



Advisory

The Strategic Importance of IT Service Management (And Why Your Organization Should Consider Using IBM Tivoli Solutions)

Executive Summary

This report is targeted at C-level executives (CEOs, CIOs, and CFOs), information technology (IT) finance directors, and IT executive managers. It has three key messages:

1. IT should focus on supporting enterprise business goals and objectives. Too many data centers around the world are locked in an old information systems management paradigm that focuses almost exclusively on the management of *physical resources* and *data protection*. This old paradigm is forcing IT organizations to constantly spend money to add people to manage ever-increasing systems/storage/network capacity and complexity.
2. Several vendors have architected “*service management*” software environments that focus on integrating management software and providing dashboard views of process flows, systems behaviors, and operations. These environments simplify IT resource and process management and help to greatly improve management efficiency by breaking down management silos (These ‘silos’ are commonly disparate and disconnected processes that often cause duplication of effort and potential miscommunication — as well as inhibiting the automation of end-to-end process flow). Service management environments enable IT managers to focus less on physical systems management and more on aligning information technologies with business goals.
3. One of these vendors is IBM. IBM has a functionally rich, completely integrated service management strategy known as *IBM Tivoli Service Management Center for System z* (or SMCz for short) that provides a single point of control for managing IT systems functions as well as business process flows. SMCz provides **visibility** into the health of IT systems operations and resources (system, network, and storage management), and mapping to business process flows (key performance indicators, and business dashboards); **control** of IT resources (asset and license management, security management); and **automation** of IT management functions (such as systems and infrastructure management). This strategy provides management automation, systems/process integration, and monitoring functions — all from a dashboard driven interface that runs on an IBM System z.

Even if you have zero interest in System z (mainframe-based) computing, you should read this report. It explains why your organization should build a service management strategy. Further, it describes how to reduce IT operating costs while improving service — and it shows how service management software can be used to better align IT systems with business goals and objectives.

The Strategic Importance of IT Service Management and IBM's SMCz

What Is IT Service Management?

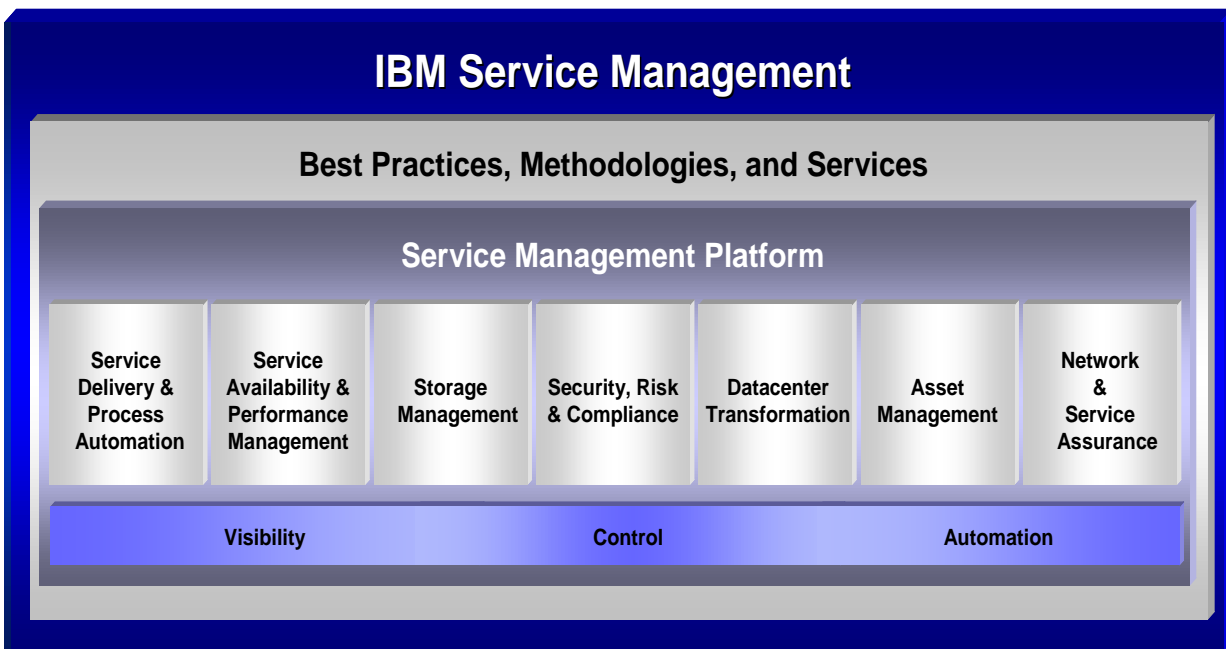
IT service management is exactly as its name implies: a way to manage a collection of IT services. A more formal definition can be found at www.itil.org:

"IT service management is the framework which plans, monitors and controls the quality of the delivered services. The correcting variables are derived from the business targets and customer orientation as well as cost optimization".

To align with these "business targets", service management focuses on services that IT delivers to the business such as e-mail or accounts payable/accounts receivable/general ledger or corporate intranet — as opposed to focusing on physical systems management or database administration or other IT activities.

IT service management software automates redundant, repetitive IT tasks, integrates those tasks into a single group of common services (such as availability services, or storage services, or security services, etc.) — and then provides a dashboard view of how those integrated tasks are performing. From these dashboards, services can be monitored and controlled — and corrective action can be taken if need be. Figure 1 shows a range of IT service categories that can be managed by IBM's service management software).

Figure 1: Functions That Can Be Managed by Service Management Software



Source: IBM, June 2009

How Does Service Management Work?

As an example of how service management works, consider how today's IT managers insure physical systems availability (depicted as service availability and performance management in Figure 1 above). At the physical level, systems are generally designed to operate at less than 20% of capacity in order to ensure that there is plenty of headroom to deal with peak processing periods (note: IBM mainframes, however, are designed to run consistently at 100% capacity). Redundant servers are purchased and deployed such that if

The Strategic Importance of IT Service Management and IBM's SMCz

a failure occurs, another server can automatically pick-up where the failed server left off (this is called “failover”). Management software is used to constantly monitor hardware components to detect failures (and in some cases, this management software can also be used to predict failures). Management software is also used to automatically discover and map resources — and graphically display resources activities (this assists in capacity planning and troubleshooting as well as in helping managers and administrators understand the impact being made on business services that are being delivered). Finally, to ensure that workloads are executed at agreed-to service levels, IT managers frequently manually shift workloads from system to system to balance workloads.

All of these activities are related to maintaining *systems availability*. These functions are performed independently of each other, and these availability applications are not necessarily well integrated with one and other. Many of these activities require human interaction and direction, making them labor-intensive and potentially error prone. Service management takes all of these independent activities and integrates them as a common function (an “availability” function) that can be managed using a common, dashboard-controlled interface. Should an availability-related problem occur, those problems can be automatically corrected through scripts or IT managers can use a series of tools and utilities to take corrective actions.

There are many types of underlying services that can be managed (see Figure 1) ranging from availability services through process flow management. Service management software is all about automating and integrating tasks that logically belong together; managing those tasks using a visual interface (advanced dashboards that provide insights into information system health as well as into business process flows); and, monitoring and controlling the managed environment (using a variety of tools and utilities).

Why Should Your Organization Care About Service Management?

The short answer is: *because it is becoming economically unfeasible to continue to operate human resource-intensive data centers while quality of service demands continue to accelerate.*

For decades, the primary responsibility of IT managers and administrators has been to manage *physical* information systems environments. More specifically, your IT managers have been made responsible for ensuring that the systems and applications that they manage meet agreed-to service level requirements and all enterprise data is properly backed-up and secured. To meet service level requirements, IT managers have deployed redundant servers to ensure high-availability. To protect data, they have replicated and backed-up data to ensure that no information would be lost; and they have vigilantly monitored systems for failures — swiftly corrected those failures when they occurred. Finally, to secure data, IT managers have encrypted data that is sent over networks — and have implemented authentication/authorization software to protect internally held data. Enterprises that are using this approach need to consider whether they should be using their precious IT human resources to perform routine and redundant workload-balancing, replication/back-up tasks, capacity planning and the like — or whether they would be better served using those same resources to support mission-critical and strategic business process flows.

The Strategic Importance of IT Service Management and IBM's SMCz

IT resource management is no longer simply about the management of physical systems. Over the past few years IT managers have become increasingly responsible for the management of both physical and virtual (logical) resources; for the deployment and operation of service-oriented architecture (SOA) in order to allow businesses to respond more rapidly to market changes or competitive challenges; and for the rapid provisioning (build-up/tear-down) of computer resources in order to improve asset utilization and to adjust to dynamically changing workloads. Further, IT managers are also being asked to help streamline enterprise and supply chain business process flows.

With all of these additional tasks and additional complexity, IT executives need either a drastic infusion of skilled IT managers and administrators, or they need to find ways to automate redundant manual tasks such that they can turn their attention to tasks that truly require human intervention (such as fixing broken process flows). Service management software automates manually intensive tasks, and provides visibility and controls such that IT managers can more easily manage their IT environment. The time and effort saved in managing IT can then be targeted at helping streamline and drive enterprise strategic initiatives and business process flows.

Deploying a Services Management Environment: What to Look For

Service management products are available from several vendors including CA, Hewlett-Packard, and IBM. As you evaluate these vendors' products you need to consider the structure and architecture of each vendor's service management offering (is it SOA based, does it allow 3rd party applications to participate, etc.), as well as the depth of each vendor's product set and the characteristics of the server(s) on which you will ultimately deploy your service management environment. In this section, IBM's Tivoli Services Management Center for System z (SMCz) will be used as an example of a services management environment.

Structure and Architecture

When choosing a services management environment it is important to consider how flexible and adaptable that environment is. To this end, look for products that are standards based (based on Web services standards, service-oriented architecture standards, etc.) and also consider whether the environment has been architected to support ITIL (Information Technology Infrastructure Library) best practice solutions.

IBM's Tivoli product set is based-upon a wide range of open standards and offers numerous service management solutions that are highly integrated with one another and open to integration with non-IBM 3rd party components. This solution set serves as an excellent deployment environment for ITIL best practice solutions. IBM's SMCz strategy enables process management, service management, and operations management to all work together to provide a common management environment that can lower operational costs, streamline systems and infrastructure management, and also manage process flows.

As for systems designs, remember that service management must be concerned with a cross platform environment that includes the management of services both running on and spanning IBM's System z servers, Itanium-based servers, RISC-based servers, and x86-based servers. The other key facet of IBM's SMCz strategy, is that it is focused on using an IBM System z as a service management hub (see the "Why Use an IBM System z as a Centralized Process/Service/Operations Management Hub" section of this report for further details of this positioning). Together, these two characteristics make SMCz unique in the industry.

The Strategic Importance of IT Service Management and IBM's SMCz

It is important to note that IBM offers a variety of Tivoli management solutions. But most IT managers also use management software products offered by 3rd party suppliers. IBM's Tivoli architecture has been designed to allow these 3rd party solutions to become part of an overall service management solution. Figure 2 illustrates this emphasis on flexible management — as well as showing how integration and consolidated resource management are key building blocks that contribute to the make-up of IBM Service Management Center for System z.

Figure 2: The 3 Foundations of IBM Service Management Center for System z



Source: IBM Corporation, June 2009

Server Characteristics

IBM's Tivoli products run on several distinct systems platforms and numerous operating environments including x86, RISC, and mainframe platforms and Windows, Unix, and System z operating environments.

When considering which architecture might best serve your organization, start with the realization that service management works best when centrally controlled and managed. Trying to manage availability, performance, service delivery, process flow, security/risk/compliance, assets, and other IT elements using a distributed systems approach creates a need to link data that resided on distributed management servers together in order to create a common view of system, application and process flow behaviors that are taking place within an IT environment. This approach adds a layer of management complexity that can best be avoided by using a centralized approach to services management.

As for which platform to choose, your choice should be dictated by the size of the environment that needs to be managed — and by a few other considerations such as security, risk management and compliance requirements, virtualization management requirements, SOA integration, power/cooling requirements, and the like.

The Strategic Importance of IT Service Management and IBM's SMCz

For mid-sized IT environments, a Unix-based server may serve as an excellent hub for centrally managing IT processes, services and operations in a distributed computing environment. But, given recent IBM price reductions for System z hardware, and given that fact that this hardware can run a Linux operating system, IBM's System z may prove to be an even better choice for deployment of a completely integrated process/service/-operations management environment. The following section explains why this may be the case in even more detail.

Depth of Product Set

Tivoli's management portfolio is not only wide, but deep. At the process management level, Tivoli offerings include products to manage process flow service requests, business continuity, business services, and change and release management.

- New process management products that Tivoli has introduced on System z include Tivoli Service Request Manager, Tivoli Change and Release Management, Tivoli Business Continuity Process Manager, and Tivoli Business Service Manager.
- New service management platform products that Tivoli has introduced on System z include Tivoli Application Discovery and Dependency Manager and Tivoli Change and Configuration Management Database.
- From an operations perspective, Tivoli products include Tivoli NetView, OMEGAMON, OMNIbus, Composite Application Manager, Systems Automation, Workload Automation, Accounting and Usage Manager, Decision Support, Identity Manager, Access Manager, and Storage Manager product offerings.

Why Use an IBM System z as a Centralized Process/Service/Operations Management Hub?

IBM's System z has many features that make it uniquely qualified to manage and secure a distributed systems/storage environment. Some of these include:

- Full support for service-oriented architecture — making the System z an ideal SOA hub. Note: IBM has invested in comprehensive SOA service lifecycle management solutions on System z (these investments are critical for future cloud computing environments). Tivoli provides visibility into SOA applications and tight integration with security and identity management — a level of integration that is unmatched by IBM's competitors;
- Highest commercial security rating in the industry (EAL level 5) — making the System z the best choice to serve as a security clearinghouse to protect all systems in a given distributed computing environment (note: IBM is spending \$1.5 billion in security R&D to stay in that number one position). Also, consider this: if your organization is being forced to migrate from Hewlett-Packard's PA-RISC environment and/or Sun environments — you may wish to replace those servers with Linux-based servers and have them secured through an IBM System z;
- Outstanding power management and cooling features. Compared to distributed server farms with equivalent computing power, IBM mainframes offer better power utilization; superior cooling (using water cooling); in a smaller footprint. (Note: Tivoli Monitoring for Energy Management is the only product on the market that

The Strategic Importance of IT Service Management and IBM's SMCz

provides visualization on energy usage and thermal conditions across Linux on z and distributed computing environments);

- Richest, deepest, best-in-the-industry virtualization stack with advanced virtualization management and memory management capabilities that deliver maximum resource utilization, scalability, and flexibility; and,
- Superior meantime-between-failure (MTBF) and high-availability characteristics — Mainframes can provide 99.999 per cent high availability. Mainframe application availability is reportedly the highest in the industry (through the use of IBM's Parallel Sysplex technology and Geographically Dispersed Parallel Sysplex which mask planned and unplanned outages and provide both local and remote disaster recovery). In fact, one IBM customer claims that his company kept a specific application continuously available for 10 years! IBM's MTBF on mainframes is extremely impressive — and as a result, some industries are able to avoid service shutdowns and save millions of dollars per hour that otherwise could be lost due to equipment failure.

In short, using a System z as a centralized service management hub solves numerous, pressing IT issues including integration, compliance, security, power use, and virtualization infrastructure/management. This is why Clabby Analytics believes that IBM's System z is an ideal architecture for centralized management, for flexible IT resource management, and for business process flow control.

Which Organizations Are Using Tivoli Software Environments on System z

Several large enterprises are seeing excellent results as they adopt Tivoli solutions to improve platform management and streamline business process flows. Some of the results these organizations have achieved include:

- In the areas of automation, integration and monitoring from a single point of control, Bank of Russia, ITERGO, TD Bank Financial Group and Oberfinanzdirektion Karlsruhe have been able to help reduce total cost of ownership for their IT systems while increasing overall availability. With consolidation to System z9 EC and Tivoli software, Bank of Russia was able to reduce cost per transaction by 95 % (11 rubles to 50 kopeks). With Tivoli automation solutions, ITERGO improved productivity and cut planned maintenance time by 50%. TD Bank Financial Group was able to reduce its recovery time from 48 hours to 2.5 hours and ensure that no data will be lost during outage. And Oberfinanzdirektion Karlsruhe implemented a single point of control for monitoring all its applications with Tivoli monitoring solutions and avoided downtime.
- Casas Bahia has reported that Tivoli management on its mainframes has enabled it to improve reporting and development capabilities, while simplifying systems management and reducing IT costs. Casas Bahia also reports increased infrastructure availability; lower total cost of ownership for IT environment; and reduced time and effort to identify and fix problems.

The Strategic Importance of IT Service Management and IBM's SMCz

Summary Observations

Using the current datacenter model, IT managers and administrators proliferate. And even worse, they proliferate according to IT silos. So, a typical IT department has a group of IT managers in charge of systems operations; another group in charge of storage operations; another in charge of networks; another in charge of database administration; another in charge of applications management and so on. As enterprises add more computing power, and as enterprises increase the amount of storage needed to ensure compliance or to explore business intelligence initiatives, more and more systems/storage/network managers and administrators are required. And this escalating growth in IT management leads to tremendous increases in the cost of operating datacenters.

Anything that can be done to reduce the number of IT managers and administrators needed to operate an enterprise datacenter has the potential to greatly reduce datacenter operating costs and improve overall service quality. By deploying a service management environment, IT managers and administrators can be freed-up to focus on high-value activities such as decreasing operational costs or ensuring streamlined flow of business processes.

Several vendors offer service management products. IBM's Tivoli product set is particularly rich and deep when it comes to integrated product offerings that can manage a wide variety of IT services. And IBM's System z architecture is particularly well-suited to act as a centralized management environment that can manage services across an entire enterprise. No other server environment beats System z when it comes to the depth and breadth of security and virtualization products. Plus System z is positioned to make an excellent hub/clearinghouse for SOA activities.

When all is said and done, your organization can continue to manage its IT environment using the aging let's-just-keep-adding-people paradigm. And it can continue to support a wide range of 'boutique' management tools. However, if your enterprise truly wants to get IT costs under control while aligning IT with business goals and objectives, you and your organization should formulate a plan for moving to the new service management paradigm. And remember, service management will not only help reduce operating costs, it will position your enterprise for faster growth as economies around the world recover from the remnants of today's economic downturn.

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