Big Data – Roles and Impact on Mobility Network Traffic

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At the core of Big Data is a challenge. A challenge of exploration "of the complexities inherently trapped in data, business, and problem-solving systems" (Cao, 2017) which is by definition, "Big Data".

Imagine a world where your business decisions relate to data sources that range from a flat file from a third-party vendor to millions of internal data records every day, nearly every hour. Add to this, some data sources might "round up" the data, while others relate the data (traffic) to a different geographic standard then others. So it is in the world of mobility network traffic.

Mobility network traffic providers generate CDR's (Call Detail Records) every time a device establishes a connection. These CDRs provide details about the connection – cell site locations, length of call and device information. It is from these records that the network providers gather, "clean" if need be, consolidate and extrapolate the needed information to bill the customer.

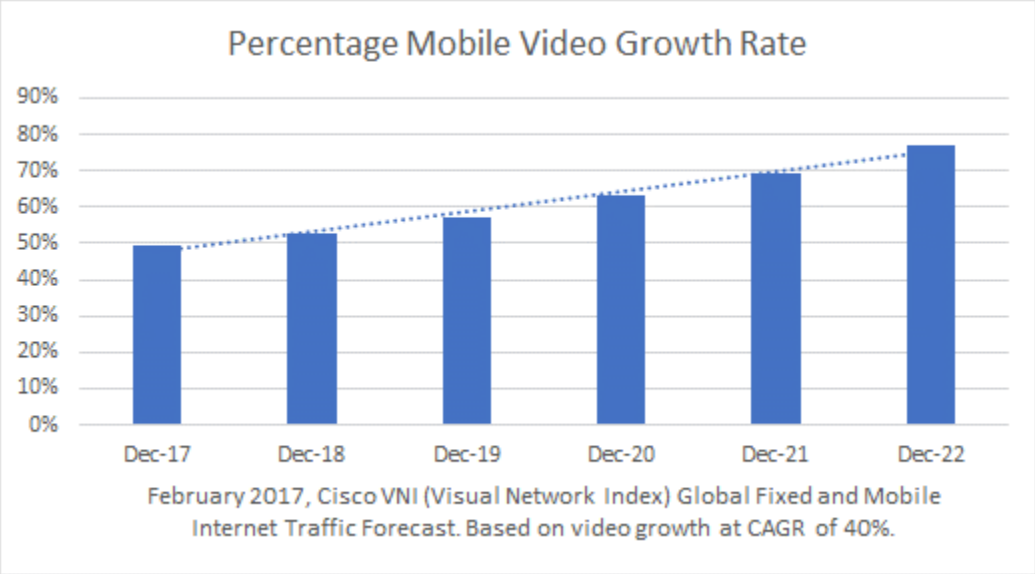
While CDR's tell us a great deal, there is much that they don't tell a provider. For example, by the time the millions of records are consolidated to generate files that are more manageable, data details can be lost. Therefore, other data sources are used, like data from the network, which provide precise traffic metrics.

Adding to the challenge, companies like Verizon and AT&T are changing to unlimited plans, offering package deals with video services and even offering free traffic based on cell phone apps (HBO for free on your device) – This data set is much different than simply looking at network or CDR traffic. That is, we need to look at the bits and bytes. Additionally, the customer landscape has changed from traditional post-paid customers to those that pre-paid or are sold as wholesale or the IoT customers.

With IoT, lots of projections abound and here is one: "roughly 23 billion active IoT devices by the year 2019….spending on enterprise IoT products and services will reach $255 billion globally by 2019, up from $46.2 billion this year." (Schofield, 2015) Also network providers have learned that nothing puts more traffic on the network like video. Video based apps, like Facebook and You Tube directly impact network traffic.

The impact of apps on the mobility network is significant with no end in site: "…when it comes to reaching consumers in masse…the market has confirmed what we've known all along – that we are all building and investing into a platform that can reach heights we may have never seen before. That, to me, is "The WhatsApp Effect, and there is no turning back now." (Shah, 2014)

Illustration - below shows the projected video usage increase, by percentage of total network traffic, over the next five years. (Cisco, 2017)



For mobility network providers, what is the Big Data challenge here? Providers already have access to network traffic data, along with data around traffic above the (OSI) network layer to provide some insights into traffic types; web browsing traffic, VoIP, video, and even some data around traffic related to apps. The challenge for Big Data is to take all of this data and give network providers accurate readings on - customer behavior!

Can it be done? I believe, with the use of data holistically and with data-driven discovery, it can. In order for this to be successful, you have to have a solid understanding of the data itself and substantive data storage capabilities, like data lakes.

A holistic view of the data is to include all the data sources; network data, traffic type data, app level data interrelated and connected hierarchically, so that when you see a jump in the network traffic, you trace the traffic type and app level, which can then lead to accurate deductions to explain the, aberration, one such as, "The Ice Bucket Challenge", an innocuous social experiment played out on Facebook that demanded a tremendous amount of network capacity. This comprehensive, holistic approach is the only way to paint an accurate picture of user behavior, taming "Big Data" into a beast that can be interpreted. And as a result, helping understand – customer behavior.

At this point we have gained wisdom and data-driven discovery that can be applied to the network itself. Impacting the bottom line.

References

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