

## Management Platforms

- Management Platforms Overview
- Network Management Platforms
- Systems Management Platforms
- Examples of Management Platforms

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### Overview

- A management platform is a collection of technologies that help enterprises manage their IT assets (networks, computers, databases, applications, middleware, etc.).
- These platforms help in the management of
  - **FCAPS** (Fault, Configuration, Accounting, Performance, and Security)
  - All levels (from business processes to the network and computing hardware devices).
- Basic idea: manage IT assets in a manner similar to management of any other corporate resource such as capital and

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### Management Platform

FCAPS

- Fault management - detecting, diagnosing and recovering from faults
- Configuration management - defining, changing, monitoring, and controlling resources and data
- Accounting - recording usage of resources and generating billing information
- Performance analysis - monitoring current and long term performance of the system
- Security - ensuring only authorized access to system resources
- The first example of management platforms is the **network management platforms**
- Now evolving into application and computer platform management (e.g., IBM Tivoli, CA Unicenter)

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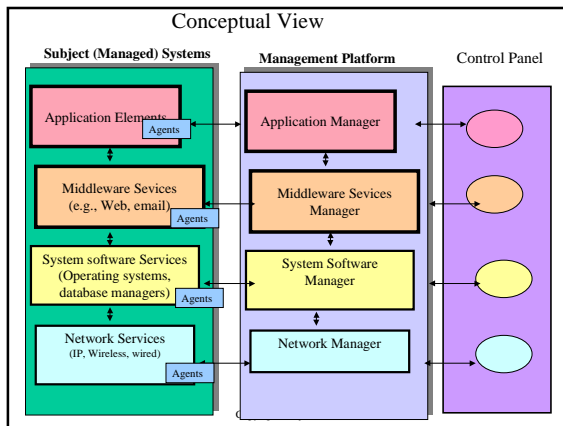
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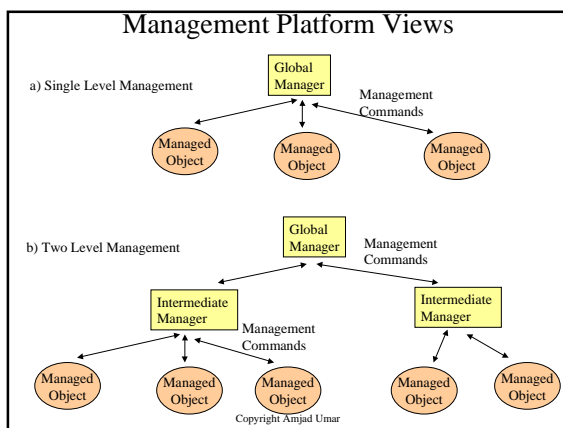
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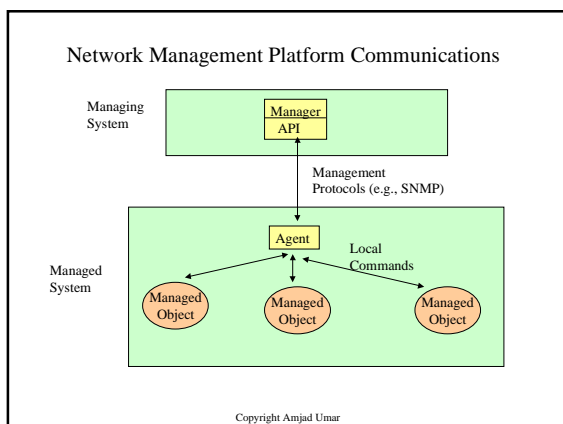
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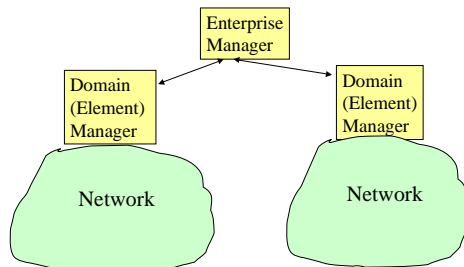
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## Enterprise Network Management High Level View



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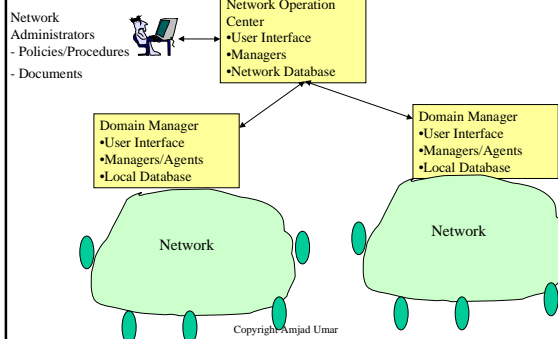
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## Enterprise Network Management



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## Network Management Protocols

- Developed especially for managers and agents to communicate with each other
- SNMP (simplified network management protocol) developed for TCP/IP networks
- CMIP/CMIP developed for OSI is more extensive and complicated
- SNMP is very popular at present
- Most network devices (e.g., Cisco routers are SNMP enabled)

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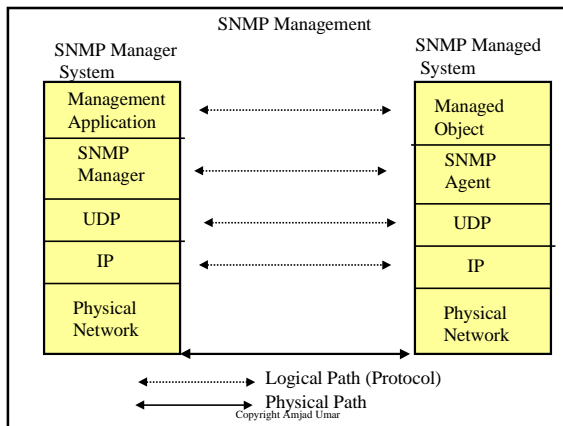
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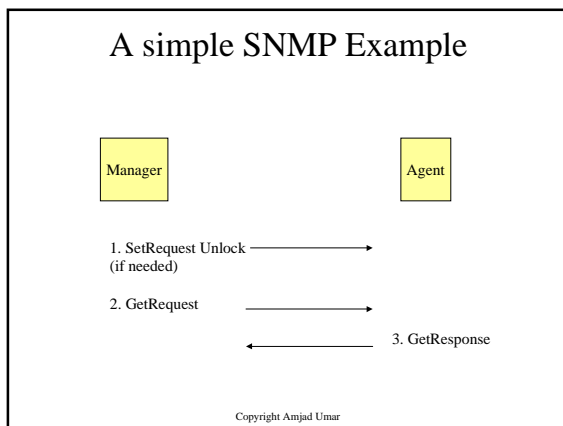
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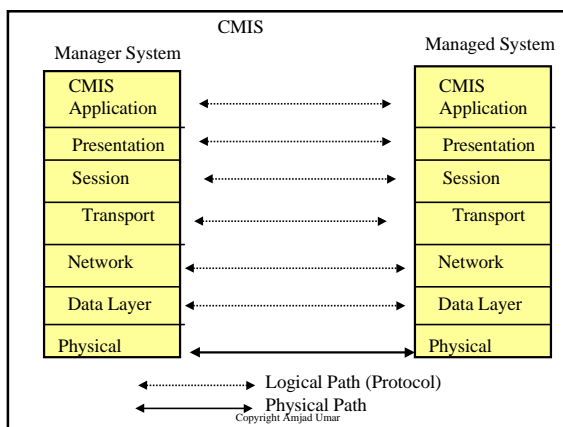
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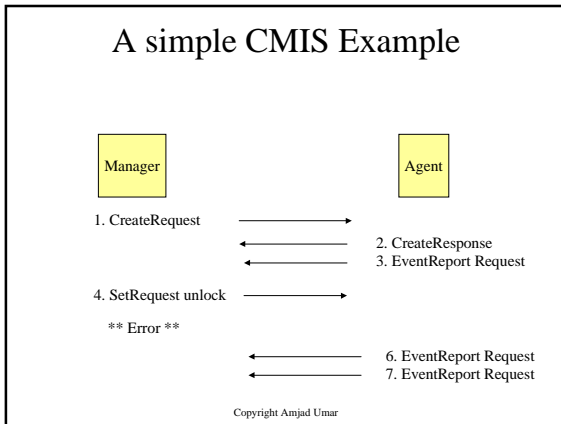
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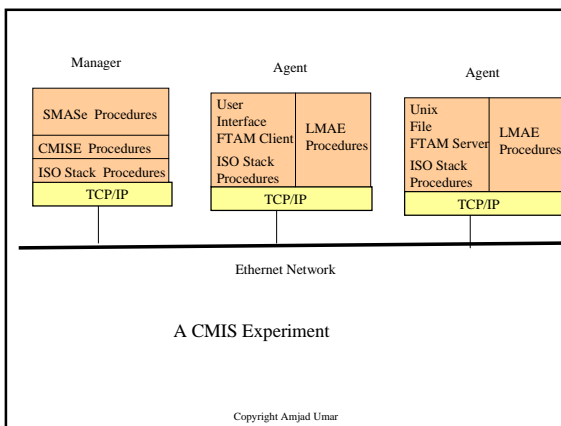
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### Enterprise Network Management

Concerned with management of all enterprise networks in an integrated fashion.

- Many LANs, MANs and WANs at different data rates interconnected in a variety of ways.
- The networks consist of voice and data communications systems.
- Between 1000 to 5000 (sometime much more) stations (microcomputers, minicomputers and mainframes) from different vendors running different operating systems, database managers & transaction managers.
- A mixture of wireless and wired LANs are prevalent, requiring different approaches to network management.
- Many distributed applications create unique traffic patterns and error conditions which are

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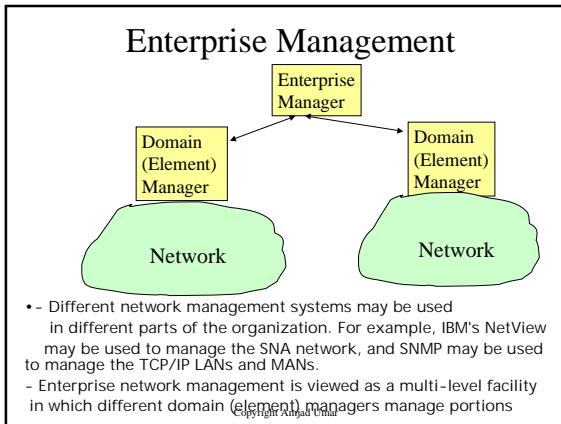
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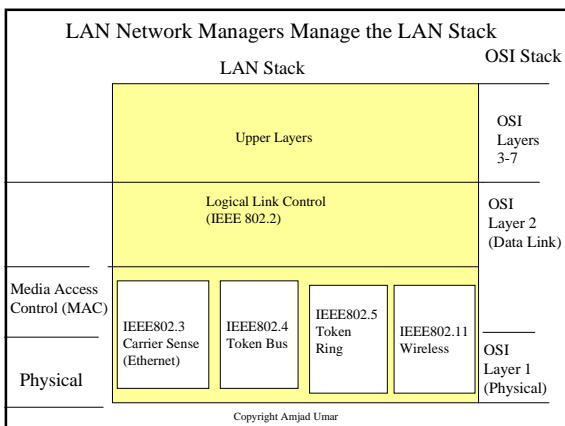
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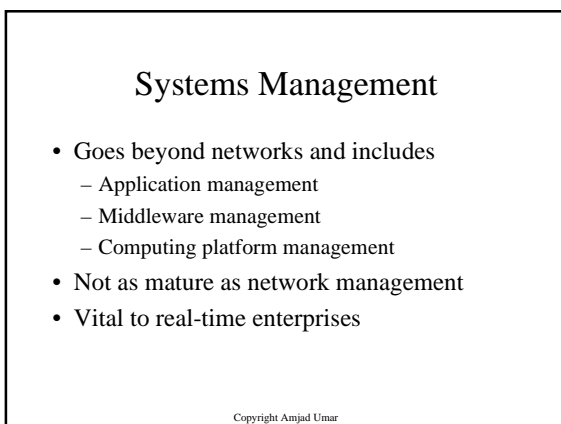
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## Why Application Management

- E-Business relies on proper functioning of the following applications:
  - Portals
  - CRM systems
  - Online Purchasing
  - eMarkets
  - ERPs
  - Supply Chain Management
  - Data Warehouses
  - Outsourcing
  - Mobile Applications and M-Commerce
- These applications must be properly monitored and controlled
- Failures and security leaks can be disastrous
- Vital to real-time enterprises

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## Enterprise (Distributed) Application Management

Manage FCAPS of distributed apps:

- Fault management - detecting, diagnosing and recovering from faults of applications
- Configuration management - defining, changing, monitoring, and controlling resources for applications
- Accounting - recording usage of resources and generating billing information for applications
- Performance analysis - monitoring current and long term performance of the system for applications
- Security - ensuring only authorized access to system resources for applications

Many difficult challenges

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Commercial platforms such as IBM Tivoli

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## Why Middleware Management?

- -Web servers crash or fail due to denial of service attacks -- Web servers not only contain web content but also are the middle tiers for many enterprise applications.
- -XML Document Translation Definitions (DTDs) used in sensitive XML-based message exchanges are corrupted so that all XML messages become invalid and fail
- -CORBA directory (CORBA Name Services) fails -- all CORBA applications using the CORBA directory services are affected
- -EAI (Enterprise Application Integrator) data translation and routing rules between telecommunications provisioning systems, inventory management systems, and billing/payment systems are modified by an intruder thus causing a major crisis that ripples across many industries.

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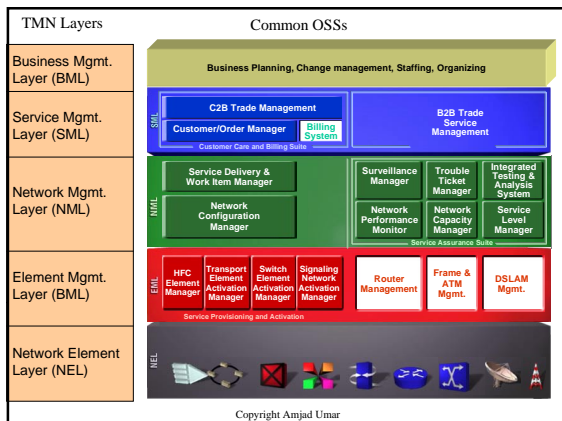
## Middleware Management of FCAPS

- Fault management - detecting, diagnosing and recovering from faults of middleware services
- Configuration management - defining, changing, monitoring, and controlling resources of middleware services
- Accounting - recording usage of resources and generating billing information of middleware services
- Performance analysis - monitoring current and long term performance of the system of middleware services
- Security - ensuring only authorized access to system resources of middleware services
- Many exposures at present
- A good area of research

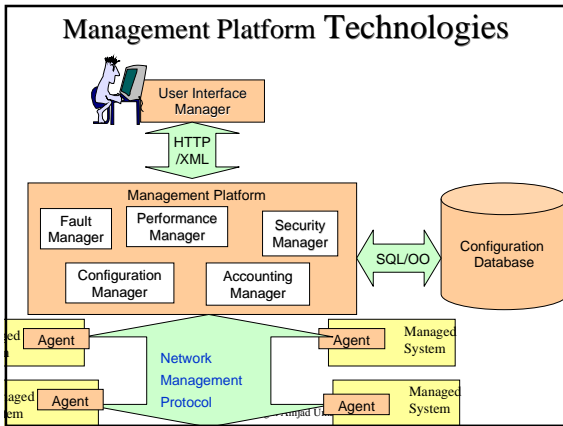
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## Example of Systems Management Platforms

- The telecom OSSs (Operation Support Systems) are an interesting example of systems management platforms.
- Telecommunication companies use OSSs (Operation Support Systems) to provide ("**provision**") and support ("**assure**") these services.
- **Operations Support System (OSS)** is a software system that manages the resources of a telecommunications enterprise from lowest layer (network elements) to the highest (business processes).
- OSSs are essentially the ERPs (enterprise resource planning) systems of the telecom industry
- An example of Telecom OSSs is the Telcordia Suite of OSSs ([www.telcordia.com](http://www.telcordia.com))








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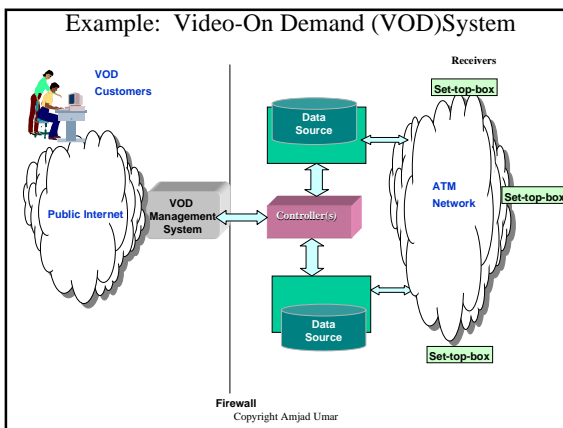
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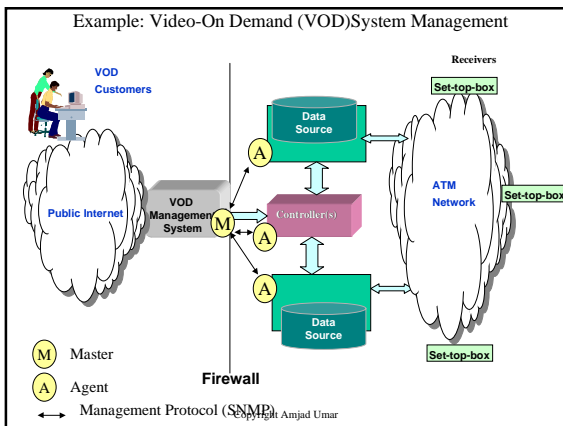
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