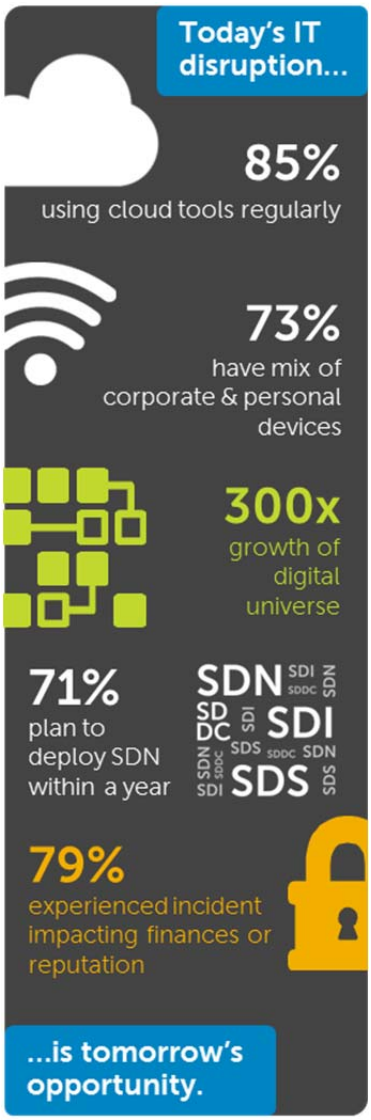
The Optimized Enterprise

Future-ready transformation your way

The imperative to evolve IT is clear, but it usually involves trade-offs: Efficiency gains at the expense of choice and economics; performance gains at the expense of speed and reliability. Now there's a new path that allows flexible evolution, lasting value and maximum choice at any scale, every step of the way.



Disruption: The new norm

Organizations of all sizes worldwide are tackling more—and bigger—challenges than ever before. In seemingly every facet of the enterprise, business as usual is out; change is in. And nowhere in the enterprise is this more apparent than in IT.

Over the last few years, the velocity and impact of technology evolution has been swift and far-reaching. While these rapid advancements mean greater opportunity, they can also add stress to already overburdened systems and processes. More than just buzzwords, these technology trends are rewriting the rules of IT and disrupting the status quo.

Cloud

Research indicates that 85% of organizations will use cloud tools moderately to extensively in the next 3 years.[1] Cloud is more than a single technology or process; rather, it's a journey that involves matters of building, operating and automating. Furthermore, how organizations make the journey can have a significant impact on the success of cloud initiatives.

Mobility

Managing mobility used to mean managing access for a single corporate-owned laptop per employee; now it's often a laptop, a tablet and a personal smartphone. In fact, 73% of companies have a mix of company and employee-owned devices.[2] Mobility means productivity, but at what cost? Without simple, scalable systems in place, managing devices in the enterprise can become a huge burden on already strained IT staff.

Big data

Data is proliferating at a rapid rate. By 2020, it's estimated that the digital universe will have grown by a factor of 300, to 40,000 exabytes, or 40 trillion gigabytes (more than 5,200 gigabytes for every man, woman and child).[3] All that data represents a huge opportunity to glean new, deep insights into the business, the competition and the market—but in order to realize the greatest value from big data initiatives, it's critical that underlying data systems be as efficient as possible.

Software-defined everything

Few practices have the potential to revolutionize technology deployment and ongoing management like the trend toward software-defined. And organizations' interests have been piqued: According to reports, 71% of

[1] "How the Cloud Looks from the Top: Achieving Competitive Advantage In the Age of Cloud Computing." Harvard Business Review Analytic Services. 2013.

[2] "Mobile Threats are Real and Costly." Webroot. 2012.

[3] "The Digital Universe in 2020: Big Data, Bigger Digital Shadows, and Biggest Growth in the Far East." IDC iView. 2012.

them plan to deploy software-defined infrastructure within a year.[4] The ability to de-couple control—the "brains"—and data—the "brawn" or physical medium—not only promises to unlock unprecedented agility within the infrastructure itself, it also stands to topple the familiar paradigm of rigidly coupled software and hardware, a practice which some vendors have relied on to inflate prices and lock customers into proprietary systems. However, the underlying premise of the software-defined movement—namely, that any workload can be run on any server—doesn't tell the full story and may put some organizations on a path to diminished results.

Evolving threats

Digital security breaches are making headlines nearly every day. Attackers and attacks are evolving at an alarming rate, becoming more and more sophisticated, and the stakes in case of a breach are rising ever higher. Case in point: 79% of companies in a recent survey experienced some type of significant security incident within the past year that resulted in financial and/or reputational impact.[5] Keeping up with seemingly omnipresent security risks without slowing down business has become a top IT priority.

For most organizations, none of these trends are news. Many business leaders have already set their sights on a few key initiatives that will leverage these trends to support the business, helping it to become more agile, more productive and more competitive. However, for IT, implementing technology change can be difficult.

[4] "2013 Cisco Global IT Impact Survey: Summary and Analysis of Worldwide Results." Cisco. 2013.
[5] "State of Security." EvalueServe. 2012.

Change does not happen in a vacuum. IT leaders often must build new capabilities within constraints, whether it's mandates about cost, people, deadlines or even legacy equipment. Furthermore, change doesn't happen all at once. Technology evolution is a journey that happens step-by-step over time. And time can have an impact on value.

Uncovering the better blueprint for evolution

Building technology infrastructure can be like building a house: Even the humblest structure evolves from a blueprint. At the outset, usually only the roughest guidelines are available—number of rooms, building codes, budget—and from there the architect begins to plan. Many considerations are made before construction even starts. Then, once building is underway, unforeseen challenges always arise—a soil issue that went undetected, a change to building codes, a need for one more room—and more decisions will be made which ultimately impact the functionality and usability of the finished structure. Even once the house is built, it will continue to evolve—weathered elements need replacing, landscaping requires maintenance, once-trendy design begs for updating.

Even with the same guidelines, no two architects will arrive at the same blueprint for the same house. Similarly, how well the plans are able to accommodate the inevitable challenges of both construction and years of ongoing livability will vary according to the architect's perspective and ability to discern the occupants' needs.

The same is true for IT. Architectures are built over time, never reaching "completion" but rather continuing to evolve to meet changing business needs and technology demands. While the fundamental building blocks of IT are the same—servers, storage, networking,

Modernizing IT is less about particular technologies and more about aligning company strategy and business processes with technology investment and savings opportunities. Sharing practical lessons from the field and Dell IT operations, watch Dell Executive Director of Enterprise Strategy Matt Baker talk about how organizations can cut through the chatter in order to build a pragmatic IT roadmap.

Beyond buzzwords: Practical lessons for modernizing IT
➢ *bit.ly/beyondbuzzwords*

devices, software, etc.—the blueprint to building them, as well as integrating them, can vary significantly.

Legacy IT

Legacy system vendors offer complex, monolithic, proprietary systems, such as mainframes and UNIX platforms, that can be very expensive to acquire and maintain, requiring technicians with very specialized, expensive skillsets. Furthermore, sole-sourcing from one vendor and locking in to the vendor's roadmaps, technology transitions and timelines limits flexibility down the road. The architects of this model may be analogized as writing their blueprint in a coded language which only they—and their technicians—can decipher and build from in an effort to protect their legacy and margins.

In times of disruption, this costly and rigid approach means high capital costs as well as soaring operational costs. It is little wonder why many modern organizations find themselves evolving away from this outdated IT model.

Proprietary systems

Some solution providers are taking a coupled approach to their hardware platforms and software stack. This "do it our way" model is akin to an architect offering to design any house the occupant desires—as long as it reflects the architect's signature style and is created with their special paper, using their special pens—all of which the occupant must buy at exorbitant cost and which no other architect can use.

When IT organizations are faced with the mandate to cut costs and run leaner, these proprietary solutions look attractive. Everything is self-contained, generally making ongoing maintenance costs lower. However, acquisition costs are high since vendors still have legacies to protect. In addition, buyers are, in essence, deploying completely proprietary platforms that may not be compatible with anything else in the IT ecosystem, now or in the future. This approach not only creates more complexity, it also increases risk, as investments made today may be lost if adopting future capabilities means a "rip and replace" of infrastructure.

These solutions are unattractive in the long run since they encompass so much of the infrastructure-centric, "traditional" way of doing IT that is better suited to legacy workloads than the agile cloud capabilities many organizations also need to master.

Commodity systems

So-called "white-box vendors" sell inexpensive pieces or parts of hardware with no added value beyond the components being pre-wired. These systems are designed with little regard for how they integrate or operate in increasingly heterogeneous and application-oriented environments. There aren't usually any formal roadmaps or technology transition schedules, so if buyers want more systems later, the internal components may be very different, which could cause firmware or compatibility issues. Often, there's no vendor support, so while initial costs for the hardware are low, ongoing maintenance costs can be very high. This blueprint might be said to consist of pre-drawn room templates for the occupant to assemble on their own to form a coherent plan for a house—which they must then build themselves.

This do-it-yourself approach gains favor when cutting-edge organizations tout it as the preferred method for "new" IT capabilities like private cloud. And as organizations begin the transformation from infrastructure provider to service provider, this model—with its low upfront costs and ability to scale-out capacity—becomes attractive. However organizations often find that the low initial costs of deployment are quickly nullified by the high costs and risk involved in configuring, supporting, and ultimately, replicating deployments. In addition, because the approach is incompatible with most "traditional" workloads and infrastructure, it often forces organizations into divided or "shadow" operations, further widening the gap between maximizing efficiency *and* offering private cloud services.

Embracing change without sacrifice: The Optimized Enterprise

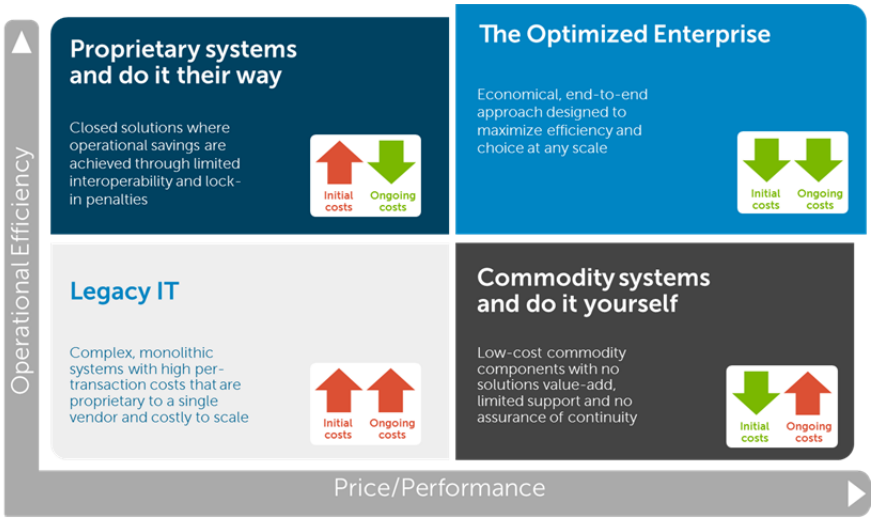
As organizations evolve their IT, they are often forced to choose: Cede control and pricing leverage to a vendor in exchange for potential operations gains or go it alone via a completely do-it-yourself route and accept the risk of untested assemblies for the potential "reward" of lower upfront costs. Become more efficient *or* become more like a cloud service provider. Do more of the same *or* invent your own solution. Save *or* transform.

Now there is a way for organizations to achieve all their goals without compromise. The key is *optimization*—getting maximum value from system investments and allowing maximum choice at every stage and at any scale.

This is the foundation of Dell's **Optimized Enterprise** strategy. It's a familiar approach for Dell, a company that for more than 30 years, has sought to make technology more accessible to more people, to enable them to do more than they thought possible. What once started as one man's mission to redefine the economics of personal computing for individuals has expanded to encompass the entirety of enterprise IT infrastructure, bringing game-changing technology capabilities within reach of organizations of all sizes, not just the largest ones with the deepest pockets and armies of support staff.

The Optimized Enterprise strategy gives organizations a modern blueprint for IT evolution. Understanding that enterprises need to maximize savings at both the point of technology acquisition as well as throughout the technology lifecycle, Dell builds solutions with these needs in mind: balancing infrastructure price and performance, so that capital expenses are consistently lower, and infusing system design with simplicity, so they are easier for IT staff to use and consume less space and energy—considerations which reduce operational expenses.

Furthermore, unlike approaches which bind customers in a rigid or closed approach—as would a house blueprint written in coded language only the architect could understand—Dell's



The Optimized Enterprise strategy is designed to deliver the best balance of value and choice for the enterprise.

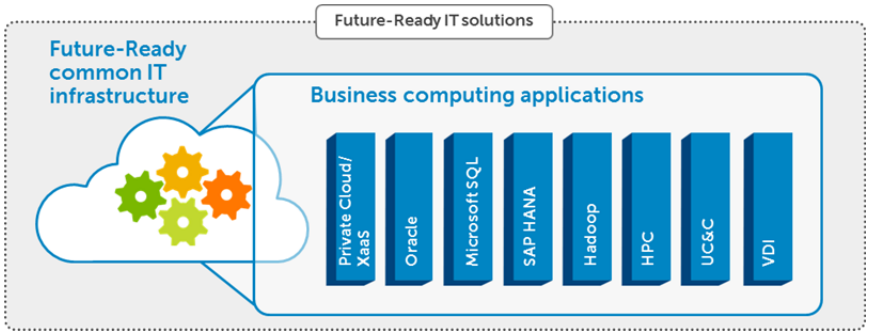
Optimized Enterprise strategy is founded on maximizing choice, with flexible designs built on open standards, the common languages of technology. This enables organizations to control their own IT evolution and leverage innovation as they please, without ties to a specific vendor, system size or configuration, or roadmap.

Finally, with Dell's end-to-end solutions, organizations can reap the benefits of the Optimized Enterprise strategy everywhere in the enterprise, in the manner that best fits their budget, staffing and timing requirements—whether building "DIY", using validated reference architectures for guidance, deploying pre-configured systems, or any combination of these.

The opportunity: Future-Ready IT solutions

Optimizing the enterprise is what gives organizations the edge they need to grow and thrive. The splintered approach of "either/or" IT models not only fails to deliver the holistic benefits organizations need, it also creates unnecessary constraints and confusion.

As enterprises optimize and evolve their IT, it's critical that the solution path they choose deliver value in any IT context, at any scale, now and throughout the evolutionary journey. That's why Dell now introduces its **Future-Ready IT** solutions portfolio. This portfolio comprises validated solutions for private cloud, enterprise workloads and workforce mobility built upon common, future-proof infrastructure designed for efficiency and flexibility.



The same Future-Ready common IT infrastructure powers a wide array of business computing applications, from cloud to databases to mobility, delivering optimized outcomes for each, at any scale.

Future-Ready IT solution design tenets take into account the challenges that organizations face most often today when considering IT evolution, namely how to bridge the gap between "run-the-business" workloads that still play a fundamental role in daily organizational operations and transformative initiatives like bring-your-own-device (BYOD) and private cloud capabilities they want to master on their own terms. Unlike the bifurcated "either/or" approach facing organizations today, Future-Ready IT is an innovative and pragmatic path that redraws the boundaries of technology to unleash unprecedented value and innovation.

Advancing business with advanced IT

Applications are the heart of the enterprise, so when they work better, the enterprise works better. That's why optimizing business applications with a solution-oriented approach is critical toward optimizing the enterprise as a whole. However, applications are complex and optimizing them can be difficult for enterprises to do on their own.

Dell Future-Ready IT solutions are designed for optimization at their core. More than just mere assemblies of hardware and software, Future-Ready IT solutions are shaped by decades of Dell expertise and innovation, as well as cooperative development with leading application developers. This ensures that solutions are integrated and optimized at their most fundamental levels in ways that enterprises themselves—or other so-called solution providers that merely sell related products together—cannot always cobble together on their own. It is this unique, deep level of optimization

that drives the significant, and often transformational, benefits evolving enterprises are looking for.

Optimized infrastructure

Dell works directly with application developers to understand core application requirements so that infrastructure can be optimized for the need—while still maintaining maximum flexibility. In addition, beyond technical capability and performance, Dell optimizes its Future-Ready IT common infrastructure for ease of use and efficiency, so that every aspect of solution deployment is optimized for better IT performance and outcomes, now and at every point of IT evolution.

Preferred and validated solutions

Future-Ready IT common infrastructure is not optimized in name only; many Dell solutions further minimize risk and ensure better outcomes through endorsement, certification or validation by leading application developers—approvals only earned after Dell Future-Ready IT solutions have met their rigorous requirements. Organizations can then reap the benefits by utilizing validated reference architectures or experienced Dell consultants to design, deploy and support solutions—or any combination thereof.

Single source

Technical application complexity is usually compounded by complexity of acquisition, a tedious and confusing task that often falls upon the enterprise itself to fulfill. Coordinating vendors and evaluating options can be confusing. Complicating matters further, any inconsistency or incompatibility within the solution chain can reduce or even eliminate many desired benefits. Dell Future-Ready IT solutions benefit from a single-source approach, which not only makes acquisition easier and less cumbersome, but also results in better outcomes since every element of each Future-Ready IT solution is designed according to—and unified by—the same optimization strategy.

Better outcomes from optimization, device to data center

Optimizing the enterprise with Future-Ready IT solutions means freeing business from the limitations of closed, complex, outdated IT. With a flexible set of efficient platforms, complemented by processes and people, powering technology initiatives, organizations can achieve goals once thought beyond reach and experience the benefits of a modern, innovative IT approach.

Maximize efficiency.

Drive down capital and operation costs with open, right-sized platforms that allow for swift integration of new capabilities while minimizing total cost of ownership.

Accelerate results.

Enhance IT agility in the face of dynamic needs and deliver results faster with flexible solutions that scale up, down and out with the same ease and economics.

Increase productivity.

Run reliably—get expected performance it is expected using enterprise-class, validated solutions that won't let down the workforce.

A flexible foundation for the future

With Future-Ready IT, organizations can finally embark on an evolutionary IT path with confidence that they can receive real value, faster than ever before, while preserving choice, every step of the way. Before Future-Ready IT, organizations were often forced to choose between

How Dell optimized its enterprise: Unified communications and collaboration (UC&C)

Large organizations are keenly aware of the challenges of maintaining productivity and results when the workforce is dispersed. Dell experienced a similar challenge: How could it connect its 100,000+ employees around the world to support fast productivity while reducing costs and environmental footprint?

The answer was a Dell-powered, Dell-implemented solution for Microsoft® Lync®, Exchange and SharePoint®. Scalable, cost-effective communications and collaboration systems designed to support a global workforce, flexible work style initiatives, rapid integration of new employees and streamlined processes.

The benefits this Dell UC&C solution delivers are numerous and ongoing, including:

- Connected 100,00+ workers
- Avoiding >$1M in costs by eliminating aging PBX and traditional telephone voicemail systems
- Lowering OpEx costs with high-density, energy-efficient PowerEdge servers

How Dell Does IT: Unified Communications and Collaboration boosts productivity and savings

➢ *bit.ly/DellUCC*

How Dell optimized its enterprise: Network transformation

Like many companies, Dell needed to expand its enterprise network to support growth and key competitive cloud-based initiatives. At the same time, while Dell realized it had an opportunity to put in place new infrastructure that would deliver better overall value, it also had some legacy infrastructure that would be too costly and time-consuming to replace.

After evaluation, only Dell Networking fit Dell's needs:

- High-performance solutions meet demand and advance critical business initiatives
- Economical, easily managed scalability supports growth without breaking the budget or adding complexity
- Maximum interoperability with legacy vendor equipment protects past and future network investments

Dell now uses Dell Networking to power offices, manufacturing facilities, labs and Solution Centers around the world, as well as its online properties like Dell.com and cloud-based services like SecureWorks managed security.

The Launchpad for Transformation: How Innovative Networking Powers a Dynamic Company
➢ *bit.ly/DellonDellNetworking*

"going all-in" on a particular vendor's view of the future or "waiting on the sidelines" for industry standards to mature—both risky propositions in terms of financial and opportunity cost. Now enterprises can embrace their legacy and control their destiny, using Future-Ready IT solutions.

That's because Future-Ready IT is built upon time-proven principles born of Dell's unique hardware and software expertise. These principles enable organizations to fully realize the potential of common innovation streams across best-of-breed systems, multiple paths to system-of-systems convergence and, ultimately, greatest efficiency through server-centric software-defined systems.

Integrated
Building infrastructure on open standards makes it easier to integrate within existing infrastructure to quickly adapt to changing needs.

Modular
Architectures designed to cost-effectively scale up, down or out as workloads and budgets dictate ensure maximum flexibility for evolution.

Automated
Software-defined systems simplify IT operations and service delivery, bringing advanced capabilities within reach.

Evolving with a future-ready approach
IT is unequivocally the foundation for enterprise innovation—it's time to ensure that foundation is optimized and primed to serve and advance innovation well into the future. Let your enterprise evolution start today. Here are some best practice strategies to consider as you begin.

Assess and prioritize needs.
Evolution begins with a clear understanding of current enterprise initiatives, challenges and workloads. Talk to frontline IT staff to get their input, as well as project stakeholders throughout the enterprise to understand their goals and objectives. (Alternatively, enlist the help of a technology consultant familiar with evolving enterprise IT to conduct the research to save time and eliminate potential organizational bias.)

With these insights in hand, begin prioritizing by the urgency of the need to address/resolve. A holistic evolutionary approach can begin yielding value at deployment as well as in the future, so you can begin addressing issues now where solutions are most needed while building a foundation for continuing optimization in the future.

Start in the data center.
While optimizing the enterprise involves a holistic approach, often the best place to start is in the data center, the central "hub" of the enterprise. Evaluate ways to bring compute, storage and networking functions closer together to achieve better performance for demanding workloads. In addition, look to simplify management and reduce touch points where possible to increase efficiency and activate key capabilities like private cloud and virtual desktop infrastructure throughout the organization.

Don't stop at the "typical" data center—that prototypical labyrinth of server racks and network cores. Think beyond the form of the data center to its function—efficient computing and handling of workloads. It could be that your enterprise could benefit from data center-like performance at multiple

locations, in which case a converged solution purpose-built for deployment anywhere—even in a quiet branch office—could significantly transform your IT.

Add open—and validated—capabilities.
Becoming locked-in to a vendor's proprietary system or roadmap puts your innovation imperatives second to the vendor's. Adding open capabilities to your enterprise IT helps you retain the flexibility you need to stay agile on the course of your IT evolution while protecting your investment. However, it's important to go beyond simply ticking the "openness" checkbox, as some open solutions could cause challenges down the way with interoperability or process complexity.

Look for ways to minimize risk and disruption when integrating open capabilities by ensuring the open platforms you are considering have been validated to work with existing or planned infrastructure and will not create a steep learning curve for your IT staff.

The best time to start evolving your IT is now. Begin your transformation today: Contact Dell to schedule an enterprise IT assessment with an expert who can help you start building for the future while maximizing value every step of the way.

Visit Dell.com/optimize to learn more about Dell's Optimized Enterprise strategy and Future-Ready IT solutions.

How Dell optimized its enterprise: Data center transformation

Business growth and fast-paced product development cycles required the Dell IT team to accelerate deployment of new servers and applications—without exceeding data center space and within power constraints. For Dell, the answer was standardized virtualization on PowerEdge servers, a smartly matched combination of technology and process which would begin Dell's IT transformation.

This solution drove numerous benefits which helped pave the way for continued evolution, including:

- 90% faster deployment of virtual servers and applications to meet demand
- 30% improvement in resource utilization
- $29M saved through fewer hardware purchases, reduced space requirements and less power consumption

A Model of Virtualization
➢ *bit.ly/DellVirtualization*

Recommended reading

Modernize the Data Center in Ways You Never Thought Of
Gartner. 2014.
➢ *bit.ly/GartnerModernize*

Technology Management In The Age Of The Customer
Forrester. 2013.
➢ *bit.ly/ForresterTechManagement*

Use a Split-Brain Data Center Model to Transform and Modernize IT
Gartner. 2014.
➢ *bit.ly/GartnerSplit*

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