

Application Discovery and Automatic Mapping for an On-Demand Infrastructure

Table of Contents

Introduction	3
Challenges Facing an On-Demand Infrastructure	3
Business Drivers for Service Discovery	4
Summary	5
About EMC Smarts	5

Introduction

Companies today are struggling to control their technology expenditures and searching for new ways to manage the complexity of the application infrastructures they've created. Increased number of users, continuing demands for new business solutions, changing application architectures built on distributed technologies like .NET, J2EE, and Web Services are just some factors leading to the increasing complexity of managing applications in this new era. Past IT investments in systems and network management tools, while sufficient for understanding the availability and performance of the components, are not enough for this new paradigm. The reason is quite simple: existing NSM and ESM tools are blind to application logic. Research from Forrester Research (formerly Giga Information Group) shows that 70–80 percent of time is spent finding the root cause of downtime and 44 percent of service disruptions are caused by the application.

IT organizations can best address the issues they are facing today, and best prepare themselves for the future, by building an infrastructure that is efficient, responsive, and aligned with the business. Such an infrastructure is “on-demand,” as it enables IT organizations to continually meet the demands of the business. Creating an on-demand infrastructure is, simply stated, getting IT right.

This paper discusses the inherent challenges organizations face when building out their real-time or on-demand IT infrastructures and the steps required to automate the management of such IT environments in order to efficiently and effectively respond to changing business demands. Only with an automated service discovery process can companies begin to get their IT environments under control with respect to cost, risk, and oversight.

Challenges Facing an On-Demand Infrastructure

IT is under enormous pressure to minimize the cost and risk of supporting mission-critical business applications. As a result, IT management and automation initiatives such as business service management (BSM), data center automation (DCA), configuration and change management, resource consolidation, and ITIL have become top priorities for IT operations managers. Unfortunately, the complexity of the IT infrastructures that power business-critical applications makes it difficult to ensure application availability, improve service levels, and reduce operating costs. The success of all these initiatives is hinged upon an organization's ability to understand the complex relationships between applications and technology infrastructure.

The obstacles that IT departments face today fall into several categories:

Complexity

As companies have built their IT infrastructures over extended periods of time, they have incorporated various best-of-breed components. The result is that IT infrastructures today are highly complex and fragmented with multiple vendors, platforms, applications, and standards co-existing. Managing such an infrastructure is expensive and time consuming. Infrastructure complexity continues to increase as new kinds of technology, including wireless and Web services as well as advances in hardware and software technologies, are added to the mix.

Labor

The bulk of IT budgets is spent on maintenance and the largest portion of this is labor. Labor currently accounts for approximately 50 percent of IT budgets. A fragmented infrastructure typically requires specialized labor resources to manage each type of application, platform, device, and so on. The efficiency that would result from enabling one administrator to manage across different types of hardware, software, or network assets is not being realized today.

Lack of Visibility into IT

Most companies cannot accurately track the IT resources required to support business processes or the associated costs. This information is critical in order for companies to financially optimize their business and IT plans. Without this, IT departments are unable to determine what service levels they can realistically offer to the business. Thus, IT organizations find it difficult to set realistic business expectations and to assess their ability to meet new demands.

Inconsistent Service Levels

A fragmented, manually managed IT environment cannot deliver a consistent end-user experience. In order to manage IT to required business service levels, organizations must integrate and automate IT service discovery solutions that synchronize business processes with IT infrastructure to achieve on-demand computing.

Regulatory Compliance

To comply with new regulations in many industries—such as Sarbanes-Oxley, USA Patriot Act, Health Insurance Portability and Accountability Act (HIPAA), and more—companies need significantly advanced technology management capabilities. They have no choice but to start managing their infrastructures so that their resources and data can be tightly controlled and monitored.

Security

More sophisticated security capabilities are required as computing becomes more portable, the use of Web services increases, and companies interoperate with external parties. The complexity of IT environments requires IT executives to take control of their infrastructures by starting with the discovery process.

Business Drivers for Service Discovery

The complexity of the IT infrastructures that power business-critical applications makes it difficult to ensure application availability, improve service levels, and reduce operating costs. The success of all these initiatives is hinged upon an organization's ability to understand the complex relationships between applications and technology infrastructure. Here are some of the business drivers for IT service discovery.

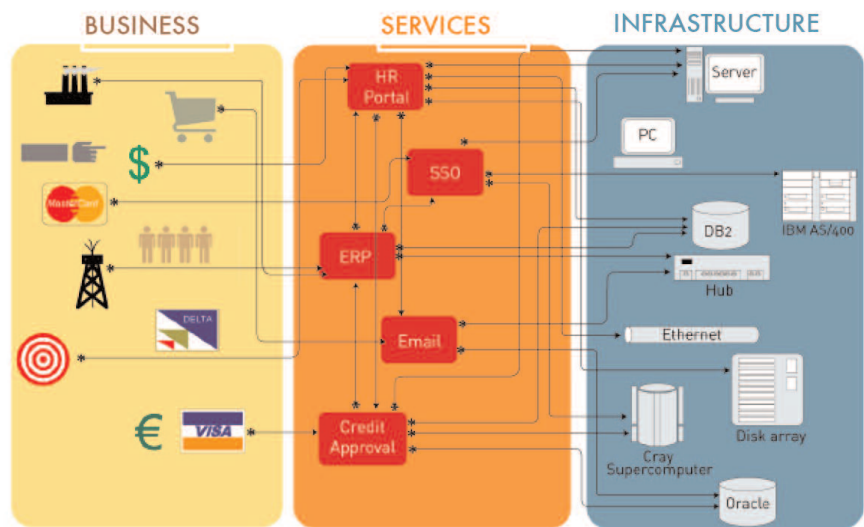
Realtime Infrastructure

Companies need to make their infrastructures actively self-managing. This automation is essential to achieving efficiency savings and synchronizing business processes with the IT infrastructure.

Discovery and Automatic Mapping

The process of manually discovering and mapping the applications, relationships, usage, and dependencies for a single server takes nearly 10 hours. In an environment with 200 servers, this process can take up to eight months. Further, because IT environments are dynamic, the information obtained is only valid at the point when the “snapshot” was taken and is likely outdated when the documentation process is complete. The cost of mapping software dependencies once for 5,000 servers is about \$2,000,000. Change frequency and access challenges make it practically impossible for most organizations.

Cut cost and risk of IT service delivery by providing IT operations with accurate pictures of their services, systems, inter-dependencies, and configurations.



Active Management

IT management is largely piecemeal and manual across various applications and infrastructure components. IT reacts to problems, but is largely unable to proactively prevent them. Organizations can focus on automating system monitoring and management by taking advantage of “passive” agentless solutions. The passive approach listens to; inspects packets on the network without scanning, spidering, or probing network devices; and can passively observe bi-directional communication between servers and clients.

According to Gartner Group, 75 percent of configuration management projects fail because of poor planning and bad design.

Process Renovation (ITIL)

With ITIL and other best-practice framework initiatives driving projects to help IT organizations gain control of their infrastructures, the need for automated discovery and mapping solutions is rising, as is the need to implement a CMDB strategy to hold configuration items (CIs). Organizations require help in building logical models of their IT infrastructures so they can identify, catalog, track, optimize, and manage their CIs. This process will have intrinsic value to IT in reducing risk and lowering costs.

Aligning Business with IT

By achieving these four competencies, an organization can build the foundation for aligning IT more closely with the business. To bring about alignment, companies must create visibility into the IT resources and services required to support business applications and processes, as well as associated costs. IT must be managed by business process—to end-user needs—rather than to underlying IT-specific metrics. Only with these capabilities can an organization cease to grapple with IT as an ill-understood cost center and transform it into a business asset.

“EMC Smarts ADM stood out from other solutions in its ability to ‘cut through the clutter’ and give us a birds-eye view of our entire IT infrastructure.”

CIO of a Fortune 2000
Business Management/
Services Company

Summary

A successful enterprise depends upon the synchronization of business and IT. Companies increasingly require an agile IT infrastructure that is designed to grow, adapt, and change with business needs.

In order to ensure availability of such applications, management systems need to maintain information on:

- The configuration of the infrastructure
- The relationship between elements within the overall configuration
- And how the business service or application maps onto that set of elements

These conditions are the result of management’s response to business pressures for high-quality IT services versus the constraints of the existing technology and solutions environment. New technologies accompanied by a better understanding of IT and business interdependencies bring new opportunity along with increased pressure and delivery demands. EMC® nLayers solutions provide automated IT service discovery solutions that synchronize business processes with IT infrastructure to achieve on-demand computing at its best.

About EMC Smarts

EMC Smarts plays a crucial role in developing an information lifecycle management strategy by automating the discovery, understanding, and mapping of the complex relationships that exist among business processes, applications, and IT infrastructure.

With EMC Smarts solutions, powered by nLayers technology, organizations gain the visibility needed to accelerate and increase return on investment on their highest priority IT service and cost management initiatives. Offering the easiest, most-comprehensive solution in the industry, EMC Smarts® technology allows organizations to:

- Accelerate ITIL and CMDB standardization
- Reduce costs—up to 25 percent in the first year
- Maximize resource utilization
- Mitigate risks and ensure business continuity
- Enhance business agility and IT service delivery by accelerating and simplifying initiatives that support business service management and data center automation



EMC Corporation
Hopkinton
Massachusetts
01748-9103
1-508-435-1000
In North America 1-866-464-7381

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