

Cloudy Topics

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Topics

Introduction to Cloud computing

 Including Software as a Service (SaaS), Information as a Service (IaaS) and Platform as a Service (PaaS) aspects

Customer vs. Provider responsibilities

Including Third Party Content issues

Introduction to Cloud computing: Definitions

- Cloud computing is Internet ("cloud") based development and use of computer technology ("computing"). It is a style of computing in which dynamically <u>scalable</u> and often virtualized resources are provided as a service over the Internet. Users <u>need not have knowledge</u> of, expertise in, or control over the technology infrastructure "in the cloud" that supports them. Wikipedia 3-06-09
- An emerging computing model by which users can gain access to their applications from anywhere, through any connected device. A user-centric interface makes the cloud infrastructure supporting the applications <u>transparent</u> to users. The applications reside in massively <u>scalable</u> data centers where computational resources can be dynamically provisioned and shared to achieve significant economies of scale. - IBM

Is Cloud computing new?

- Cloud computing evolved from existing technologies
- Not the same as Grid computing but similar goals
- Not the same as <u>Utility computing</u> but can provide utility computing
- Not just Provisioning but use provisioning
- See "Above the Clouds: A Berkeley View of Cloud Computing" at

http://d1smfj0g31qzek.cloudfront.net/abovetheclouds.pdf for additional discourse

Evolution to Cloud computing

1990s

1950s

Cloud **Outsourcing** Remote Location for Processing / **Service** Remote Storage - Not Committed Bureau **Committed Location for** Punch Cards Data Transferred by **Processing Public Internet** Mailed to /Storage **Processor** Data Location **Transferred** Finished to/ from on **Results Sent Dedicated** Back Lines

2000s

2010

Types of Cloud computing

Public Cloud:

- Cloud computing involves providing applications, data and IT resources as services to users over the web
- Cloud computing is a way of managing large numbers of virtualized resources such that they resemble a single large resource

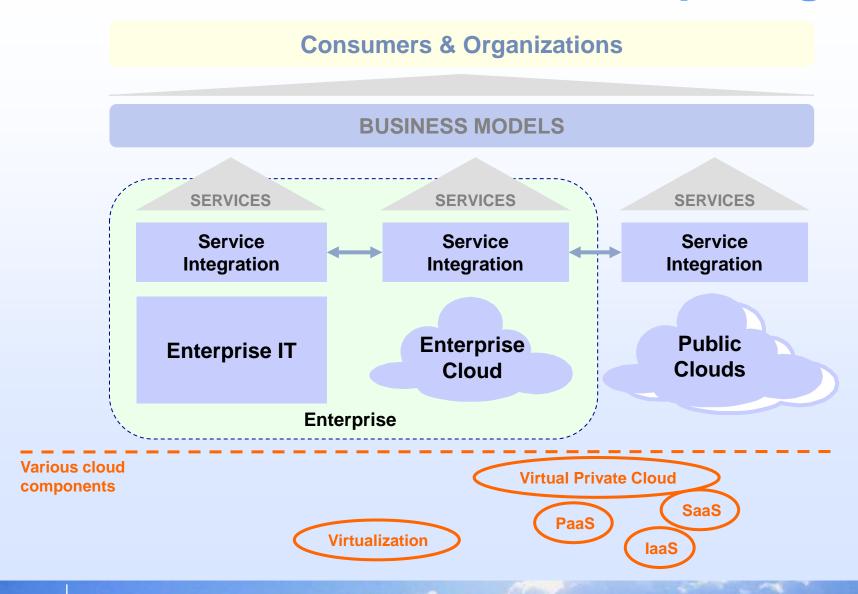
Private Cloud:

- An Interim Solution...
 - Converting existing Data Centers into Cloud computing centers
 - Reduces some of the security, management, control issues
 - Allows a focus on a subset of applications and their interactions
- Private Clouds provide many of the benefits of Cloud computing for people with existing Data Centers
- Allow a near term focus on optimizing the management of the data center
- Allows utilization of existing infrastructure and capacity planning

Why is There Interest in Cloud computing?

- Dramatic increase in the amount of data which companies must process and manage (ie, offload to others)
- Corresponding increase in IT systems and services costs (ie, cost effectiveness)
- Complexities associated with a rapidly growing IT environment (ie, potentially less complex)
- Availability of systems and applications (ie, ready supply, easier deployment)
- Energy costs and requirements (ie, potential reductions)

Various models of Cloud computing



Cloud Usage Models

1.	End User to Cloud - Application running on the cloud with access for end-users	2
2.	Enterprise to Cloud to End-user (Interoperability) - Applications running in the public cloud – access from employees and customers	
3.	Enterprise to Cloud (Integration) - Cloud application integrated with internal IT capabilities	
4.	Enterprise to Cloud to Enterprise (Interoperability) - Cloud application running in the public cloud and interoperates with partner applications (supply chain)	
5.	Enterprise to Cloud (Portability) - Cloud application running in the cloud – flexibility to move to a different cloud provider in the future or in-house	
6.	Private (intra) Clouds - Interoperability / integration within elements of a private cloud and between a private cloud and a traditional Services Oriented Architecture environment	Council Harman of Paris



Customer vs. Provider Responsibilities

- Public Cloud Agreement, Sec. 1.5 Online Policies
- IBM's Acceptable Internet Use Policy for IBM Services at <u>www.ibm.com/services/e-business/aup.html</u> ("Acceptable Use Policy") and IBM's Privacy Practice at <u>www.ibm.com/privacy</u> ("Privacy Practice") are also part of this Agreement and apply to all Services.

Customer vs. Provider Responsibilities

- Public Cloud Agreement, Sec. 5.1 Ownership
- You (or your third party suppliers) retain all right, title, and interest in Content. By adding, creating, installing, uploading, or transferring Content, you grant IBM and its subcontractors a non-exclusive, worldwide, royalty-free, paid-up, transferable license and approval to host, cache, copy, and display Content for the purpose of and in conjunction with providing a Service. You represent that you have and will keep in effect during your use of a Service, all such licenses and approvals necessary to grant IBM these rights and that they will be provided at no charge to IBM.
- You agree to reimburse IBM for any reasonable costs and other amounts that IBM may incur from your failure to obtain these licenses or approvals.
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Customer vs. Provider Responsibilities

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 - b. SPECIAL, INCIDENTAL, EXEMPLARY, OR INDIRECT DAMAGES OR FOR ANY ECOMOMIC CONSEQUENTIAL DAMAGES; OR
- c. LOST PROFITS, BUSINESS, REVENUE, GOODWILL, OR ANTICIPATED SAVINGS.

Miscellaneous Resources

- Cloud Computing Use Cases Ver. 3.0: http://www.scribd.com/doc/18172802/Cloud-computing-Use-Cases-Whitepaper
- Privacy in the Clouds: <u>http://www.ipc.on.ca/images/Resources/privacyintheclouds.pdf</u>
- IBM offerings: http://www.ibm.com/ibm/cloud/