Executive Q&A:
Robin Johnson

Dell has undergone a dramatic transformation through standardizing, simplifying, and automating much of its own IT infrastructure. Here, Dell CIO Robin Johnson discusses the process—and what becoming an Efficient Enterprise has meant for Dell's bottom line.

D ell's Efficient Enterprise methodology is based on firsthand experience, and the result speaks for itself. Over the last several years, the company's IT budget has consumed approximately US$1.2 billion annually. So far this year, Dell has reduced that amount by US$150 million and is on a trajectory to cut another US$200 million. Factoring in the cost avoidance of building a new data center, CIO Robin Johnson estimates Dell's total cost savings will be close to half a billion dollars. The lion's share of that money will be reinvested in innovative development and new applications. Johnson recently shared what he has learned along the way.

Why is Dell a good test case for the Efficient Enterprise model?

We have a tremendous amount of complexity in our business: online, manufacturing, commercial sales offices, presence in 90 countries, facilities everywhere. But we've been able to achieve an industry-leading cost basis, and we've been able to forever reduce our fixed costs. We've reduced our expenditures on data centers, servers, and system engineering. Now we can spend more and more on new projects that promote innovation.

Our biggest lesson was that it comes down to the principles: standardization, simplification, and automation. The fewer operating systems you have, the fewer tools you need to look at those operating systems, the fewer people you need to run the tools—all of those things enhance efficiency.

How has Dell gone about the process of becoming an Efficient Enterprise?

Dell got into the server business back in 1994. A lot of people don't realize we had legacy architectures—before we began making our own servers, we had all of the legacy architectures from Tandem, Sun, and IBM. And when you write code for a Tandem, you can't easily port that code to run on a Sun or an IBM system because there are different operating systems and different databases. That incompatibility makes application development and maintenance very expensive.

That's why Dell made the decision, around 2001, to focus on driving everything with the x86 platform as the standard. And we didn't just standardize the low-risk systems, the remote office systems, and the file-and-print systems. We took our core transaction processing—all of DELL.COM, all of our management systems, all of our financial applications—and put approximately 97 percent of it onto an x86 platform.

After we standardized onto the x86 platform, we simplified down to just two server OS images: a Microsoft® Windows® .NET image and a Red Hat® Enterprise Linux® image with an Oracle® database. That reduced our complexity by orders of magnitude for software licensing, monitoring tools, and support.

Most of the innovation that's happened over the past five years has been associated with the x86 platform. Traditional Unix-based platforms used to have an advantage because they could run multiple workloads on a single

server while incurring support costs for just one machine—but now, virtualization has brought that advantage to x86 systems. So when Dell does server provisioning or patch management or compliance updates, it's easy for us to propagate those things across 97 percent of our servers.

How has Dell used standardization to downsize its application base?

Historically, Dell has grown by geographic expansion. It's been a phenomenally successful strategy—but the fastest way of bringing our operations online in countries around the world was to take our code and modify it for each location. That created a lot of complexity. In addition, we ran a lot of small applications that were developed and supported by the user community within Dell.

Thirty-six months ago, we ran 8,741 different applications. Today that number

is under 2,900. Our first step toward making that reduction happen was to get over the mentality that IT "owned" everything, and we frowned on lines of business choosing their own applications. A lot of the applications running now were created outside the IT department and have generated great returns for the business. They just hadn't been supported properly—and many of them were region or country specific.

So we declared an amnesty, and reviewed all of our applications against three criteria. First, does it deliver any value? If the answer was no, we turned it off. Second, is it part of a road map for a corporate system or an enhancement we can make to something we already have? If so, we delivered value that way. And third, is it unique? If so, we took it in-house, supported it the right way, and rolled it out to all of the countries where we operate as a globalized system.

Throughout the process, we worked with executives on the business side to help them understand how freeing up those dollars and freeing up that processing capacity could allow us to move faster on the major change programs they wanted to execute.

Why is virtualization so important?

The demands on IT have increased exponentially. Five years ago, standard Web pages may have been about 50 KB. They can be five or ten times that size now, thanks to video and other bandwidth-intensive interactive media.

Organizations need servers to help them manage large amounts of data, mine it, process it, and turn it into actionable business intelligence. But when you bring in more servers to meet the increased demands of the business, that additional infrastructure

STEP BY STEP:
How Dell Transformed Itself into an Efficient Enterprise

Dell knows the Efficient Enterprise methodology works because the company rolled it out first within its own data centers. Before initiating the Efficient Enterprise strategy, Dell spent 80 percent of its IT budget on maintenance of the legacy environment. The company followed three steps to dramatically improve IT returns.

97%
FIRST STEP: STANDARDIZE

Dell began its transformation by standardizing several of the key components within its data centers. The company chose to leverage the open systems architecture of the x86 platform for 97 percent of its servers, which previously had run on an assortment of legacy systems. Just two primary server images—.NET/Windows and Oracle/Linux—were used throughout the organization. In addition, Dell adopted a single global client image to dramatically simplify client management, upgrades, and maintenance as well as reduce costs.

25%
SECOND STEP: SIMPLIFY

After standardizing the core components of the IT infrastructure, Dell looked for further opportunities to simplify. After thoroughly reviewing the applications in use, the IT team reduced the company's application footprint by 25 percent per year over three years. Multiple regional systems were replaced with single global instances. IT leaders aggressively deployed virtualization throughout the production environment—even adopting a "virtual first" policy in which all new applications that do not require dedicated hardware are tested and deployed in a virtual environment.

130,000:1
THIRD STEP: AUTOMATE

After deploying virtualization and reducing its application base, Dell then focused on

automation. Automated provisioning capabilities on the newly virtualized server infrastructure enabled imaging and deployment of servers in hours, rather than days or weeks. Today, users can reimage their client systems themselves in about an hour by running an application from their desk instead of relying on an IT administrator to manage the process. As a result, IT staff can manage 130,000 servers and clients from a single console.

50/50
GOAL

The Efficient Enterprise methodology delivered results quickly for Dell—and the company expects to continue reaping benefits into the future. Dell has already returned 30 percent from fixed spending to maintain a legacy environment to discretionary strategic spending and is on track to achieve 50/50 fixed versus discretionary spending by the end of 2010.

increases costs, space requirements, and power usage. And you've got to find ways to control that growth so you still have IT budget left over for strategic projects.

Virtualization gives organizations a fundamentally different way to manage their IT resources. In most data centers, server utilization is typically less than 20 percent. Many companies have huge server farms with plenty of excess capacity—but they can't get at that capacity because the servers are dedicated to running their own individual workloads.

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With virtualization, the IT department gets the ability to run multiple workloads across that server farm. That helps to boost utilization rates, which allows you to do more useful IT work in a given group of infrastructure. We are now at 40 percent utilization at Dell—which is twice the useful workload we used to process on the same number of servers. It also helped us simplify our management and patching efforts, save on floor space, and reduce the number of servers we needed to image.

Client virtualization can also play a key role in transitioning to an Efficient Enterprise. By centralizing client images and having end users simply log on to their desktop from whatever physical computer they happen to choose, companies can make enormous gains both in cost-effectiveness and in quality of service.

How do you measure enterprise efficiency?

IT has traditionally been considered a cost center. Approximately 80 percent of the typical IT budget goes toward maintenance activities. So instantaneously, as a CIO, you are left with roughly 20 percent of your budget to create new value for the business. And because the demands on IT only continue to grow, the 80 percent or so that's dedicated to maintaining the status quo is under a lot of pressure. Also, IT budgets rarely go up in the current economic climate. So the key is finding ways to deliver more value when your fixed costs are under upward pressure.

Employees expect the technologies they use for their jobs to work 24/7. It's easy for the IT staff to get consumed with running the day-to-day systems end users need. But the important measure of efficiency is how much money CIOs can drive from the maintenance side of operations to the discretionary side, to help create new value for the business.

What is the best way to get started?

Most companies are spending around 80 percent of their budget before they even begin the year, just to run what they've got. Virtualization is a great way to break out of that rut. At Dell, we used our own services organization to do a lot of our virtualization. They're experts—they made the process easy.

Sometimes, a design change is all it takes to start the transformation and get the "aha" moments flowing. For example, Dell just opened its first completely wireless office in Brazil—which meant we eliminated wiring costs. It's a simple change, but it made a big difference. IT executives just have to reexamine what they are doing and change the rules. That generates the first savings, which then funds the next phase of innovation. EE