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ATIS Big Data Analytics Focus Group: BDA Data Value Chain Reference Model & Use Cases

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1 Motivation

1.1 Big Data Analytics is a Market Reality

The buzz around Big Data Analytics has raged for the past few years. Articles on the subject have permeated mainstream media, heralding an edge to vault past competitors by applying sophisticated data mining techniques on the exploding volume of digital data generated by countless devices and sensors. The promise of course is that this will create insight – previously unknown information – to help business make data-driven decisions.

Three factors have combined to make Big Data Analytics a reality. The price of storage has fallen precipitously, processing power has increased enormously and the amount of data being created by networks, applications, and devices has grown to an exabyte every day. Capturing and analyzing this data has become a very robust business in a very short time: $12 billion this year alone.

Communications service providers (CSPs) who are able to collect and analyze the wealth of network, customer and location data can use this information in many ways, including differentiating their services, offering location-based services, creating targeted marketing campaigns, improving network performance, detecting fraud, and reducing costs.

1.2 Revenue is Being Lost

Today, however, CSPs are not able to fully make use of the data generated by their subscribers. Instead, it is the over-the-top players who have been able to capitalize on Big Data Analytics and who are taking the lion's share of the revenue opportunities this activity creates. For example, 90 percent of mobile advertising revenue is going to OTT players – 70 percent to Google and Facebook alone – and the percentage available to CSPs is shrinking, not growing.

CSPs looking to leverage this data face several obstacles. First of all, accessing and processing the wide variety of information generated is difficult because it is often captured and maintained in different organizational silos within a service provider, often in different physical locations. Making the task more difficult is the fact that most CSPs are creating proprietary, home-brew Big Data Analytics solutions. There are, however, some indications that cooperation and collaboration is beginning, as the examples of WEVE in UK, Sprint, and Telefonica illustrate.

Mobile advertising appears to be a leading means to monetize this analytic insight, but there are many other interesting use cases. For example, Verizon Wireless works with athletic teams and sports venues to map where attendees live in order to increase awareness in underrepresented neighborhoods. Telefonica works with local communities to understand traffic impacts of local events and late night shopping for improved planning.

1.3 Challenges Ahead

If the telecommunications industry as a whole wants to benefit from the power of Big Data Analytics, then the following major challenges must be overcome. First, there is no coordinated effort or industry standard. This makes progress very slow, as everyone starts working from scratch, information is kept very close to the vest and no best practices can emerge for others to learn from. Secondly, the individual, siloed approach described above prevents the creation of a comprehensive, industry-wide view. Third, external entities who value this data for their own purposes don't want to be restricted to one CSP's information, and they also don't want to have to deal with multiple incompatible datasets. We envision the rise of analytics aggregators – similar to what we see in the financial services – that can combine information across multiple CSPs, and possibly contribute a value-added service powered by their analytics.

Finally, and perhaps most importantly, the general public harbors significant concern about privacy and data security, which have only been exacerbated by recent revelations about the extent of data being collected by both