

The big network analytics approach for service creation

- **Network-centric marketing analytics discover usage trends and supplement reports from business intelligence (BI) tools**
- **Agile Marketing enables triggering, measuring, and iteratively adjusting usage-based promotions targeted at small groups before aiming at wider markets**
- **Deploy turnkey, analytics-driven, value-added services**

Faced with more and more applications moving outside their control and stiff competition within their geographical markets, service providers are focused on rejuvenating their positions. They want to attract new customers and maintain existing ones with innovative and unique services that are tailored to their subscribers' needs.

Service providers have BI solutions that access data from billing, customer relationship management (CRM), and inventory and sales systems to provide visibility into the uptake of various plans and phones by subscriber segment and geographic location. They help marketing determine future campaigns and promotions. However, these BI systems do not take advantage of the service providers' own unique and largely untapped asset – the network.

The untapped information within the network provides more visibility into subscriber usage than Google®, Yahoo® and Facebook® possess – combined – and is only available to service providers. Taking advantage of this new source of information requires expert networking knowledge that falls outside the core competencies of IT departments and big data vendors.

Marketing professionals turn to their colleagues in operations, engineering and planning departments for this intelligence. These groups often have to manually collate data, a time-consuming task they frequently can't support. If deployed, network analytics can provide trend analysis. However, network analytics systems targeted at operations, planning and engineering were not meant to crunch per-subscriber data in custom combinations, retain that data for the length of time required by marketing, or add other types of data, such as data plan information.

So how can service providers take advantage of analytics to innovate and differentiate their offer?

Value proposition

The big network analytics approach addresses these challenges, providing a suite of analytics-enabled solutions focused on deriving immediate value from the network data, while positioning service providers within a big data infrastructure to unlock greater network data intelligence for operations, engineering, planning, customer care, customer experience and marketing organizations.

Big network analytics centers around network analytics rather than IT/Operational Support System/Business Support System (OSS/BSS) data analytics. It starts with data from the service provider's unique asset: the network. Big network analytics gathers, interprets, correlates, and acts on the six dimensions extracted from the network data – subscriber, device, application, network, signaling, and IP flows. Then it incorporates IP/OSS/BSS data within its scalable and flexible infrastructure to improve network infrastructure and operations and maintain customer satisfaction while opening doors to new business opportunities.

Alcatel-Lucent, as a mobile network equipment provider, has a proven track record in network analytics. Service providers can use big network analytics to obtain network-centric analytics and export that analysis to the IT department's big data back-office infrastructure as needed. This approach delivers expert network-based analytics that is complementary to and does not interfere with IT big data technology and investment decisions.

Big network analytics solutions offer productized, turnkey, network-centric analytics in a solution architecture that is big and flexible enough to meet

the needs of different functions. In addition, these solutions are supported by the Motive Forensic Services team, a group of forensic experts that have worked alongside service providers for many years. This team can be consulted to help provide custom analytics or simply work alongside the service provider to come up with the right analytics and solutions to maximize the value to their business.

Solution overview

The big network analytics approach is supported by a comprehensive solution architecture. As part of this architecture the primary source of network data and analytics comes from the Motive Wireless Network Guardian (WNG). It offers more than 7000 off-the-shelf network analytics reports and provides the information required for the Motive Forensic Services team to deliver on more than 700 custom engagements with service providers around the world. This solution architecture also includes Motive Security Guardian (SG), which offers security analytics, and the heart of the solution, the Motive Big Network Analytics (BNA) product that provides comprehensive and scalable data storage and processing. These products can build from the foundation provided by the WNG or be deployed independently.

WNG: taps into a network-based data source in a non-intrusive, real-time, and vendor agnostic manner and currently supports multiple mobile technologies (2G, 3G, and LTE). Processing both user and control planes activities provides an understanding of interactions between six critical dimensions: subscriber, device, application, network,

signaling, and IP flows. Alcatel-Lucent calls this real-time correlation and analysis of these dimensions m.IQ⁶; it is what allows a service provider to generate multi-dimensional analytics by querying the impact of any dimension onto any other.

Security Guardian: leverages analytics to examine communication patterns and detect malware operating on subscriber mobile devices. A network-based solution offers always-on and always up-to-date protection for subscribers that cannot be matched by client-based solutions.

BNA: combines m.IQ⁶ network data, circuit-switched (CS) voice and SMS data sources, and IT/OSS/BSS data – such as subscriber data plans, profile, and billing information – into a big data-enabled analytics infrastructure. It enables Alcatel-Lucent to deliver turnkey analytics solutions focused on network data that is dynamic, flexible, scalable, and enriched with complementary information that supports marketing's needs as well as broader capabilities for operations.

Analytics-driven solutions: The big network analytics solution architecture uses analytics output as the foundation for wider solutions by exposing this intelligence to external systems. The big network analytics solution architecture is at the heart of several pre-integrated, analytics-driven Alcatel-Lucent solutions that use the knowledge developed by the WNG, Security Guardian, and BNA. Figure 1 shows the solution architecture of the big network analytics approach.

Analytics-driven value-added services

Analytics can be the source of new revenue opportunities with value-added services. Security Guardian is the first prepackaged big network analytics service solution that can be offered exclusively by mobile operators. It is a malware protection service that detects malware on a device by identifying its traffic patterns. The package includes malware detection, subscriber alerts, and a mobile app or portal that guides users through a step-by-step malware removal process. This antivirus solution can be bundled at subscription time, and it is effortless for the subscriber as it is always on and up to date.

Network-centric marketing analytics

What if information could be broken down to show what fuels traffic growth? And determine whether the largest contributor to growth is new subscribers, existing subscribers using more data, a new and popular application, additional roamer traffic, or traffic due to a recent device promotion? What if a recent drop in the popularity of existing packages could be correlated with speed degradation? Or that MiFi® devices – currently with a surplus inventory – provided excellent speed when deployed? Or show which applications roamers are using and how much data they generate when participating in daily flat-fee roaming promotion?

If this information was available to service providers, marketing departments could adapt

their existing strategies or create new ones. Big network analytics solutions support marketing by providing intelligence about trends in devices, applications, usage, networks, and subscribers. For example, BNA can graph the number of Facebook users with varying Facebook volume: 25 percent of subscribers use less than 30 Mb/s per month, 50 percent use less than 90 Mb/s, and 75 percent use less than 150 Mb/s.

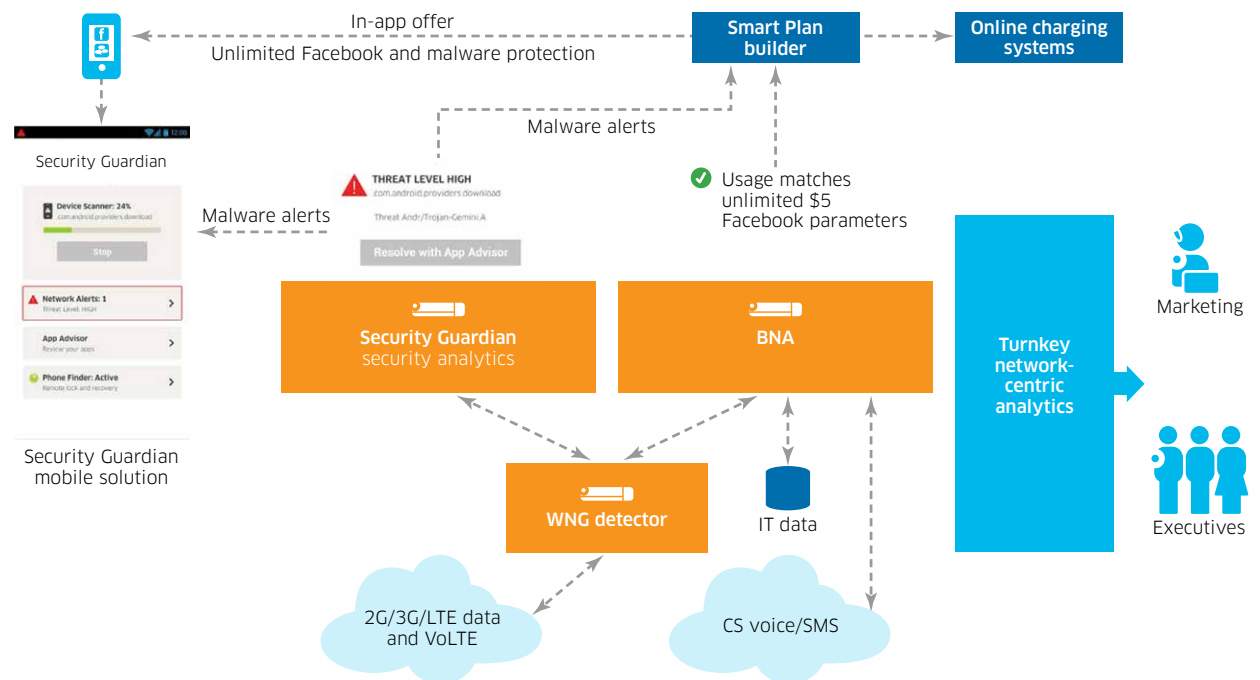
In addition, big network analytics solutions can incorporate OSS/BSS data, which allows a plan type to be correlated to each subscriber. This information allows analysis to be further

broken down by plan type. Big network analytics solutions give marketing teams the freedom to explore subscriber usage to discover and capitalize on trends.

Agile marketing

Agile Marketing is a mechanism that enables usage-based promotions to succeed through an iterative process that initially targets a small market segment. The cycle starts by discovering a trend to capitalize on. Marketing then identifies usage, plan, and other parameters that will trigger the offer. With data usage, plans and billing cycles

Figure 1. The big network analytics approach for service creation



already associated with subscribers within BNA, thresholds can be set to alert when this specific combination is found. The alert can trigger back-office systems to automatically offer the promotion to the targeted user. Alcatel-Lucent offers this turnkey mechanism with **Smart Plan**, which can receive an analytics-generated alert from BNA to offer a promotion and orchestrate its implementation.

The Agile Marketing cycle does not end there. BNA can measure the uptake of the promotion, whether application performance is maintained and if the impact on usage is sustainable. Based on that information, the promotion parameters can be adjusted and the cycle continues until a satisfactory combination can be offered to a wider target group.

The Alcatel-Lucent advantage

Unique network insight with m.IQ⁶

The big network analytics solutions' unique distinction is m.IQ⁶, mobile intelligence that tracks all device-network interactions in sequence, and correlates them across six critical dimensions: subscriber, device, application, network, signaling, and IP flows.

Expert network-centric analytics for all departments

Big network analytics solutions allow service providers to provide the full benefits of network intelligence to all parts of the organization without committing to a full data warehouse infrastructure migration. This strategic approach is compatible with existing or imminent big

Solution features

FEATURE	BENEFIT
m.IQ ⁶ network, subscriber and trend analytics	Correlates users, applications, devices, signaling, IP flows, and network dimensions to understand the relationships between any of the dimensions
Flexible, scalable framework with exportable analytics	Big data infrastructure enables non-network data input, any-to-any flexible report generation, and more computational power.
Per-subscriber and per-application usage thresholds	Granular threshold computation and alerts provide the framework for automated and targeted usage-based offers.
Integrated data, VoLTE, CS voice and SMS analytics	Single-source, network-centric analytics that recognize usage of all service types
Turnkey mobile security services	Malware traffic pattern detection helps service providers understand the impact of malware on the network, and in turn, generates revenue with value-added services for the subscriber.
Turnkey Agile Marketing	Enables automated, usage-based offers that can be iteratively improved until the most successful combination is produced
Forensic and OSS service teams	Can develop custom reporting for marketing or guide a team to produce useful marketing analytics on their own. They can also integrate and correlate additional IT and CS voice-related data into the analysis.

data migration plans: service providers get comprehensive, network-centric analytics and insight from networking experts that is complementary with their big data strategy.

Turnkey analytics backed by data analysts and networking experts

WNG has a vast list of productized network analytic reports and continues adding to these to capture the most common insight needs of the service provider. However, analysis is iterative and unpredictable by nature, so the solution also retains the flexibility to customize data mining. The Motive Forensic Services team – seeded with mobile networking and statistical experts since the inception of the WNG – gained its expertise from acting as an extension of mobile service

provider teams worldwide. That same team can use big network analytics solutions to deliver custom analytics directly to the service provider or act as a guide as service providers learn how to extract additional intelligence on their own.

Learn more

The network knows, and we know the network. Visit our web page on [Network Intelligence](#) to learn more about big network analytics solutions.