

SIMPLIFY IT:
THE DELL
PATH TO MORE
INNOVATION



ABSTRACT

Organizations struggle with IT complexity. Dell is forging a new path to simplify IT by building a low-touch uniform infrastructure spanning the desktop to the data center. Dell is building a methodology by which an IT organization can measure its operational efficiency, manageability, and flexibility to pinpoint ways to streamline how IT is acquired, maintained, and scaled. Dell IT simplification helps reduce the cost and complexity of maintaining systems, enabling organizations to reclaim the time, money, and personnel needed to drive true innovation into daily business processes.

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DEALING WITH IT IS TOO COMPLEX

Every day, IT leaders around the world struggle to solve their technology challenges. At Dell, we hear a common theme, "IT is too complex. Please make it simple." The pain from the cost and complexity of IT can be excruciating for business leaders. And it's getting ever more complicated.

Today, more than ever before, IT professionals have increasing responsibilities. Aside from maintaining an increasingly diverse infrastructure that is aging every day, IT leaders are being asked to deliver more functionality faster to align IT with business objectives.

To exacerbate the situation, a flurry of new devices is coming into the market. *The Wall Street Journal* recently reported that more devices will connect to the network in the next five years than in the last 15; and not just PCs—now phones, PDAs, notebooks, tablets, digital cameras, RFID, and more are blurring the lines between business and personal use, and adding more responsibilities to the role of IT.

We're also facing a digital data explosion. In 2006, IDC reported Internet users worldwide generated 161 billion gigabytes of digital data. By 2010, the information added to the digital universe will increase more than six-fold to 988 exabytes. People share more than one billion MP3s a day over the Internet and YouTube hosts 100 million video streams a day. IT organizations are experiencing similar data growth. Chevron's CIO says his company accumulates data at the rate of 2 terabytes—17,592 billion bits—a day. London's 200 traffic surveillance cameras send 64 trillion bits a day to its command data center.

To compound these issues even further, new compliance regulations—such as the Sarbanes-Oxley Act of 2002, the Health Insurance Portability and Accountability Act (HIPAA), the Data Protection Act (DPA), among many others around the world—can result in IT organizations storing data for longer periods of time or suffer severe penalties.

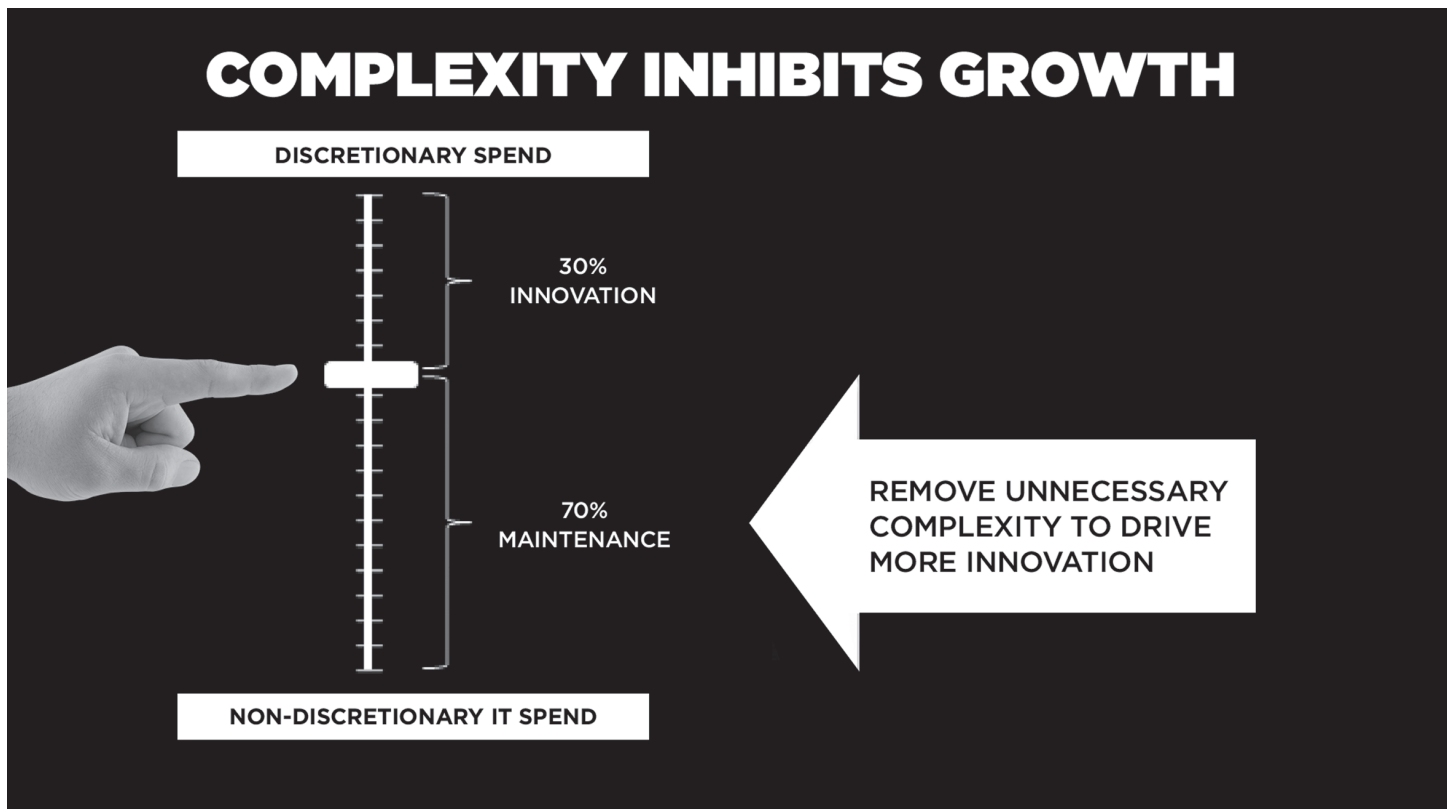
Even worse, IT must mitigate risks to their operations, ensuring that plans, processes, and technologies are in place to recover from natural and man-made disasters and protect key assets from security threats.

We hear about these challenges from almost everyone we speak with. Complexity has become a giant headache for IT, regardless of company size or industry. Our customers around the world tell us how important IT simplification is to them.

Source: IDC White Paper, "The Expanding Digital Universe", Sponsored by EMC, March 2007.

COMPLEXITY INHIBITS GROWTH

Less infrastructure maintenance means more business innovation. Unfortunately, today, most IT shops spend around 70% of their IT budget on ongoing operations and maintenance, which leaves only 30% for driving new initiatives.



This spending imbalance is reflected in a recent survey conducted by Forrester. In the survey, more than half of the respondents felt that “driving innovative new market offerings or business practices” was not well supported in their organizations. In fact, “driving innovation” was ranked lowest of all criteria with respect to how well it is supported.

Only IT simplification can reverse this equation. To make IT relevant now and in the future, maintenance costs must be reduced to free up resources, in order to reinvest savings back into the core of the business, build a more flexible infrastructure to meet changing requirements, or re-invent the organization altogether.

►► INDUSTRY INSIGHT

When asked “approximately what percentage of your company’s overall IT spending went to new initiatives and projects versus ongoing operation and maintenance in 2006/2007?,” responders said:

- 70% spent on ongoing operations and maintenance
- 30% spent on new initiatives

Source: Dell Analysis

In a recent report by Forrester...

When asked “how well does your IT organization support driving innovative new market offerings or business practices”...

52% of the responders felt that IT was not well supported. Furthermore, driving **innovation** was ranked **lowest** of all criteria measured.

Source: February 2007, Data Overview “2007 Enterprise IT Budget Outlook: North America; Business Innovation Is Low on the IT Proficiency List

ROADBLOCKS TO INNOVATION

We asked IT organizations to tell us what is keeping them stuck “fighting fires” or just “keeping the lights on.”

We learned there are too many inefficient processes throughout the IT lifecycle getting in the way; from planning to purchase, from installation to implementation, and beyond, too many people-hours are consumed.

Challenges and needs include:

- Cost and length of time to deploy new technology or applications
- Inefficient deployment processes; too many steps required to set up

- Want fixed pricing and a single point of contact — no surprises
- Want best price for performance

We looked at an entire IT stack and discovered too much time and money is being spent managing a diverse environment with a heterogeneous mixture of systems, software, data, interfaces, and applications from a variety of sources and eras.

Challenges and needs include:

- Hassle keeping current system up and running
- Unstable systems requiring constant updates
- Not having the info needed in the right places
- Tired of lack of control, too many moving parts and touch points, too much manual interaction

- Need for shared knowledge; more uniformity needed overall

We looked at the infrastructure itself to determine if it delivers on its intended promise, while scaling easily and cost-effectively.

Challenges and needs include:

- Environments that are hard to scale with changing business requirements
- Inflexible architectures that are too costly to maintain; lifecycle costs that are too high
- Tired of complicated licensing and service upgrades with hidden costs
- Systems that are “hobbled” to reach low price points
- Too much power consumption
- Want ability to upgrade more easily; need systems that allow for growth; extended service life

Too much time and money is spent on lengthy deployments, inefficient management of systems and trying to keep up with the exponential growth of devices and data.

►► INDUSTRY INSIGHT

According to a recent survey by Forrester...

When asked “which of the following initiatives are likely to be one of your IT organization’s major business themes for 2007?...”

74% said that “Improving IT efficiency” was a priority or a critical priority. In addition, IT shops are seeking ways to increase measurement of IT’s impact on business performance.

Source: February 2007, Data Overview “2007 Enterprise IT Budget Outlook: North America,” IT Shops Look to Improve Efficiency, Measure Business Performance Impact

In a recent report from Forrester...

Respondents to a survey felt the following was a priority or a critical priority...

- 51% responded to significantly upgrading their disaster recovery capabilities
- 48% responded to significantly upgrading their security environment
- 44% responded to replacing or upgrading their existing application systems
- 34% responded to replacing or upgrading their server hardware

Source: February 2007, Data Overview “2007 Enterprise IT Budget Outlook: North America,” IT Spending Growth Improves With Industry Outlook

SIMPLIFY IT — THE DELL WAY

Today, as the IT industry becomes more and more complex, Dell is taking a stand against complexity. We are committed to simplifying IT, not only to improve the efficiency, manageability, and flexibility of the digital experience, but also to drive radical change in the industry as a whole.

We believe the most important thing we can do is to simplify IT by stripping out cost and complexity in every way. IT simplification has always been a primary focus for Dell. We think it is the best way we can deliver superior value for our customers.

Dell works with our customers to reduce the number of “moving parts” and “touch points” so that more uniformity can be achieved and less manual interaction is required—throughout the IT infrastructure—freeing up people-hours and boosting productivity.

A low-touch, uniform infrastructure from Dell sets IT free and makes for easier IT innovation. Innovation is not only found in the products and services we deliver, it’s what Dell brings out in our customers. We believe true business innovation takes place when an IT staff has the time and financial resources available to drive new initiatives. The best and brightest IT professionals can move away from merely being firefighters to becoming the greatest innovators in business.

Over a decade ago, Michael Dell envisioned a data center that ran on standardized systems. Not every technology company agreed with the Dell vision. While others touted lofty architectures

built on a closed infrastructure, Dell stood alone. Today, Google, Yahoo, Salesforce.com and countless other companies run simple, manageable, and scalable IT infrastructures based exclusively on x86 standards. The Dell Way was revolutionary then, just as it is still relevant today.

Our customers tell us about nightmares they experience with other technology companies. What was commonplace decades ago in the world of big iron—high margins, lock-in, excessive maintenance and support costs—continues today with proprietary technology sold by armies of consultants hiding behind the veil of standards-based offerings.

Dell is here to change the game, and we’re well underway. Today, we’re creating new tools and best practices to ensure every customer continues to drive business forward faster, on a low-touch uniform infrastructure with no proprietary lock-in whatsoever.

SIMPLIFICATION IS IN DELL’S DNA

Others tell you they are simplifying, but at Dell, it’s what we were built on. We don’t simply talk, we execute. We focus on doing more with less, truly freeing up IT to innovate faster, better, and smarter. It is in our DNA.

Our direct model revolutionized the industry. Today, we are building our channel programs and expanding our reach to provide greater choice in the way IT is acquired, maintained, and supported. We will continue to extend our relationships, working directly or through partners, which enables customers to choose whatever works best. Dell welcomes partners who mutually share our customers’ success.

Dell is a disciplined, process-oriented company that packages technology like no one else. Our world-renowned factory revolutionized the industry. Today, it is evolving to simplify IT.

What we did to simplify how the PC was acquired, maintained, and upgraded, we are applying to all levels of IT. We’re taking the same laser focus on efficiency that’s helped us build one of the world’s most streamlined business models and bringing it to bear to radically simplify the discipline of IT. We’re turning IT into a predictable, reliable, and repeatable daily practice, making IT run as efficiently as a factory.

To reduce up-front labor cost, time, and effort, Dell is focused on the total solution, building standardized reference architectures and pre-validated solution stacks, coupled with proven best-practices and specialized services to simplify IT in an unprecedented way. We are driven to perfect efficiency across

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all aspects of IT—from the desktop to the data center. Dell is further industrializing our business model to improve the experience of maintaining and scaling IT, using tools that “reach through the wire” to provide proactive services and expert technical support.

DELL IT SIMPLIFICATION BENEFITS — GET IT FASTER, RUN IT BETTER, AND GROW IT SMARTER

True IT simplification transforms innovation into a daily business practice.

Our goal is to create measurable business value for the enterprise, not more complexity masquerading as value. Based on a disciplined and pragmatic approach, Dell IT simplification can streamline the deployment of technology solutions, improve overall management and maintenance, while providing a foundation that scales easily and affordably for future needs.

Simplicity impacts everything we build and sell, from products and services to integrated solutions. First we make these elements easy to use. Then we make them simple to buy, manage, control and scale. We look at the entire technology stack holistically, not as components, so everything up and down the stack is connected and easy to manage. We design customer-friendly solutions so they are easy, integrated, and faster to deploy. And best of all, we base everything on standardized components and platforms so they are future-ready. And during the entire process, we share everything we learn so you gain control. You simplify your management.

In short, organizations get IT faster, run IT better, and grow IT smarter through Dell IT simplification.

CUSTOMER SUCCESS: GET IT FASTER

UNILEVER

“Dell managed the necessary vendors for us and made sure that we had pre-imaged OptiPlex™ desktops and Latitude™ notebooks on site and ready to be installed and tested within the narrow time frame.”

Roger Legendre, Director of Technology Solutions Deployment

COMPANY OVERVIEW

Unilever is a multinational corporation that owns 400 consumer brands spanning a wide range of home, personal care, and food products.

CHALLENGE

Outdated client technology and non-standard services inhibited flexibility, limited scalability, and created overhead. The company wanted to completely refresh its IT infrastructure while reducing deployment and maintenance costs.

SOLUTION

Dell Managed Services helped Unilever roll out nearly 10,000 pre-imaged Dell OptiPlex desktops and Dell Latitude notebook computers over 100 locations. Dell Managed Client Services offered centralized support services to the distributed Unilever workforce.

BENEFIT

Unilever uses Dell IT infrastructure services to standardize end-user support, share best practices, and help improve the productivity and collaboration capabilities of its regional workforce. This standardized Dell platform helps Unilever scale its business while achieving cost savings.

COMPELLING FACTS: GET IT FASTER

- Dell can deliver complete solutions in days, not months. Dell products ship straight from the factory configured and tested. In contrast, systems from other companies that arrive in parts and pieces force customers to build and test solutions themselves—or use expensive services to get up and running.

PROOF POINT: Oracle migration complete and running in one week. Using Dell OpenManage™, VMware® and Dell Services, Welch's was able to migrate to an Oracle ERP solution in less than one week, and was able to reduce provisioning time from three weeks to 15 minutes using one central management console.

Source: Dell Case Report

- Potential savings of as much as 62% (\$400 per PC) on deployment.

PROOF POINT: IDC interviewed 200 large enterprises about PC deployment practices and found, on average, the cost of deployment activities was \$527 per PC but often ranges to as high as \$700 or more. IDC's research also identified critical deployment activities: staging, logistics, applications loading, user state migration, image loading, program management, and post-deployment support; and specific practices related to those activities. These activities and practices form the Dell PC Deployment Optimization Model.

Source: IDC White Paper sponsored by Dell, "Dell PC Deployment Optimization Model," Doc #205282, Jan 2007

The research shows that companies that optimize their deployment practices enjoy significantly lower costs to deploy PCs, as much as 62% less (over \$400 per PC) compared with companies with basic deployment practices. Dell offers unique, patented tools to optimize your deployment.

- Incredible value straight out of the box.

PROOF POINT: Dell commissioned a third-party testing company to evaluate Dell blades vs. HP in key categories:

See www.dell.com/downloads/global/products/pedg/en/DellHPBladeServerOOB.pdf or www.dell.com/downloads/global/products/pedg/en/DellHPBladeServerPerfPwr_report.pdf for details.

- ▶ Dell blade servers took about an hour to deploy versus HP blades, which took more than three hours to deploy—more than three times as long as the Dell system.
- ▶ Dell blades arrived in two boxes; the HP blades arrived in 78 boxes.
- ▶ Dell blades achieved better performance/watt than the HP blades at every configuration.

Source: Principled Technologies, Inc.: SPECjbb2005 performance and power consumption on Dell and HP blade servers, Test Report, June 2007

CUSTOMER SUCCESS: RUN IT BETTER

MAZDA NORTH AMERICAN OPERATIONS

"With our virtualized Dell infrastructure, administrators no longer spend their time putting out fires. The IT staff has the time to explore new initiatives that will have big payoff for the company down the road."

Jim DiMarzio, CIO

CUSTOMER PROFILE

Mazda North American Operations oversees the sales, marketing, and parts and customer service support of Mazda vehicles through nearly 900 dealers.

CHALLENGE

The Mazda North American Operations IT group wanted to reduce data center complexity and simplify operations, and provide more services to the business without adding IT staff.

SOLUTION

Dell provided guidance and best practices to consolidate the fast-growing IT infrastructure. Dell PowerEdge™ servers running VMware® ESX server software, Dell OpenManage IT Assistant, and systems management software simplify the server environment and help streamline operations.

BENEFITS

IT staff has more time to further business objectives. Planned use of virtualization tools within the business continuity strategy reduces disaster recovery time from days to hours.

COMPELLING FACTS: RUN IT BETTER

- Dell Automated PC Tune-Up for Vostro helps keep systems running at peak level, and combines 32 separate tuning, performance, security and maintenance tasks into just one click.

Source: Vostro press release, July 10, 2007

- To recreate the same functionality as the upcoming Dell Systems Manager, a customer would need five consoles and five databases from HP to cover clients, servers, and storage systems.
- Dell image commonality, combined with Dell's integration services, reduces hours needed for planning, validation/testing, development and maintenance.

PROOF POINT: Greater server image stability. In the past two years, Dell has had five image changes to core products. HP has had 32. Dell utilizes a common system design and software image for our three highest-volume servers.

- In Technology Business Research's Q2 2007 report, Dell regained the #1 position in customer satisfaction, led by delivery times and phone support.
- Dell's five global command centers offer proactive, expert crisis management. Dell's global command centers are staffed around the clock with high-performance operations teams using automated delivery tools to monitor and coordinate support operations. A real-time tracking window ensures parts and services reach customers in a timely manner by using satellite-mapping technology. Platinum Plus customers can go online to monitor the real-time position and status of every open dispatch they have around the world.
- Dell's Internet-based computer image building system enables customers to build and test an entire software image from a library of parts. Dell can then custom install these images during manufacturing using Custom Factory Integration (CFI) processes.
- Dell's Online Data Migration Tool enables customers to manage their CFI images online, eliminating the need for a technician to perform data migration upon the systems delivery to the end-user.

CUSTOMER SUCCESS: GROW IT SMARTER

GOOGLE

"Dell bears the burden of all the regulatory work and logistics, so we can concentrate on what we're good at—making software. Dell enables us to go to market quickly while scaling faster, in more locations, with a lean staff."

Aidymar Bigio, Manufacturing and Operations Manager, Google

CUSTOMER OVERVIEW

Google's Enterprise division brings Google search tools and technologies to companies, universities, and government agencies.

CHALLENGE

Google required customization, single-point contact and fulfillment, and high product quality to bring the Google Search Appliance to the enterprise.

SOLUTION

Dell's OEM Industry Solutions Group provides extensive customization to Dell PowerEdge 2950 servers running the Linux operating system to form the foundation for the Google Search Appliance. They also provide a single source of sales and technical expertise, customer fulfillment, and worldwide regulatory compliance capabilities.

BENEFIT

Dell PowerEdge 2950 servers help improve appliance quality and performance, reducing service calls and replacement costs. Dell helps improve the customer experience by helping Google meet service-level agreements. Dell helps speed the time to market for the Google Search Appliance with improved supply chain management and customer fulfillment capabilities.

COMPELLING FACTS: GROW IT SMARTER

- Dell is the only major OEM with an absolutely zero “lock-in” strategy, so there are no proprietary technologies or services to constrain IT growth. It’s a purely standards-based approach through Dell’s internal R&D and with partners. Meanwhile, other IT solutions providers invest in proprietary systems.

Source: IDC Server Tracker for Q1 2007

- Many of Dell’s premium management features are included with the hardware and offered at no additional cost. HP charges for systems management.
- As the only major vendor to offer solid-state hard drives, Dell offers up to 23% improvement in system performance under typical office productivity use, and predicted reliability of more than five times better than a standard hard drive.

Source: Based on SysMark 2004se Benchmark test performed by Dell Labs in March, 2007 on a Latitude D420 configured with Intel Core Duo 1.2GHz CPU, 512MB DDR2 memory, Intel GM 945 integrated graphics, Windows XP Pro, and 100GB 1.8” 4200rpm HDD vs. the same configuration with 32GB SSD. Actual performance will vary based on configuration, usage, and manufacturing variability.

- Dell delivers 44% better virtualization price/performance. Three Dell PowerEdge 2950 two-socket servers can provide up to 44% more performance, 57% more performance per watt, and a 95% average price advantage over HP ProLiant DL585 servers running VMware® Infrastructure 3.

See www.dell.com/downloads/global/power/dell2socket_vs_hp4socket_vmware.pdf <http://www.dell.com/downloads/global/power/dell2socket_vs_hp4socket_vmware.pdf.

- Dell can lower your server power bill by 17%. The PowerEdge 1955 delivers a 9-17% power advantage over comparable HP and IBM models. That helps you at the only line that matters: the bottom line.

Source: Based on web site power calculators for Dell, HP, and IBM comparing a Dell PowerEdge 1955 blade, HP BL460c blade, and IBM HS21 blade each with Dual Intel Xeon 5150 Dual-Core 2.66 Ghz processors, 4 X 1GB 667 Mhz RAM, 2x SAS 73 GB 10k drives, and redundant power. Blade chassis configured with 2 X Ethernet pass-through, redundant management modules, and redundant power. Actual performance will vary based on configuration, usage and manufacturing variability.

- Dell offers the industry’s first environmentally green notebook. The Dell Latitude D630 is the first laptop on the market worldwide to win the highest, gold rating from EPEAT, which measures energy efficiency and green design elements in electronics. The Dell notebook was the first and only Energy Star 4.0 notebook from a major OEM.

Source: client NDA deck

MORE PROOF THE DELL WAY WORKS

- Last year alone, Dell custom-integrated 5.5 million units in our global factories. We have over 50,000 applications pre-packaged and ready for automated install as a part of the Dell Custom Factory Integration service.
- Dell itself has consolidated 13 data centers down to just two. Furthermore, we have standardized on only four corporate images: three server images (Windows, Linux, and NetWare) and one client image. Dell has about 130,000 systems, including 20,000 servers. To manage this large an infrastructure, we manage the servers as aggressively as Dell desktops. In fact, we patch and reboot all Windows servers every month, with a success rate of over 95% within the first 72 hours for all 130,000 systems.

Source: Dell IT

- Dell has only about a dozen people doing systems management. A customer with the same size IT infrastructure typically has five times as many doing the job.
- The efficiency and flexibility of our world-renowned delivery model and global factories is a real-world demonstration. Dell is ideally situated to simplify IT.

MEASURING SUCCESS — THE DELL IT SIMPLIFICATION INDEX

Understanding how IT plays into the need of business is critical to understanding where to focus time and resources. The Dell approach starts with the Dell Simplification Index, a methodology for objectively measuring the state of an IT infrastructure’s efficiency, manageability, and flexibility. The result is a set of unique Simplification Index Numbers and a solid roadmap to get the enterprise’s technology environment where it needs to be. Goals are set, milestones are created and real progress is tracked so that IT organizations can incrementally run more efficiently over time.

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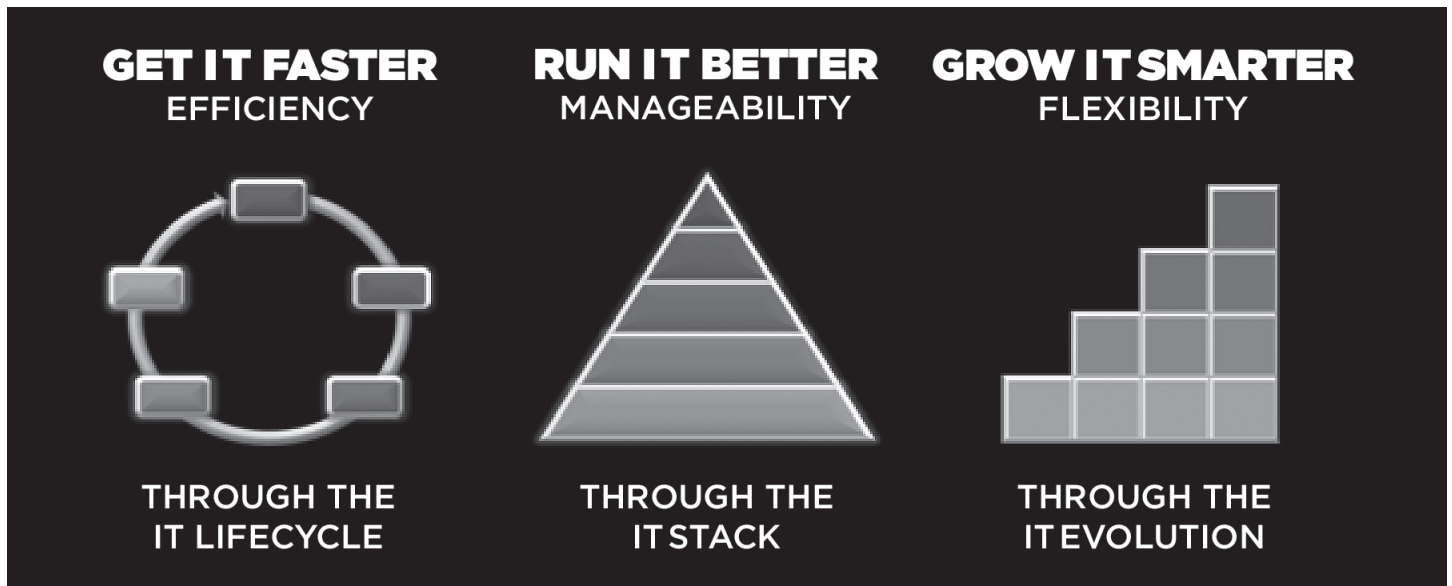
The Dell IT Simplification Index measures:

- Efficiency at every stage in the IT lifecycle to gauge how customers can get more or do more with less
- Manageability through each layer of the IT stack to assess how productive an IT staff is or is not
- Flexibility with respect to how IT evolves to determine how responsive and nimble IT is or is not

In addition, we are currently piloting a Dell IT Simplification Assessment Service with companies from various industries. When available, this service will outline a customized plan with specific steps to help organizations simplify IT over time.

Among other things, the Dell Simplification Assessment asks:

- Where is IT today?
- Where does IT need to be?
- What are the roadblocks to getting there?
- Where can IT and the business see the greatest impact?



SIMPLIFICATION TAILORED FOR HOW YOU VIEW IT

The path to a more simplified IT infrastructure must be tailored to how an organization views IT. Some companies view IT primarily as an operating cost, where IT is used for the most essential operations and is managed somewhat manually. Others view IT as a business enabler, where IT is more automated to align with the ever-changing dynamics of their market. Others consider IT to be THE business, a strategic asset that defines an organization's competitive advantage and differentiation in the marketplace.

Of course, most companies usually think of IT as some combination of these, not exclusively one or the other. Even people within the same organization might think differently, depending on their responsibilities and how they view the role of IT. This view frames the meaning of simplification. The cost center folks are looking to get as much IT as possible for as little money as possible. Those who look to IT as a business enabler see IT as a tool that can help them serve their customers and organizations better, so they can improve things for their company. The people who view IT as a strategic asset want the

latest and greatest technology, with the fastest deployment speed.

But no matter what the company's perspective and business drivers, getting to the right simplified IT infrastructure demands a clear roadmap. Smart ideas like standardizing, consolidating and automating technology ultimately means getting IT faster, running IT better and growing IT smarter. We've taken everything we have learned from customers and from our own transformation to help create the shortest path to success. It begins with knowing where things stand today.

SIMPLIFY IT THE DELL PATH TO MORE INNOVATION

HOW COMPLEX IS YOUR IT? TAKE THE IT SIMPLIFICATION SELF ASSESSMENT

Our IT Simplification Self Assessment helps you measure your IT efficiency, manageability and flexibility—and identify areas of improvement.

It will help you understand how you can save resources at every stage of the IT lifecycle; how you could make better decisions based on IT management information; and how your IT team could better respond to your evolving business needs.

Calculate your IT Simplification Score at www.dell.com/simplify.

DELL IT PHILOSOPHIES

We believe in a common set of principles to guide us in our mission.

1. We believe information technology should not be as complex as it is.
2. We believe organizations should be able to spend less on IT maintenance and more on driving business innovation. And that true innovation can become a daily business practice.
3. We believe every IT project shouldn't need an army of consultants. Knowledge and tools should be shared with the customer, not remain the secret domain of the consultant.
4. We believe computing should have minimal environmental impact.

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