

Cloud Computing

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Outline of Lecture 25

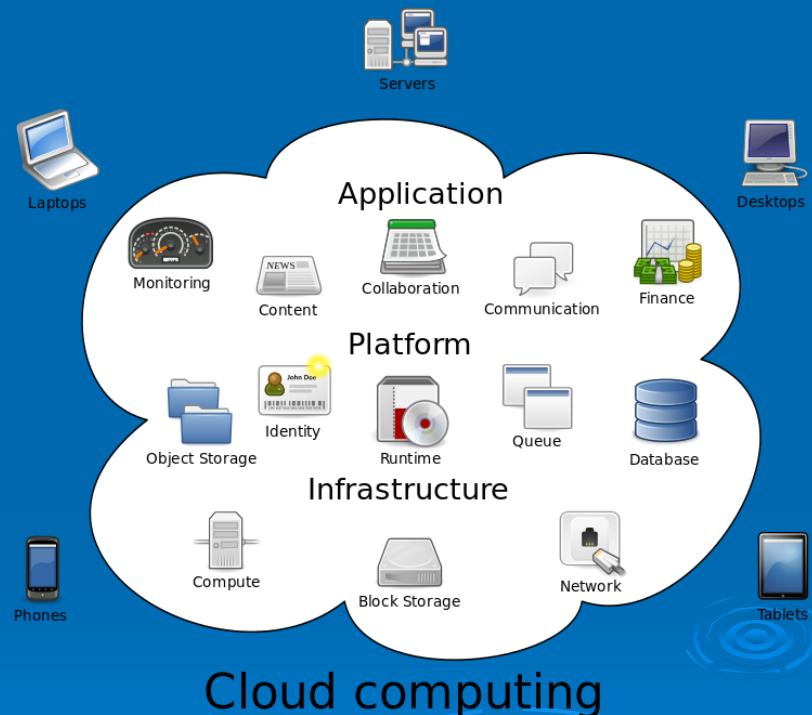
- Understanding Cloud Fundamentals
- Digging Deeper into IaaS and PaaS
- Diving into Cloud Economics
- Managing Cloud Workloads and Services
- Improving Security, Governance, and Cloud Reliability

Understanding Cloud Fundamentals

- Discovering Cloud Basics
- Foundational Cloud Delivery Services
- Core Cloud Capabilities
- Understanding the Cloud Continuum

Discovering Cloud Basics

- Cloud computing is a method of providing a set of shared computing resources that includes applications, computing, storage, networking, development, and deployment platforms as well as business processes. Cloud computing turns traditional siloed computing assets into shared pools of resources that are based on an underlying Internet foundation.



Foundational Cloud Delivery Services

- There are three main cloud delivery models:
 - IaaS: The delivery of services such as hardware, software, storage, networking, data center space, and various utility software elements on request.
 - PaaS: A mechanism for combining IaaS with an abstracted set of middleware services, software development, and deployment tools.
 - SaaS: A business application created and hosted by a provider in a multi-tenant (shared) model. The SaaS application sits on top of both a PaaS and foundational IaaS.

Core Cloud Capabilities

- Elasticity and self-service provisioning
- Billing and metering of service usage
- Workload management
- Management services

Understanding the Cloud Continuum

- Open community clouds
- Controlled open mode
- Contractual open
- Public, private, and hybrid clouds

Digging Deeper into IaaS and PaaS

- Characteristics of IaaS
- Considering a private IaaS
- Exploring PaaS
- Correct requirements of IaaS and PaaS

Characteristics of IaaS

- Renting
- Self-service provisioning
- Dynamic scaling
- Service levels
- Metering

Considering a Private IaaS

- A company would choose a private IaaS over a public one for three compelling reasons
 - The company needs to control access because of security concerns.
 - The company may require that business critical applications demonstrate predictable performance while minimizing risk.
 - The company sees itself as a service provider to its customers and partners.

Exploring PaaS

- A primary benefit of a PaaS environment is that developers do not have to be concerned with some of the lower-level details of the environment.
- Understanding the benefits of PaaS
 - Improvement the development life cycle
 - Eliminating the installation and operational burden from an organization
 - Implementing standardization
 - Having ease of service provisioning

Correct Requirements for IaaS and PaaS

The key requirements for IaaS and PaaS include the following:

- A consistent platform that's optimized to support a variety of workloads needed by customers
- An integrated stack of middleware optimized for automated deployment and management of heterogeneous workloads that dynamically adjusts
- Reliable, highly secure and scalable platform The continuum of the cloud rests on the reliability and security of the platforms used and the track record of the cloud provider to support customer's demands.
- A choice of deployment models that support the right service level, quality of service, and security required to support constituents

Diving into Cloud Economics

- Developing and Economic Strategy
 - Comparing traditional models with the cloud
 - Finding the value
- Exploring the Costs
 - What you save or gain with cloud services
 - Cost calculating
 - Assessing workloads
 - Using a cost estimator tool

Managing Cloud Workload and Services

- Understanding Workloads
- Workload use cases
- Principles of workload management
- Workload management in a hybrid cloud
- Connecting workloads in the cloud
- Managing and monitoring workloads

Understanding Workloads

- Batch workload
- Database workload
- Analytic workload
- Transactional workload
- Test/development workload

Managing and Monitoring Workloads

Managing workloads in a hybrid cloud environment requires a set of distinctive steps including the following:

- Keep track of dependencies among specific services, such as IaaS, PaaS, and SaaS.
- Workloads need to be monitored and optimized based on the company's service level requirements.
- Governance of workload management is essential for success. The IT organization needs to guarantee that corporate and governmental regulations are adhered to.
- Workload transparency is important, no matter where they are physically located. This includes on-premises systems as part of the overall workload management environment.

Improving Security, Governance, and Cloud Reliability

- Why Cloud Security Matters
- Establishing a Cloud Governance Strategy
 - Governance issues in the cloud
 - Risks assessment
 - Making cloud governance work
- Managing Services Levels
- Developing a Secure and Reliable Cloud Environment

Sources of this Presentation

Cloud Services for Dummies

**by Judith Hurwitz, Marcia Kaufman, and
Dr. Fern Halper**

Download link:

<https://www.ibm.com/cloud-computing/files/cloud-for-dummies.pdf>