information, please visit [NetSurveyorWeb™ Lite](http://www.gl.com) webpage.

Typical Applications

- Comprehensive analysis from overall network health to detailed protocol monitoring
- Call Detail Records, fraud detection and location, remote protocol analysis and troubleshooting, real-time signaling monitor, traffic optimization engineering, and statistics
- Determine actual call signaling routes to verify network functionality under all situations including congestion and loss of SS7 nodes
- Revenue and billing verification, alarm monitoring, intrusive testing
- Quality of service measurements, call trace and recording

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Main Features

Web Based UI

- Offers historical data retention up to 9 GB
- Access real-time and historic data remotely via browser based clients
- Interfaces with Oracle database
- Web administration features to monitor the connected probe status, database loader status, alarms, and perform database maintenance
- Multi-user support
- Modular and distributed architecture is capable of theoretically 'infinite capacity'

Call Detail Records

- Ability to customize column views with sorting capabilities for call detail records
- Easy navigation of records to display Previous or Next Hour, Day, Month, Year through navigation tool
- Ability to export the call detail records displayed based on time filter or record index as PDF and CSV
- Ability to play voice files for GSM and TRAU protocols
- Decode SMS in different languages for GSM CDRs
- Provides options to view CDR, Ladder Diagram, and Protocol Decodes of a selected frame in a single view

Filter & Search Calls of Interest

- Drill-down to calls of interest with filter and/or search options
- Customize Filters (Date, Time, and other call control parameters)
- Apply single or multiple filters for data analysis; use logical operators between filters

Key Performance Indicators (KPI's)

- Voice Quality (MOS, R-Factor)
- Signal level, Noise Level, and Echo
- Delay Measurements (RTD, OWD)
- Signaling Messages and Traffic Types
- Call Duration and Call Volume
- Call Status (Completed, Busy, Success, Failure)

Physical Layer Monitoring

- Physical Layer Alarms (Link Status, Carrier Loss, Sync Loss, and others)
- Automatically alert users when "Calls of Interest" occur
- Set alarm conditions and generate alerts of different types like email alert, visual alert, audible alert, or even log into tables for future analysis
- Provides database query methods to gather status, statistics, events, and results

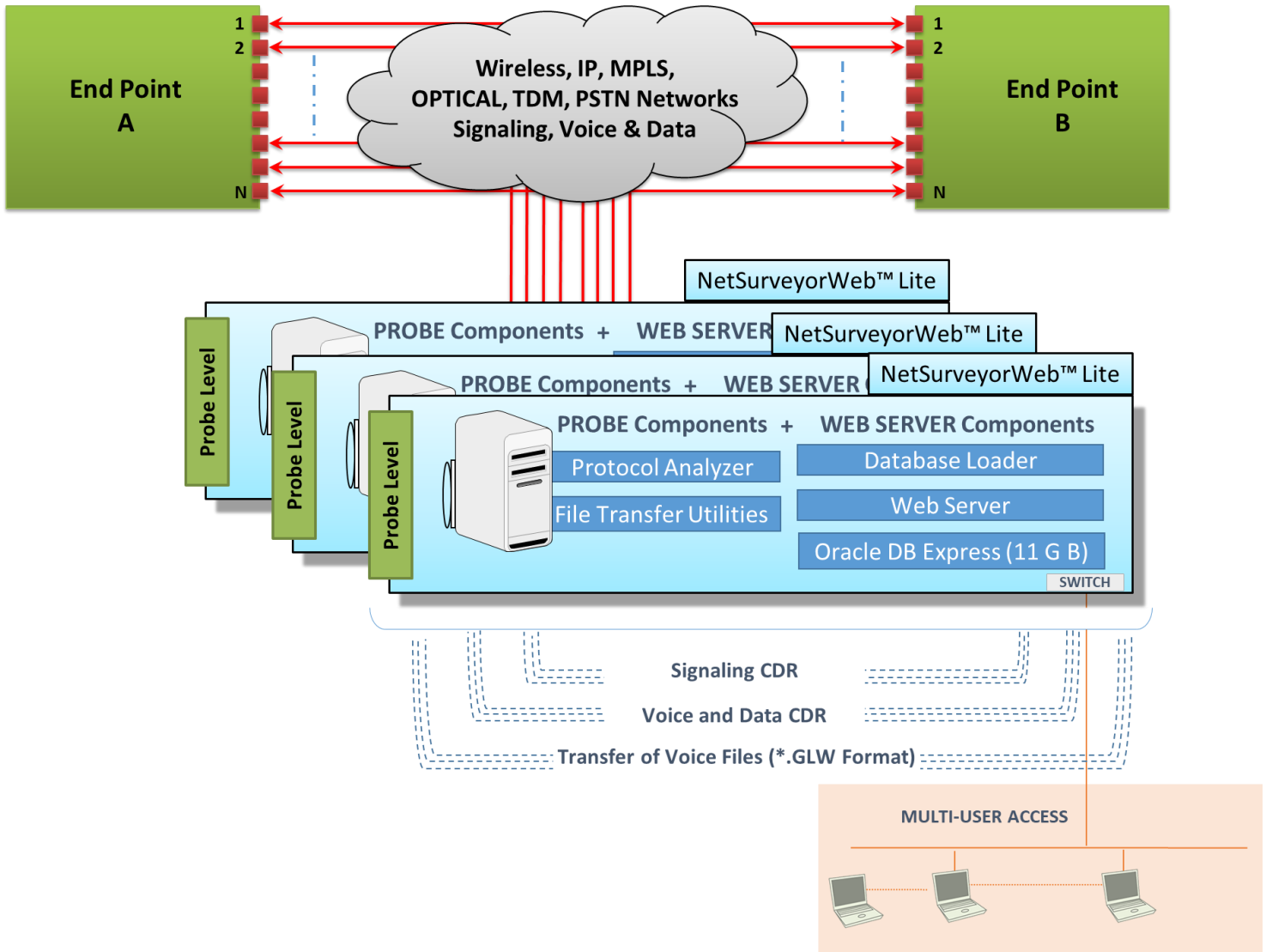
Alerts and Indicators

- Automatically alert users when "Calls of Interest" occur
- Set alarm conditions and generate alerts of different types like email alert, visual alert, audible alert, or even log into tables for future analysis
- Provides database query methods to gather status, statistics, events, and results

System Architecture

GL's NetSurveyorWeb™ has a three tier architecture. The first layer consists of GL's **Protocol Analyzer Probes** which are capable of tapping into live call traffic and non-intrusively capture signaling message summary and build CDRs. The second layer is the **Data Layer** where the captured data is stored into a database. This layer consists of a listener, and a SQL DBMS (such as Oracle) components. Listener will listen to the connected probes, receives data, and feeds the data to DB. The last layer is the **Data Access Layer** controlled by Web Server and Client application where the data presentation logic is contained.

Users can log into the central system locally or remotely to view the collected real-time and historic data including call parameters, layer 1 **status** display, as well as layer 2 and 3 analysis. Also available is the ability to filter the call records using a variety of filtering mechanisms including time/date, signaling and traffic parameters.



System Architecture

Call Data Records (CDR) View

GL NetSurveyorWeb Refresh Protocol VOIP (SIP & H323) Type CDR gl

Quick CDR > Data Reports Alarms Users System Status at 2020-07-24 03:27:07

Quick CDR \ All Calls

Date: 2020-07-23 2020-07-23 Time: 00:00:00 23:59:59 Ok

Today Yesterday Last 7 Days Last 30 Days All

End to End Callflow Actions Query Execution Time : 0.18747 Seconds

Quick Search: TrafficSumID GO Page Size: 20 Sort Order : STARTTIME DESC

| | SIno | Calling Number | Called Number | StartTime | Duration | Call Success | Voice Quality-L | Voice Quality-R | Failure Cause | C_MOS-L | C_MO |
|--------------------------|------|----------------|----------------|-------------------------|--------------|--------------|-----------------|-----------------|---------------|---------|------|
| <input type="checkbox"/> | 1 | 0162@10.10.1.6 | 0162@10.10.1.5 | 2020-07-23 22:44:21.934 | 00:01:09.184 | 1 | Good | Good | 0 | 4.20 | 4.20 |
| <input type="checkbox"/> | 2 | 0156@10.10.1.6 | 0156@10.10.1.5 | 2020-07-23 22:44:20.373 | 00:01:09.523 | 1 | Good | Good | 0 | 4.20 | 4.20 |
| <input type="checkbox"/> | 3 | 0152@10.10.1.6 | 0152@10.10.1.5 | 2020-07-23 22:44:18.813 | 00:01:11.944 | 1 | Good | Good | 0 | 4.20 | 4.20 |
| <input type="checkbox"/> | 4 | 0116@10.10.1.6 | 0116@10.10.1.5 | 2020-07-23 22:44:08.433 | 00:01:33.985 | 1 | Good | Good | 0 | 4.20 | 4.20 |
| <input type="checkbox"/> | 5 | 0100@10.10.1.6 | 0100@10.10.1.5 | 2020-07-23 22:44:03.232 | 00:01:37.205 | 1 | Good | Good | 0 | 4.20 | 4.20 |
| <input type="checkbox"/> | 6 | 0093@10.10.1.6 | 0093@10.10.1.5 | 2020-07-23 22:44:02.172 | 00:01:09.404 | 1 | Good | Good | 0 | 4.20 | 4.20 |
| <input type="checkbox"/> | 7 | 0079@10.10.1.6 | 0079@10.10.1.5 | 2020-07-23 22:43:58.012 | 00:01:16.544 | 1 | Good | Good | 0 | 4.20 | 4.20 |
| <input type="checkbox"/> | 8 | 0070@10.10.1.6 | 0070@10.10.1.5 | 2020-07-23 22:43:54.912 | 00:01:35.925 | 1 | Good | Good | 0 | 4.20 | 4.20 |
| <input type="checkbox"/> | 9 | 0046@10.10.1.6 | 0046@10.10.1.5 | 2020-07-23 22:43:45.021 | 00:01:13.204 | 1 | Good | Good | 0 | 4.20 | 4.20 |
| <input type="checkbox"/> | 10 | 0032@10.10.1.6 | 0032@10.10.1.5 | 2020-07-23 22:43:40.851 | 00:01:16.204 | 1 | Good | Good | 0 | 4.20 | 4.20 |
| <input type="checkbox"/> | 11 | 0029@10.10.1.6 | 0029@10.10.1.5 | 2020-07-23 22:43:40.381 | 00:01:54.726 | 1 | Good | Good | 0 | 4.20 | 4.20 |
| <input type="checkbox"/> | 12 | 0199@10.10.1.6 | 0199@10.10.1.5 | 2020-07-23 22:43:30.471 | 00:01:39.265 | 1 | Good | Good | 0 | 4.20 | 4.20 |

Call Detail Records View

The real-time data view provides visibility into each individual call. Each call can be investigated based on call control, signaling and traffic parameters. Flexible filtering can help you organize and identify "Calls of Interest". The CDR view includes -

Frame Summary

Frame summary view provides summary of signaling data along with the decodes in the form of Hexdump.

Traffic Summary

This option is currently available only for IP calls. Each call can be expanded to reveal per stream RTP statistics. The RTP/audio parameters such as payload type, total packet count, missing / duplicate / reordered / discarded packet count or %, MOS/R-Factor, cumulative packet loss, delay, and jitter values are displayed.

Graph View for each call

This call flow graph allows easy verification of the messages exchanged and the status of the call.

Users can also select any messages and observe the corresponding decode message details in the decode view.

Merge View

This feature display Ladder diagram and Decodes of the selected message in a single view. Hide/Show any of these views in order to easily view the information properly.

Navigation and Search Tools

Navigate through records easily using Previous and Next Hour, Day, Month, and Year options as required. A particular call of interest can be searched using the **Quick Search** option.

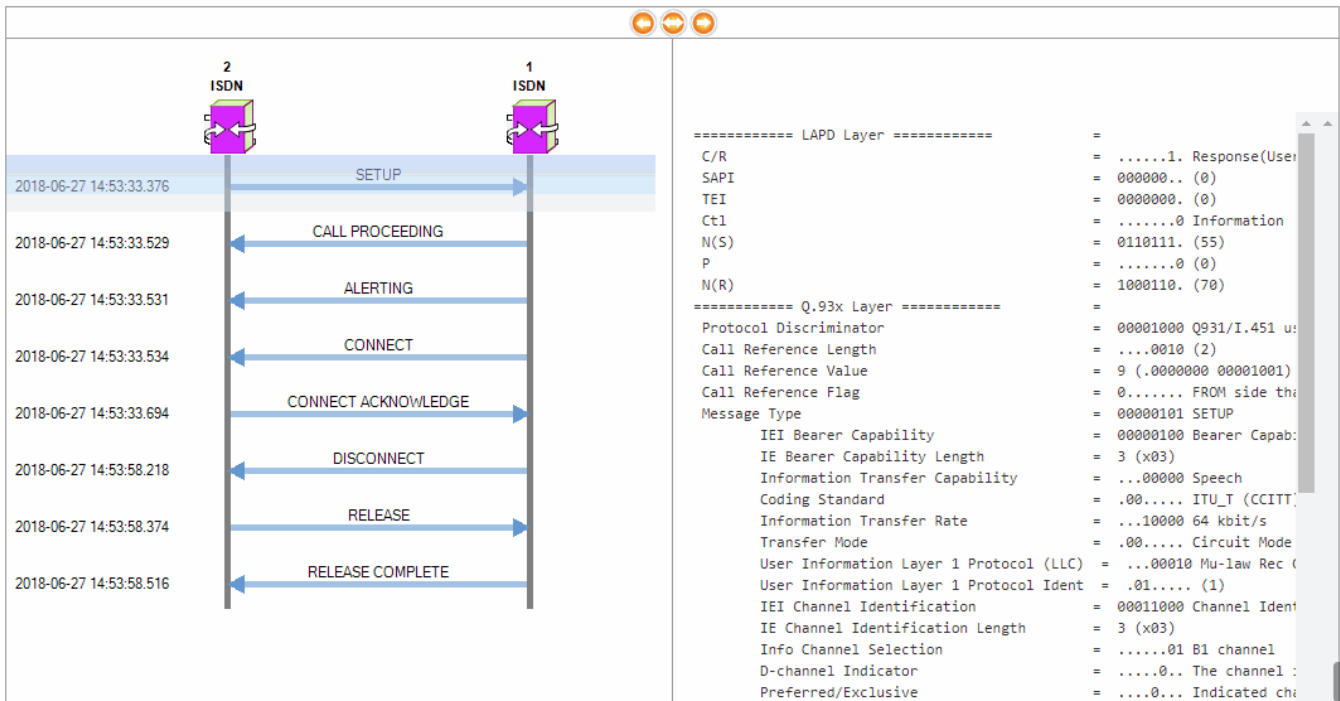
Call Data Records (CDR) View (Contd.)

Quick View CDR

Quick CDR View is a combination of Custom Filters and Column View, user can create their own Quick View groups and add the required columns in the created group to be displayed on the Data View. Default Quick CDR View is provided for all the protocols such as All Calls, Failed Calls, Passed Calls, VoLTE Enabled Calls, CS Fallback, Poor LMOS, Good LMOS, Longer Duration Calls, and more.

Multi-protocol call flow

This feature is useful in testing inter-operability of different types of networks, say for example SIP-to-SS7. The Multi-protocol Call Flow provides the flow of messages exchanged between different nodes in the form of a ladder diagram along with the ability to display respective signaling decodes, thus providing visibility into complete end-to-end call flow.



Ladder Diagram and Protocol Decodes

Alarm Settings

Trigger alarms and alerts whenever calls-of-interest occur, a network link failure is detected, or regularly at scheduled intervals. Directly access the pre-configured filter profiles or the KPI profiles to trigger alarms and alerts either when the custom filters conditions are passed, or send the pre-defined KPI report hourly, daily, monthly or yearly. Alert actions can be defined based on the output of the alarm conditions such as like email alert, visual alert, audible alert, SMS alerts, exporting data, setting alarm severity, or even log into tables for future analysis. Alarm Severity type can be set as Minor, Major, or Critical.

Flexible options are provided to save alarm filters as profiles, add, edit or delete the existing alarms, selection of user KPIs, and selection of Custom filters. Schedule alarms and alerts for hourly, daily, monthly, or yearly.

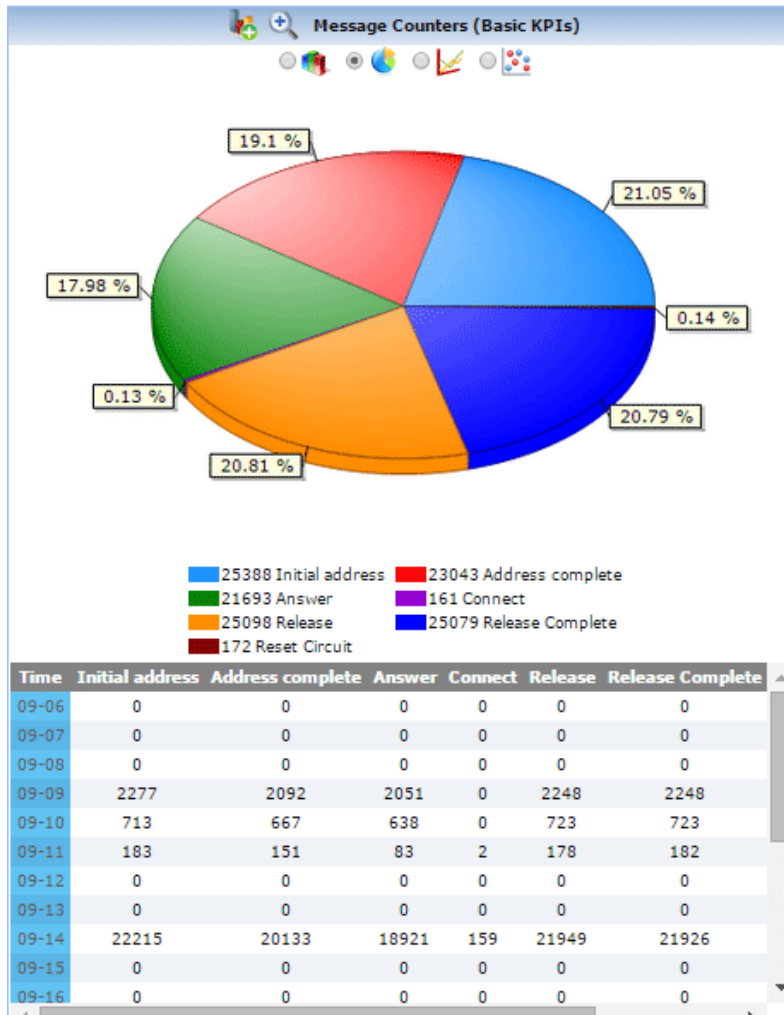
Alarm Settings and Email Alerts

Graphs and Reports

Report provide an overall summary of the captured signaling, and traffic over the entire network with the help of useful graphs. Graphs are available in the form of Bar Graph, Pie Chart, Dot Graph, along with the data in tabular format for each of the plotted graph. Reports can be generated for all calls or filtered records only.

Report Configuration

NetSurveyorWeb™ allows users to add new KPIs and customize the reports based on SQL Queries using Report Configuration feature. The Add / Import KPI feature allows user to Add / Import the required KPI to the existing KPI group. This will avoid the user from creating the new KPI if it is readily available. Also, with the add option, the KPI profiles will be automatically updates whenever the user who created this KPI does any modification. The import option will give full permission to the user to edit the KPIs as required.



| Time | Initial address | Address complete | Answer | Connect | Release | Release Complete |
|-------|-----------------|------------------|--------|---------|---------|------------------|
| 09-06 | 0 | 0 | 0 | 0 | 0 | 0 |
| 09-07 | 0 | 0 | 0 | 0 | 0 | 0 |
| 09-08 | 0 | 0 | 0 | 0 | 0 | 0 |
| 09-09 | 2277 | 2092 | 2051 | 0 | 2248 | 2248 |
| 09-10 | 713 | 667 | 638 | 0 | 723 | 723 |
| 09-11 | 183 | 151 | 83 | 2 | 178 | 182 |
| 09-12 | 0 | 0 | 0 | 0 | 0 | 0 |
| 09-13 | 0 | 0 | 0 | 0 | 0 | 0 |
| 09-14 | 22215 | 20133 | 18921 | 159 | 21949 | 21926 |
| 09-15 | 0 | 0 | 0 | 0 | 0 | 0 |
| 09-16 | 0 | 0 | 0 | 0 | 0 | 0 |

Report Configuration Enable Alarms

My Profiles: disp Clear Previous Load Delete Reset KPI Group View Other Profiles Reset Basic KPIs

Report KPI

KPI Name:

Chart Type:

Chart Size: Half Full

Add KPI

Query

```
SELECT count(case when lower(ISUPMESSAGETYPE)='initial address' then ISUPMESSAGETYPE end) as "Initial address",
count(case when lower(ISUPMESSAGETYPE)='address complete' then ISUPMESSAGETYPE end) as "Address complete",
count(case when lower(ISUPMESSAGETYPE)='answer' then ISUPMESSAGETYPE end) as "Answer",
count(case when lower(ISUPMESSAGETYPE)='connect' then ISUPMESSAGETYPE end) as "Connect",
count(case when lower(ISUPMESSAGETYPE)='release' then ISUPMESSAGETYPE end) as "Release",
count(case when lower(ISUPMESSAGETYPE)='release complete' then ISUPMESSAGETYPE end) as "Release Complete",
count(case when lower(ISUPMESSAGETYPE)='reset circuit' then ISUPMESSAGETYPE end) as "Reset Circuit" from
GLT_PROT_SUM_SS7 Where TimeFilter_PlaceHolder GROUP BY TIME
```

Report Configuration

Supported KPIs

| Protocol Type | Basic KPIs |
|-------------------------------------|---|
| VoIP SIP (SIP and H.323) | <ul style="list-style-type: none"> • Answer Call • Call Duration • Listening MOS • Conversational MOS • Session Request Delay (Successful Calls) • Session Request Delay (Unsuccessful Calls) • Session Disconnect Delay • Failure Cause • Average Packet Loss |
| SS7 | <ul style="list-style-type: none"> • Call Completion • Disposition Count • Billing Duration • Message Counters • Link_MessageCounters |
| T1 E1 Layer 1 | <ul style="list-style-type: none"> • T1 E1 Events |
| ISDN | <ul style="list-style-type: none"> • Call Completion • Call Types |
| GSM | <ul style="list-style-type: none"> • Mapped Vs UnMapped • SMS • Top 5 SMS • Total CDRs on different links • Total SMS on different links |
| GSM A | <ul style="list-style-type: none"> • Answer Call • Call Duration • Listening MOS • Conversational MOS • Failure Cause • Average Packet Loss % |
| TRAU | <ul style="list-style-type: none"> • Call Duration |
| IuCS | <ul style="list-style-type: none"> • Answer Call • Call Duration • Listening MOS • Conversational MOS • Failure Cause • Average Packet Loss |
| IuPS | <ul style="list-style-type: none"> • Answer Call • Call Duration • Failure Cause • Session Request Delay (Successful Calls) • Session Request Delay (Unsuccessful Calls) • Session Disconnect Delay |
| VoIP SIGTRAN | <ul style="list-style-type: none"> • Call Types • Billing Duration • Message Counters |

Buyer's Guide

| Item No | Product Description |
|------------------------|--|
| PKV169 | Network Surveillance Lite Software (Does not include PC; Includes Oracle 11g Express Edition and re- |

| Item No | Related Software |
|------------------------|---|
| | (Requires one of the following protocol analyzer licenses) |
| PKV100 | PacketScan™ (Real-time and Offline) for SIP, MGCP, Megaco, H.323. |
| PKV103 | IP Based GSM & UMTS Analysis, requires PKV100 |
| PKV105 | SIGTRAN Analysis, requires PKV100 |
| PKV107 | LTE (Long Term Evolution) Analyzer, requires PKV100 |
| XX100 | ISDN Analysis Software (T1 or E1) |
| XX120 | SS7 Analyzer Software (T1 or E1) |
| XX150 | GSM Analysis Software (T1 or E1) |

| Item No | Related Hardware |
|------------------------|--|
| PTE001 | tProbe™ Dual T1 E1 Laptop Analyzer |
| XTE001 | Dual T1 E1 Express (PCIe) Boards |
| TTE001 | tScan16™ T1 E1 Boards |
| FTE001 | QuadXpress T1 E1 Main Board |
| ETE001 | OctalXpress T1 E1 Main Board plus Daughter Board |

Note: PCs which include GL hardware/software require Intel or AMD processors for compliance.

For more information, please visit [NetSurveyorWeb™ Lite](#) webpage.



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