Five Reasons Why You Need a Different Data Center Strategy for the Digital World

Published: 26 March 2015

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The dual impact of the Nexus of Forces and the Internet of Things is creating a new digital world, with a significant impact on data centers. CIOs and I&O leaders must develop an appropriate data center strategy to meet these changes, or risk compromising business agility and competitive strength.

Key Challenges

■ Digital business will create the need for contradictory modes of service delivery, referred to as bimodal data center service delivery.

■ The rapid increase in the number and type of hardware devices that data centers need to support and integrate will grow exponentially over the next five years.

■ Data centers will have a significant increase in risk as they move toward a more open and hybrid model.

Recommendations

CIOs and infrastructure and operations (I&O) leaders should:

■ Make the data center behave more like a factory and a laboratory.

■ Drive cost reduction efforts in every aspect of the data center and use these savings to invest in Mode 2 capabilities.

■ Manage new and different types of risk through the creation of roles such as the digital risk officer.

■ Pilot hybrid data center architectures, and include hosting/infrastructure as a service in every data center discussion as a potential option.

■ Embrace new technologies in a different way, such as testing white box options in current data centers to develop skills, and measuring their impacts on your current data center.
Introduction

Over the next five years, the growth in investment around the Nexus of Forces (cloud, social, mobile and information) will accelerate as many economies and businesses come out of the recessionary period of the last six years. There will be a significant growth in investment around the Internet of Things (IoT). Between 2013 and the end of 2014, $1 billion of new venture capital funding went into the IoT; and in 2014, more than $40 billion was spent by enterprises on IoT design, implementation and operation (see Gartner’s 2014 Symposium Keynote for more details).

Furthermore, Gartner’s 2014 CEO survey indicates that more than half of CEOs will have a senior digital leader role in their staff by the end of 2015. These changes are leading to the development of the digital economy (see “Taming the Digital Dragon: The 2014 CIO Agenda”). At the same time, CIOs feel the need to focus on agility, innovation and gaining a competitive advantage. The result of all this is that the role and function of data centers that deliver IT services will have to change. Indeed, leading CIOs and heads of I&O are beginning to plan for a different type of data center function where speed of delivery of IT services is increased, a greater amount of intelligence is built into data center operations and services are better integrated.

The pressure is mounting quickly on IT executives to change the personality, structure and role of data centers. Without adapting and changing, many IT departments will be bypassed for new projects, because lines of business (LOBs) will simply need to move faster than their internal data center processes are set up for. In such a scenario, organizations may use external cloud providers. But in doing so, they may inadvertently increase the level of risk, add management complexity and, indeed, ratchet up longer term IT debt. In order to avoid these sorts of problems, CIOs and I&O leaders need to develop a new data center strategy that is appropriate for the emerging digital
world. This note presents five reasons why the development of a data center strategy for the digital world is essential.

Analysis

Reasons Why You Need a Modern Data Center Strategy for the Digital World

For over 40 years, data centers have pretty much been a staple of the IT ecosystem. Despite changes in technology for power and cooling, and changes in the design and build of these structures, their basic function and core requirements have, by and large, remained constant. These are centered on high levels of availability and redundancy, strong, well-documented processes to manage change, traditional vendor management and segmented organizational structures. However, this approach is no longer appropriate for the digital world. There are five reasons why organizations need to develop a more appropriate and modern data center strategy. These need to be understood and should form the logic for developing a new and different data center strategy.

The five reasons are to:

1. Make the data center behave more like a factory and a laboratory
2. Manage the pressure on the data center to become agile and innovative
3. Manage different types of risk
4. Make the data center part of a broader hybrid topology
5. Embrace new technologies in a different way

Figure 1 illustrates how the digital world has transformed data center strategic thinking over the past few years.
Figure 1. Effect of the Digital World on Data Center Strategies

Source: Gartner (March 2015)
Make the Data Center Behave More Like a Factory and a Laboratory

The digital economy will see a significant increase in the number of devices connected to the Internet. By 2020, more than seven billion people and businesses, and close to 35 billion devices, will be connected to the Internet (see "Seize the Moment: Driving Digital Business Into 2015"). This will result in a significant increase in the speed and volume of data that needs to be handled by data centers. In this sense, data centers will need to behave like theoretical factories with production lines that can scale up to handle ever-increasing volumes of work.

They will also be expected to churn through huge volumes of data to connect applications and allow for better real-time analytics. Therefore, certain parts of the data center need to behave like a laboratory, forensically analyzing this vast ocean of data to provide insight and actions for the business. Without modern data centers behaving both like factories and laboratories, their strategic value will be diminished.

Manage the Pressure on the Data Center to Become Agile and Innovative

The disruption triggered by digital business is fluid and nonstop, with the potential for massive innovation driving significant changes in IT service delivery. Disruption in the digital age happens at such a high frequency that it seems like a stream of interconnected disruptions with one, often unexpected, change overlapping with others and triggering more disruption (see "Digital Business Requires IT Leaders to Make Big Changes").

In order to deal with these rapid changes, become agile and, at the same time, maintain process-driven integrity and safety of existing systems, many organizations have begun operating in two modes or speeds of IT. Gartner calls this "bimodal IT" (see the Evidence section of this research note for more details). Bimodal IT is beginning to be rolled out in many organizations around the world. Indeed, many CIOs are developing bimodal cultures within key parts of the IT organization (see "Bimodal IT: How to Be Digitally Agile Without Making a Mess").

The data center — as the core engine delivering IT services — will need to become far more agile and responsive than it has ever been. Indeed, I&O groups will need to develop an approach that actually leads innovation rather than responds to it. They will, of course, have to ensure security and safety of their existing systems. Put simply, they will have to operate in a bimodal way. A recent Gartner workshop on the topic showed that some leading organizations are attempting to create innovation groups within their I&O divisions. This is proving to be complex because the I&O mindset is often diametrically opposite to the mindset required for a group that needs to change rapidly and create new opportunities. Without adapting the mentality and approach of data centers away from continuous stability to managed change and innovation, data center managers will find it increasingly difficult to prove their value.

Manage Different Types of Risk

Digital business will not only see a huge number of devices connected, but will also see data centers as the focal point of these connections. In other words, much of the information will flow between devices via data centers. This creates a new and different type of risk that data center
managers need to manage. Gartner believes that, by 2020, 60% of digital businesses will suffer major service failures due to the inability of IT security teams to manage digital risk in new technology and use cases (see "Innovation Insight: Digital Business Innovation Disrupts Risk and Security Management" for more on this Strategic Planning Assumption).

Traditionally, data centers have focused on risk management, which is normally associated with downtime, system availability and application-centric breaches. But the digital world expands risk into a much broader category, resulting in the creation of roles such as the digital risk officer. Data center strategies fit for the digital world must have a key focus on a broad approach to risk management.

Another important risk is that, for many digital business transactions, no single entity will own availability and performance service levels for the complete end-to-end transaction. This will create a whole new set of service assurance challenges.

**Make the Data Center Part of a Broader Hybrid Topology**

While data centers have traditionally been viewed as "closed" systems, where processes and technologies have been set up to control access to information and data, the digital world will necessitate a much more open approach. This will not only be driven by the huge number of connected devices, but also by the evolving trends of technology deployment.

Traditionally, IT spending has been through IT departments, and data centers would deliver IT services. This is rapidly changing. Currently, 38% of total IT spend is outside of IT, with a disproportionate amount in digital projects; by 2017, it will be over 50%. These LOBs will spend with cloud and third-party service providers if they feel their data center is either too slow to respond or too "closed" to adopt new technologies.

It is therefore incumbent on I&O leaders to ensure that their internal data centers are able to connect into a broader topology. This is not just a physical connection (linking a data center to a hosting provider) but also at the software level, such as providing support to an Apache Hadoop or Microsoft Azure environment running on a third-party physical data center. Without such a broad, hybrid topological strategy, internal data centers will be bypassed by LOBs looking to use technology to support their new digital projects.

**Embrace New Technologies in a Different Way**

The digital world is bringing a host of new technologies that will need to be managed differently in data centers. At the edge, there will be new mobile devices such as smartphones and tablets, which will need the operational control of data centers, such as software configurations, standardized operating environments and security patching. Most data centers have managed this well over the last three years. However, devices will grow both in number and complexity and will often be centered round small measurement devices (sensors and remote network transmitters, for example). As these devices grow, the data center team needs to develop a proactive strategy on how to manage and what not to manage.
At the same time, there will be changes in the more traditional data center hardware of servers, storage and network equipment. For example, the growth of white box servers from original design manufacturers, growth-integrated systems and greater use of workload-centric hardware for running large volumes of data will force data center managers to rethink their procurement, management and support strategies.

Another change will be in vendor relationships. The digital world is reshaping the vendor landscape and almost all the traditional hardware vendors are going through structural changes in their business. In simple terms, the technologies and vendors that have traditionally been instrumental in strong data center services are going through changes, meaning I&O leaders need to reshape their strategy for providing IT services.

Gartner Recommended Reading

Some documents may not be available as part of your current Gartner subscription.

"Bimodal IT: How to Be Digitally Agile Without Making a Mess"

"Digital Business Requires IT Leaders to Make Big Changes"

"Innovation Insight: Digital Business Innovation Disrupts Risk and Security Management"

"Seize the Moment: Driving Digital Business Into 2015"

Evidence

Bimodal IT

Gartner research has shown that the tension between doing things safely and scalably on the one hand, while quickly, flexibly exploring new opportunities and threats on the other, has been massively amplified by the emerging digital world. Not dealing with this tension results in dysfunctional internal behaviors and competitive weakness.

Leading organizations have begun operating IT in two modes to address this issue. Gartner calls this type of operating "bimodal."

- Traditional (Mode 1) IT needs a subculture focused on delighting the internal and external customer.
- Nonlinear (Mode 2) IT needs a subculture focused on exploring the new, and continually pivoting and adapting.