Tivoli software

IBM

Maximo Archiving and ITM for Maximo Solution Health

Colleen McCretton – Designer & Architect, Maximo

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Session Overview

- Archive Business Need
  - Technology Overview
  - Demo
- Monitoring business need
  - Overview of Maximo/ITM integration
  - Agent Overview
  - System requirements
  - Agent Usage Scenarios
  - Setup and Configuration
- Questions?

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Customer Pain Point

- Production database growth
  - Example, 65000 work orders per month (supply chain development partner); 1 million+ work orders in a year
- Maximo impact:
  - Performance degradation in production
  - Costly hardware upgrades
  - Costly, long running upgrade process
- Customer need:
  - Archive historical data
  - Preserve application performance in production
  - Smoother, faster upgrade to newer product release

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Archiving needs

- Customer feedback, Maximo Advisory Council round tables
- Offline storage of application data
  - Data that is currently historical and does not change
  - Data usually deleted from source tables
- Application data context should be preserved
  - Complete business object data
- Application data should remain available for reporting/auditing
  - Offline storage should behave as data source
- Benefit
  - Production environment runs optimally
  - Faster upgrades
  - Hardware costs reduced

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IBM Optim™

- Selected Optim to enable Maximo archiving
  - IBM acquired Princeton Softech in 2007
  - Part of Information Management brand
  - Optim is key data growth solution from Princeton Softech
    - Best of Breed: Competitors include Applimation, HP-OuterBay, Solix, Compuware
  - Optim offers archiving solutions for packaged applications
    - Oracle E-Business
    - PeopleSoft
    - Siebel
    - JD Edwards
  - Current IBM Optim release 7.x
    - Mature product line

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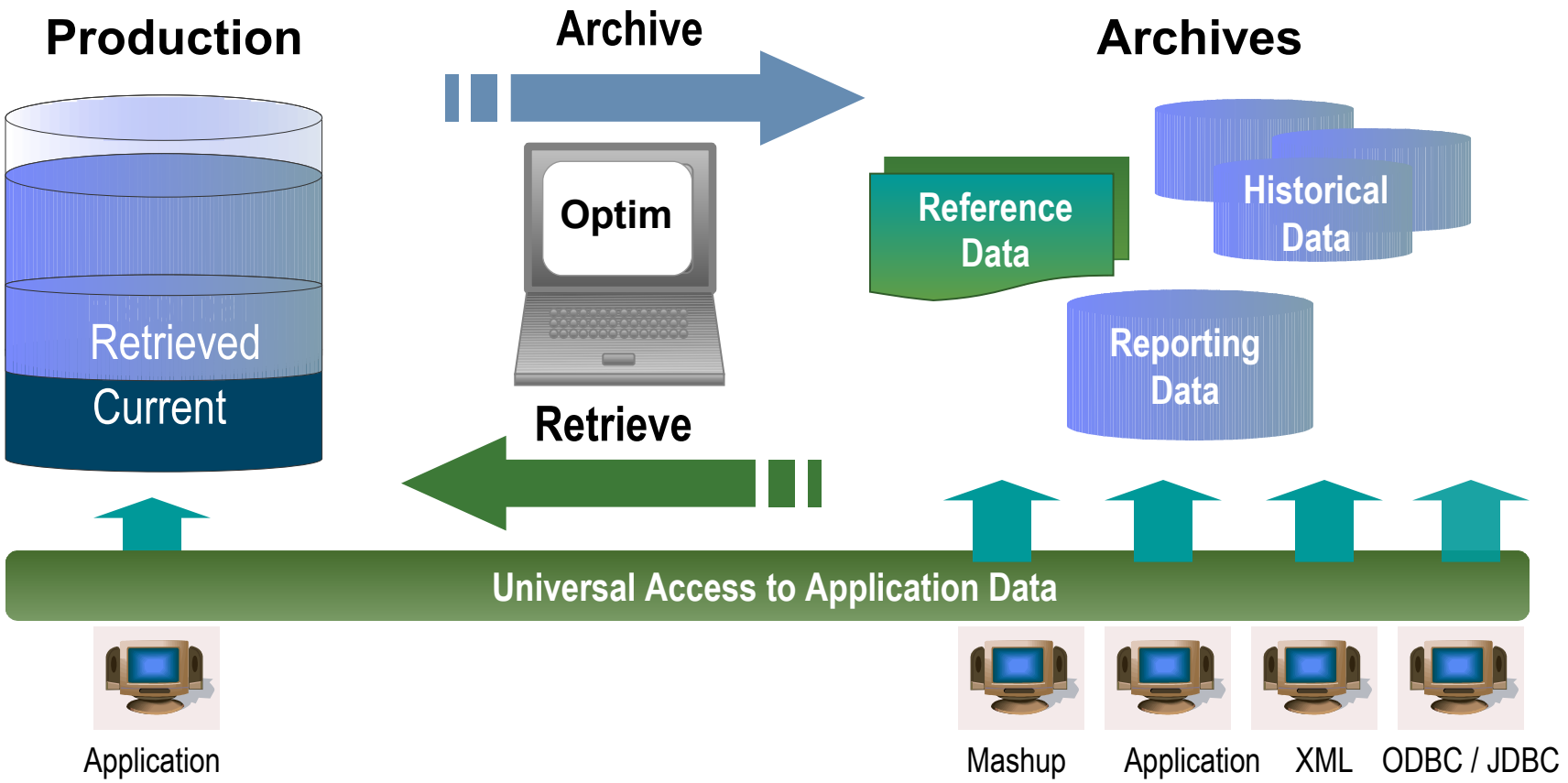
Optim Data Growth Solution: Archiving



- Complete Business Object provides historical reference snapshot of business activity
- Storage device independence reduces storage costs
- Immutable file format enables data retention compliance

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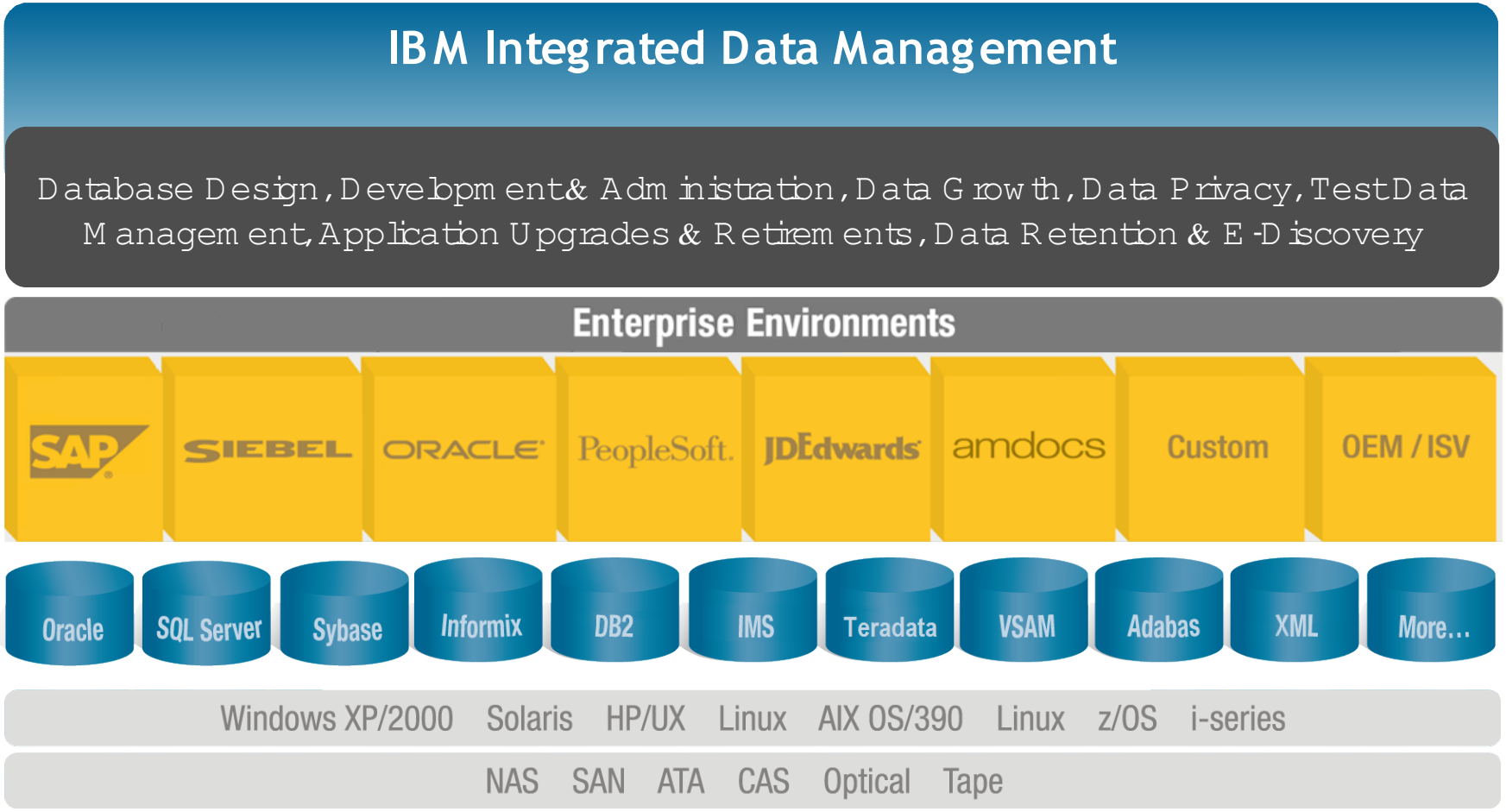
Enterprise Environments



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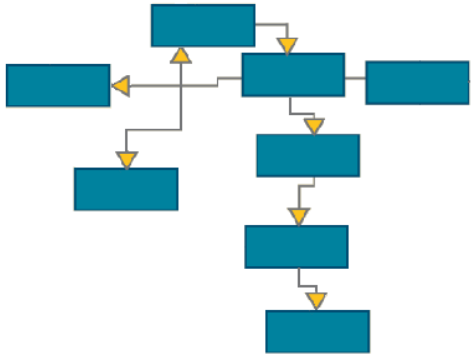
Archive the Right Set of Data

Referential Integrity – the Complete Business Object



- Represents application data record – payment, invoice, customer
  - Referentially-intact subset of data across related tables and applications; includes metadata
- Provides “historical reference snapshot” of business activity

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Extract, Store and Restore

- **Extract**: Identify and extract business objects across multiple related applications, databases and platforms
- **Store**: Store immutable business objects independent of infrastructure – any hardware device or platform
- **Restore**: Restore business objects to any other database or application for reporting or native application access. Choose precisely which items to restore – a single transaction record, a year's worth of data, or any other range or parameter you specify.

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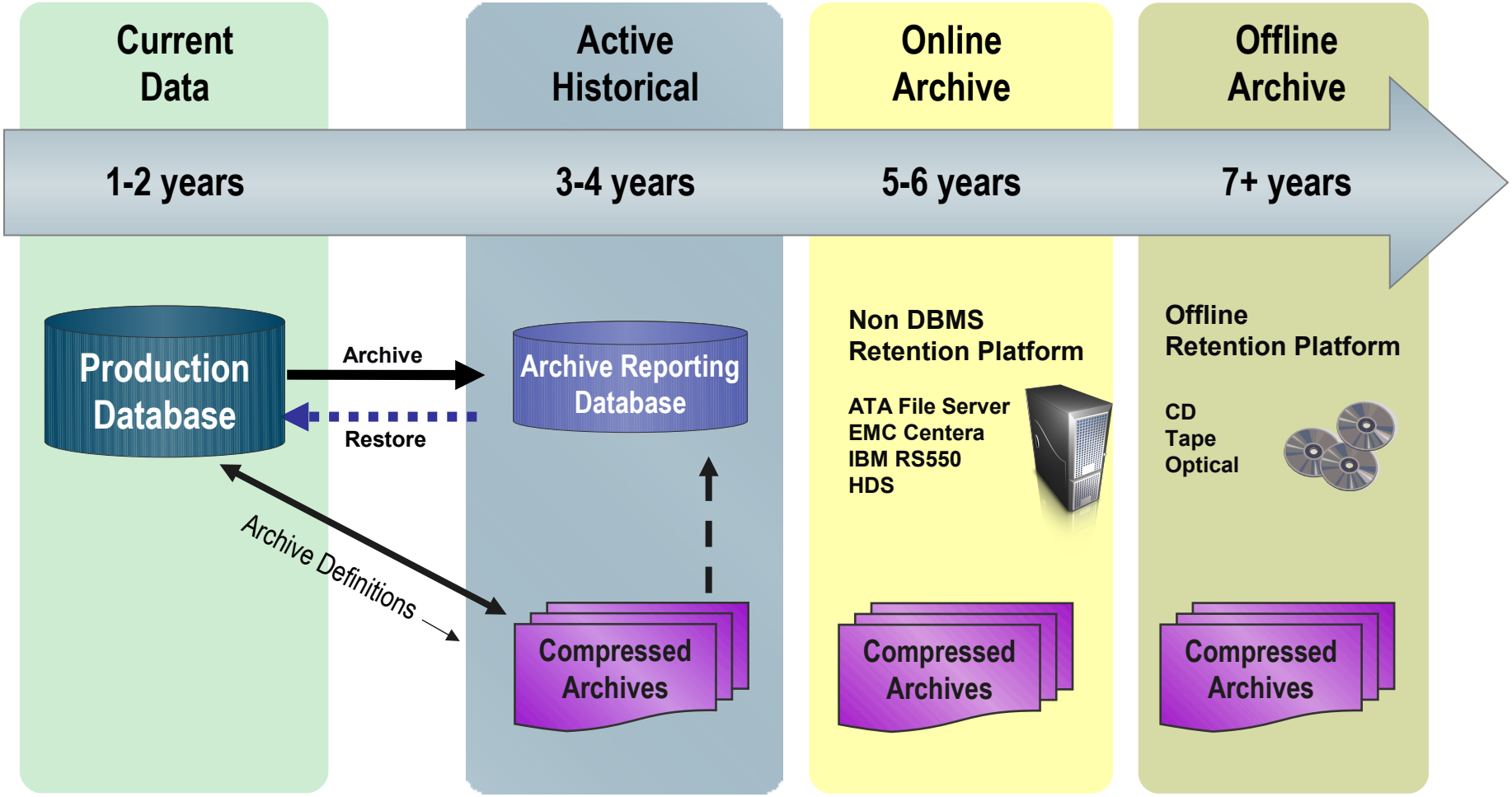
Extract, Store and Restore
Store in Any Environment



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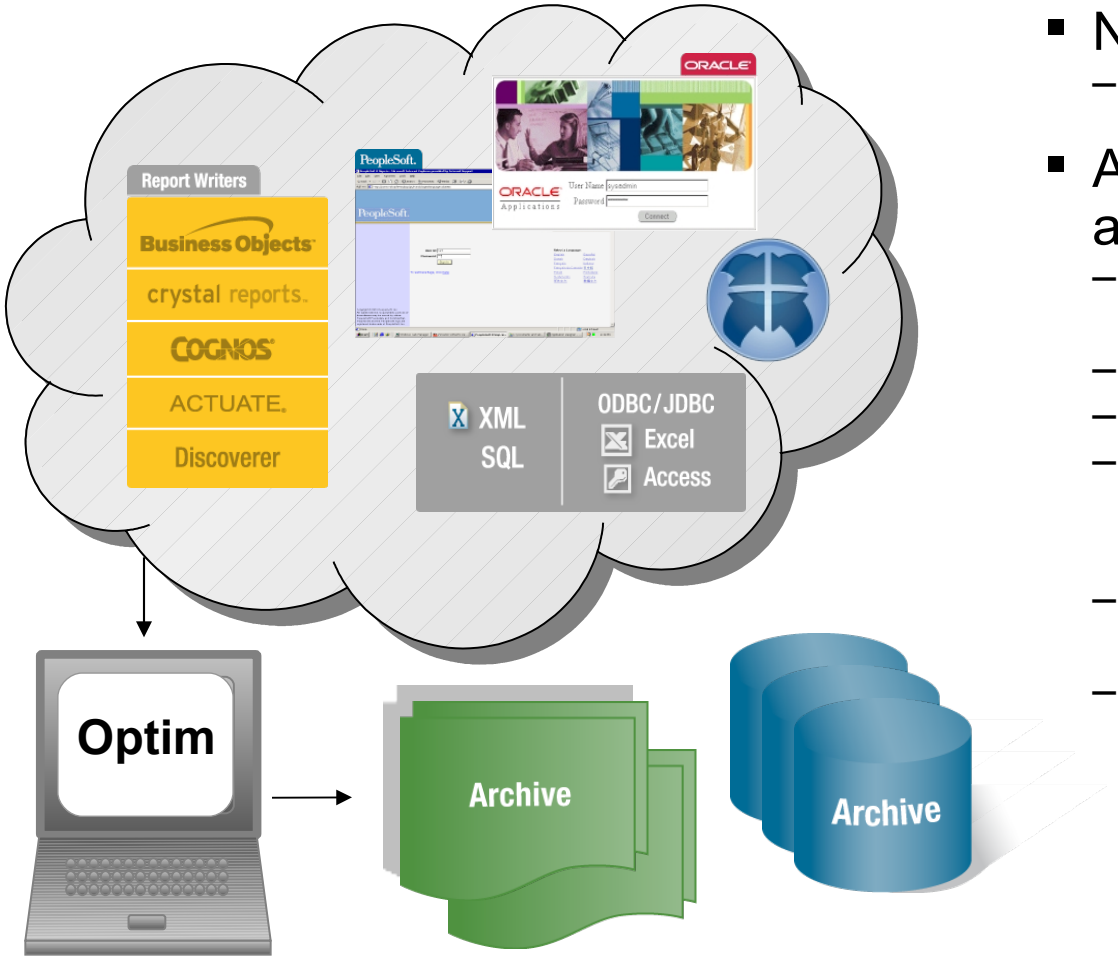
Universal Access



- Native application access
  - Familiar screens and processes
- Application independent access
  - Industry standard methods: SQL, ODBC/JDBC, XML
  - IBM Mashups
  - Portals
  - Report writers: Crystal Reports, Cognos, Business Objects, Discoverer, Actuate
  - Desktop formats: Excel, CSV, MS Access
  - Database formats

Access Any Record, Anytime, Anywhere!

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Optim for Maximo

- Enabling Maximo archiving capability with Optim
- Out of the box archive access definitions (policies)
  - Policies can be changed to fit requirement
  - New policies can be created
  - Configuration – no coding
- Versions
  - 6.2.x
  - 7.1.x
  - 7.5 (leverages the integration framework to extend policies)
- Targeting high-growth applications:
  - Work Orders
  - Workflow Transactions
  - POs
  - PRs
  - Invoices
  - Assets
  - SR Tickets (7.x EAM only)
- No Maximo code – Adapter is for Optim to connect to a Maximo database
- Connects directly to the database – is not aware of Maximo business objects

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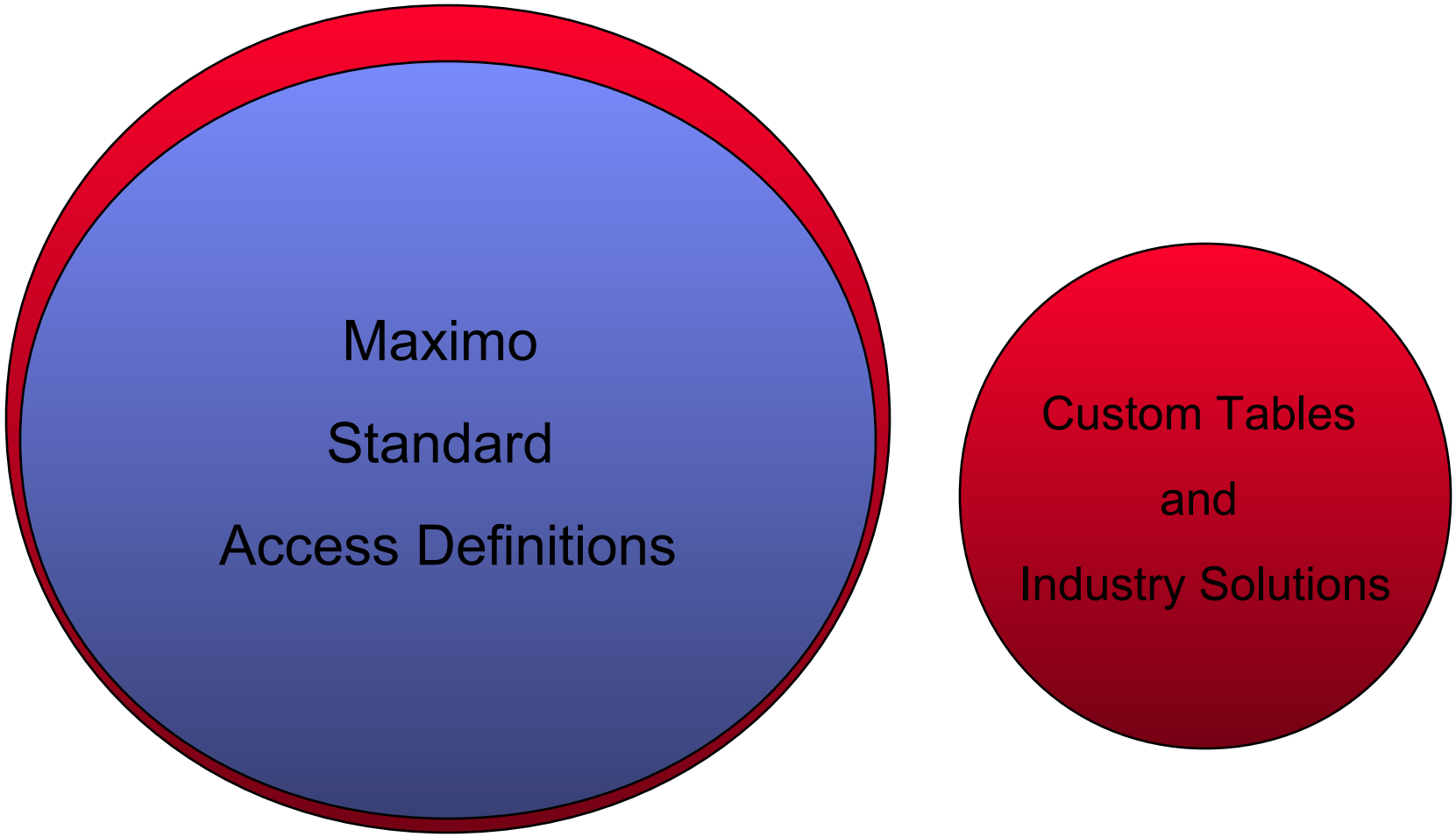
Typical Customer Data



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Archive Implementation

- Import Archive Definitions into Optim
- Copy definitions to make customizations
  - Modify selection criteria
  - Add tables to access definitions
  - Add relationships
- Schedule archive process
- Update restore process to restore archive files created

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Demonstration

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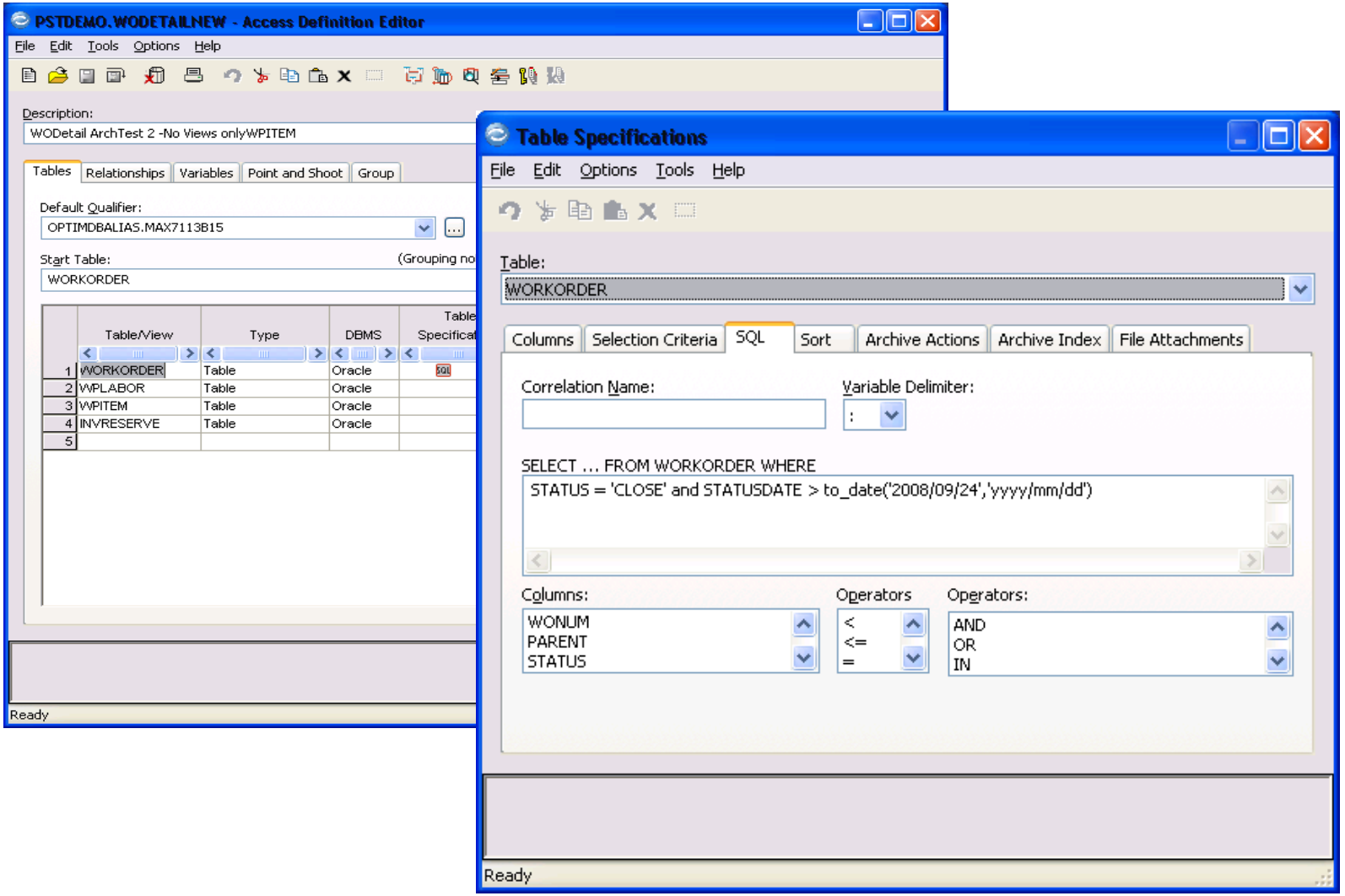
Access Definition



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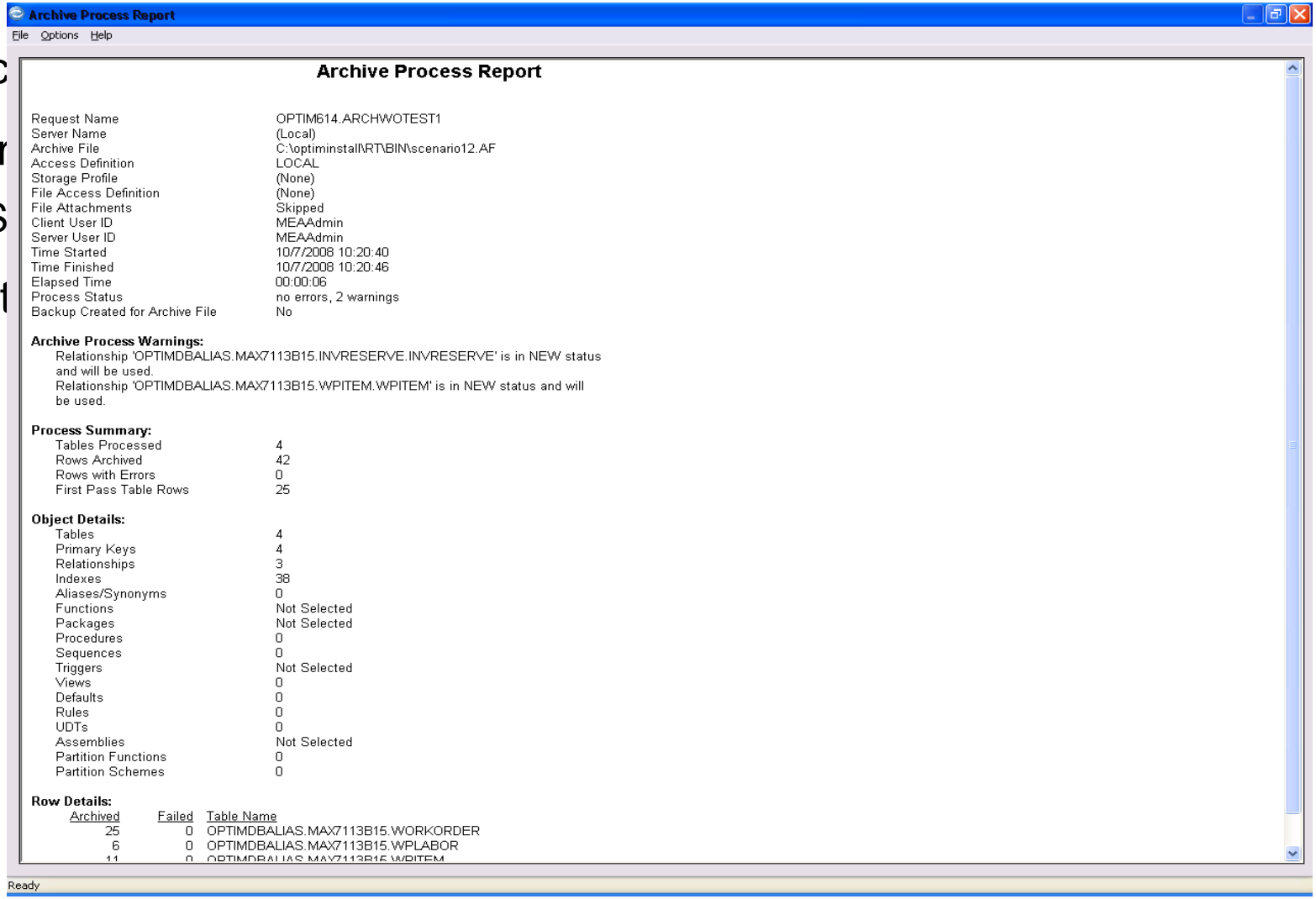
Archive-Purge

- Arc
- Pur
  - S
- Det



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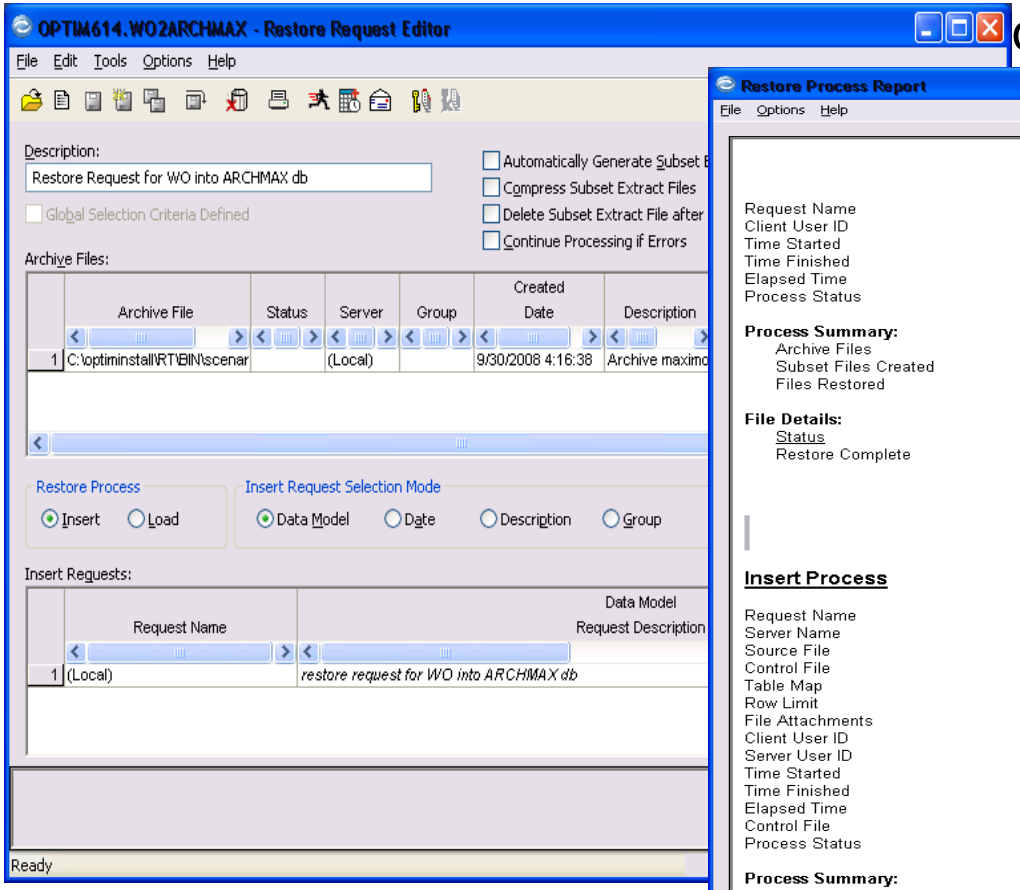
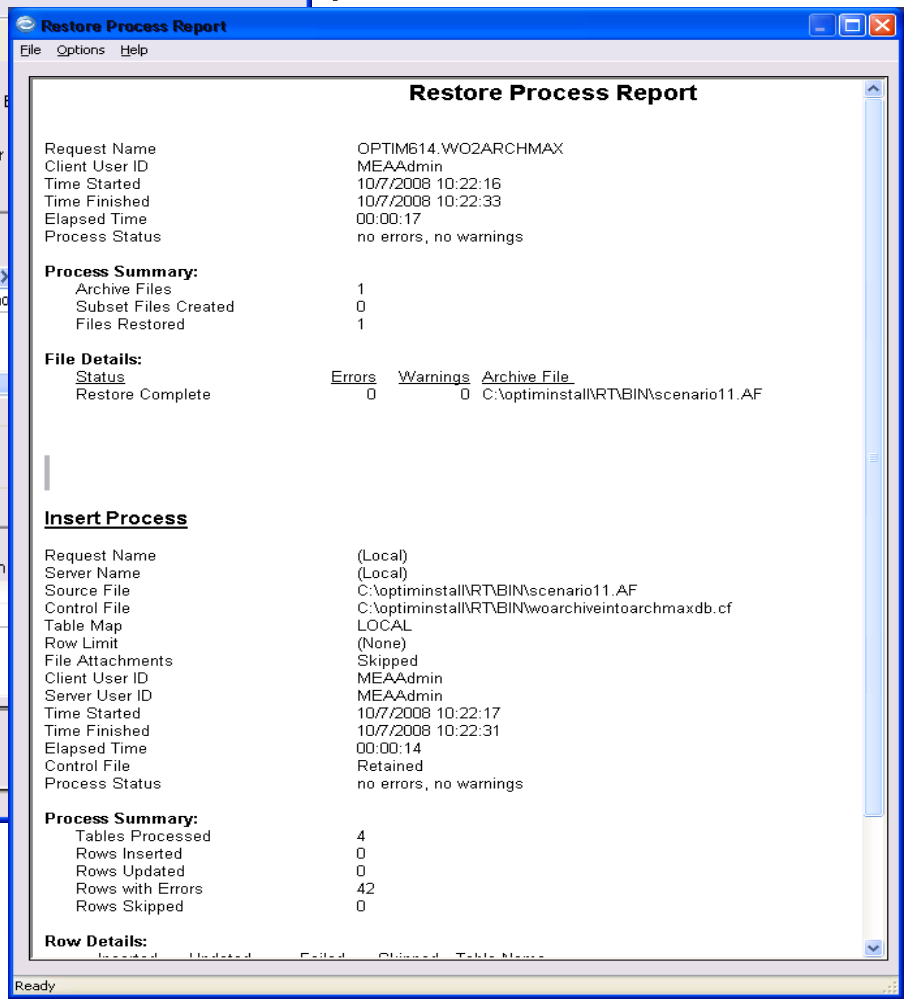
Restore

- quest





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Optim for Maximo time-frame

- Available today
  - Version 6.2, 7.1 and 7.5
- Offered as an add-on
- Two Packages
  - Maximo Archiving with Optim Data Growth Solution
    - IBM Optim Data Growth Solution
    - Maximo access definitions
    - Instructions to configure Optim for Maximo usage
  - Maximo Archiving for Optim Data Growth Solution
    - Maximo access definitions
    - Instructions to configure Optim for Maximo usage

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Using ITM to Manage Maximo Solution Health

- Overview of Maximo/ITM integration
- Agent Overview
- System requirements
- Agent Usage Scenarios
- Setup and Configuration

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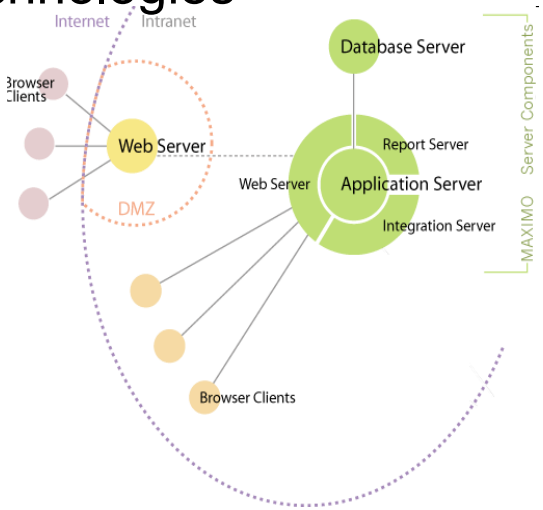
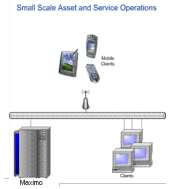
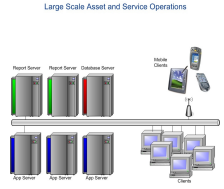
Maximo Technology Architecture

- Web-based n-tier architecture
  - Leverages the latest Internet standards and technologies
    - Web services
    - HTTP(S)
    - J2EE
    - HTML
    - XML



- Highly Scalable Architecture
  - Horizontal and vertical scaling
  - Clustering, load-balancing and failover support
  - Scales from small, single-site deployments to large, multi-site global deployments
  - Offers performance and resiliency





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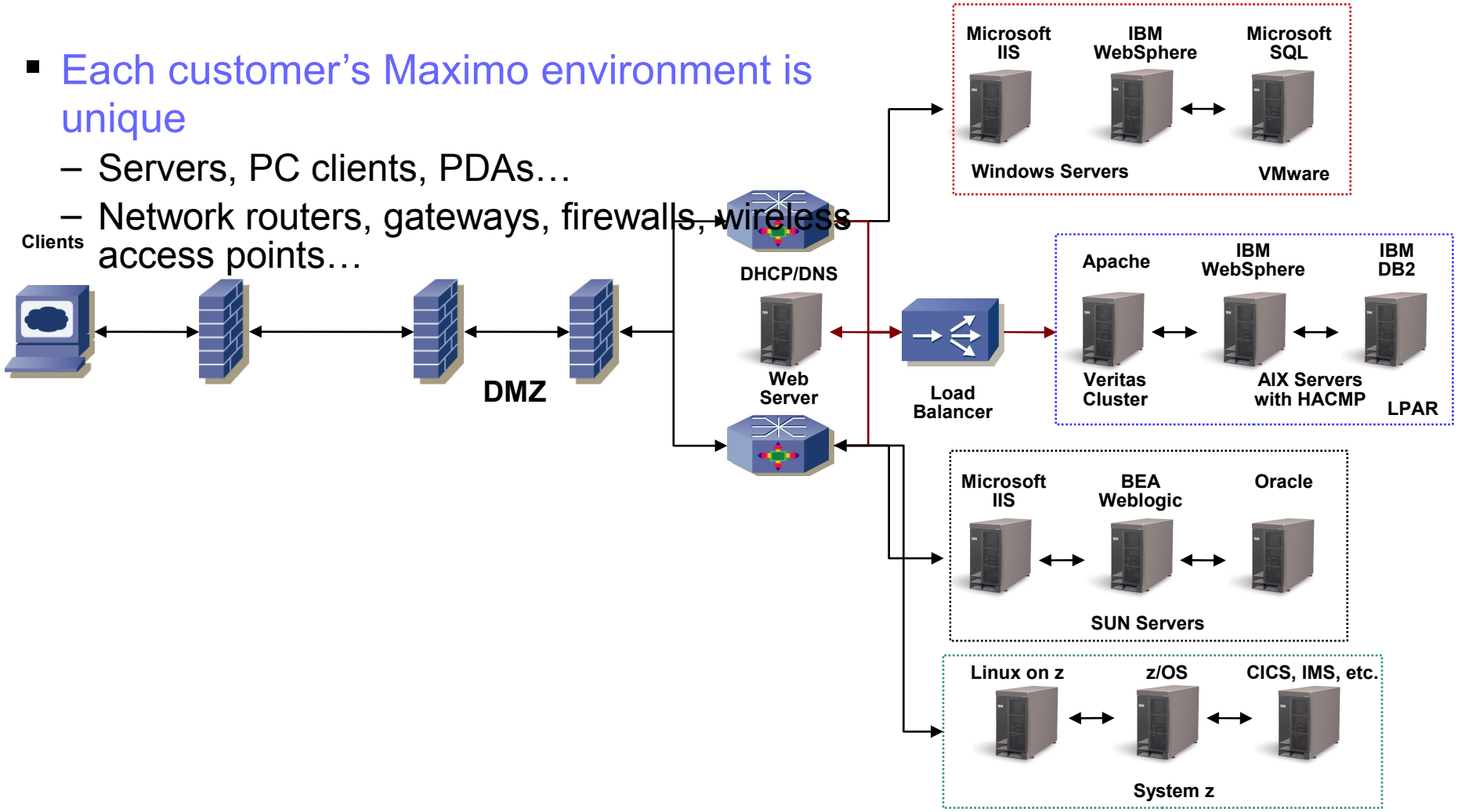
Customer Environment

- Each customer's Maximo environment is unique
  - Servers, PC clients, PDAs…
  - Network routers, gateways, firewalls, wireless access points…



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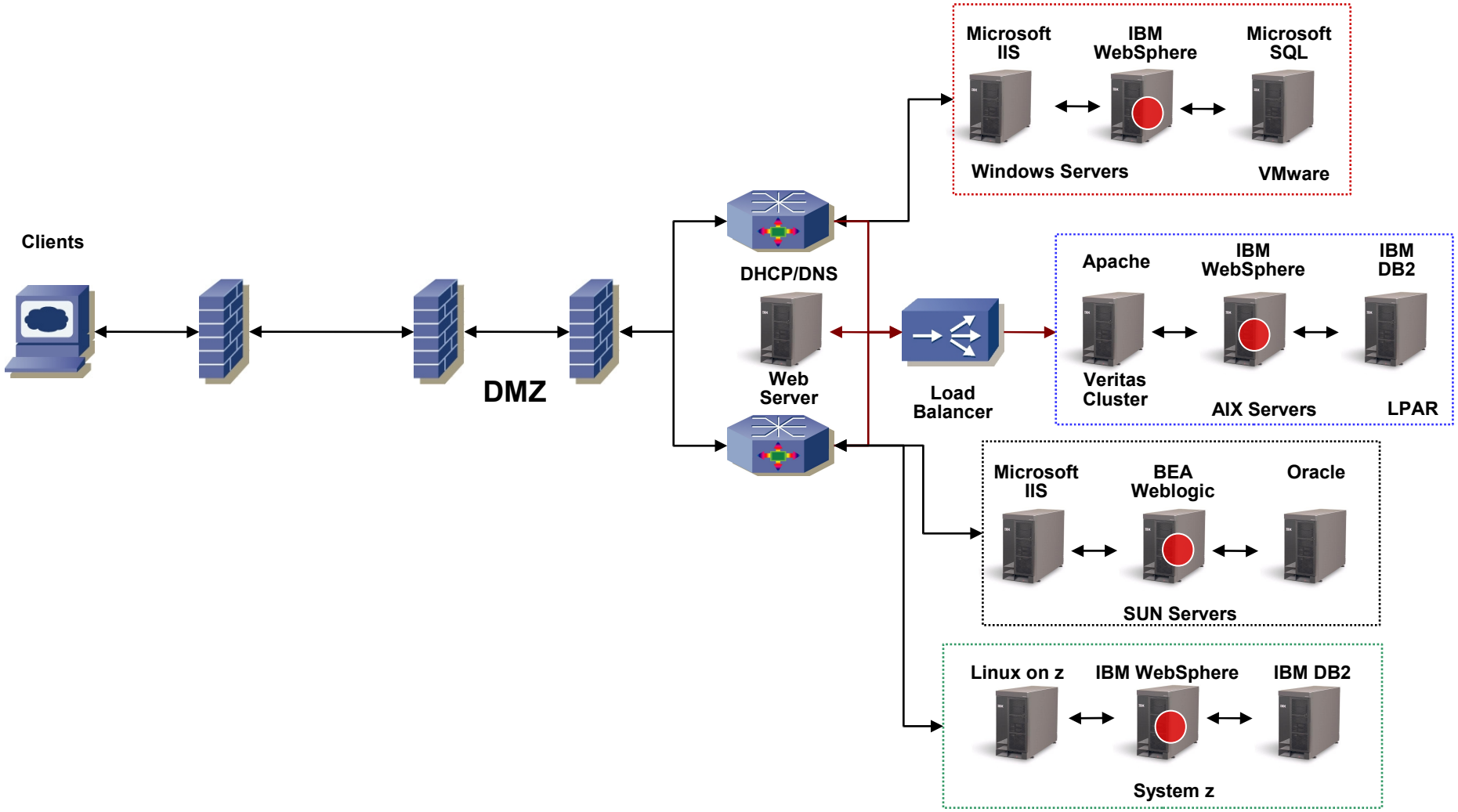
Is it Maximo?



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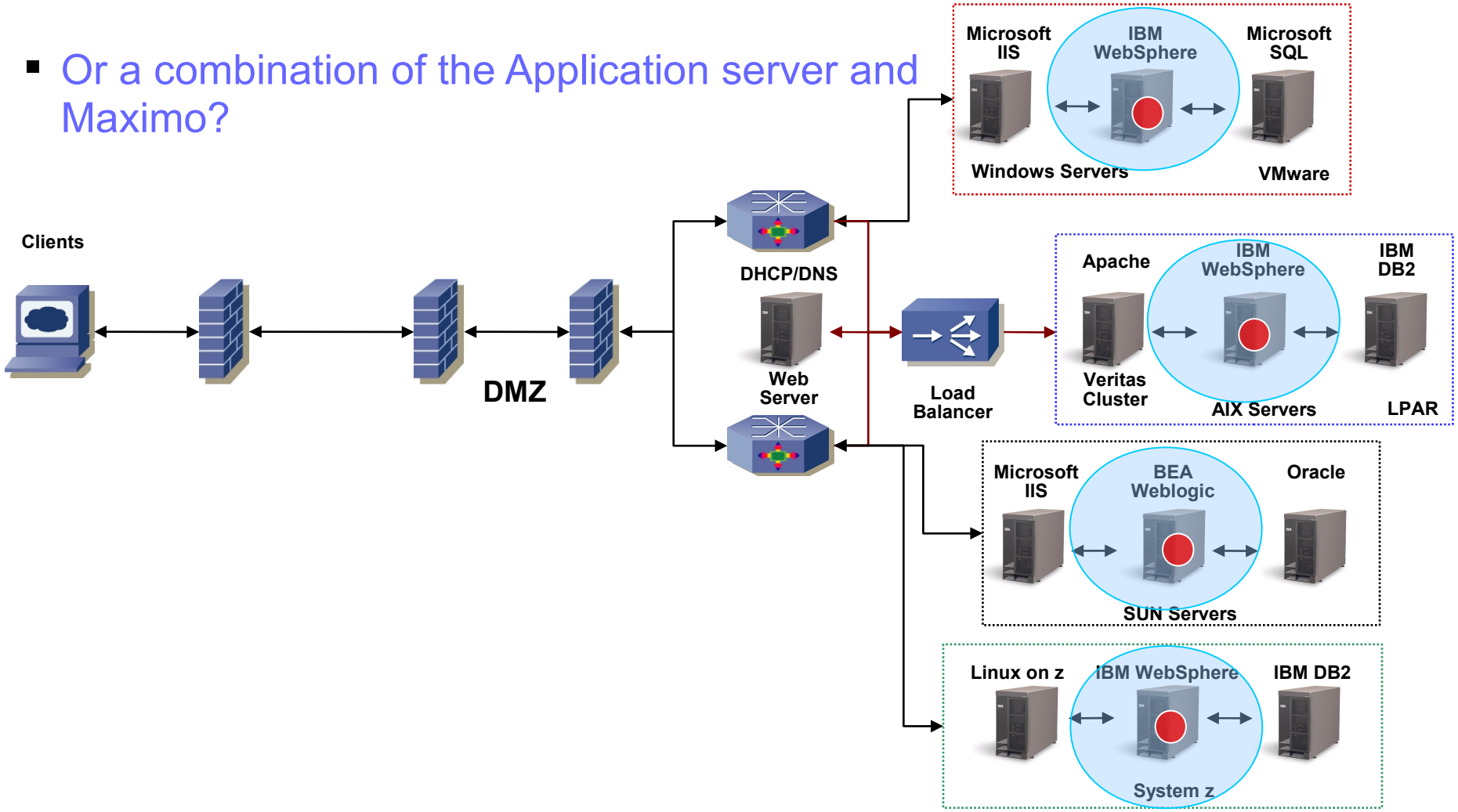
Is it the Application Server?

- Or a combination of the Application server and Maximo?



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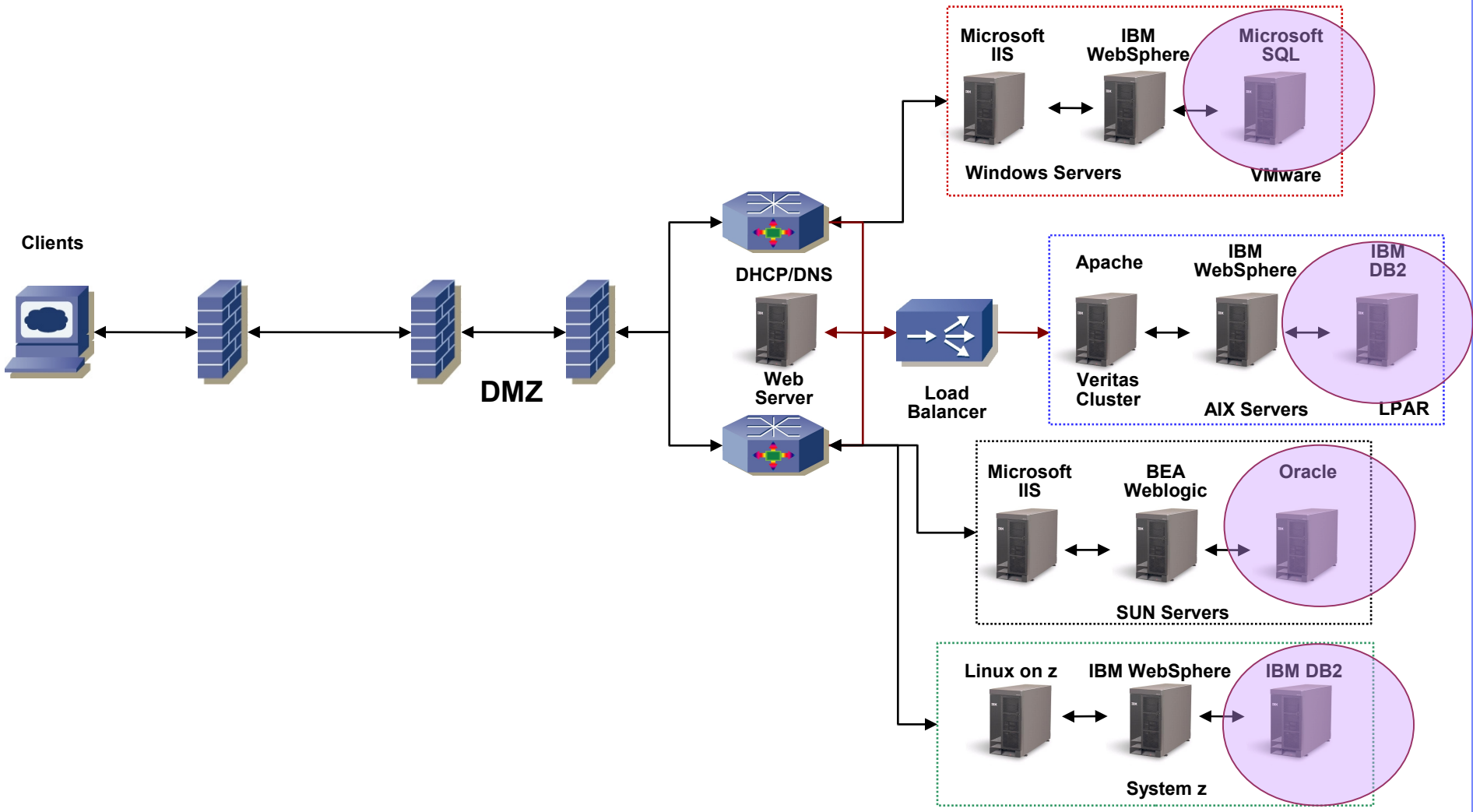
Is it the Database Server?



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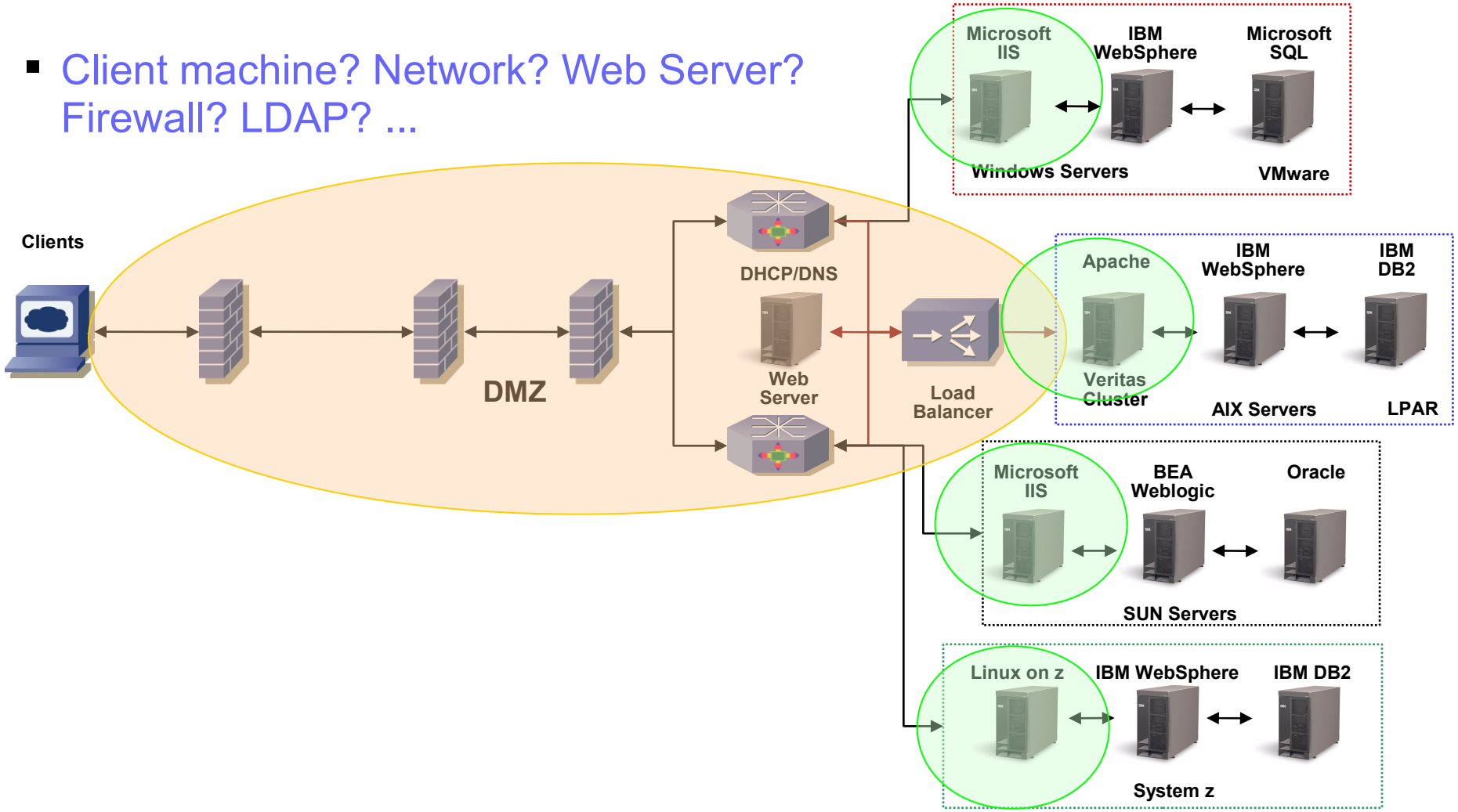
Or something else?

- Client machine? Network? Web Server? Firewall? LDAP? ...



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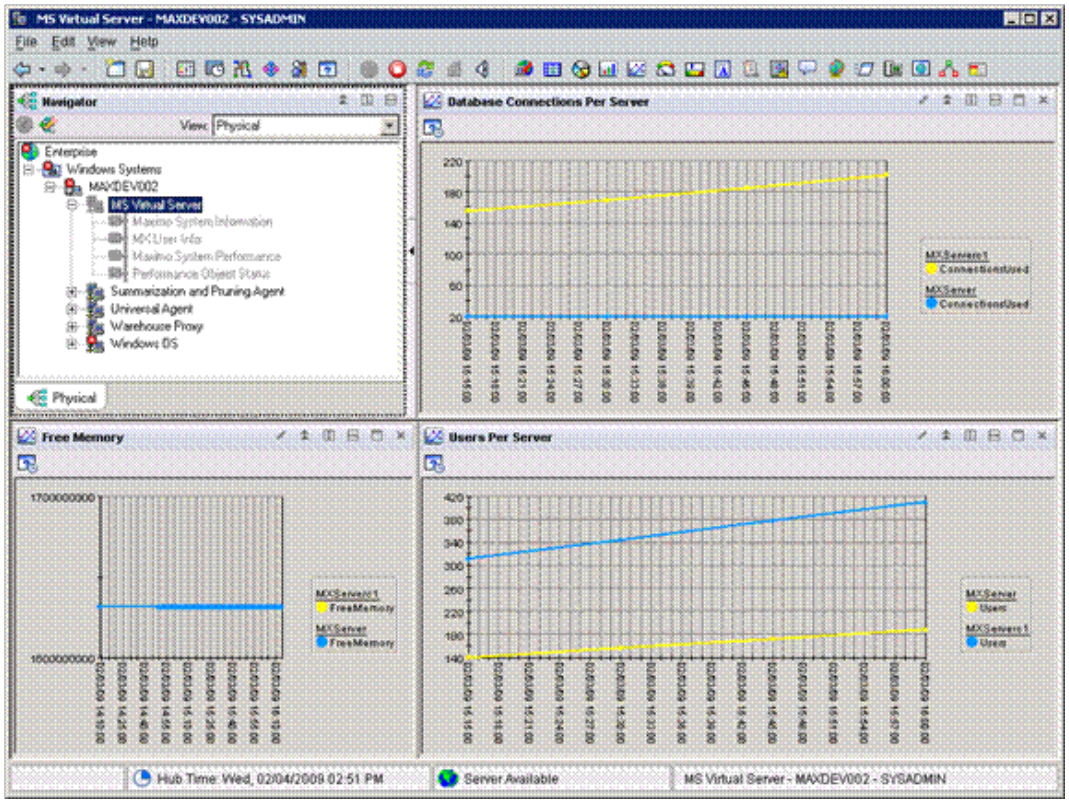
Maximo Agent

- Metrics monitored
  - System Information
  - User Sessions



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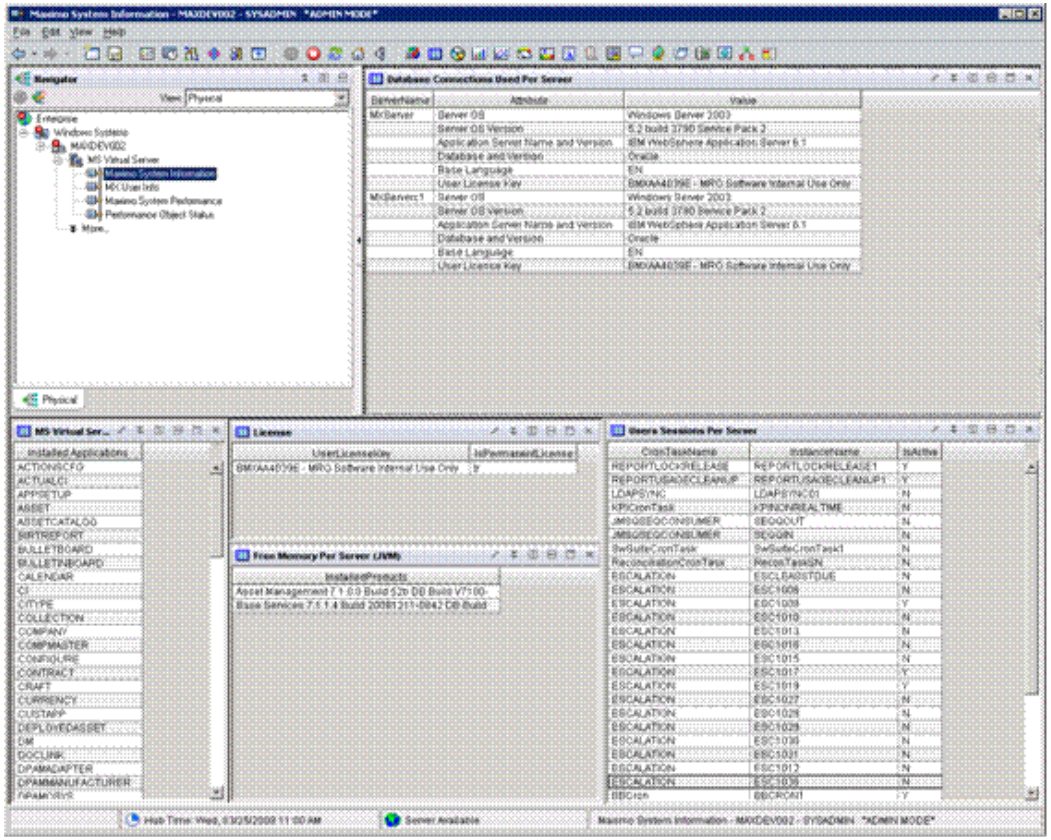
Maximo Agent System Information

- Metrics monitored
  - Server Information
  - Installed Applications
  - License
    - Licensed products list
    - Type of license
  - Installed Products
    - Installed products list
    - Version information
  - Cron Tasks
    - Cron tasks list
    - Active cron tasks



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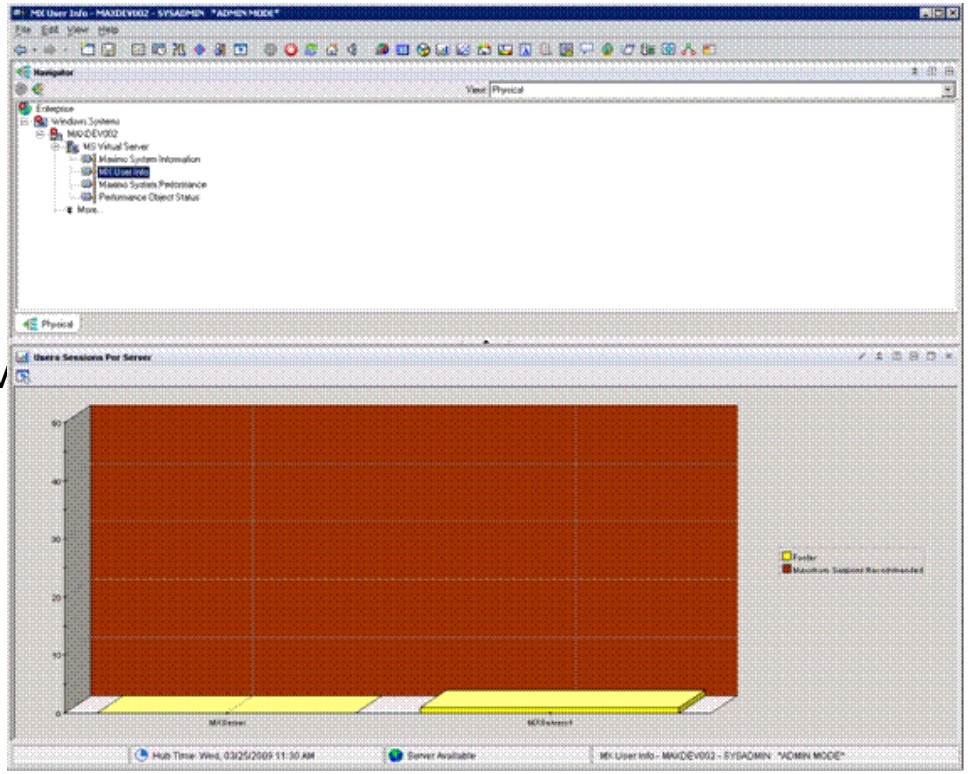
Maximo Agent User Node

- Metrics monitored
  - Current number of users vs recommended number
    - Yellow bars = number of users
    - Red background = threshold per serv



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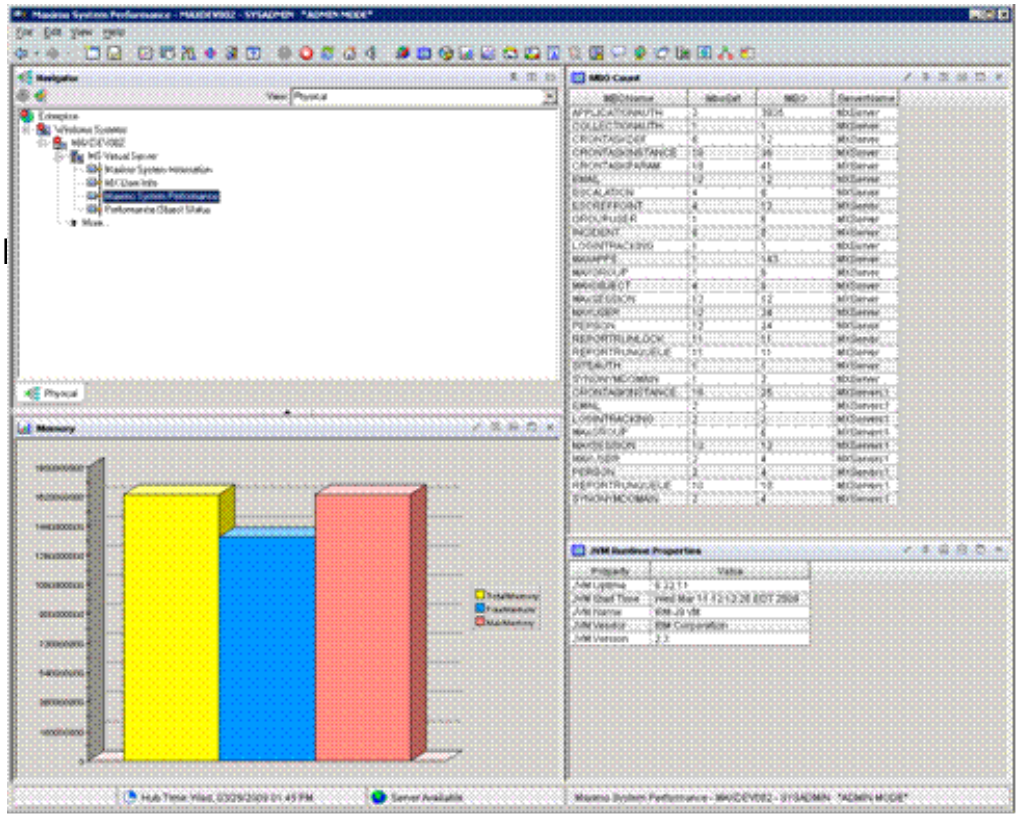
Maximo Agent System Performance Node

- Metrics monitored
  - Memory statistics for each server
  - MBO Count
    - Name of each MBO
    - Number of instances
  - JVM Runtime properties
    - JVM information
    - Version
    - Uptime



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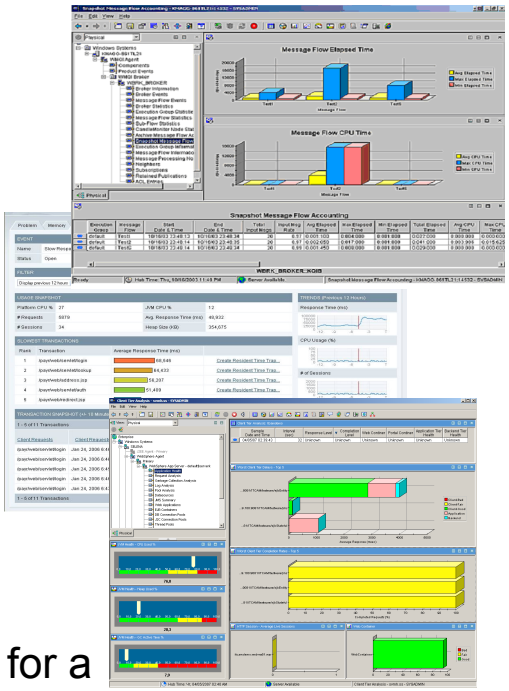
J2EE Application Performance Diagnosis

- Monitor high-level application health status
  - Tier by tier analysis
  - Correlation to remote EJB containers
- Identify J2EE/J2SE performance problems
  - Slow or Hung requests
  - Intermittent application slow downs
- Monitor essential application resources
  - Throughput
  - Heap Usage
  - CPU usage
  - Garbage Collection
- Real time deep dive diagnosis
  - Display all in-flight requests, as well as details for a single request
  - Memory leak analysis
  - Method and stack “traces” to display the detailed execution flow of a request
  - Lock Contention Analysis on serialized methods



Throughput

Health

Resources

Alerts & Take Actions

Problem Determination

Memory Analysis

Application Trace

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Maximo Monitoring Agent Prerequisites

- IBM Tivoli Monitoring (ITM)
  - Version 6.2.1 or higher
    - Tivoli Enterprise Monitoring Server (TEMS)
    - Tivoli Enterprise Portal (TEP)
    - Tivoli Enterprise Monitoring Agents (OS Agent)
    - Tivoli Data Warehouse
    - Tivoli Enterprise Portal Server (TEPS)
- Supported OS Platforms
  - Currently Windows only
  - Maximo on all supported platforms
- Available in Maximo 7.5
  - Can download only this portion – don't need to upgrade to use it
  - Bundle consisting of:
    - Tivoli ITM console, framework and data warehouse
      - OS agents
      - Database agents
      - J2EE or WAS agents
    - Maximo agent – supports versions 6.2.5 or 7.1.1.6 and higher
  - Licensed for use to monitor Maximo environment only
  - No additional charge for entitled customers
  - Also available as a 'Feature Pack' on Fix Central for version 6.2

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Agent Usage Scenarios

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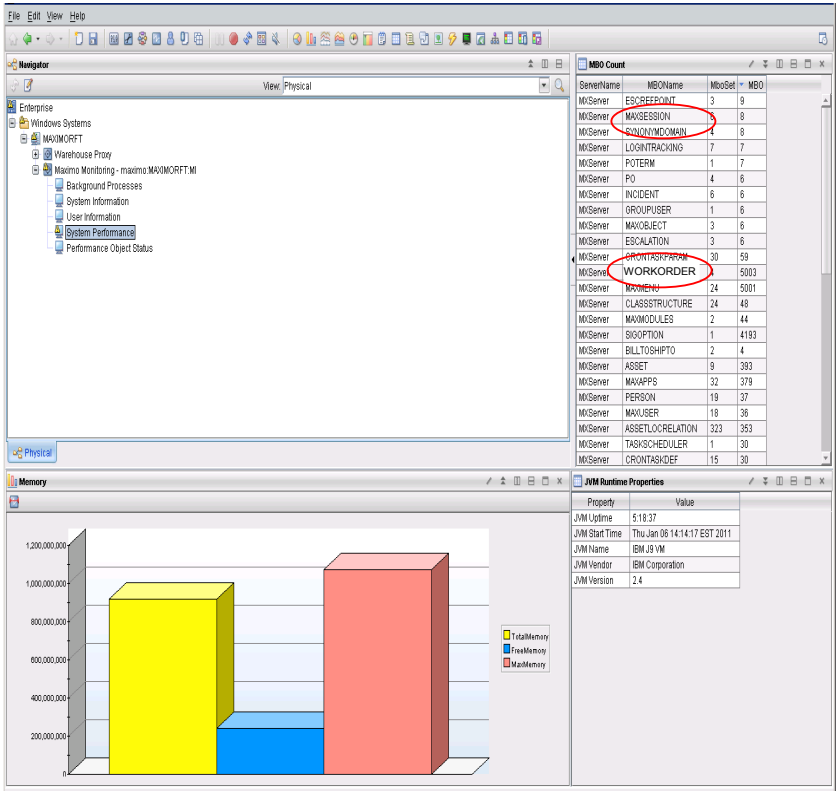
Poor performance scenario #1

- Users are complaining WorkOrder App is slow
- Though there are only 6 user sessions there are over 5,000 instances of the WORKORDER object
- Resolution – provide this information with your PMR for guidance on app server tuning (garbage collection) or development



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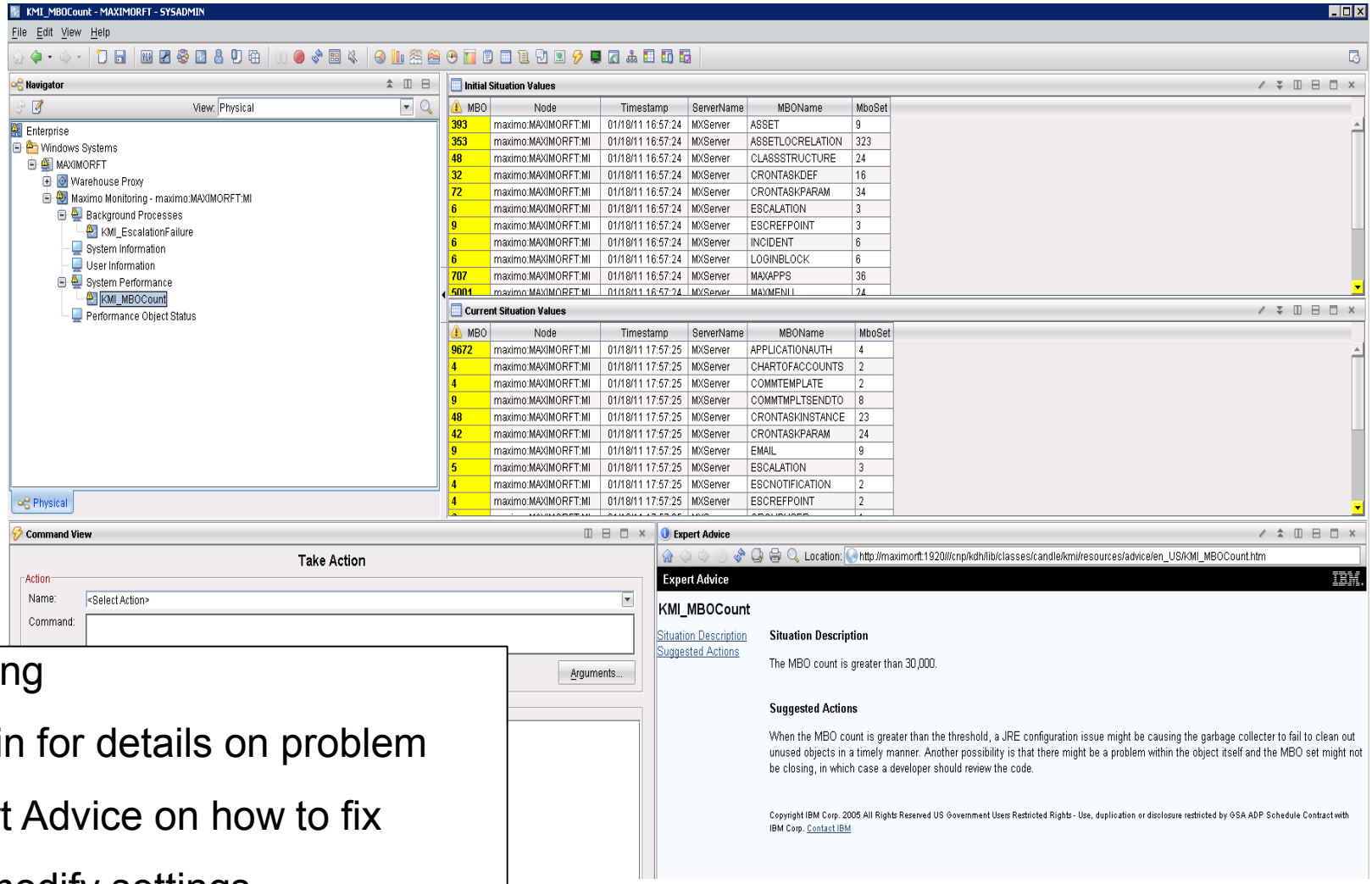
Situation and Expert Advice



- Warning
- Click in for details on problem
- Expert Advice on how to fix
- Can modify settings

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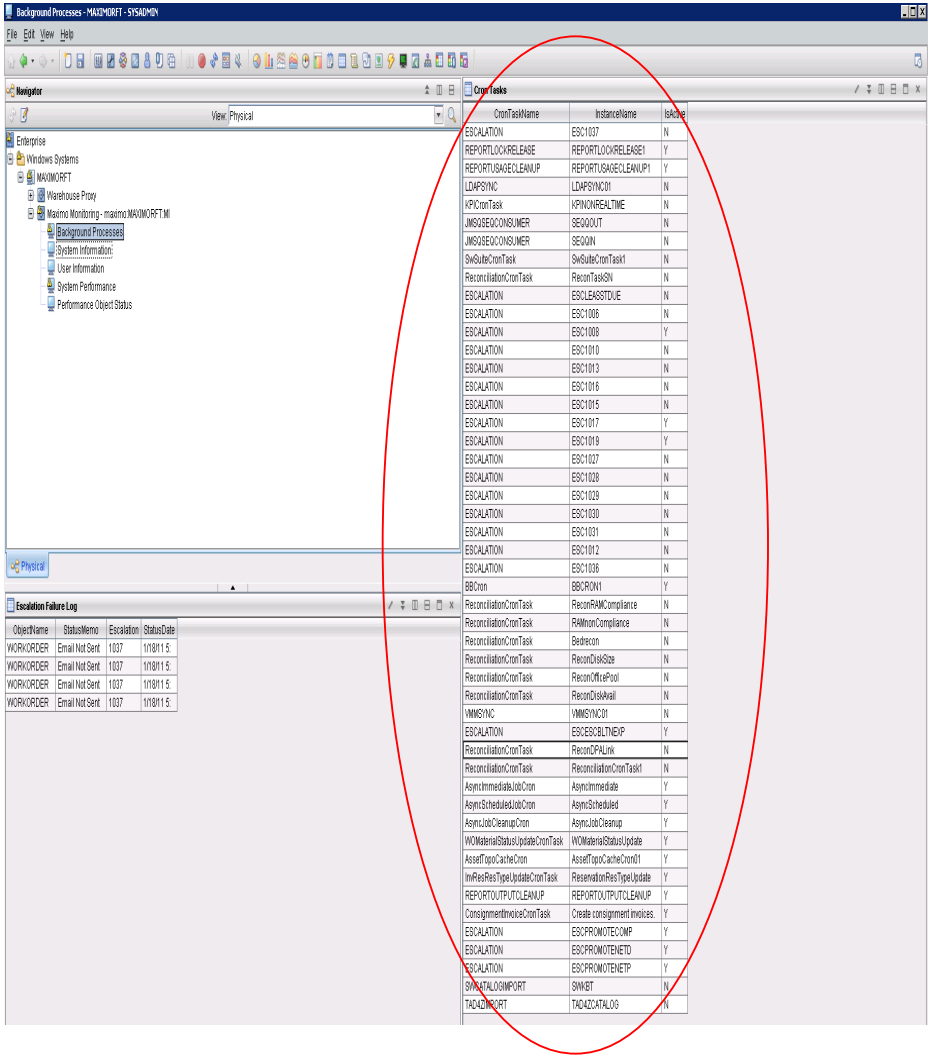
Poor performance scenario #2

- System has 100 users logged on from 9 to 5
- There are 200 cron tasks configured to run every 60 seconds 24 hours a day
- Resolution – Look at your cron task scheduling and see what modifications may be possible



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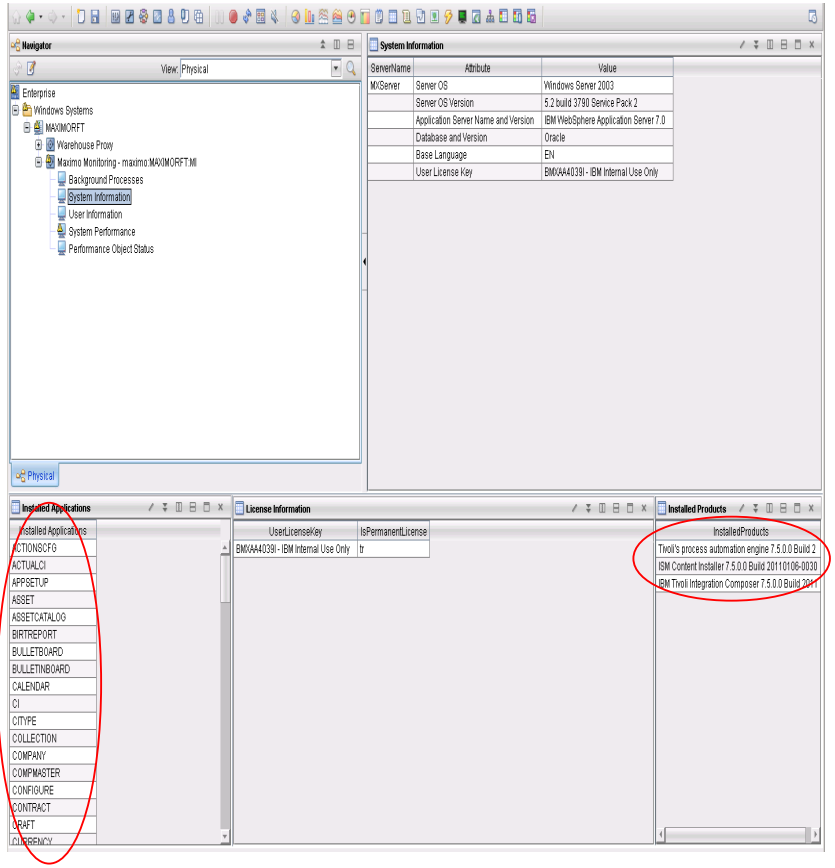
Applications are not showing up

- System Information node shows
  - all products licensed
  - all applications enabled
- Resolution – Verify the applications and re-install license packs, if necessary.



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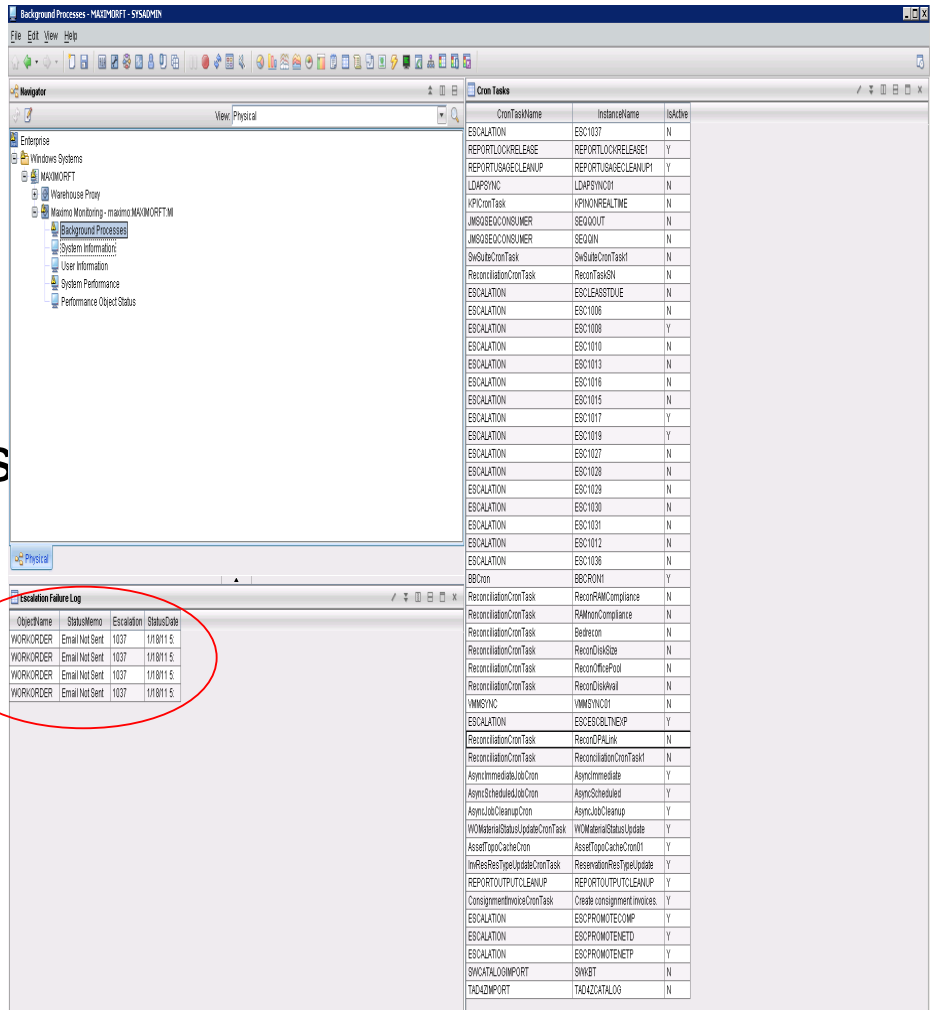
Escalations not firing as expected

- Background Process node shows escalation failures and reason codes
- Resolution – Review the logs and re-configure the escalations or provide them to support with your PMR.



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Install and Configuration Considerations

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Confirm ITM Setup

- Can you connect via TEMS?
- Can you deploy agents?
- Is your version of ITM supported?

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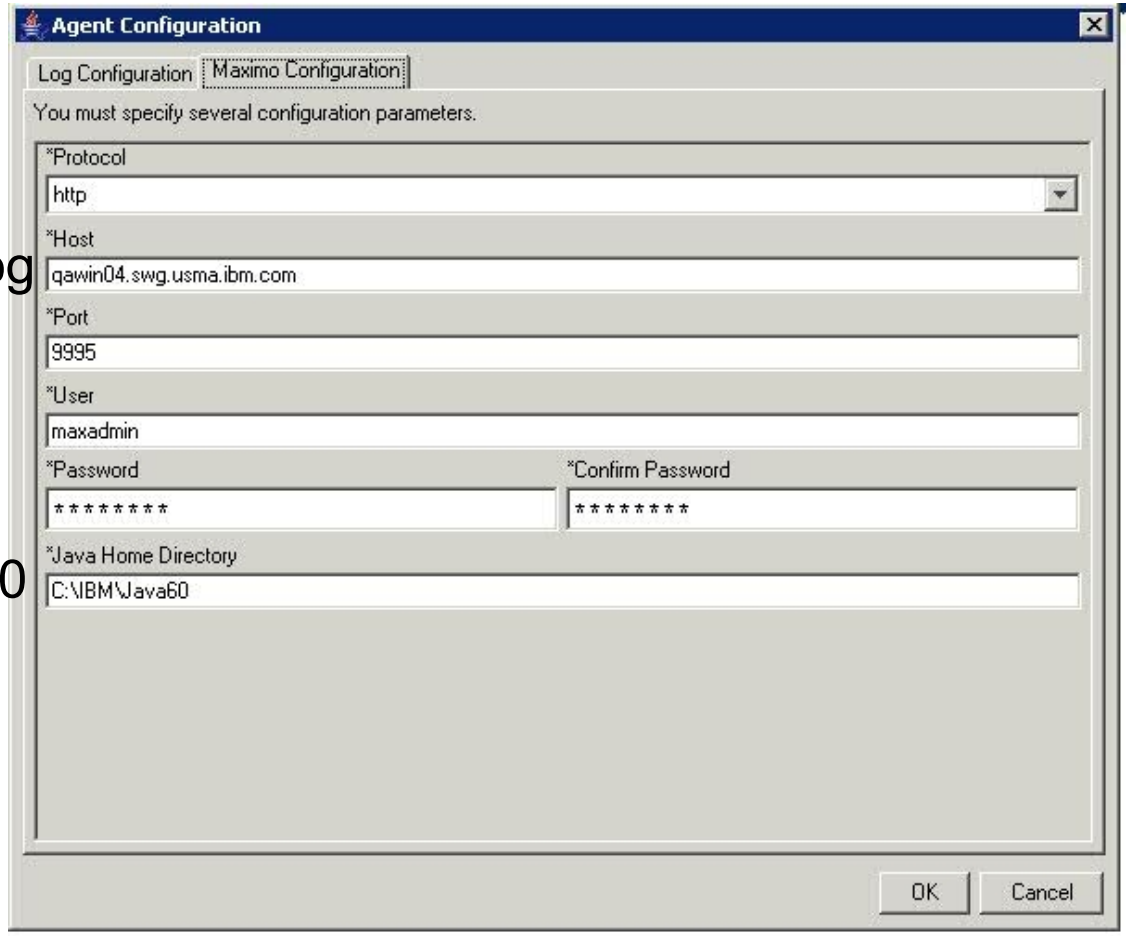
Configuring Maximo Monitoring Agent

- Can run over HTTP or HTTPS
- User needs to be able to log in to read data, not write
- Java Home Directory can be anywhere spaces are not supported in the name
  - c:\Program Files\Java60 – not supported
  - c:\Progra~1\Java60 - supported



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LDAP (Lightweight Directory Access Protocol) Support

- LDAP and Secure LDAP are supported but need additional configuration
- The deployment descriptor (mboweb/web.xml) file needs to be edited

```
<security-constraint>
    <web-resource-collection>
        <web-resource-name>MAXIMO Report Tool</web-resource-name>
        <description>pages accessible by authorised users</description>
        <url-pattern>/reporttool/*</url-pattern>
        <http-method>GET</http-method>
        <http-method>POST</http-method>
    </web-resource-collection>
    <web-resource-collection>
        <web-resource-name>MAXIMO MOSWOS</web-resource-name>
        <description>pages accessible by authorised users</description>
        <url-pattern>/toolclient/*</url-pattern>
        <http-method>GET</http-method>
        <http-method>POST</http-method>
    </web-resource-collection>
    <auth-constraint>
        <description>Roles that have access to MAXIMO Report Tool</description>
        <role-name>maximouser</role-name>
    </auth-constraint>
    <user-data-constraint>
        <description>data transmission gaurantee</description>
        <transport-guarantee>NONE</transport-guarantee>
    </user-data-constraint>
</security-constraint>
```


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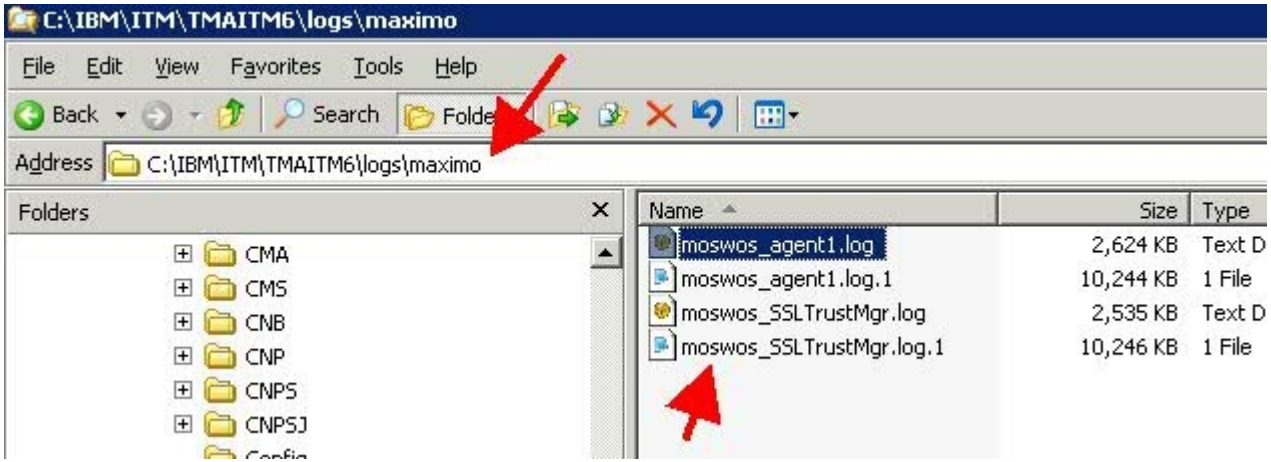
Troubleshooting and Logging

- Maximo Monitoring Agent is logger enabled
  - Specific to the agent
- All exceptions and errors are logged
- Logs are located under
  - <ITM_HOME>\TMAITM6\logs\maximo



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Questions?

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