Windows Management

Overview

Information is the lifeblood of every organisation. IT departments have to play an important role of being able to manage this information and to provide leading edge business performance. Each Business service needs to be monitored and its overall performance assured for clients to benefit. The key to ensuring this happens in an enterprise today is to provide end-to-end management based on business needs, internal customers, cost effectiveness and quality of service rather than the technology itself. This therefore leads from element management all the way up to IT service management and now beyond impacting into Business Management (Table 1). As Companies start to explore and comprehend the full meaning of Service management and the need to set Service Level Agreements reflecting Business Metrics as opposed to the traditional hardware measures, the impact of end-to-end service orientation are starting to sink in.

Table 1 Business Levels

Business Management
IT services Management
Integrated network & systems management
Network management
Element management

Source: TekPlus

This however does not mean it is easy to achieve and even more so in the challenges and coming trends facing our business environment today (table 2), with everything from unpredictable growth, broadband and wireless communications to e-businesses, virtual global organisations to a proliferation of access devices and condensed value chains. Add to this the need for security, scalability, transparency and constant change and it all sounds daunting, especially to the IT department which is at the heart of enabling all this. This exemplifies the need for organisations to have end-to-end visibility of services irrespective of the source being internal or externally outsourced. An important requirement to enable all this is to have the right enterprise management strategies and systems in place. This has meant that organisations are starting to implement IT services management around the ITIL (Information Technology Infrastructure Library) framework as well as evolving to a route of modular deployments of best of breed management solutions.

Table2 Emerging Trends

High bandwidth availability
Increased storage capacity
Growth of pervasive devices
Extended enterprises
High security

Source: TekPlus

If we now add into this the increasing rate of deployment of a Windows environment, from the desktop right into the data centres, as Windows rapidly starts to both scale–up and scale-out with an ever increasing pace of new generations and manageability really becomes a core issue. Add to this the particular issues centred on migration and IT managers are starting to face the reality that they may have to manage multiple Microsoft desktop and server operating systems as they defer upgrades for longer cycles. Many of them are currently evaluating the business benefits of the new XP systems against the expense of Microsoft's new licensing terms and shorter life cycles for successive operating systems. **.**Net is just around the corner and its needs are already beginning to be articulated. Already plans are underway for Longhorn and Blackcomb (codenames) for next year and 2005 and support is going to be discontinued for NT4.x and Windows 98 in 2003 and Windows 2000 in 2004. TekPlus has recently spoken to a number of IT managers who say they will maintain a variety of environments including NT 4.0, Windows 2000 and XP and upgrade only when it is finally necessary, skipping generations in between as the average life cycle of hardware upgrades increases from three years to four years. Firms are also evaluating open source alternatives in the server space but now even at the desktop, which further creates the need to manage mixed environments. Managing multiple operating systems will entail higher costs for IT support, testing and configuration and training and running costs, but has to be weighed against licence fees and disruption costs. For every second desktop operating system it is estimated by TekPlus that the cost increases by 5%. Finally add to this the advances taking place in the hardware and especially the introduction of Blade technology and more modular systems, which means system

management will have to undergo a radical new level of thinking as it moves from a reactive mode to a predictive and proactive capability. Capacity management becomes an important differentiator.

Challenges

As IT has evolved from being a black box to a less mystical but highly essential overhead, its role in a highly distributed and often heterogeneous environment has created numerous challenges to manage. Table 3 shows some of the issues facing IT managers on a daily basis. Add to this the major driving issues outlined below and you can see the frustration it causes both to the IT staff and the end users. This in turn reflects on the business and creates a frustrated CEO and management board.

Table 4 Challenges in Windows environment

Skills Gap
Unpredictable Growth
Availability
Security
Complexity
Performance
Total cost of ownership
Scalability
Obsolescence
Remote access
Storage
Mobility
Globalisation
End-to-end management
Proactive Predictability
Managing customer experience

Source: TekPlus

In the case of a Windows environment, the above challenges (Table 4) hold very true and particular attention has to focus on High Availability especially as it is deployed more and more into mission critical environments. Managing a windows environment is increasingly becoming more complex as a proliferation of distributed applications and architectures arise, **.**NET will ease some of the issues and provide better interfaces for management but will also introduce more problems with the vast range of features and formats as it introduces the concept of a customised 'personal information space' via truly distributed web services that are integrated and collaboratory. They will still always be the issue of as many nines as possible versus the increasing cost of redundancy. Distinction needs to be made between fault resilience and fault tolerance.

Two main issues in running windows applications are capacity planning and system management. The environment has to cope with peaks whilst maintaining response times for applications and also making sure that network bandwidth does not delay this or introduce big overheads.

Table 3 Challenges facing IT departments

Constant change in environment
Automation of processes
Need for integration at object and data levels
Legacy integration
Legacy Migration of infrastructure & applications
Managing an increasing no. of components
Managing an increasing number of users
Managing an increasing number of platforms
Need to manage more complex environment
Simple management systems become unmanageable
Integration of numerous separate management point products
Dramatic performance swings, increased difficulty in monitoring & fixing problems
Standardisation
Policy Management
Highly distributed architecture
Need for Extensibility
Managing pure and Mix environments
Islands of Management
Different skills and groups managing different platforms and their interaction
Moving towards zero downtime, always-on ability
Rapidly locate the root cause of problem and take action to minimise disruption to core services
Application migration
Change Management
Transactional web services
End-to-end integrity for web services
From multiple data sources to multiple applications to multiple access devices

Source: TekPlus

ENVIRONMENT

Systems management technology helps you proactively monitor, alert, and manage your entire system from one console or across multiple operating system platforms. In most environments with distributed systems, the administrators have thousands of distributed servers and workstations that generate events and require tools that can monitor, collect information from, report on, and manage devices. Agents collect the real-time and historic data, which is then used to provide functionality. Systems management tools use a

variety of agent technologies to collect data on end nodes. Some of these are standards-based protocols and interfaces such as the SNMP, DMTF, DMI and WMI. Some are proprietary agents that vendors have developed. There are also intelligent agents that collect data on a given set of points and through preset rules perform an action based on the incoming data. You can get Single-function tools, which manage only one or two systems problems like capturing logs or monitoring usage, to larger systems that encompass most functions. In a Windows environment, which generally is going to scale, you will probably want to consider future integration problems where single-function tools may not be able to cope. A robust enterprise-level system will have numerous features and functions. Table 5 shows some of the key elements that compose these systems.

Table 5 Enterprise-level system

Management
Automated trouble ticketing
Event correlation and automated response
Help desk functionality
Inventory and asset management
Licence metering
Performance management for troubleshooting
Capacity Manager
Security management
Service level management
Software configuration management
Software distribution
System monitoring and alerting
User administration
Server Monitoring
Remote Control

Source: TekPlus

For Windows environments the need for management features depends on which kind of environment is being deployed. You can have a homogeneous environment which consists of Windows back-end and front-end. Typical of this is deploying clients running the Windows XP operating system into a Windows 2000 Server environment. Generally most companies tend to have a heterogeneous environment consisting of Windows, Unix, IBM operating systems, Linux, etc running in the same company with numerous front ends too. For both environments your main criteria should be based around;

-Easy Desktop Management
-Easy Centralized Management
-Easy Software Deployment

Microsoft has finally started to get serious about addressing management and integration with other Enterprise management tools. They have started providing features such as Microsoft Operations Manager, Systems Management Server, Change and Configuration Management utilizing Windows Management Instrumentation, Active Directory, etc which can work with heavy duty Enterprise Systems Management tools like HP's Open-View essential to a high-availability architecture. The Enterprise management systems from companies like HP, CA, IBM provide tools, which help manage all the company's infrastructure's components. Such tools typically monitor the condition of your site, trap errors, generate alerts, carry out responses to specific conditions, identify dependencies between components, and perform root-cause analysis. Generally the key needs are for Event logs, Service monitoring, User administration, performance monitoring, policies for products like IIS, Exchange, and SQL. Managing Windows heterogeneously is more challenging than managing it homogeneously as heterogeneity is persistent and requires coherent management. The main requirements for Windows Management solution in heterogeneous environment are shown in Table 6.

Table 6 Requirement for heterogeneous environment.

Have open and extensible architecture
One centralised point of control
Have a consistent user interface
Allow operation of management application transparently
Provide integration services to make end-to-end enterprise management practical
Ensure security

Source: TekPlus

The size of the enterprise and its presence geographically will detect the requirements of what exact modules are needed to deploy. Apart from the few very small enterprises on windows, most others will expand and scale and will need to at sometime integrate with larger enterprise suites. The key is to deploy point modules as the company expands and when the requirements are there. The main problem with deploying single point solutions is one of integration and hence a fully integrated best of breed system, which can be deployed in modules, is preferable.

Need for Management

We have already highlighted the need for end-to-end management. This therefore means an enterprise management system has to offer numerous management modules. Most of them come in various options from specialised point solutions to a suite of best of breed solutions and can also be deployed in countless ways. We can group them into one of the following four categories of managing networks, managing systems, managing applications and managing services. Below we briefly highlight their key essence.

Network Management

The network should be represented as a discrete entity in relation to other enterprise assets; this makes network management accessible to multiple users within the enterprise, even virtually. Network Management tools must manage complex network infrastructure while meeting specific service level objectives. They must proactively identify and resolves problems across the network from hubs to switches and routers. Network Management is identifying, managing and resolving problems on the network. Managing dynamic, larger and highly segmented networks are of prime importance to get a swifter payback from network management tools. The right Network Management solution should cover management of IP infrastructure and Operational Support System software (core administration, management, security, billing, general provision tasks, discovery and fault management and risk management).

Systems Management

System management – managing performance of hardware, software, networks and discrete applications as a whole is very complex. Its challenges increase in a heterogeneous environment. It focuses on provision of optimum availability and performance of the system. It also raises the end-user productivity by standardising and configuring the system. The criterion of system management is changing from 'managing hardware, software, networks and its discrete applications' to 'managing end-to-end services-performance of all these components together as a whole'. Need for system management has increased due to –

- Increased use of Internet for business
- Expanding number of components within the infrastructure (application servers, web and print servers)
- Raised end-user expectations (e.g. Web based transactions)

In addition if we take the core of system management to be the very heart of servers, desktops, mainframes and operating systems including clusters and storage, we can appreciate the complexity. Most focus currently is on server and storage consolidation.

Application Management

Applications and databases require better management, depth and integration across a distributed environment. This directly leads to increased operational effectiveness, yields better service levels and provide rapid ROI. It provides management of all applications and associated mechanisms from anywhere including sales automation, ERP, CRM, mail and databases. It also protects data with policy-based backup, anti-virus and security mechanisms.

Service management

With businesses increasingly reliant on IT, Service management requires extremely high levels of management products. It helps organisations to deliver services at agreed quality and price. It integrates IT and business SLAs and ensures business objectives are continuously met. It is also utilised to balance the quality of service versus cost of implementing higher service levels. Service management is a set of management products/services/tools that manage the IT environment from a business processes viewpoint via agreed business goals. It includes Systems Management, Network Management, Applications Management, Performance Management, Data Management, Security Management and Capacity Management tools. It also covers managing SLAs. Though it is critical, TekPlus believes currently only a fifth of IT managers are in a position to provide service level management. In the longer term managing computer infrastructure will be as good as managing continuity of business services. In fact we think they will move towards integrating to the next level of Business management.

Benefits of Windows Management

End-to-end Management of a Windows environment is vital for overall enterprise management because it not only addresses the IT challenges but also faces them in business terms. Some of its benefits are as stated below;

- It supports simplified administration tasks and lowers the total cost of ownership. It helps administrators to maintain optimal environments. Also virtual centralised management helps administrators to automate changes remotely.
- Common value added built-in management service/tool is cost-effective for multipurpose system like Windows. It reduces the cost of associated administrative tasks and less time and money spent compared to managing each individual system (e.g. PCs on networks) separately.
- Windows management increases productivity of the people using the system as they get the flexibility needed to do their jobs without having to spend time configuring and managing their system on their own. It frees the skill base required for other tasks.
- Increases availability of desktop systems.
- It helps plan future system and application requirements with in depth performance analysis.
- It provides root cause analysis of the problem that can be solved before it affects core activities creating a safe, secure and reliable environment.
- It relates systems, applications and business services to provide centralised control of the entire IT infrastructure.
- Windows management supports the regular, large scale, multi-platform administrative tasks like account updates, software distribution, storage management actions, performance data collection, event alerts, security check-in, connections and troubleshoots across the network, all leading to a highly available system.
- It monitors availability of various Internet services and reduce downtime through proactive availability and performance management.
- It ensures proper capacity planning especially when introducing Blades and other high-end hardware in a heterogeneous environment.
- The right Windows management solution provides a means to evaluate and accelerate the infrastructure effectiveness from a business perspective.
- It provides an opportunity to develop better customer relations by providing customer experience measures.

To summarise the key benefit is one of a service driven, proactive, efficient operation with considerable security and cost savings.

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