



Tivoli software

**Optimize change and release management
for complex, dynamically changing
IT environments.**

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Overview

Many IT managers are looking for more efficient ways to optimize the change and release processes that greatly impact the availability of the IT services their businesses require. They need to rapidly deploy mission-critical software applications, patches and server configuration changes across multiple locations and heterogeneous platforms. They also need to reduce IT costs.

The answer for many of these managers is the IBM suite of change and release management products. IBM solutions provide robust tools and features – from end-to-end views, to automated processes, to prebuilt best-practice workflows – that help organizations simplify the optimization of complex IT resources in today’s dynamic business environment.

Introduction

This paper introduces the concept of end-to-end change and release management – and how an organization can use it to help lower costs, and increase application and system availability.

Companies look for ways to maximize profits and minimize costs. They expect IT managers to efficiently deploy and enhance mission-critical applications that enable key revenue-generating business capabilities. These managers must deliver maximum uptime and respond to constant changes in user and marketplace demands. What’s more, they must do all this while juggling large numbers of distributed users, variations in workloads, new types of pervasive devices that require support (such as PDAs) and ever increasingly complex IT environments.

Bottom line: IT managers need to improve business agility and performance against service levels to internal and external customers – and still reduce IT costs. In short, they need to do more, with less.

Highlights

Help optimize the specific change and release management processes an organization chooses to use

Searching for a solution

Many companies have tried to solve this dilemma with a variety of point products from different vendors. But because these point products are not integrated, changes to the infrastructure by one product may not work well with the other products or, at a minimum, they would not recognize the changes made by each other. As a result, the company may experience:

- *Unexpected downtime and breached service level agreements.*
- *Higher administration costs.*
- *Less-than-optimal usage of resources.*

Adopt a process-oriented approach

Looking for a better approach, many IT managers now structure their IT management activities into formally defined processes that they can execute consistently. These might be based on Information Technology Infrastructure Library (ITIL) processes, Control Objectives for Information and related Technology (COBIT) or specialized processes developed internally. For example, the change management process involves analyzing the impact of a relatively small change, scheduling and executing it, and then tracking and documenting the change. The release management process, in comparison, involves larger changes such as software releases that could impact the entire organization.

IBM change and release management products are designed to enable IT staff to execute these processes, which span traditional IT organizational roles, across complex, heterogeneous infrastructures that include mainframe and distributed systems. Core products include IBM Tivoli® Configuration Manager, IBM Tivoli Provisioning Manager and IBM Tivoli Intelligent Orchestrator. They link with other products in the IBM portfolio such as IBM Rational® ClearQuest® and IBM Rational ClearCase® to create an end-to-end change and release management solution.

Highlights

Automate best practices for desktop management, patch management and server provisioning

These products can help companies optimize the productivity of IT staff by capturing expertise, creating workflows and automating repeatable best practices for activities such as desktop management, patch management and server provisioning. As a result, the companies can:

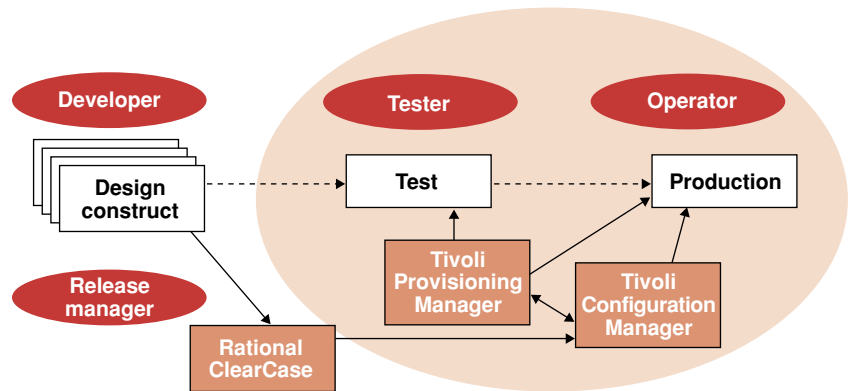
- *Achieve shorter development cycles by managing change and release processes from development through testing and into production.*
- *Help guard against threats to data security by using rapid, automated patch management.*
- *Define policies that control how their IT resources will be optimized and deployed to meet business needs and service levels.*
- *Facilitate governance of the IT infrastructure and compliance with government and legal requirements such as Sarbanes-Oxley (in the United States) and other international regulations.*

Let's look at how this suite of products can work together in three typical scenarios.

Accelerate deployment

IT staffs need to build, test and deploy software quickly and effectively across distributed multiplatform environments. Yet many still use manual processes to move applications from the build phase to the deploy phase. These manual processes are not only time consuming, but also error prone. What's more, they can make it difficult to comply with regulations and other mandates, because it's hard to track which application versions are in operation on which servers and which software configurations were used to build a given deployed application.

By using industry-leading application development and testing tools such as Rational ClearCase and Rational ClearQuest in conjunction with Tivoli Provisioning Manager and Tivoli Configuration Manager, an IT organization can establish an efficient, repeatable process to quickly develop, test and distribute software. As the diagram below illustrates, organizations use Rational ClearCase to manage the development and staging of code from development through test. Then they use Tivoli Provisioning Manager to provision the test environment and distribute the testing agent. Finally, they use Tivoli Configuration Manager to automatically distribute the application software to production machines across the enterprise. The result is an automated, streamlined process that helps accelerate the software build, test and deploy cycle.



IBM products help an organization automate and accelerate software and patch deployment.

Case study: First Citizens Bank

With more than 340 branches in three Southern states and some 5,000 employees, First Citizens Bank faces two key challenges: how to strengthen customer loyalty through high service levels and how to increase profitability by reducing operational costs. To meet these challenges, the bank implemented an end-to-end IBM solution that includes Tivoli Configuration Manager and several complementary IBM products.

The results are impressive. Not only has the bank increased service availability, it also saved almost US \$800,000 in just two months while deploying patches against four separate viruses. What's more, it expects to save \$200,000 for each new service or virus patch and to deliver new services in days instead of weeks. First Citizens Bank also anticipates saving another \$400,000 by automating the distribution of new software to comply with the USA Patriot and Sarbanes-Oxley acts.

Automate patch management

Viruses and worms like “Blaster” and “SQL Slammer” have captured the attention of businesses and the media. Many of these threats could have been avoided by simply applying the patch or hot fix when the vendor first released it. However, the time between patch availability and first attack is rapidly shrinking.

To help minimize the potential vulnerability, a business must quickly identify, test and install patches – but that process is typically a manual one. If a virus has already spread throughout the organization, IT staff must quickly distribute the appropriate antivirus software or definitions. They must also identify all sources of the vulnerability and evaluate the impact of closing the vulnerability. If a single hole is left open, the virus could spread again. Then they must quickly deploy the patch to all these areas to prevent the further spread of infection.

Since many organizations lack an end-to-end view of their infrastructure and inventory – as well as an automated approach for deploying patches across it – this is often a costly and time-consuming manual process. Many simply rely on e-mail and vendor self-serve Web sites, and hope that every employee will download and install patches.

To automate the inventory, software distribution and patch management process for small, medium and large enterprises – from companies with just a few devices to those that have more than 100,000 – an effective approach is to deploy Tivoli Configuration Manager in distributed client environments and Tivoli Provisioning Manager for Red Hat Enterprise Linux® and Microsoft® Windows® server environments.

Automating patch management is especially important for Windows environments, because Microsoft frequently releases patches that need to be quickly installed on many thousands of distributed end-point machines. Tivoli Configuration Manager has been enhanced to automate the major steps involved with distributing Microsoft patches for Windows operating systems, Internet Explorer and Media Player. An administrator can automatically:

- *Obtain information about the available patches.*
- *Scan and determine which machines require the patch.*
- *Compile a list of targets.*
- *Obtain the patch.*
- *Stage the patch for testing and approval by an administrator.*
- *Distribute and successfully install the patch.*
- *Execute reboots and rescans to verify that the required patch was successfully installed.*

If the patch is not installed on the first attempt (for example, if a targeted laptop computer was not connected to the network), Tivoli Configuration Manager can automatically install the patch at a later time.

Automate server provisioning to optimize utilization

Often, configuring a server for productive use is a very manual, repetitive process that involves hundreds of subtasks. Manual errors are bound to occur. Some configuration errors may remain hidden through the testing process and surface only in production, impacting application availability and service levels.

Automating server configuration steps with proven best practices can help IT organizations optimize process quality, labor costs and cycle times. Organizations can also leverage automation to create a competitive business differentiator: rapid deployment of new applications into production. This advantage helps the business be more creative and offer new services frequently and at a low cost.

Highlights

Additionally, automating tasks is a key step toward orchestration – the process of monitoring the environment, sensing when there is a demand for resources, analyzing the resource request and then planning the remediation. Taking advantage of a predefined policy workflow in Tivoli Intelligent Orchestrator, IT staff can automatically determine which servers are available to support an overburdened server. Then they can use Tivoli Provisioning Manager to automatically deploy that server to the application.

Now that we've seen how IBM software can work together as part of the change and release management processes, let's look at each IBM product in greater detail.

Leverage the capabilities of core products from IBM

IBM Tivoli Configuration Manager

Tivoli Configuration Manager gives businesses total control over software across the deployment life cycle – inside and outside corporate firewalls. Companies use its streamlined distribution technology to manage small, medium and large environments – proven deployments include environments with just a few end points and others with more than 100,000 end points. Tivoli Configuration Manager automates the deployment of software applications and patches to multiple distributed locations – including servers, desktops, mobile computers, pervasive devices such as PDAs and mobile communicators, Automated Teller Machines (ATMs) and Point-of-Sale (POS) terminals.

Using Tivoli Configuration Manager, an organization can capture and store workflows that represent its best practices for distributing software and patches throughout the enterprise. It also allows a client to create reference models that specify the desired state for the software installed on each system. By subscribing users, groups of users, end points, pervasive devices, profile managers or inventory query results to a particular reference model, the organization can drive automated compliance with its standards and requirements.

***Leverage a proven solution for
distributing software and patches***

Highlights

Execute an organization's best practices consistently and in an automated fashion

More than 1,500 IBM customers worldwide manage more than 4 million clients and 1 million servers using Tivoli Configuration Manager.¹

IBM Tivoli Provisioning Manager

Tivoli Provisioning Manager enables organizations to provide on demand computing across the entire data center by automating the manual tasks of provisioning and configuring servers, operating systems, middleware, applications, storage and network devices such as routers, switches, firewalls and load balancers.

It provides “industry best-practice” workflows – along with the ability to create customized or modified workflows – that encapsulate current procedures so they can be executed in a consistent, error-free manner. This means administrators can automate routine tasks with a single push of a button, including:

- *Simple tasks, such as moving a virtual IP address.*
- *Complex activities, such as fully automated service provisioning – from bare metal to full production.*

As a result, an organization can automate manual tasks in their existing change management processes, reprovision servers to help optimize usage and facilitate reduced administration costs. It can also help minimize production outages by simplifying configuration changes, which will reduce human errors.

IBM Tivoli Intelligent Orchestrator

Tivoli Intelligent Orchestrator helps businesses optimize server-to-administrator ratios by automatically triggering Tivoli Provisioning Manager to provision, configure and deploy a solution into production. By orchestrating the allocation of existing hardware, software and network devices without rewiring the environment, an organization can minimize implementation times and help maximize the value derived from existing investments.

Automatically sense the need to shift the allocation of resources and immediately trigger the changes

Highlights

By constantly monitoring resources and requirements for anticipated peak workloads and then triggering the appropriate response in accordance with business priorities, Tivoli Intelligent Orchestrator helps an organization maximize service levels.

Add-on products complete the solution

To extend change and release management to the application development and testing environment, companies can use the following products.

IBM Rational ClearQuest

Rational ClearQuest enables companies to use flexible workflow management, activity-based change and defect tracking to automate and enforce development processes, manage issues and facilitate communication among stakeholders. Rational ClearQuest enables better insight, predictability and control of the software development process.

IBM Rational ClearCase

Rational ClearCase facilitates life-cycle management and control of software development assets. With its integrated version control, automated workspace management, parallel development support, baseline management and build-and-release management, Rational ClearCase provides the capabilities needed to create, update, build, deliver, reuse and maintain business-critical software assets.

Enjoy consistent interfaces and reports that help simplify management

Help simplify management by relying on a technology leader

By enabling centralized management, IBM change and release management products help an organization minimize the complexity involved in managing a heterogeneous environment. They also provide an end-to-end view of IT resource configuration data across the enterprise. Consistency in reporting methods and in user interfaces helps make the solution easier to use. As a result, IBM change and release management products can help organizations leverage extensive visibility into problem causes to minimize the time required to identify and resolve the problems.

Highlights

When an organization deploys IBM change and release management products, it can take advantage of:

- *Prebuilt “industry best-practice” workflows that integrate with products from a variety of vendors.*
- *Reference models that drive conformance and activity plans to schedule, manage and monitor software deployments.*
- *Scalability that supports small to very large enterprises.*
- *Support for heterogeneous environments such as IBM zSeries[®], IBM AIX[®], UNIX[®], Windows, HP, Sun and Linux.*
- *Superior out-of-the-box installation.*
- *Optimized security and access.*
- *Modular solutions.*

End-to-end change and release management creates quantifiable results

Enjoy multiple data center benefits

IBM change and release management products can help an organization simplify the continued optimization of complex IT resources in a dynamic business environment. That, in turn, can help the company optimize resource utilization and business capability – and help minimize IT costs.

In fact, many companies that adopt a superior end-to-end change and release management solution stand to gain a lot. According to independent research conducted in 2003 and 2004 and published in 2005 by Alinean, these companies experienced (on average) the following reductions in cost and increases in availability:

Labor savings

Software distribution and control:	23 percent
Incident and problem management:	10 percent
Asset management:	24 percent
Software purchase avoidance:	10 percent
Increased application and system availability:	12 percent ²



Conclusion

Built for the on demand world, IBM change and release management products are based on open standards. They can help a company rapidly deliver and enhance mission-critical applications while minimizing IT labor and license purchase costs. What's more, IBM and its worldwide network of skilled business partners have the consulting and support services necessary to implement these best-of-breed solutions – rapidly and cost-effectively.

For more information

To learn more about IBM change and release management solutions, contact your IBM representative or IBM Business Partner, or visit ibm.com/tivoli

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¹Based on data collected from the IBM Finance and Fulfillment team in October 2004.

²Source: Alinean, Inc.