Uni Hamburg – Mainframe Summit
z/OS – The Mainframe Operating

Part 4 – z/OS Overview

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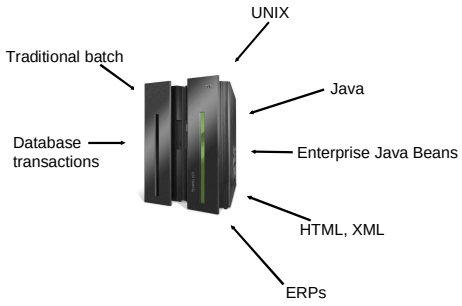
Unit objectives

After completing this unit, you should be able to identify the installation requirements for an enterprise server and how z/OS supports these requirements

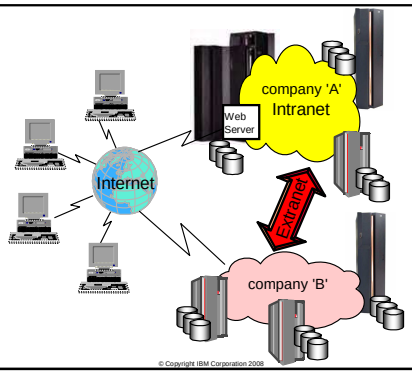
Requirements of an enterprise server

- ★Application support
- ★e-business support
- ★Connectivity
- ★Security
- ★Availability
- ★Systems management
- ★Scalability for growth

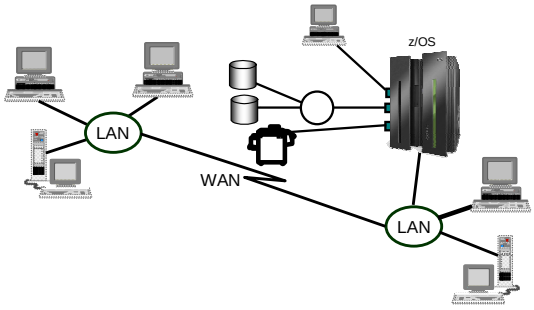
Applications support



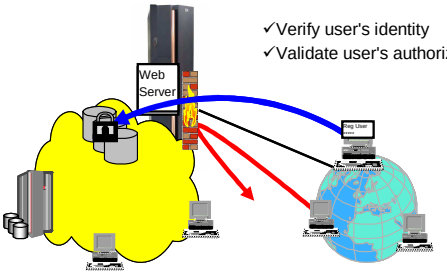
e-business support



Connectivity



Security



✓Verify user's identity
✓Validate user's authorization

Availability

Availability - for data and for System

- Availability features in Hardware:
  - Hot pluggable I/O
  - Memory sparing
  - ESCON sparing
  - Automatic Service Element switch
- Clustering:
  - Hot recovery for channel failure
  - System-managed coupling facility duplexing
- Capacity Upgrade on Demand:
  - CPU, I/O, and memory
- Capacity BackUp (CBU):
  - Nondisruptive emergency upgrades
  - Nondisruptive downgrade

Systems management

Central management point of control:
- ✓Define policies
- ✓Manage change
- ✓Monitor use of resources
- ✓Monitor problems


Systems

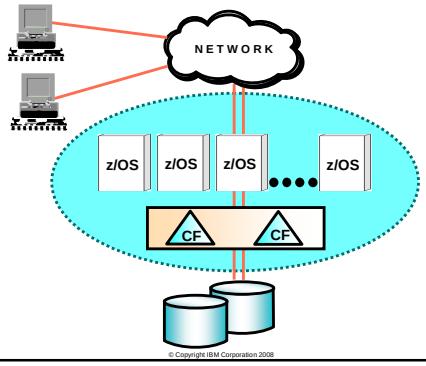

Networks


Databases

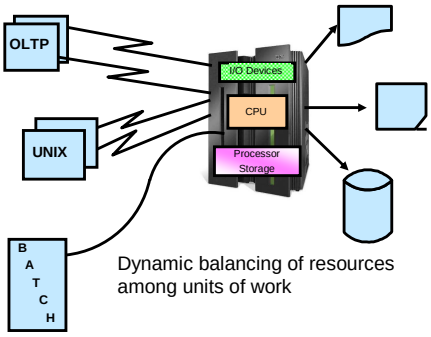

Applications


Internet

Scalability for growth



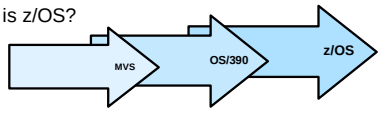
System services



Dynamic balancing of resources among units of work

z/OS - The mainframe operating system

What is z/OS?



- z/OS - The ultimate mainframe operating system:
  - A packaging of over 70 different functions:
    - Base operating system
    - Many industry exclusives:
      - Workload Manager, Parallel Sysplex
    - Key e-business Services:
      - Communications, security, print, distributed files
  - UNIX built right into the base
  - Exploiting the technologies of the z/Architecture of System z servers
  - 64-bit addressing support

z/OS – The ultimate zSeries OS

- Evolution:
  - 1964 – 2003…
  - OS/360 > MFT > MVT > SVS >OS/VS1 > OS/VS2 > MVS/370 > MVS/XA > MVS/ESA > OS/390 > z/OS
- Components (1/2)
  - Base control program
    - Job control for batch – Job Entry Subsystem (JES)
    - Interactive access – Time Sharing Option (TSO)
      - File control and editing via ISPF/PDF
    - Workload Manager (WLM) and performance management with RMF
  - Security
    - z/OS Security Server
      - Resource Access Control Facility (RACF)
    - Cryptographic services
    - PKI Services

z/OS basics

- Components (2/2)
  - Communications/networking
    - Communication Server for z/OS
    - Virtual Telecommunications Access Method (VTAM)
      - SNA networking support
    - TCP/IP for z/OS
      - Services including FTP, Telnet, NFS, etc.
  - Storage management
    - Data Facility Storage Management Subsystem (DFSMS)
    - Facilities for hierarchical storage management, sort, tape management, etc.
  - Unix System Services
    - Core APIs in the base operating system
    - Hierarchical File System
    - Unix shell

z/OS – IBM's flagship mainframe operating system providing the difference for on demand business

- z/OS – the mainframe operating system that delivers:
  - A highly available and secure base for integrating applications
  - Resources optimized to meet business priorities
  - Scalability for data and transaction growth
  - Robust and resilient networking
  - Business resiliency
- With new directions helping to:
  - Simplifying z/OS management
  - Extending z/OS to help manage your mixed environment

Defining characteristics of z/OS

- Uses address spaces to ensure isolation of private areas
- Ensures data integrity, regardless of how large the user population might be.
- Can process a large number of concurrent batch jobs, with automatic workload balancing
- Allows security to be incorporated into applications, resources, and user profiles.
- Allows multiple communications subsystems at the same time
- Provides extensive recovery, making unplanned system restarts very rare.
- Can manage mixed workloads
- Can manage large I/O configurations of 1000s of disk drives, automated tape libraries, large printers, networks of terminals, etc.
- Can be controlled from one or more operator terminals, or from application programming interfaces (APIs) that allow automation of routine operator functions.

Unit summary

Key points from this unit:

- z/OS offers a rich set of choices in the areas of application development and deployment.
- z/OS offers the functionality, performance, reliability, availability, and serviceability needed to support critical business applications like e-business.