Alternatives to Legacy IT Systems:

An Unbiased Look at the Current State of the Cloud Market

Executive Summary

There are a limited number of technologies which have gained as much popularity as the concept of cloud computing, especially within the last 5 years. The attention geared toward cloud computing is the result of the soaring costs of legacy IT systems which impede business progress for most enterprises. Cloud computing represents the answer to this dilemma as it offers enhanced scalability and flexibility with access to the latest IT innovations and software at a lower cost than comparable legacy IT systems.

The flexibility to adjust and capitalize on a constantly changing marketplace while minimizing capital expenditures is one of the primary challenges enterprises face today. Rigid legacy IT systems present a major barrier for most organizations as they strive to achieve a competitive advantage.

By deploying virtualized infrastructures that are both scalable and customizable, innovative technologies can be implemented at a fraction of the cost of legacy IT systems while meeting the individual needs of most enterprises.

This whitepaper will place a new perspective on today's cloud computing initiatives and provide the necessary information to help multiple enterprise stakeholders capitalize on cloud infrastructures by explaining:

- The Evolution of the Cloud and How Cloud Solutions Have Been Utilized By Enterprises over the Last 5 Years
- The Current State of the Cloud Market
- What is believed to be the Next Phase of the Cloud Evolution
- How Multiple Stakeholders at Enterprises can capitalize on Cloud Infrastructure and Services.
- Critical Questions You Should Ask Vendors

The Evolution of the Cloud and How Cloud Solutions Have Been Utilized By Enterprises over the Last 5 Years

The concept of cloud computing was actually contemplated during the 1960s with the prediction by John McCarthy that computing would one day be organized as a public utility. McCarthy, a well-known computer scientist, publicly expressed this notion during a guest speech given during the 100th anniversary celebration for the Massachusetts Institute of Technology.

Following the 1960s, the idea of computing being organized as a public utility faded in the next decade due to the fact that hardware and software technologies during the 1970s were simply not advanced enough to handle the concept. It wasn't until the late 1990s that the term cloud computing was first used by Ramnath Chellappa during a lecture at the University of Texas.

As cloud computing began to evolve following the year 2000, companies started to embrace the cloud in theory but the perceived information security concerns were an issue that often prevented internal consensus and adoption of cloud solutions. Many decision makers agreed that cloud security concerns required a detailed risk assessment before considering a cloud deployment model.

> ***"Gartner says, "Cloud computing has unique attributes that require risk assessment in areas such as data integrity, recovery, and privacy, and an evaluation of legal issues in areas such as e-discovery, regulatory compliance, and auditing."***

Fast forward to 2007, technology advances enabling cloud solutions coupled with uncertainty of economic conditions, increased competition among enterprises. The growing demand for improved workplace flexibility compelled organizations to rethink IT initiatives through a lens of creating efficient and cost effective IT operations by utilizing innovative technologies and business applications.

Hence, the consideration and implementation of cloud initiatives which are far less expensive and complex to deploy. Additionally, they provide an agile environment which helps enterprises meet the challenges associated with competing in today's marketplace.

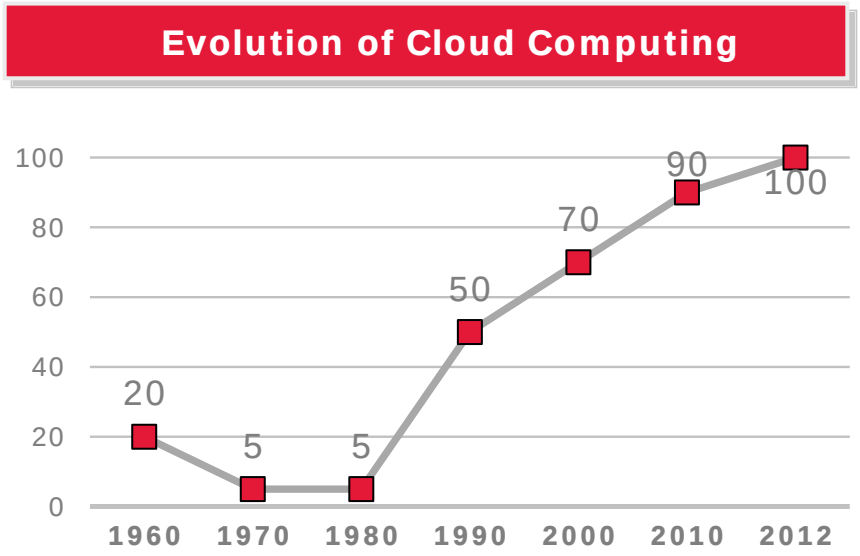
Progressive enterprise stakeholders have been utilizing cloud infrastructure and services for the last five years in an effort to generate a greater return on investment (ROI) while reducing the total cost of ownership (TCO) of IT infrastructures and hardware components. Additionally, enterprises are striving to

change IT expenditures to an operating expense as opposed to a capital expenditure while reducing the complexities associated with legacy IT systems.

Over the last five years new technological innovations have placed scalable IT infrastructures and services within the economic reach of many enterprises. The new technologies include but are not limited to:

- Increased availability of high speed broadband networks.
- Flexible and scalable IT management and delivery.
- Business application virtualization.
- Better security monitoring and management.
- Advanced user interfaces which provide greater visibility and better control over cloud infrastructure and services.

For these reasons, more enterprises have chosen to set aside legacy IT systems which are operated and maintained on the premises. Instead, they are moving to cloud infrastructures and services to reduce costs while increasing business productivity to achieve a competitive advantage in today's marketplace.



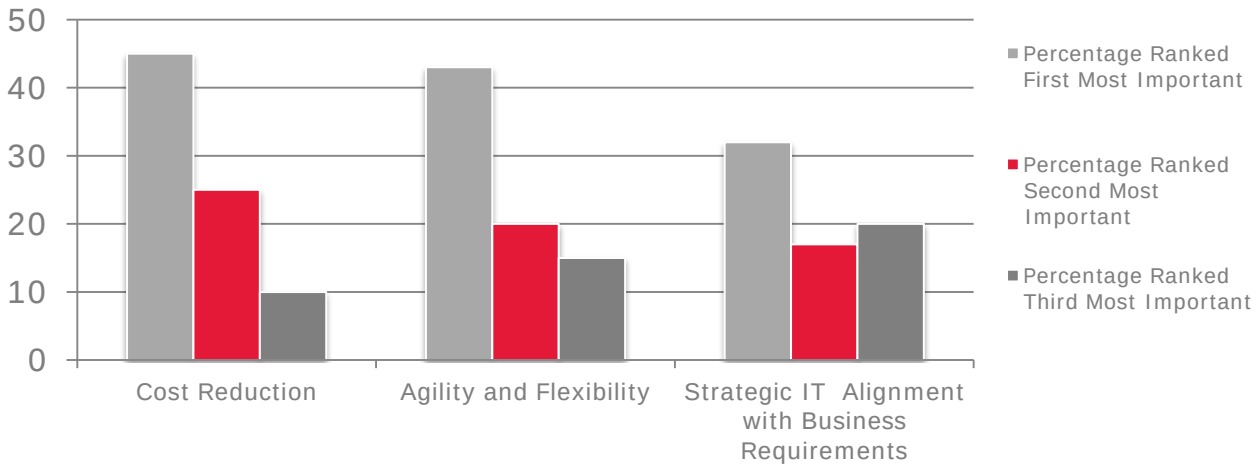
The Current State of the Cloud Market

The concept of cloud computing really came into full swing during 2010 despite the fact cloud service providers (CSPs) were somewhat ahead of cloud market adoption. Enterprises were still hesitant due to concerns surrounding security, loss of control, accessibility, and many questions with regard to public versus private cloud solutions and how they would effectively integrate existing IT infrastructures.

As enterprises driven by challenging market conditions slowly adopted cloud computing as a new way to achieve a competitive advantage through IT, an increased number of enterprises began to embrace cloud computing in 2011. The end result has been a surge in the use of cloud computing solutions for companies of all sizes and in 2012 cloud computing will become a reality for most enterprises.

"Forrester forecasts that the global market for cloud computing will grow from $40.7 billion in 2011 to more than $241 billion in 2020. The total size of the public cloud market will grow from $25.5 billion in 2011 to $159.3 billion in 2020."

According to a recent survey analysis conducted by Gartner from *User Survey Analysis: Infrastructure as a Service, the 2011 Uptake* published in December 2011, there is a marked increase in the awareness and adoption of new cloud services with cost reduction the number one priority for enterprises which are currently considering or actually using cloud infrastructure and services. The top three priorities are cost, flexibility, and a focus on strategic alignment with business requirements.



In the current cloud market, there is still some confusion as to exactly what defines cloud computing. However, most enterprises are gradually sharing a new perspective that the cloud solutions market is not a passing technology trend but an IT solution that is here to stay and expanding in the future. The enterprises that have adopted cloud environments have already experienced measurable benefits including the number one priority of reducing IT capital expenditures.

Currently, many enterprises are deploying cloud solutions to meet growing business application needs and to address IT requirements which are specific to their industry. Key stakeholders in enterprises are capitalizing on cloud infrastructure and services by

extending the same on-demand services and capabilities into many different facets of the organization to provide anytime access for end-users, authorized personnel, and business customers. In a study conducted by Savvis in 2011, eight in ten organizations reported using cloud computing in comparison to less than two-thirds reporting to do in the previous year. In fact, of those currently using cloud computing, more than two-thirds reported they started doing so within the last 12 months.

When did you start using cloud computing in your organization?

Base: Asked of respondents who already use cloud computing	Total	United Kingdom	France	Germany	Singapore	USA
Within the last six months	27%	16%	38%	29%	30%	24%
Within the last six to twelve months	40%	32%	38%	46%	36%	47%
Between 1 and 2 years ago	24%	35%	20%	20%	19%	26%
More than 2 years ago	9%	17%	3%	5%	15%	4%
Average (yrs, mths)	11 mths	1 yr., 3 mths	9 mths	10 mths	1 yr.	11 mths
Base	**385**	**77**	**65**	**85**	**73**	**85**

As enterprises continue to come to internal agreement and consensus on cloud computing initiatives, cloud infrastructures and services will proceed to evolve and change. We started with a model that was basically “Utility Computing,” where the enterprise network was at the center of packaging computing resources, such as computation, storage and services as a metered service. This “rental model” has the advantage of low or no initial cost to acquire computer resources thus it was purely a technological paradigm.

The market then moved to a commercial paradigm with the “pay as you go” business model being perfected with "On Demand" computing and Software as a Service (SaaS) concepts being introduced. This was again diluted to merely utilizing a shared environment of infrastructure, translating to “Cloud” deployment being claimed by anyone that used “Virtualization.”

We're currently seeing a return to some original concepts of Utility Computing with pivotal innovations in business models utilizing Cloud, notably "Auto Scaling," which enables applications to dynamically take advantage of additional compute resources as required and then release those resources when they are not required. This innovation accounts for the often unpredictable usage of applications based on business needs and meets business objectives to improve agility, elasticity and flexibility when consuming IT infrastructure.

What is believed to be the Next Phase of the Cloud Evolution?

"Continual monitoring of cloud computing trends with regular updates to the enterprise's cloud strategy will be essential to avoid costly mistakes or miss market opportunities over the next few years, according to Gartner, Inc. Although the potential for cloud computing is significant, the breadth and depth of the impact, as well as the level of adoption over time, are uncertain and will require frequent review."

Gartner has identified five cloud computing subtrends that will accelerate, shift or reach a tipping point over the next three years that users must factor into their planning processes:

Cloud Optimization

Although cloud infrastructures and services represent an opportunity to transition from IT capital expenditures to operational costs, increased productivity and lower total cost of ownership, the benefits will continually be mapped against other challenges including security, accessibility, lack of control, concerns with licensing, and the need for integration with existing IT systems. These formal decision frameworks will help to optimize the investment in cloud infrastructure and services which will enhance business growth in the most economical fashion.

Hybrid Cloud Computing

A hybrid cloud computing model allows enterprises to maintain control over a portion of a legacy IT infrastructure on the premises while integrating cloud solutions from an external cloud services provider (CSP). As cloud computing moves to the next phase, hybrid clouds will prevail to allow enterprises to gradually transition to a unified cloud which is both scalable and flexible and can be used according to any business needs which may arise. Although this will require the establishment of standards and

requirements as to how the two infrastructures will be combined, the end result is the best of both worlds and an environment that is both economical and agile.

Cloud Brokerages

As a result of the rapid growth in the adoption of cloud computing there will be a need for assistance with cloud computing consumption of resources. This is where cloud service brokerages will be of assistance. Also, many enterprises can position themselves to broker purchases for cloud infrastructures and services in addition to being a point of contact for business organizations to obtain advice and direction.

Necessity for Cloud Optimized Applications

With the increased demand for cloud infrastructures and services many more enterprises will look to migrate existing IT resources and applications to the cloud. To fully take advantage of a cloud infrastructure, business applications will need to be optimized in order to utilize the potential of a cloud solution model. This means a shift in focus on the part of enterprises from transitioning workloads to the cloud to focusing on cloud optimized applications which will operate at maximum potential when being applied to a cloud environment.

Data Center and Operational Models

As enterprises continue to facilitate their own data center using a cloud solutions model it will be necessary to apply the cloud computing concepts which are deployed by CSPs. Since CSPs typically serve the consumer, the trends and concepts utilized by a CSP point to the future of data centers and IT infrastructures. *Gartner says, "Enterprises should take their cue from CSPs to fully optimize investments in data centers which will ensure efficiency and ongoing performance."*

How Multiple Stakeholders at Enterprises Can Capitalize on Cloud Infrastructure and Services

Enterprise stakeholders can capitalize on cloud infrastructure and services by extending on-demand capabilities into multiple areas of their IT infrastructure to allow authorized users to access resources anytime and from any location in addition to enterprise partners and IT personnel. The end result is capitalization from cloud infrastructures and services including:

- Increased Flexibility and Scalability – In the current marketplace business productivity and agility is a necessity. By deploying a cloud model, an enterprise is assured of the capabilities which are necessary to remain competitive while reducing IT costs and increasing company profitability.

- Reduced Downtime – Enterprises count on IT infrastructures and services that are reliable and deliver robust performance. Any amount of downtime can result in revenue loss and difficulty in the disaster recovery process. A cloud model provides high availability and improved disaster recovery which helps an enterprise remain profitable in the event of an outage.

- Utilization of the Newest Technological Innovations – Accessing the latest technologies is typically out of reach for most organizations due to the costs of implementation and ongoing maintenance. Additionally, most businesses do not have the necessary internal IT expertise to address issues which may arise with new cloud technologies. A cloud model represents the answer to this dilemma and resolves the risks associated with maintaining the new technologies in-house.

- Elimination of Unnecessary IT Components – Over an extended period of time when making changes to legacy IT systems many organizations end up with what is known as *piecemeal infrastructure* and *server sprawl*. The end result is wasted IT resources which are costly and underutilized. By deploying cloud infrastructure you only pay for what you use and you can add to the infrastructure at any time as needs arise thereby reducing the cost of IT procurement.

- Key Performance Metrics and Compliance – It is a known fact that most enterprises suffer from server sprawl while being required to keep up with compliance guidelines and regulations. By deploying cloud infrastructure, maintenance and monitoring can be performed from a unified interface to ensure infrastructure performance is maximized and compliance regulations are being met.

Critical Questions You Should Ask Vendors

Collaboration between business leaders and IT personnel within your organization is critical in evaluating whether a cloud solution offers the functionality and security to replace existing in-house systems. For example, the CIO, COO, and Director of Procurement might all need to be involved in the bid specification and contract award process to ensure that technical requirements, business goal alignment, and cost efficiencies are given adequate consideration. Below are some of the questions your decision-makers should ask potential cloud providers during the evaluation process:

Factors that May Affect Data and Network Security

- What levels of connection and database encryption are available?
- Is a dedicated domain used to provide trusted authentication?
- How are dedicated TCP ports used to control access?
- What layers of security are implemented to create multiple obstacles to unauthorized access?
- Can access be further restricted to control each user's permissions within the database?

Factors that May Affect Business Operations

- Is burstable processing power readily available to meet short-notice or seasonal needs?
- What backup and restore options are provided for databases hosted in the cloud?
- Are both private and public options available to meet business requirements?
- What is the vendor's track record for service availability?
- Can services be managed through a portal?

Factors that May Affect Costs

- How does the total cost of ownership (TCO) for the cloud compare to the existing dedicated resources?
- Is a lengthy contract required to obtain affordable pricing or are month-to-month terms available?
- Which party handles any software licensing?
- Can additional services be purchased on an as needed basis?
- How might access to a flexible cloud computing system accelerate time to revenue?

As you explore each of these questions, you should take the opportunity to query vendors on the specifics of *how* each service requirement is met. This approach will help eliminate providers who are making unsubstantiated service claims.

Conclusion

Organizations are striving to remain competitive while facing IT challenges in a difficult economy. This is forcing enterprise stakeholders to consider alternatives to traditional legacy IT systems in order to maintain business productivity while reducing IT capital expenditures. As a result, many enterprises are turning to cloud solutions which are provided by CSPs who have a proven track record of providing highly reliable and secure cloud infrastructures and services that reduce IT costs while increasing business productivity.

We hope this white paper has given you the information you need to begin exploring your options. *To learn how your organization can rapidly deploy a solution that pairs the integrity you expect from an in-house IT department with the advanced capabilities of cloud computing, contact our client advisors at: 1-800-728-8471 or visit www.savvis.com.*