Trends in telco

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Today the telco industry is at the vortex of change due to developments, such as network functions virtualisation and big data analytics. By allying with IT to embrace and transcend the disruptions characterised by these developments, telecom providers stand to benefit from reduced costs and new revenue streams, and see their profits grow.



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The pace of change in high technology has accelerated dramatically in the last decade and continues to transform industries as diverse as healthcare, financial services, retail, energy, and transportation. But, apart from the IT industry itself, no industry is undergoing more transformative change than the telecommunications industry.

Historically this makes sense, given the way many of the major breakthroughs in computing and telephony during the twentieth century progressed in parallel - from data networking to transistors to digital switching. But today, a new force is putting the telco industry at the vortex of change, and that is the ability to move network and base-station functionality into the datacentre.

This move to the datacentre, typically home to more traditional business functions, such as billing and enterprise resource planning (ERP), is known in the telco industry as network functions virtualisation (NFV), and is enabled by the same fundamental forces that underlie the cloud computing trend in IT. Foremost among these forces is the standardisation of servers, switching, and storage hardware on the x86 processor platform. This standardisation, in turn, has made it possible to run a layer of virtualisation software on top of the hardware, abstracting the hardware into a set of compute, network and storage services. And from this virtualisation capability has emerged cloud computing.

Network functions virtualisation offers all the benefits associated with cloud computing. This includes: reduction in the Capex needed to acquire hardware; Opex savings from reduced space and power demands; greater ease of deployment and management; and lower exposure to operational risks, such as disruptive upgrades and the finite lifecycles associated with physical hardware.

But as important as new efficiencies and cost savings are, the aspect that makes NFV truly compelling is the flexibility it provides telco providers as they fight to remain competitive in an industry that is changing at dizzying speed.

The changing business landscape

Two key phenomena are rapidly altering the business landscape in the telco industry. The first is competition from a growing number of over-the-top (OTT) vendors such as Skype and Google and other 'Born in the Cloud' companies. These companies are capitalizing on the increasing data-centricity of communications to deliver traditional telco services such as voice, as well as new services such as video streaming, file sharing, mobile web and social media, over cable, IP, wireless and mobile transport mechanisms. Second is a phenomenon that can be called the 'consumerisation' of telco services, in which individual and industrial customers have come to expect instantaneous access to communications and content, from any location, and on any device.

It's worth noting here another parallel between telco and IT - just as technological breakthroughs tend to coincide in these industries, so do disruptions. Indeed, many of the same OTT vendors mentioned above are also pioneers in the public cloud space - offering compute and storage as a subscription service and putting pressure on traditional IT vendors. And CIOs in every industry grapple daily with the 'consumerisation' of IT and the onslaught of new devices that employees and customers bring to the enterprise realm - from personal laptops to tablets to smartphones.

The great benefit of this parallel disruption is that IT is the natural ally to telecommunications companies in the surmounting these major obstacles. And this alliance couldn't come at a better time. Leading telco players are now finding themselves in the unenviable position of having to execute on two imperatives at once. First, they need to 'keep the lights on', by investing in the infrastructure build-out and R&D necessary to serve the growing content and communication demands of an exploding worldwide user base. And these are educated consumers. At the same time, they need to become more adept at delivering the same kind of innovative applications and customer experiences that the OTT players have been able to deliver.

This is no small challenge, and we can expect much consolidation and change in the telco industry over the next few years as winners and losers emerge. The telco companies that successfully meet this challenge and thrive in this new world will be the ones that recognise there is a goldmine laying beneath the mountains of data their customers and network operators generate every day. Telco companies sit on an astounding amount and variety of data - petabytes generated daily about the connections users make, their locations, their consumer preferences, as well as operational data about the networks themselves.

Big data analytics

To understand the unique value of this information, compare the data that a typical social networking company or service has about its users with the data a typical telecommunications carrier has about its customers. Most advanced or mature social networking offerings construct their social graph based largely on data that users volunteer about themselves - data such as 'likes', friend or work connections, and ad clicks. The profile of a user in a social networking environment is typically one that the user curates him or herself. Contrast this with the data that telcos have access to - the texts and calls that users make to each other, their instant messaging traffic, their location history and present location based on cell tower proximity; along with the apps they download to their smartphones and the purchases they make. The ability to develop a user profile based on real-world behaviour has the potential to be just as powerful or even more powerful than relying on data compiled from an image a user chooses to project his or her friends in a social networking environment.

Telcos can use this information in a variety of ways. By understanding a customer's true preferences, a carrier can offer products and services to its customers that it can have high certainty they will value. The carrier can also reduce the likelihood of customer churn by targeting service level agreements to specific customers that correlate with the predicted lifetime value of those customers.

To illustrate, let's look at two hypothetical users: Mary and John, both customers of the same wireless carrier. Mary is considered to be a high-valued customer by the carrier, while John is considered to be a low-value customer. This customer value can be derived from traditional data, such as whether a customer subscribes to a premium service plan, payment history, response to upsell promotions, and so on. But other data, such as a history of being a brand ambassador on social networking sites, or the likelihood of moving out of the carrier's coverage area, could also come into play.

Now, imagine that a large event comes to Mary and John's city - a concert or a World Cup soccer match - causing high levels of congestion on the wireless network. By monitoring performance across its network in real-time, and by being able to pinpoint service degradation as it affects individual users, the wireless carrier can automatically apply policy-based solutions to users based on their customer value. So, for instance, if Mary experiences a dropped call, or a decline in connection speeds, the carrier could choose to temporarily switch Mary's calls to an ultrabroadband network reserved for its highdefinition TV subscribers, or it could offer her a month of unlimited texting. In contrast, because John is not considered as high-value a customer, the carrier could choose a lower cost action, such as texting him an apology and explaining that service will improve once the event ends, or doing nothing at all.

Leveraging information in this way will require the ability to detect complex patterns and take automated actions based on those patterns by performing advanced analytics on massive amounts of unstructured data. The combined abilities to ingest huge volumes of data, store it in an unstructured manner, and then rapidly analyse that data, either in memory or at rest in a data repository is a key advantage of big data analytics.

And if telco gets big data right for itself, it also stands to benefit by helping other industries derive value from big data as well; because, big data isn't just of interest to telco. Nearly all industries are seeking the ability to derive value from their data. Telco, with its unequaled abilities to collect, aggregate and transmit network- and user-generated data, should be able to show the way forward to these industries, opening a potentially rich source of economic and social value.

Disruption, as always, brings with it opportunity. By allying with IT to embrace and transcend the disruptions brought by cloud and big data, telecom providers stand to benefit from reduced costs and new revenue streams, and see their profits grow.