Biotechnology company automates compliance, delivers cloud services

HP Cloud and Automation solutions increase agility and enable platform-as-a-service

Industry
Biotechnology

Objective
Drive compliance and increase agility; transform IT into a business enabler

Approach
Automate server provisioning and maintenance to ensure server compliance; build on that foundation with automated cloud-based platform-as-a-service offerings to business users

IT matters
- Labor for 50-hour planned server maintenance window once cost $82,500 for 15-member team; now same 50-hour window handled with only 3 FTEs, reducing costs significantly
- Reduced server provisioning time from weeks to minutes
- Maintenance less prone to error; 5 to 6 servers require remediation after planned maintenance, instead of 100s
- 70% of server maintenance is automated through HP Operations Orchestration

Business matters
- Servers meet rigorous compliance standards, reducing risk to company stock value, profits, and brand
- Cloud-based, platform-as-a-service offerings meet business users' needs for fast, streamlined access to server resources
- Able to give application owners greater control with help of self-service portal

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>
> – Manager, major global biotechnology company

HP Cloud and Automation solutions help address compliance needs and launch cloud-based platform-as-a-service

An industry-leading biotechnology company realized years ago that it needed to exert careful control over its IT systems. Therefore, it embraced HP Software Cloud and Automation solutions—HP Operations Orchestration, HP Server Automation, and HP Database and Middleware Automation as its foundation. But that was only the start: today, the company has built on that foundation by implementing HP Cloud Service Automation, enabling it to create flexible new cloud-based IT services for its business users.

From automation to cloud

Challenges

One of the largest biotechnology companies at one time ran its entire manufacturing operations with just 10 servers.

Then, around 2001, the company's IT footprint began to expand rapidly.

Many enterprises experienced similar IT growth around the same time, along with a range of associated operational challenges. But as a biotechnology company, this particular customer faced an additional set of problems: because it operates in a tightly regulated industry, it had to maintain control of its server infrastructure within the context of strict regulatory compliance.

The company's IT department had no choice: it had to pioneer a new generation of compliance-related procedures. "With the launch of Windows Server®, we found ourselves building all these standalone systems," recalls the company's Applications Hosting Services Manager. "We knew we needed to actively manage them, so we worked with our regulatory department and wrote procedures to ensure they would be compliant."

This approach, which was largely manual, worked at first, but it wasn't sustainable in the long term as the size of the infrastructure continued to grow. Building those servers was cumbersome and time-consuming. The documentation alone for a single system ranged from 200 to 300 pages.

"We knew automation was the next step in our evolution," the manager says.

So the company implemented HP Operations Orchestration as an automated provisioning and management tool—the first step in a multi-year journey that culminated with its adoption of HP Cloud Service Automation.

Solution: A mature portfolio of automation solutions

The company's initial adoption of HP Operations Orchestration broke ground in a number of ways. HP Operations Orchestration was the first infrastructure tool validated by the company's regulatory organization. "We took it through the same process we use to validate business applications," the manager notes. "It was our first taste of offering a true business service."

HP Operations Orchestration also supported the IT organization's first global process. To automate server configurations, the IT team coordinated business requirements across the enterprise to define standard server builds. "It took 15 months to work everything out," the manager says, "but when we were finished we were very pleased with the results. "We loved the product," the manager adds. "We used HP Operations Orchestration for many years."

Then came a brief hiatus. For a period of several years, the company outsourced its IT infrastructure to a large sourcing company; that vendor replaced HP Operations Orchestration with its own software. "We watched them try to replicate HP Operations Orchestration's functionality," the manager recalls. "They never succeeded."

So when the company reverted to an insourcing model, the IT team immediately began planning for how it could pick up where it left off on its automation journey. "We re-evaluated available automation tools," the manager says, "and were pleased to learn that HP Cloud and Automation's technology portfolio had matured considerably."

So the company decided to not only re-deploy HP Operations Orchestration, but also implement HP Server Automation and HP Database and Middleware Automation (DMA).

Seamless integration with HP server blades

Today, the biotech company's global IT infrastructure comprises around 5,000 servers; most are located within four primary data centers, with the remainder spread across a scattering of satellite facilities. Some of the servers are Solaris systems running Red Hat, but most are Microsoft® Windows®; of the Windows servers, the bulk are Windows 2003, but around a third are 2008, and there are some older versions of the operating system still in service as well.

The Windows hardware is almost exclusively HP servers; the company's server standard is HP ProLiant BL460c and 660c Server Blades. "We're a huge VMware virtualization shop, and these servers tend to be best suited for a VMware environment," the manager says. The servers also support automation capabilities that dovetail neatly with the automated management functionality of HP Server Automation and HP Operations Orchestration. "HP Server Automation and HP Operations

Orchestration integrate directly with the HP server blade chasses. HP Server Automation, for example, knows which blade is sitting in which part of the chassis, abstracting the physical architecture of the blades. It makes for a seamless approach to automated system management."

Applications running on the servers include Oracle databases, Weblogic, and iPlanet; Microsoft SQL®; Apache Tomcat; IBM WebSphere, and Citrix.

Results: Three people for planned maintenance— instead of 15

Excluding the Citrix systems, which are used to power a virtual desktop platform, most of the company's servers are critical to its production and distribution processes—that is, the business's most critical processes. For this reason, these servers need to operate 24x7, 365 days a year. To perform planned maintenance, the company can bring its systems down once per quarter at the most; in some cases, systems can only be taken out of service twice per year.

> "We use HP Cloud and Automation's automation solutions because they deliver tremendous value to our business."
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"It's always been a challenge to perform maintenance without disrupting the business," the manager notes. "And managing Windows systems is not an exact science."

When the company's maintenance procedures were manual, it had only one choice if it wanted to minimize business disruption during planned maintenance: use a lot of people. For a typical maintenance project, the IT department assembled a team of around 15 FTEs. This team would focus exclusively on performing the required maintenance tasks during the available window. It was high-stress work. "People had to sit and stare at boxes to make sure everything worked correctly," the manager recalls.

That's no longer the case today. During maintenance, for example, the company now uses HP Operations Orchestration flows to perform patch pre-checks; if a system doesn't have enough drive space, HP Operations Orchestration automatically re-configures and reboots the server. "Before, we had to have people watching every single one of these steps to make sure they were completed," the manager says. "Now we don't." As a result, this last quarter, instead of needing 15 people to perform planned maintenance, the company required only three.

The maintenance processes are also less failure-prone than before, ensuring higher availability. In the past, after installing patches, the company's IT team often needed to remediate hundreds of servers. Today, the team can expect that maybe five or six boxes will require remediation after patch deployment.

Servers in compliance—so company is protected

Perhaps most important, automating server management processes—from provisioning through patching—ensures that the company's systems meet its compliance standards. "When executives from other companies see what we're doing, as far as leveraging automation within a regulated space, they are astounded," the manager notes. "HP Cloud and Automation solutions have enabled us to achieve a level of control that is largely unprecedented in our industry sector." Having servers in compliance is worth more to the business than bragging rights, however: it also protects the company from regulatory issues that could otherwise impact its profits, shareholder value, and reputation.

Cloud Service Automation enables platform-as-a-service to increase agility

While automating system management was a major step for the company's IT department, it's only a part of the company's larger vision. "We know the future is with platform-as-a-service," the manager says, "and that's where we are headed today."

To do this, the company implemented another HP Cloud and Automation technology, HP Cloud Service Automation. This solution

Customer at a glance

Hardware
• HP ProLiant BL460c and BL660c Server Blades

Software
• HP Operations Orchestration
• HP Server Automation
• HP Database and Middleware Automation
• HP Cloud Service Automation

integrates with HP Server Automation, HP Operations Orchestration, and HP Database Middleware Automation, leveraging their automation capabilities on the back end and enabling IT to create compelling new cloud-based business services.

Through one of these services, company employees can now lease virtual servers for 30-day periods. Employees use the leased servers for projects such as applications development, performing proof-of-concepts, or conducting instructor-led training classes. "We decided to compete with the Amazons of the world," the manager notes. "It used to take weeks for us to provision servers on users' behalf. Today, they have immediate access to servers when they need them."

Leased servers come with a standard company image, identical to those in the company's production environment. Quotas are allocated to company departments based on the percentage of the production environment each department uses.

"Our glue is HP Operations Orchestration," the manager adds. "HP Cloud Service Automation interacts with the end user, and then kicks off HP Operations Orchestration workflows in the background. The flows then initiate processes in HP Server Automation and HP Database Middleware Automation, using the same APIs [Application Program Interfaces] to do temporary boxes as for permanent ones."

Accommodating user needs

The IT team has also leveraged HP Cloud Service Automation and HP Operations Orchestration to give application owners greater control over scheduling patches

and updates. "Customers use a self-service portal that lets them click on radio buttons to install patches on the systems they own," the manager says. This further minimizes the risk of business disruption, because users have better visibility into how their applications are being used. They can make better decisions about when to take servers off-line for maintenance.

As cloud technology continues to evolve, the company plans to further leverage HP Cloud Service Automation to integrate public cloud services with its private cloud. The resulting hybrid cloud platform-as-a-service model will allow users to select compute resources that best match their needs. "We'll combine public cloud and HP Cloud Service Automation, using business logic to determine which service to provision based on use requirements," the manager says.

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"HP Cloud and Automation solutions deliver the functionality we need to streamline IT management," the manager concludes. "But it also does more. It helps us ensure our systems are in compliance, and lets us create innovative services to better support our business."

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