Transforming the Telecoms Business using Big Data and Analytics

1. Abstract

Big data offers telecom business a real opportunity to gain a much more complete picture of their operations and their customers, and to further their innovation efforts. Big data demands of every industry a very different and unconventional approach to business development.

Telecommunications organizations that can incorporate these new strategies of learning consumer need into their organizational processes will gain a more competitive advantage than their counterparts who stick to the traditional methods of learning the market requirements.

This paper explorer this new concept the big data its relevance to the telecommunications industry.

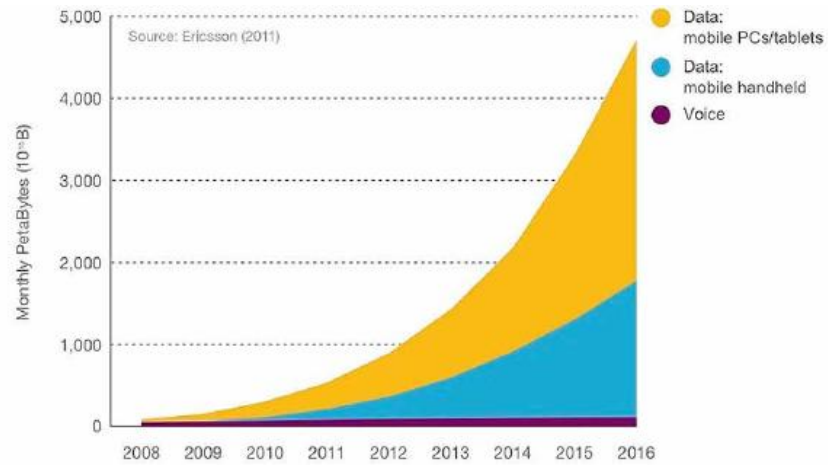
2. Introduction to big data

Big data broadly refers to the new methods and technologies for collecting, managing, and analyzing in real time the vast amount of both structured and unstructured data. Although telcos have been moving multiple terabytes of data around their networks for years, today's networks have seen unprecedented changes in term volumes of data moved including video, variety comprising the social networking data, and complexity of that data that is not necessarily structured.

A recent report by Research and Markets (2014) on global market in telecom industry discovered that the telecom sector's use of data analytics tools is expected to grow at a compound annual growth rate of 28.28 percent over the next four years.

With the telecommunications companies controlling the infrastructure through which data flows, they have more data than any other industry on where their customers are, how they interact, and how they transact business. By using data acquisition and analytics technologies, this massive amount of data can be used to gain more consumer insight and hence enhance customer experience.

Mobile data traffic is expected to grow by approximately 60 percent year over year through 2016, driven mainly by video. (Source: Ericsson Traffic and Market Data Report, November 2011.)



3. The big data in telecommunication business

Telecommunication companies must be able to gather different types of data from multiple sources, at different velocities, and from disparate source, such as:

- Unstructured data like the emails, text-based documentation, contracts, and social media sources, which contains critical information about customer engagement and customer satisfaction.
- Network performance data including: gigabytes of events logs about services, network, transmission - this provides insights into root cause of alarms and affected services and customers.
- Network traffic data – This includes identification of the type of data passing over the network, bandwidth usage and the type of user which is needed to enable better traffic engineering and capacity management and hence informed investment decisions.
- Call detail record which can provide useful call patterns by correlating data about, frequency, date and time, duration, called parties, subscriber location etc.
- Internet related data showing IP addresses used, GPS location, frequency, type of data, social networking websites accessed, other sites like new and entertainment, bandwidth requirements etc

All these new, vast, and complex type of data is what constitutes the "Big data" can provide significant, material and actionable insights into customers, products, and operations (EMC, 2013). The new data sources from Web activities, mobile data, user location combined with traditional data enable businesses gain more understanding of the customer requirements.

4. Big data technology

Big data tools and software are required to process the extremely large volumes of data that a business has collected to determine which data is relevant and can be analyzed to drive better business decisions in the future.

Telcos require technology that gathers the vast amounts of data generated by 4G networks, CDRs, clickstreams, IPv6 devices, location sensors, and machine-to-machine monitors in a single format information platform.

The technology must have the capability to integrate data in near real time, scale cost-effectively and integrate with legacy systems and technologies, and shrink batch windows for high performance.

Some of the current big data languages capable of efficiently processing massive amounts both structured and unstructured data include the Hadoop and the R language.

5. Benefits of Big data

Big data promises to promote growth and increase efficiency and profitability across the entire telecom value chain (Strategy&, 2013). Some of the benefits include:

- Optimizing routing and quality of service by analyzing network traffic in real time
- Analyzing call data records in real time to identify fraudulent behavior immediately
- Allowing call center reps to flexibly and profitably modify subscriber calling plans immediately
- Tailoring marketing campaigns to individual customers using location-based and social networking technologies
- Using insights into customer behavior and usage to develop new products and services
- Used in finance and HR to provide invaluable strategic asset with access to actionable business insights that improve talent acquisition, retention, development and organizational performance (Harvard Business Review, 2013).
- Improved fraud management by correlating internal location, usage, and account data with external sources such as credit reports, operators could significantly increase the detection of fraudulent activity such as looping or call forwarding on hacked PBXs.
- Monetizing the data itself and selling insights about customers to third parties.

6. Further Research area or topical issues to be discussed during the HR conference

(a) Investigation of how big data has been used or can be used to improve the human relation function in an organization.

(b) Investigate the challenges faced by telecommunications business in the implementation of big data

(c) A case study of sample telecommunication organization that has implemented big data and analytical techniques to improve their competitive edge.
(d) Investigate the security consideration that telecom operators should put in place to protect privacy of client information
(e) Most telecommunications organizations in Africa are also engaged in other services like mobile money, investigate how the impact of big data in improvement of such services

7. Conclusion

Big data offers telecom business a real opportunity to gain a much more complete picture of their operations and their customers, and to further their innovation efforts. Big data demands of every industry a very different and unconventional approach to business development. The operators that can incorporate new agile strategies into their organizational processes will gain a more competitive advantage that their slower rivals.

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