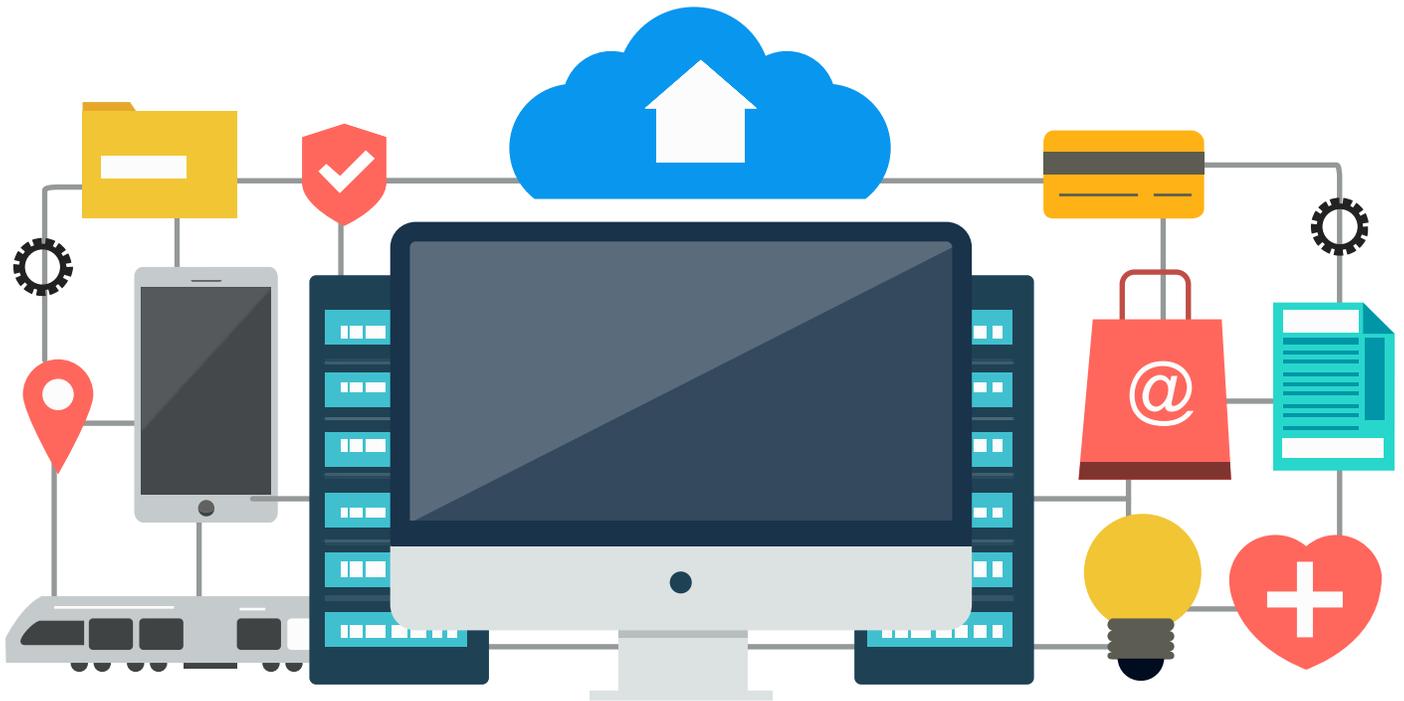# CLOUD COMPUTING
STRATEGY & EXECUTION

MicroAgility

Institute for Business Agility

MicroAgility®

Helping You Succeed with Agility!

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1. INTRODUCTION?

We are in the full throes of the 'Information Age'. A company without an adequate information technology infrastructure will almost certainly be left behind, as speed, efficiency and communication are the building blocks of business success. The advent of cloud computing is a specific example of how information technology best practices radically innovate the way business is done.

This paper defines Cloud Computing, explains the benefits of an effective cloud implementation and execution strategy and possible reasons for failure, and pitfalls to avoid. It further presents a practical and holistic approach for successful cloud implementation.

2. WHAT IS CLOUD COMPUTING?

Cloud computing isn't anything new. The cloud is simply the extranet, so when you utilize cloud computing, you run software and store data on the internet, instead of on your own computer. Cloud Computing enables users to dynamically and remotely control processing, memory, data usage, network bandwidth, and specialized business services providing the ability to specify and deploy computing capacity on demand.

Cloud computing drastically cuts computing costs, including those related to maintenance and tech support, because there are far fewer machines that need to be serviced. Working within the cloud also makes it easier to foster collaborative projects in the workplace. The implementation of cloud services help companies grow, improve operational processes, and reduce total cost of ownership (TCO).

Clouds can be classified as public, private or hybrid.

Cloud Computing can be defined in different ways such as:

a) It is the practice of using a network of remote servers hosted on the Internet to store, manage, and process data, rather than a local server or a personal computer.[i]
b) Cloud computing is the delivery of computing as a service rather than a product, whereby shared resources, software, and information are provided to computers and other devices as a utility (i.e., the electricity grid) over a network (typically the Internet).[ii]

The main enabling technology for cloud computing is virtualization. Virtualization software allows a physical computing device to be electronically separated into one or more "virtual" devices, each of which can be easily used and managed to perform computing tasks. Virtualization provides the agility required to speed up IT operations, and reduces cost by increasing infrastructure utilization

There are primarily three cloud deployment models:

- **The Private Cloud**

This model doesn't bring much in terms of cost efficiency: it is comparable to buying, building and managing your own infrastructure. Still, it brings in tremendous value from data security point of view.

- **The Public Cloud**

The public cloud deployment model represents true cloud hosting. In this deployment model, services and infrastructure are provided to various clients. Google is an example of a public cloud. A vendor free of charge or on the basis of a pay-per-user license policy can provide this service.

- **The Hybrid Cloud**

This deployment model helps businesses to take advantage of secured applications and data hosting on a private cloud, while still enjoying cost benefits by keeping shared data and applications on the public cloud. This model is also used for handling cloud bursting, which refers to a scenario where the existing private cloud infrastructure is not able to handle load spikes and requires a fallback option to support the load. Hence, the cloud migrates workloads between public and private hosting without any inconvenience to the users.

3. WHY IS CLOUD COMPUTING IMPORTANT?

Owning your own resources i.e. hardware, network resources and datacenters coupled with maintenance is expensive. The cloud essentially turns CPU power, storage space, backups and maintenance into a metered utility. It's a much more scalable way of doing things.

Cloud computing lets you run software applications and access data from any place and time, and from any computer; without the need to ever install, upgrade, troubleshoot software applications physically on a local desktop or server. This is one of the most important elements of cloud computing, and why it has become so popular today.

Consumers of the cloud computing services don't have to invest into the resources up-front (where resources could be from a dedicated server to a data center) in order to have the capacities and functionality meeting their demands. Neither do they have to over-invest in order to have the capacities meeting their peak demands (i.e.: having these extra few servers in a rack just to handle holiday sales spikes).

The importance adopting to cloud computing can be

1. Agility

Cloud computing delivers improved agility because it has on-demand self-service and rapid elasticity. IT resources can be acquired and deployed more quickly and, once deployed, they can be increased or decreased as needed to meet demand.

2. Dynamic Scalability

The dynamic scaling aspect of cloud computing that allows an operator to add any number of virtual resources in times of high demand and release them under normal conditions puts the cloud ahead of conventional technologies.[iii]

3. Automation

Since the infrastructure and platform are part of cloud, the burden related to deployment, versioning and software upgrades is automatically taken care of by the cloud provider. This automation is one of the biggest attractions of cloud computing.

4. Multi-Tenancy

Multi-tenancy is an architecture in which a single instance of a software application serves multiple customers. Multi-tenancy is the key common attribute of both public and private clouds, and it applies to all three layers of a cloud: Infrastructure-as-a-Service (IaaS), Platform-as-a-Service (PaaS) and Software-as-a-Service (SaaS).

5. Cost reduction

Cloud computing reduces operational and maintenance costs for big businesses that require huge IT infrastructure or who service millions of users. For SMBs, cloud computing can reduce the marginal cost of adding new functionality and adding more infrastructures.

6. Improving productivity

Productivity is about achieving more with less and cloud computing is key to maintaining this. Cloud computing can improve productivity in an organization through:

- Automation
- Self Service
- Mobility
- Business continuity in case of disaster

- Improved communication
- Telecommuting

7. Compliance adherence

Cloud service providers can ensure compliance to HIPAA or other regulatory bodies on demand of consumers. Other concerns such as risk mitigation can also be taken care by the service providers.

8. Disaster Recovery

Cloud backup assures that your data is recoverable and protected. Though cloud security remains a concern due to the recent cloud breaches, the new data encryption technology and security practices adopted by some cloud providers will help ensuring data security.

9. Reliability

Due to the economies of scale, Cloud vendors can afford to have much more experience staff and proven processes that should produce overall hardware and network reliability that meets or exceeds that of the average corporate data center, and far exceeds anything you can achieve with collocated or self-managed servers. There is usually an inexpensive and large storage facility coupled with the cloud computing offering which gives you a convenient place to store your backups.

4. WHY CLOUD DEPLOYMENTS FAILS?

Practically many cloud-computing deployments are suffered through an outage at some point. When outages happen, skeptics question the viability of cloud computing. Here are some of the reasons why cloud deployments fail:

1. Setting unrealistic expectations

It is the number one reason organizations have trouble with cloud computing. Too many organizations believe that they can put in a request to a cloud provider, and, magically, everything will be working perfectly overnight.

2. Defining Business Objectives

Unclear view and misunderstanding of the business's requirements and available resources sets up flaws right from the start.

3. Vendor Selection

Failure to scrutinize and identify the appropriate cloud vendor as per requirement is often the case. In some failure cases, some companies also fail to hold responsible cloud vendors in case of unsuccessful cloud transition.

4. Accountability

1. Failure to hold oneself responsible in case of unrealistic expectation as given above.
2. Failure to manage and monitor applications. If your application performs poorly, your customers won't blame the cloud provider, they will blame you. "There will be mistakes in your application.[iv]"

5. Legal issues and Risk Mitigation

Failure to comply with legal issues and compliance i.e. HIPAA standards and risk mitigation

Other factors include;

1. Failure to understand existing process flows and their objectives
2. Failure to observe the necessary management discipline in different departments
3. Failure to set specific, measurable, attainable, realistic, and timely (SMART) goals for cloud migration.

5. HOLISTIC APPROACH TO CLOUD COMPUTING IMPLEMENTATION

Cloud computing is revolutionizing the business world on a number of levels. The new technology allows companies and individuals to easily access computer programs and other information that is based at remote sites. With cloud computing, organizations do not have to worry about over-purchasing expensive hardware, adding in-house staff, or beefing up data centers. Perhaps the most important edge offered by cloud computing is its flexible cost model that allows companies to avoid upfront cost while being more scalable to grow or contract as an organization evolves.

In the Cloud, the company using it does not own the physical infrastructure. Instead, companies follow a pay-as-you-go plan for accessing resources and applications from a cloud service provider that may offer lower total cost because their costs are spread across a large number of users at several different companies.

Keeping in view the importance of cloud computing to the business success, the following holistic and pragmatic approach is suggested:

1. Assessment Phase
2. Making a Business Case
3. Define Requirements & Design
4. Develop an Implementation Plan
5. Evaluate Vendors & Selecting the right solution
6. Develop Communication, Marketing, Change management & Training plans
7. Implement Solution & Adoption Strategies
8. Continuous Improvements and Changes
9. Partner & Collaborate with the Vendor

5.1   Assessment Phase

A cloud computing assessment has one purpose, and that is to bring the cloud into focus for your organization. Understanding the following factors can help you in assessment of cloud computing for your business:

- Is it a good fit for my business?
- What are its key benefits?
- What belongs in the cloud and what doesn't?
- What ROI will it bring?
- How do I avoid risk?
- What does it cost?
- When is the right time to engage?

Once you are equipped with the clarity and plan that comes out of an assessment, you are ready for the next phase.

5.2   Making a business case

Develop a strong business case by focusing on factors such as:

- Key Objectives? In terms of Innovation, Idea generation, Collaboration, Communication, Excellence, Learning & Support, Competitive advantage etc.
- How does it align to the business strategy?
- What are the key drivers?
- Who will benefit? Key stakeholders? Internal (employees), External (customers, partners, vendors)?
- What are the benefits & "VALUE" in business terms? Productivity, Satisfaction, Process Improvement etc.
- How will engagement and morale improve?
- What challenges, issues or pain points does this address? If not addressed, what's the impact?

- How does it impact other business processes?
- Key sponsors
- Investment required?
- Cost, time and effort?
- ROI?
- What are the associated risks?

5.3   Define requirements and design

- Identify & document functional requirements. Map each requirement to the business value, benefits and collaboration patterns. Categorize it by importance and assign weights.
- Identify & document technology requirements. Map each requirement to the functional requirements. Categorize it by importance and weight.

5.4   Develop an implementation plan

- Develop a project plan (Agile project methodology is highly recommended)
- Form a steering committee
- Define requirements & design
- Evaluate vendors & select the right platform/solution
- Develop an adoption strategy & plan
- Develop communication, marketing, change management & training plans
- Conduct necessary trainings
- Listen, monitor and analyze usage
- Do continuous improvements and changes
- Partner & collaborate with the vendor

5.5   Evaluate vendors and selecting the right solution

Document technology vendor selection requirements & criteria (SaaS, Hybrid SaaS, etc.) linked to the above requirements. Following are some of the requirements to look for in the platform.

- Evaluate the vendor solution across 4 main categories - Information sharing, communications, social networking and an integrated user experience.
- What's the vendor product strategy, road map? Who is the management?
- Does the vendor keep in the pace with the market especially the growing collaboration market?
- What type of solution does the vendor provide? SaaS, Hybrid SaaS?
- How is the product's architecture and other features tie to the current infrastructure and architecture?
- What types of APIs or web services are there?

- What type of security and SSO is provided?
- What are the licensing terms?
- What type of support and maintenance provided? What's the effort for internal IT team?
- What is the total cost of ownership (TCO)?
- What type of support will they provide for other integration vendors/partners?
- What type of user dashboards/reports and management dashboards/analytical reports are available?

5.6   Develop Communication, Change management & Training plans

Good communication clarifies the standards of each system and sub-system, and the roles of the entire team within them, which generates an open system with well defined objectives and results in more effective collaboration. Clearly define and document the communication, marketing, change management & training plan.

- **Communication plan**

What needs to be communicated? More emphasis should be on business benefits & value, "What's in it for me other than features and tools? How will it be communicated? Where will it be communicated – places, signage, etc.?

- **Change management plan**

A very important step that should clearly identify and define what existing processes, activities & tasks will be changed/impacted by this platform. Communicate these to key stakeholders and users earlier on and get buy-in

- **Training plan**

Identify the training requirements in detail – user awareness of social media and tools, what training materials needs to be developed, what type of demos and training sessions need to be conducted, what will be the training format and who will do the trainings.

5.7   Implement solution and adoption strategies

- Review and refine the tasks based on requirements & adoption strategies by phase and priority to meet the overall.
- Get approval from management and steering committee.
- Design, develop, test and implement the solution in a test mode.
- Communicate on the release & training.
- Release the solution in a beta/pilot mode, to a few business units.
- Release the solution to the entire organization.

- Implement & manage the adoption strategies to help users to adopt to the new platform, create profiles, create communities, create & share content, use collaboration tools in conjunction with traditional methods, social games/prizes, implement & show the value of the collaboration.

5.8   Continuous Improvements and Changes

- Release changes, new features and improvements in a periodic basis and not all at the same time.
- Communicate on the new features, success stories, and testimonials regularly.
- Conduct training sessions in many formats continuously.
- Meet with users on a continuous basis to get their feedback and suggestions, show the new features and tools.
- Meet with the steering committee/advisory council on a continuous basis (and change the membership regularly).

Apart from the above steps, continues monitoring and usage analysis against the metrics is necessary in order to meet the defined business requirements. Strong partnership and collaboration with vendor is equally important.

6. CONCLUSION

Cloud computing is a huge business development, particularly for businesses with multiple offices or remote employees who aren't linked by a single physical network. Choosing the right cloud applications and using them to their full potential can help your business stay organized, reduce costs and grow.

The game-changing aspects of cloud computing allow businesses to move faster than their competitors. Cloud-based programs can be used at any time on almost any device with an Internet connection, a benefit that leads to greater collaboration

Our suggested implementation approach will help transformational leaders to add simplicity, logic, and speed to the process, allowing them to capitalize upon first-mover advantages.

7. ABOUT MICROAGILITY:

MicroAgility, Inc. is an award winning boutique management consultancy. To learn more about MicroAgility, please visit us at www.MicroAgility.com. Based on the principles discussed above, we have also developed a framework for the strategy & implementation of cloud computing. The framework includes easy-to-follow steps and checklists.

Sajid Khan is the President of MicroAgility and is responsible for MicroAgility's strategy and vision, major client relationships, and leading key engagements. Sajid can be reached at skhan@microagility.com.

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