35271- CLOUD COMPUTING

DETAILED SYLLABUS

UNIT I CLOUD COMPUTING BASICS

1.1 Cloud computing overview – Origins of Cloud computing – Cloud components - Essential characteristics – on-demand self-service, Broad network access, Location independent resource pooling, Rapid elasticity, measured service

1.2 Architectural influences – High-performance computing, utility and enterprise grid computing, Autonomic computing, Service consolidation, Horizontal scaling Web services, High scalability architecture.

1.3 Cloud scenarios– Benefits - scalability, simplicity, vendors, security. Limitations – Sensitive information, Application development – Security concerns -privacy concern with a third party, security level of third party, security benefits. Regularity issues – Government policies

UNIT II CLOUD COMPUTING ARCHITECTURE & SERVICES

2.1 Cloud architecture: Cloud delivery model – SPI framework, SPI evolution, SPI vs. traditional IT Model.

2.2 Software as a Service (SaaS): SaaS service providers – Web Services – Web 2.0 – Web Operating system -Google App Engine, Salesforce.com and google platform – benefits – Operational benefits, Economic benefits – Evaluating SaaS

2.3 Platform as a Service (PaaS): Cloud Plat form & Management – Computation & Storage - PaaS service providers – Right Scale – Salesforce.com – Rack space – Force.com – services and benefits.

2.4 Infrastructure as a Service (IaaS): IaaS service providers –Amazon EC2, GoGrid – Microsoft soft implementation and support – Amazon EC service level greement – recent developments – benefits.

2.5 Cloud deployment model: Public clouds – private clouds – community clouds – hybrid clouds - Advantages of Cloud computing.

UNIT III Virtualization

3.1 Virtualization: Virtualization and cloud computing - Need of virtualization – cost, administration, fast deployment, reduce infrastructure cost – limitations.

3.2 Types of hardware virtualization: Full virtualization - partial virtualization – para virtualization

3.3 Desktop virtualization – Software virtualization – Memory virtualization – storage virtualization – data virtualization – network virtualization.

3.4 Microsoft Implementation – Microsoft Hyper V – VMware features and infrastructure – Virtual Box - Thin client

UNIT IV STORAGE MANAGEMENT

4.1 Storage Network: Architecture of storage, analysis and planning. Storage network design considerations;

4.2 NAS and FC SANs, hybrid storage networking technologies (ISCSI, FCIP, FCoE), design for storage virtualization in cloud computing,

4.3 File systems or object storage.

UNIT V SECURITY IN THE CLOUD

5.1 Understanding Cloud Security - Securing the Cloud - Security service boundary: CSA Cloud Reference Model - Securing Data – Brokered cloud storage access - Storage location and tenancy – Encryption.

5.2 Cloud Computing Security Challenges - Security Policy Implementation – Policy Types - Virtualization Security Management - Virtual Threats.

TEXT BOOK

1. CLOUD SECURITY: A Comprehensive Guide to Secure Cloud Computing Ronald L. Krutz Russell Dean Vines Wiley Publishing, Inc
2. Cloud Computing A Practical Approach 2008 Edition Cloud Computing A Practical Approach Tata McGrawHill
3. Cloud Computing Bible Barrie Sosinsky Wiley Publishing, Inc