

# ORACLE®



**How Boston University Uses Oracle Grid Control  
to diagnose production performance**



# Agenda

- Gerard Shockley, Boston University
  - Business Driver - Big Picture Oracle Linux on Z
  - Solution – Oracle Grid Control
  - The Business Value Gained
  - Future Directions



# Solution Strategy - Standardize



- Business Driver: Simplify
  - Linux Virtual Machines as a best practice configuration
  - Linux Operating System – Open platform
  - IBM System z – Oracle data server
  
- Oracle Grid Control Infrastructure to Centralize Management



# Solution Strategy: Virtualize

- Business Drivers: Reliability, Availability, Service, Scalability, Security
  - Oracle Maximum Availability Architecture (MAA) with System z
    - Dynamically add and manage disk (Oracle ASM)
    - Centralized backup and recovery of Oracle databases (Oracle RMAN)
    - Protect data from failures, disasters, errors, and corruptions (Oracle Data Guard)
    - Acquire resources once use many (IBM zVM server virtualization)
    - Native high-speed support for internal data flows (IBM z Hipersockets)
    - Point in Time Back-up (IBM Systems z feature)
    - Linux virtual server monitoring and capacity planning (Velocity ESALPS)
    - Remote read/support configuration (Metalink Credential Configuration)
    - Automated systems management (LoZ, Oracle Grid)



# Solution Strategy: Consolidate

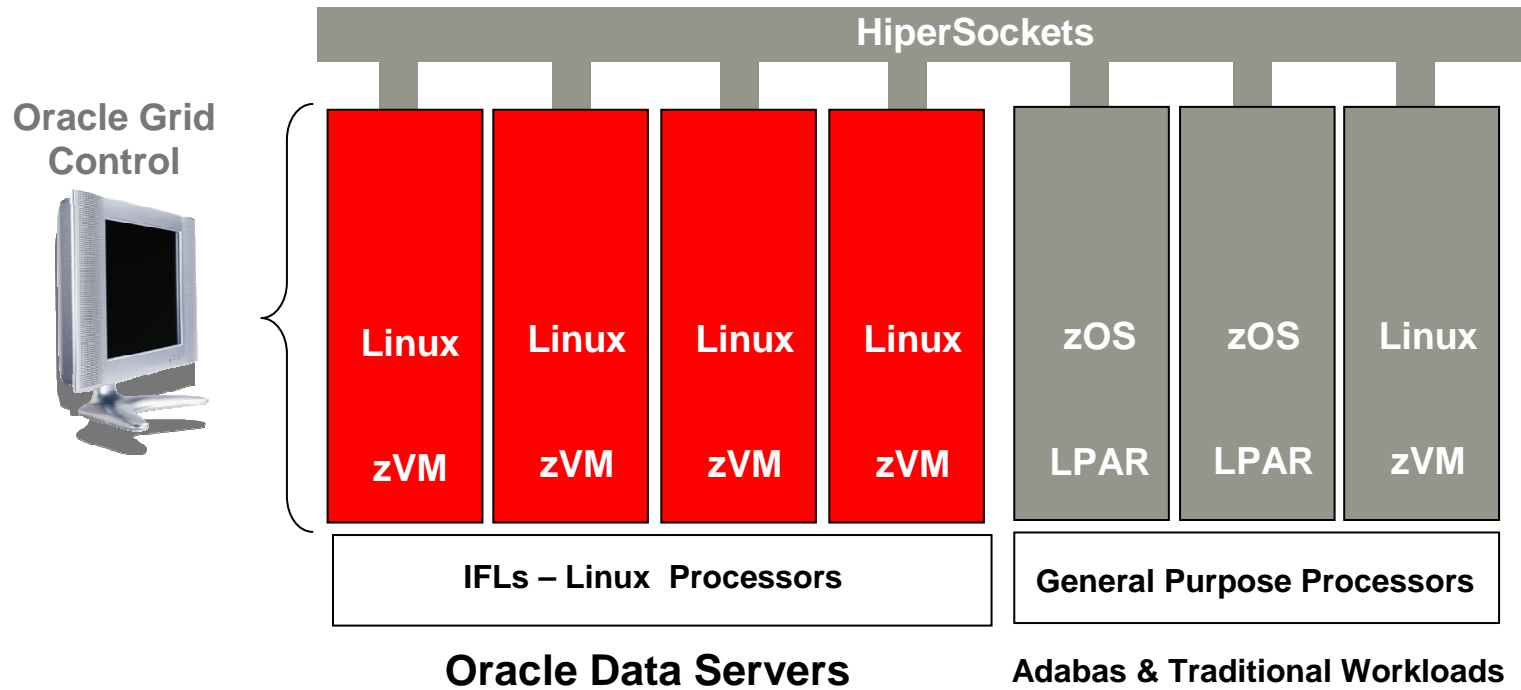
- Business Driver: Operational Efficiency & Cost Reduction
  - Variety of applications to linux on System z
  - Distributed servers to z virtual servers
  - Consolidate database systems to Oracle Database - underway
  - Database administration [oracle\\_help@bu.edu](mailto:oracle_help@bu.edu)



# BU Grid Control Infrastructure



# BU Oracle Grid Infrastructure for Applications



# BU Oracle Grid Infrastructure for Applications Installation

## Installation Process

Oracle Grid  
Control  
Linux



**Review Systems Prereqs (CPU, MEM, OS)**

**Linux Kernel Params**

**Mount installation media**

**Execute OUI (./runInstaller)**

**Automate OMS startup Linux /etc/init.d**

**Install Agents on monitoring targets**

**AGENT\_HOME/sysman/config/emd.properties**

**REPOSITORY\_URL=http://hostname:4889/em/upload/**

**Implemented external zGC repository for reporting**



# BU Oracle Grid Infrastructure for Applications Procedure

Oracle Grid  
Control  
Linux



## Process Flow

**Authenticate**

**Select monitored target**

**Select active database**

**Drill to top users**

**Select top SQL Query**

**Review CBO 10g vs. RBO**

# BU Oracle Grid Infrastructure GC Agents vs. OEM – Why

Oracle Grid  
Control  
Linux

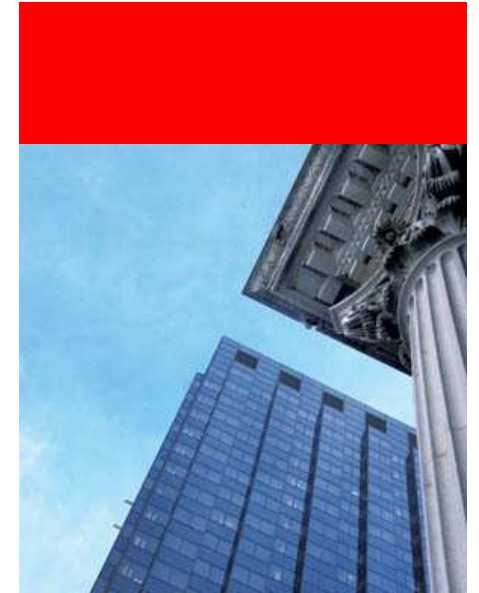


## Found OEM not sustainable

- ✓ Grid with Agents – Passive vs. Active
- ✓ Resources consumed on Intel Not Z
  - ✓ .1 vs. 10. - CPU
  - ✓ zMemory - Lite
  - ✓ Agent DASD
- ✓ Agent Network – only flows
- ✓ Remote long term analysis – via ER EMREP



# BU Deployed Applications

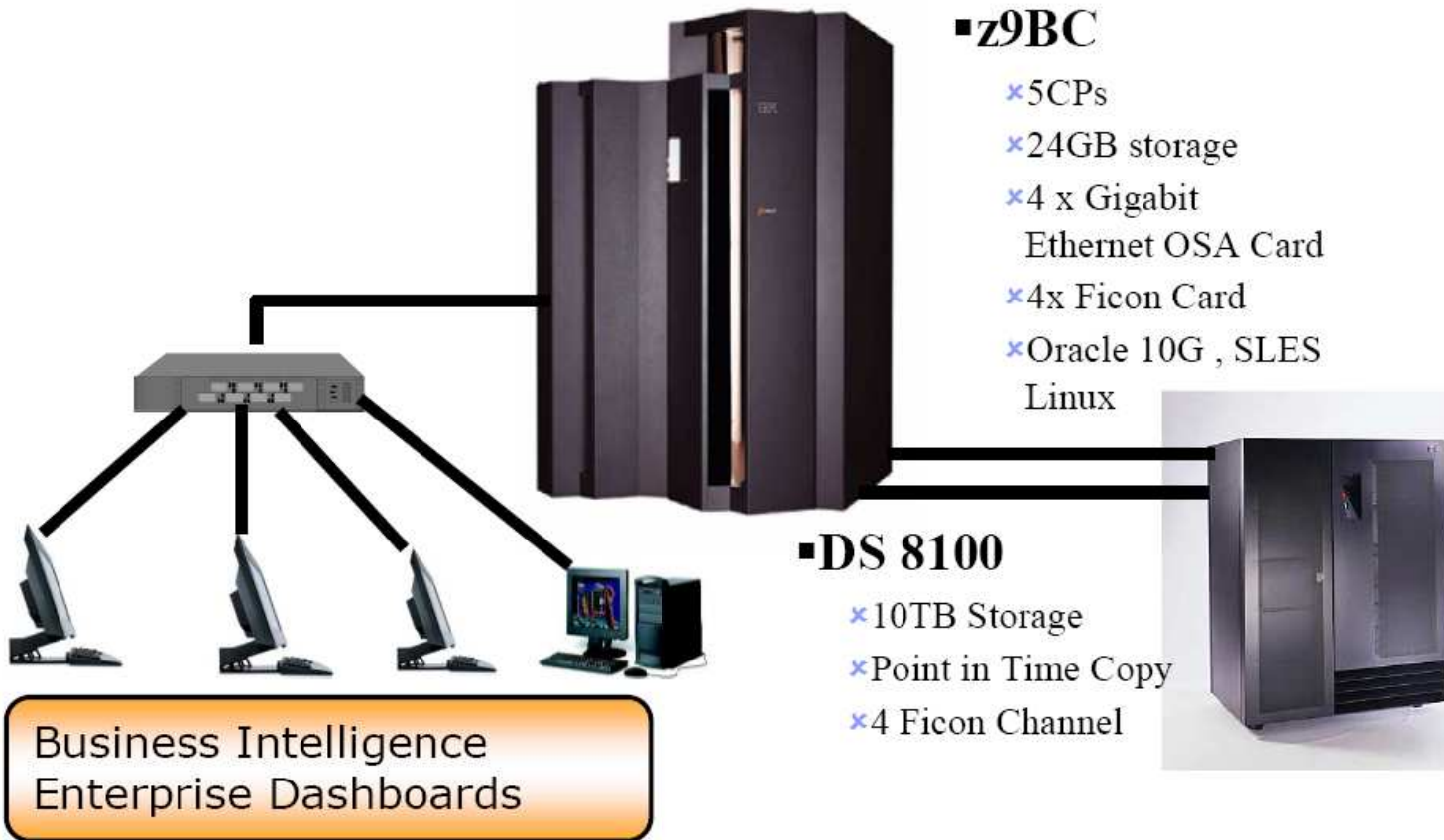




# BU Applications

- Business Intelligence BU-DAR (PROD 10/2007)
  - Data Warehouses built for client data.
  - Oracle Warehouse Builder and database replication with Java – XML utilities.
  - More projects in the active project list.
- University Document Imaging (Prod 10/2008 )
  - Scanning, retrieval, workflow
  - Onbase System Selected
  - Target Oracle 10G
  - Enterprise Wide System
  - Stress showed 18% CPU for a single guest
  - Integrated with zOS systems

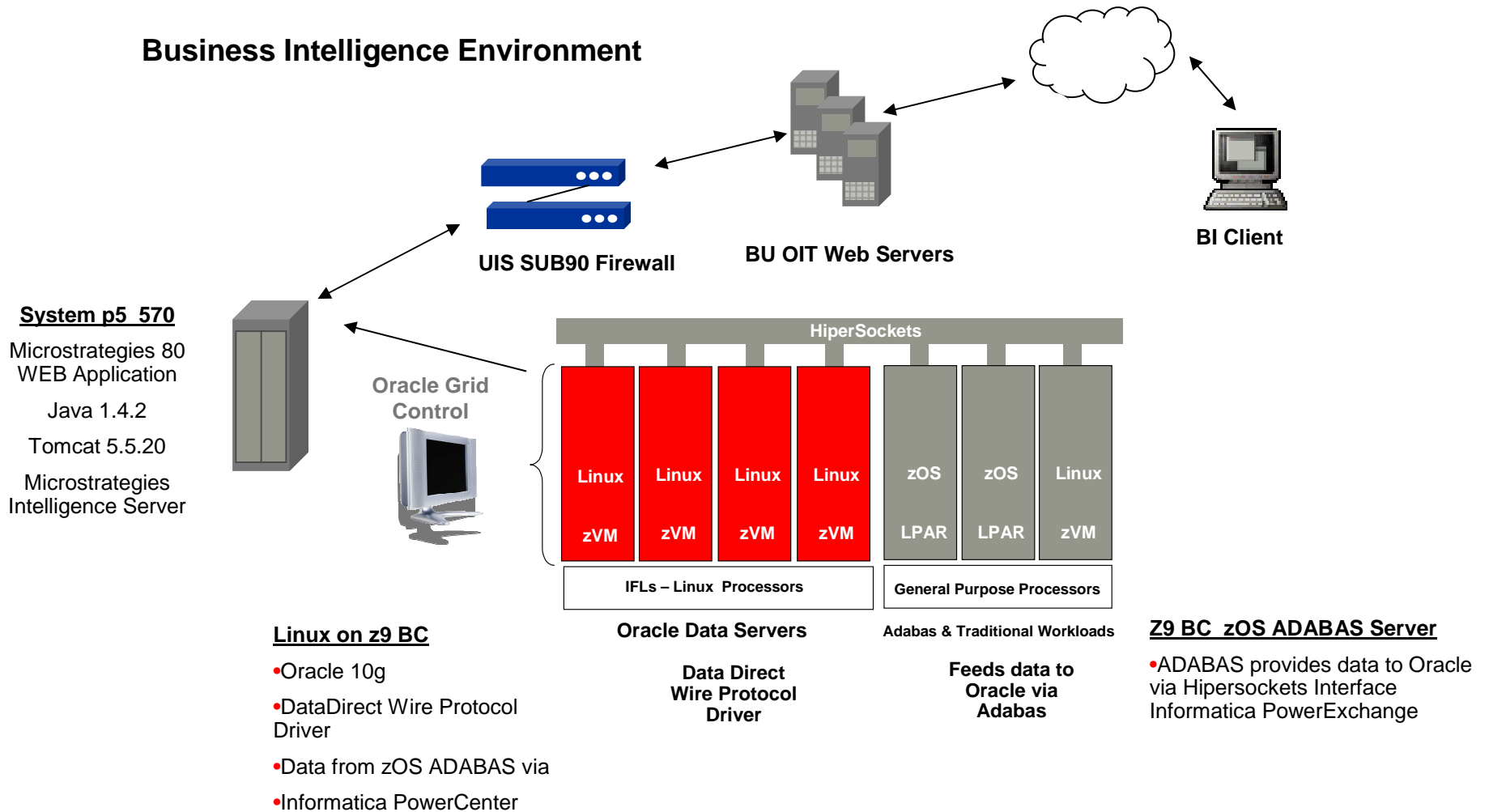
# Hardware Infrastructure



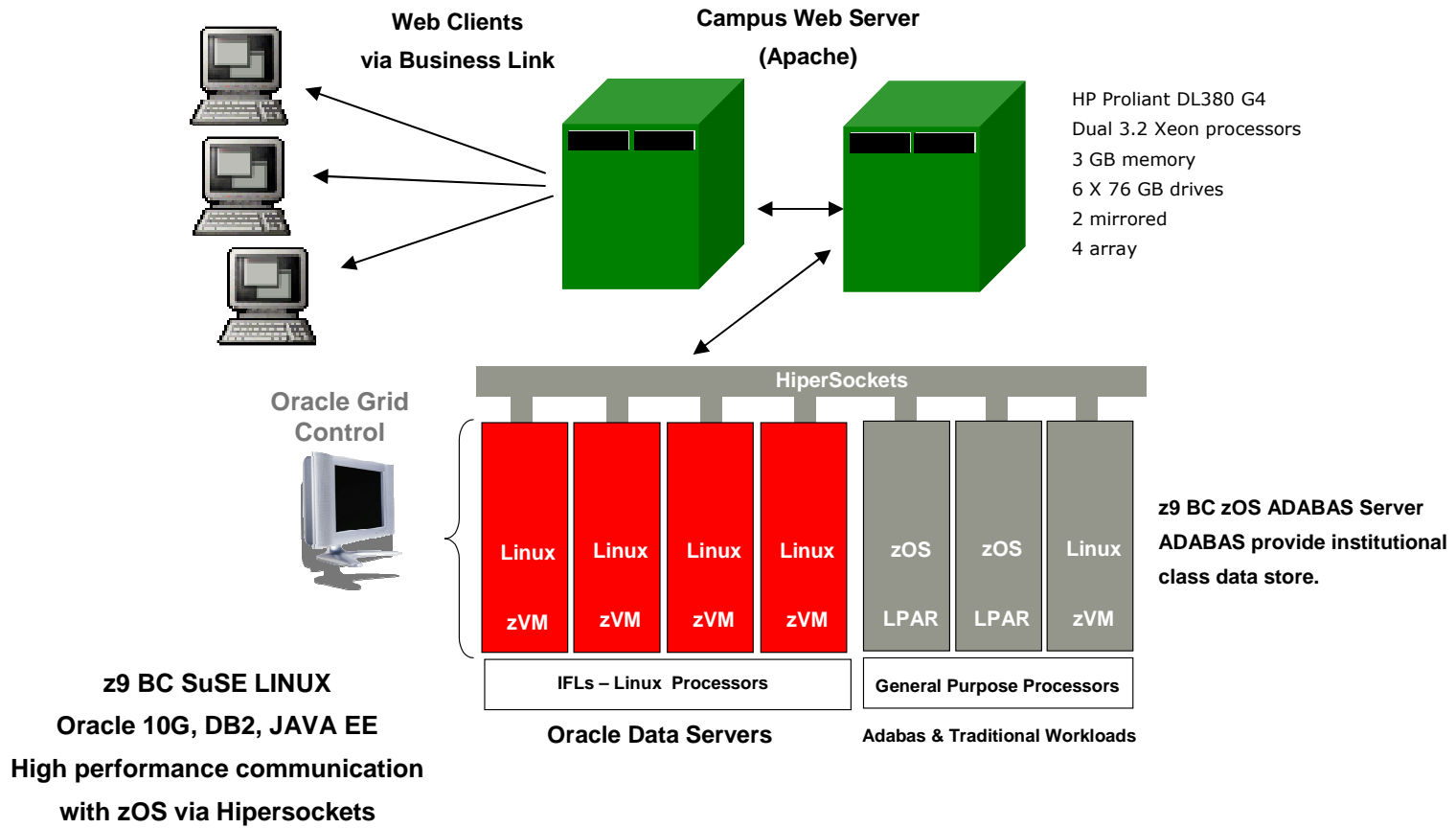
# Business Intelligence



## Business Intelligence Environment



# Document Imaging



# The Business Value

## Oracle Grid and MAA with System z

- Standardized – Reduced Complexity
  - Simplified IT Operations by reducing manual build efforts
  - Simplified Software Systems for Staff, Faculty and Students resulting in streamlined decision support improvements
- Virtualized – Provided Maximum Availability
  - Improved Applications Availability
  - Improved Quality of Service “Uptime” by using MAA
  - Continuous Data Availability
- Consolidated – Reduced Costs
  - Improved Operational Efficiency via n-Tier environment





# The Future at BU



- Oracle & IBM Joint Solutions Center
  - z Lite Testing and recommendation to peers
- Future Initiatives
  - Continue Enterprise Grid Deployment
  - Continued Exploitation of MAA
  - Develop High Availability Application Offerings
  - Integrate New BU Business Systems with MAA mindset
  - Support Institutional DBMS Runtime Environment



# Resources



- Solution Design
  - Oracle Sales Development – System z
  - Oracle/IBM Joint Solution Center
  - IBM System z Solution Specialists
- Solution Testing
  - Oracle z Lite – pre-configured Oracle/System z environment

