

<b>CSV T 2008</b>	<b>Cloud Deployment Models</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
		2	0	0	2
<b>Pre-requisites/Exposure</b>	Cloud Computing Architecture				
<b>Co-requisites</b>	Basic Networking concepts				

### Course Objectives

1. Evaluate different cloud deployment models.
2. Analyze suitability of various cloud deployment models for specific business requirements.

### Course Outcomes

On completion of this course, the students will be able to

- CO1. Discuss the current trends and the future of cloud technologies.
- CO2. Summarize the concept of different cloud deployment models.
- CO3. Explore private cloud through OpenStack logical architecture.
- CO4. Analyse public cloud through Amazon Web Services.

### Catalog Description

This course covers topics and technologies related to Cloud Computing deployment models. It explores current trends and upcoming technologies in cloud computing. It discusses deployment needs for public, private and hybrid clouds as per business requirements. Based on the learnings, students can build skills to configure and use OpenStack and AWS based cloud implementations.

### Course Content

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#### Unit I: Industry Trends and the Future of Cloud Computing

**5 lecture hours**

Analysis of industry trends, Evolution from IaaS to PaaS applications, Convergence of IaaS and SaaS providers, Trends leading from private to hybrid clouds, The future of cloud computing: – Hybrid clouds and cloud brokering, – Application transformation: fully multithreaded, multi-provider, dynamically scalable applications, Self-service administration: consolidated application control panels, Software-defined networking, Software-defined data center, Big Data and analytics, The Internet of Things.

## **Unit II: Considerations for Moving to the Cloud & Cloud Deployment**

**4 lecture hours**

How does cloud computing work? Dynamic cloud with service composition and patterns, composable business, Migration to cloud: It is all about workloads, Virtualization of servers, network, and storage, The relentless pursuit of automation, Adding customer visibility and transparency into cloud operations, monitoring, and reports. Accessing cloud services, Data sovereignty and on-shore support operations, New backup and recovery techniques, Cloud operational changes in an Information Technology Infrastructure Library model (ITIL). Operational transformation best practices. Migrating applications to cloud, 5 key success factors for cloud implementation, Consume-versus-build decision, building your own cloud—lessons learned, including architecture examples and guidance, managing scope, releases, and customer expectations, Redundancy, continuity, and disaster recovery, Using existing operational staff during deployment, Cloud Deployment best practices.

## **Unit III: Private Deployment Models**

**4 lecture hours**

What is a Private Cloud? Illustration of Private Cloud, Advantages of Private Cloud, Limitations of Private Cloud, Service Management, Journey into Private Cloud, Planning and Strategy, Standardization, Virtualization, Automation, Cloud, Case study – VMware vCloud, Case Study – IBM SmartCloud Entry, Private cloud.

## **Unit IV: Public Cloud Deployment Models**

**5 lecture hours**

What is a Public Cloud?, Illustration of Public Cloud, Why Public Cloud, Advantages of Public Cloud, Limitations of Public Cloud, Low degree of security and control, Lack of control on infrastructure, configuration, Network latency and accessibility concerns, Highest long term cost, Public v/s Private, Journey into Public Cloud, Revisit the idea of adopting public cloud, Cloud vendor selection, Migrating to Cloud, Cloud vendor selection, SLA – Service Level Agreements, Credits/Compensation terms, Credit process, Disaster recovery plan, Exclusions, Security and Privacy, Periodic upgrade and maintenance, Data location and Jurisdiction, Pricing and Measurability, Interoperability and Lock-in, Exit process/Termination policies, Proven track record, Public cloud vendors, Case studies.

## **Unit V: Hybrid Cloud Deployment Models**

**3 lecture hours**

What is a Hybrid Cloud? Why Hybrid Cloud, Illustration of Hybrid Cloud, Advantages of Hybrid Cloud, Challenges of Hybrid Cloud, Develop and manage hybrid workloads, Developing applications for hybrid cloud, Develop applications using PaaS, Managing hybrid workloads, Journey into Hybrid Cloud, Step 1: Assess current IT infrastructure and business, Step 2: Explore cloud computing, Step 3: Create cloud deployment strategy plan, Step 4: hybrid cloud implementation.

**Unit VI: Cloud Open Standards and IBM Cloud Offerings****3 lecture hours**

OpenStack Introduction, -OpenStack Architecture, IBM SoftLayer, IBM Bluemix -Benefits of IBM Bluemix, -More Bluemix features, -Bluemix architecture. IBM Cloud marketplace.

**Textbooks**

1. Cloud Computing Deployment Model (IBM ICE Publication)

**Reference Books**

1. Cloud Computing: Principles and Paradigms, Editors: Rajkumar Buyya, James Broberg, Andrzej M. Goscinski, Wile, 2011
2. Enterprise Cloud Computing Technology Architecture Applications, Gautam Shroff, Cambridge.
3. OpenStack Essentials, Dan Radez, PackIT publication.

**Modes of Evaluation: Quiz/Assignment/ presentation/ extempore/ Written Examination**

**Examination Scheme:**

Components	Internal	Mid Term	ESE	Total
Weightage (%)	30%	20%	50%	100%

**Relationship between the Course Outcomes (COs), Program Outcomes (POs) and Program Specific Outcomes (PSOs)**

Course Title	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1				2							1	1	1	3
CO2	1				2							1	1	1	3
CO3	1				2							1	1	1	3
CO4	1				2							1	1	1	3
Average	1				2							1	1	1	3

1=weak

2= moderate

3=strong