IBM Systems Group

Websphere zOS Mettle Test 2003

Can Your Enterprise Server Do This?

eBU 2004, Las Vegas

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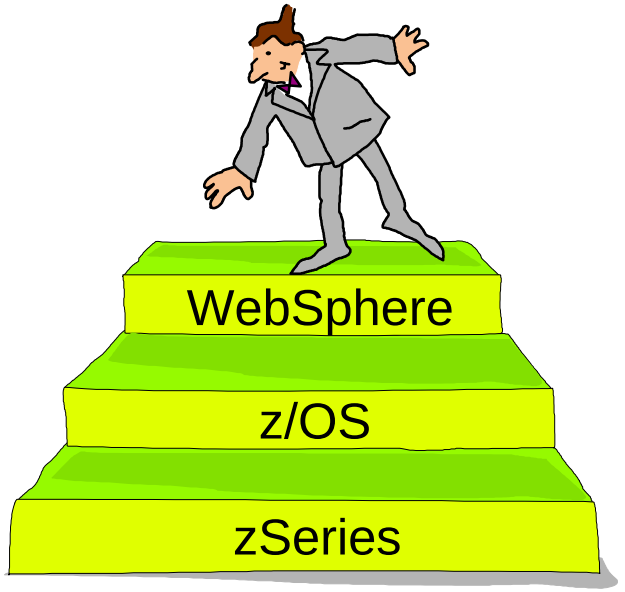

Introduction and Overview

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Agenda

- **Why the Mettle Test?**
- **Websphere zOS Runtime structure**
- **Configuration overview**
- **WebSphere, WLM and transaction priorities**
- **WebSphere and IRD**
- **View the gauges from the Mettle Test system**
- **Why run Websphere on zOS/zSeries?**

Why the Mettle Test ?

- **Industry Standard Benchmarks do not adequately reflect operational performance requirements**
  - Static loads
  - Unconstrained resources
  - Single application per operating system, single operating system per box
- **Benchmarks are not a good indicator of deployment configurations**
  - Benchmark at 100% - in production run at much less
  - Under utilized hot-standbys for failover, development, test systems, etc.
  - Operational footprint much larger than benchmarks would indicate needed
  - Price/performance calculations based on a single instance benchmark at 100% cpu utilization can be misleading
- **New application environments are leading to increasing volatility in loads on backend IT infrastructures**
  - Websphere Portal - view of entire enterprise
  - Websphere Business Integrator
    - **J2EE connectors to ERPs, Collaboration, Decision Support, Legacy systems**
    - **Workflow - orchestrated sequences of transactions to multiple back-end applications**
    - **Webservices - enterprise to enterprise, application to application interaction**
- **Is your IT infrastructure ready to handle this??**

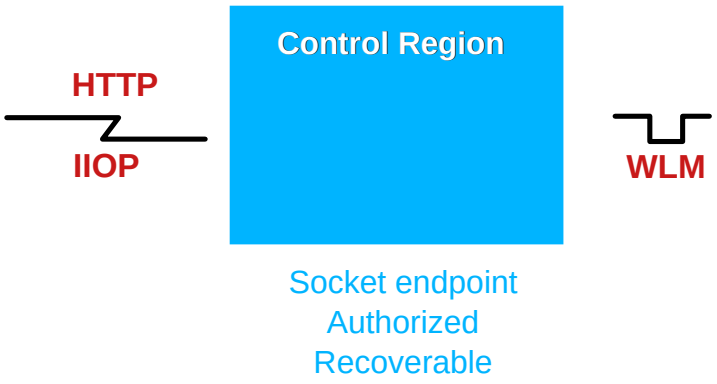
What is the Mettle Test ?

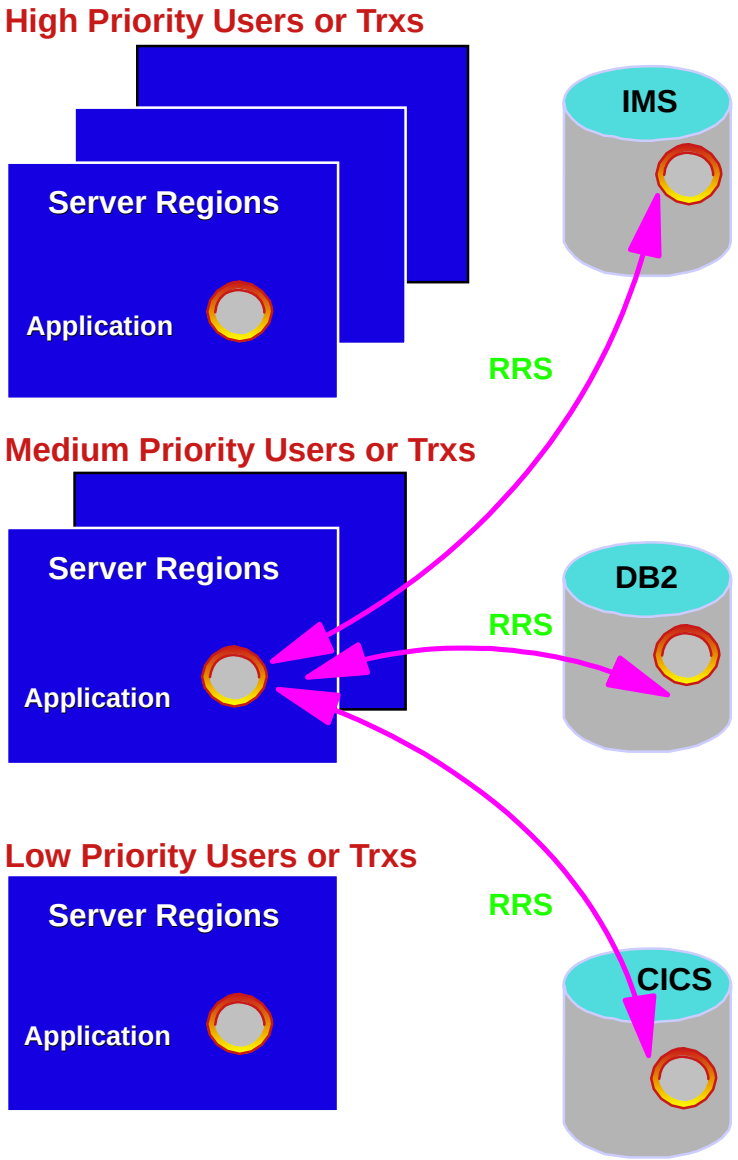
- **The Mettle Test is an operational performance demonstration highlighting the reliability and availability characteristics of zSeries and z/OS WebSphere**
  - **Self-Optimizing Scenarios**
    - **Dynamic Resource Management**
      - **Distinquish between high priority and low priority websphere users**
      - **Distinguish between high priority and low priority applications**
      - **On demand response to changing processing capacity requirements with IRD**
  - **Self-Healing Scenarios**
    - **Planned and Unplanned Outage Avoidance**
      - **Websphere/zOS application failure isolation**
      - **Continuous availability of sysplex**
      - **Hardware failure isolation and recovery**
      - **Non-disruptive installation of application and middleware maintenance**

State of the Art Transactional Runtime

Merges the best of 30 years of mission critical transaction monitors and the J2EE programming model

- **Isolation**
- **Availability**
- **Consistency**
- **Resource management**
- **Two phase commit**



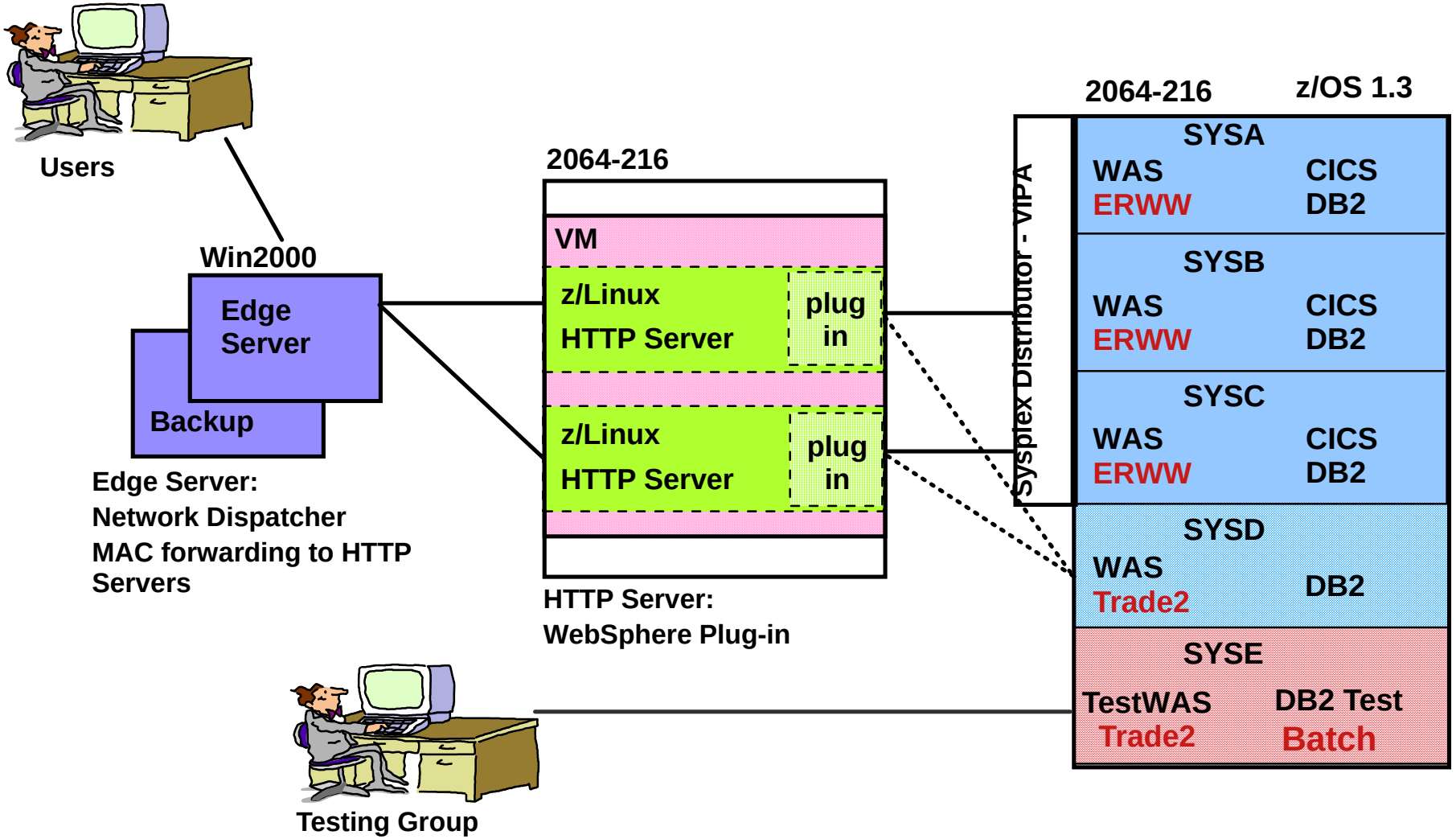


Mettle Test System Configuration

Designed for availability

- EdgeServer and backup EdgeServer
  - **Windows 2000 Server**
  - **EdgeServer Network Dispatcher V4.0**
- Two HTTP Servers on zLinux
  - **zLinux z/VM guests running SuSE SLES 7, Kernel 2.4.7**
  - **IBM HTTP Server 1.3.19.3**
- WebSphere on multiple systems in parallel sysplex
  - **z/OS 1.3, z/OS WebSphere 4.0.1, Java 1.3.1**
  - **DB2 V7, CICS TS 2.2, CTG V4**

Mettle Test Configuration



HTTP Server System

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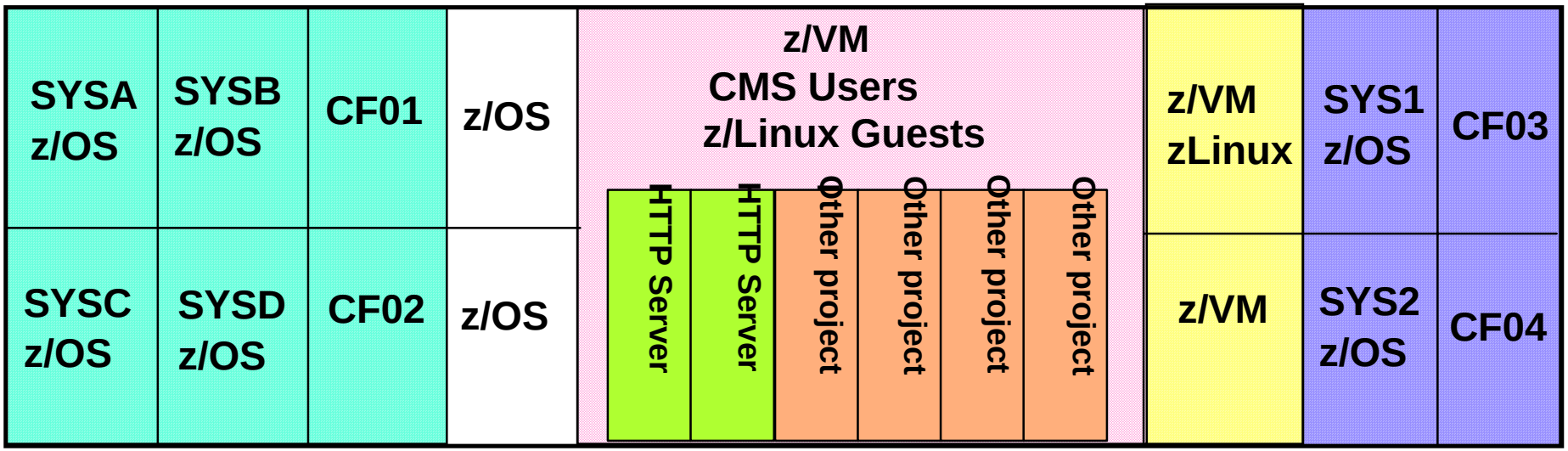
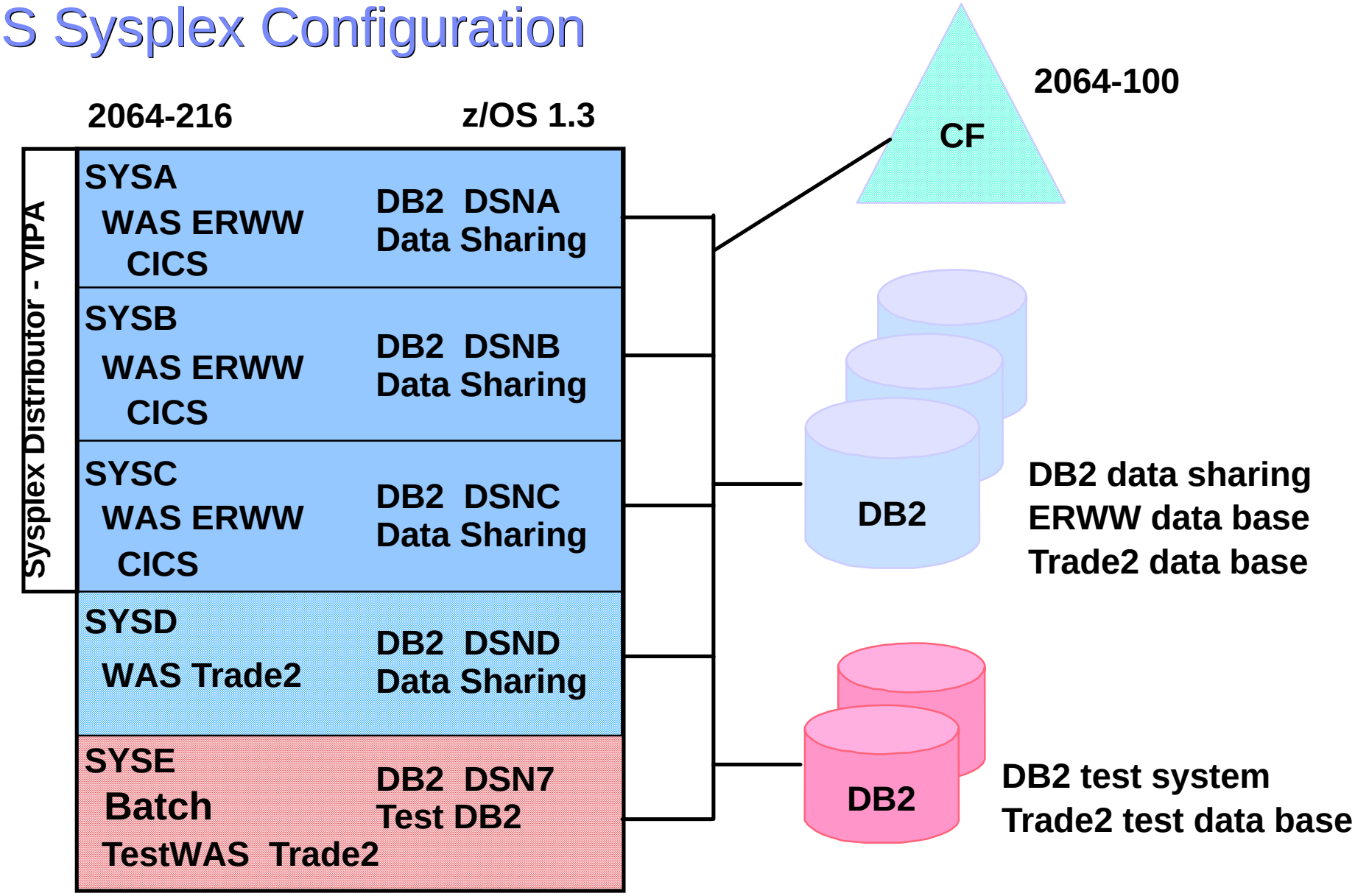


- The HTTP Servers are z/Linux guests under VM
- The VM system is one of fifteen partitions on the z/900 processor
- Partitions are running z/OS, z/VM systems or coupling facilities

z/OS Sysplex Configuration

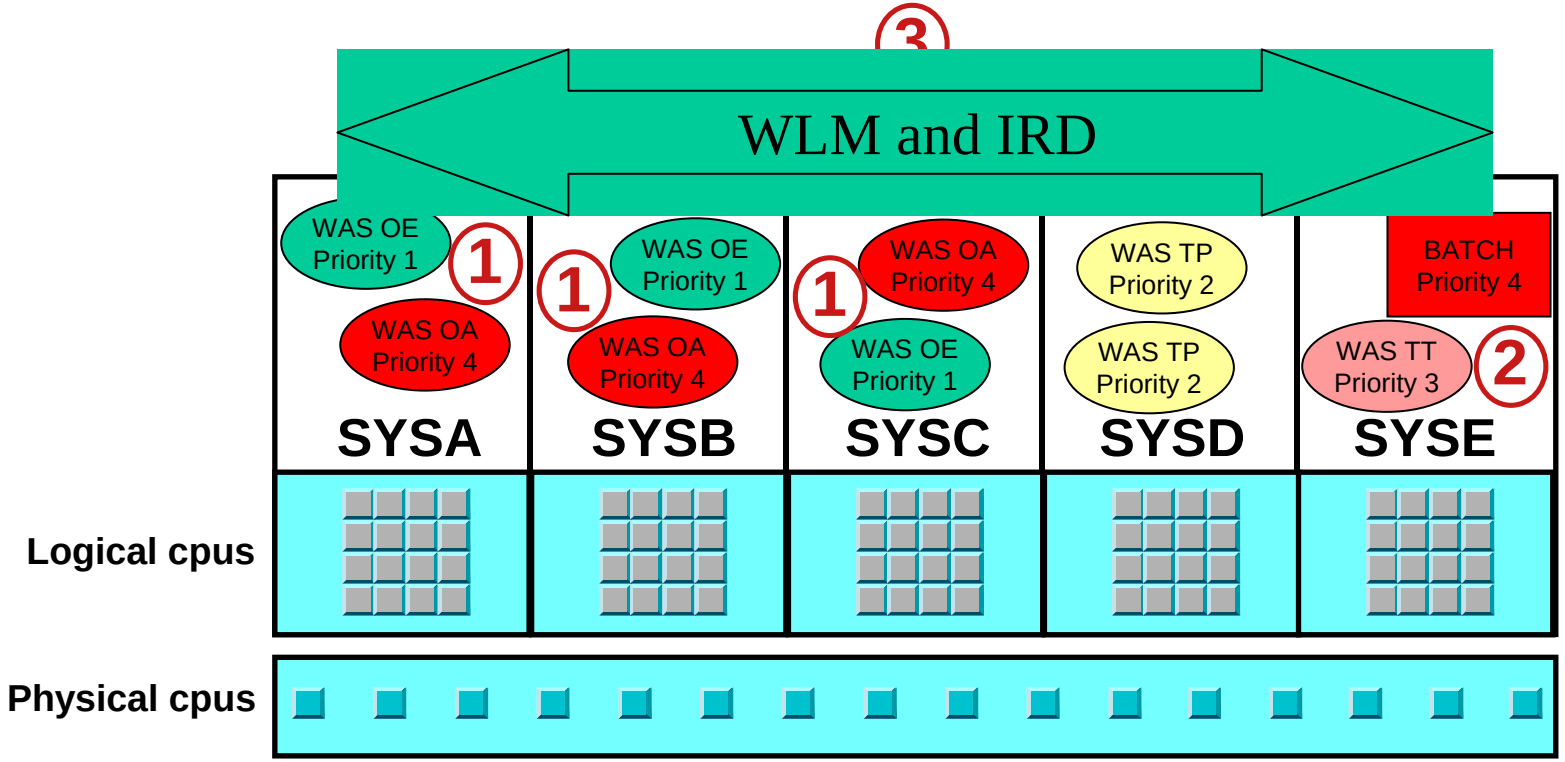


z/OS Workloads

- **Order Entry**
  - SYSA, SYSB, SYSC
  - Service class BBERWW
  - Importance 1
- **Order Analysis**
  - SYSA, SYSB, SYSC
  - Service class BBITLOW
  - Importance 4
- **Trade2 production**
  - SYSD
  - Service class BBTRD2
  - Importance 2
- **Trade2 test**
  - Runs on SYSE
  - Service class TZTRD2
  - Importance 3
- **Batch work**
  - Runs on SYSE
  - Service class BATLOW
  - Importance 4

Three levels of resource management

1. **WLM within the Websphere run-time**
   - OE and OA in different service classes
     - **Priority 1 and Priority 4**
2. **WLM within a single instance of zOS**
   - Batch and Trade2 in different service classes
     - **Priority 3 and Priority 4**
3. **IRD across LPARs**
   - Weighted distribution of cpu and I/O resources



WLM and IRD Resource Management Scenario Flow

- **Night shift**
  - Batch and Test activity on the Test Partition
    - SYSE
  - Production work coming in from other time zones
    - SYSD
- **Early morning**
  - Employees arrive at work
  - Put load on mission critical application - Order Entry
  - High priority
    - SYSA, SYSB, SYSC
- **Mid morning**
  - Business Intell. dept. starts querying customer buying behavior - Order Analysis
  - Low priority
    - SYSA, SYSB, SYSC
- **Mid afternoon**
  - Order Entry activity increases to fully utilize system
- **Late Afternoon**
  - Employees go home - Order Entry stops
  - Order Analysis and other application activity increases