

CIOs ARE DRIVING DIGITAL TRANSFORMATION

CHANGES IN IT & BUSINESS REQUIRE CIOs TO CHANGE THE ORGANIZATION'S PERSPECTIVE

EXECUTIVE SUMMARY

Digital transformation is today's most visible IT trend, propelled by an almost limitless amount of information from vastly different sources that can help accelerate decision making. The need to become more agile by speeding up decisions is driving changes in business, led by the CIO. Motivated by the need to deepen customer engagement and increase revenue, CIOs are charting infrastructure changes that will better adapt to how compute happens. They are creating hybrid IT environments that can scale with this massive data influx while continuing to provide the security needed to protect these key business assets. This transformation is happening in the uncharted waters of hybrid IT, software-defined resources, and cloud technology, all areas where current skill sets are inadequate for this scale of change. The modern CIO needs to consider what kind of change is optimal for the organization, how to best reduce ambiguity, uncertainty, and risk during that change, and whether Dell EMC PowerEdge servers could be the base for scaling the next generation of their IT world.

TODAY'S CUSTOMER NEEDS

In today's world of connected and instrumented technology, businesses have access to unending streams of data and telemetry from devices, applications, and users. Bringing this data and metadata together brings a company towards **digital transformation**, where data can be used to create better real-time insight and to accelerate decision making. Faced with the need for digital transformation, CIOs have begun changing their own roles as well, staying ahead of the market that is demanding them to lead that change. New types of information bring fresh opportunities through an endless stream of data from IoT, mobility, cloud, and other sources. Arriving in a multitude of formats, this information helps sharpen insight and enables better decisions faster. But these data sources change quickly, making them more difficult to manage with today's traditional IT infrastructure.

For the CIO, the transition has been from managing IT efficiently to driving the business with IT and leading in an environment where companies become more technology-dependent every day. Beyond just understanding the data, the CIO needs to help the business understand the **value** of the data, connecting the dots between customer needs and market success. This decision process must accelerate to keep pace with changing market dynamics.

The intelligent CIO needs to adapt and scale infrastructure, automate processes to sustain and grow, and secure the enterprise to protect both the business and its customers. Vendors like Dell EMC, who has a long history of driving new capabilities into its PowerEdge servers, should be carefully evaluated for their potential to meet the needs of digital transformation.

Today's IT typically allocates ~80% of the budget and resources to simply "keeping the lights on", leaving a scant 20% for driving innovation. Modern CIOs need to shift their focus from information to innovation. The CIO is sometimes referred to as the "Chief Innovation Officer". Companies like Blackberry, Blockbuster, Borders Group, and Polaroid are familiar indicators of what happens when companies do not **adapt and scale** to meet changes in the market.

Shifting the balance towards more innovation does not mean cutting back on infrastructure. Infrastructure choices become more important because of the need to **automate to sustain and grow**. The ability to simplify and streamline management and operations is critical to achieving an IT transformation. Just as the projects on top of the hardware gain more value in a digital transformation, the underlying platforms matter as well. Choosing the right server platform is critical.

As change presents new challenges, control will be a key focus as the CIO's role is to help **protect the business** during transformation. The need for security is increasing dramatically as the threat landscape continues to both grow and shift. While there is demand to drive innovation quickly, there needs to be a focus that evolves security at a faster pace than innovation. Operational Technology (OT), like building operations and facilities management, is shifting towards the CIO's realm. Many areas like electrical / mechanical maintenance, energy and water conservation, and others are now being instrumented and monitored over standard IT systems or through IoT linkages. Too often, security appears to be almost an afterthought for many vendors—a "bolt-on" approach. CIOs need to carefully evaluate the platform security capabilities of potential partners to ensure an integrated approach.

This renewed emphasis on datacenter infrastructure combines with the inexorable trend toward open, standards-based design and common frameworks to reveal that digital transformation's underlying "platform for innovation" will be industry-standard server building blocks. But not all industry-standard servers are created equal. There are considerable differences between the manageability and scalability of the various offerings in the market.

CHALLENGES TO THE TRADITIONAL CIO

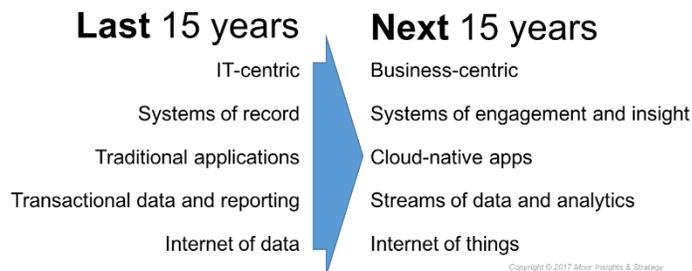
IT is at a major inflection point. CIOs who grasp the changes and help drive them will be the most successful. CIOs who can break from the past and move toward innovating and helping accomplish business goals have greater career opportunity. The [path from CIO to CEO](#) is becoming more common now that so much of a business' value is tied to its information. As digital transformation continues to increase the value of information, this trend will continue. Current CIO perspective aligns with this trend; 67% of CIOs believe their [strategic influence is growing](#) as they participate more with the board.

“We are in a new world where the CIO is redefining their role and the partnership that they have...with the CEO today.”

– Marc Benioff, CEO, Salesforce.com

As CIOs become more engaged with driving the business versus just supporting it, significant changes are filtering down into how they approach future IT goals.

FIGURE 1: THE FUTURE OF IT



Source: Moor Insights & Strategy

CIOs will face four significant challenges as they try to navigate change: data proliferation, cloud adoption, cyber security and privacy concerns, and skills shortages.

DATA PROLIFERATION

More [data is being generated](#) than ever before, most of it unstructured. Every day over [2.5 quintillion bytes](#) of data are created, and that pace is escalating. Accessibility is one challenge with data. The other is stitching it all together and making sense of the information overload to help drive decisions. The complexity of today's data warehouse is becoming antiquated, as data lakes and data pools—often with far less structure—become the norm. All this data will be critical for driving decisions, and the ability to store more goes hand-in-hand with the challenge of not knowing the types of questions the business will be asking in a year. One cannot assume that all investments in

controlling data can drive the same outcomes. Investment in innovation includes more risk. [Twitter shut down Vine](#), for instance, although it was driving customer engagement with over a million Vine loops per minute. Knowing what to do with that data is just as critical as capturing and categorizing it. Using real-time data to serve up ads or drive consideration of other product offerings can help digitally transform a business, turning information into revenue. As well, using that real-time data may not necessarily drive immediate revenue (such as ads) but could be used to help better understand product development requirements by adding an element of user interaction into the actual data.

While many companies and solution providers have proffered solutions and architectures to help the modern CIO make sense of this sea of information, Dell EMC stands out for its comprehensive view of the market. Flexible and scalable PowerEdge servers are designed to deliver high-performance processing and analytics optimized for big data requirements. Dell EMC servers combined with hyperconverged infrastructure options, such as VxRack and VxRail, can help simplify IT operations while reducing overall cost. Elastic Cloud Storage (ECS) built on Dell EMC servers provides a platform for data lakes to eliminate storage silos and supports Hadoop and modern workloads with cloud-scale economics.

CLOUD ADOPTION

Movement to the cloud is happening as businesses crave flexibility and see the cloud delivery model as a more efficient mechanism for driving agility in their IT environments. Cloud technology delivers several large benefits for businesses that help enable digital transformation, including the ability to quickly scale infrastructure up and down based on business needs. Financially, cloud technology shifts costs from a CapEx + OpEx model to a pure OpEx model for better visibility and financial control. However, there are serious drawbacks in the application experience when that application is in a public cloud, outside of the datacenter and IT control. These challenges are causing many CIOs, who own the business experience and path to revenue for the company, to reconsider public cloud with more focus now on private cloud. There is a significant difference between “run fast” and “move intelligently”. Private cloud offers the ability to move faster than traditional IT but without giving up the control that is critical.

CYBER SECURITY & PRIVACY CONCERNS

Threats are increasing exponentially, and new threats are now targeting the hardware, not just the software. [Poorly configured systems](#) can leave businesses vulnerable, as the Mirai botnet attack highlighted. That attack targeted poorly designed IoT devices with hard-coded default usernames and passwords that could not be changed, turning

them into tools for massive terabit-level attacks. Hardware needs to be hardened to provide better, deeper protection. Adding further complexity to the security landscape is the challenge of cloud adoption. With applications now spilling out of the datacenter and living in the edge or public cloud, CIOs need a security plan for the business that not only considers what is inside the firewall but also what is outside as well, with consistent security across borders. Dell EMC PowerEdge servers are built on a comprehensive, cyber resilient architecture where security is integrated into the full lifecycle—from design to retirement.

SKILLS SHORTAGES

Skills acquisition is a key element of IT employees' perceived job value and satisfaction. But when IT organizations spend most of their time “keeping the lights on”, there is less focus on developing new skills that will help drive innovation. Nearly two-thirds of [CIOs surveyed](#) believe a skills shortage is holding back their businesses. Companies that do not invest in building the skills risk falling behind in business and losing employees to more innovative companies that will invest in them. CIOs want to expand into cloud and software-defined infrastructure, but most do not have the skills in-house, meaning they must focus on growing these skills. Investments in growing cloud and software-defined skills can help attract new talent who see that working at the company will allow them to build a better career path. These new skills are more often software or programmatic, versus the traditional hardware-centric, maintenance, or admin skills that most in IT have grown up with. Both types of skills are needed for business transformation, but most IT organizations currently focus on admin skills over software skills. Open source is another key IT skill that employees value and that companies [have a hard time recruiting for](#) today. Finally, those investing heavily in moving their IT to the public cloud will also need better SLA negotiating skills in their staff.

IT can expedite deployment of innovative new technologies and services by automating routine tasks and simplifying infrastructure management. Dell EMC servers—through the agent-free, integrated Dell EMC Remote Access Controller (iDRAC) Lifecycle Controller—enable intelligent, automated control of PowerEdge servers, storage, and networking modules in rack, tower, and modular infrastructure environments. Combining Dell EMC servers with the Dell EMC OpenManage portfolio can help make deployment, updates, and management easy and cost-effective, whether managing servers locally, remotely, or in combination with third-party tools.

WHAT DOES A CIO NEED TO DO TO DRIVE CHANGE?

With all of the changes that digital transformation will bring, a CIO's team needs to change roles for its IT staff as well help them cope with the transformational impact that will happen to the overall company. IT needs to **become more consultative and more strategic**, working with the business on solutions, not just handling infrastructure. This means that they will need modern, rock-solid, robust infrastructure that frees them up to focus on business issues. More automation, better reliability, better management, and real-time monitoring help free up IT to drive a digital transformation.

One of the largest functional changes will come as IT shifts away from managing processes and towards **accelerating insights**. If IT can automate the mundane, repeatable tasks, more time can be spent gleaning insights from the data, finding patterns, and connecting the dots. Building off a strong base helps remove some of the variability and operational cost by removing the need to focus on lower level functions, thus freeing up bandwidth for more innovation. Those with accelerated insight can innovate and progress forward; high performance, scalable servers like PowerEdge can help accelerate that insight. For instance, using IoT data streams and the fastest current platform generations can help enable real-time insight, something that might not have been possible with the platforms of a few years ago.

“The real value of the IoT for our customers is getting more real-time insights from the data they’re capturing. They’re looking to better manage energy efficiency in their buildings.”

– Nate Kehr, Marketing Manager, [KMC Controls](#)

For years, IT has focused on managing cost, but now they must think more about **creating value**. The maniacal focus on driving down the cost of compute was often shortsighted, as the long trail of discarded IT equipment has often proven. Now that IT has more tools, more deployment choices, and a larger portfolio of more interesting products to choose from, they do not need to solve all their problems the same way. With 63% of CIOs believing their role is to drive revenue for the company, the focus needs to be squarely on creating value.

“Callaway is transitioning from a golf club company to a digital company, from the way we design product, to the way we understand consumer demands, predict new trends, and customize our products. Our aim is to be right there with our customers—arm in arm.”

– Harry Arnett, SVP of Marketing, Callaway Golf

A **customer and technology focus** is essential, looking beyond just what the business is telling you, seeing customer input and new research in the market that can point to a better way. For years, the music industry fought innovation; sales lagged until [it embraced the innovation](#) customers were demanding and accepted new technology. Digital transformation is bringing similar changes in customer engagement, and IT management sees [new forms of customer engagement](#) among the top drivers (23%) of digital disruption. Staying on top of technologies is critical in the fast-paced markets where digital transformation is making businesses more agile. In those markets, competitors can outflank your business if it is not focused on the customer.

“We’re all about making technology more affordable, more acceptable to hundreds of millions of customers out there in the world. Any time something comes along that’s good for customers, standing in the way of it is never a good idea.”

– Michael Dell, CEO, Dell Technologies

Securing the perimeter and environment is important as the threat landscape continues to increase and change. It is estimated that 99% of all firewall breaches [come from simple misconfigurations, not flaws](#), so the CIO has a clear opportunity to impact this area of IT. Dell EMC’s solution to address securing the perimeter and environment is OpenManage. Dell EMC OpenManage enables automation, reducing the chance for misconfiguration from human errors, which ultimately helps enable a more secure environment.

THE MI&S VIEW OF THE MARKET

Moor Insights & Strategy (MI&S) sees data proliferation as the primary root cause of the challenges businesses face now, and these challenges will only grow as the sources and types of data increase exponentially. With data becoming more critical to the decision process, this is where we see the strong synergy between Dell and its acquisition of EMC. This explosion of data needs to be captured, analyzed, and gleaned for relevant trends that can drive decision making if businesses want to boost their agility. Digital transformation has a strong tie to the digitization of information, so as businesses change IT to align with this strategy, storage will be a significant driver.

Once all this data is captured and new streams identified, where to put that data and how to process it will be the next steps of a digital transformation. Agile computing that can be matched closely to the task and flexibly change as needs evolve will be critical. Cloud adoption enables a business to abstract compute from the physical infrastructure, giving it more flexibility, whether on-premises or off-premises. Cloud technology is key

to digital transformation, as the old style of IT is not adapted for the types of activities in which businesses will need to engage. Cloud brings a real growth opportunity as it improves how businesses run their applications. Public cloud brings a faster, OpEx-only model, whereas private cloud brings more control, security, and performance.

The agility of cloud is having a strong influence on OEM server portfolios. Both the latest portfolios as well as those on the immediate horizon reflect this shift towards cloud and agility, which is a big benefit for IT as it moves in that direction.

The growth of private cloud is driven in part by the need for security. As threats continue to grow, MI&S sees the most disturbing trend of attacks beginning to target the underlying hardware. Today, that is primarily consumer-grade equipment like routers and web cameras, but it indicates that hardware will soon be more of a challenge to secure than it has been in the past. We are encouraged that server OEMs are more strongly addressing security, based heavily on the realization that the compute task is expanding and moving towards the edge. As the role of analysis and action becomes more decentralized and occurs closer to the edge, many of the systems involved may not have the same level of management and physical security protections that they have had in the datacenter. We see that the new focus on security will need to address this. CIOs are charged with protecting the company, especially as OT begins to intermingle with IT on a much more regular basis.

Finally, digital transformation will need to address the skills gap. Smart CIOs are leaning on partners to help them bridge the gaps, filling in with training and services where a business needs to innovate faster but the company does not have people with the skills to accomplish what it needs to achieve. There will be a need to “up level” the skills of existing IT teams, increasing their ability to be more services and software-centric, which gives them a better leverage point for change and innovation. IT staff will still need to deal with hardware, but the skills required will be very different from those required for the platforms of the last decade. Trends like software-defined datacenter (SDDC) along with software-defined networking (SDN) and network function virtualization (NFV) are changing the dynamics of hardware. For instance, VMware NSX, which virtualizes network functions for VMware environments, brings more flexibility for networking, and IT staffs are changing how they deal with networking now that they have such a flexible virtualized layer on top.

Standardization of hardware is just as important as training, as standardization is essential when automating infrastructure, which enables the staff to focus on more pressing business issues.

CALL TO ACTION

We see much more focus on the applications and information as the role of IT changes from infrastructure to business guidance. With this change, IT now has a compute-centric view of the entire datacenter. As the value of the hosted workloads continues to increase along with the value of the data, more pressure will be put on the underlying platforms to perform. Dell EMC is one of the top server vendors worldwide, and MI&S recommends businesses consider Dell EMC PowerEdge servers as part of their digital transformation.

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