



Deliver service excellence through the unique advantages of IBM Service Management solutions.



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Overview

This white paper provides a comparative analysis of IBM's key differentiations in the area of IT service management. IBM provides a broad set of integrated service management technologies and products. IBM provides autonomic computing, with self-managing technology capabilities designed to help lower costs, increase efficiencies, improve service and reduce IT staff involvement. And IBM has the experience, technical depth and expertise to deliver true enterprise-level service management solutions across a wide range of industries worldwide.

Key differentiating points with IBM include:

- Comprehensive, fully integrated service management solutions.
- IBM participation in developing standards-based, self-managing autonomic capabilities.
- One of the most scalable solutions in the industry for integrated infrastructure monitoring across network and IT domains.
- Advanced analytics and event enrichment.
- End-user, request-driven, low-touch provisioning with associated service level agreements (SLAs).
- Capacity planning integrated with the provisioning process.
- Autonomic orchestration of services to help maintain SLAs for critical services.
- An extended service catalog that integrates with financial systems, asset management, contract management and procurement systems.
- An extensible service management platform with prebuilt workflows for many IT Infrastructure Library® (ITIL®) processes.
- Automated discovery and repository of configuration items linked with IT assets.
- Broad capabilities available for collecting usage accounting in both physical and virtualized environments.
- Real-time security event correlation and management.

Highlights

Backed by the advantages of IBM Service Management solutions, organizations can better align technology investments to their business objectives while demonstrating the value of IT operations in driving business growth.

Develop comprehensive service management solutions

The challenges are clear in today's business world – rapid change due to industry consolidation and technology convergence; rising costs driven by process inefficiencies and increasingly complex IT maintenance; tougher compliance with added security, audit and governance requirements; and fragmented, siloed IT systems that diminish overall productivity, operational efficiencies and service quality.

IT organizations need a fully integrated service management solution to help them become more responsive, efficient and innovative

To address these challenges, IT organizations need a fully integrated service management solution to help them become more responsive, efficient and innovative. More specifically, the ideal service management solution should be able to:

- **Predict** by gaining better insight into the health of services and projects, helping to prevent service level violations.
- **Align** processes with customer-based business goals and compliance requirements by designing, automating and integrating best-practice processes to help improve productivity.
- **Innovate** by managing services across new-generation architectures.
- **Deliver** by helping streamline operations and managing the impact of planned and unplanned changes, which can lead to faster, more reliable service delivery.
- **Manage** by reducing the time required to identify, analyze and resolve application quality problems.

Highlights

IBM Service Management solutions provide IT organizations with the technologies, management processes, tactics and best practices required to optimize operations and service delivery across the enterprise

IBM Service Management solutions are designed for the specific needs of today's businesses, enabling the effective governance and management of service processes in full alignment with business strategies and objectives. Bringing together people, processes, technology and information, IBM Service Management solutions provide IT organizations with the technologies, management processes, tactics and best practices required to optimize operations and service delivery across the enterprise.

IBM Service Management solutions are based on IBM and industry best practices such as ITIL, Control Objectives for Information and related Technology (COBIT) and the enhanced Telecom Operations Map (eTOM). These standards and practices help ensure that IT and operational processes are consistently designed, automated and executed, and are being fully auditable for compliance adherence.

In addition, IBM Service Management solutions can leverage IBM Tivoli® Change and Configuration Management Database (CCMDB), an enterprise-ready platform for storing deep, standardized data on configurations and change histories. Tivoli CCMDB provides rich details of configuration items (CIs) with automated, agentless discovery of assets and their application dependencies.

Tivoli CCMDB also provides a Common Information Model (CIM)-based data model, an important advantage with IBM Service Management. In today's IT infrastructures, multiple applications often use the same data repository. Inevitably, some data will be stored more than once by different applications, leading to inefficiencies in storage and retrieval. Leveraging IBM Maximo technology, Tivoli CCMDB enables applications to dynamically discover whether specific data already resides in the database, eliminating

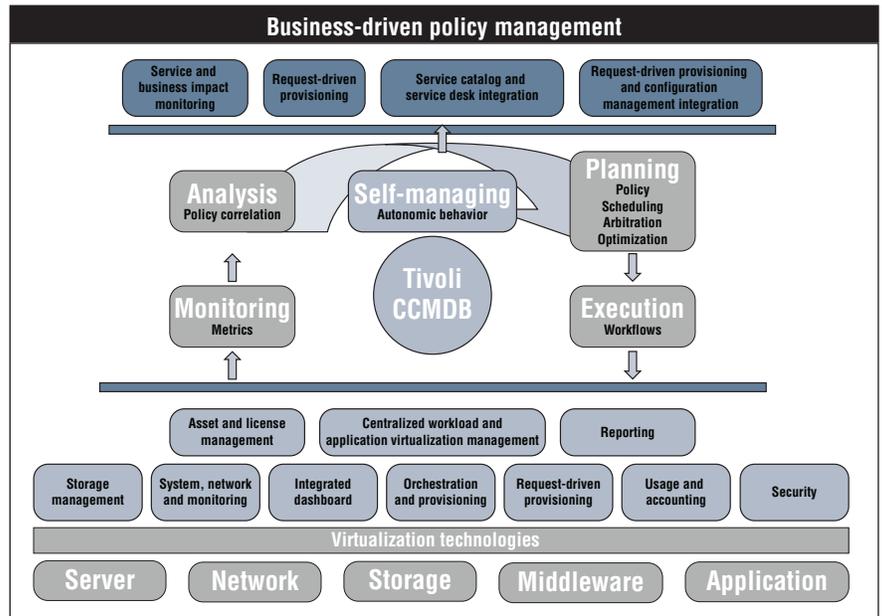
costly redundant storage. Likewise, this data can be accessed by multiple applications, further increasing storage efficiencies.

Backed by IBM Self-Managing Autonomic technology and powerful capabilities, IBM Service Management solutions can help:

- Automate and integrate IT management processes for rapid responsiveness, greater flexibility and improved performance against SLAs.
- Offer comprehensive support for discovery, monitoring and management, for a single integrated architecture to manage across data centers and network operations centers efficiently and cost-effectively.
- Improve cost management through better chargeback capabilities to lines of business.
- Provide enhanced oversight and accountability for improved compliance to internal and external regulations.
- Integrate process and performance data, workflow and policies across the IT department and IT processes.
- Provide top-down, real-time business dashboards that deliver visibility into business services and transactions to ensure services are effectively managed.
- Offer a proven methodology, based on best practices, that helps ensure IT goals and services are derived directly from business objectives and requirements.

Take advantage of IBM leadership in autonomic computing

IBM Service Management solutions utilize the principles of IBM Self-Managing Autonomic computing technical capabilities. Computing systems that incorporate these principles have the ability to manage themselves, identify and correct problems in a timely and proactive manner, and dynamically adapt to change in accordance with business policies – all automatically. As a result, companies can become more agile and transform their IT infrastructures into more resilient, responsive and secure systems while reducing costs associated with IT staff involvement.



IBM is a recognized leader in autonomic computing, having first developed open standards-based autonomic computing solutions in 2001. Since then, IBM has invested well over \$300 million per year in the research and development of autonomic computing technologies, standards and components. Over the past several years, IBM has also initiated and led open standards activities around common event formats, solution deployment, policy and Web services for improved interoperability of autonomic systems.

Organizations can take full advantage of the IBM leadership position in the design and implementation of IBM Autonomic Computing-based solutions around the world and across a range of industries. Enabling fluid response to change, IBM Autonomic Computing helps organizations become more flexible and efficiently manage and proactively deliver much-needed IT services that drive business performance.

A core concept of the strategy of combining IBM Service Management with autonomic computing capabilities is centered on bringing the concept of “closed-loop automation” across all levels of the IT organization. As IBM brings both closed-loop automation and self-managing capabilities (such as self-configuration, healing, optimization and protection), IBM can significantly advance automation in the data center and prepare IT organizations to respond promptly to business demands. This integration – which enables superior automation – can reduce costs, thereby helping improve the quality of the service IT delivers to the business.

Integrate system, network and application monitoring

IBM can deliver a broad range of products and technologies, working together in a tightly integrated yet flexible solution. For system, network and application monitoring, IBM provides a number of outstanding, integrated offerings, including IBM Tivoli Monitoring, IBM Tivoli Network Manager IP Edition, IBM Tivoli Netcool®/OMNIBUS™ and IBM Tivoli Netcool®/Impact.

Multimetric monitoring for system resources

Tivoli Monitoring includes multimetric monitoring, which performs interrogation on multiple performance statistics to identify root cause. It may also reduce the number of events that need operator action by as much as 80 percent. Many service providers deal with thousands of events flooding the console every hour, making it difficult for operators to effectively deal with the volume. IBM multimetric monitoring looks at handles, threads and processes – instead of just processes – resulting in a more accurate identification of the source of the problem. IBM multimetric monitoring also provides an out-of-the-box, prebuilt correlation capability at the source. This eliminates the need for the event resolution process to move upstream and leads to quicker problem determination and repair.

Highlights

Tivoli Network Manager IP Edition provides timely and accurate network management information that is seamlessly integrated into a consolidated operations console

Additionally, Tivoli Monitoring provides an enhanced attribute level of event detail. For example, it can provide the offending identification and name of the process on the server, causing high central processing unit (CPU) utilization. This enhanced detail can lead to a lower mean time to recovery (MTTR) and higher availability due to more information on event and potential cause. Furthermore, operators can usually respond without the need for additional interrogation. Tivoli Monitoring also provides advanced persistency monitoring, which improves availability accuracy by reducing phantom event occurrences and improving the efficiency and productivity of operators and administrators.

Network monitoring, analysis, reduction of phantom events

Tivoli Network Manager IP Edition provides timely and accurate network management information that is seamlessly integrated into a consolidated operations console. By delivering real-time visibility into the health of your environment, the product enables a more productive and efficient IT department with root-cause impact analysis and the reduction of phantom events. As a result, operators and administrative staff can stay focused on determining and fixing the problem quicker – the first time.

Our solution:

- Helps network management staff visualize and understand the layout of complex networks and the impact of network events and failures.
- Allows network operations centers (NOC) technicians to work more efficiently by focusing time and attention on root-cause events and identifying symptom events.
- Reduces the time needed to heal the network.
- Allows customer-facing network operations staff to immediately have meaningful, contextual information.
- Helps NOC operators meet their customers' service expectations.
- Provides NOC operators with the ability to view the network infrastructure and associated events that are critical to specific customer services.
- Provides the network data required to reconcile other systems an organization may use to support their business.

Highlights

These capabilities provide overall business benefits that help:

- Reduce operational expenditures.
- Reduce future capital expenditure.
- Maximize revenues.

In addition, Tivoli Network Manager IP Edition provides dynamic network maps that can be rapidly created and updated, based on any value in the IBM Tivoli Network Manager internal database. The product discovers not only the overall inventory, but also the physical, port-to-port connectivity between devices. It also discovers logical connectivity information, including virtual private network (VPN), virtual local area network (VLAN), asynchronous transfer mode (ATM), frame relay and multiprotocol label switching (MPLS) services.

Advanced correlation and response

Tivoli Netcool/OMNIbus and Tivoli Netcool/Impact can identify the root cause of the problem from multiple resources based on problem signatures, and it can highlight the actionable event for quick response. The event manager does not just correlate, filter and suppress events from a single resource, hoping for human correlation to determine the root cause. Instead, advanced correlation gets customers and resources back online faster through root-cause identification, which can lead to a much quicker fix.

Tivoli Netcool/Impact provides event enrichment through out-of-the-box integration with many data sources, such as incident management, location information, or schedule and resource information

In addition, Tivoli Netcool/Impact provides event enrichment through out-of-the-box integration with many data sources, such as incident management, location information, or schedule and resource information. This enrichment provides operators with a higher level of meaningful information, including potential cause and impact. Operators can utilize this additional information to respond to the event without the need for additional interrogation and resources, which can lead to quicker root-cause and resolution owner identification.

Tivoli Netcool/OMNIBus incorporates enhanced scalability through an in-memory resident database, providing operators with an accurate, real-time assessment of the environment. This feature is designed to provide uninterrupted operations management even through adverse conditions, including handling event storms. The product provides an SQL-like rules engine for flexibility of design, availability of resources and minimizing the ramp-up of event administrators.

Tivoli Netcool/Impact is a highly scalable analytics engine that adds business impact analysis to raw events and automates high-value actions. The product can read from and write to a wide variety of data sources. Furthermore, Tivoli Netcool/Impact does not make replicas of existing data, since data is accessed in real time at the source.

A persistent challenge for operations staff is how to manage data across the organization. While data access is needed to monitor mission-critical business functions and respond to developing problems, the essential information often resides in vast numbers of data stores and database formats. In addition, necessary limitations on user access across lines of businesses and silos can make centralized data management a challenging undertaking. The costs of reengineering processes and replacing tools can be prohibitive, and out-of-the-box gateways often do not offer the flexibility needed to access all relevant data.

Tivoli Netcool/Impact helps meet this challenge by providing a common platform for ubiquitous data access that can circumvent traditional organizational boundaries. Armed with data from virtually any data source, IT operations staff can correlate, calculate, enrich, deliver, notify, escalate, visualize and perform a wide range of automated actions.

Highlights

IBM Tivoli Composite Application Manager products include end-user monitoring for complete, end-to-end monitoring, which allows users to trace transactions across network hops and into database environments

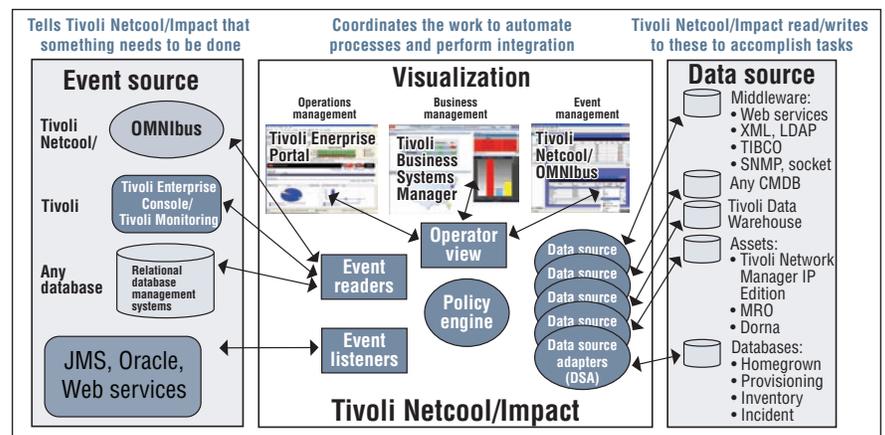
The advanced policy engine provided by Tivoli Netcool/Impact allows IT operations staff to define exactly what actions should be taken and when. These actions can include the addition of business context to IT events. This makes it easier to perform essential functions such as event prioritization, business impact analysis and the measurement of key performance indicators (KPIs). Furthermore, customizable Web-based views virtualize multiple data sources and provide a single point from which to view distributed data.

Application monitoring

IBM Tivoli Composite Application Manager (ITCAM) products include end-user monitoring for complete, end-to-end monitoring, which allows users to trace transactions across network hops and into database environments. This allows IT operations teams to pinpoint a transaction problem – right down to the individual machine, application and databases. ITCAM products also have the ability to change monitoring levels on the fly without restarting applications or servers, helping to gather more precise problem information on a slow-performing transaction or application. With the ability to integrate with IBM Rational® test tools, ITCAM products can trap a problem and then send this data to a test environment for extensive debugging without having to re-create the problem in a development environment.

In addition, ITCAM products have a problem center that helps IT operations fix problems and develop a library of solutions that will expand the knowledge base for future reference. ITCAM products can be installed on a single server, and they can scale to monitor hundreds of Java™ Virtual Machine (JVM) environments with a single console for efficient application monitoring.

ITCAM products also come with many standard features – such as memory leak tools, error detection, change detection and so forth – that are often sold separately from other suppliers. Finally, ITCAM products provide ease-of-deployment features that make it easy for IT operations to add agents to new Java EE environments.



Key IBM differentiators include:

- Accurate and rapid root-cause determination through multimetric monitoring, at-the-source correlation, event enrichment, advanced persistence monitoring, topology-based root-cause analysis, and real-time event correlation and processing.
- Cross-monitoring adoption of the IBM Tivoli Enterprise™ Portal console/user interface to unify various monitoring products into a single console.
- Enhanced scalability through an in-memory resident database, providing operators with accurate, uninterrupted real-time visibility into the environment, even through adverse conditions.
- Dynamic network map creation and updates through advanced layers 1-3 discovery, based on any value in the network database.

- Advanced correlation with Tivoli Netcool/OMNIBus and Tivoli Netcool/Impact:
 - Duplication: Finds patterns in events to eliminate duplicate events (typically reduces events by 10 to 1).
 - Aggregation: Finds related events and summarizes them in a single event. Tivoli Netcool/OMNIBus automations required.
 - Thresholding: Supports a special case of aggregation where events only become meaningful as a collection that violates a threshold rather than individual events.
 - Multisource correlation: Correlates event information to data coming from asset management stores, trouble-ticketing systems or customer databases.
- Ability to trace transactions across network hops and into databases.
- Ability to scale to hundreds of managed JVMs with a single server install of ITCAM.
- A problem center that helps users solve Java EE application problems and allows users to add problem situations that are either new or unique to that environment or application.

Optimize autonomic provisioning

IBM Tivoli Provisioning Manager provides automation for the provisioning process in a virtualized environment, including installation of an operating system installed from bare metal, the middleware stack and any applications required. It also automates the process of moving that image into production, including automating the changes to switches, routers, load balancers, storage, security, firewalls and so forth. This helps eliminate human error and allows a customer's best practices to be implemented in a repetitive and error-free manner. Within the IBM Service Management solution, it is beneficial to integrate the technology for capacity estimation during the provisioning process.

For autonomic provisioning, our key strengths include the following:

A flexible workflow engine that captures best practices – IBM remains the best choice when organizations need a flexible environment that can be tailored to their particular requirements.

A broad-based, integrated solution – With a single interface, single database and single reporting engine, Tivoli Provisioning Manager provides bare-metal installation of Microsoft® Windows®/Linux® on Intel®, as well as discovery, inventory, software distribution, reporting, patch management, and compliance and remediation.

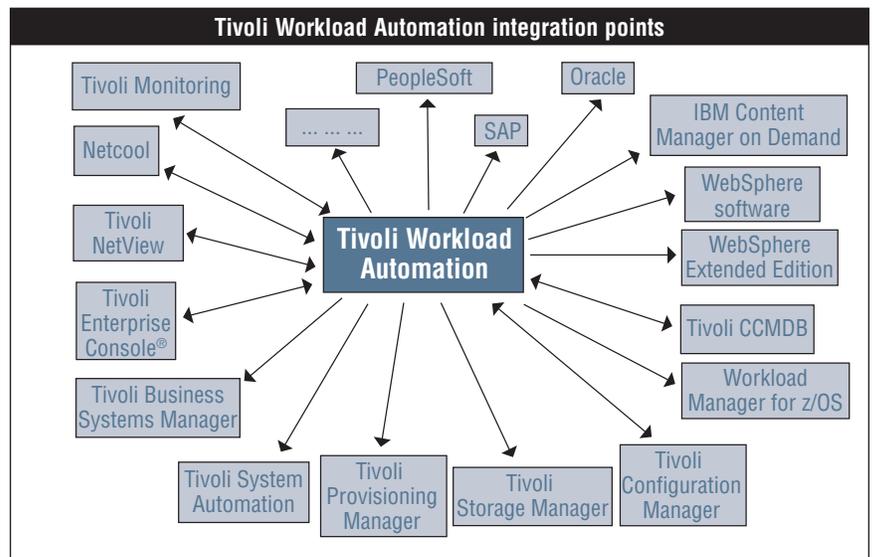
Cross-organizational automation – Tivoli Provisioning Manager can tie organizations together with customized workflows, using a single, flexible interface with an adaptive workflow engine. This integration supports significant cross-organizational automation and efficiency gains. Unlike competitive offerings, Tivoli Provisioning Manager is not simply another “operations tool” to make operations “more productive.”

In-line capacity planning – IBM has technology that can be leveraged to allocate the right size of infrastructure during the provisioning process to meet specified transaction volumes. It allows organizations to define patterns of Web servers, application servers, databases and application characteristics – and then arrive at the right size of infrastructure.

Highlights

Key IBM differentiators include:

- Flexible workflow engine.
- One integrated product versus multiple products pieced together.
- Support for more than just operations.
- In-line capacity planning to provision the right size of environment.



IBM Tivoli Workload Automation automates the delivery of batch and online workloads across composite application and storage environments

Help ensure dynamic workload automation

IBM Tivoli Workload Automation – including IBM Tivoli Workload Scheduler and IBM Tivoli Dynamic Workload Broker – automates the delivery of batch and online workloads across composite application and storage environments. Tivoli Workload Automation drives workloads to meet contracted service levels while resolving dependencies, discovering changes in the IT infrastructure and adapting service delivery. The results include increased workload velocity, higher utilization of existing IT assets, increased system availability and improved ability to meet service levels.

Tivoli Workload Automation employs service oriented architecture (SOA) and easily integrates with Java applications and application servers, enterprise resource planning (ERP) systems and systems management products. For example, it integrates seamlessly with IBM WebSphere® Application Server, SAP and Oracle ERP applications, and IBM Tivoli Storage Manager.

The integration of Tivoli Workload Automation with Tivoli Provisioning Manager enables organizations to dynamically provision resources to meet business demands. An organization's server consolidation efforts are greatly simplified through automatic discovery of newly provisioned virtual resources and automatic dispatching and relocation of workloads – all without requiring labor-intensive updates to workload plans and choreography. Dispatching can be based on workload priority defined in IBM Enterprise Workload Manager™ so that organization-wide performance and capacity can have control over IT resource usage. An organization's ability to adapt to spikes in online volumes is addressed by automatically prioritizing and dispatching workloads to the best available resources, based on utilization and other business goals. This adaptation is also addressed by automatically provisioning additional resources to help meet processing and service level requirements in mainframe and distributed environments.

Key IBM differentiators include:

- Driving composite enterprise workloads according to business policies.
- Resolving workload dependencies across heterogeneous IT resources.
- High scalability and built-in workload recovery and fault-tolerant processes.
- Integration with a wide range of applications, middleware and systems management offerings to consolidate management of batch and online workloads.
- Integration with many Tivoli products to provide advanced monitoring and automation capabilities.

Support service levels with SLA management

IBM Tivoli Business Service Manager is designed to give organizations advanced, real-time visualization of services and processes in a comprehensive service dependency model. It has a flexible, Web-based interface showing graphical dashboards that can include real-time gauges, charts and graphs, and image files. Status from traditional events or from other KPI data sources can be incorporated, allowing the display of operational activity and business activity in real time. Other capabilities include the tracking of service levels and SLA penalties, as well as integration with IBM Tivoli Application Dependency Discovery Manager for service dependency information.

Tivoli Business Service Manager integrates with IBM Tivoli Service Level Advisor to historically analyze, report and manage business SLAs. Tivoli Service Level Advisor leverages built-in best practices to help streamline definition, real-time and historical monitoring, and systematic adjudication. The product can optimize ongoing management of transactions with IBM Tivoli Composite Application Manager for Response Time Tracking. Tivoli Monitoring supports IT resource management for SLAs, operating level agreements (OLAs) and underpinning contracts.

Key IBM differentiators include:

- An integrated part of the IBM Service Management solution: Tivoli CCMDB, process management, infrastructure management and business continuity.
- Tivoli Service Level Advisor, which leverages built-in best practices to help streamline:
 - Definition.
 - Real-time and historical monitoring.
 - Systematic adjudication.
 - Ongoing management of transactions (ITCAM for Response Time Tracking).
 - Ongoing management of IT resources for SLAs, OLAs and underpinning contracts (Tivoli Monitoring).

Highlights

- KPIs on business services and IT services that can be easily visualized in Web-based, centralized views for any relevant data source.
- All business service models and IT service models that can be automatically discovered and updated to reflect events or changes and maintain accurate, current status of service delivery levels.

Leverage ITIL process management

The IBM Service Management platform is built on the open standards-based Java EE platform. This flexible, scalable, industry-accepted platform increases reliability and the availability of third-party add-on tools. It also widens the pool of developers who can customize and maintain IBM Service Management systems. In effect, it helps reduce platform vendor lock-in and allows customers to migrate their expensive configurations and customizations from release to release, which can significantly reduce the cost of migration.

IBM Service Management also offers several options for integrating to applications not supported by the platform. One such option is an enterprise adapter that allows message traffic to be connected between customer or vendor applications. The platform also incorporates IBM Integration Composer, a data integration application that enables customer data sources to be imported, transformed and loaded into the common database shared by all IBM Service Management applications.

IBM Service Management includes a common data model that is shared across applications, allowing KPIs to be set for any object and reporting across the data

IBM Service Management includes a common data model that is shared across IBM Service Management applications, allowing KPIs to be set for any object and reporting across the data. The IBM Service Management platform is constructed on an industry-standard Web services platform, enabling the sharing of tools and services while reducing complexity and administrative overhead. This Web services-based foundation provides an excellent platform for continued expansion of capabilities that will work in the same environment.

Resource management – A significant differentiator of IBM Service Management is support for proactive work activities and mature work management processes in the IT department. IBM Service Management software can track individual staff skills, certifications and calendars so IT managers can match job tasks to available resources and resource requirements. This allows managers to optimize work schedules and labor utilization, helping ensure that the right people with the right skills are assigned to the right jobs. Organizations should consider if their solution is built on a trouble-ticketing system that supports individuals as resources and provides the ability to manage priorities based on staff calendars or skills. For today's organizations, efficient resource allocation is a critical advantage of the IBM Service Management platform.

Architected for ITIL processes – IBM Service Management was designed from the ground up to conform to ITIL best practices. This is reflected in a unified architecture in which all IBM Service Management applications share a common data model and built-in ITIL workflows. Some competitive products built on traditional trouble-ticketing systems typically have had to retrofit ITIL processes to their existing architecture, and in certain areas this architecture may not conform to ITIL standards. Because these competitive systems have an additional level of separation from the original data sources containing asset data, maintaining the integrity of the entire configuration management database (CMDB) is complicated and dependent on many more pieces of software.

Integration with operational management applications – IBM Service Management has a mature and rich task management capability, allowing organizations to easily customize projects to their unique needs. Even preceding IBM Service Management, IBM created integration modules from the solution that allowed interaction between external applications. These integration modules connect the human process workflow to the technology. Tivoli Provisioning Manager integrates at the process layer, allowing a problem to proceed from request for change to provisioning. This is a key example of IBM direction in which processes, data, technology and people come together. Through integration, organizations can begin to advance along the service management maturity curve and begin exploiting automation to allow scaling of capabilities with technology.

Key IBM differentiators include:

- Modern Java EE–based base and common data model platform.
- Ability to maintain the configuration for upgrades, significantly reducing the cost of migration when compared to other vendors.
- A broad set of process flows based on and built from years of experience in IBM Service Management.
- Integration of operational management products.

Highlights

IBM Tivoli Asset Management for IT has capabilities for managing all asset-related functions and captures information that underpins more intelligent business decisions

Deliver cost-effective asset management

IBM Tivoli Asset Management for IT is a far-ranging IT asset management application that supports inventory, financial, maintenance and contract management from a single, user-friendly interface. The solution can:

- Track and manage IT assets throughout the asset life cycle more efficiently.
- Help manage procurement, budgeting and contracts more effectively.
- Help manage compliance efforts.
- Help maximize the use of IT resources by identifying and redeploying underutilized assets.
- Help control IT costs and more accurately plan for future IT needs.
- Integrate with additional asset and service management components from IBM and other vendors.

Tracking IT assets can be costly, time-consuming and error-prone. And it's only one part of the asset management process. IBM Tivoli Asset Management for IT has capabilities for managing all asset-related functions and captures information that underpins more intelligent business decisions. This solution can provide a comprehensive view of the IT infrastructure and offers detailed reports and KPIs, all presented in an easy-to-configure user interface.

Combining Tivoli CCMDB and asset management

The integration of Tivoli CCMDB with Tivoli Asset Management for IT extends the concept of asset management by coupling it with IT configuration items and application dependency mapping. This can increase the value of asset data with agentless IT discovery and reconciliation. Tivoli CCMDB discovery gathers CI data and application information, which dynamically integrates with the CIM-based data model provided by IBM Maximo technology.

When compared to other vendors who have separate asset data repositories, service desk data repositories and yet another CMDB, there are significant efficiencies in the IBM approach. These efficiencies can include reduced overhead in population, reconciliation and maintenance of the various data sources. The IBM approach to a common data model also provides excellent reporting, SLA and data utilization, since all Maximo applications leverage this database for storage and retrieval.

Managing software assets

IBM Tivoli License Compliance Manager is part of the Tivoli Asset Management for IT portfolio that delivers an end-to-end IT asset management solution across all platforms. Tivoli License Compliance Manager manages license compliance based on installs, concurrent users, number of processors (including virtual processors) and multicore chip technology. In an environment with multicore chip technology, processors are converted to value units based on the processor manufacturing type and number of cores on the chip across the enterprise, site, machine or partition.

Software use can be applied against the metrics listed above to support licenses based on software use. Tivoli License Compliance Manager will also track unlicensed software. For example, if a customer is licensed for a particular application – but only for a particular geography or division – the application is considered unlicensed software if it is deployed outside of that geography or division.

Finally, Tivoli License Compliance Manager provides detailed hardware inventory data that supports the IT asset management life cycle in Tivoli Asset Management for IT.

Key IBM differentiators include:

- An end-to-end IT asset management solution, including inventory, software use and license compliance across all platforms (IBM Tivoli License Compliance Manager for z/OS® and Tivoli License Compliance Manager).
- Incorporation into an overall IBM Service Management architecture. A common data model allows other IBM Service Management applications access to asset data from a single source.
- IBM Service Management graphical workflow that integrates assets into IBM Service Management processes.
- A single data source providing support from a KPI manager in Tivoli Asset Management for IT that enables reporting and SLA management on any database object.
- Breadth of software license metrics tracked.
- Tracking of unlicensed software.
- Support for the tracking of software licenses in a virtualized environment.

Enhance IT cost management with usage accounting and chargebacks

IBM Tivoli Usage and Accounting Manager allows alignment of IT costs with company priorities. This includes the ability to account for individual departmental use of key applications, servers and other IT resources by providing an extremely flexible, end-to-end tool that helps improve IT cost management. The product can track, allocate and invoice based on actual resource use by department, user and many other criteria using customizable, Web-based reports with an instant, drill-down capability.

Key IBM differentiators include:

- A broad set of resource collection capabilities that will work with usage log files from systems.
- Easy implementation and management.
- Excellent cost tracking in a virtualized environment for true cost transparency.
- A powerful, customizable rules engine to meet requirements for resource reporting or chargeback.

Highlights

IBM Tivoli Performance Analyzer software enables systems administrators to identify problems more quickly, resolve them and predict future problems in order to avoid them

Seamlessly execute infrastructure management

IBM Tivoli Performance Analyzer software enables systems administrators to identify problems more quickly, resolve them and predict future problems in order to avoid them. Because it seamlessly integrates with Tivoli Monitoring and Tivoli Enterprise Portal and has built-in domain knowledge of distributed systems, users can immediately become more effective without having to turn to other specialists with deep capacity modeling tools. Tivoli Performance Analyzer helps increase an organization's ability to execute infrastructure management. As a seamless, integrated part of the Tivoli infrastructure management platform, it enhances the value of performance management products, such as Tivoli Monitoring, by adding forward-looking, predictive capability to the real-time, near-time and historical data management capabilities of Tivoli Monitoring. Tivoli Performance Analyzer enables resource management to focus on future performance issues, providing proactive operational management.

Tivoli Performance Analyzer offers the following key differentiators:

- Predictive trending on key operational metrics.
- Targeted performance management reports.
- Server capacity monitoring.
- Support for Universal Agent can be extended to include additional metrics taken from any data collected by Tivoli Monitoring.
- Seamless extension to Tivoli Monitoring can be rapidly deployed against existing monitoring systems.

Strengthen security across the enterprise

IBM has a comprehensive security and compliance portfolio to help meet internal and external security requirements. IBM Tivoli Identity Manager and IBM Tivoli Access Manager are among the top-selling products for automating and simplifying the management of user identities, access rights,

and privacy and security policies. The IBM solution for security information and event management (SIEM) is proven and feature-rich, delivering real-time awareness of external and internal threats, and monitoring for compliance. IBM Tivoli Security Operations Manager provides security incident management and real-time event correlation and analysis for security events across the infrastructure. IBM Tivoli Compliance Insight Manager provides the ability to view in real time the security compliance posture of the organization and to monitor user activities with regard to acceptable-use policies. It captures comprehensive log data for a long-term storage and audit trail. It also interprets the data through sophisticated log analysis and communicates results through a dashboard for full audit and compliance reporting. The IBM Tivoli zSecure suite offers a comprehensive, fully integrated administration solution for z/OS to enable compliance, support security audits and improve operational efficiency.

Key IBM differentiators include:

- IBM identity and access management products that provide significant breadth and depth.
- IBM SIEM solutions that deliver end-to-end security management, strong security administration for the mainframe environment, real-time event correlation, incident management and analysis, security incident management, privileged user monitoring and auditing, easy-to-use compliance dashboard and audit reporting, and comprehensive log management.
- Broad-based, easy-to-use SIEM solutions that manage and monitor user activity across the enterprise, including cross-IT security, audit and compliance management.
- IBM Tivoli leadership in the SIEM space. (IBM designated a “Leader” in the 2006 Forrester Wave on Security Information Management Products.¹)
- IBM leadership in identity and access management with 2006 revenue share of 12.2% (ranked #1 in this space, according to IDC).²

Develop enterprise-level storage management

Some competitors attempt to emulate IBM but fall short in their ability to address the storage requirements of enterprise users, including scalability, heterogeneous support and process management.

IBM is clearly a winner in terms of scalability. IBM Tivoli Storage Manager can handle thousands of clients per server. As for heterogeneous support, IBM offers broad capabilities to storage hardware vendors with IBM TotalStorage[®] SAN Volume Controller – a powerful storage virtualization tool for a large set of vendors that is well integrated into the IBM storage family.

IBM also leads with process automation, in the form of IBM Tivoli Storage Process Manager, a proven solution that works with the following products:

- Tivoli Storage Manager, to allow organizations to create automated tasks across backup and recovery.
- IBM TotalStorage Productivity Center, to provide efficient storage resource management.
- Tivoli Provisioning Manager, to support integrated, automated provisioning.

In the most recent revision of Gartner's Magic Quadrant for storage resource management and SAN management, IBM was placed in the "leaders" quadrant.³ Major advances in the IBM storage family, such as Tivoli Storage Process Manager, have driven this success.

Key IBM differentiators include:

- Better scalability in several aspects, including backup/recovery (Tivoli Storage Manager) and resource management (TotalStorage Productivity Center).
- Better storage virtualization with better heterogeneous support for storage hardware and better integration into IBM storage products (Tivoli Storage Manager and TotalStorage Productivity Center).
- Tivoli Storage Provisioning Manager, an innovative product that allows customers to set up policies and automate specific storage tasks.

Summary

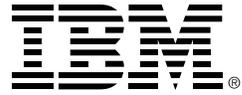
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IBM Service Management solutions, leveraging IBM Self Managing Autonomic Capabilities, provide an environment in which IT organizations can better align technology investments to business objectives, helping to optimize IT operations and drive business growth.

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About Tivoli software from IBM

Tivoli software provides a set of offerings and capabilities in support of IBM Service Management, a scalable, modular approach used to deliver more efficient and effective services to your business. Helping meet the needs of any size business, Tivoli software enables you to deliver service excellence in support of your business objectives through integration and automation of processes, workflows and tasks. The security-rich, open standards-based Tivoli service management platform is complemented by proactive operational management solutions that provide end-to-end visibility and control. It is also backed by world-class IBM Services, IBM Support and an active ecosystem of IBM Business Partners. Tivoli customers and business partners can also leverage each other's best practices by participating in independently run IBM Tivoli User Groups around the world – visit www.tivoli-ug.org



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¹Paul Stamp with Laura Koetzle and Sarah Bernhardt. "The Forrester Wave: Enterprise Security Information Management, Q4 2006." December 5, 2006.

²Sally Hudson and Jon Crotty. "IDC Worldwide Identity and Access Management 2007-2011 Forecast and 2006 Vendor Shares." July 2007.

³Dave Russell and Robert E. Passmore. "Gartner Magic Quadrant for Storage Resource Management and SAN Management Software, 2007." March 19, 2007.