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A Survey of Cloud Business Intelligence

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Abstract-According to the two problems of huge amounts of data and how to use them in the process of intelligent power consumption construction, combined with the advantages of cloud computing and related technical methods of business intelligence system. Business Intelligence deals with integrated approaches to management support. In many cases, the integrated infrastructures that are subject to BI have become complex, costly, and inflexible. A possible remedy for these issues might arise on the horizon with Cloud Computing concepts that promise new options for a net based sourcing of hard and software. Currently, there is still a dearth of concepts for defining, designing, and structuring a possible adaption of Cloud Computing to the domain of BI. This contribution combines results from the outsourcing and the BI literature and derives a framework for delineating Cloud BI approaches.

Keywords: Business Intelligence, Cloud Computing, IT outsourcing, Software-as-a-Service

I.INTRODUCTION

(a).CLOUD COMPUTING

The National Institute of Standards and Technology defines cloud computing in a specific manner, by this we can understand the cloud computing in a better way, that Cloud computing is a model for enabling convenient on-demand network access to a shared pool of configurable computing resources that can be rapidly provisioned and released with minimal management effort or service provider interaction [1].It provide on demand service. The on demand feature means resources have to be dynamically allocated [2].

(b).BUSINESS INTELLIGENCE

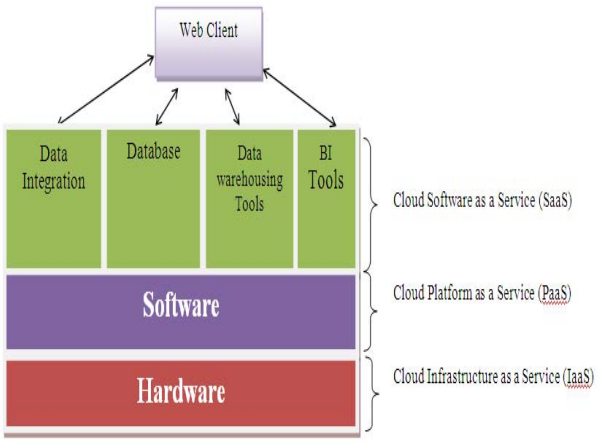
Business intelligence is the ability of an organization to collect, maintains, and organizes knowledge. This produces large amounts of information that can help develop new opportunities. Identifying these opportunities, and implementing an effective strategy, can provide a competitive market advantage and long-term stability [3].Business intelligence is an umbrella term that includes the applications, infrastructure and tools, and best practices that enable access to and analysis of information to improve and optimize decisions and performance [4].

(c).CLOUD BUSINESS INTELLIGENCE

Cloud BI is a revolutionary concept of delivering business intelligence capabilities as service using cloud based architecture that comes at a lower cost yet faster deployment & flexibility. Software as a Service BI is also being used by many small and medium sized enterprises who seek to speed up their businesses with BI and analytics tools.

II.BUSINESS INTELLIGENCE ARCHITECTURE –

The basic architecture needed to run business intelligence solution in the cloud. The lower layers are formed by hardware and software systems. These are the minimum elements that have to be offered by the cloud computing provider. Hardware refers to processing, storage, and networks, while software refers to the operating systems and drivers required to handle the hardware. The Data integration box refers to the tools needed to perform the ETL and data cleansing processes. The database box refers to the relational or multidimensional database systems that administer the information. It is important to note that there are new devices called "data warehouse appliances", which integrate hardware, software and databases elements in just one box. However, they should be considered as an integrated part of the architecture. Data warehousing tools are the set of applications that allow the creation and maintenance of the data warehouse. BI tools are the set of front-end applications that enable the final users to access and analyze the data. Finally, since all the architecture is going to be accessed through the Internet, there is no need for thick clients or preinstalled applications, because all the content and configuration can be reached through traditional internet browser.



BI on the Cloud Architecture

III.REQUIREMENT ANALYSIS

(a).Need of Mastering Acquisition-to-Action Cycle -

In the present economy, organizational competitiveness is defined by how quickly companies can synthesize the many sources of information coming their way. To achieve this, they need to be able to master what we call the acquisition-to-

action cycle. In other words how fast can data be captured, stored, queried, analyzed, shared and acted upon Traditional BI solutions, massive data warehouses and databases that were originally designed to crank out pre-configured reports, like sales and financials history.. More complex data analysis in the form of ad-hoc analysis (to figure out what to do now) and predictive analysis (to understand what to do next) is the requirement of today‘s changing business requirements.

(b).Arrival of New Data source

When we talk about information analysis, it's important to think about where the data actually resides. While the scope of traditional BI is limited to structured data that can be stuffed into columns and rows on a data warehouse, the fact is that over 90% of today‘s data is unstructured in the form of images, MP3 files, videos.

(c). Evolution of New Business Intelligence

In recent times, business intelligence has been under mounting pressure to evolve as an all pervasive information and analytics agent. Through business intelligence it is possible to improve the decision making process in virtually any department, organization or industry. More and more businesses are turning to analytic applications to provide critical business insights. Whether focused on achieving higher ROI, better understanding of the competitive landscape, improving product and service quality, BI is one of the few technologies that can equip organizations to more effectively prepare for tomorrow today[5].

(d). Moving BI in the Cloud

Considering the present trends in adopting Cloud Solutions, data center is not going to disappear anytime soon and cloud computing is certainly democratizing information access. The strengths of the cloud model e.g., accelerated speed-to-market, reduced TCO, scalability, etc., have led many BI vendors to introduce cloud services as a clear and distinctive extension to the on-premise and on-demand BI applications [5].

IV. Scenario For Cloud Business Intelligence

(a).Add-on services scenario

The add-on services scenario is the most conservative among the six. It refers to the inclusion of Selected functional blocks from the Cloud into the BI infrastructure. Examples are components for web information retrieval, web services for preprocessing qualitative data (e.g. with object or face recognition algorithms), data visualization components etc. By applying grid technologies on the provider side, even computation heavy features become affordable. The approach is relatively risk free because of its small scale.

(b)Tool replacement scenario

In the second scenario, the Cloud idea is applied to a complete software tool, e.g. a Portal, a Data Mart or an OLAP tool.

(c) Solution provision scenario

The solution provision scenario comes close to a classical ASP agreement with the provider being responsible for the complete hard- and software of an isolated solution – end to end and across all layers. The motivation for this scenario is similar to the tool replacement, although the scope is much larger. The solution provision scenario has disadvantages as it possibly introduces a centrifugal force to an integrated BI infrastructure.

(d)Business network scenario

In which, the solution provider comes from and acts within the confines of a business network. This might be a B2B-marketplace, a franchise operation, a supply chain etc. The service provider is preferably a central and neutral partner in the network and provides solutions geared at the different members. The Cloud aspect lies in the physical abstraction with the provider infrastructure being virtualized, i.e. by connecting the data center resources of the network members. This scenario also allows for information integration benefits.

(e) Best-of-breed scenario

Behind the best-of-breed is the idea of pushing the tool replacement scenario further up to the point where all components of the BI infrastructure are delivered by external providers. The result is a fully Virtualized BI infrastructure that reaps all benefits of a best of breed resource allocation.

(f)BI mashup scenario

The most far reaching scenario distinguished here is the BI mashup scenario. This vision assumes a freely composed BI solution sourced from a global Internet market space. Compared to the best-of breed scenario, it adds a finer granularity as well as a stronger focus on (re)combinability and quick development (the development life cycle phase). The additional benefits primarily lie in its extreme agility.

V. Benefits Of Cloud Computing For Business Intelligence

Utilizing SaaS solutions are an effective way to minimize costs and maximize performance. But, there are many noteworthy benefits of Clouding BI and using a BI reporting and analytics tool as a SaaS application:

(a).Fast, easy and inexpensive deployment: Lack of infrastructure set up means a faster Return on Investment.

(b).No hardware and setup expenditure: Reduced implementation costs equate to a low Total Cost of Ownership.

(c).Reliability: Cloud Computing that uses multiple redundant sites can provide reliable and secure locations for data storage and are ideal for disaster recovery and business continuity.

(d). No capital expenditure : No capital expenditure normally associated with setting-up traditional IT environments means the benefits of BI can be rolled out faster to more people within your organization [6].

(e).Multi-tenancy environment: The multi-tenancy nature of Cloud Computing means that cost and resources can be spread across a large number of users.

(f). Free automated software upgrades and maintenance: The service provider owns and hosts the software, and so users can benefit from ongoing upgrades and maintenance without the associated costs, time constraints and drain on IT resources

(g). only pay for what you use: SaaS ensures that users only pay for what they use, eliminating wastage, resulting in low ongoing software costs.
(h). Fast and easy scalability: Cloud solutions can support large numbers of simultaneous users, meaning that customers can swiftly increase their software us without the cost or delay of having to deploy and install additional hardware.
(i). Flexibility: Cloud BI solutions have the flexibility to be altered quickly to give technical users access to new data analysis and reporting features.
(j). Improved data sharing capabilities: Cloud applications enable easy cross-location data sharing and remote data access as they are deployed via the internet and outside a company's firewall. [7]

VI. CLOUD BUSINESS INTELLIGENCE FUTURE

Typically, a cloud-based BI platform is used to solve one of three primary customer needs [8]:
(a) As a horizontal BI tool to deliver standalone, internally facing reporting and analysis applications probably using a traditional relational database as the primary source data system.
(b) As an application framework or pre-built reporting and analysis template for systems integrators to use for assembling customer-specific solutions more quickly. These solutions are probably function or domain specific and contain reusable components and application logic but are assembled uniquely for each customer.
(c) As a development platform that enables embeddable, externally-facing applications that solve a function-specific data analysis problem (for example, CRM analytics, financial analytics, or supply chain
analytics. In this case, an ISV (or an enterprise IT team with appropriate skills) would probably use the BI platform to deliver reporting and analytics as a well-defined and well-featured layer within its larger application. The result is an analytic application that solves a customer problem with minimal customization and that is ideally delivered using a software-as-a-service architecture on top of a cloud infrastructure.

VI. CONCLUSION

The development of business intelligence field cannot ignore cloud computing trends. There are many benefits from using cloud computing for business intelligence. Business intelligence in cloud has been developed in order to enhance the efficiency, productivity of business intelligence and increase performance of business intelligence software. Cloud is a big part of future business intelligence and offer several advantages in terms of cost benefits, flexibility of implementation, availability and speed of implementation.

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