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Optimizing Your Data Center Using Microsoft System Center

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Agenda

- The Changing Data Center
- Microsoft’s Approach
- Solutions for the Data Center
- Benefits and Conclusion

Changes Affecting the Data Center

Rapid Growth

- 2/3rd of enterprises are increasing their data center budget
- 74% of enterprises mandate all servers reside in the data center

Virtualization

- 66% of companies are currently deploying server
- 81% of customers are doing server consolidation w/in the next 2 years

Social Responsibility and Green IT

- Trend to counter the growing consumption of energy, materials and land for data centers
- Data centers will consume 5% of total US energy by ’09

Compliance and Process

- 50% of US and European enterprises completed or are implementing ITIL
- CIOs say 10% of their budget to be dedicated to compliance

Data Center Pressures

Power Management

- Power usage over four years exceeds the initial cost of the server
- 42% of data center's will run out of power capacity with 12 to 24 months

Resource Constraints

- Running out of physical space in the data center
- IT skills constrained as systems, technologies, and applications increase in complexity

Increasing Service Levels

- 82% of data centers already tracking some type of SLA
- Data centers striving for "five nines" availability
- Disaster recovery growing in importance

Interconnected Data Center

- Every system and application has become interconnected
- 86% of Large IT organizations have Unix and Linux systems

Dynamic IT and the Optimized Data Center

Infrastructure Optimization Models

Data Center Management Solutions

Configuration Management

- Automated Provisioning and Updating of Physical and Virtual Environments
- Server Consolidation Through Virtualization

End to End Monitoring

- Proactive Platform Monitoring
- Application & Service Level Monitoring
- Interoperable and Extensible Platform

Server Compliance

- Configuration Controls and Reporting
- Centralized Security Auditing
- Comprehensive Security & Identity and Access Mgmt

Data Protection and Recovery

- Business Continuity Thru Virtualization Mgmt
- Backup and Recovery of Physical and Virtual Resources
- Disaster Recovery

Data Center Management Solutions

Configuration Management	End to End Monitoring	Server Compliance	Data Protection and Recovery
			

Solutions begin with System Center technologies

Integration with Microsoft applications and platform broaden the value

Software partner ecosystem extends it

Best practices and experience gets it done

Configuration Management

Automated provisioning and server consolidation

Challenges Addressed

- Power, space and maintenance costs forcing more efficient use of resources
- Dispersed servers and applications difficult to manage and update resulting in higher costs and underutilized systems

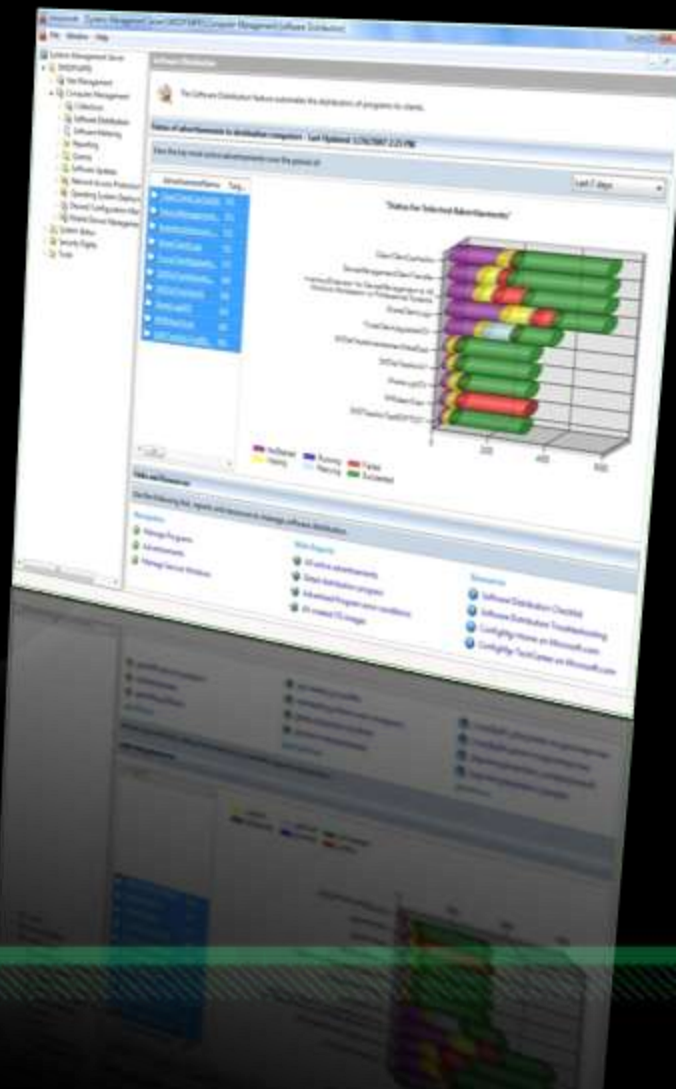
Configuration Management Capabilities

- Manage virtual machines to consolidate physical servers
- Centralize, automate and manage both physical and virtual server software deployments in the data center

Automated Server Provisioning and Updating

Reliably Deploy Servers to The Data Center

- Build and deploy images, from operating system to application
- Templates, baselines, and automated task sequencing ease deployment process
- Provisioning for physical and virtual servers
- Flexible deployment models to match bandwidth restrictions



Automated Server Provisioning and Updating

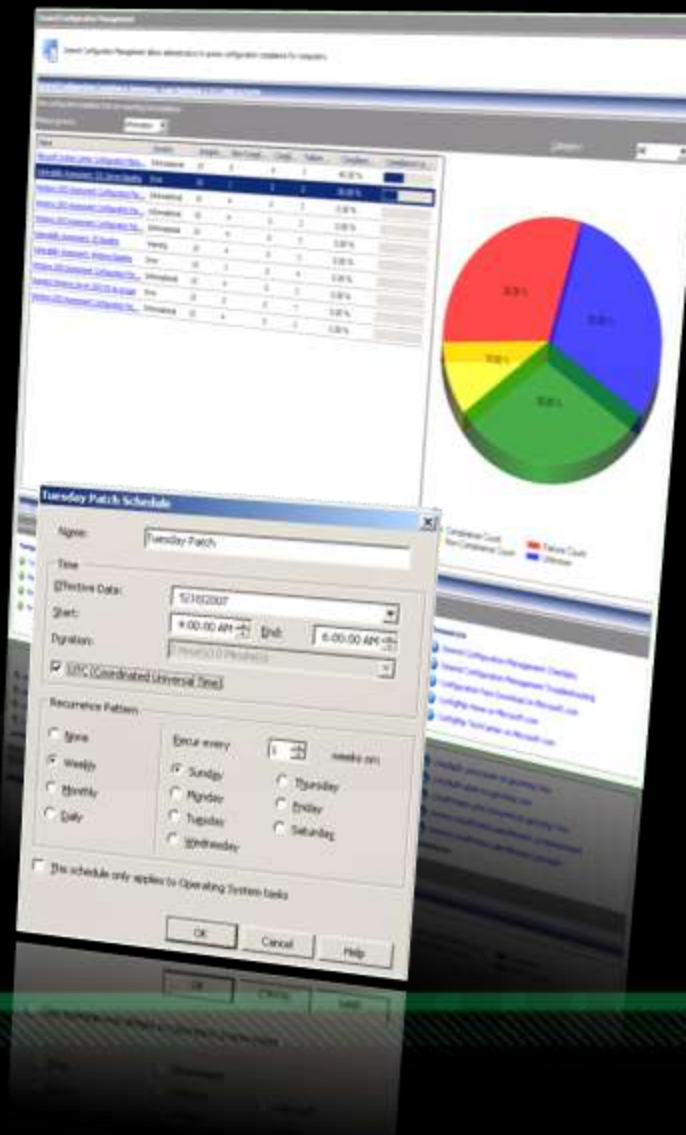
Targeted Server Update and Patching

Desired configuration management ensures servers meet corporate policies

- Configuration, security, user, update and patch settings
- Configuration packs provide settings and guidance for key data center applications
- Avoid unplanned downtime due to configuration issues

Collection based deployment of updates based on policies

- Target specific server for deployment
- Support change management process through management update process



Automated Server Provisioning and Updating

Information and Best Practices Drive Efficiency

Capacity planning models for key data center applications

- Optimize resource and power usage before and after deployment
- Ensure best possible performance for end users
- Workload specific models for Exchange and SharePoint

Tools, best practice guidance and resources to further reduce deployment costs

- Best practice guidance via Microsoft Deployment and partner deployment kits
- Application specific server configuration guidance through Configuration Packs

Server Consolidation Through Virtualization Management

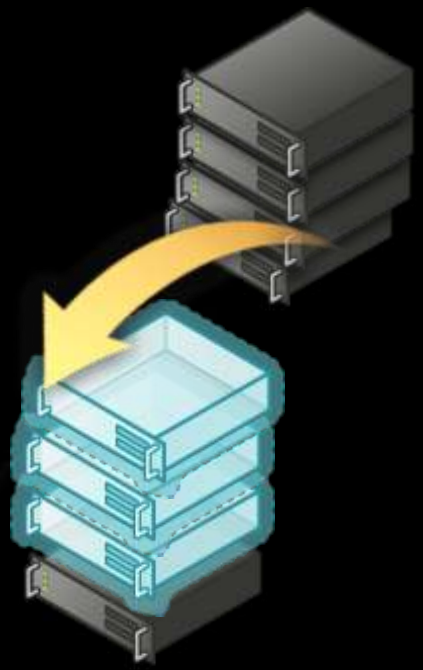
Challenges Addressed	• Power, space and maintenance costs forcing more efficient use of resources • Green data center requirements increasing dramatically • Virtualization growing to deal with new requirements but introducing new management challenges
Server Configuration Capabilities	• Intelligently consolidate servers using virtualization to reduce hardware costs • Manage virtual and physical servers through one solution to optimize use of resources • Manage multiple virtual environments with one solution

Virtualization Management

Automated provisioning and server consolidation

Manage virtual machines to consolidate physical servers

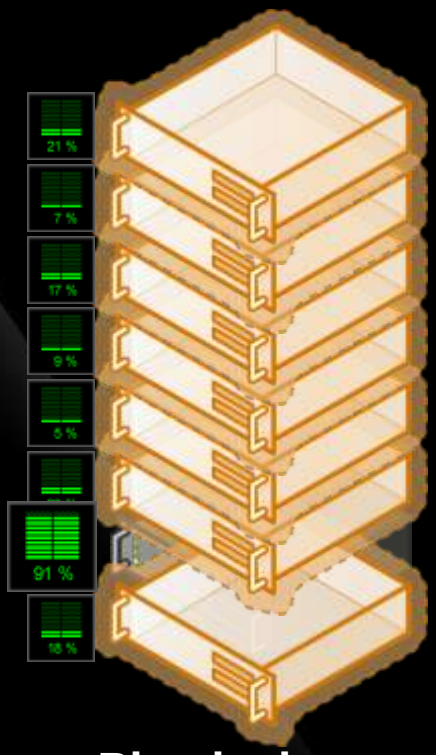
- Identify candidates servers and do quick physical-to-virtual and virtual-to-virtual conversion for server consolidation
- Effective and secure patching and upgrading of VM's
- Control VM sprawl by consolidating workloads, moving virtual machines, and shutting down unneeded virtual hosts
- Guidance and best practice services to reduce server sprawl and improve virtualization management



Centralize, automate and manage both physical and virtual server software deployments in the data center

- Capacity planning and resource optimization
- Quick provisioning of operating systems, applications, patches and updates on both physical and virtual servers
- Guidance and tools for planning and server deployment
- Up-to-date inventory and visibility of the servers and applications which reside in the data center
- Guidance and best practice services for configuration management optimization to streamline IT operations

Consolidation



Physical Infrastructure

Windows Server 2003 R2

Windows Server 2008

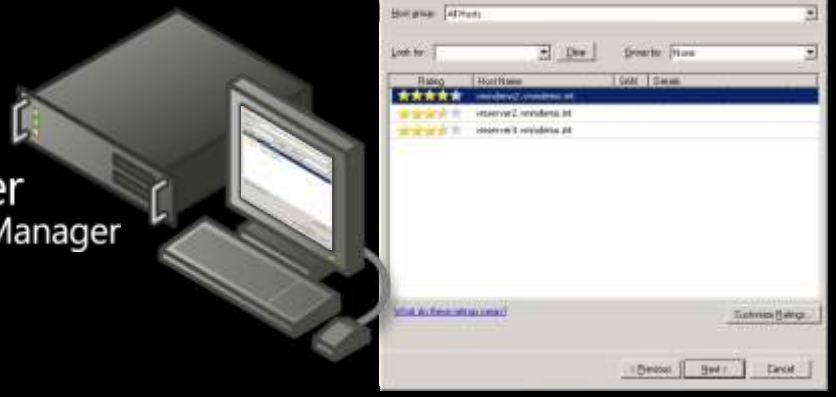
Performance data collected

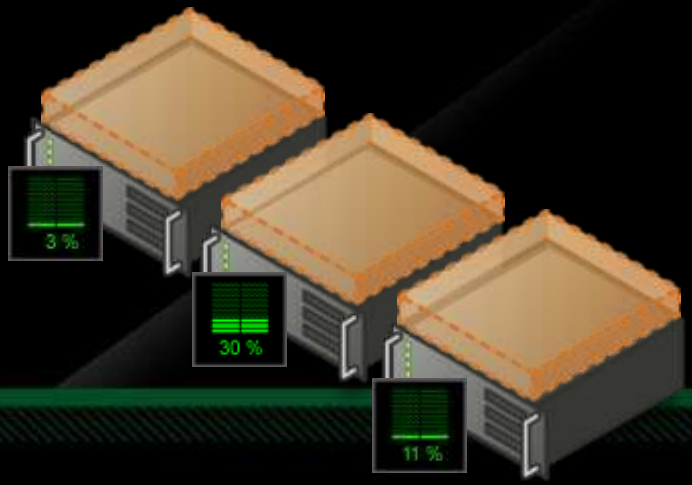
Physical machines identified as consolidation candidates

Physical servers converted to virtual machines

Prioritized report of consolidation candidates

Microsoft System Center Virtual Machine Manager





Virtual Machine Hosts

Microsoft Virtual Server 2005 R2

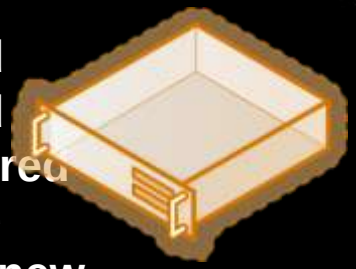
Windows Server 2008

Administrative Provisioning

Microsoft® System Center Virtual Machine Manager

Centralized Library of VM Templates

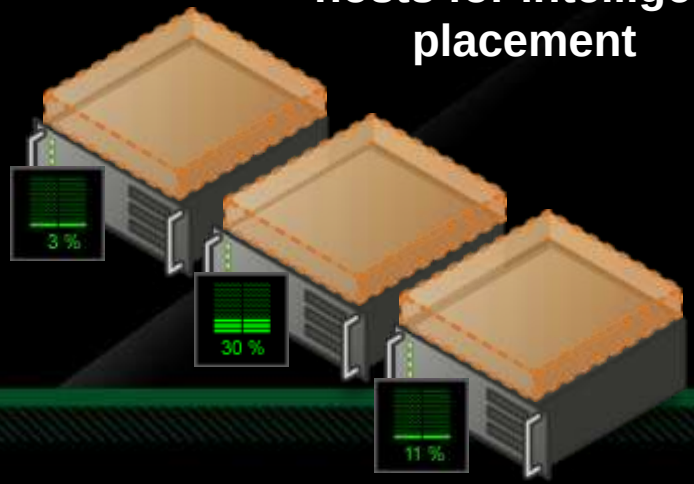
New VM created from configured template



Pre-configured template selected for new VM

VM configuration customized from template

Intelligent placement of data VM onto optimal hosts for intelligent placement



Virtual Machine Hosts

Microsoft® Virtual Server 2005 R2

Windows Server 2008

Server Consolidation Through Virtualization Management
Controlling Virtual Machine Sprawl

Physical Servers Require

- Patch Management
- Performance Monitoring
- Event Monitoring
- Configuration Management
- Provisioning
- Rack Space and Power

Virtual Machines Add

- Increased Infrastructure Planning
- Migration
- Load Balancing
- VM Management and Configuration
- Physical Disk / Storage

End to end management of virtual machines ensures control of environment

- Single management environment for physical and virtual servers
- Virtual machine provisioning and configuration, along with patch management and software upgrades
- Server health and performance monitoring and management
- Virtual machine backup and recovery (disaster recovery)
- Heterogeneous hypervisor support

Virtualization deployment guidance and services

- Improve virtualization management and implement virtualization best practices

End to End Monitoring

Proactive platform, application and service-level monitoring

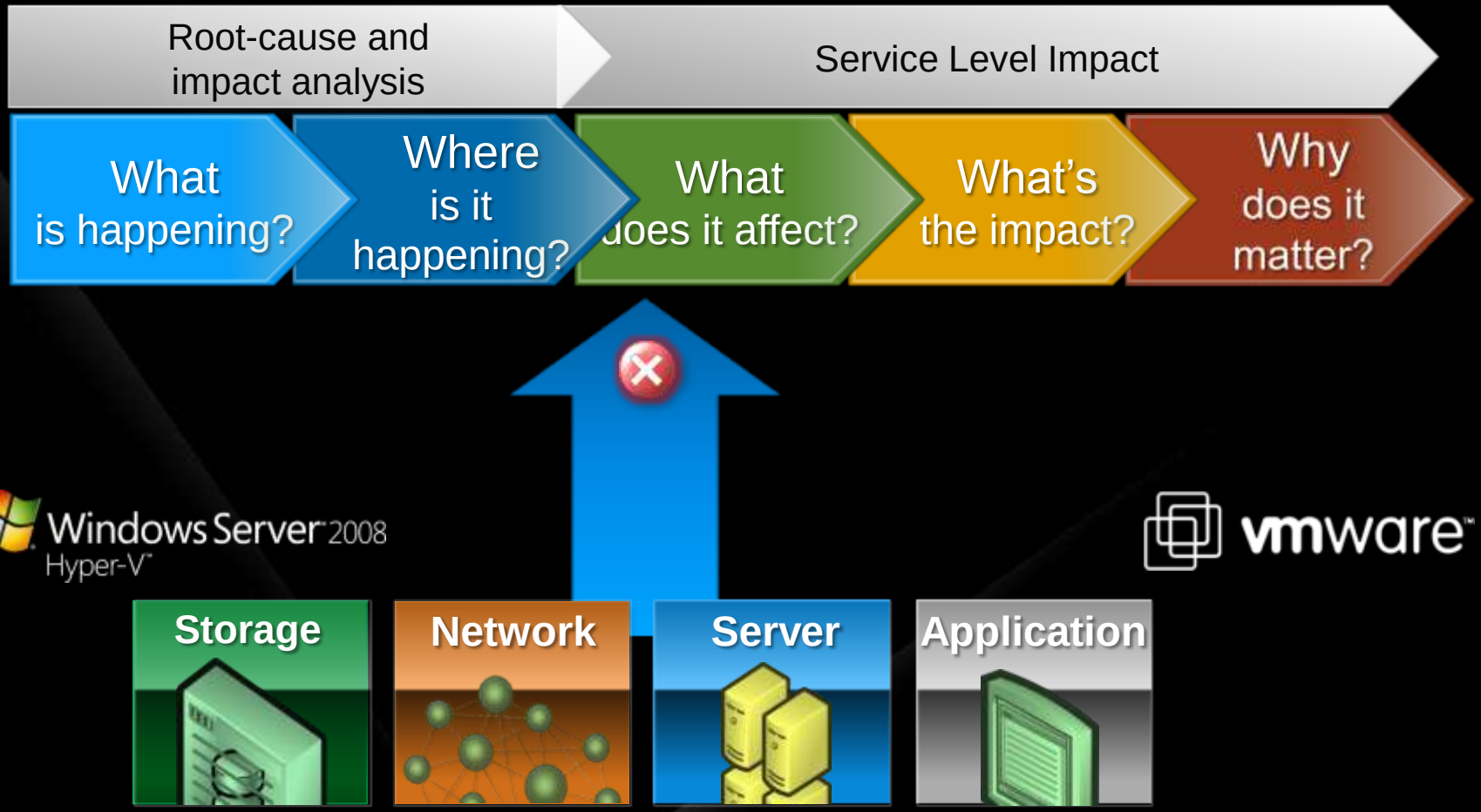
Challenges Addressed

- Unintended configuration changes resulting in greater cost and risk
- Heterogeneous mix of services, applications and servers causing inability to find root cause and increased downtime
- Increasing service level agreements difficult to meet

End to End Monitoring Capabilities

- Availability, performance, and configuration monitoring to proactively address IT issues
- Deep application and service -level monitoring

Data Center Monitoring Challenge



End to End Monitoring Solution

Proactive Platform Monitoring

- Centralized monitoring across Windows, Linux and Unix
- Configuration change monitoring
- Monitor and Manage Microsoft and third party virtualization platforms
- Diagram data center operations and visualize status

Application and Service Level Monitoring

- Application & service level monitoring
- Problem resolution knowledge base
- Track and report service levels
- Service level dashboards

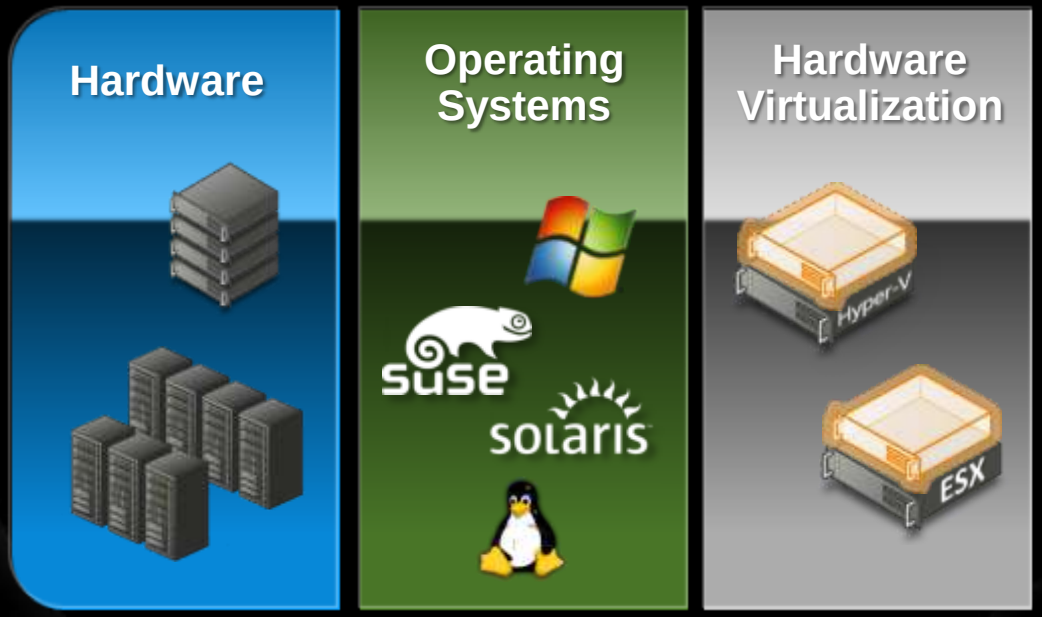
Interoperable and Extensible Platform

- Standards based
- Open and extensible platform for customized support
- Interoperability with 3rd party management systems and help desks

Proactive Platform Monitoring

Challenges Addressed	• Centralized monitoring of Windows, Unix and Linux on both physical and virtual servers • Identify when unintended configuration changes occur
Proactive Platform Monitoring	• Access availability, performance, and configuration monitoring to proactively address issues • Built in knowledge and best practices reduces effort and internal cost to monitor data center environment • Monitor across physical and virtual environments

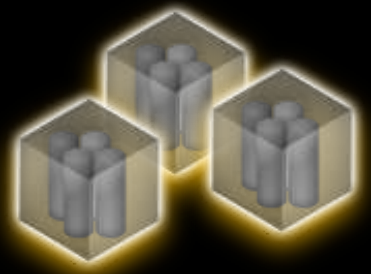
Monitor Across Server Platforms



- Support for HP, Dell, IBM and key hardware vendors
- Native Cross Platform support for HP-UX, Sun Solaris, Red Hat Enterprise Linux, SUSE Linux Enterprise Server and AIX
- Support for Windows Hyper-V and VMWare ESX and VI3
- Platform monitoring integrated into virtualization management through Physical Resource Optimization (PRO)

Reduce Problem Resolution Time Through Built In Application Specific Knowledge And Models

- Configuration
- Health
- IT & Security Policy
- Regulatory Compliance
- Capacity



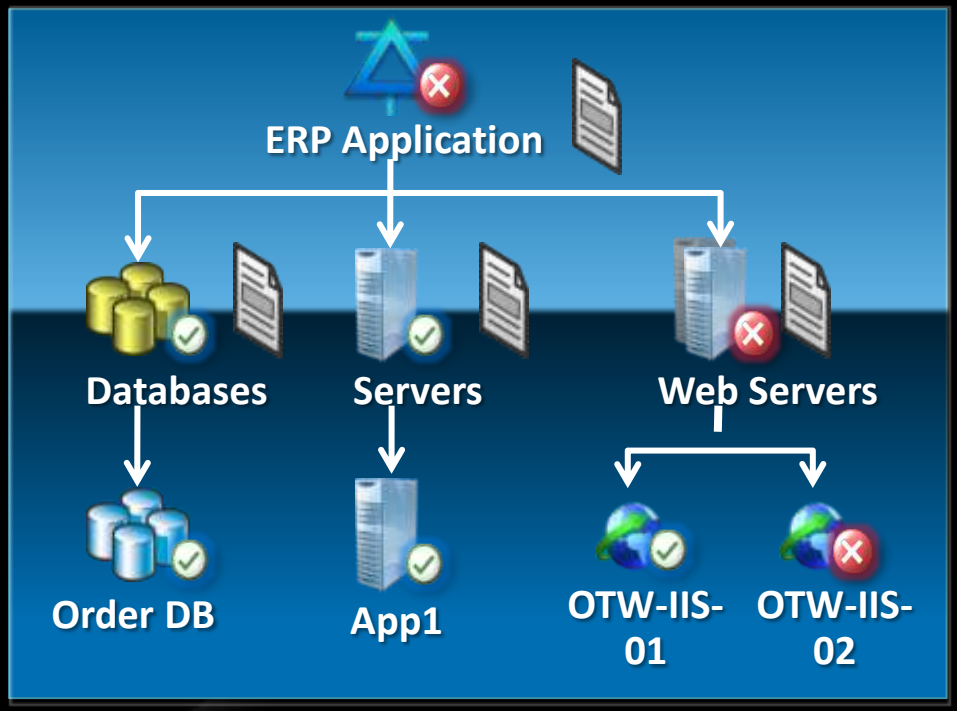
- Management Packs
- Configuration Packs

Application and Service Level Monitoring

Challenges Addressed	Ensure IT services, applications and servers run smoothly Meet service levels to ensure optimal uptime and responsiveness
Application and Service Level Monitoring	Monitor applications end to end to support end user based service level agreements Dashboards and reports allow faster problem resolution, delivering improved availability and performance

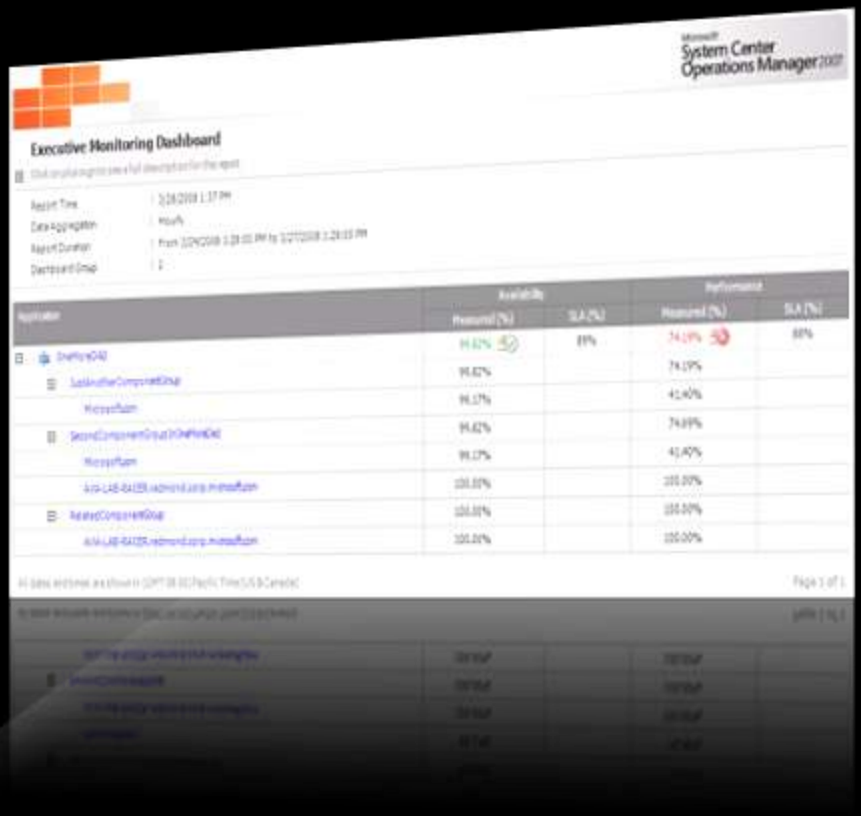
Monitor Data Center Health & Performance

- Proactive IT service health monitoring
- Synthetic transactions for end user monitoring
- SLA monitoring dashboards and reports
- Predefined service templates and services designer



Service Level Dashboard

- Assess overall level of SLA compliance of business-critical applications
- Identify applications with performance or availability problems before they impact the business
- Provide executive ready summaries of SLA compliance information
- Proactively test user scenarios to identify performance bottlenecks before they impact the business
- Gain visibility into end-users' LOB application experience



Server Compliance

Configuration controls and centralized audit of system security

Challenges Addressed

- Regulations and business policies mandating configuration and security controls are enforced
- Increasing demands to retain security event information to improve security and meet compliance needs

Server Compliance Capabilities

- Create, maintain and report on configuration controls for the data center environment
- Gather and report security related events
- Manage identities, access and improve security in the data center

Configuration Change Monitoring

- Monitor and alert on unintended changes made to server configuration settings
- Improve systems availability, security, and performance by reducing problems associated with configuration drift
- Improve IT's ability to troubleshoot and enforcing defined configuration baselines
- Provide visibility into configuration errors and changes
- Leverage Microsoft and third party Configuration Packs

Data Protection and Recovery

Backup and restore & business continuity through virtualization

Challenges Addressed

- Demand for business continuity driving increased costs related to geoclustering and new technology investments
- Centralized data centers causing more risk of downtime and data loss in the event of a disaster or outage

Data Protection and Recovery Capabilities

- Ensure business continuity and responsiveness with server virtualization management
- Recover and restore physical and virtual environments after an outage, data loss or corruption

Data Protection and Recovery

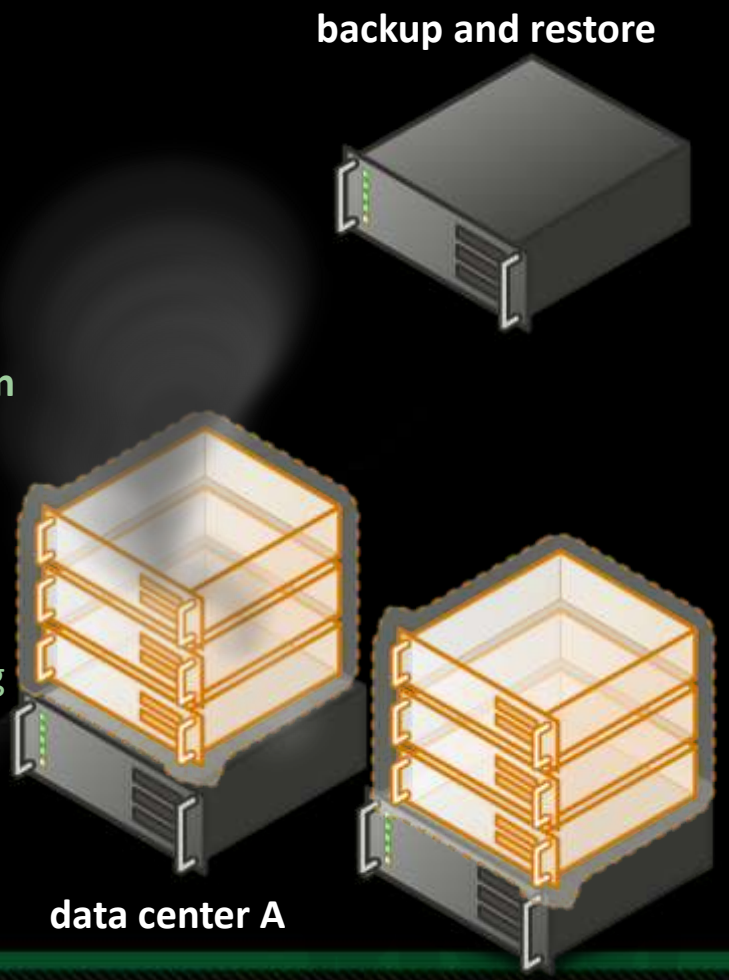
Backup and restore & business continuity through virtualization

Ensure business continuity and responsiveness with server virtualization management

- Distribute workloads over locations to ensure continuous and uninterrupted business operations
- Provide replication and movement of virtual machines and applications for planned backups

Recover and restore physical and virtual environments after an outage, data loss or corruption

- Allows backup and recover of mission critical workloads
- Perform continuous data protection using integrated disk and tape media
- Enable rapid and reliable recovery from disk as well as long term data protection through tape based backup
- Recover both physical and virtual systems after an outage, data loss or corruption
- Allows geoclustering for disaster recovery and business continuance by physically separating cluster nodes



Data Center Solution Benefits

Integrated Management

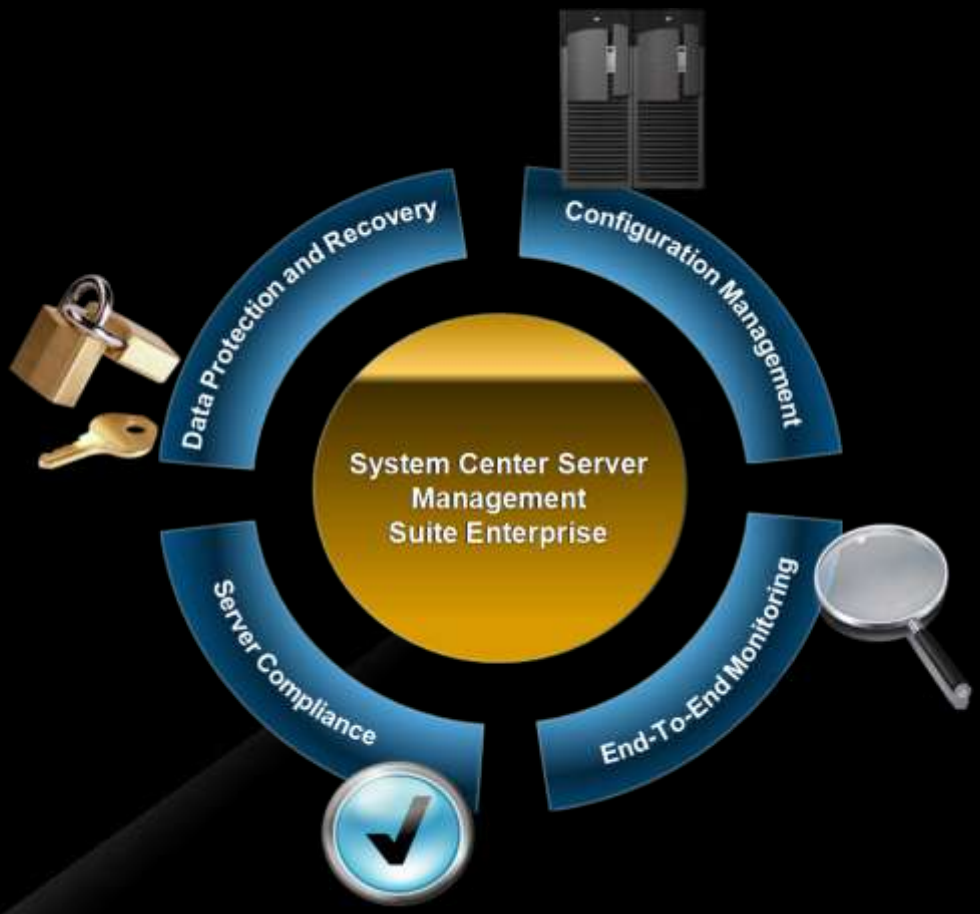
- Unified user interface
- Manage physical and virtual
- Manage Microsoft and non-Microsoft

Optimized Resources

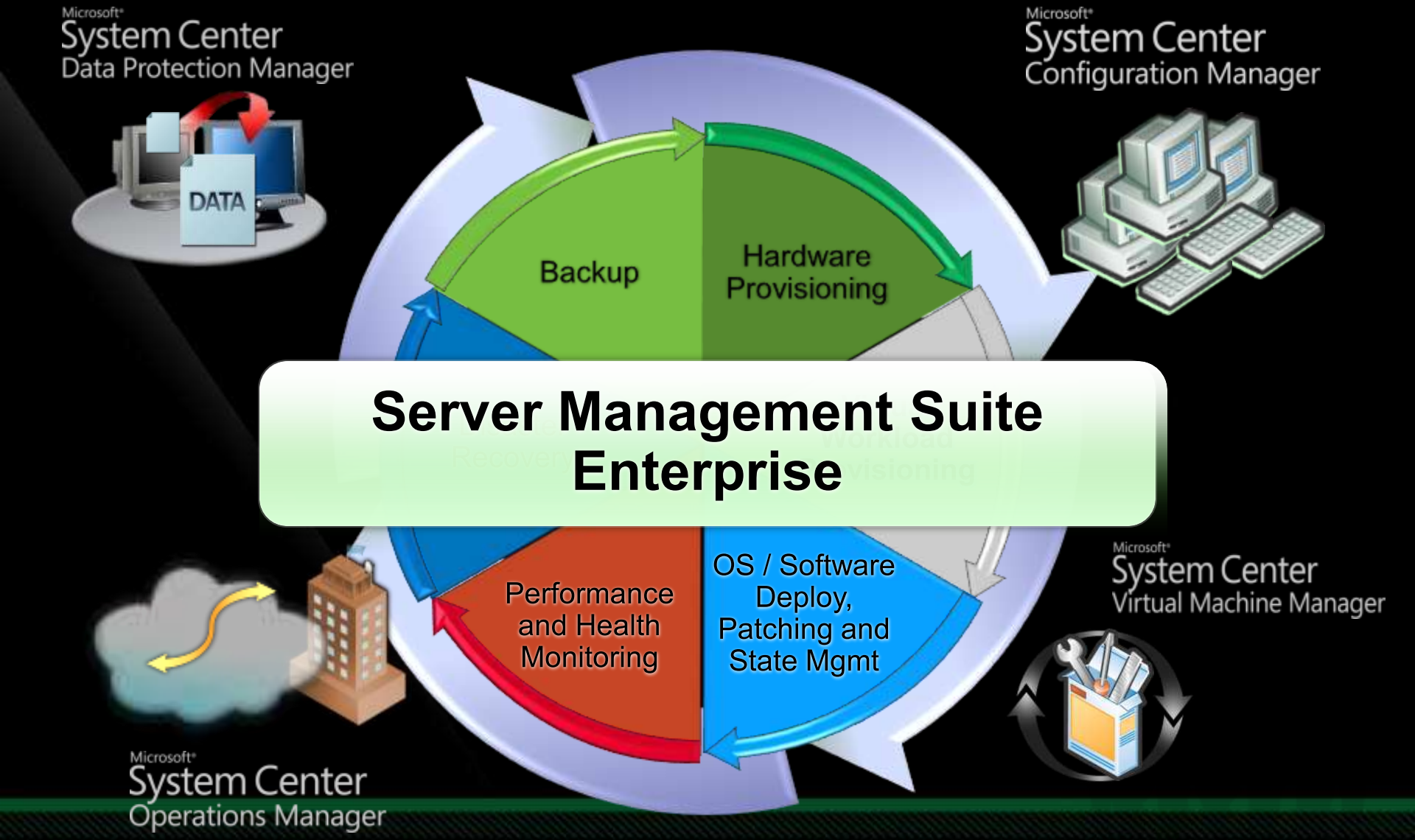
- Improve efficiency and reduce costs
- Quicker time to value

Available and Responsive

- Increased uptime through knowledge
- Extend and interoperate to non-Microsoft technologies



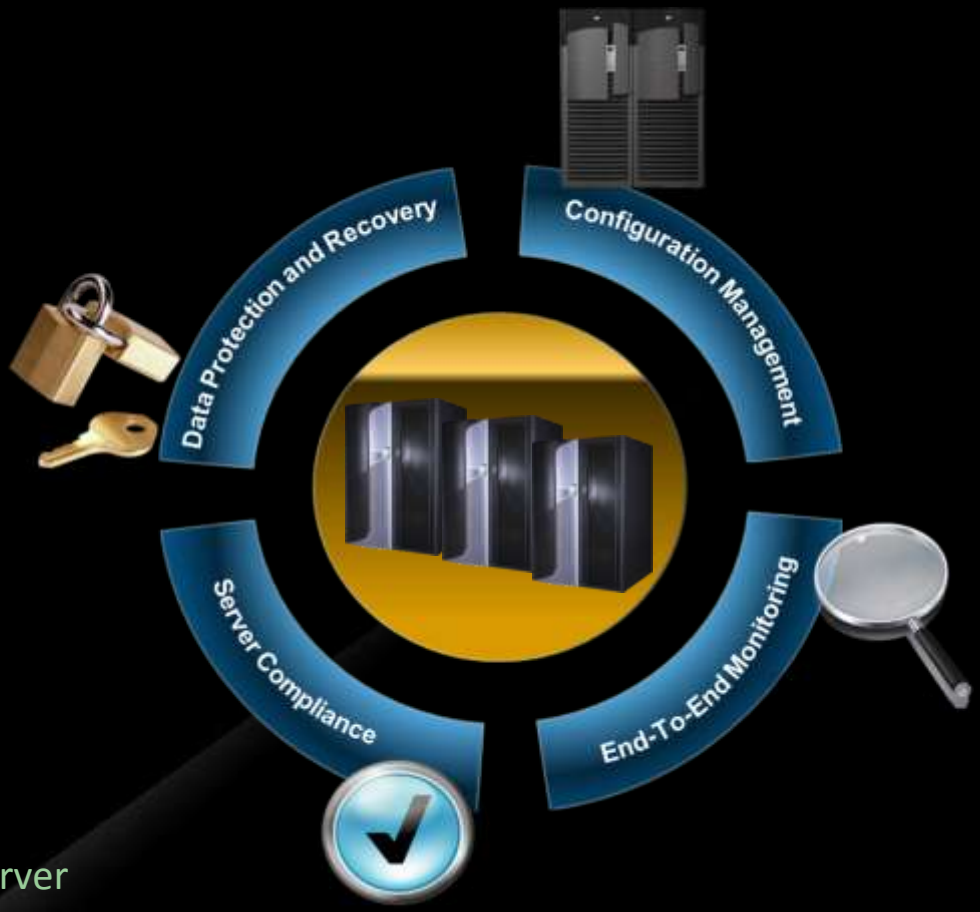
Managing the Server Lifecycle



Conclusion

System Center has solutions to meet the changing data center

- To meet the data center's needs
  - power management
  - server consolidation
  - provisioning and updating
  - high availability
  - service level monitoring
  - audit and compliance
  - business continuance
  - disaster recovery
- To deliver quick ROI
  - integrated solutions
  - deep knowledge
  - best practices skills and tools
- In an easy to acquire, high value Suite for server management



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