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The Big Deal with Big Data

By Becky Bracken

Your communications service provider (CSP) probably knows you better than your own mother. Today's Big Data tools can capture every minute detail of network, device, and data activity. The question is what should CSPs do with all of that captured data and how can they leverage it to gain a competitive edge?

"The wealth of information that exists in the carrier network is unprecedented," Lyn Cantor, president of Tektronix Communications says. "And, the key is the use of that data to save money and make money."

Reduce costs and grow revenue. It's the promise of Big Data. But no matter how loud the hype gets dialed up, no CSP seems to be fully embracing Big Data. But as more IP networks come online, and particularly with the speed of LTE roll-outs, networks are about to catch up with, and begin to start reaping the benefits of, the promise of Big Data.

"I don't know of any CSP that has fully embraced Big Data yet," Dirk Bartels, vice president of Product Strategy and Marketing at Versant says. "In my opinion, it is making the invisible visible by creating associations and connections in between data that traditional has not been looked at. A CSP that has those tools at hand will be able to run more efficient networks with a higher quality of service, a lower churn rate and much better forecasting to actually know what size of network it will need in the future to service its customers."

Getting Started

The birth of the GUI dashboard slapped a user-friendly face on data analytics, and it's been a part of network operations in some form or another ever since. But fully embracing the vast amount of data generated on the network, and the rich business intelligence it can provide, will require a new mindset from CSPs.

The May 2012 report from Stratecast and Frost & Sullivan, "Business Intelligence for Operators: Can You Have it All?" uses the example of monitoring traffic data to identify that Mother's Day is the busiest day on the network. Networks and service providers have been using network data in ad hoc situations, but bringing all of that data together for

a full view of the entire operation isn't something that comes natural for CSPs. The report explains that because CSPs are so focused on rolling out new services, they forget to make decisions based on a tactical and analytic approach. The report also says the shift in business intelligence solutions from a telecom-focused approach to an IT approach has hindered data analytics uptake.

"Most of the BI market leaders are global IT powerhouses, and while their solutions are clearly working for large enterprises, they are not telecom-specific and are not specifically designed to integrate with a CSP's existing OSS/BSS fabric," the report adds.

What CTOs really want is a real-time end-to-end view of the network, according to Cantor. "Across all domains voice, video and data." And the smart deployment of data analytics can provide that.

"Before looking into a Big Data solution or technology, a CSP should look first at the data sources that are available--discovery--and what type of business problem needs to be solved," Bartels says.

"Today, most OSS and BSS systems are managing data in silos. For example, each application has its own databases and applications with little or no connections being made across the boundaries of these silos. A cross-functional data discovery and assessment is needed as well as a fair amount of imagination and prototyping to create new insights. There is also more and more 'public' data available that, when "meshed" together with OSS and BSS data, could be helpful and meaningful."

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The Stratecast and Frost & Sullivan report identifies these six areas as those in CSP environments with the most potential for data analytics to produce results:

- Network & Operations
- Products & Marketing
- Core Customer Data
- CEM
- Billing
- Revenue Assurance

Forecasting Data Storms

Big Data can be leveraged many ways but boosting ARPU and reducing churn are the primary ways in which operators can leverage Big Data to increase revenues.

"How does data help me generate sources of revenue?" John Lenns, assistant vice president of business development for Tekelec asks. "The operator can use data to understand user behavior, and improve quality of service. When do they get on the network? When do they demand bandwidth? When are the storms of usage?" Lenns adds that anything operators can do to boost quality of service will reduce churn and generate higher revenues.

Knowing everything about the ways users engage with the network can also help operators understand how to up-sell services in a meaningful way that won't turn their customers off. That offers opportunities for everything from becoming a middle-man broker for advertising--like offering location and customer preference-specific offers and coupons--to up-selling bandwidth and other services at the operator level. When you know everything about what your customer is doing on the network, there are limitless opportunities to enhance their service experience and prevent churn.

"You can see where the customer is struggling," Cantor says. "Then you can say, 'this area isn't provisioned right.'"

He adds that if you have visibility into where a customer is having issues, you can be pro-active and reach out to the customer, offer them a credit and submit a trouble ticket so they don't run into the same issues again. Finally, Lenns adds that Big Data helps marketing departments measure KPIs and customer uptake on new marketing campaigns much more quickly than before, allowing them to tweak offers in real-time for maximum return.

"It's like they have levers they can adjust to maximize the campaign," Lenns adds.

The Future of Big Data

Aside from leveraging Big Data to know more about the customer's usage and experience, ultimately, Big Data can help create a network smart enough to optimize itself in real-time at any given moment. It's what Lenns calls a "closed-feedback loop" from analytics to policy. It creates a network that is continually and dynamically adjusting.

There are also developments on the horizon in labs across the telecommunications industry that take real-time analytics and feed it back to the network in order for the network to automatically make bandwidth adjustments based on customer behaviors—and even charge them for it. But Cantor says with the growing levels of data being extracted from the network, carriers will need to increasingly consider the legal implications.

"When I think about what's going on, there's the technical guys, the financial guys, and I think there's going to be a need to have more legal guys to help make smart decisions about how to use data," Cantor says.

Deep Packet Inspection (DPI) has given operators the ability to see usage activity with a startling level of detail. But, Cantor adds that a sub-set of DPI, Deep Packet Classification (DPC) provides the data carriers need without the same level of content detail, in an effort to protect customer privacy.

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The promise of Big Data is alluring, but fully realizing all the benefits Big Data has to offer will be slow in coming. But rather than being daunted, carriers should start leveraging communications technology solutions to address their immediate needs like churn reduction, increased quality of service, and bandwidth management.

Start with something rather small and isolated instead of trying to boil the ocean," Bartels says. "Each project will help you better understand the available tools and systems and how to model the system according to the requirements."

CSPs know their customers better than their own mothers. They even know if they're calling them on Mother's Day. But at a time when the rest of the pack is focused on rolling out new services, the CSPs that are able to pivot toward a data analytics-focused operation will win the customer for the long haul. Maybe their mothers, too.