A strategy for moving IT into the era of cloud computing

The Dell point of view

A Dell white paper
Version 1.0
August 2013

Table of contents

Figures

Executive summary

Faced with rising expectations from the business, forward-looking IT organizations are focusing more on enabling on-demand access to IT services and delivering bottom-line results and less on the procurement and management of systems. Along with this shift in focus, IT executives are rethinking yesterday's approaches to IT service delivery and charting a path to private, public and hybrid cloud environments.

In the Dell point of view, the cloud represents both the natural evolution of the data center and the future of IT service delivery. It's a strategy that allows your organization to reinvest and reinvent the way you deliver IT services to drive better business results.

To make the most of this new era for IT, your organization needs access to seamless, flexible and secure solutions that simplify the integration, configuration and deployment of cloud services. These principles are at the heart of the Dell approach to cloud computing.

A new era for IT

In years past, IT organizations were often seen as departments that supported the business and its users but didn't play a leading role in the success of the enterprise. Today, this view of information ownership has been turned upside down. In a world now driven by data and digital interactions, IT is at the heart of the enterprise and a key player in the success of virtually all business initiatives.

A Forrester report described the changing role of IT in these terms: "No longer is IT a separate province, measured by distinct, tech-centric metrics like uptime or time-to-develop new applications. Now, the connections between IT and the business are pervasive and bidirectional."[1]

The shift in the role and prominence of IT raises the profile of the CIO in the enterprise. This has both upsides and downsides. While it's good that today's CEOs recognize the importance of IT, CIOs are now under extreme pressure to respond faster to business needs and to turn IT into a competitive differentiator.

The reality is, many CEOs are not all that happy with IT as it exists today, and this view highlights larger issues in the C-suite. A 2012 Gartner study found that only half of surveyed business leaders could name a company in their industry that they admire for its use of IT and its ability to apply IT-related business capabilities for competitive advantage. In another study, the Economist Intelligence Unit found that one in six CIOs are only "consulted" or have no role at all when IT strategy is formulated. This means that CIOs may be implementing an IT strategy that they had scant influence developing.[2]

Still, there is good news in all of this. The Gartner survey found that CEOs are ready and willing to invest in IT. In a recent webinar, a Gartner Fellow noted that while CEOs acknowledge IT waste, they "have positive IT investment intent." The bottom line for CIOs: "You are pushing on an open door for resources."[3]

This viewpoint suggests that CIOs who have a clear vision for IT innovation that enables better business results will find a receptive audience at the highest levels of the company. Cloud computing is a key part of this vision.

---

[1] Six Business Technology Trends That Will Propel Your Firm In 2013." Forrester Research. March 19, 2013.
[2] "The C-suite Challenges IT: New Expectations for Business Value," a report written by the Economist Intelligence Unit and sponsored by Dell Services.
[3] "Chief Executive Concerns and the IT Implications." Gartner webinar with Mark Raskino, Research VP, DA and Gartner Fellow. May 7, 2013.
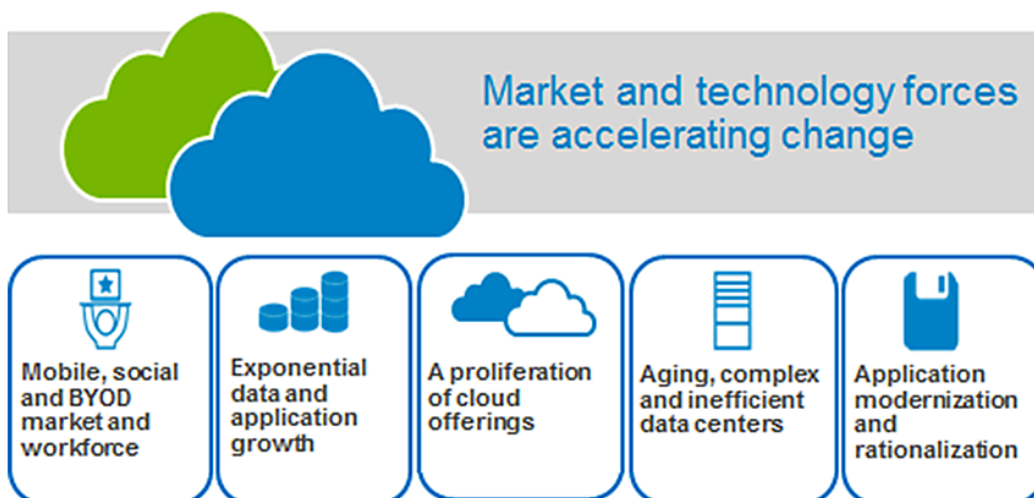
Figure 1: Cloud market drivers

Why cloud?

Today's IT organizations are seeking greater operational and business agility to respond to new challenges and opportunities. Cloud computing is proving to be the key to enabling this agility and responding to the market and technology forces that are accelerating the pace of change.

Let's look at these challenges, which are summarized in Figure 1.

The workforce is going mobile. Today's workers are no longer tied to desktop systems controlled by IT administrators. They want to access data and applications on their own mobile devices—a trend called "BYOD," for "bring your own device." Enabling a mobile workforce has emerged as a key priority for IT executives. According to an Accenture survey of more than 400 global IT executives, 75 percent of respondents cited mobility as one of their top-five priorities.

Data is growing exponentially. Fueled by business and social networks, data is growing exponentially. IDC predicts that by 2020, humankind will have 40 zettabytes of digitally stored data.[4] This nearly incomprehensible sum will come as a result of what Gartner calls the "Nexus of Forces," or the convergence of social, mobile and cloud information, which makes the upward trajectory of data volumes unstoppable.

Cloud offerings are proliferating. While cloud is a solution, it can also be a problem. In today's world, cloud technologies and services are flooding the IT market. In many cases, users and lines of business are adopting cloud services on their own. IT organizations need to take a leadership role in the adoption and management of cloud services within the enterprise.

Data centers are aging. Most data centers weren't built for the challenges of the current decade—such as the business requirement for on-demand access to IT services, the data explosion, the rapid rise of mobile technologies and a digitally savvy population's expectations for always-on business services. In the typical data center, IT resources are locked into silos dedicated to certain applications. It can take weeks or even months for IT to roll out the services to support a new business initiative. And costs can easily spin out of control as data centers grow in size and complexity.

---

[4] IDC Digital Universe study, "Big Data, Bigger Digital Shadows, and Biggest Growth in the Far East." December 2012.

Application challenges abound. Legacy applications burden the enterprise, while new applications push conventional IT boundaries and require new tools and skills. Legacy applications carry a high cost of ownership, are difficult to modify to meet ongoing business demands, require a legacy skillset that fewer and fewer people possess, and in many cases do not adequately meet today's compliance demands. New applications that are written specifically to take advantage of the scalability and flexibility of the cloud require new architectural paradigms. Composite applications, for example, are an emerging trend in software design that spreads the various components of a large application across several clouds simultaneously, to yield a "multi-cloud" solution.

Clearly, the market and technology challenges that IT organizations face today won't be overcome with a new generation of servers or the creation of ever-larger, ever-more-complex data centers. Instead, IT organizations need to rethink—and reinvent—their approaches to the delivery of IT services. Cloud computing is a key enabler of this transformation.

Reinventing IT services

With the digital world racing forward, data exploding and business success hinging on IT agility, the time for incremental improvements has passed. It's now time to make fundamental changes. This reality creates a compelling case for using cloud computing models that enable your organization to reinvent the delivery of IT services.

By opening the door to on-demand access to IT resources, cloud drives innovation across the enterprise. Cloud makes your IT organization more agile, more productive and better positioned to contribute to overall business results.

"Empower your CIO," the Economist Intelligence Unit advises. "Increased access to IT infrastructure as a commodity presents an opportunity to rethink—and at times reduce—the scale and scope of the IT function. But do not confuse that with limiting the role of the CIO. This trend can liberate them to really add value."[5]

Cloud is a natural evolution of current trends

IT never stands still. Today's data centers continue to expand the use of virtualization to increase utilization of resources and enable greater IT agility. In a parallel trend, IT managers are turning disparate IT systems into converged infrastructure solutions that make it easier to allocate, share and manage resources.

Cloud computing models build on these trends to enable greater pooling, sharing and orchestration of resources. Cloud is a natural next step in the evolution of the data center. Regardless of the deployment model—public, private, hybrid or multi-cloud—cloud enables convenient, on-demand network access to a shared pool of configurable computing resources that can be rapidly provisioned and released with minimal management effort.

Cloud is the future of IT.

Cloud is not a fad. Cloud is an evolutionary strategy that is moving the IT world toward a more agile and efficient future. Cloud is the name for an IT transformation journey that data centers have been on for many years, long before anyone called it cloud. Data centers have been moving toward a world of pooled and shared IT assets that are easy to access, easy to provision and easy to manage. Today, data centers are taking another step forward—and moving to cloud.

---

[5] "The C-suite Challenges IT: New Expectations for Business Value," a report written by the Economist Intelligence Unit and sponsored by Dell Services.

The Dell point of view

Cloud is not a technology. It's a strategy.

At Dell, we believe cloud should be part of an overall strategy to accelerate growth, empower your workforce and transform your business. To that end, we are committed to developing cloud solutions that match your business vision and drive your business forward.

Cloud should adapt to you, not you to it.

Dell is in the business of giving our customers choice. We recognize that most of our customers are already on the cloud journey, but each has unique needs. To best meet those needs, we work as a trusted advisor who takes the time to understand your particular IT and business requirements and then matches your needs with the ideal IT solutions, cloud or otherwise.

Cloud works best when it integrates seamlessly.

Our approach to cloud is not to "rip and replace" but rather to help you leverage your existing investments and build from the current state as you integrate cloud solutions into your environment. To enable the seamless integration of cloud solutions, we provide software tools that allow you to manage applications across private, public, hybrid and multi-clouds. Ultimately, we see cloud as a logical progression in the evolution of your IT environment.

Cloud can cut the cost of IT.

Cloud computing services can give your organization pay-per-use access to parallel-processing systems that would be costly to build and operate. Rather than making large capital investments, you can use the processing resources when you need them, and pay for those resources as an operational expense. Similarly, temporary workloads that last only a few weeks or months may make more economic sense to run in the cloud rather than investing in permanent data center infrastructure.

Cloud can make application developers more productive.

The self-service and highly automated nature of cloud allows software developers to more rapidly develop and deploy applications. Today, cloud services are particularly useful in the development of mobile applications that have more features delivered more frequently. Rather than using an application that was last updated a year ago, developers can leverage a cloud-based application that gets updated every two to three week to add new features.

Cloud has three essential requirements

Regardless of the deployment model, cloud solutions should have three fundamental requirements: flexibility, integration and security. These requirements are at the heart of the Dell approach to cloud computing. Each is an essential piece of any cloud solution.

Flexibility

Cloud should be implemented in the most appropriate way for your organization and its unique requirements, taking into account everything from your current infrastructure and IT governance policies to your financial model, processes and corporate culture.

One of the most important elements of ensuring flexibility is the use of open architectures and industry-standard technologies. This openness enables your organization to avoid vendor lock-in, reduce the risk of technology shifts, lower total cost of ownership and leverage a wide base of industry expertise in hardware, software and services.

Integration

An integrated approach to cloud allows your company to transcend boundaries of all sorts—physical, process, application, geography, infrastructure and internal resources. By stripping away those boundaries through integration, your organization can use cloud as a glue or fabric, linking private cloud applications with legacy software and linking public cloud services with private cloud infrastructure.

An integrated approach to cloud planning, deployment and operation allows you to leverage your existing and future investments, regardless of where the information asset resides, while reducing complexity by using tools that don't require custom coding, pricy software licenses or hardware appliances.

Security

In the cloud world, "secure" has to be defined from the inside out, rather than simply putting digital locks on network endpoints to keep out intruders. Whether the solution is deployed on-premises or off-premises as a private cloud or off-premises as a shared, public architecture, you must have absolute confidence that security practices protect infrastructure, applications and data.

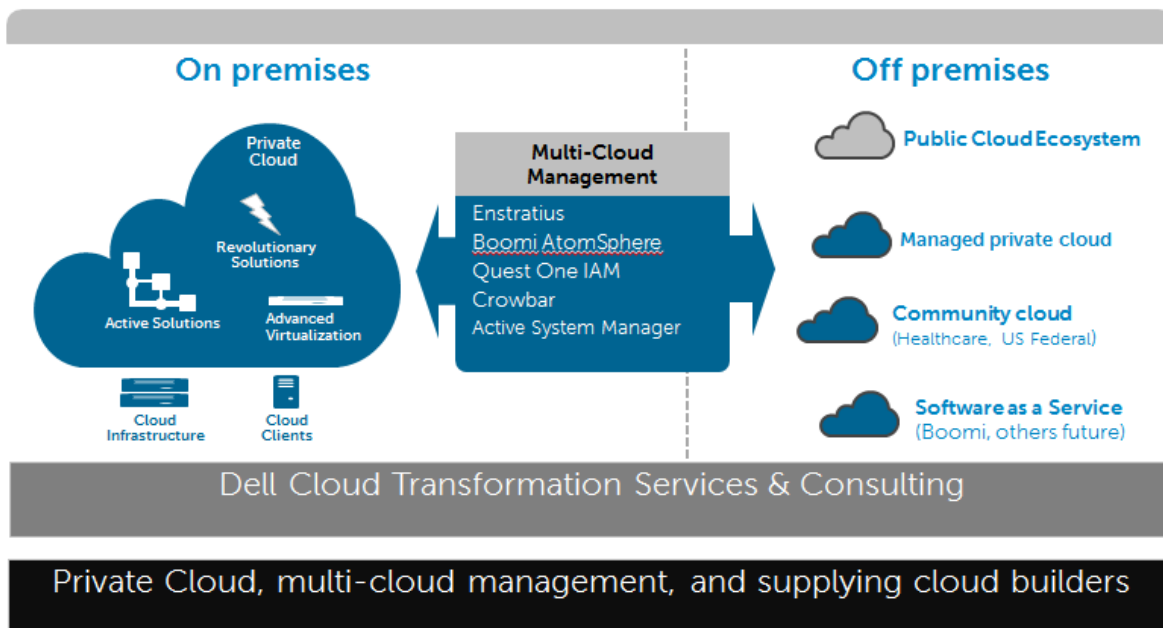## How Dell can help your organization capitalize on cloud

Figure 2: The Dell cloud strategy

Solutions that work better together

At Dell, we recognize that enterprises want access to complete IT solutions that they can put into service quickly to meet business needs. They don't necessarily want to be in the IT business; they want use IT to enable the business. To get there, they need integrated, end-to-end solutions. With Dell as your technology partner, you can choose the cloud solutions that are the best fit for your organization, and then manage them collectively with a common set of software tools.

This is the Dell approach to cloud solutions. We strive to shield you from complexity and to put your organization on the simplest path to the use of multiple cloud services. To make that happen, we help you move beyond point products and narrowly targeted service offerings. Instead, we take a much broader view. We look at the whole cloud ecosystem and help you bring together end-to-end solutions that simplify the integration, configuration, deployment and management of cloud services. We help you with every step in the cloud journey—build, use, control and secure.

Build

With solutions that are designed to work "better together," Dell makes implementing a cloud computing strategy simpler. We help our customers build clouds with ready-to-go reference architectures that incorporate validated hardware configurations. We work with all the leading cloud technologies, including the open-source-driven project OpenStack. For the ultimate in cloud building, we create custom data center solutions for hyperscale cloud builders, and we serve many of the largest clouds in the world.

Use

Should your organization want a quicker path to cloud, you can look to Dell for end-to-end cloud solutions that span from the desktop to the data center and beyond. Our offerings encompass everything from clients and virtual clients to preconfigured and managed private clouds, hosted private clouds, and cloud transformation services.

Cloud should be a key, not a lock. Dell helps you avoid the threat of lock-in and the barriers to cloud adoption through our ability to integrate any cloud or on-premises application, and any combination of Dell services and solutions, with your data and applications. We extend public cloud services to integrate with your on-premises assets, hosting mission-critical applications or data on an outsourced basis, or managing a multi-cloud environment.

And we give you choice in cloud. Our "integration as service" approach encompasses processes for tool improvements, APIs and simple connectors that allow you to build and deploy processes in hours, not days. This is a field-proven approach—Dell Boomi performs 1 million integration processes daily. It's no wonder that Dell is ranked as a leader in the Gartner Magic Quadrant for iPaaS.

Control

Dell helps you improve service delivery between the device and the data center by managing and monitoring performance through automation and proactively identifying, reporting and resolving issues. We have an end-to-end perspective on operating cloud platforms and hypervisors. You can look to Dell for management solutions that help you monitor performance, manage capacity, monitor usage and allocate costs across private, public and hybrid cloud environments.

That's the case with Dell Multi-Cloud Manager, based on technology from Enstratius. It helps your organization manage applications across private, public and hybrid clouds, including automated application provisioning and scaling, application configuration management, usage governance and cloud utilization monitoring.

Secure

With Dell security solutions at work, you gain a view of the full threat horizon, along with the advanced technologies and services to strengthen your security posture and compliance program. Our approach is to make security better from the inside out. With best-in-class solutions like Dell SecureWorks and Dell AppAssure, we build multiple layers of security into your cloud solution.

Dell retains hundreds of counter-threat security experts who use propriety toolsets and covert methods to monitor thousands of outlets across the threat landscape. With our real-time collection and categorization of threats, you're poised to locate actionable risks and implement countermeasures to protect your business.

A note about compliance

Dell is a leader in healthcare cloud solutions, with offerings spanning from software as a service (SaaS) to infrastructure as a service (IaaS). You benefit from the savings and efficiency of a shared platform based on years of effort and expertise. Dell has invested millions of dollars to provide an environment the meets the HIPAA and HITECH security standards for healthcare organizations. A notable example of compliance leadership lies in the Dell Secure Healthcare Cloud. It stores and protects more than 6 billion medical images for healthcare organizations around the world.

Investments in critical technologies

As your organization moves forward, you are going to need enterprise-class technologies that enable cloud-based models. For example, you will need sophisticated identity and access management solutions that enable users to move easily and securely among different cloud environments, along with master data management to manage and secure data across cloud environments.

Dell offers a growing portfolio of technologies to address needs like these. We have invested heavily in technologies focused on our customers' biggest needs and concerns as they move to the cloud. These include investments in identity and access management, database monitoring and management, security, data protection, application integration and multi-cloud management.

A pragmatic approach

Dell takes a pragmatic approach to cloud. Our approach focuses on simplification and making it easier to plan, implement and manage cloud-based services. We don't take a prescriptive approach, in which we tell you what you need or push a single approach to cloud. We know that different organizations require different skills, services and building blocks from their cloud partners.

We recognize that many companies will begin the move to the cloud with a small number of tactical applications, such as test and development work. These deployments serve as a proving ground for cloud solutions, while helping the organization gain experience in managing resources in the cloud. At the same time, we recognize that other companies will adopt the cloud for broad strategic initiatives. Either way, Dell can help.

IT in the era of the cloud

Leading the enterprise to the cloud

The question today is not whether organizations will move to the cloud, but how they will move to the cloud. What applications will move to public clouds? What applications will be hosted in private clouds? Who will build, host and operate the private cloud? How will the organization make use of software as a service? Who will procure public cloud services for business units?

Questions like these are high in the thoughts of forward-looking IT executives as they consider their options, risks and rewards for moving work to cloud environments. The cloud is inevitable. The key is to ensure that you get there in the right way.

You need to be sure you are moving to the cloud on IT's terms, and not getting dragged into cloud computing by business units that bypass IT and procure services directly from a public cloud. That creates a dangerous world of "shadow IT" that lives outside the realm of standard management controls and corporate governance.

IT will become a service broker

A better alternative to the risk of shadow IT is to have your IT organization take a leadership role in helping business units gain access to public and private cloud services that IT monitors and manages.

While enabling business users to leverage approved cloud-based services, this approach gives your IT organization greater flexibility in the sourcing of services and the benefits of usage-based payment models. At the same time, this proactive approach allows IT managers to retain control over IT services, regardless of how they are sourced. This puts IT in a position to maintain a tight grip on security, compliance and other management issues.

This lead-don't-follow approach to the cloud is a step toward the future of the IT organization. In the new IT era, IT managers will assume the role of a service broker. Rather than procuring, deploying and managing infrastructure, IT leaders will match the needs of different users and business units with cloud services from various sources, based on criteria such as price, security, service-level agreements, and corporate and legal mandates. IT administrators will then manage the cloud-based resources through a common framework, such as the Dell Multi-Cloud Manager.

Popular use cases

While there are countless use case for cloud platforms, organizations tend to initially adopt cloud to address targeted needs. Today's popular use cases for cloud platforms include software development, data storage and backup, and running analytics on big data.

- For application development, the cloud provides development and test teams with on-demand access to the computing resources needed for the duration of a project. Once a project is complete, the resources are returned to the cloud pool.
- For data storage, cloud platforms offer cost-effective access to geographically disbursed storage that can be configured for redundancy and backup.
- For data analytics, cloud platforms can provide affordable access to the parallel-processing capabilities required for big data, along with access to open-source analytics tools, such Apache Hadoop.

While much of today's cloud momentum is focused on infrastructure as a service (IaaS), Dell sees today's push toward cloud leading to a new era of platform as a service (PaaS). PaaS will enable application developers to develop apps without concern for the infrastructure they will run on. It puts further efficiency in the software stack, and makes applications more portable.

Capitalizing on cloud: case studies

To better understand how Dell can help your organization capitalize on cloud computing, consider these summaries of Dell case studies.

Centegra Health System

- **Challenge:** To boost patient care, avoid cyclical data migrations, achieve disaster recovery and gain agility, Centegra Health System sought a highly flexible and scalable solution for data management and archiving.
- **Solution:** Centegra is implementing a unified archive based on Dell solutions and services. The solution provides unlimited scalability and includes an application-neutral onsite archive that replicates data to the cloud.
- **Benefits:** Centegra boosts patient care, service levels and efficiency by simplifying data access. Staff can view patient information with high reliability, while the organization saves money by avoiding data migrations and forklift upgrades.

GreenButton

- **Challenge:** GreenButton sought to develop software that would enable compute-intensive workloads to run in the cloud instead of on local, sophisticated and expensive server farms.
- **Solution:** GreenButton on Dell Cloud delivers HPC bursting for users independent of on-premises hardware resources.
- **Benefits:** GreenButton now provides on-demand cloud access for complex application workloads, saving users millions in hardware costs and making innovation easier.

King's Daughters Medical Center

- **Challenge:** As King's Daughters Medical Center prepared to deploy new MEDITECH applications, it re-evaluated its IT infrastructure. Staff was stretched thin, and legacy hardware needed updating.
- **Solution:** The organization moved MEDITECH from onsite servers to the Dell™ MSite MEDITECH Hosting Solution, a fully managed, secure, cloud-based solution.
- **Benefits:** The solution has improved business continuity and freed up IT staff to focus on strategic projects, rather than hardware maintenance and data protection, while physicians and other clinical staff enjoy better remote access to patient information.

Universidad Europea de Madrid

- **Challenge:** Universidad Europea de Madrid wanted to lower IT costs and enhance online and campus-based learning, while enabling students to use their own devices in university laboratories.
- **Solution:** The university chose a cloud-based virtual desktop infrastructure from Dell to meet its goals and established a client cloud computing strategy that takes advantage of Dell Wyse.

- **Benefits:** Online student numbers are set to expand by more than 100 percent. Students can now bring their own devices to the university, boosting learning, while the university redirects saved resources into campus facilities.

Key takeaways

Cloud computing represents both the natural evolution of the data center and the future of IT service delivery. It's a strategy that allows your organization to reinvent the way you deliver IT services to drive better business results.

To make the most of this new era for IT, your organization needs access to seamless solutions that simplify the integration, configuration and deployment of cloud services. In all cases, these solutions should be flexible, integrated and secure.

That's the Dell approach to cloud. We bring you end-to-end solutions, services and expertise that enable your organization to build, use, control and secure robust cloud environments. Unlike the many technology vendors who can provide some of the pieces to a cloud solution, Dell has the product breadth and proven track record to deliver complete, high-performance cloud solutions.

Ultimately, with a "better together" portfolio of cloud hardware, software and services, along with off-the-shelf cloud solutions, Dell simplifies your path to the cloud.

To learn more

For a one-on-one discussion about your needs and Dell solutions and services for your cloud initiatives, contact your Dell account manager.

To explore our cloud portfolio online, visit:
www.dell.com/cloud

For a closer look at some of the key capabilities of robust cloud solutions, visit any of these online sites:
Dell Multi-Cloud Manager
Dell SecureWorks
Dell Boomi
Quest One Identity Manager
Dell Crowbar software framework
Dell Active System Manager
Dell AppAssure
Dell Wyse

Authored by Michael Cote, Craig Lowery, Seth Feder and Matthew Mikell