CLOUD COMPUTING IN ACCOUNTING:
A CASE STUDY OF KPMG FIRM

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ABSTRACT

Cloud Computing is the modern way of accounting. To discuss about this new flanged technology, we carried out extensive study to understand the concept of cloud computing and it role in the field of accounting. We discussed meaning, definition and history of cloud computing in this study. Along with that; this paper also presents role and importance of cloud computing in accounting. Barriers and challenges of adopting cloud computing in accounting have also been discussed. It has large number of benefits with some challenges. As the theme of this research paper relates to accounting, we decided to conduct a case study of one of the renowned chartered accounting & audit firm- KPMG, which provides accounting and auditing services India and abroad. For this purpose we studied three KPMG reports on the concept of cloud computing in accounting and auditing. Now days cloud computing is at level of reliable and scalable data providing source. This infrastructure is well designed with better security.

KEYWORDS: *Cloud Computing in Accounting, SaaS, PaaS, IaaS, Cloud Transformation, KPMG.*

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Introduction

Cloud Computing accounting is the internet base accounting which has record, storage, secure and easy to share and many more facilities in it. By this software organizations are getting digital to operate their business. They can operate it "Anywhere Any time" where internet is available. Low cost efficiency with better relations to end users is most needed part to cover for every organization.

- **Meaning of Cloud Computing**

Cloud computing is the type of internet computing that provides servers, storage, applications and data transfer services. It is different from data saving in computer system. It is digital way to saving a company's accounting data. Cloud computing is the path where it's consumers enjoying the services at "Anytime, Anywhere" for sharing data more easily and keep their data store safely. Cloud computing is the combination of software and hardware based computing resources delivered as a network service. Cloud computing service users can access database resources via the internet from anywhere, for as long as they need, without worry about any maintenance of actual record.[i]

- **Services Provided Under Cloud Computing**

| Infrastructure as a Service |
| Software as a Service |
| Platform as a Service |

Figure 1: Service Provided Under Cloud Computing

Infrastructure as a Service: In IaaS cloud clients install operating system, images and their application software on the cloud infrastructure. IaaS providers are Amazon EC2, Azure, and Google compute Engine etc.

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Software as a Service: SaaS provides large verity of applications over the internet where a user can make his own word document in Google docs online and without installing any editing software he can edit his document and photo online on pixlr.com , and here are many more software service providers Google, Microsoft, Word Press, Sales force etc.

Platform as a Service: In PaaS one can make application and software on other's database. Thus 'it gives us the platform to create' edit and manage the application programs we want.i Its providers are cloud Foundry, Heroku and Force.com etc.

Definition of Cloud Computing

- Cloud computing model can be simply defined as the storage, processing and use of data to be accessed over the Internet, on different location computers. This means that users can request to have almost unlimited computing power thatdo not require significant capital investment in order to meet their needs and that they can access their data fromany location where they are connected to the Internet.[ii]
- Cloud Computing refers to both the applications delivered as services over the Internet and the hardware and systems software in the data centres that provide those services. The services themselves have long been referred to as Software as a Service (SaaS).[iii]

History of Cloud Computing

Cloud Computing is believed to have been invented by Joseph Carl Robnett Lickliderin the 1960s with his work on APPANET to connect people and data from anywhere at any time.[iv]

- Since the sixties, cloud computing has developed along a number of lines, with web 2.0 being the most recent evolution. Cloud computing for the masses has been something of a late developer.
- One of the first milestones in cloud computing history was the arrival of sales force.com in 1999, which pioneered the concept of delivering enterprise applications via a simple website.
- The next development was Amazon web services in 2002, which provided a suite of cloud based services in storage, computation and even human intelligence through the Amazon Mechanical Turk.
- Then in 2006, Amazon launched its Elastic Compute Cloud (EC2) as a commercial web site.
- Another big milestone came in 2009, as 2.0 hit its stride, and Google and other started to offer browser-based enterprise application, through services such as Google Apps.
- "The most important contribution to cloud computing has been the emergence of "Killer apps" from leading technology giants such as Microsoft and Google when these companies deliver services in a way that is reliable an easy to consume.[v]

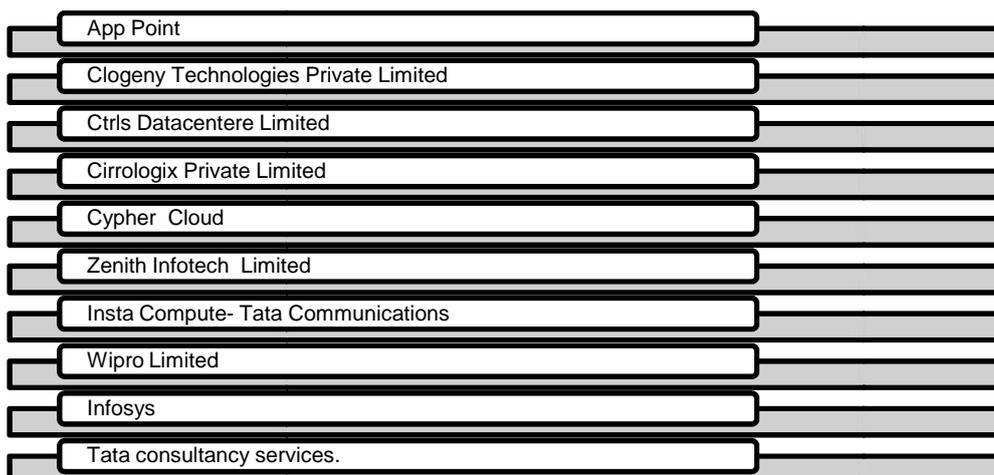**Top 10 cloud computing service providers in India in 2017**

App Point

Clogeny Technologies Private Limited

Ctrls Datacentere Limited

Cirrologix Private Limited

Cypher Cloud

Zenith Infotech Limited

Insta Compute- Tata Communications

Wipro Limited

Infosys

Tata consultancy services.

Figure 2: Top 10 cloud computing service providers in India 2017.[vi]

Role of cloud computing in accounting

To develop accounting reliability and increase awareness for accounting traditional storage system, only cloud computing can operate it in effective way. Cloud computing service providers are deploying their services in small and medium size of business systems. If a company takes a step to go modern and want to safe their business for long time they can easily consume this service. Cloud computing provides us a suitable path to make our business innovative and successful.

Why the Cloud Computing is better option for a company's bright future?
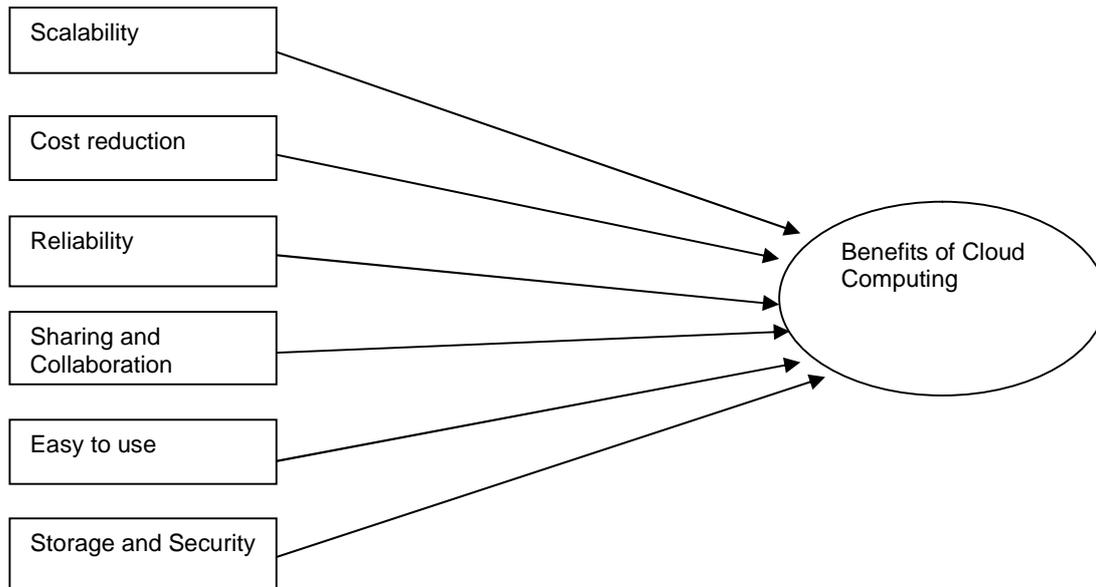

Figure 3: Cloud Computing Benefits Model

- **Scalability:** Being a quality of scalable is very important feature of accounting. It is to daily operation of a company. Management should know where his company growth is standing. Cloud Computing service provides a standard to make it scalable for all, like management, investors, internal environment etc.
- **Cost Reduction:** Here we have a very big example of Cost Reduction benefit that, A 70% Cost Reduction has been observed since adopting Amazon web service as the cloud vender. Amazon Web Service (AWC) has also reduced their prices a couple of time, in the past three years, in spite of the absence of competitive forces.[vii]
- **Reliability:** Today more and more business are turning to cloud computing specially small and medium business of around the world are getting more benefits from this software. Accounting reliability, financing, management and sharing facilities are most important part of every business. This software is giving us reliable data which can be very useful. A reliable data can role to make good decision for a company's growth.
- **Sharing and Collaboration:** If a company adopts Cloud Computing for store their accounting details, it will be easy to storage and share for them. By the adopting this service company's data can share "Anywhere at Any time". Without build own infrastructure investors easily get a company's data which they want. It has a mode where multiple users and applications can work more efficiently with cost reduction.
- **Easy to Use**: we already define its characteristics that it is very reliable, scalable with effective cost reduction quality. Data users and adopting company easily connect to this service and get benefits from it. It is very flexible model and not too much expensive small and medium enterprises can afford this service.
- **Storage and Security:** In this system storage availability is almost unlimited. Providers are still working on the storage space to make enough. Security directly contributes to the reliability of the system. A reliable software system is a system with reliable security. Hence, designing a highly secure cloud system is very important.[vii]

Other Benefits of Cloud Computing

Apart from the above stated benefits, there are many other benefits are as under: like, no need to hire specific staff to operate this service, it is faster way to share and collaborate the data and many more are following. According to different-different entities different-different benefits can be added.
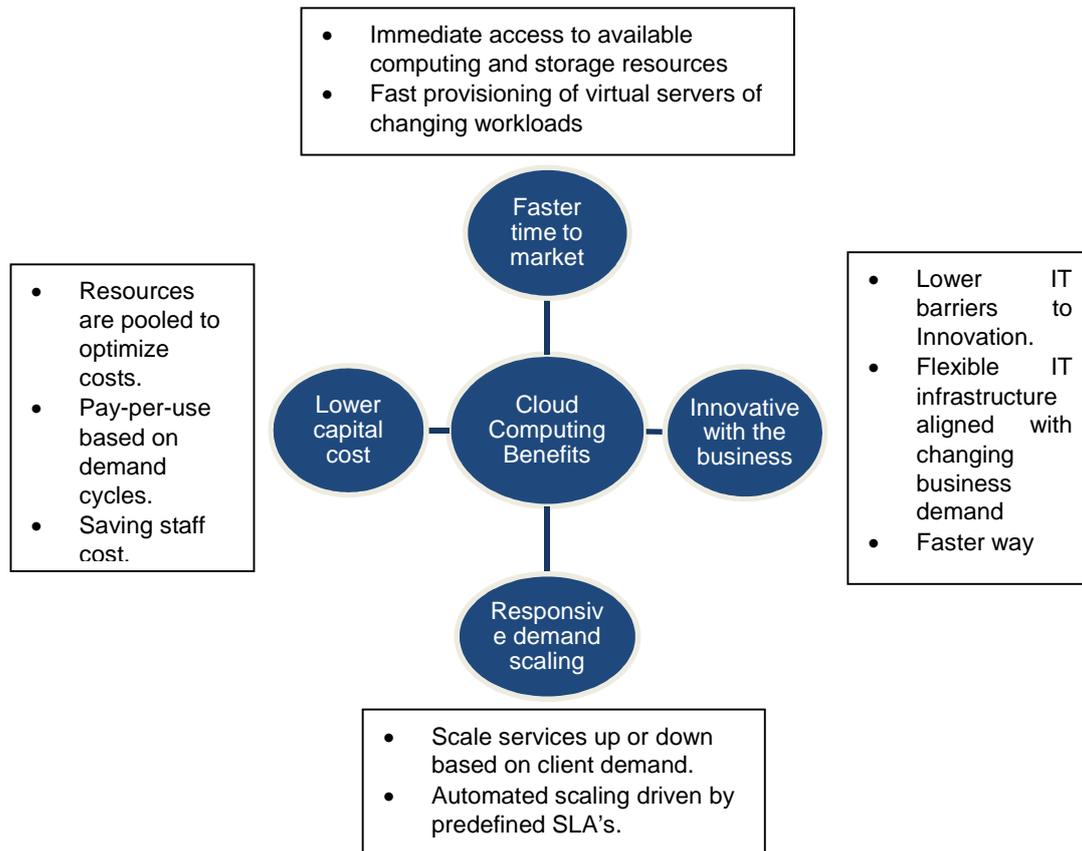
- Immediate access to available computing and storage resources
- Fast provisioning of virtual servers of changing workloads

- Resources are pooled to optimize costs.
- Pay-per-use based on demand cycles.
- Saving staff cost.

Faster time to market

Lower capital cost

Cloud Computing Benefits

Innovative with the business

- Lower IT barriers to Innovation.
- Flexible IT infrastructure aligned with changing business demand
- Faster way

Responsive demand scaling

- Scale services up or down based on client demand.
- Automated scaling driven by predefined SLA's.

Figure 4: Other Benefits of Cloud Computing

Challenges of Adopting Cloud Computing in Accounting

Adoption of cloud computing software is good step to get digital but, there is some challenges with it. Many companies are still thinking to adopt this software. Following Challenges of Cloud Computing Accounting:

- **Data Stealing:** Cloud computing is software which provides us a data sharing facility. Due to this facility and any legal issue users data not safe properly, It can be operate at anywhere by any one. So there is no surety that data would be safe or not.

- **Confidentiality:** Cloud Computing has a very good feature of data sharing. We should concern about it that, how to keep confidentiality for data. Data should be disclosed for authorized users.

- **Audit:** Auditing is the process of checking records. Accessibility of data not possible anytime because it will work only server is available.

- **Security and Privacy:** Data stealing and confidentiality are major reasons of loosing privacy and security. It is depend on design of software. So, it should be designed with full of privacy and security.

- **Hackers:** The base of using this software is internet. Every social sites and web sites are facing of hacking problems. If someone hacked the software for doing any fraud, users can be affected very badly.

Cloud Computing Accounting V/s Traditional Accounting

Table 1: Traditional Accounting Vs. Cloud Computing Accounting. [viii]

S. No	Base of Changes	Cloud Computing Accounting	Traditional Accounting
1.	Accounting Storage	Cloud Computing software utilizes the cloud to share accounting data, making financial information accessible to owner and employees anywhere that the internet is available.	Company has one dedicated hard drive on which accounting software is installed and financial data is recorded.
2.	Affordable	Cloud Computing software tends to be a more affordable than traditional accounting.	Need of hard drive and staff to operate, it can unaffordable.
3.	Cost	Since the software has been using cost is always less.	To manage and records data it is more costly. Require to run hardware always need to operate a employee.
4.	Back up	Automatically back up option it has the best and secure forever.	It is hardware based accounting so, get back up of all the data it will take lot of time.
5.	Platform	This software service can be work on different applications and users at the same time.	Based on hardware device it can be work only one platform.
6.	Data stealing	Data stealing chances is less than traditional accounting.	Data stealing may be happens when company use this hardware based accounting.
7.	Location	Accounting data are available on cloud.	Availability of data chosen by the company.
8.	Numbers of users	Numbers of Data users are Unlimited.	Numbers of data users are limited.
9.	Accounting software licence	The company is the Tenant.	The owner is company.
10	Security & Privacy	Most of companies are adopting this software for privacy and security for data.	Security and privacy is less to compare cloud computing accounting.

Case Study of KPMG: A Leading Firm Providing Accounting& Auditing Services

Cloud is the new style of elastically scalable, self-service computing. In addition to process efficiencies and cost reductions, cloud offers the scalability, speed to market and centralization to coordinate and manage applications across various devices. This is often easier said than done. To find out more about the current state of cloud's maturity in business, we invite you to explore our 2014 survey results for insights from business leaders and KPMG partners on the growing impact of cloud technology in business today – and tomorrow. It's clear now that while organizations may have come to the cloud to reduce costs, it's not why they stay. The true potential of cloud lies in an organization's ability to leverage this agile delivery model to transform the business.

-Rick Wright, Principal and Global Cloud Enablement Leader at KPMG

- **Highlights of KPMG Cloud Survey Report 2014**

According to the executives in this survey, the top use of cloud is driving cost efficiencies (49 percent). But the 2014 survey results reveal that in increasing numbers organizations are using cloud technology to enact large-scale change, whether within individual business units or across the enterprise. These transformative uses of cloud include: better enabling a flexible and mobile workforce (42 %); improving alignment and interaction with customers, suppliers and business partners (37 %); and better leveraging data to provide insightful business decisions (35 %).

This is quite a difference from KPMG's survey data of two years ago. While cost efficiencies clearly took the top spot (48 %) in 2012, speed to adoption came in a far second with 28 %. Having such a large gap between the top two responses emphasizes how cost was a much more powerful driver in 2012 than it is today. Other changes are also evident. Consider that improved alignment with employees was cited as a cloud driver by only 14 % of executives in 2012 but more than doubled in the 2014 survey,

achieving a 42 % response rate. Making such changes to an organization are costly and time consuming, but such a large increase in responses signals the tremendous impact, beyond cost reduction, that cloud can have on an organization. These results suggest that for many organizations, cloud has truly become a transformative solution.

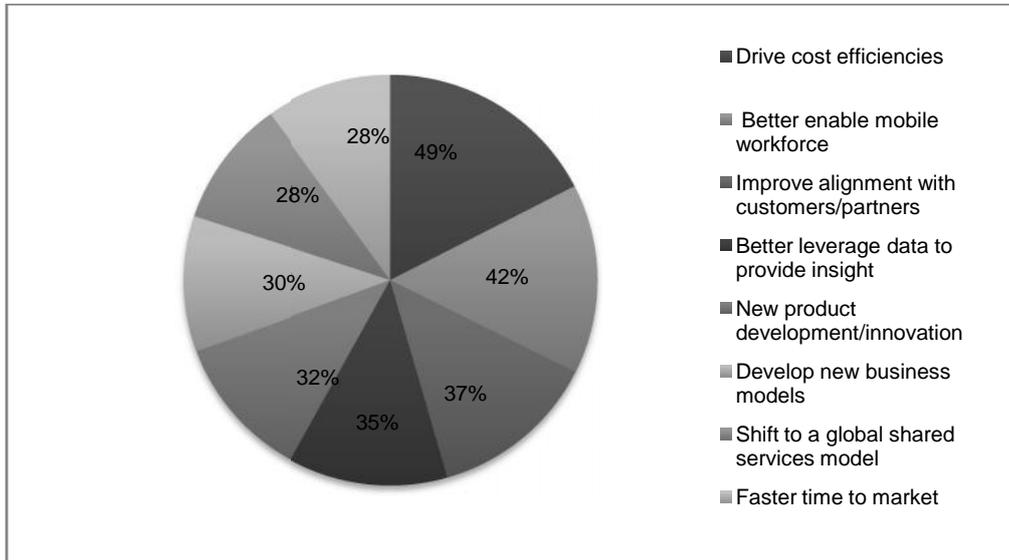▪ **The top ways businesses using cloud to drive business transformation in 2014**

Figure 4: 2014 KPMG Cloud Survey Report

Cloud is not only a transformative solution that helps organizations advance strategic initiatives and achieve strategic goals. It can also be essential to the actual execution of transformation. As organizations undergo large-scale change, cloud improves:

- **Rapid Scale:** Enables IT to provision and modify complex infrastructure faster than traditional on premise systems.
- **Agility:** Cloud enables organizations to be more nimble and responsive to changing business needs.
- **Functionality:** Organizations can take advantage of innovation more easily with cloud, as it reduces the need for incremental investments in supporting technology infrastructure.

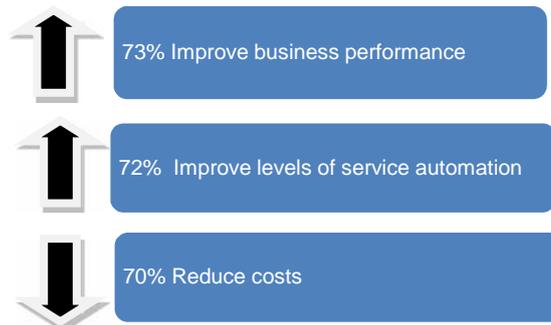▪ **Most Successful Areas of Business Improvement a Result of Cloud Implementation**

Figure 5: 2014 KPMG Cloud Survey Report

Improve business performance	73%
Improve levels of service automation	72%
Reduce costs	70%

Better integrate systems	68%
Introduce new features/functions	68%
Enhance ability to interact with constituents	67%
Rapidly deploy new solutions	67%
Replace legacy systems	66%

According to this survey respondent, executives feel implementing the cloud has helped them improve business performance (73 %), improve levels of service automation (72 %), reduce costs (70 %), rapidly deploy new solutions (67 %), and achieve other important business objectives. And in many areas, organizations today are more successful in meeting their goals from cloud usage than when last surveyed in 2012.But although many organizations have grown in sophistication when it comes to cloud deployment and usage, challenges remain. Many businesses that have moved on from the launch and getting started phase are now dealing with day-today concerns around cloud implementation.

Most challenging areas when adopting Cloud Computing in Accounting
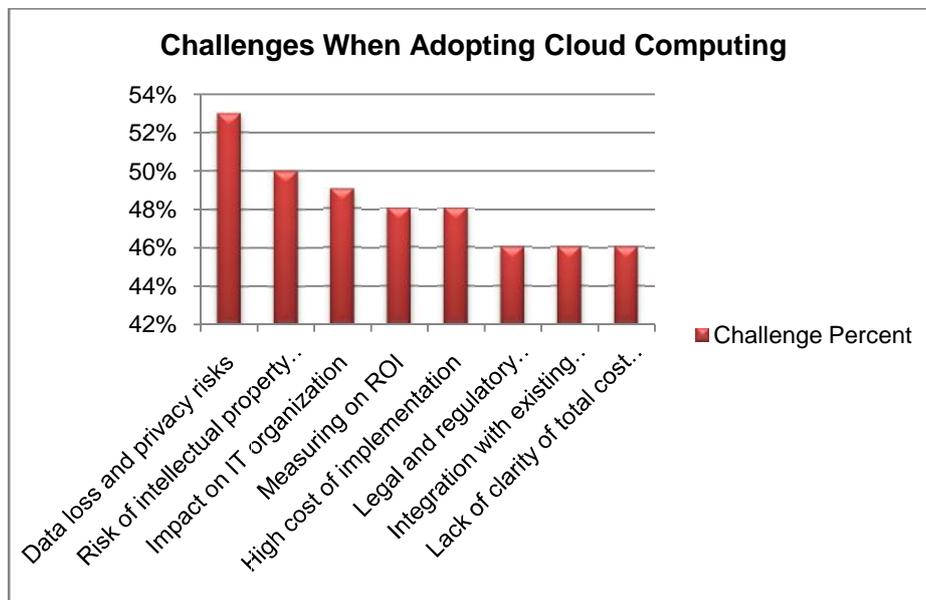

Figure 6: Challenge Percent While Adopting Cloud Computing

According to 53% of our survey respondents, data loss and privacy risks are the most significant challenges of doing business in the cloud, followed by intellectual property theft, which was cited as challenging or extremely challenging by 50%. In fact, comparing 2014 results with the answers from our 2012 survey, security and data privacy have become greater concerns than cost efficiency. The good news is that while respondents acknowledge continued security concerns, results show a substantial decline from 2012; when 78% of executives named intellectual property theft a challenge, and 83% named data loss and privacy risk a challenge. This suggests that over time, security has become less of a challenge and cloud adopters may feel they're better prepared now to secure their data.

Significant Driver for Adopting Cloud Strategy

Three keys to managing the complexity and risk in order to unlock value in this complex environment, taking a holistic enterprise-wide approach to cloud strategy, integrating effective cloud governance into the existing technology governance framework and deploying an integrated consumption platform that provides easy access to underlying cloud services and capabilities, holistically manages their operation, and embeds some of the governance policies through automation.

- **Adopt an Enterprise-wide Cloud Strategy:** Given that cloud solutions, especially SaaS, are often sold directly to the business, and can be procured quickly and with little upfront costs, it doesn't take long for organizations to accumulate significant pockets of shadow IT from multiple

cloud providers. A significant driver of the cloud strategy is a detailed workload assessment for all existing and currently planned applications. The assessment will identify which applications can be immediately migrated to the cloud, which applications will require re-work to move to the cloud, and which applications are not suitable for a cloud environment. The strategic guidance developed will inform cloud governance.

- **Integrate Effective Cloud Governance:** Cloud governance framework is beyond the scope of this report but conceptually cloud governance needs to be integrated with existing technology governance and cover the entire cloud lifecycle from planning through to off-boarding from a cloud provider. Cloud governance should address the following:
  - **Strategic Guidance:** Leads to a formal strategy and roadmap;
  - **Enterprise Architecture & Technology:** Adapts existing architecture and technology policies for cloud;
  - **Procurement, Contracts, and Legal:** Sets out policies for how cloud services will be acquired and managed;
  - **Security, Privacy, and Compliance:** Establishes policies around security, data privacy and location, and regulatory compliance; and
  - **Operational Policies:** Establishes who has access, how cloud is consumed, managed and monitored.

Components of cloud governance are tools to expose cloud services, simplify cloud access, monitor and manage cloud services and providers, create accounting and billing modules, regulate applications design and development, and more. An effective way to automate parts of cloud governance is to utilize an integrated consumption platform.

Deploy an Integrated Consumption Platform

Since the market for orchestration solutions is immature and no single orchestration product is a silver bullet we recommend developing a consumption platform instead. A consumption platform is a holistic set of capabilities for multi-modal service consumption (independent of deployment model).The current market is filled with traditional heavy orchestration providers (high touch, custom coding/ scripting, lock-in) with proprietary solutions that fail to deliver the end-to-end automation of all the hybrid components while "light" orchestration products born out of the open source market are evolving rapidly. The consumption platform contains tools and processes in four main categories including:

- **Management & Control:** A set of tools for API management and integration, metering & chargeback, performance management, analytics and reporting, and a self-service catalogue;
- **Orchestration:** A set of tools for workflow management, policy enforcement, template & configuration management, agile pipeline integration, and provisioning;
- **Identity:** Tools for identity integration, auditability, authentication, and authorization; and
- **Security & Governance:** Tools and processes for cryptography, data management, vulnerability management, and continuous compliance & configuration management.[ix]

Conclusion

As per this research study cloud computing software is deploying its own service in small and medium business area. Having large number of benefits and future growth capability will achieve big part of revenue by2020. With the help of this software enterprises are taking a step towards and getting digital. Simple accounting applications in the cloud are creates to help small business owners to organize and manage their IT operations. Since this is an online accounting service, one can access business data anywhere on a mobile phone or a desktop PC and his data is safe because there are backups recently "in the clouds" accounting offices, which are modern accounting solutions available anywhere. These are accounting offices, which do not need to be personally visited. It does not matter where physically clients and offices operate, and on what basis companies run accounting.

As per this research study, the ease of use and convenience is the biggest factor cited by SMEs to adopt cloud. The second factor to use and adopt cloud is improved security and privacy. The third factor for the usage and adoption of cloud is the cost reduction. This means that SMEs or SMBs find the cloud easy to use, convenient, adequately secured for their business, their business privacy is well

protected and lastly but not the least is that the cloud helps SMEs to bring down their cost in a significant way. According to KPMG survey report 2014, organizations transform their business to cloud and showing the huge benefits of cost efficiency, better relationship to customers and faster time to market. Now, we can see the better transformation and scalable growth of this internet base accounting system.

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