Year	Subject Title	Sem	Sub. Code
2018-19 Onwards	CLOUD COMPUTING	III	18MIT34C

UNIT-V: Cloud Mobility: Introduction – the business problem – mobile enterprise application platforms – mobile application architecture overview. **Cloud Governance**: Introduction – service level agreement and compliance – data privacy and protection risks – enterprise governance – risk management – third party management – information management. (Chap 10,11)

TEXT BOOK
1. Dr. Kumar Saurabh "Cloud Computing-Unleashing Next Gen Infrastructure to Application", 3rd Edition, Wiley India Pvt Ltd, 2014.

"Cloud Computing"   Prepared by **Dr.P.Sumathi**

Chap 10: Cloud Mobility

- Introduction
- The business problem
- Mobile enterprise application platforms
- Mobile application architecture overview

The Business Problem

- The 'Cloud' is basically a network of remote servers to store, manage and process data. **Cloud computing** is the methodology that provides on-demand shared data and processing resources to computers that are connected to the Internet. This way it enables ubiquitous access to a pool of configurable computing resources like storage, servers, networks and applications services.

- These resources can be furnished instantaneously by third-party data centers allowing users to process and store their information as per the demand. Essentially, Cloud computing eliminates or minimizes the need for expensive onsite hardware, software, and storage infrastructure. The only thing the users would need is a laptop or desktop that is connected to the Internet. The users would then be able to store and share files through the internet, which would be physically stored on servers that may be located in another country or even on another continent. However, these files stored in multiple places would offer added security and redundancy that would be impossible with traditional computing solutions.

- **Flexibility in Operations**

To save cost many small and medium-sized businesses usually function with fluctuating bandwidths. This can be difficult to manage, as wavering ramp-ups and scales-downs could deter performance and productivity. By embracing Cloud-computing, businesses can now acquire maximum operational flexibility, which not just saves cost but also maximizes productivity and performance.

- **Reduction in cost**

Cloud-based services are available on subscription-basis, which is ideal for businesses who have limited capital to spend upfront. The seamless setup and management capabilities of the vendors can help the small and medium-sized business to save heavily on hardware infrastructure and let the cash-flow be used on core business services.

- **Increase in Transparency**

Cloud-service providers assimilate the latest technology in various services like networking and applications. The resources are constantly upgraded with the most innovative features that can boost performance and maximize efficiency. Users can have instant access to enterprise-class technology and latest updates, which they can use to deliver cutting-edge solutions to their own clients.

- **Enhanced Risk Management**

Businesses utilizing Cloud-services are not just saved of the cost of procuring and installing the hardware infrastructure but are also freed from the regular hassle of maintenance. The servers and other vital resources are usually located off-shore and the service-providers employ high-tech methodologies to keep them up-to-date and up-to the mark. This also exempts the users from the travails of investing in disaster recovery. The robust security and top-notch recovery solutions deployed by service providers can always keep the business up and running, irrespective of the catastrophe's type and range.

Mobile Enterprise Application Platforms

- An enterprise application (EA) is a large software system platform designed to operate in a corporate environment such as business or government. EAs are complex, scalable, component-based, distributed and mission critical. EA software is a critical component of any computer-based information system.

- A mobile enterprise application platform (MEAP) is a development environment that provides tools and middleware to develop, test, deploy and manage corporate software running on mobile devices.

- A MEAP serves as both a development platform and a management tool for enterprise mobile apps, freeing developers of the task to create separate applications for different operating systems (OSes). This is particularly significant because organizations that support many different devices don't have to write code for each device's OS. With a centralized management platform, admins can assign user access to particular applications and allow applications to pull data from specific enterprise databases.

- **Pros and cons of MEAP**

Along with the benefits described above, a mobile enterprise application platform extends beyond fourth-generation language (4GL) tools for app development to use a graphical environment and dedicated script language. The tool makes business apps accessible to users from any location at any time. For ease of IT management, some MEAP products can run as a cloud service.

- **Mobile application architecture overview**

From the concept of MCC, the general architecture of MCC can be seen in Figure . In Figure , mobile devices are connected to the mobile networks via base stations (e.g., base transceiver station, access point, or satellite) that establish and control the connections (air links) and functional interfaces between the networks and mobile devices.

Mobile users' requests and information (e.g., ID and location) are transmitted to the central processors that are connected to servers providing mobile network services.

Here, mobile network operators can provide services to mobile users as authentication, authorization, and accounting based on the home agent and subscribers' data stored in databases. After that, the subscribers' requests are delivered to a cloud through the Internet.

Chapter 11: Cloud Governance

11.2 Service-Level Agreement and Compliance

11.3 Data Privacy and Protection Risks

11.4 Enterprise Governance

11.5 Risk Management

11.6 Third-Party Management

11.7 Information Management

11.2 Service-Level Agreement and Compliance

- Service-level agreements are made mutually between the parties on the basis of availability, support and uptime.

- Writing the terms and conditions is not the guarantee that the service provider will comply with all the requirements.

- The consumer's responsibility is to ensure it by putting pressure and conducting reviews and audits on the cloud service provider.

- There are a lot of advancements in the areas of security, risk, governance, certificates and regulations.

- Mobility is also strengthening the model with the help of new paradigms

Security Innovations

- Certificates and control
- Alerts

11.3 Data Privacy and Protection Risks

- Various Compliances enforce confidentially for citizen data to regulate data protection law within the boundaries of the union or state.

- Cloud uses shared resource pools.

- Open standards adoptions will give an option to the consumer to play with the multiple tools.

- No standard is a adopted by the current service provider.

11.4 Enterprise Governance

- All security stakeholders should be engaged while designing the service model.

- There should be agreements, rewards, and penalties attached with security obligations to enforce the service model with greater effects.

- There should be agreed goals between consumer, provider, or partners.

- The design of the structure, policies, and processes should be taken collaboratively between the consumer and service provider.

11.5 Risk Management

As part of a <u>risk management</u> exercise for cloud computing, it's important to rank the positive information security benefits from utilizing cloud infrastructure. Since the largest risks lie on public cloud fronts (unless mentioned otherwise), all references are only to public cloud infrastructure.

By its very nature, cloud computing setups have a huge setup in place, which typically comprises of hundreds (if not thousands) of servers running a wide variety of operating systems, virtualized platforms and databases. The network will utilize equipment with Gigabit transfer rates and high end security systems. The data centre is at least a tier 2+, if not a tier 3/4 setup.

11.6 Third-Party Management

Security awareness and preparation are getting more widespread. Corporate boards and C-suite executives are taking Third-Party Risk Management (TPRM) more seriously as they see what has happened to other enterprises in the not-so-distant past. I am speaking primarily of the top-level enterprises, but even smaller companies and less tech-oriented companies often have a hard time securing their infrastructure. If you are a widget supplier with a hundred employees, it's hard—maybe impossible—to dedicate a full-time resource to things like patching, firewalls, identity and access management, and intrusion detection and incident response. The money just isn't there.

11.7 Information Management

Data has great power. In every decision made, it generates evidence-based insights that can dramatically change the trajectory of business success, the condition of people's lives, and even the impact of geological events. And this transformational potential is further magnified when a network of data sources is consolidated, cleansed, and shared.

Such a perspective on data is inspiring organizations like Hakusan Corporation to give people something that money can't buy: peace of mind. The leading manufacturer of production facilities developed a smartphone app that measures the impact of earthquakes in buildings across Japan. By processing hundreds of thousands of data points as quickly as they are captured, the app helps building owners, contractors, and government officials understand the damage to a building's structural integrity accurately and immediately.