Multiple Virtual Storage (MVS)

Lesson 1: Introduction to OS Concepts and MVS

Lesson Objectives

- In this lesson, you will learn the following topics:
  - Basic concepts of OS
  - Need and importance of OS
  - Introduction to MVS

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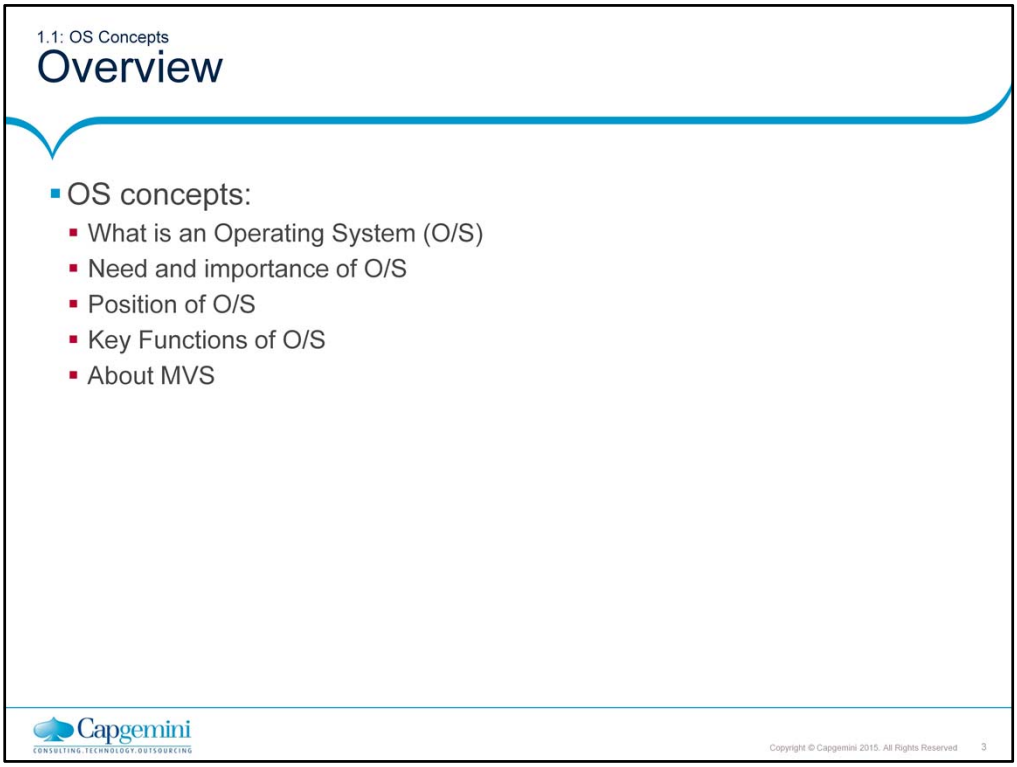
1.1: OS Concepts
Overview
OS concepts:
What is an Operating System (O/S)
Need and importance of O/S
Position of O/S
Key Functions of O/S
About MVS
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1.1: OS Concepts

What is Operating System?

- Operating system is basically a system software that controls the operation of a computer.
- A program that acts as an intermediary between a user of a computer and the computer hardware.
- Operating system goals:
  - Execute user programs and make solving user problems easier.
  - Make the computer system convenient to use.
- Use the computer hardware in an efficient manner.

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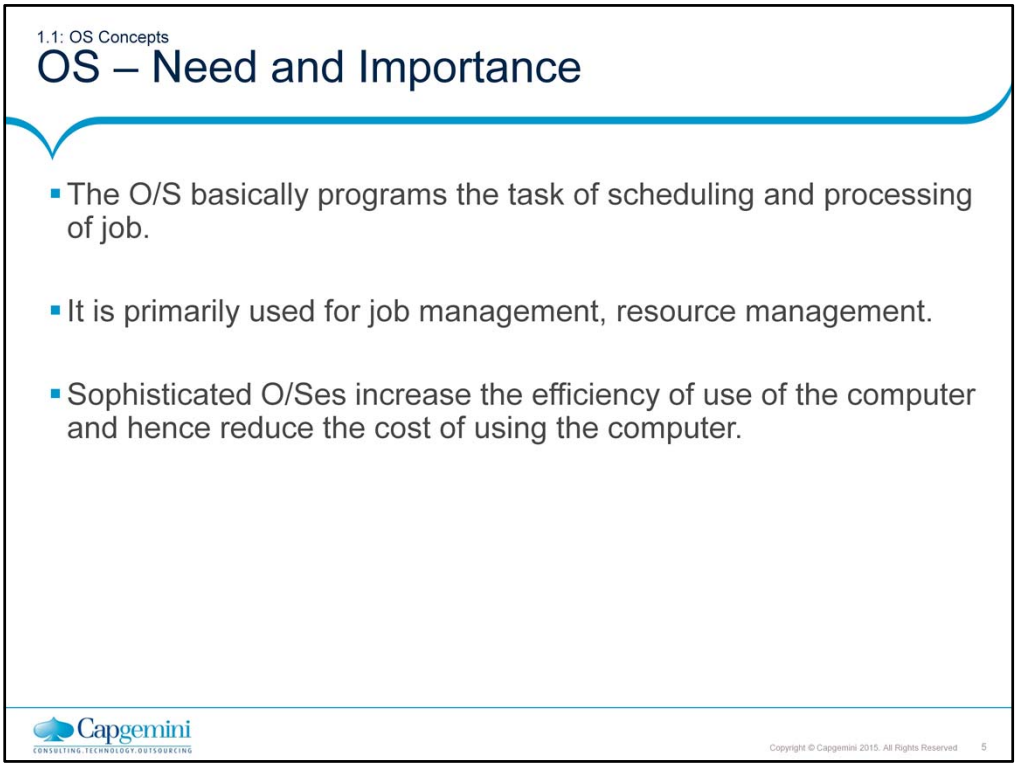
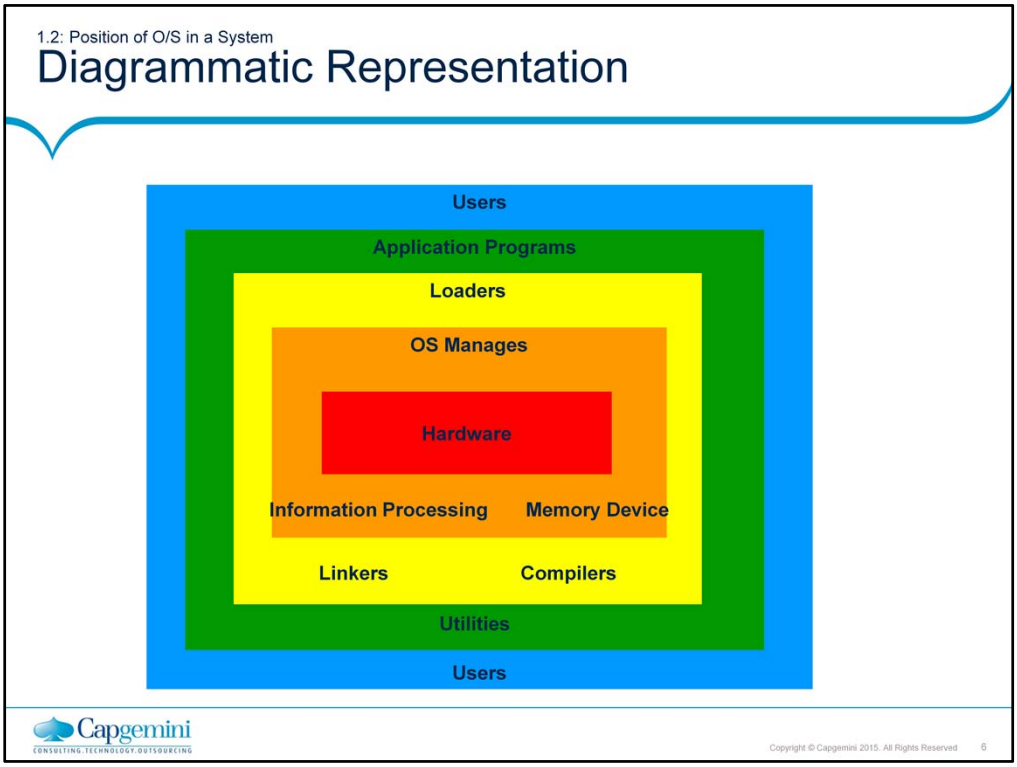
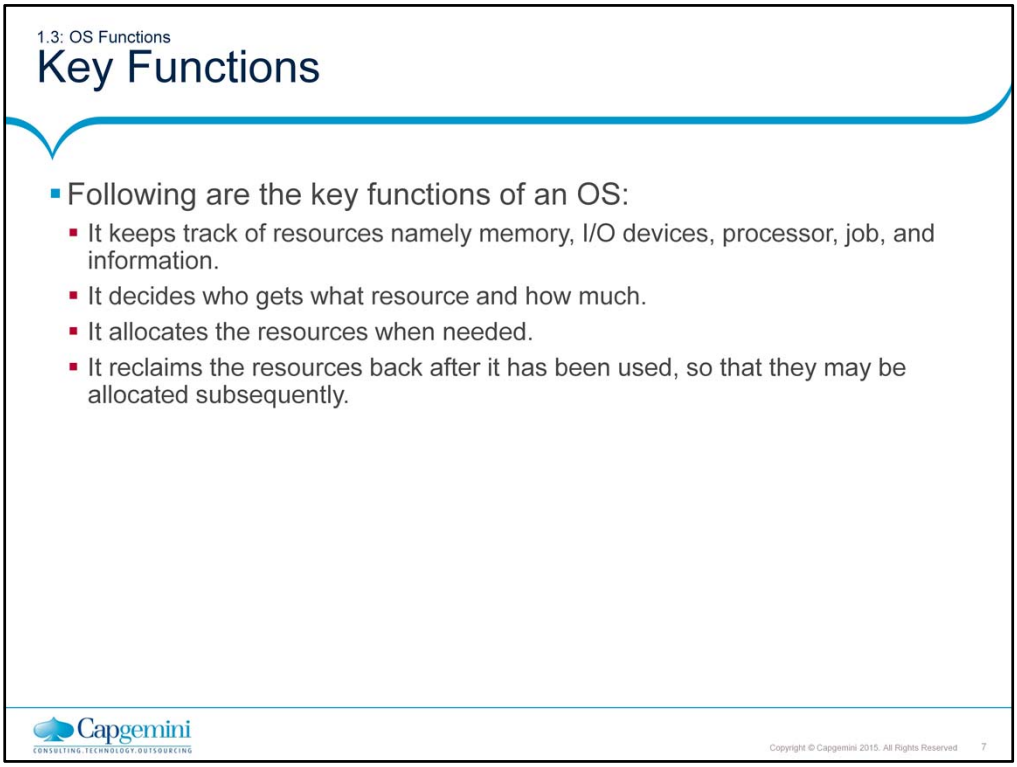


OS Concepts:
An operating system is a resource manager that manages all resources and decides between conflicting requests for efficient and fair resource use.
OS acts as a control program that controls execution of programs to prevent errors and improper use of the computer.



Components of OS:
An OS comprises of the following systems:
Hardware: It provides basic computing resources (CPU, memory, I/O devices).
Operating system: It manages, controls, and coordinates the use of the hardware among the various application programs for the various users using the system programs.
System Programs: It comprises the loader, linkers, and compilers used for handling the application programs.
Applications programs: They define the ways in which the system resources are used to solve the computing problems of the users (compilers, database systems, video games, business programs).
Users: They comprise people, machines, other computers.


1.3: OS Functions
Key Functions
Following are the key functions of an OS:
It keeps track of resources namely memory, I/O devices, processor, job, and information.
It decides who gets what resource and how much.
It allocates the resources when needed.
It reclaims the resources back after it has been used, so that they may be allocated subsequently.
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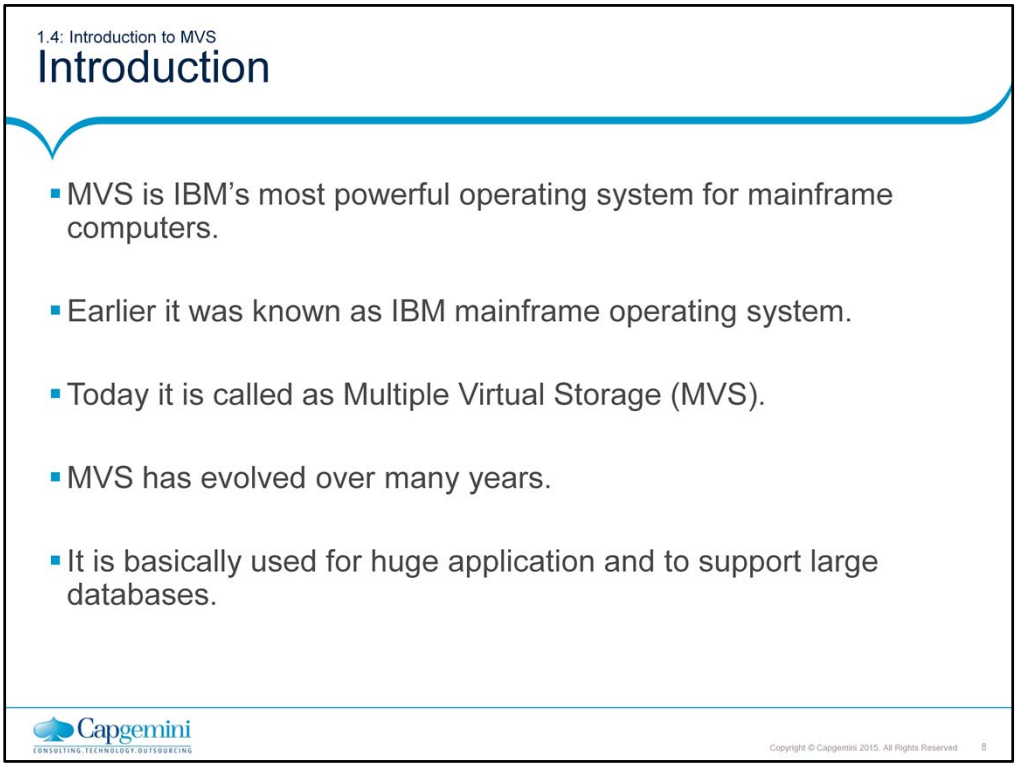
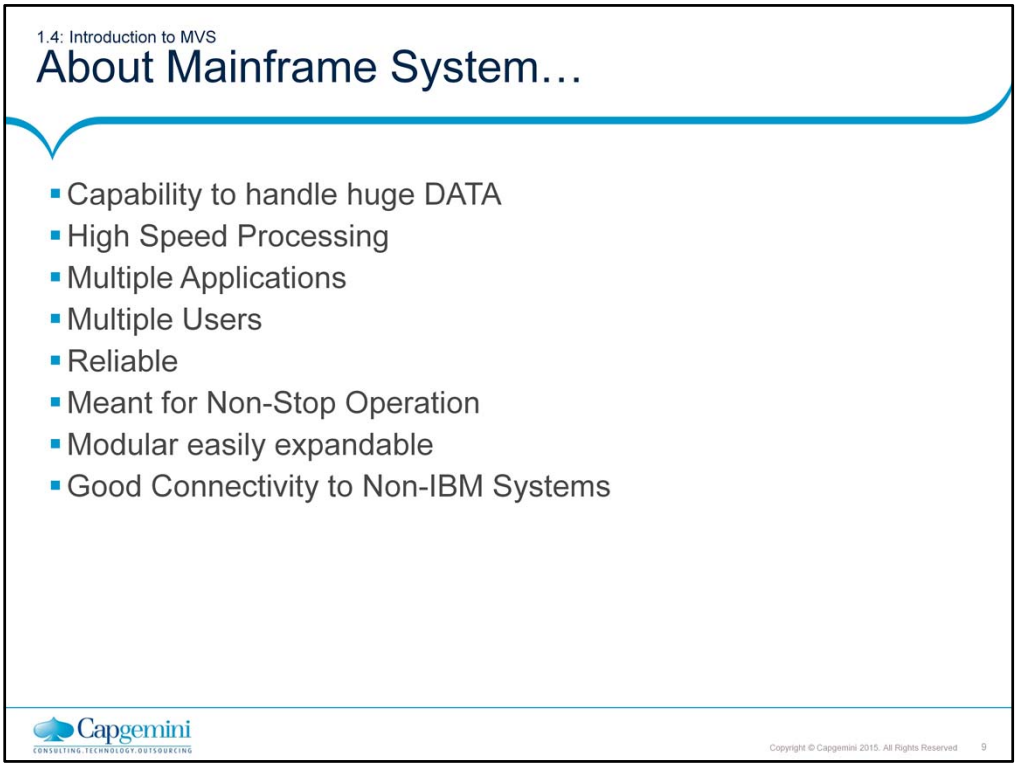


Introduction to MVS:
"Mainframe environment", which by default means "IBM Mainframe" for which you need to have a basic idea of the IBM mainframe operating system. Today, it is know as MVS, which expands to Multiple Virtual Storage. The MVS operating System was created by IBM and is said to be 'propriety' OS.
The MVS operating system has evolved over many years and has adapted to the changing technology and modern day requirements. It has the capacity to support a large number of peripherals like disks, tapes, printers, Network devices, and so on. MVS is designed to work with many hundreds of users working together, located in the same locality or across continents.
The applications on these "Legacy systems" are typically where there is a huge amount of data and a large user base. Since the user base of MVS is very large, a change is not easy to implement. Companies that own these mainframes are typically those that are very big inherently or have to deal with vast amounts of data, which has to be processed fast.
The costs of the Mainframes are very high and the customer base is mostly made up of long-term customers with huge application and large databases to support. Most of these applications are 'Mission Critical' applications. It is therefore imperative that any change to MVS also be backward compatible.
Examples: Banking sector, Insurance Sector, Newspapers, Material and Inventory, Airlines, Credit Card System, Billing, Accounting, Shipping and others.



Availability of the Mainframe is really very high hence used in applications where downtime would be costly or catastrophic. They support high-speed memory (Mainframes are measured in millions of integer operations per second (MIPS)). Mainframes deals with massive databases and files. Maximum reliable single-thread performance: Some processes, such as the merge phase of a sort/merge (sorting can be subdivided...) must be run single thread. Other operations (balancing b-trees, etc) are single thread and tend to lock out other accesses. Therefore, single thread performance is critical to reasonable operations against a database (especially when adding new rows).

Maximum I/O Connectivity: Mainframes excel at providing a convenient paradigm for huge disk farms; While SAN devices kind of weaken this to some degree, SAN devices mimic the model of the Mainframe in connectivity "tricks" (at least internally).

Maximum I/O Bandwidth: Despite the huge quantities of drives that may be attached to a mainframe, the drives are connected in such a way that there are very few choke-points in moving data to/from the actual processor complex

Summary

- In this lesson, you have learnt:
  - MVS is an OS used in IBM Mainframe Environment.
  - MVS is used for mission critical and business applications.
  - It is designed to work with hundreds of users working together, located in the same locality or across continents.
  - Operating System is an interface between the end user applications and the hardware.

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Review Question: Crossword

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Clues.
Across:
Type of memory used in MVS
4. OS executes programs are called as _____
5. Early it was called as _____ environment
7. M in MVS
9. One of the resource which OS manages

Below:
2. The proprietary company of MVS
3. Type of System program
6. One of MVS feature
7. OS for IBM
8. Printers, Disk are type of ____ devices