



Big Data Enablement

Gain insights into network and subscriber intelligence in real-time for advanced analytics and decisioning

Use Cases for Procera's Big Data Intelligence

Procera's unique combination of business and subscriber experience metrics enables advanced Big Data use cases.

Subscriber Experience

Monitor the subscriber experience and ensure high value customers are receiving a high QoE.

Real-Time Offers and Alerts

Alert on subscriber and network events that can be monetized or need immediate attention.

Pre-emptive Customer Care

Proactively determine when a bad experience occurs for a subscriber and offer rebates and rectify root cause.

Service Creation

Identify the trending applications and offer special rates and programs to enhance customer loyalty.

Network Planning

Predict network congestion and CAPEX needs based upon potential revenue loss from high value subscribers.

Churn Prediction

Predict churn based on combinations of Perspectives, i.e. Bad QoE and customer care contact.

Targeted Data Wholesaling

Monetize network and subscriber intelligence with enterprises, retailers, and data brokers with valuable aggregated subscriber data.

INTRODUCTION

Network operators worldwide are looking to gain insights into the experience that they are delivering to their subscribers. Many operators are turning to Big Data solutions to gather more intelligence on what is happening on their networks. They are looking to increase revenue, reduce OPEX, increase customer loyalty through targeted offerings, enhance the overall customer experience, simplify business operations, reduce churn, reduce time to market for new services, and accelerate the creation of personalized services.

The linchpin of Big Data is having access to good data, especially data that is focused around the subscriber and not just the network. The challenge that operators face is collecting intelligence that is both actionable and is subscriber experience related. Monitoring the data in real-time and being able to utilize it improve the experience immediately for subscribers is the goal. Procera's Big Data enablement solution focuses on extracting the most meaningful intelligence to enable a wide variety of high value Big Data analytics use cases.

SOLUTION OVERVIEW

The eVolution data collection probe is deployed on COTS hardware in a fully virtualized environment supporting common virtualization and NFV technologies. The collection can take place anywhere in the network, at the edge of the network, in the core, or at the peering point, depending on the goal of the analytics. The performance of the individual systems can range from a few megabits to hundreds of gigabits, meeting the needs of the smallest and the largest networks in world. The solution is managed with Procera's VNF Manager, which can dynamically instantiate instances wherever and whenever needed from a pool of licenses that delivers just-in-time bandwidth and optimizes CAPEX and OPEX spending.

Procera's Perspectives technology differentiates our solution from traditional probe-based solutions by having a providing structured data on the overall subscriber experience that includes traffic (i.e. applications), subscriber, device, topology, routing, score (quality of experience), RAN, and content - all placed in context with each subscriber data flow on the network. Each Perspective is a software license that can be unlocked as needed to provide more visibility into the subscriber experience.

With this structured data, Big Data systems can more easily correlate the subscriber experience for integration into Customer Care, Engineering, Marketing, and Executive-level dashboards and analytics offerings. The use of IPFix to stream intelligence in real-time ensures that the data provided to Big Data systems can be acted upon in real-time, solving problems before subscribers know that they exist. Data can also be stored in the Insights Storage database and access via ODBC.



SOLUTION COMPONENTS

Mandatory

- eVolution VNF
- Traffic Perspective

Optional

- Subscriber Perspective
- Topology Perspective
- RAN Perspective
- Content Perspective
- Route Perspective
- Device Perspective
- Score Perspective
- Data Export (IPFix or ODBC)
- Insights Storage

SOLUTION COMPONENTS

The Big Data Enablement Solution is composed of several mandatory and optional components that add value to the overall solution.

• eVolution Software

The eVolution VNF is empowered by PacketLogic technology and acts as the collection engine for the network and subscriber intelligence. eVolution runs as a VNF on COTS hardware and standard hypervisor systems. Deployed in a passive mode on the network, eVolution will inspect all of the traffic on the network and stream the data using IPFix to a Big Data system, or store it in the Insights database where it can be exported via ODBC.

• Traffic Perspective

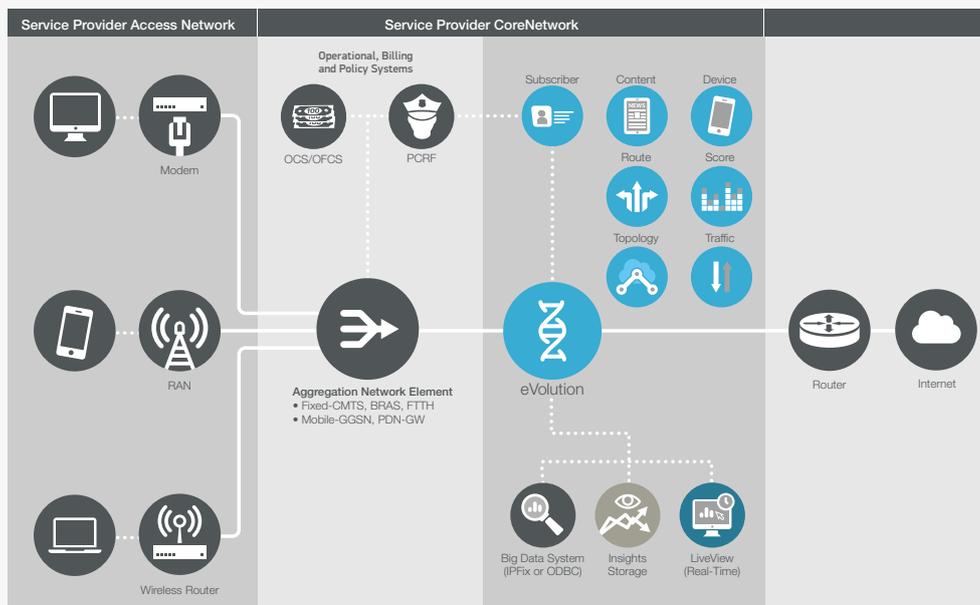
Traffic Perspective is based on Procera's industry-leading Datastream Recognition Definition Language (DRDL) DPI engine and provides visibility into the applications and traffic running on the operators network. Over 2500 unique applications are supported (as of May 2015), and includes Messaging, Voice, Video Streaming, Audio Streaming, File Sharing, Gaming, and many other categories of applications. This data is important when building subscriber profiles, customer care, and for new service planning.

• Subscriber Perspective

Subscriber Perspective is the integration point with the BSS/OSS to glean subscriber-specific information to associate with each flow on the network. With Subscriber Perspective, each subscriber is associated with their IP address, service plan, location, device, and other information available in the operator's OSS and BSS. This data is crucial to Big Data analytics that are subscriber and revenue oriented.

Figure 1

BIG DATA INTEGRATION OPTIONS WITH EVOLUTION. IPFIX FOR REAL-TIME AND ODBC FOR HISTORICAL DATA EXPORT.





33%

Of Telco Big Data spending will be on customer experience enhancement by 2020

Procera's unique Perspectives-based intelligence provides deep insights into the subscriber experience delivered to your subscribers. All intelligence is placed in context with Traffic, Subscriber, RAN, Topology, Content, Device, Video, and Quality for each subscriber. Using IPFix and ODBC, Data can be easily accessed by any Big Data solution.

Source: Heavy Reading: "Big Data & Advanced Analytics in Telecom" December 2013.

- **Data Export Action**

The Data Export License is required to export data from the solution. This can be via IPFix directly from the eVolution VNF via the IPFix configuration templates, or through ODBC from the Insights database. This license allows the operator to choose their preferred integration API to connect to the Procera offerings.

- **Topology Perspective**

Topology Perspective integrates the subscribers location with their traffic. For mobile subscribers, this can include the cell, SGSN, GGSN, Gateway, and APN, as well as any other logical geographic grouping. In Fixed networks this can include the CMTS port and/or channel, DSLAM and/or BRAS Port. In WiFi networks it can include the Access Point name and location. Location is extremely important for capacity planning and QoE monitoring.

- **RAN Perspective**

RAN Perspective adds the exact cell location in real-time for a mobile subscriber as well as the RAN Signal Strength and Quality for the subscriber's device. This information is extremely powerful for some of the more advanced use cases like real-time offers, customer care interaction, and network planning/congestion management.

- **Content Perspective**

Content Perspective categorizes web traffic into over 100 different categories, including social networking streaming video, sports, entertainment, etc. This is commonly used to offer Parental control services to subscribers, but is extremely useful to understand the types of content that different subscriber groups consume on your network.

- **Route Perspective**

Route Perspective integrates with Border Gateway Protocol (BGP) routing to associate each flow with its routing path through the Internet. Using Route Perspective enables an operator to see the Quality of Experience achieved with each peering connection as well as the traffic types that are consuming each peering link. This information is important when planning CAPEX and OPEX for peering links, as well as diagnosing if specific application flows are experiencing issues due to peering connections and not the access network.

- **Device Perspective**

Device Perspective is a mobile-centric perspective that adds device-specific information for each subscriber. In addition to the device manufacturer and type, the database includes screen size, resolution, access type, and many other metrics that can identify if a subscriber is receiving the level of service that matches the expectation for the device that they have purchased and is part of their service plan. Service and Network analytics based on the device type give insights into the perceived quality of the subscriber's experience.

- **Engineering Insights & Insights Storage**

Engineering Insights is the local repository for network and subscriber data storage, and can be accessed via ODBC by Big Data solutions. Engineering Insights is designed specifically for visualization for Engineering and Network Operations as the target audience, and visualizes the subscriber experience intelligence collected by the eVolution VNF. Each Perspective is represented as a different view of network activity, so each additional Perspective purchased adds to the overall value of the data.



Procera Networks delivers a unique solution for Big Data Integration by combining the best available subscriber experience intelligence with real-time access to that data.

- **Granular Structured Network and Subscriber Intelligence**

Procera's Perspectives combine to deliver more intelligence on the subscriber experience than any other solution. Network probes often focus on signaling intelligence, and may add a small amount of "DPI" to detect the most common applications, but lack the breadth of integration into the OSS/BSS for complete subscriber visibility offered by Procera's offering. Routers and Gateways can provide raw traffic information via IPFix, but lack subscriber and application visibility. Procera combines all of our Perspectives and enables Big Data solutions to shine for subscriber analytics.

- **Drastically Improve Service Agility**

Since the intelligence collected is made available to Big Data systems in real-time through IPFix, decisions can be made in near real-time to enhance the subscriber experience. Subscriber offers and service plan upsell can be made based on the subscriber's usage patterns in real time. Popular new applications or content sources can be detected and used to increase customer loyalty by combining location, device, and service plan analytics for offers made before the popularity fades for the hot new applications.

- **Proactive Customer Care Visibility**

Procera's monitoring of not only the usage for each customer, but the latency and quality of experience for applications and RAN quality of experience provides a unique metric not available from other probe options. Customer problems can be isolated to specific locations for poor performing applications due to network congestion.

- **High Performance, Orchestration & Virtualization**

The eVolution VNF delivers up to 155Gbps on a standard COTS server, requiring no dedicated hardware no matter where deployed in the network. The solution integrates with Procera's VNF Manager, and instances can be dynamically created as needed.

CONCLUSION

Procera's Big Data Enablement solution offers a unique combination of visibility across network and subscriber intelligence. Our focus on the Subscriber Experience delivers Big Data systems intelligence that they cannot get from other probe systems that are deployed in the network or even on the device for subscribers. This intelligence enables the Big Data systems to make better recommendations to the network operator, and enhances the value and profitability of any broadband deployment.



Contact your Procera sales representative to find out more about this solution and how it can help you transform your business.

ABOUT PROCERA NETWORKS

Procera Networks, the global Subscriber Experience company, is revolutionizing the way operators and vendors monitor, manage and monetize their network traffic. Elevate your business value and improve customer experience with Procera's sophisticated intelligence solutions. For more information, visit proceranetworks.com or follow Procera on Twitter at @ProceraNetworks.



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