A Review of Advantages and Limitations of Cloud Centric Analytics

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Abstract— Cloud analytics signifies any Data Analytics or Business Intelligence process that is performed in collaboration with a cloud service provider. Cloud-based business intelligence arrived soon after the first wave of cloud applications but several early pioneers -- LucidEra, Oco, PivotLink -- didn't survive. Fears about putting data in the cloud were among the early impediments to success. Now that mission-critical apps and sensitive corporate data are increasingly moving online, it makes sense that cloud-based analytics and BI platforms are gaining customers. Cloud Analytics is a Cloud based service model which comprises of the elements of the data analytics process are provided by a public or a private cloud. Various applications and services of Cloud Analytics are being offered under a subscription-based or pay-per-use model, which is also known as Software as a Service (SaaS)-based business intelligence (BI). Cloud analytics is a cloud-enabled solution which allows an organization or individual to carry out business analysis or intelligence procedures. These solutions and services are provided through various cloud models, such as hosted data warehouses, SaaS business intelligence (BI) and social media analytic products powered by the cloud. Cloud analytics services and a typical data analytics service, both are the same in features and capabilities. But the cloud analytics integrates some or all of the service models of cloud computing in delivering that solution. [1][2].

Keywords — Cloud Analytics, Cloud Analytics Tools, Cloud BI, SaaS Business Intelligence.

I. INTRODUCTION

According to "Analytics in the Cloud," a January 2015 report by Enterprise Management Associates, adopters cite time-to-delivery of analytics and BI as primary business motivation for choosing cloud options. Time to value for analytical initiatives and improved agility stand out as the most important technical drivers. Finally, the top three financial drivers behind the move to cloud-based analytics and BI platforms are minimized hardware and infrastructure cost, reduced implementation cost, and reduced administrative cost, in that order.[2] Gartner defines the six key elements of analytics as data sources, data models, processing applications, computing power, analytic models and sharing or storage of results. In its view, any analytics initiative "in which one or more of these elements is implemented in the cloud" qualifies as cloud analytics. The other popular names for Cloud Analytics are On-Demand Business Intelligence or Cloud Business Intelligence. Generally, a cloud analytics is mainly a SaaS-based solution but some solutions also may be delivered through Platform as a Service (PaaS), where the end users/organization can create proprietary data analytics software to run on the cloud storage infrastructure. Moreover, it can be a hybrid cloud solution as well. Likewise, hosted or cloud data warehouses not only provide the infrastructure to store a huge amount of data, but they also allow data analytics/business intelligence software to access and retrieve useful information and patterns when and where it is required.[7]

CLOUD BI	VS.	ON-PREMISE BI
Short	IMPLEMENTATION TIME	In general, significantly longer
Low	UPFRONT INVESTMENT	High
No	ADDITIONAL HARDWARE/ IT COSTS	Yes
Predictable	ALL-TIME COSTS	Unpredictable (but maybe lower)
Less customizable in general	DEGREE OF CUSTOMIZATION	Greater ability to customize
Vendor	CONTROL OF DATA SECURITY STANDARDS	Organization

II. CLOUD ANALYTICS: POPULAR TOOLS

1. Sisense Software: Sisense is an agile business intelligence (BI) solution which provides tools to manage and support business data with analytics, visuals and reporting. It allows businesses to analyze big and disparate datasets and generate relevant business trends. Sisense allows businesses to combine data from many

discrete sources and merge them into a single database. Afterwards, the solution itself rearranges data into a predefined standard format. Sisense includes functionality for dashboards and scorecards, data warehousing, extract, transform and load (ETL) and a query and report writer. It provides a variety of dashboards to project the data through maps, KPIs, charts, trends, scatter plots and more.

2.   Domo Software: Domo is a cloud-based business management suite which integrates various data sources, like spreadsheets, databases, social media and any existing cloud-based or on-premise software solution.

3.   Dundas BI Software: Dundas BI, from Dundas Data Visualization, is a browser-based business intelligence and data visualization platform which includes integrated dashboards, reporting tools, and data analytics. It provides the ability for creating interactive, customizable dashboards, build reports, run ad-hoc queries, analyze and drill-down data and performance metrics to end users.

4.   Yellowfin Software: Yellowfin, a business intelligence platform, is a single integrated solution developed for organizations across varying types of industries and scaling sizes. Salient features include dashboards and scorecards, predictive analytics, online analytical processing, query and reporting writing and performance management. Yellowfin offers filtering capabilities that can be updated in real time.

5.   BOARD Software: Created for combining business intelligence, corporate performance management, and business analytics, BOARD is a full-featured business intelligence system that serves midsize and enterprise-level companies in a variety of segments. Within the reporting functionality, BOARD allows users to pull from almost any data source, as well as generate full self-service reporting. The dashboard application allows BOARD users to create a fully-customizable experience, featuring drill-down and drill-through functionality, as well as numerous different types of data visualization options.

6.   Style Intelligence Software: InetSoft Style Intelligence is a business intelligence software platform that allows users to create dashboards, visual analyses and reports via a data mashup engine—a tool that integrates data in real time from multiple sources. Style Intelligence features InetSoft's proprietary Data Block technology, which enables the data mashups to take place in real time.

III. CLOUD ANALYTICS: ADVANTAGES

Cloud offers several advantages over premise data analytics implementations:

•Data Operations: Operations like data cleaning, merging, mixing and blending of data from various sources is easier in cloud-centric data management platform.

•Quicker Insight: Data-management platform provides master data management and big data analytics service in the cloud to create data-driven applications with the reliable data. Insights are available in real time and are actionable immediately.

•Group Collaboration: In cloud-based big data analytics, groups collaborate on data curation and analytics design across the globe.

•Fast Adoption and Scalability: cloud-based applications are prone to fast adoption due to its self-learning paradigm. With cloud technologies, we can start small and expand as the business needs and can scale back.

•Cost of Ownership: With cloud-based modern data management platforms with big data analytics, applications are always current. Cloud-based data management as a service helps organizations to blend master data and big data across all domains and formats.

•Pay per Use Subscription: Subscription based system for companies who want to use the cloud software for a small period or temporarily.

•Low Risk Venture: It is a low risk venture which ensures high reward and shrinks capital expense. It ensures reachability of cost and the resources to huge numbers of users.

•Disaster Management: Due to the use of multiple sites, it provides security and reliability. It enables storing huge amount of data and recovers data easily in any disaster situation. [5][9]

IV. CLOUD ANALYTICS: CHALLENGES

Challenges involved in adopting the use of cloud centric big data analytics:

• Heterogeneous Architectures: Clouds and Data Centers are using different structures, architectures, mechanisms and approach. So the communication among discrete architectures of data sources and cloud services will be tough.

• Lack of Skills: Hard to choose right architecture and mechanism for deploying cloud and establishing data center due to the lack of knowledge, skill and resources.

• Vulnerable Security: The data security is vulnerable for critical organization data as the Big data analytics is prone to data breach. Most of the data need to be analyzed lies behind a firewall or on a private cloud.

• Migration: Migration of data into cloud requires third party involvement.

• Inconsistent Data Collection: The tools used to collect big data sets are imprecise so there is inconsistency in data collection:

• Need of Update: Organization needs to update and outdate processing of the data according to the need.

• High risk of Failure: Cost and Risk of failure and experimenting is very high. Ensuring data availability is also difficult and Data Processing requires high end resources.

• Service Standards: Service standards are not clearly defined and Service delivery is also challenging. The billing not only depends on the opted cloud service architecture but on the usage of various data centers

• Correlations: Data analysts use big data to take out correlations. Big data can be used to discover correlations and using an endless array of questions. [4][8]

V. CONCLUSION

Cloud computing is a quickly changing area that will undoubtedly continue to play an increasingly major role for nonprofits, charities, and libraries as well as their IT systems. However if all the pros and cons are put together, one can see that the benefits shadows the challenges of having a Business intelligence in the cloud. As we are all aware of the facts that different companies of various sizes, whether it is small company, medium company or large enterprises have different requirements but the cloud based application and software's can be modified ads per the specific requirements of each different company sizes. [8]

Finally, because technology is changing constantly, we can't just evaluate cloud solutions once. An issue that may make cloud computing difficult or impossible today may be resolved six months from now. And more cloud tools are being developed all the time.

REFERENCES

[1]http://searchbusinessanalytics.techtarget.com/definition / cloud-analytics

[2] https://www.techopedia.com/definition/26516/cloud-analytics

[3]https://www.softwareadvice.com/bi/cloud-comparison/?more=true#more

[4]https://thenextweb.com/insider/2016/04/12/6-challenges-cloud-overcome/

[5]http://data-informed.com/why-cloud-analytics-is-better-analytics/

[6] https://www.datapine.com/blog/cloud-vs-on-premises-bi-strategy/

[7]http://www.techsoup.org/support/articles-and-how-tos/what-are-the-benefits-and-drawbacks-of-cloud-computing

[8] Amitkumar S Manekar, Dr. G. Pradeepini, "Opportunity and Challenges for Migrating Big Data Analytics in Cloud", IOP Conf. Series: Materials Science and Engineering 225 (2017) 012148 doi:10.1088/1757-899X/225/1/012148.

[9] Bala M. Balachandran, Shivika Prasad, "Challenges and Benefits of Deploying Big Data Analytics in the Cloud for Business Intelligence", International Conference on Knowledge Based and Intelligent Information and Engineering Systems, KES2017, 6-8 September 2017, Marseille, France