



CLOUD COMPUTING

Application Platform of the Future

Cloud computing is transforming the role of Information Technology. System provisioning changes from an extended, manual, and error-prone environment to a fully automated process. This enables companies to respond more rapidly to changing business conditions and reduce IT operations costs. HyperStratus is the expert in cloud computing.

HyperStratus Cloud Computing Workshops

Cloud Fundamentals, Deployment, and Application Architecture

We wanted a vendor-neutral cloud computing workshop that explores the profound infrastructure and application implications of this new computing platform. The HyperStratus workshop delivered that -- and more. It addresses cloud concepts and realities and every student leaves with a strong foundation in cloud computing. Warning -- do not take this workshop if you want a passive lecture-style format: it is highly interactive, engaging, and fun. I highly recommend the course to anyone that wants to ensure his or her company is heading in the right direction with respect to cloud computing.

Richard Penn, Chair, Wipro Cloud Computing Center of Excellence

“I took the HyperStratus Cloud Computing Workshop -- it exceeded my expectations. HyperStratus is well ahead of others players in cloud computing. What I learned about application architecture, dynamic resource allocation, and system management is directly relevant to our cloud computing initiative and is extremely valuable in making it more successful.”

Sreenivas Yalamanchili, Manager, Hosting, Digital Marketing Services, Unilever US



HyperStratus
Virtualization, Cloud Computing ... and more

The HyperStratus Cloud Computing Workshops are three modules that may be taken individually or in combination. Each of the workshops provides complete coverage of one aspect of cloud computing and may be taken on a stand-alone basis; however, the three workshops are designed to integrate and provide continuity of material, so that they may be taken in combination to achieve an complete perspective of the important dimensions of cloud computing. For companies that prefer on-site delivery, the content of the workshops can be adjusted to address topics the attendees wish to pursue in greater depth.

The workshops cover these topics:

Workshop One Cloud Fundamentals

A definition of cloud computing and why it's important to the future of IT. Key benefits of cloud computing along with challenges of using cloud computing. Creating a cloud computing action plan.

Workshop Two Cloud Deployment Options

Understanding the different deployment scenarios available to cloud computing. How to decide whether an internal private cloud or a public cloud is right for you. How to address issues commonly raised about cloud computing, including security and data privacy.

Workshop Three Cloud Application Architecture

How to achieve cloud application scalability and dynamic application sizing. What tools and techniques are available for application monitoring and management. Managing data storage and persistence and ensuring data security.

"I had the privilege of attending HyperStratus' 4 day course on cloud computing. It was extremely thorough, covering the pros and cons of many of the leading offerings such Amazon, RackSpace, Terremark etc., best practices for architecting cloud applications, hands-on training on deployment, and much more."

Nenshad Bardoliwalla, CTO and Cofounder, Proferi, former VP Technology, SAP

Workshop One

Cloud Fundamentals

This workshop provides attendees with a complete overview of the subject of cloud computing. Assuming no pre-existing knowledge of cloud computing, this workshop discusses the key concepts of cloud computing and helps attendees plan for their cloud computing future. Common objections and challenges regarding cloud computing are addressed to ensure that attendees are prepared for cloud computing success.

Workshop Overview

Attendees to this workshop will learn cloud fundamentals as well as explore how to apply cloud computing to their applications and infrastructures.

Topics covered include:

- ✓ Key cloud computing characteristics
- ✓ Cloud computing architectures and impact on application design
- ✓ Common concerns about cloud computing and how to address them
- ✓ How cloud computing requires breaking down the silos of IT organizations to create an integrated compute infrastructure
- ✓ Creating a cloud computing action plan

Who Should Attend:

- ▶ Senior IT managers assessing the potential for leveraging cloud computing
- ▶ System architects designing systems incorporating cloud computing
- ▶ IT operations managers responsible for infrastructure services
- ▶ Application developers considering cloud computing options for future projects



Workshop One Cloud Fundamentals

AGENDA

8:30 Introduction and Workshop Overview

- 8:45 Cloud Computing: An Introduction
- Key Concepts
 - Benefits of Cloud Computing
 - Leading Cloud Computing Providers: Offerings and Architectures
 - When Cloud Computing Isn't a Good Fit

10:00 ----- B R E A K

- 10:30 Cloud Computing Requirements and Challenges
- Application Design
 - System Management
 - Storage
 - Security
 - Maintaining IT Control
 - Financial Assessment of Cloud Computing

12:00 ----- L U N C H

- 1:00 Moving to Cloud Computing
- Developing Employee Skills
 - Integrating Cloud Principles into System Architecture, Design, and Implementation
 - Migrating Existing Applications
 - Finding Service Providers

2:00 ----- B R E A K

- 2:30 Exploring Cloud Computing Opportunities
- Typical First Projects
 - Developing an Initial Project Plan
 - Project Management
 - Assessing Pros and Cons of Initial Projects

3:30 Wrapup and Next Steps



Workshop Two

Cloud Deployment Options

This workshop helps attendees understand the different cloud deployment options: private, public, hybrid. Attendees will leave the workshop with a good understanding of how to implement their cloud computing initiatives. Particular attention is paid to discussing the implications of the different deployment options and what steps are necessary for IT organizations to implement each. The benefits and risks of each option are also examined.

Workshop Overview

Attendees to this workshop will learn the key characteristics of the different cloud computing deployment options along with each option's benefits and challenges. Each deployment option requires IT organizations to adjust current working processes along with established technologies; the workshop will review what steps are necessary to move to each cloud deployment option.

Topics covered include:

- ✓ Key characteristics of private, public, and hybrid clouds
- ✓ Important standards affecting cloud computing deployment choices
- ✓ Integrating cloud computing into existing infrastructure and processes
- ✓ How to decide which cloud deployment option is right for your organization
- ✓ Evaluating costs of private versus public cloud deployments

Who Should Attend:

- ▶ Senior IT managers evaluating how to move forward with cloud computing
- ▶ System architects designing infrastructures incorporating cloud computing
- ▶ IT operations managers assessing how to integrate cloud computing into existing infrastructures
- ▶ Application developers designing applications for cloud deployment



Workshop Two Cloud Deployment Options

A G E N D A

8:30	Introduction and Workshop Overview
8:45	Cloud Computing: Private, Public, Hybrid <ul style="list-style-type: none">• Key Concepts• Critical Differences Among Deployment Options• Evaluation Criteria to Decide Which Deployment Option is Appropriate• Financial Commitments for Each Option• How to Decide Which Options are Wrong for You
10:00	----- B R E A K
10:30	Creating a Private Cloud <ul style="list-style-type: none">• Understanding Key Private Cloud Requirements• Gap Analysis of Existing Infrastructure and Processes• Migration Process to Private Cloud Computing• Technology and Vendor Options• Key Challenges in Creating a Private Cloud
12:00	----- L U N C H
1:00	Using a Public Cloud Environment <ul style="list-style-type: none">• Technology and Vendor Options• System Management Options• Public Cloud Risks and Benefits
2:30	----- B R E A K
3:00	Leveraging a Private/Public Hybrid Cloud Infrastructure <ul style="list-style-type: none">• Technology and Vendor Options• Key Standards to Bridge Private and Public Clouds• What Applications are Most Appropriate for this Option?
4:00	Wrapup, Questions, and Next Steps



Workshop Three

Cloud Application Architecture

This workshop helps attendees understand the rapidly developing world of cloud computing. It provides a hands-on workshop illustrating the concepts and practical actions associated with deployment and development of a traditional LAMPP (Linux, Apache, MySQL, Perl/PHP, Python) application on Amazon Web Services Elastic Compute Cloud (AWS EC2).

While the term “cloud computing” is widely known, its characteristics, architectural constraints, and details of application life cycle are less widely understood. The HyperStratus Cloud Computing Architecture Workshop clears the fog regarding cloud computing and enables organization technologists to clearly grasp the potential of cloud computing for their future IT initiatives and the impact it may have on their application life cycle management.

Workshop Overview

Attendees to this workshop will learn how to implement and scale cloud-based applications. Amazon Web Services is used as the workshop deployment environment, though the principles and exercises are germane to all cloud environments. The workshop will examine general AWS EC2 cloud use as well as explore how to apply cloud computing to attendee applications and infrastructures. As a case study, details in porting a typical LAMPP (XAMPP) based application to the cloud will be studied and general cloud issues and best practices will be highlighted.

Topics covered include:

- ✓ Cloud computing architectures and impact on application design
- ✓ Managing EC2 cloud infrastructures
- ✓ Ensuring data privacy, storage persistence, and reliable DBMS backup
- ✓ Ensuring robustness and scalability on demand
- ✓ Creating a cloud application system development life cycle (SDLC)



Workshop Three

Cloud Application Architecture

contd...

Who Should Attend:

- ▶ Hands-on IT managers and those assessing the potential for cloud computing in their organization
- ▶ System architects designing cloud computing-based systems
- ▶ IT operations engineers responsible for infrastructure services
- ▶ Application engineers responsible for deploying or managing cloud applications

Requirements:

The only mandatory requirement is a notebook with Wi-Fi connectivity and familiarity with a text editor like vi, emacs, or TextEdit. All system and application components for the workshop will be provided. No application programming or shell script programming skills will be required since all scripts are provided along with detailed instructions on how to customize them and the corresponding application configuration files. However it would be beneficial (though not essential) if the student had basic familiarity or prior experience with:

- ▶ Basics of Linux startup/shutdown sequences
- ▶ ssh
- ▶ Apache startup/shutdown and configuration
- ▶ MySQL startup/shutdown and configuration



Workshop Three Cloud Application Architecture

A G E N D A

DAY 1

9:00 Introductions and Workshop Setup

9:15 Cloud Architecture Overview
Amazon Web Services Concepts and Key Features

- Introduction to Cloud Architecture
- Fundamental AWS Concepts
- AWS Limitations & Constraints
- How to Decide Which Options are Wrong for You

10:45 ----- B R E A K

11:00 Hands-on: Creating an Amazon EC2 Instance

- AWS Account Setup
- SSH Security Keys, AMI Certificates
- AMI Selection (initial EC2 image)
- EC2 Instance Startup, Modification (Apache home page)
- Creating Custom AMI (saving system modifications)

12:00 ----- L U N C H

1:00 Hands-on: Deploying a Single Instance LAMPP Application

- Register Custom AMI and test
- Review of traditional LAMPP vs. XAMPP
- Deploying All-In-One LAMPP (XAMPP) Application on AWS

2:15 ----- B R E A K

2:30 Hands-on: Managing Applications with Cloud Management Systems

- Introduction to Cloud Management System architectures
- Managing Production Gold Masters in S3
- Automating EC2 instance provisioning & configurations
- Cloud Resource Management & Monitoring

3:30 Day-1 Wrap-up, Next Steps, Q&A



Workshop Three Cloud Application Architecture

A G E N D A

DAY 2

9:00 Introductions and Workshop Setup

9:15 Designing Complex Cloud Applications

- Design considerations
- Best Practices

10:30 ----- B R E A K

10:45 Hands-on: Scalable Application Design and Deployment

- Scalable AWS Architectures
- Dynamic DNS
- Load Balancers: HAProxy vs. AWS Elastic Load Balancing
- System Metrics – collectd vs. AWS Cloud Watch
- Auto-Scaling Events

12:00 ----- L U N C H

1:00 AWS System Development Life Cycle

- SDLC User Types: Developers, QA & Test, Administrators
- AWS Developer Tools for PHP, Java
- Code and Script Management
- Cloud Development collaboration tools and mechanisms

2:15 ----- B R E A K

2:30 Hands-on: Building Scalable Applications With Asynchronous Architectures

- Message Queues
- Service Clusters
- Reliable logging & persistence of Application States
- Asynchronous Error Handling
- Message and Data Security
- Cloud Resource Management & Monitoring

3:30 Day-2 Wrap-up, Next Steps, Q&A





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About HyperStratus

HyperStratus is a leading Silicon Valley-based consultancy specializing in virtualization and cloud computing technologies. Founded by experts in software and infrastructure architectures, HyperStratus works with organizations to help them move to next-Sun Microsystems, the Silicon Valley Education Foundation, and Red Hat to assist them in their virtualization and cloud computing initiatives. For more information, please see www.hyperstratus.com.

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