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BIG DATA ANALYTICS

Gaining actionable insights

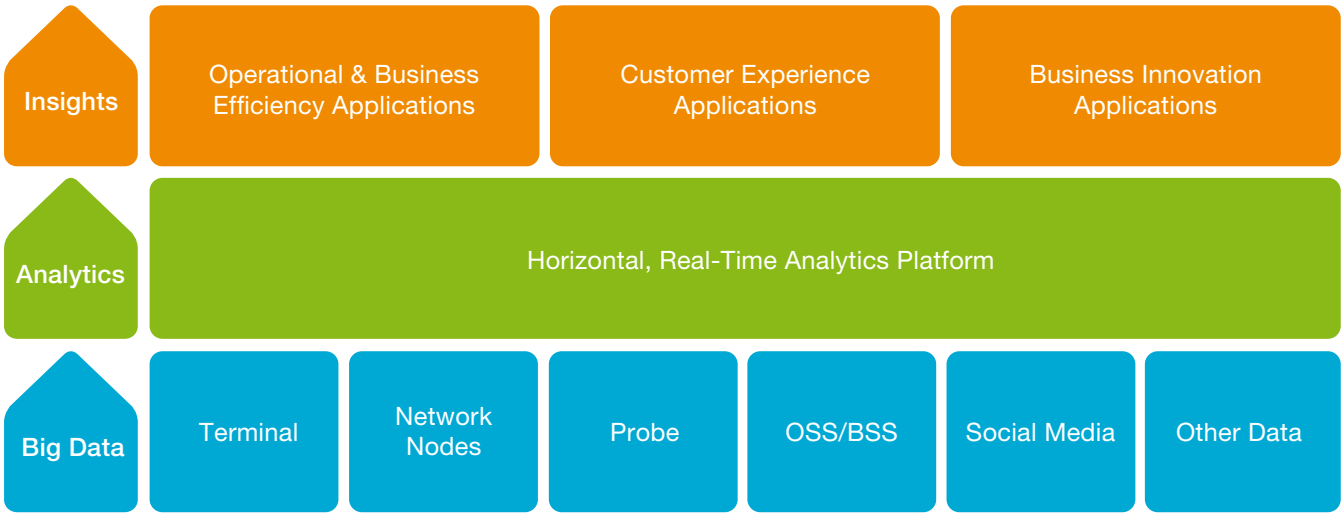
Service provider networks and systems, and other sources such as social media, produce vast amounts of data, including performance metrics, customer interaction records, sentiment analysis, and so on. Buried in all this data is information – about customer experience and service quality, network stress points and usage patterns, and customer preferences and needs – that service providers could use to improve and grow their business. But this is "big data"; it is so voluminous that until recently, it was impractical to try to extract all the insights it offers. To that end, many service providers have begun to make significant investments in big data analytics tools. However, to realize the value of analytics, service providers should ensure that their efforts are focused on gaining actionable insights, rather than simple exploration. To this end, service providers should: implement horizontal analytics environments; include real-time capabilities; support specific use cases based on domain expertise; and seek to adopt closed loop action.

Recent and current investments in analytics solutions are still dominated by analytical stove pipes, that is,

In Part One of this supplement, we consider how cloud transformation can bridge the CTO/CIO gap and, in Part Two, we discuss how operators can gain actionable insights from big data analytics.

analytics solutions focused on a specific type of data and supporting a specific application. Examples of such investments are probe solutions or CDR analytical tools. These vertical solutions are a natural evolution, leveraging existing, but comparatively narrow, data sets. Taken one implementation at a time, vertical analytics solutions appear to require relatively low investment of time and expense. However, these economies disappear over time as more data sources become the subject of analysis and as more internal users seek to develop applications that address their particular needs. By contrast, horizontal solutions are designed to pull key data from multiple and diverse sources, perform pre-processing, and make this big data available to a variety of applications, each

Horizontal, Real-Time Analytics Approach



tailored to the needs of different users and use cases. Horizontal platforms lower investment of both time and money to incrementally meet the needs of various internal users.

Perhaps the greater drawback of vertical analytics solutions is that they, by definition, miss many of the possible and useful insights that could be found, simply by failing to include diverse data from multiple sources. In contrast, horizontal analytics environments can correlate data from all possible (network and non-network) sources. For example, consider that probes can provide detailed insights into the quality of service that each individual customer is receiving. But if that quality is not adequate, probe data typically cannot explain why. However, session events, performance metrics and other sources can reveal the cause, even for an individual customer. A horizontal analytics platform can collect cause and symptom data from multiple sources, and correlate those metrics by customer identifier and session, creating a customer experience record that is valuable to several different use cases – such as customer care, operations, or marketing – and which cannot be derived in any vertical, silo analytics environment.

Much of the installed base consists of off-line (batch) analytical tools. This approach can reveal patterns and trends, which can be useful for a number of use cases, including long-term capacity planning, and customer segmentation. However, newer approaches make real-time analytics possible and practical. With such "fresh data," many more use cases can be supported, such as customer care or real-time optimization. For instance, customers who experience a problem will most often call customer care within minutes of the occurrence. Armed with real-time experience insights (that have provided symptom and cause of experience issues for individual customers in real time), customer care agents can provide a much shorter and more reassuring interaction for the customer, while at the same time reducing the number of trouble tickets they generate.

Consider also targeted marketing, where many use cases can be supported by offline analytics. However, a much richer and more relevant form of interventional marketing can be supported if real-time capabilities are available. In this case, the actual, recent customer experience can be added to the customer profile, thus allowing a more appropriate offer – such as retention, cross-sell, or usage incentive – to be matched to the individual customer based on whether the customer's recent experience was below or above average.

> Real-time analytics yield "fresh data" insights, which can support a far greater range of use cases, including proactive operations, agile customer care, and experience-based marketing.

Domain expertise is the secret ingredient for deriving actionable insights from big data. After all, most analytics tools are akin to blank spreadsheets. Just as a spreadsheet must be configured with formulas and formats to be suitable for forecasting, budgeting or tracking inventory, so must big data analytics tools – such as big data storage tools or complex event-processing engines – be configured with data models, business rules, thresholds and the like in order to support any given use case. In order to gain useful insights, you must know what data elements, in what combinations, and at what thresholds truly matter to the question at hand. Primary customer research, network expertise, and other knowledge guide the development of the rules. For instance, to know how to configure a set of analytics tools to illuminate the customer usage experience, you might conduct primary research with customers who self-report the quality and nature of their actual experiences using services; then you can correlate those findings with a variety of network metrics and session events that occur simultaneously, and thus learn which of those events appear to explain (correlate with) the reported experience.

Many service providers still have manual analytical steps to support their business, for example tasking an analytics team to process data collected from networks. Real-time automated analytics will enable closed-loop action, making decisions much quicker and more efficient. The greatest value is derived when big data insights are connected to business processes, thus enabling closed loop action, where data drives insights and insights drive actions (network configurations, work orders, customer marketing offers, and so on), often without human intervention. This is where the horizontal environment, real-time capabilities, and tailored applications supporting specific use cases all come together to drive real improvement in operations and customer experience.

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