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TECHNOLOGY****PROPOSED ARCHITECTURAL MODEL FOR ATM SERVICES ON CLOUDS****Rishabh Shukla *, Er.Narendra Kumar Gupta**

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ABSTRACT

Today, one of the biggest problems that gripped the banking sphere, the high cost of implementing advanced technologies and the efficient use of the hardware. Cloud computing is the use of shared services on the Internet provides a large role in developing the banking system, without the need for operating expenses including staffing, equipment, hardware and software Reducing the cost of implementation of advanced information technology and efficient use of hardware banking industry is one of the biggest goals require and the main problem is widespread and practical application of cloud computing solutions in the banks, it is a good proposal. In this research, information was collected from the IT department of an Iranian bank on the basis of statistical analysis on reducing energy consumption and costs in the current structure and the structure offered by cloud computing platform.

KEYWORDS: Information technology management, cloud computing, banking, infrastructures, cost reduction, the development of banking services, energy consumption.

INTRODUCTION

The use of cloud computing that the most advanced technology in the field of IT infrastructure, is a dynamic of its own capabilities, the most common way to share and manage IT resources in developed countries world, developing its infrastructure and cloud-based services with the speed, is growing. With the increasing proliferation of cloud-based services, banks and financial institutions due to their structural nature, tend not to take advantage of the benefits of this technology have found. According to this trend, creating a safe environment in the context of cloud banking approved bank experts as well as IT security professionals, it is more than ever before. According to the Banking cloudy, especially in the perspective of comprehensive digital electronic banking services to improve safety, quality of service and reduce the cost of banking is essential.

LITERATURE REVIEW

Cloud computing requires an infrastructure and facilities that are currently operating in the country's infrastructure is largely in the making. Therefore, the development planned in the context of providing telecommunications and broadband and fixed speed limits and unlimited data transfer, in accordance with the country enjoying the technology of cloud computing for business advantage required. Bank to gain market share and customer service that has the speed and accuracy of their selection criteria, they need to refocus on the methods and models used in order to change it or invent review new approaches. In the meantime, such as lack of flexibility and agility in existing systems due to the high volume of information, confidentiality of data, computational and processing needs as well as the high cost of change or development of information technology, includes the problems facing the industry. With regard to this topic, cloud computing technology is having features such as "flexibility," "scalability" and "high availability" and "cost-effectiveness" of many activists using its IT Banking industry focused.

ABOUT CLOUD COMPUTING

Cloud computing is expected to be one of the fastest-growing technologies in the coming years. Business applications will be the largest market for cloud services spending, with a gradual transition from on premise to cloud-based services especially for general business applications like customer relationship management (CRM) and enterprise resource planning (ERP). Banks are expected to enter the cloud computing arena cautiously, with no

single cloud services delivery model being a silver bullet for best meeting their demanding business needs.

BENEFITS/VALUE OF CLOUD COMPUTING

Cloud computing offers your business many benefits. It allows you to set up what is essentially a virtual office to give you the flexibility of connecting to your business anywhere, any time. With the growing number of web-enabled devices used in today's business environment (e.g. smartphones, tablets), access to your data is even easier. There are many benefits to moving your business to the cloud.

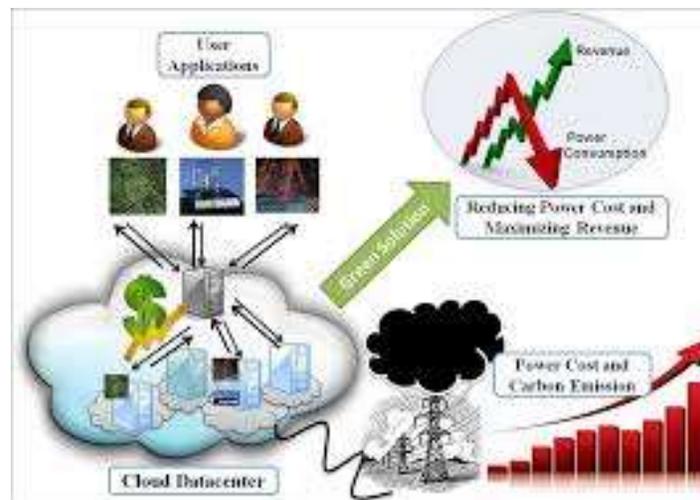
Reduced it costs:

Moving to cloud computing may reduce the cost of managing and maintaining your IT systems. Rather than purchasing expensive systems and equipment for your business, you can reduce your costs by using the resources of your cloud computing service provider. You may be able to reduce your operating costs because:

The cost of system upgrades, new hardware and software may be included in your contract .you no longer need to pay /ages for expert staff your energy consumption costs may be reduced there are fewer time delays.

Business process improvement:

Protecting your data and systems is an important part of business continuity planning. Whether you experience a natural disaster, power failure or other crisis, having your data stored in the cloud ensures it is backed up and protected in a secure and safe location. Being able to access your data again quickly allows you to conduct business as usual, minimizing any downtime and loss of productivity.



RESTRICTION OF CLOUD COMPUTING IN BANK

The banking industry is facing unprecedented changes. Control is now in the hands of the customer, rather than the bank. Customers are driving new business models. Their use of technology—in addition to changes in social and household Dynamics is driving business transformation. Banks need to react to this new customer-driven environment with innovation in business models, operations and IT.

For banks, the value proposition for cloud computing affects the entire business. Cloud technology offers a new model for delivering innovative client experiences, effective collaboration, improved speed to market and increased IT efficiency. Cloud deployments are spreading and the technology is proving to be secure.

Banking Industry Trends:

With the rise of existing and new, non-traditional competition, banking faces a changing business landscape. Satisfying customer demands has become more complex as customers demand more convenience and control over their banking services. At the same time, regulators are ushering in a new era of government oversight. Banks currently face challenges in a number of key areas.

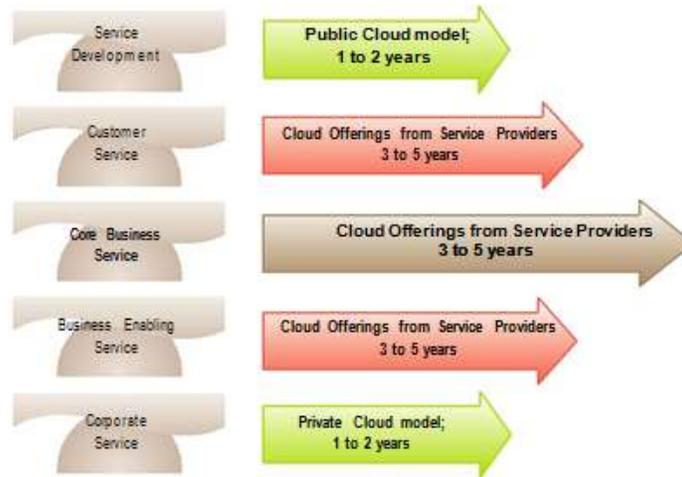
Capital inadequacy that depresses profit margins..

Emboldened customers who expect rapidly evolving new services and offerings.

Fierce competition for customers has spawned industry consolidation and the entrance of nontraditional firms.

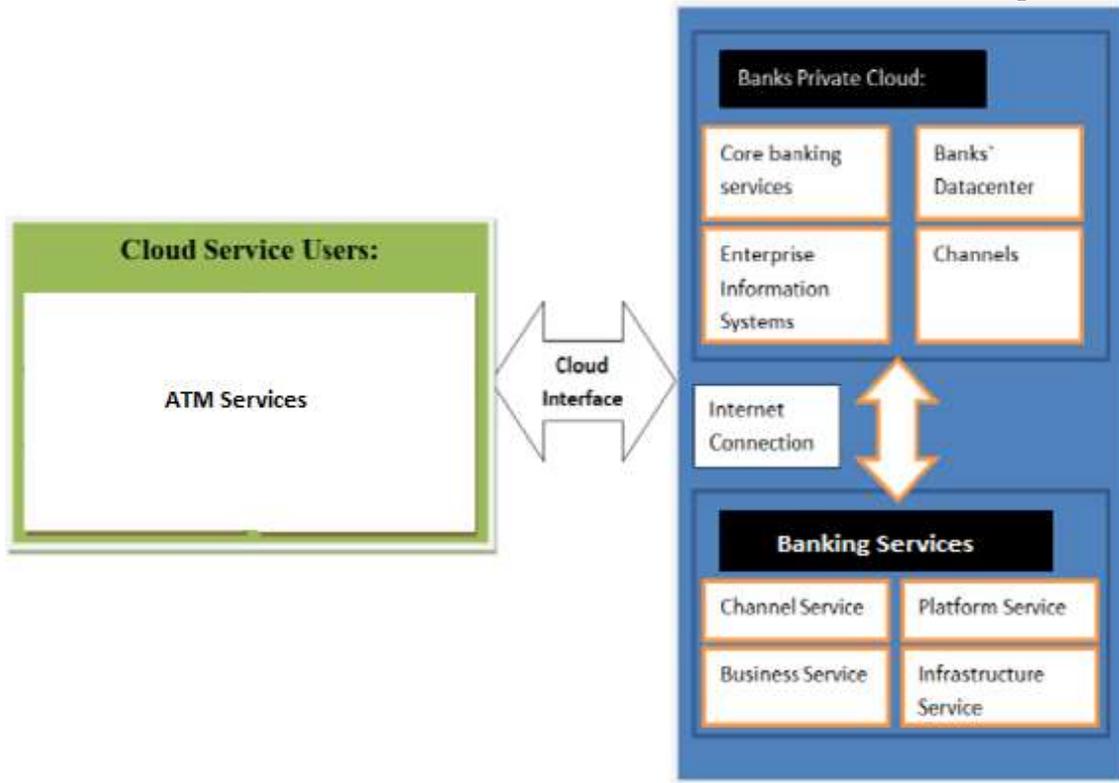
ADOPTION OF CLOUD COMPUTING TECHNOLOGY IN BANKING

The Service Ecosystem would develop incrementally from a non-cloud environment into a Hybrid model consisting of internal application portfolio and cloud based services delivered on a combination of private, community and public cloud models. It will initially start with limited private cloud based model supporting highly outsourced services, progressively moving to address other business functions. With the successful deployment of SoA, financial institutions have moved into a service oriented mindset which will further evolve to abstract complete suite of business functions.



Implementing the ATM services on Cloud:

As banking services are increasing day by day. Simultaneously, ATM machines are also increasing. Users are banking business into remarkably change over the last decade, with the increasing embedding of technology into business.



For implementation we need to understand the above layout and their interaction. It has been divided into three blocks:

- ❖ Cloud Service User
 - ATM Services
- ❖ Bank Private Cloud
 - Core banking services
 - Bank Data Center
 - Enterprise Information System
 - Channels
- ❖ Banking Services
 - Channel Services
 - Platform Services
 - Business Services
 - Infrastructure Services

The blocks determine the interaction between each other. Bank Private Cloud and Banking Services interact with each other through internet connection. These both interact with Cloud Service Users with Cloud Interface.

Reason behind the implementing ATM users in Cloud Service Users:

- ❖ Geographical multi-location for the ATM.
- ❖ Increment in the use of ATM.

All this momentum is building at a time when banks are under increasing pressure to use their IT budgets more efficiently, while competition from non-bank payments providers is much tougher and the need to serve clients better is becoming more acute.

Main challenges:

- ❖ **Security and compliance:** maintain at all times the security of data. Banks need to demand stringent safety measures from suppliers and ensure new applications meet the latest and most rigorous security standards. Service Level Agreements (SLAs) are a must.
- ❖ **Reliability:** ensure that applications and data are always available in the event of a natural disaster or an unpredictable event. Banks need to have stringent SLAs in place, complete with guarantees, end-game scenarios and remedies if a provider fails to meet service levels.
- ❖ **Cloud management:** achieving visibility and measuring performance are harder to do, especially if, as seems likely, large banks will source cloud services from several providers and to use them for both internal – or private – and external, or public, services. This could result in a bank having to handle multiple security systems, and the need to ensure all parts of their business can communicate with each other and where necessary with clients. Increased use of various technology infrastructures and a mix of different cloud environments internally and externally mean banks will need to develop fully-fledged cloud management platforms. They will be a necessity to ensure banks can fully realize the cost savings and flexibility benefits of cloud computing.
- ❖ **Interoperability:** banks will need to ensure data and applications can be moved across cloud environments from a number of providers. They should look to develop a single interface and management layer that can work across different platforms internally and externally.

RESULTS AND DISCUSSION

Analytics results

❖ **Current data center costs**

The cost of data center hardware costs, maintenance and support and power consumption, software packages and control systems which allow for ease of comparison with the new model as well as the readability and Statistics and the figures in table 1 are shown.

Table. 1. The total cost server platform

Row	Parameters	Costs
1	The total cost racks	2.970.000.000
2	The total cost of switches	1.000.000.000
3	The total cost routers	600.000.000
4	The total cost of the monitoring system	3.600.000.000
5	The total cost of UPS's	12.000.000.000
6	The total cost software	500.000.000

❖ **New data center costs**

All costs related to the data center with the necessary explanations and statistics in table 1 were presented for the current model. In this section, with the benefit of new technology, cloud computing and data center costs in Table 2 are available. Terms and explanations on each of the tables presented in the previous section, this section is also included but not rewritten to avoid duplicate content.

Table. 2. The total cost server.

Row	Parameters	Costs
1	The total cost racks	1.100.000.000
2	The total cost of switches	500.000.000
3	The total cost routers	360.000.000
4	The total cost of the monitoring system	1.000.000.000
5	The total cost of UPS's	8.000.000.000
6	The total cost software	500.000.000

❖ **Compare the cost of two models**

Figure 3 compares the energy consumption of servers, racks and internal equipment is displayed in server energy consumption by 74% and 70% reduction in energy consumption of servers that bed. These results indicate that total energy consumption in the new models declined 73% compared to the old model.

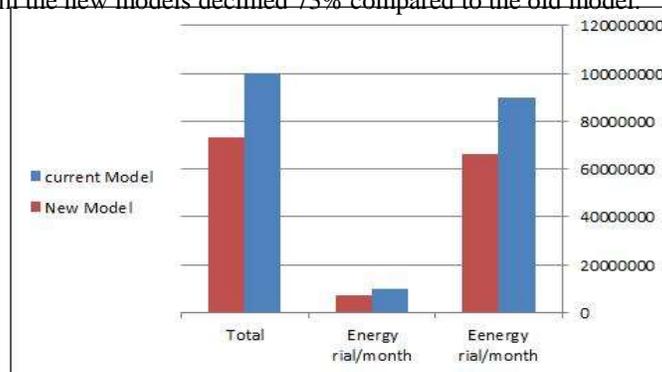


Figure3. Compare Energy.

Figure 4 is a comparison between the cost of capital, including servers, racks, switches, routers, and UPS monitoring is done. According to the results, 74% of the cost of servers, racks cost 37%, 50% in the cost of switches, 67% and 28% in the cost of UPS monitoring cost savings, but the cost has not changed the router. In total 70% of all capital expenditures in the new version of the old model dropped.

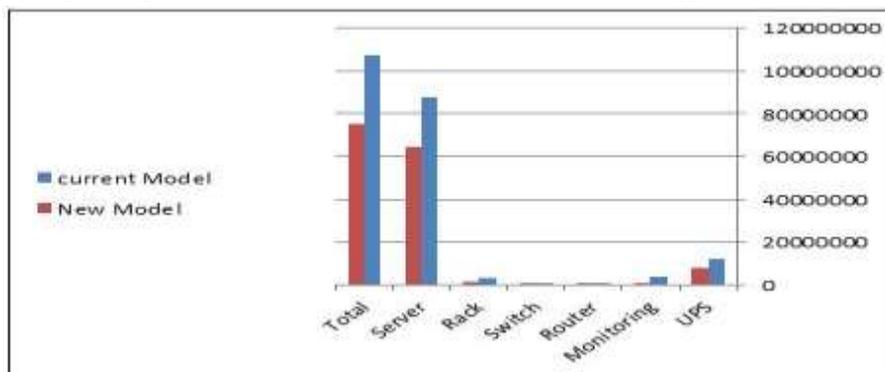


Figure4. Compare the cost of capital.

In Figure 5, the comparison has been made between the cost of repair and maintenance. These costs include legal experts and periodic service charge. According to the results, 50% of the cost of experts (maintenance) and 74% service charge for a period of saving. In total, about 65% of all costs of repair and maintenance of the new version of the old model dropped.

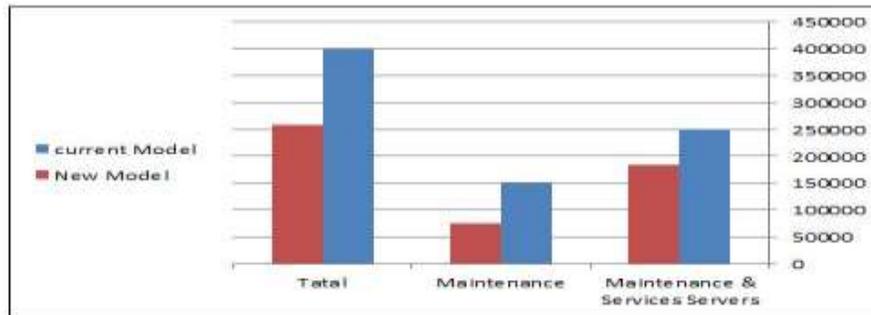


Figure5. Compare the cost of service and maintenance.

In Figure 6, the comparison has been made between the monthly fees. These costs include the cost of servicing and maintenance and energy consumption is approximately 67% of all monthly fees in the new version of the old model dropped.

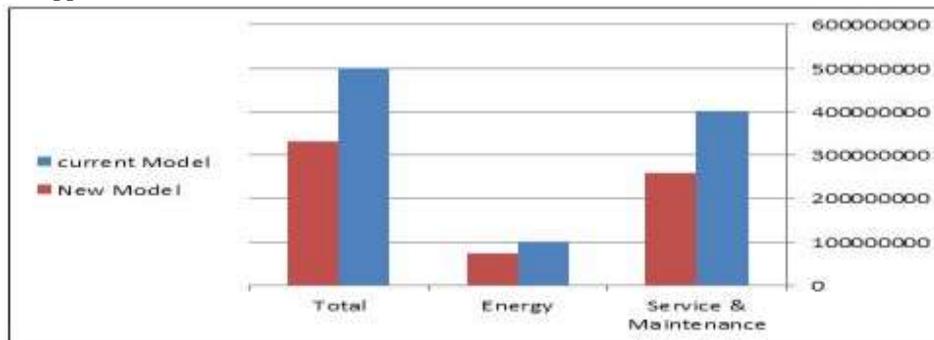


Figure6. Compare the cost of service and maintenance.

In Figure 7, the comparison between the fixed costs. These costs include capital expenditures and softwares that bundles with a fixed cost in total around 70% of all fixed costs declined in the new model compared to the old model.

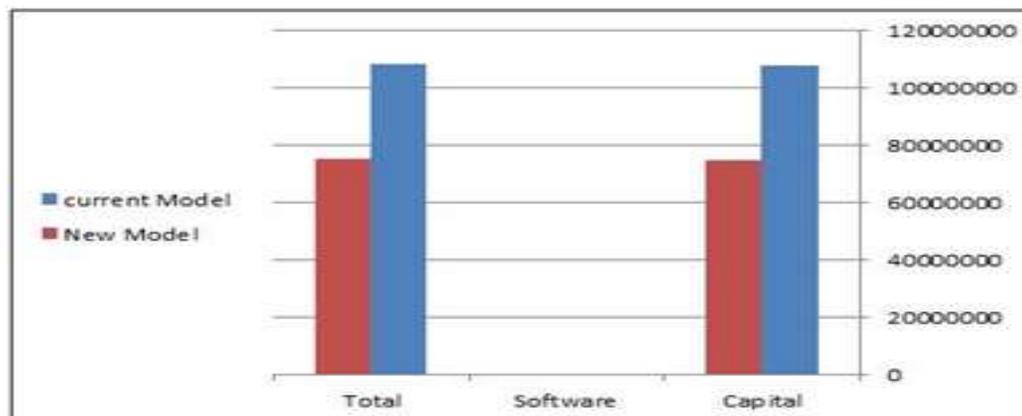


Figure7. Compare fix costs.

Banking business has changed remarkably over the last decade, with the increasing embedding of technology into business, as indicated by the following:

- Time to Market: Years → Months → Weeks
- Response Time: Days → Milliseconds
- Complexity: Highly Complex → Federated & Simple
- Availability: 24x7 (selected channels) → Ubiquitous (Common Experience)
- Risk Tolerance: High → Low
- Delivery Method: Automatic, Pull → Ubiquitous, Push
- Transactions: Millions → More Millions
- Cost / Transaction: High → Low
- New Product Launch: 3-5/Year → 30-50/year → User Composable
- Technology: http/ftp/online/batch → Instant – any device/any time/anywhere
- End User: Consumer → Prosumer
- Partnerships: Service Provider → Co Creator

Institutions have been able to clearly deploy a server centric application delivery model with the success of service oriented architectures. This is further boosted by the current suite of technologies that enable rich client applications. The browser has standardized application access, scripting languages have improved in performance by a factor of 100, internet protocols have standardized, server side capabilities have expanded while at the same time becoming simpler in architecture (as compared to EJB models). Cloud based solutions provide a positive convergence of these evolutions, to deliver service utilities that will truly provide business agility.

Green Banking can be defined as a term which collectively refers to routine contributes in economic, social dimensions and more importantly without compromising on the environment aspect. Objective of Green Banking is to ensure optimal utilization of IT and physical resources which would provide effective results without compromising on environmental factors and would have minimum negative impact on environment. Banks facilitate paperless transactions and are encouraging usage of electronic means, wherever possible, efforts are made to maintain contact with and correspond with customers with minimized paper based correspondence. Banks have developed channels like E Lobby, Net Banking and Tele banking which facilitate customers to carry out their banking requirement anytime and from any place of their convenience. Automated Teller Machines (ATM), NEFT, RTGS have eliminated the requirement of making the payments through cheques and encourage paperless transactions. Going in line with the Green banking concepts banks have developed Electronic Statements, Products Information and Manuals which can be sent or seen online. Paperless communication is emphasized and communication to customers is done via emails, SMS or ATM display (unless regulatory mandate). All internal memos, process notes and records have been developed in electronic form. Internal communications are done through emails and dedicated Email Ids are provided to all the employees.

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