



**Realizing the business value of  
systems management with  
Linux-powered grid computing**

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### Introduction

Today, executives are looking for better ways to use and access IT resources to increase business productivity as well as improve services for their customers, employees, partners and suppliers. At the same time, they need to lower the total cost of ownership (TCO), without putting the enterprise at risk.

Many enterprises are relying on emerging technologies such as Linux, open source applications, grid computing, autonomic computing and e-business on demand.<sup>TM</sup> to support new business processes and move beyond traditional competitive boundaries.

As with any technology, managing and safeguarding data while supporting its continuous availability is necessary. The unfortunate realities of terrorism, massive power failures and security invasion highlight this need, as well as the more common possibility of human error. Keeping the business running requires a focus on and investment in systems management.

Today, however, systems management is taking on a more significant role in the enterprise. Autonomic computing, an advanced level of automated management, helps to leverage grid computing and flexible resources powered by Linux. Systems management technologies, like IBM Tivoli® offerings, can supervise the allocation of resources to satisfy individual business processes...on demand.

Revenue-producing business transactions can be given resource priority over business processes that can be delayed. When IT resources are stretched, businesses can better shield themselves from performance or availability exposures. The result is an image that impresses customers and can help transform the business to provide a competitive market advantage.

### **Leveraging Linux-powered grid computing**

In this paper, we will discuss how systems management supports a flexible IT infrastructure. For example, in the finance industry, enterprises are now using a combination of Linux, grid computing and autonomic computing to speed processing of complex transactions to provide new online portfolio analysis services. We'll review a proven lifecycle approach – a roadmap – that IBM consultants have developed and tuned to optimize planning and help ensure implementation success. To help enterprises begin realizing the business value of systems management using these latest technologies, we'll focus on the first phase of planning and demonstrate the value of partnering with IBM.

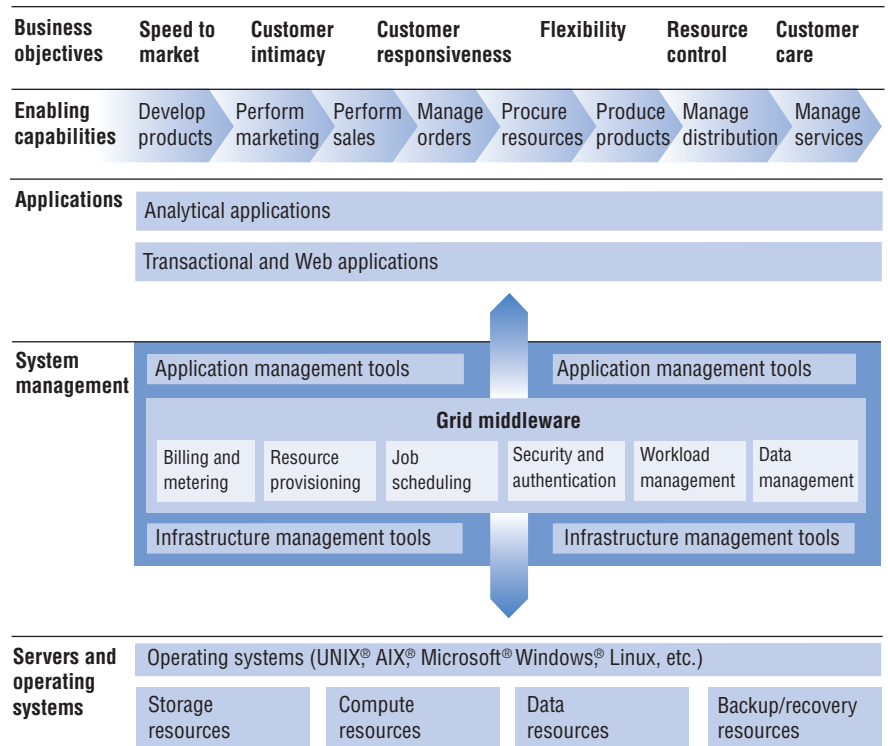
Systems management supports the capability to deliver new business services that were once cost prohibitive. At the same time, the ability to flexibly manage resources is helping to stretch IT infrastructure investments.

### **Supporting a flexible infrastructure**

Open source and Linux provide greater opportunities to use existing resources, and can help businesses avoid being locked into proprietary solutions—stagnating future developments. Because of its flexibility and openness, Linux is often a part of strategic grid solutions. Grid computing and the virtualization of IT infrastructures help make the best use of all available resources as well as enterprisewide information; and grid computing solutions are designed to provide a flexible foundation for leveraging the business value of autonomic computing.

Autonomic computing, or automated systems management, furnishes the management interface to help deliver near realtime resources to fulfill the changing needs of individual business processes. Implemented as part of a comprehensive solution, these technologies support the objectives of increasing business efficiency, controlling costs and enabling new revenue opportunities.

The following chart demonstrates how systems management supports a grid computing environment, interfacing with business applications and processes as well as the supporting infrastructure.



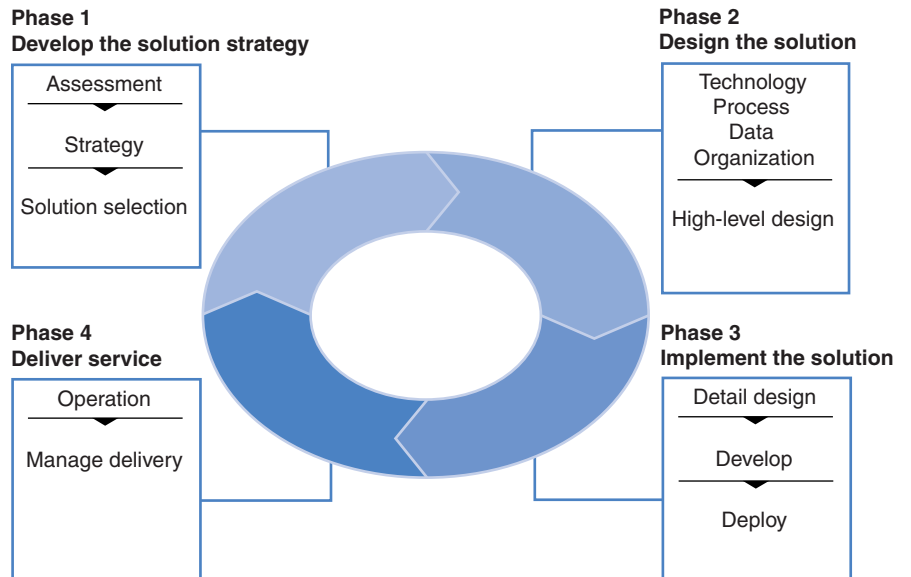
The management interface, the systems management layer, supervises resources to help satisfy business processes. Application management tools and infrastructure management tools work with the grid to identify and allocate storage, compute, data and recovery resources.

**Applying a full lifecycle approach**

Planning and implementing systems management technologies can seem overwhelmingly complex. Effectively planning for systems management implementations requires a full lifecycle approach. When systems management solutions are thoroughly planned and designed, implementing new technologies, such as Linux, can leverage the processes that are already in place.

Introducing more complex technology changes, like grid computing, further increases the need to follow a proven process to achieve objectives. Planning effectively for autonomic computing will not only help reduce a company's development investment and time to deployment, but it will also help ensure it has correctly prioritized opportunities to increase business value.

Optimal systems management is achieved by developing and implementing effective management methodologies and best practices. A successful integration uses proven methodologies – applied across the entire lifecycle of the process – for strategy, solution design, implementation and service delivery. IBM's methodology for systems management includes four phases, which are highlighted in the following chart.



*The IBM Systems Management solution lifecycle provides a best practices-based roadmap.*

### **Getting started: Developing a successful systems management strategy**

The most important step in developing a successful systems management strategy begins with assessing where you are today, asking questions such as:

- What current inefficiencies will hamper the ability to manage new technologies such as Linux?
- As you implement grid computing, are there opportunities to address weak areas of current systems management solution to make desired improvements?
- What are the linkages among staff, processes and tools related to systems management...and what improvements are needed?
- Where can you achieve quick results using autonomic computing to orchestrate the provisioning of your IT resources?
- Which business processes could be improved if resources were available on demand?
- Where can you leverage existing resources to realize the quickest return on investment (ROI)?

Information obtained from a comprehensive assessment helps:

- Identify the potential of Linux, grid computing and autonomic computing to improve IT services for priority business processes
- Understand the improvement initiatives needed in the infrastructure and organization to realize the potential of these advanced technologies
- Establish a roadmap and program of work for a phased implementation

The assessment creates a framework for a comprehensive systems management strategy. This provides a sound foundation for implementing the services and service management structure needed to support Linux and grid infrastructures, leading to transformation through an autonomic computing environment. Most importantly, the data gathered during the assessment provides the business case for change.



**Identifying and implementing IT resources**

Executives are often looking for faster business response and reduced support costs, both of which contribute towards a positive return on investment. The following chart provides a potential example of the value of systems management to more quickly respond to business demands – identifying and implementing IT resources in hours instead of weeks. While addressing a business need, this also demonstrates the cost savings of eliminating the need for manual processes and the support staff to perform them.

<b>IT tasks</b>	<b>Automated process</b>	<b>Manual time</b>	<b>Automated time</b>
Identify resource	Resources identified by business process	3 days	<1 hour
Install software	Remote OS install/ software provisioning	5–10 days	<1 hour
Configure security and network settings	Automated configuration	5–10 days	<1 hour
Return to server free pool	Automated deallocation	Variable	Automated
	<b>Total time</b>	<b>13–23 days</b>	<b>Half day</b>

Armed with supporting information to demonstrate the value of systems management, the business case may help obtain commitment from the executive team, as well as set realistic expectations. Appreciating the value of systems management at the executive management level will support an investment in skills and product functionality to meet objectives. As companies move towards implementation, achieving their goals will require:

- Clearly defined systems management processes
- Piloting of functionality and staging of deployment
- Strong project management

### **IBM Systems Management Services: Partnering for success**

To improve project success, executives are engaging professional partners to support their companies' systems management implementations. This teaming helps address the challenge of obtaining and retaining hard-to-find skills while understanding proven methods. IBM Global Services Systems Management Services helps organizations optimize complex, multivendor environments and facilitates the rapid deployment of enterprisewide systems management solutions.

IBM is helping to develop the next generation of technology to support evolving business demands. Partnering with IBM can help companies effectively integrate advanced technologies, as well as leverage proven thought leadership and best practices to:

- Acquire new capabilities quickly
- Enhance security features
- Improve economies of scale
- Reduce up-front investments

### Summary

Whether companies are just getting started – integrating Linux into the enterprise – or they are ready to take advantage of grid computing to fully leverage IT investments, systems management is an important factor. Following a lifecycle approach enables organizations to successfully leverage the benefits of Linux...reliability, performance, flexibility and scalability... to support an increasing number of business applications.

In a grid environment, with autonomic computing, systems management becomes even more significant, providing the orchestration of available resources to speed processing – improving and providing new customer services – as well as continuing to meet service-level commitments. Implementing effective processes can limit costs and improve availability. Using best practices and professional services from IBM helps enterprises realize real and potentially rapid ROI, and helps obtain superior performance from Linux and grid computing solutions.

### Find out more

For more information on Linux, open source computing, grid computing and autonomic computing, or to learn about how the people of IBM Global Services and IBM Systems Management Services can help your company gain and sustain a competitive advantage in the e-business marketplace, contact your IBM sales representative or visit the following:

**ibm.com/services**

**ibm.com/linux**

**ibm.com/grid**



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