Secure Real-Time
Communications

Ribbon Analytics for Mobile Network Operators

Solution Brief

Market Dynamics

With the advent of big data analytics, mobile network operators now have the unprecedented ability to develop new business models that go beyond traditional connectivity. When harnessed effectively, analytics delivers new customer insights that help operators make smarter business decisions, reduce costs, and improve operational efficiencies. Armed with this relevant information, operators can create significantly enhanced and personalized services that meet the individual preferences of each subscriber, create incremental revenue opportunities, and deliver CAPEX and customer lifecycle management savings.

Mobile Network Operators (MNOs) have only just begun to scratch the surface in terms of the lucrative competitive business opportunities big data analytics presents—from helping to proactively respond to market dynamics, subscriber preferences, and customer service issues, to enabling operators to quickly troubleshoot their mobile networks.

Mobile Network Operator Challenges

MNOs are continually challenged with planning, configuring, monitoring and optimizing their networks. Yet, despite the availability of big data analytics, many operators wouldn't know the quality of video their subscribers are watching, how long it took to download a video, or at what point the attempt to view that video was abandoned. This is because even in situations where operators are collecting vast amounts of data, it's taking over two weeks of analysis on average to derive any actionable insights.

Ribbon Analytics delivers real-time big data analytics visibility right down to the application, subscriber, device, and location level, allowing operators to tap rich data stores that produce the necessary insights needed to develop, manage, and deploy highly innovative and responsive services. Ribbon Analytics eliminates the average two week data analysis period, providing immediate actionable intelligence that arms operators with real-time, cross-correlated, time-aligned data per subscriber across access technologies, services, protocols, and end-to-end applications.

With Ribbon Analytics, operators have ready access to the data that enables smart decision making, especially when it comes to operator investments—empowering them to take a proactive competitive stance in light of a dynamic industry that is continuously updating content and services to meet the innovations of the latest apps, devices, connections, and technologies.

From Offline to Real-time Analytics, Ribbon Delivers Actionable Intelligence

Ribbon's content and RAN-aware big data ingestion correlate background measurement data with real-time events for truly comprehensive modeling and analytics. This data integrates directly with real-time dashboards, analytic applications, and network management systems without the need for intermediate data manipulation platforms. Enhanced with Ribbon's KPIs, this fully-virtualized solution provides an industry first, protocol-level analytics framework that can be used to generate new monetization strategies and services as well as operational workarounds when integrated with policy, OSS, and other centralized analytics tools.

Ribbon Analytics real-time RAN-aware correlation and reporting engine is built to scale with an operator's network and delivers meaningful information on what has happened in the past, what is happening today, and what will happen in the future.

Ribbon Analytics Works within the Network Operations Lifecycle

The Ribbon Analytics architecture pulls vast amounts of data together to work within the operator's network management and operations lifecycle by:

- Cross-correlating high-dimension protocol data across
  - LTE, HSPA, CDMA, WiFi
  - Operator and OTT services including voice, video, messaging, web, M2M, broadband data
  - Control plane information including QoS, cause failures
  - URL categories, applications, locations, and devices
- Programmatically modeling predictive and descriptive KPIs across several dimensions including subscribers, locations, applications, and networks to support various end-to-end applications
- Per Application/Service QoE
  - Congestion and Utilization
  - Usage and Mobility Profiles
- Delivering actionable data for real-time and near real-time closed analytics applications in various forms
- Enabling continuous, optimal management of operator core assets and infrastructure

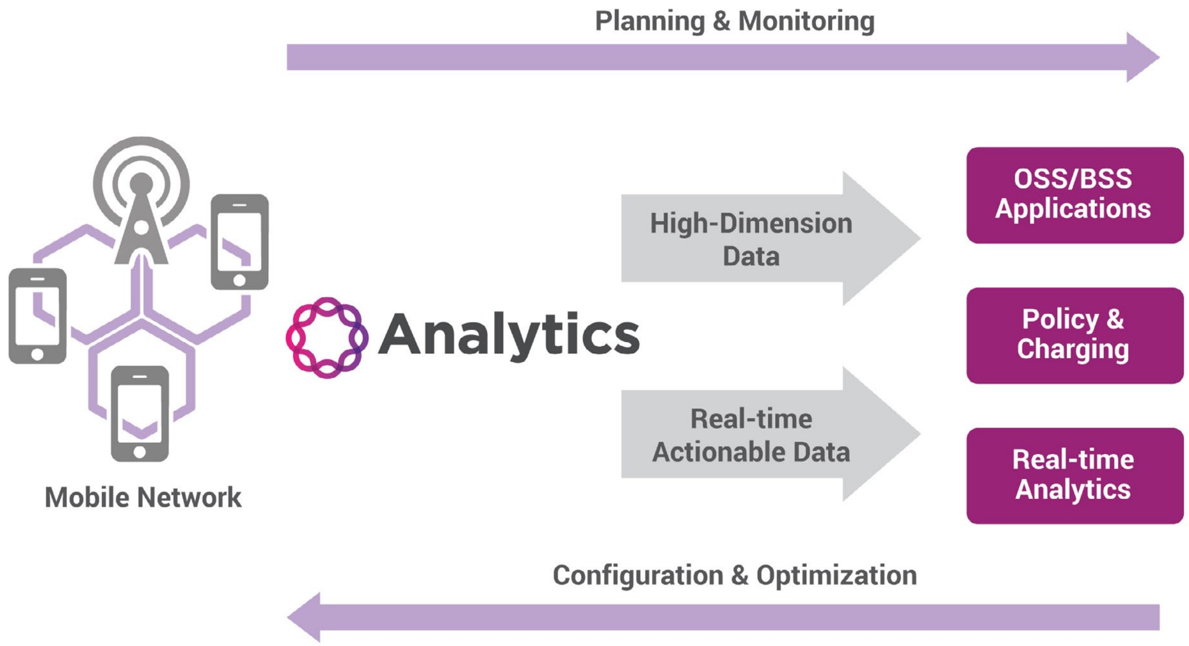


Figure 1. Ribbon seamlessly integrates into operator network lifecycle management to continuously deliver high-dimension and real-time actionable data to the service plane elements

Seamless integration with Operator Interfaces

Ribbon Analytics facilitates a number of phases involved in data mining including data exploration, data preparation, modeling, and eventual deployment in the form of reporting or closed-loop actions. Ribbon Analytics integrates seamlessly through one or more of the following interfaces:

- Streaming, big data and traditional database ETLs
- Client notification APIs
- Server query APIs

The Ribbon Analytics solution delivers end-to-end analytics, from offline modeling to real-time deployment, allowing operators to conduct forecasting analysis to quantify the advantages of implementing real-time, selective optimization, acceleration, CDN/caching, or network selection tied to subscribers or external customers. Operators can expand traditional policy architecture, OSS, and other more vertical solutions, to implement new services and revenue-generating monetization in an agile manner.

Operators are already using Ribbon Analytics solutions for new service offerings that require real-time feedback of sector and subscribers, including:

- Deferred service, for managing latency-insensitive content delivery such as application updates, or OS upgrades
- Premium service or sponsored data, to provide better experience during peak network activity
- Opt-In notifications, to engage subscribers based on location (e.g., geo-fencing) and activity (e.g. online shopping)
- OTT features that are not traditionally available on mobile networks (e.g. Apple FaceTime, Netflix)

Use Case: Network Planning and Operational Management

Ribbon Analytics solutions helps operators expedite troubleshooting, manage their network, and answer questions like, "How can I predict what is going to happen to my network over time?" Having this kind of insight helps operators reduce OPEX, streamlining CAPEX expansions while improving the overall subscriber experience.

Operators are using Ribbon Analytics to pin-point troubling scenarios such as:

- LTE and 3G ping-pong associated with configuration issues for RAT edge nodes
- LTE paging failures exposing coverage holes resulting in expensive 3G reselection process
- Voice over LTE (VoLTE) and IMS network and subscriber performance metrics to discover end-to-end interoperability problems

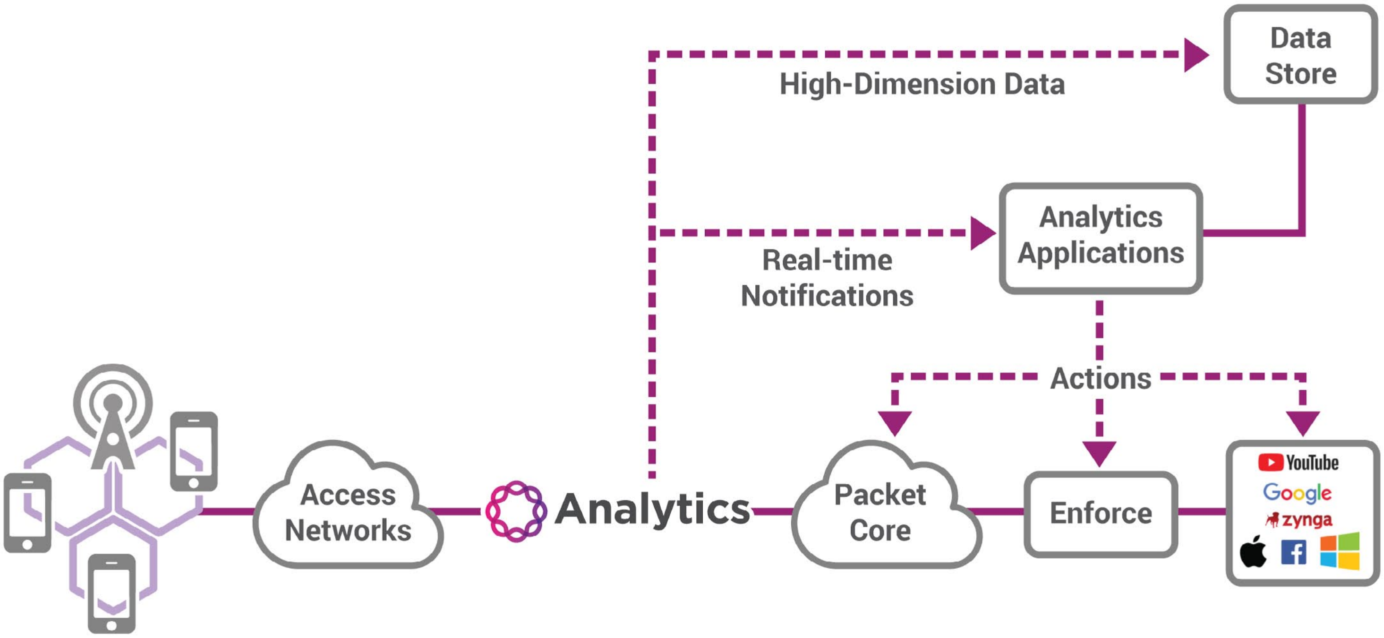


Figure 2. Ribbon Analytics Deployment Architecture

Ribbon Analytics has been instrumental in helping operators with their Voice over LTE (VoLTE) deployments. The solution provides the needed transparency across network elements, protocols, services, and devices required to enable VoLTE. Ribbon's solution allowed one operator to discover that a major device manufacturer was causing IMS signaling overload which was tied to network outages. This discovery saved the operator time when compared to traditional signaling analysis by interactively working between high-level time series signaling anomalies to finer-grained subscriber, device, and location trending.

Key benefits of Ribbon Analytics include:

- Visibility into both control plane and user plane protocols, allowing the operator to track down call failures, and measure latency and jitter
- Support for operator rollout strategies such as:
  - Circuit Switched (CS) voice,
  - Circuit Switch Fallback (CSFB),
  - VoLTE/SRVCC,
  - Complete VoLTE and RCS rollout
- Ability to troubleshoot complex interactions between transport network, IMS network, and services

Use Case: Customer Care/Customer Management

Ribbon Analytics helps operators identify subscriber issues both proactively and reactively, making it the ideal source for any mobile operator's customer care department. Ribbon's solution allows operators to take control by providing answers to tough questions like "How can I identify those subscribers at risk of switching networks?"

MNOs are using Ribbon Analytics to:

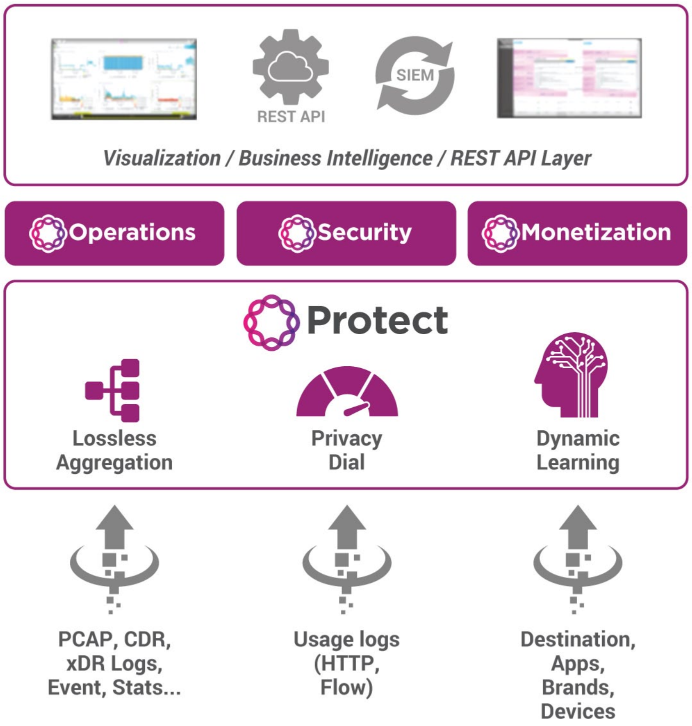
- Identify subscribers that have the potential to churn or move to a competitor
- Distinguish network, application and device issues associated with poor subscriber experience
- Minimize expensive physical probes or manual drive testing by passively collecting customer experience across applications, devices, locations

Competitive Advantages for MNOs

Armed with Ribbon Analytics, operators can better meet the needs of their subscribers – proactively sending engaging and customized content, services, and messages to the right subscriber, which increases response rates, achieves higher sales, reduces churn, and maintains more customers.

Ribbon Analytics offering is the only solution to deliver granular, real-time actionable analytics – right down to the packet level – going beyond dedicated products in each category to provide operators with immediate and concrete competitive advantages including:

- Data that can be directly injected into big data analytic systems for modelling and real-time feedback. Ribbon delivers the necessary data to model use cases that point to congestion management, security, and real-time network selection
- A single data source that is pre-correlated, vendor agnostic, and time aligned
- Valuable insights into the subscriber experience, device performance and interoperability problems
- The ability to monitor sector, network-element, and inter-RAT network interactions
- The ability to model real-time KPIs for notifications
- The ability to deploy models to implement real-time, closed-loop analytics applications



RIBBON PROTECT PLATFORM

Ribbon's big-data, virtualized "Protect" platform underpins all of its analytics applications and solutions. From fast-path content ingestion, to reporting, to API capabilities, the Ribbon Protect big data platform is built for scalability, reliability, and performance while allowing the you to fully comply with privacy policies.

The Ribbon Protect platform and associated applications enable visibility right down to the application, subscriber, device, and location level, allowing you to tap rich data stores that produce the necessary insights needed to develop, manage, and deploy highly innovative and responsive services. Ribbon eliminates the average two week data analysis period, providing immediate actionable intelligence that arms you with real-time, cross-correlated, time-aligned data across access technologies, services, protocols, end-to-end applications and subscribers.

With Ribbon's big data solutions, you have ready access to the data that enables smart decision making, especially when it comes to investments—empowering you to take a proactive competitive stance in light of a dynamic industry that is continuously updating content and services to meet the innovations of the latest apps, devices, connections, and technologies.

Contact Us Contact us to learn more about Ribbon solutions.