



Secure Real-Time
Communications

Ribbon Analytics - Discover

Intelligence Across Your Entire Communications Network



Discover

Discover, part of Ribbon Analytics suite of Operations applications, is a powerful tool for visualizing, analyzing and troubleshooting communication network performance. With Discover, you will be able to perform retrospective root cause analysis with near-real time and historical data, to identify key network trends and issues over periods of time.

Discover has an interactive and intuitive user interface that displays vital network KPIs with advanced and customizable reporting dashboards. You can add as many dashboards as you need and display them in a number of formats. Discover allows you to quickly build, edit, and filter dashboards as well as strategically reposition them the way you want to display the data.

With Discover you will easily be able to:

- Monitor the network for KPIs and key trends
- Troubleshoot and Alert on Quality of Experience issues
- Create Network-wide call ladder diagrams



Monitoring of Network Performance

To keep your communication network running smoothly you need a solution to monitor and report on service quality through proactive analytics designed to improve user experience and reduce operational costs. With Discover, you can gain a composite view of voice quality and network performance as it changes. Your overall quality of experience will be improved by having a holistic view of your communication network operations.

Discover is delivered with a set of pre-defined data sources and an initial set of dashboards created from a subset of the pre-defined data sources. Network administrators can choose to work with the initial set of available dashboards, or they can customize or create their own dashboards according to their specific needs and preferences from the data sources. See Figure 1 below for a sample of the types of data that can be displayed on the Call Trends dashboard.



Figure 1. Call Trends dashboard

Discover: Network Monitoring Benefits

- Correlation of hundreds of data points from Performance Metrics, CDRs, packets, faults, logs and alarms
- Visualize the data with dashboards, widgets, charts, tables, graphs, heat maps and various other real time statistic models that are easy to create and customize
- Create and visualize your own custom KPIs from your connected data sources using aggregations (such as SUM, AVG, MIN, MAX, COUNT) and basic arithmetic functions (including Addition, Subtraction, Division and Multiplication)
- Do trending analysis to provide early visibility into service quality issues and identify abnormal peaks
- Schedule reports to automate execution of reports and sending of these reports to desired recipients on a regular basis (for example, once a day or once a month) by e-mail, SCP or SFTP
- Export results and reports for sharing with support teams, network partners and other contingents as needed
- Share the dashboards as static or interactive with others to view or integrate within your web application

Key Performance Indicators (KPI) Aggregation Levels - examples

- Country Code
- Gateway
- IP Network
- Network (system wide)
- Route Label
- Route Selected
- Trunk Group

Ability to combine two or more of these aggregation levels

Standard Key Performance Indicators (KPI) - examples

- Ingress or Egress MOS
- Internal/Far-End Congestion
- Max active channels in a Trunk Group
- Network Effectiveness Ratio
- Peak Call Rate
- Peak trunk group utilization
- Route Index
- Short/Long Calls
- SIP Registration Failure
- Successful Calls
- Trunk Bandwidth usage

Troubleshooting Your Network

Finding and solving real-time communication (RTC) network issues can be difficult or non-existent without the proper tools or end-to-end views. Discover enables network-wide troubleshooting and alerting capabilities based on KPIs and other metrics that cross thresholds. It helps network administrators quickly develop insights into data identified as leading indicators of potential problems, to troubleshoot operational problems, or perform root cause analysis on stored data to identify network performance issues and initiate needed improvements.

Discover: Troubleshooting and Alerting Benefits:

- Problem identification, isolation and resolution to address “Why did a call fail, or suffer poor quality?”
- Ability to drill down by network element, by node, by endpoint, or even by specific calls, to give an end to end view of a call
- CDRs are correlated with SIP signaling PDUs, so users can view the ladder diagram corresponding to each CDR
- Deep analysis and filtering of individual session CDRs to reveal key data attributes
- Network administrators can define customizable network KPI thresholds
- Capture alerts in real time (via e-mail, text message, etc) triggered upon crossing of the thresholds and conduct deeper analysis of network events that occurred earlier in time

Application Add-ons

Ribbon Analytics allows the expansion of capabilities via application add-ons. The following application add-ons require Discover as a prerequisite application.

Network-wide Ladder Diagrams

The network-wide call ladder diagram feature automatically ties all the call legs passing through multiple network elements, to visualize the complete lifecycle of the call and to pinpoint the cause of failure. This is important for quickly debugging hard to find signaling issues in the network such as which network element, segment trunk or endpoint is causing the issue or degrading QoS. Figure 2 below shows an example of Call Ladder diagram and the per message details.

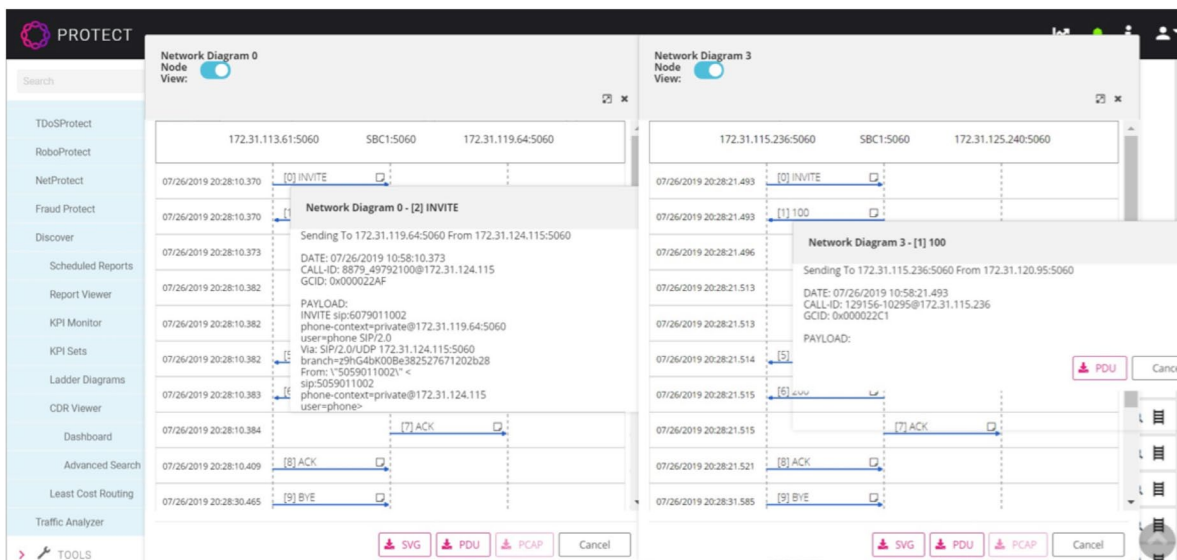


Figure 2. Call Ladder Diagram

Discover: Network-wide Ladder Diagrams Benefits:

- Search all the captured SIP packets and filter the calls based on different search criteria such as call- id, calling number, called number, prefix etc
- View end to end SIP call messages based on unique identifiers such as Global Call-ID
- Ability to manually stitch multiple SIP packets to view an end-to-end ladder diagram involving multiple records
- Group all IP addresses associated with a given device to view an optimized end-to-end ladder diagram
- View end to end SIP call flow hopping through multiple network nodes
- View individual PDUs with option of searching within the PDUs
- Save the raw signaling messages and the media streams of a call to a text, .pcap, or .svg (graphic) file. When a call has multiple media streams, a single local file is created containing all the streams
- Compare PDUs to identify source of QoE issues

Media-Voice Quality

The Media-Voice Quality (MVQ) with the Ladder Diagram add-on application provides an in depth QoS tracking ability. With the qCDR feed from the Core SBC, MVQ provides a view into the QoS throughout a call at discrete intervals. This ability allows an operator high degree call quality monitoring without having to record the actual media.

MVQ benefits:

- Discrete monitoring intervals as small as 5 secs
- Reporting of R Factor, Round Trip Delay, Packet Count, Jitter, packet loss
- Correlation with CDRs and Ladder diagrams
- QoS reports by call segment and leg of call

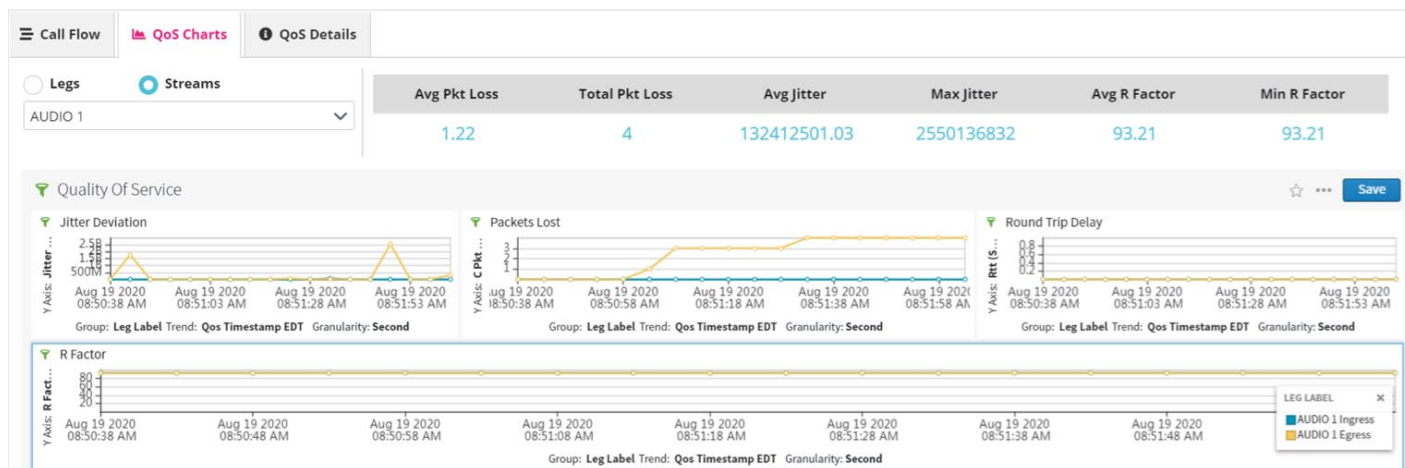


Figure 3. MVQ Dashboard with In Depth QoS Tracking Ability

Incident Detectors

To assist the network operations team in detecting and mitigating critical incidents in the communication network, the Discover application has a powerful customizable toolset called “incident detectors”. This capability allows you to create specific detectors modeled to your specific requirements to flag undesired activities within your network. Incident detectors proactively identifies incidents, triggers an alert or automate a response associated with network operations.

The incident detector functionality benefits:

- Customizable Incidents - define system behavior based upon your network. Set the level of risk with sensitivity controls
- KPI sets (Key Performance Indicators) - track/monitor metrics from any data source or derived metric
- Incident rules - set triggers flagging activities based upon changes in metrics or a period, values, or rate
- Policy - create alerts/mitigation scripts to control the network behavior as a reaction to the incident

Advanced Planning & Forecasting Application with ML

Discover, working together with Ribbon Analytics Planner application, enables service providers to create forecasts and run simulations to plan network capacity and manage network performance. The predictive analytics application uses machine learning (ML) to analyze historical data, and anticipate future trends and requirements. Network planners, traffic engineering teams, and network operations organizations use Planner to intelligently identify traffic patterns, size networks, plan system capacity, diagnose problems, and strengthen security. Customizable dashboards let administrators easily visualize traffic and run on-demand or scheduled “what-if” scenarios. Planner helps service providers avoid guesswork, minimize total cost of ownership, and optimize service quality and subscriber satisfaction. To learn more about planner application, [click here](#).

Leverage machine learning to project traffic and resource requirements based on historic data:

- Use predictive views of network usage and behaviors to accurately forecast future traffic demands
- Enable “what-if” analysis

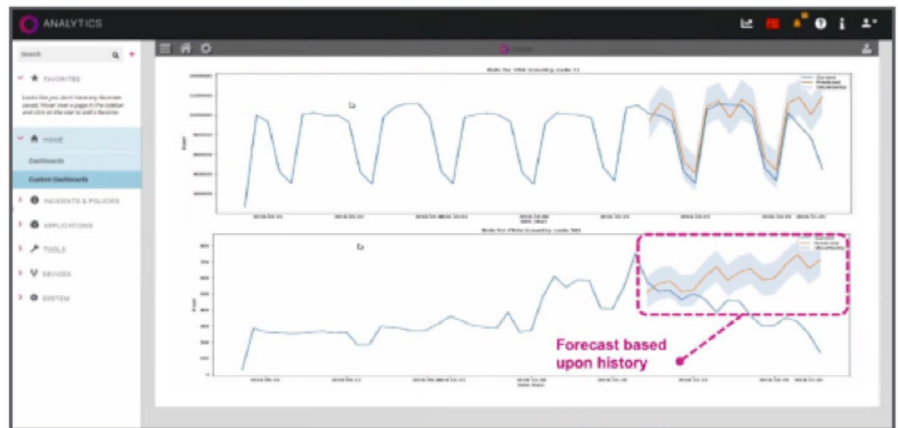


Figure 4. Traffic Forecasting and Capacity Planning

Planner Application Benefits:

- Optimize costs by tightly aligning network infrastructure investments with capacity requirements and business demands. It helps service providers avoid overprovisioning resources or system capacity.
- Improve user experiences and subscriber loyalty by optimizing service quality and ensuring adequate bandwidth for peak-demand periods.
- Streamline operations, and improve network planning and budgeting by intelligently forecasting future capacity requirements and maintenance needs based on empirical historical data.

Ribbon Analytics Platform

Discover leverages Ribbon's big data analytics platform to respond to real-time communications security and network quality incidents faster, more intelligently, and more efficiently.

The heart of the Ribbon Analytics Platform is its anomaly detection and policy mitigation capability. The anomaly detection module collects and analyzes data across the entire communications network making it available to Ribbon Analytics applications. With customer-defined policy management functionality, detected anomalies generate alerts (e.g. SMS, email) and can be mitigated with actions to the appropriate network elements in real-time.

Making data into actionable information is a critical component to understanding customers' Quality of Experience.

Contact Us

Contact us to learn more about Ribbon solutions.

About Ribbon

Ribbon Communications (Nasdaq: RBBN) delivers communications software, IP and optical networking solutions to service providers, enterprises and critical infrastructure sectors globally. We engage deeply with our customers, helping them modernize their networks for improved competitive positioning and business outcomes in today's smart, always-on and data-hungry world. Our innovative, end-to-end solutions portfolio delivers unparalleled scale, performance, and agility, including core to edge software-centric solutions, cloud-native offers, leading-edge security and analytics tools, along with IP and optical networking solutions for 5G. We maintain a keen focus on our commitments to Environmental, Social and Governance (ESG) matters, offering an annual Sustainability Report to our stakeholders. To learn more about Ribbon visit [ribbon.com](https://www.ribbon.com).