

# HP Education Services course overview

## Cloud Computing Essentials (H9P44s)



### Course objective

Cloud Computing Essentials is a 2-day comprehensive fundamental course. Rather than awareness against cloud computing, it aims to provide an in-depth knowledge of cloud computing, including architectures, technologies, emerging cloud standards and performance monitoring. It will also explore federation, security and privacy in the cloud.

### Audience

Those interested in learning the essentials of cloud computing, including IT managers seeking basic cloud computing knowledge to determine whether or not to use cloud services, technical professionals who need to understand the basics of cloud computing, and those in sales or marketing functions who sell cloud services and want to increase their ability to communicate with experienced technical professionals.

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**Course title:** Cloud Computing Essentials

**HP product number:** H9P44s

**Category/Subcategory:** Cloud computing

**Course length:** 2 days

**Level:** Basic/Intermediate

**Delivery language:** English

**To order:** In HK, please contact HP

Education Services on (852) 3070-6692

or email at

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### Prerequisite

We recommend attendees to have basic information technology knowledge before attending this course.

### Why education services from HP?

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# Detailed course outline

## 1) Introduction to Cloud Computing

- What is Cloud Computing?
  - Cloud Computing Defined
  - Cloud Computing Infrastructure
  - Cloud Computing Terms
- Benefits and Limitations of Cloud Computing
  - Benefits
  - Limitations
  - Cloud Computing Case Studies
- How Companies Are Using Cloud Computing
  - Implementing Applications and Services in the Cloud
  - Using Your Company's Services vs. the Cloud Provider
  - A Cloud Service Provider Introduced
- Cloud Computing Risks and Issues

## 2) Who's Who in Today's Cloud

- Cloud Computing Companies
- Products and Services Provided by Cloud Computing Companies

## 3) The Business Case for Going to the Cloud

- Benefits of Cloud Computing
  - Operational
  - Economic
  - Staffing
- Should Your Company Invest in Cloud Computing?
  - What Should Not be Moved to the Cloud

## 4) The Evolution of Cloud Computing

- Early Mainframe Environment
  - Virtualization in Mainframe Architectures and Operating Systems
- LANs and the Cloud
- Internet and the Cloud
- Web Services, Browsers, and the Cloud
- Thin Client
- Advances in Networking and Processing Speeds that Led to Cloud Computing
  - Networking Developments
  - Increased Processing Speeds

- Managed Service Provider Model to Cloud Computing and Software as a Service (SaaS)
  - Single Purpose Architectures Migrate to Multipurpose Architectures
  - Data Center Virtualization
- Collaboration
  - The Cloud as a Reach Extender
  - The Cloud as a Communication Enabler
  - The Cloud as an Employee Enabler

- Service-Oriented Architecture (SOA)
  - Evolving from SOA to the Cloud
  - Capacity: Limited Performance
  - Availability: Communications Failure and Performance Issues
  - Security: Newer Security Protocols Provide More Protection

- What's Next in Cloud Computing

## 5) End-User Access to Cloud Computing

- Cloud Access Methods Available to End Users
  - Citrix
  - Windows Remote Desktop
  - Vnc
  - Web Browsers
  - Server Extensions
  - Thin Clients
  - Smart Phones, Pads, Pods, etc.
- Virtual Terminal Security Strengths and Weaknesses
  - Strengths
  - Weaknesses

## 6) Building Cloud Networks

- Designing and Implementing a Data Center-Based Cloud
  - Using Industry and International Standards
  - Independent Components
  - Message Base
  - Location Independence
- Communication Requirements for Cloud Implementation
  - Public Internet
  - Private Internet
  - Routing to the Datacenter
  - Switching within the Data Center
  - Bandwidth



## Detailed course outline

- Tools Used to Measure Network Performance
  - Using the Protocol Analyzer to Measure Bandwidth
    - Using Ping and Traceroute to Measure Network Performance
- Security
  - SSL
  - VPN
  - Overhead
- Storage Options for Cloud Computing
  - Storage Capacity
    - Data Protection and Partitioning
    - NAS
    - SAN
    - CAS
    - Redundancy
      - Replication
      - Multisiting
    - Backup and Recovery
- Server Software Environments that Support Cloud Computing
  - Server Capacity
    - Virtualization
    - Clustering
    - Expansion
    - Server Functions
    - Application
    - Web
    - Database
- Vendor Approaches to Cloud Computing
- Role of Open Source Software in Data Center
  - Cost Reduction vs. Reliability
  - Open Source Server Software
  - Open Source Database Software
  - Open Source Applications Software
  - Open Source System Management Software
  - Open Source Load-Balancing Software

### 7) Virtualization

- Student Virtualization Architectures
  - The Hypervisor
  - Virtualization as the "Operating System"
  - Virtualization with a Host Operating System
- Virtualization Infections on Virtualized Environments
  - Type 1 Virtualized Environment
  - Type 2 Virtualized Environment

- Virtualization Environments
  - Microsoft Virtualization
  - Sun xVM VirtualBox
  - Linux/UNIX Virtualization
  - VMware Products
    - Data Center and Cloud Infrastructure Products
    - End-User and Desktop Products
  - IBM Virtualization
  - Using VMware to see a Virtualized Server Environment

### 8) Federation, Presence, Security, and Privacy in the Cloud

- Federation in the Cloud
  - What It Is
  - Permissive Federation
  - Verified Federation
  - Encrypted Federation
  - Trusted Federation
  - Using XMPP in the Federated Environment
- Presence in the Cloud
  - What It Is
  - Presence Protocols
  - Leveraging Presence
  - Presence Enabled
  - The Future of Presence
  - The Interrelation of Identity, Presence, and Location in the Cloud
- Identity Management
  - What It Is
  - Future of Identity in the Cloud
- Privacy and Its Relation to Cloud-Based Information Systems
  - Personal Information
  - Privacy-Related Issues
  - Finding Your Private Information

### 9) Cloud Computing Standards and Best Practices

- Open Cloud Consortium
  - What It Is
  - Open Cloud Consortium Working Groups
    - Project Matsu
    - Project Comet
    - HPC in the Cloud
    - The Open Cloud Testbed
    - The Open Science Data Cloud
    - Intercloud Testbed



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- Reporting on an Open Cloud Consortium Working Group
- Distributed Management Task Force (DMTF)
  - What It Is?
  - DMTK Working Groups Associated with Cloud Computing
- Standards for Application Developers
  - Protocols
  - Scripting Languages
  - Content Formatting Standards and Languages
- Standards for Security in the Cloud
  - Confidentiality, Integrity, Availability
  - Authentication, Authorization, Accountability
  - Regulations for Privacy
  - Security Protocols
- Establishing a Baseline for Cloud Performance
- Best Practices for Selecting a Vendor and Implementing Cloud-Based Applications
  - Choosing the Right Vendor
  - Implementing Cloud-Based Applications

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CC100s a.05 (Jan 2013)

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