

iSeries. mySeries.

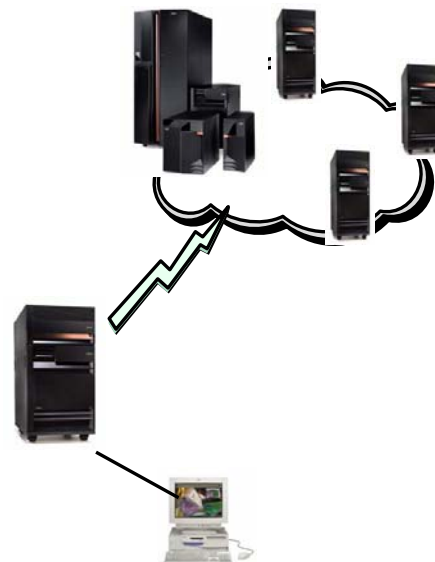


Systems Management with IBM i5/OS™

iSeries. mySeries.

Agenda

- **IBM Systems Management Strategy**
 - Virtualization Engine
 - Integrated Solutions Console
- **2004 iSeries Systems Management**
 - Power 5 Hardware: Platform Management
 - Systems management in V5R3



iSeries Customer Profiles

| | % of Small Customers | % of Medium Customers | % of Large Customers |
|--------------|----------------------|-----------------------|----------------------|
| Windows | 94 | 91 | 87 |
| Linux | 30 | 17 | 12 |
| AIX | 20 | 12 | 22 |
| Netware | 9 | 23 | 27 |
| HP-UX | 5 | 5 | 38 |
| Sun Solaris | 8 | 8 | 23 |
| SCO UnixWare | 10 | 5 | 4 |

IBM IT Trends Survey for 2002

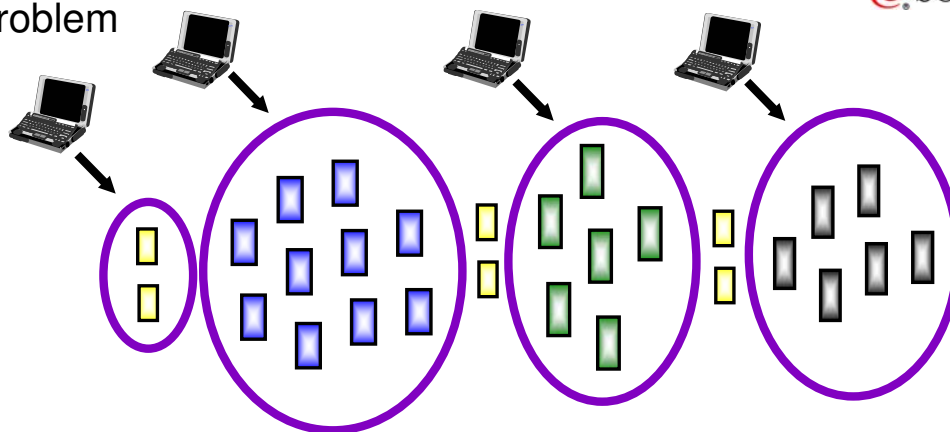
Trends:

Windows is pervasive (71% of iSeries Customers have less than 50 NT Servers)

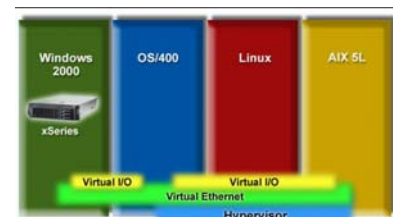
Linux Servers are increasing

AIX/Unix somewhere in the enterprise

The Problem



- **Server / Storage / Middleware management environment is fragmented**
 - Vertical management silos
 - Series / platform specific management applications
- **Multiple management consoles**
- **Near term deliverables such as Power5 hardware require a converged solution**

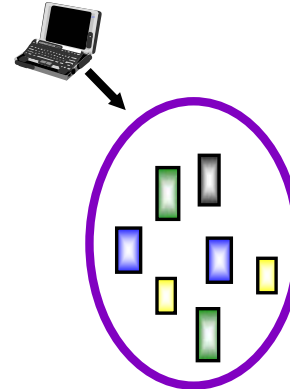




Addressing the Problem

- Converge on a Common Console
- Utilize Open Standards
 - CIM
 - Web Services
 - XML
- Share Reusable Components
- Migrate Components Over Time
- Support New Hardware
 - Power5
 - Blades
 - Etc...

IBM @server & TotalStorage



IBM-wide Management Initiatives

- Common Solution Install
- Provisioning Services
- Common Base Events / Monitors
- Common Logging / Tracing
- Policy-based Management
- Common Agent Kernel Services
 - Discovery
 - Communications and Security
 - Instrumentation

IBM @server & TotalStorage



Unified set of end-to-end management components

Common Cross Platform Infrastructure

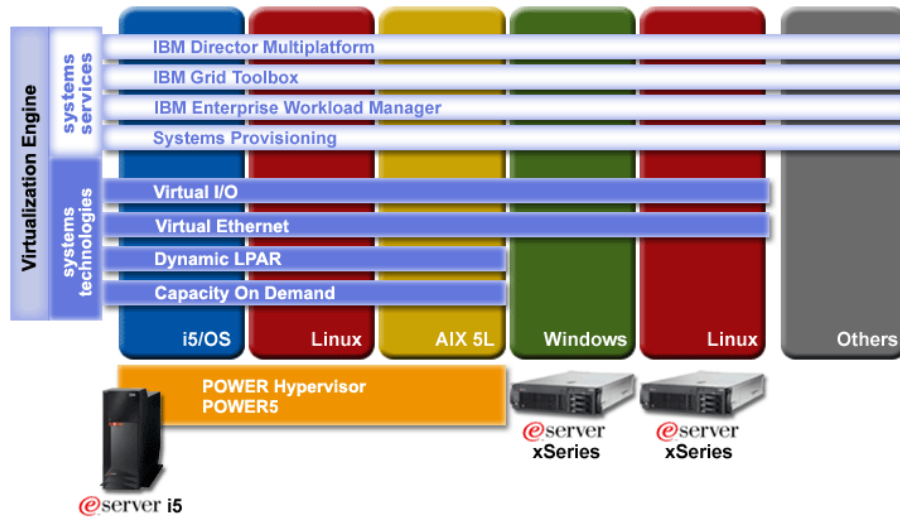




@server®

IBM Virtualization Engine and @server

i5



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PAGE 7

iSeries. mySeries.



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Converged Systems Management – End Game

- Single Web-Based Management Console
- Consistent Look & Feel
- One Stop Shopping for all Administrative Tasks



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Unified set of end-to-end management components

Common Cross Platform Infrastructure



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PAGE 8

iSeries. mySeries.

Positioning of Systems Management Tools

iSeries Navigator -- to manage OS/400, i5/OS operating systems

- OS/400 V5R1, V5R2, i5/OS V5R3

- All iSeries Navigator functions except LPAR on Power5 hardware

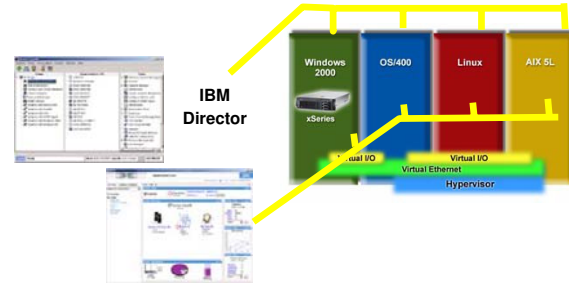
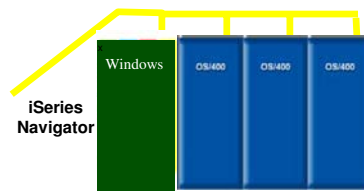
- Windows IxS/IxA, Linux, AIX on i5

- Disks, Password synchronization, install Service Packs/Updates, run commands, Backup

IBM Director Multiplatform -- to manage heterogeneous operating systems

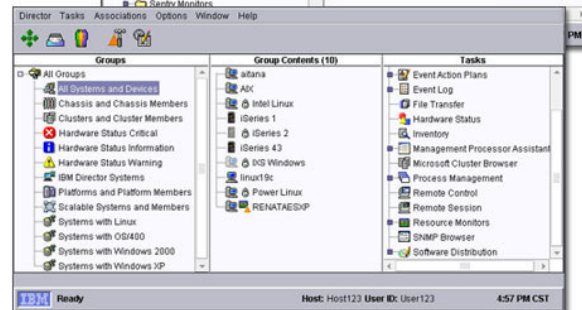
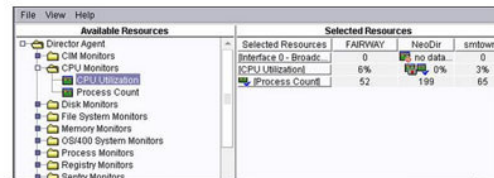
- Inventory, File Transfer, Performance Collection, Alerting, Automated Reactions, Group Management

OS/400 V5R1/V5R2
i5/OS V5R3
(any hardware)



IBM Director Multiplatform*

- Centralize management and monitoring for multiple operating environments
 - i5/OS, AIX 5L, Linux, and Windows operating systems
- Open standards-based heterogeneous management tool
- Complements iSeries Navigator
 - Integrated with PM iSeries for collecting and reporting multi-OS CPU utilization and capacity planning



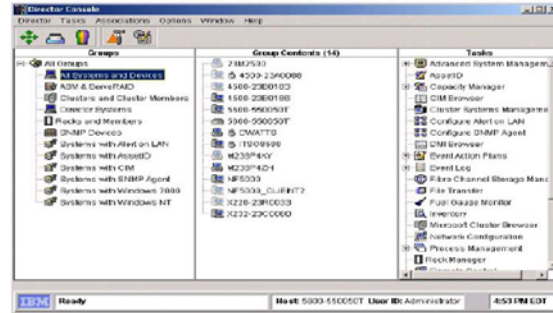
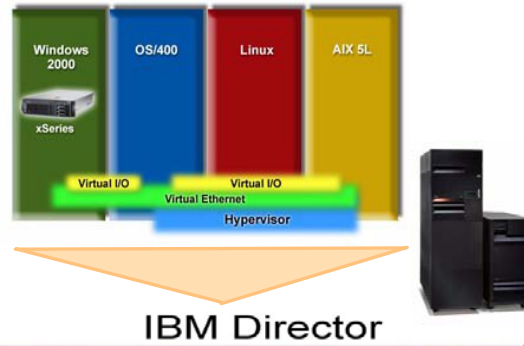
- An IBM Virtualization Engine systems service

* Product Preview. Planned availability 3Q 2004. This presentation contains information about IBM's plans and directions. Such plans are subject to change without notice.

Heterogeneous Systems Management for your iSeries

■ IBM Director Multiplatform

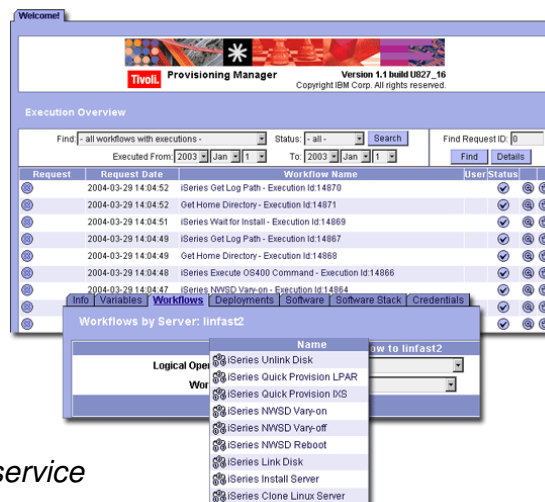
- Provides heterogeneous multi-system and partition management so administrators can monitor the usage and performance of critical components
- IBM Director being expanded to enable managing OS/400, AIX, Linux, and Windows operating systems from a single GUI



- Inventory
- Monitoring
- Alerting
- Group Management
- Automated Reactions
- Process Management
- Remote Session
- File Transfer

Systems Provisioning

- Simplifies the deployment of multiple infrastructure servers
- Automates the installation Linux and selected Windows servers
- Provisions hot spare IXA/IXS failover, and Linux on POWER cloning
- Supports deployment of Windows on IXS/IXA and Linux on POWER
- *An IBM Virtualization Engine systems service*



IBM eServer iSeries LPAR and IxS/IxA support IBM Tivoli Provisioning Manager and Tivoli Intelligent Orchestrator

• Tivoli Provisioning Manager

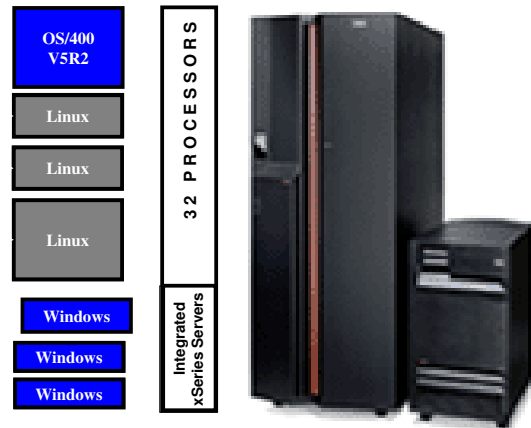
- Supports iSeries with OS/400 V5R2
- Each Linux LPAR or Windows IxS/IxA appears to TPM administrators as just another server resource
- ITPM automates the installation of Linux LPARs and Windows IxS/IxA Servers.
- IBM Tivoli Intelligent ThinkDynamic Orchestrator can then monitor the application environment and dynamically re-provision Linux LPARs for additional capacity as required to and from business applications.

• Business can now

- Be more responsive to marketplace changes
- Automate that response to the change

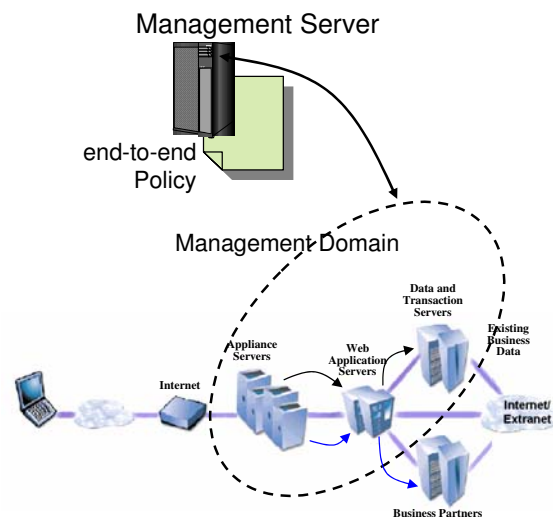
ITPM with IBM iSeries

OS/400 V5R2 Provides Linux and Windows Provisioning Capabilities



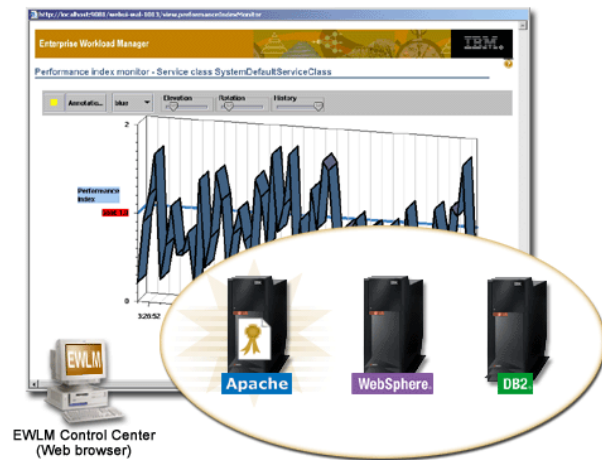
EWLM Workload Manager

- EWLM Concepts
 - End-to-end goals for service classes
 - Goals defined in EWLM policy
- Application instrumentation
 - Based on standardized ARM API
 - Apache, WAS, DB2
- Reporting/Monitoring
 - Monitor transaction flow and goal achievement
 - Single mouse click problem determination drill-down
 - Reduce need for server and application probes and agents
- Network Management
 - Cisco Routers / Load Balancing



IBM Enterprise Workload Manager (EWLM)*

- Provides cross platform end-to-end view of goal oriented performance management for enterprise applications
- i5/OS V5R3 enables monitoring of applications instrumented with Application Response Measurement (ARM) standards
 - WebSphere Application Server
 - IBM HTTP Server (Powered by Apache)
 - DB2 UDB

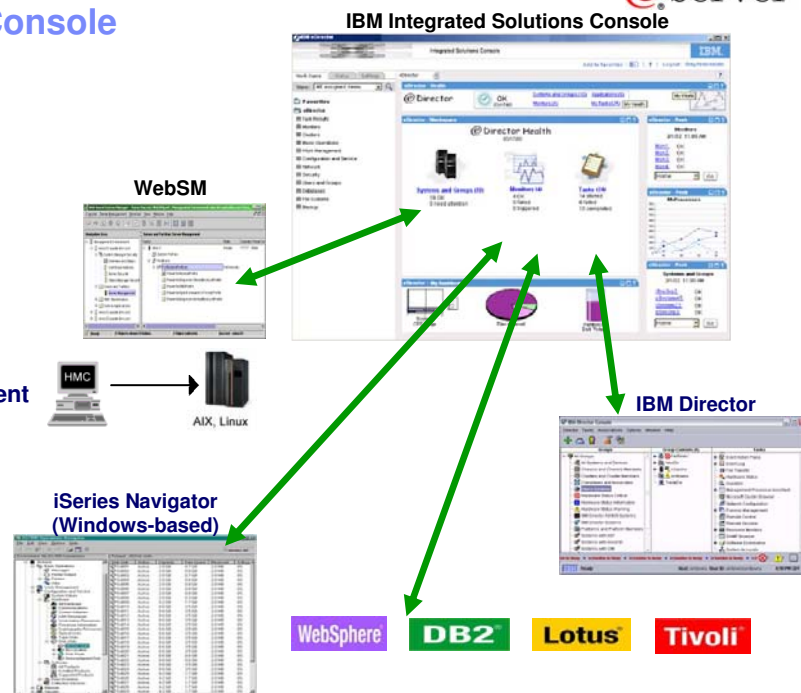


- An IBM Virtualization Engine systems service

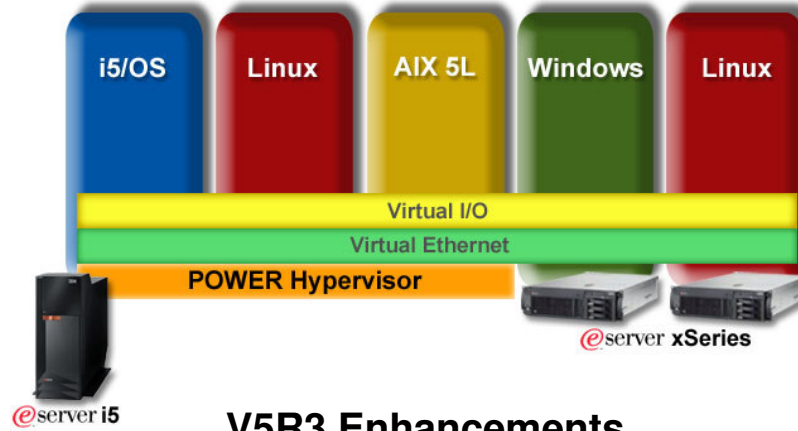
* Product Preview. Planned availability 3Q 2004. This presentation contains information about IBM's plans and directions. Such plans are subject to change without notice.

Integrated Solutions Console

- **OS/Device management**
 - Convergence of:
 - iSeries Navigator
 - WebSM
 - Windows/Linux OS mgmt
- **Distributed management**
 - Convergence of:
 - Management Central
 - CSM for AIX/Linux
 - IBM Director
- **Hardware Platform Management**
 - Integrate hardware console functions
- **Storage Management**
- **SWG Administration**
 - WAS
 - Tivoli
 - Lotus
 - DB2



IBM @server i5 On Demand Operating Environment



V5R3 Enhancements

This presentation contains information about IBM's plans and directions. Such plans are subject to change without notice.

i5/OS V5R3 Dynamic Logical Partitioning

- IBM Virtualization Engine systems technologies include POWER Hypervisor™
 - Supports i5/OS, AIX 5L and Linux and up to 254* partitions
- Improve server utilization rates across multiple workloads
 - Automatic processor balancing with uncapped partitions
- Improve fault tolerance and lower partition management costs
 - Primary partition replaced by Hardware Management Console (HMC)



* Product Preview Up to 40 with 570 4-way. This presentation contains information about IBM's plans and directions. Such plans are subject to change without notice.

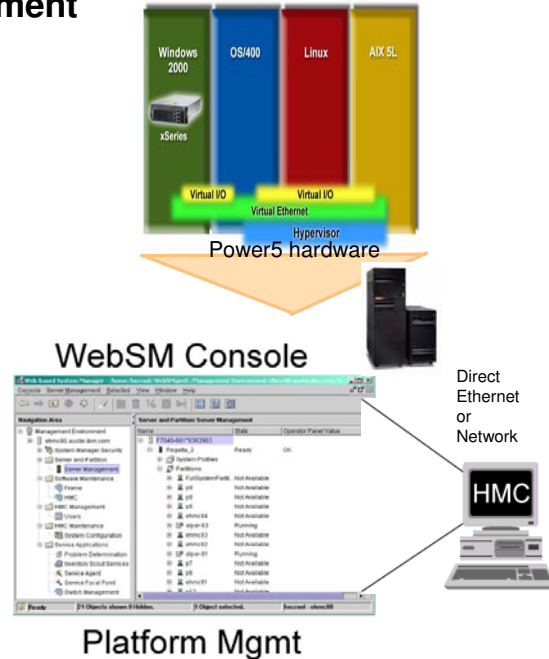
Power5 Hardware: Platform Management

IBM Hardware Management Console (HMC) for managing iSeries Power5 hardware

- HMC Console hardware available with Power5 iSeries hardware – **not available on earlier hardware**
- HMC supports multiple iSeries servers concurrently via single or redundant HMCs

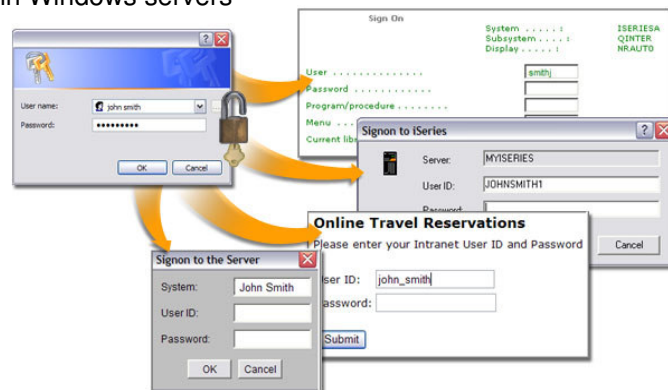
WebSM GUI preloaded on HMC

- Entire hardware platform is displayed in a single GUI
- WebSM GUI runs on HMC or remotely on Windows and performs platform management functions, such as:
 - LPAR configuration
 - Service
 - Control Panel
 - Console
 - Capacity Upgrade On-Demand



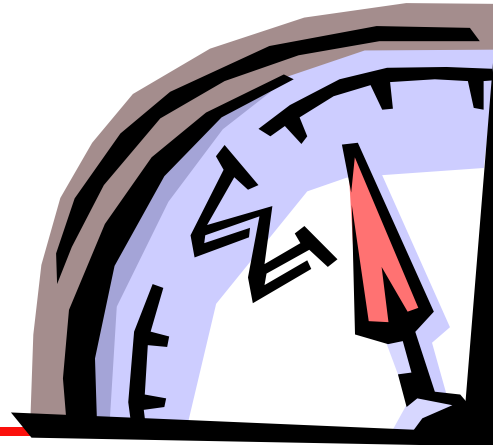
Lower Cost, More Secure Single Signon

- i5/OS V5R3 has native Kerberos Server & KDC (Key Distribution Center)
 - Enables single signon deployment without requiring a Windows KDC
 - Eliminates password caching in Windows servers
- i5/OS single sign on (SSO) now extended to
 - Portlets, Servlets
 - WebFaced applications
 - WebSphere Development Studio Advanced
 - Lotus Applications



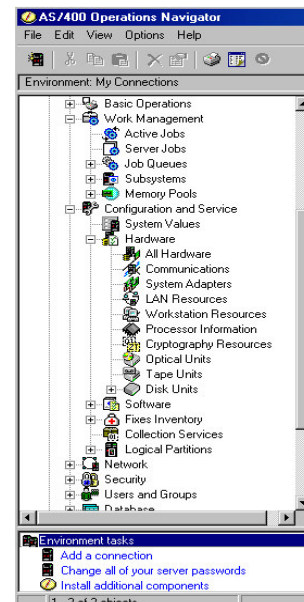
iSeries Navigator: What's New in V5R3

1. Management Central
2. Configuration and Service
3. Network
4. Databases
5. Integrated File System
6. Intelligent Agents
7. AFP Manager
8. Backup and BRMS
9. Advanced Job Scheduler
10. Usability Enhancements
11. iSeries Navigator tasks from the web



But First: V5R1 – Operations Navigator

- Work Management
- Monitor jobs, queues, memory pools, subsystems
- BRMS Media Management
- Database Navigator
- LPAR configuration and Management
- Disk Management
- Simple Cluster Configuration
- Integrated xSeries Management
- Taskpads, CL Command Prompter
- Auto-detection of plug-ins
- EZ Setup Integration
- Licensed Programs and Fix distribution



iSeries Navigator/Management Central V5R2

New file and B2B activity monitors

Work Management

Graphical Storage Virtualization

Backup Recovery and Media Services

Database and Independent ASPs

Linux Partition Creation and Management

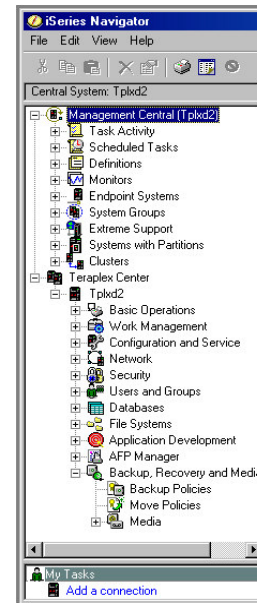
Integrated File System

Network Enhancements

Security and Enterprise Identity Mapping

Migrate Data While Active

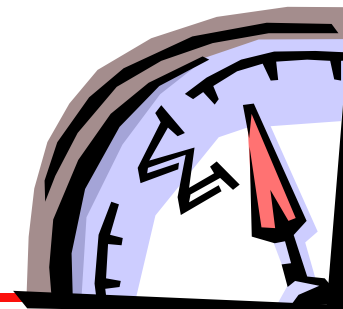
Virtual Media Install



<http://www.ibm.com/eserver/iseries/navigator>

iSeries Navigator: V5R3 Highlights

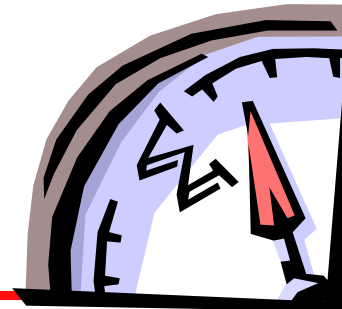
- Management Central
 - Synchronize EIM / Kerberos across endpoints
 - Cross partition collection services
 - Highly available and scalable
- Time Management
 - SNTP OS400 Server and Agent (System Clock)
 - Adjust system clock by slowing or speeding time
- Disk Management
 - Configure/Manage geographic mirroring
 - Print graphical view of disks
 - View multi-path disk unit connections
 - IxS disk allocation up to 1000 GB
 - Windows Cloning Wizards



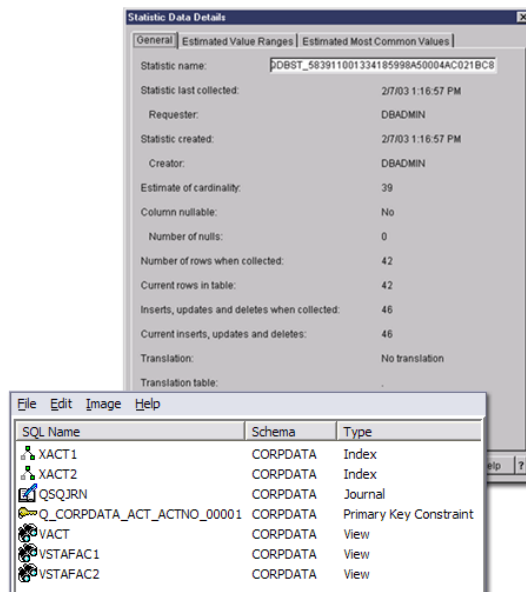
<http://www.ibm.com/eserver/iseries/navigator>

iSeries Navigator: V5R3 Highlights

- Network Security
 - EIM use for IxS users
 - LDAP and NetServer Kerberos enablement
 - EIM Many-to-one policy mappings
- File scanning enablement for IFS folders and files
- Enhanced output routing via AFP manager
- Tape volume reclaim wizard in BRMS
- General iSeries Navigator Enhancements
 - Connection status dialog for central system connection
 - Performance advisor helps diagnose slow iNav performance



DB2® UDB for iSeries



- Deliver enhanced functionality with improved performance and ease of use for data warehouse and queries
 - Star Join Recognition
 - Result set caching for re-run of same queries
 - Preview Materialized Query Table
- Extend development interfaces
 - Enhance SQL standards leadership and DB2 family compatibility
 - Support Rational XDE Modeler
 - Deliver Unicode enhancements
 - Enable .NET Managed Provider
- Single table size increased to 1.7 TB

iSeries Access Family

- iSeries Access for Windows
 - Extending integration between Windows clients and i5/OS applications
 - Microsoft .Net data provider enables access to DB2 UDB
 - Unicode enablement in data transfer, ODBC, OLE DB, and .Net functions allows easy access to data stored in any national language
 - Extended data transfer integration options for Excel users

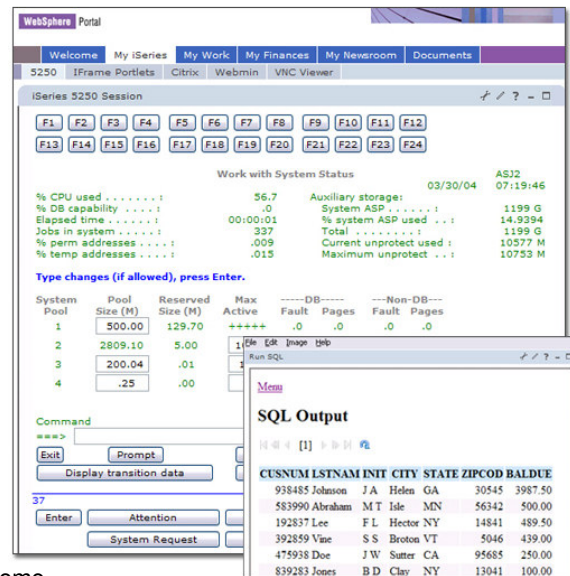
- iSeries Access for Linux
 - Extending integration between Linux and i5/OS applications
 - New ODBC to access DB2 UDB
 - Remote commands aid access to i5/OS applications
 - Full-function 5250 emulator



iSeries Access for Web

- iSeries Access for Web
 - Now can be deployed as portlets, presented via WebSphere Portal Express and Express Plus
 - Lotus Instant Messaging integration

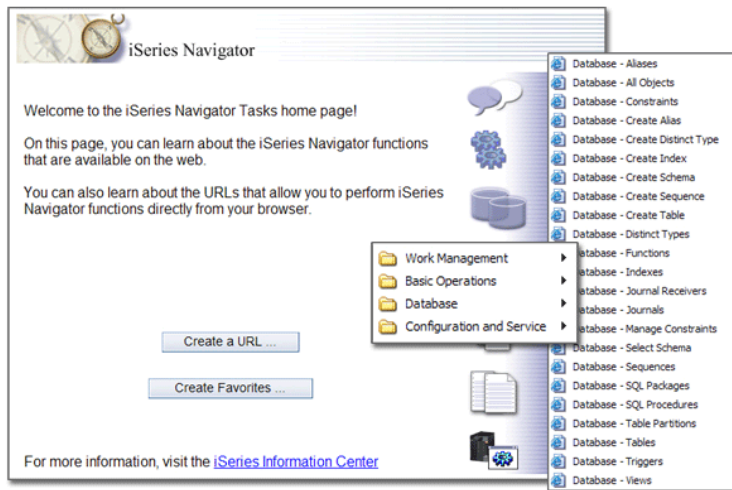
- Host Access Transformation Server Limited Edition (HATS LE)
 - Dynamically transforms 5250 applications into a browser
 - Rejuvenates existing applications with web look/feel without source code



<http://s10f207b.rchland.ibm.com:2080/webaccess/iWAHome>

Browser-Based iSeries Navigator Tasks

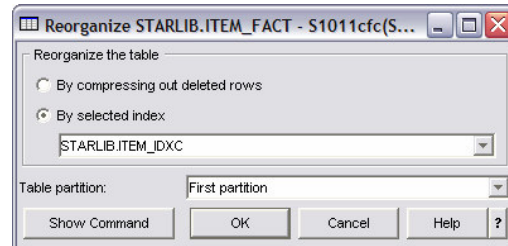
- Enable access to a subset of management tasks from a Web browser
- Creating a URL enables direct access to a specific system task
- Enables tasks to be embedded into Web applications



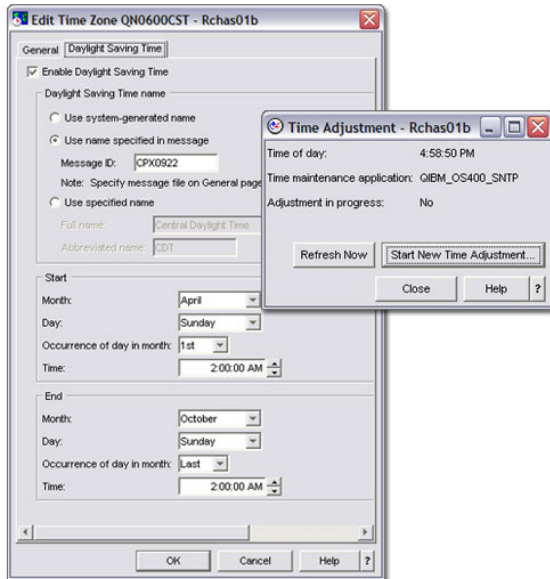
<http://www-1.ibm.com/servers/eserver/series/navigator/webtasks.html>

Non Disruptive Operations

- Database reorganization
 - Improved performance with parallelism
 - Restart & monitoring improve operational flexibility
- Rapid Checkpoint Save-While-Active
 - New save-while-active option improves performance when applications have open commitment control transactions
 - Enables files to be saved with pending record level changes
- RAID 5 across SCSI buses extends fault tolerance
- Concurrent I/O tower and IXA add/remove*
- Automatic conversion of IFS directories to improve performance



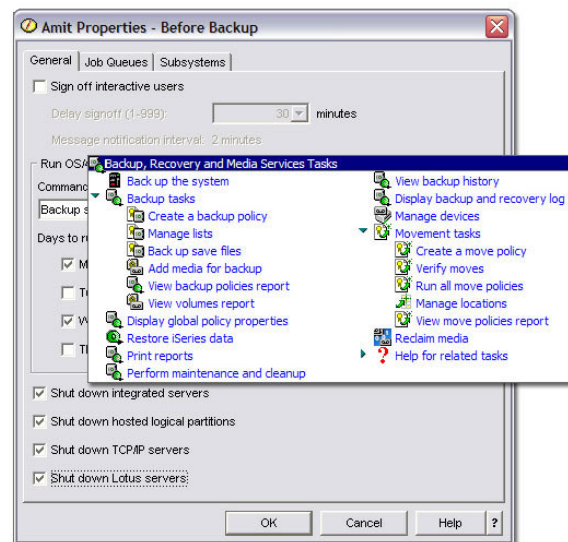
Time Zone Modernization



- System Time Base is Now Coordinated Universal Time (UTC)
- Enable support for System Time Zone with daylight saving time
- Easy multi-system time synchronization via Management Central
- Simple Network Time Protocol (SNTP) Client and Server Support
- Implement time zone architecture for future enhancements

Backup Recovery Automation with BRMS

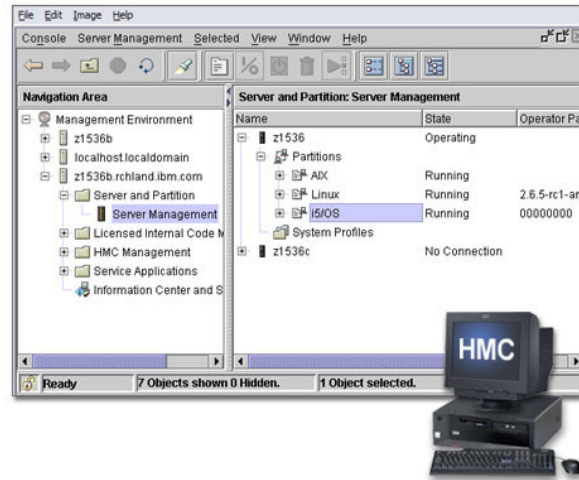
- Automate backup for i5/OS hosted Windows, Linux, AIX 5L and Domino servers
 - BRMS manages shutdown, save and restart of LPARs, Domino or Windows servers
- New reclaim media wizard condenses and reorganizes data to optimize tape utilization and save media cost
- Perform unattended system save (SAVSYS)
 - No need to start console monitor



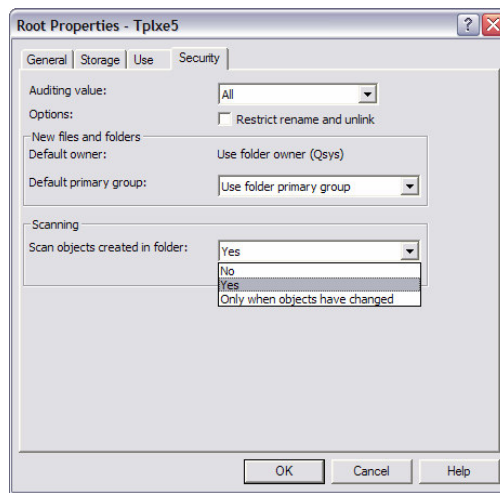
<http://www-1.ibm.com/servers/eserver/iseries/service/brms/>

Hardware Management Console (HMC)

- Single console for POWER5 servers
 - Pre-installed Linux-based workstation
 - Ethernet, desktop or rack mount
 - Supports local consoles, including 5250 console
 - Web-based System Manager enables local or remote management for HMC control and status
- LPAR and CoD now configured via HMC
- Replaces primary partition and improves system resiliency
- Dynamic creation of new partitions



Enhancing Security with Integrated File System



- PC file systems (including i5/OS Integrated File System) should be scanned to ensure they do not host viruses
- i5/OS V5R3 now enables native *real-time* virus protection scanning tools on the Integrated File System
- i5/OS V5R3 virus scanning enablement is exploited by BytWare StandGuard™ AntiVirus





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IBM @server i5 and i5/OS V5R3 - Highlights

| | |
|-------------------------------------|---|
| IBM @server i5 | <ul style="list-style-type: none">◆ The next generation of iSeries servers◆ First POWER5 processor based servers in industry |
| IBM i5/OS V5R3 | <ul style="list-style-type: none">◆ The next generation of OS/400◆ Builds on and extends the capabilities of OS/400 V5R2 |
| Simplify Your Infrastructure | <ul style="list-style-type: none">◆ Run i5/OS, Linux, AIX 5L and Windows in a single server◆ Share resources, maximize utilization with IBM Virtualization Engine◆ Manage infrastructure with IBM Director Multiplatform |
| Integrate to Innovate | <ul style="list-style-type: none">◆ Exploit i5/OS integration with IBM software◆ Personalize application access with WebSphere Portal◆ Foster interaction and collaboration with Lotus Workplace |
| Deliver Without Disruption | <ul style="list-style-type: none">◆ Extend Capacity on Demand leadership with Memory & Reserve CoD◆ Strive for continuous operations with fault tolerant technologies◆ Deliver robust, open database solutions with IBM DB2 UDB |

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PAGE 35

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Introducing IBM @server i5 & i5/OS

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|---------------|-------------------|---------------------------|----------|--------------------|--------------|---------|
| AIX | DB2 Universal | eServer | Lotus | Power Architecture | RS/6000 | z/OS |
| AIX/L | DB2 OLAP Server | Enterprise Storage Server | MQSeries | Power Everywhere | S/390 | zSeries |
| AIX 5L | DataPropagator | Hipersockets | Notes | POWER Hypervisor | ThinkPad | 400 |
| AIX 5L (logo) | Domino | IBM | OS/400 | POWER6 | Tivoli | i5/OS |
| AS/400 | e business (logo) | IBM Virtualization Engine | POWER | pSeries | TotalStorage | |
| AS/400e | e (logo) business | IBM (logo) | POWER4 | Quickplace | WebSphere | |
| DB2 | e (logo) server | iSeries | POWER5 | Rational | xSeries | |

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