Increasing Agility and Speed to Drive Business Growth

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Prepared for IBM by Tech Republic

TechRepublic.

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Executive Summary

Major changes in the way businesses operate today require the adoption of new approaches to IT. In most cases, companies that want to remain competitive must deploy and leverage hybrid cloud environments, increase their analytics capabilities, extend services to mobile workers and customers, make more efficient use of social media and collaboration tools, and provide end-to-end security across the entire organization.

These “software defined” environments enable unparalleled flexibility and ease of management, but setting them up requires a level of expertise not found in most companies. It’s important to work closely with an expert IT service provider, such as IBM. IBM offers a comprehensive array of cloud management, migration, and networking services – plus expert consultation – to meet the needs of any business. Through its combination of data centers, hardware, software, technical experts, and cloud services, IBM can create a secure, agile infrastructure that delivers all the promise of cloud, analytics, mobile support, and social business. Even better, IBM can manage the entire solution without burdening the customer’s in-house IT resources.

INTRODUCTION

The pace of business keeps accelerating, and it will continue to do so for the foreseeable future. Success will depend on a company's ability to react quickly to new opportunities. In most cases, that requires the ability to leverage IT resources to develop and deploy new services, analyze vast amounts of data from a variety of sources, and support and engage employees and customers securely.

Unfortunately, many companies are in danger of being left behind their competitors because their IT infrastructure is holding them back. New opportunities advanced by escalating demand for mobility, social business, and insightful analytics cannot wait for resources to be procured, configured, and deployed manually. Response needs to be immediate in order to meet increasing expectations for availability, scalability, and speed.

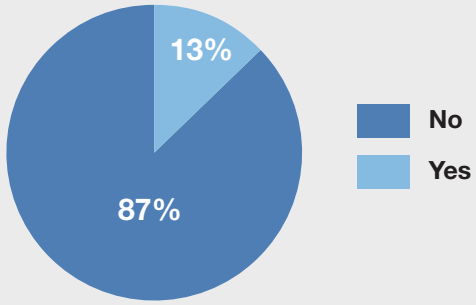
Many companies are in danger of being left behind.

Certainly, many organizations are trying to optimize their enterprise infrastructures to position themselves as more responsive to today's dynamic business requirements. Most companies are consolidating and virtualizing their infrastructure resources, then automating many processes associated with managing and deploying IT services.

However, for a business to extract the greatest value and ensure the greatest security when modernizing its infrastructure, it must pursue a dynamic, hybrid model. In particular, an infrastructure suitable for today's business needs must be able to self-optimize for continuously changing workloads. It also must have seamless access to a tightly integrated mix of shared and dedicated resources, on- and off-premises.

Is your company successful in developing and maintaining the skills and capabilities needed to meet changing IT infrastructure requirements?

Source: IBM, "The IT infrastructure conversation," July 2014



There are several major obstacles preventing companies from getting to that type of infrastructure. IT departments lack the time and often the skills and expertise to bring together the myriad collection of hardware and software required. Simply put: The complexity of today's IT systems constrains IT's ability to drive business innovation. A simpler, more streamlined approach is needed.

SCOPE OF THE PROBLEM

IT and business managers today view their company's infrastructure as a make-or-break determinant of business success.

Most companies are taking steps to virtualize infrastructure elements and break down IT management silos. They are moving to software-defined resources and cloud computing to increase scalability and disconnect applications from physical resources that limit their availability. Still, it remains a difficult task to keep up with the rate of technological change brought about by the combined impact of cloud, analytics, mobile, and social technologies.

To put this issue into perspective, consider that in a 2014 IBM survey of 750 IT executives, seven out of ten executives said the infrastructure is an important enabler for competitive advantage and revenue growth. However, only one in ten believe their IT infrastructure is fully prepared to meet the demands of mobile technology, social media, big data, and cloud computing.[1]

It's clear that the complex, fragmented, and inflexible infrastructures prevalent in large enterprises can make it difficult for them to take advantage of emerging technologies and react quickly to business opportunities.

Only one in ten believe their IT infrastructure is fully prepared to meet new demands.

Even with the use of virtualization and cloud computing, most IT organizations still have a very hardware-centric approach to deploying IT services. The focus is still on optimizing individual infrastructure components (servers, storage, and networks) to increase IT efficiency and business value.

This approach is too slow when it comes to rolling out innovative services and responding to changes in market conditions. It takes too much time to procure, configure, deploy, and optimize the underlying IT elements required to support the business.

An additional issue is that most IT initiatives take a siloed approach. Solutions are frequently optimized for a single purpose – the analysis of a particular dataset, for example. This approach will not enable company-wide improvements or support the incorporation of rich, new information sources, such as data supplied by smart devices or social media streams.

Similarly, a solution might be designed and optimized to enhance customer service offered through a call center or ecommerce site. As more business is conducted via mobile platforms and through social networks, leading companies strive to extend the same levels of service to customers using those channels. Again, with an inflexible infrastructure, it would require a great amount of effort and time to incorporate information from texting, social streams, and mobile browsers.

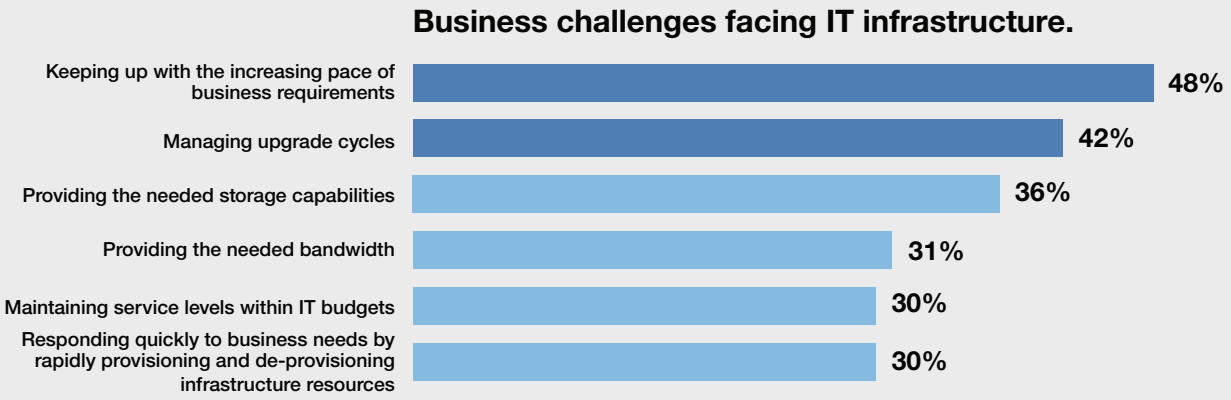
Companies would benefit most from a next-generation infrastructure that is more flexible and that easily allows for the assimilation of new technologies.

[1] IBM, "The IT infrastructure conversation," July 2014

THE NEED FOR SPEED

The ability to respond to changing business requirements has always put pressure on IT. The problem is expected to get worse as the speed of business change increases. Today, customers, business partners, and employees have no tolerance for delay. If a competitor offers a new service – mobile alerts for price changes, for one example – a company must offer a similar feature or risk losing the customer for good.

With today's 24x7, highly mobile marketplace, the window between identifying an opportunity and deploying a requisite service is growing narrower. Traditional IT infrastructures, even those using virtualization and cloud technology, do not scale well or accommodate the need for speed.



Source: IBM, "The IT infrastructure conversation," July 2014

This is a major problem for many companies. In an IBM Institute for Business Value report, nearly half (48 percent) of the 750 global CIOs and other senior tech executives said their infrastructure was preventing them from keeping up with the increased pace of business requirements.[2]

Complicating matters further, most companies must tackle new initiatives in a wide variety of areas – from product development to supply chain management to mergers and acquisitions to customer service – each requiring a so-called "mash-up" of cloud, analytics, mobility, and social interaction. Ironically, these technologies enable smaller, more nimble firms to compete on a larger scale, leading to a business landscape where "disruption" is a very real threat.

At the same time, as cyber crime increases and rules governing data privacy and protection evolve locally and globally, all of these technology efforts must address security.

Nearly half of global IT execs said their infrastructure is holding them back.

[2] Ibid.

AN IT STRATEGY ADAPTED FOR MODERN TIMES

Companies need an IT strategy and infrastructure that address today's challenges and enable dynamic, agile operations. The strategy must take into account the interplay of cloud, data analytics, mobile, social, and security for every new and existing service and component.

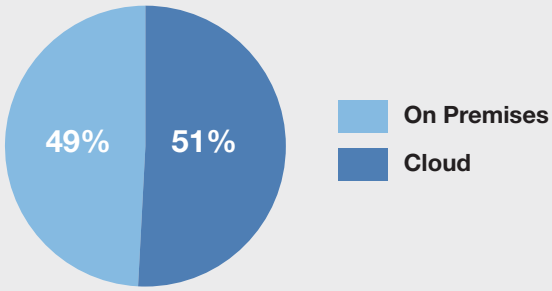
Each of these aspects of a modern IT environment introduces challenges when paired with a traditional infrastructure:

CLOUD

By making infrastructure, platforms, and applications available as a service, cloud has changed the way IT resources are delivered and used. But for clouds to deliver on their full potential, they must achieve the best possible utilization of all available infrastructure resources (processing power, memory, storage, and network bandwidth). Moreover, the network must play a critical role in how efficiently these resources are connected, utilized, and secured.

2014 was the first year when the majority of workloads shifted to cloud.

Source: ZDNet, "Cisco projects data center-cloud traffic to triple by 2017," October 2013



If done right, a cloud approach can meet a company's needs for agility and flexibility. Cloud-driven services can accelerate the introduction of customer-facing solutions that improve collaboration, social interaction, and support for mobile users. Cloud provides the scalability these new solutions require while lowering the cost barrier for building and running them.

However, whether public or private, on-premises or off-, cloud infrastructures must be integrated with existing systems and one another, which is no simple task. Furthermore, cloud deployments require a more robust and well-integrated service management approach than that of traditional management tools and processes.

Because traditional infrastructures rarely changed, a runbook of routine processes was sufficient. The dynamics of today's infrastructures require automation of provisioning and deployment tasks (because they happen far more frequently) and performance monitoring to manage compliance with growing service level and regulatory expectations. This requires solutions with high levels of automation and control.

A cloud approach can meet a company's needs for agility and flexibility.

ANALYTICS

Analysis of big data is moving from an occasional tactic brought to bear on specific problems or by particular groups to an essential business requirement across the organization. One study of 4,300 C-level executives found that 89 percent rated big data as very important or extremely important to their business's digital transformation. And 82 percent said big data provides a significant source of value to their companies.[3]

There are several challenges companies face when expanding their use of big data analytics. The infrastructure must leverage multiple platforms for data analysis and connect effectively with data warehouses, data marts, clouds, external feeds, and legacy system databases. And it has to pull them all together in a meaningful way.

These challenges are expected to grow even more complex, with growing interest in using data from intelligent devices. Specifically, the move to sensor-enable everything from industrial components to cars to clothing is raising concerns about storage and processing. The Internet of Things (IoT) will see a massive increase in the number of connected devices, each generating data. This data is already massive and multi-structured, and most data centers are unprepared to store, manage, or analyze it. They lack sufficient bandwidth, disk storage, and computing power to meet the demand.

Nearly 90 percent say big data is critical for business transformation.

MOBILE AND SOCIAL

The consumerization of IT has empowered users and raised their expectations. This trend is being driven largely by mobility and social media. Unfortunately, many IT infrastructures are still focused on supporting PCs that are connected via LAN or VPN. These networks are simply unable to provide the persistent connectivity and scalable bandwidth required by the mobile workforce's array of tablets and smartphones.

For many organizations, the proliferation of devices and explosive growth of mobile and social applications has outpaced investments in IT infrastructure. Modern enterprises must support a wide range of interfaces, platforms, and devices to meet user demands for anytime, anywhere access to services and data. However, most application platforms were designed for a far different pattern of use, when access and read requests were sporadic and initiated primarily in the workplace, on known devices, by authorized users. Today, it is difficult for IT organizations to accurately predict the load they will be faced with or the volume of data that even a single marketing promotion or social media event will produce.

SECURITY

The move to cloud and hybrid IT has raised security concerns. With this type of infrastructure, the once-closed borders of the enterprise are open to the outside world. Cloud enables more business-critical applications and highly sensitive data to be moved off-premises. In such environments, organizations have to accept that intruders will continually find new ways to breach their defenses.

[3] CIO, "C-Level Executives Seeing Big Results From Big Data," September 2014

Making matters more challenging is the pervasive use of personal mobile devices and social media in the workplace. One result is that more business is being conducted over third-party networks using third-party applications. Moreover, the vast majority of employees are expected to use mobile devices to conduct business in the coming years. This increases the risks to data privacy and security, especially for businesses that are already compromised by rigid security architectures, manual controls, and a multitude of dedicated security appliances.

Furthermore, most IT environments and management solutions lack the increased visibility and automated controls that are needed for protecting the new forms of data, applications, and infrastructure emerging every day.

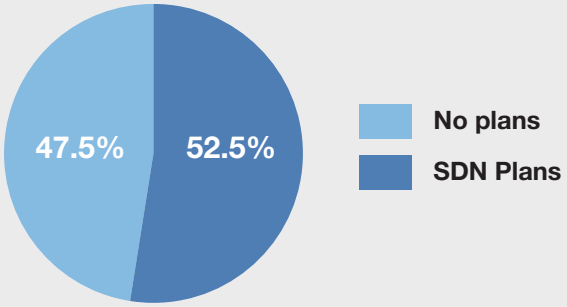
Intruders will continually find new ways to breach IT defenses.

CRITICAL ELEMENTS OF A MODERN INFRASTRUCTURE

Given these changes in the ways companies do business and the challenges they introduce, companies need a new approach to the way they deliver IT services. In particular, there is a need for a new type of infrastructure – one that is more dynamic, automated, and resilient.

Software-defined networking adoption plans.

Source: Juniper Networks, "Software-Defined Networking (SDN) Progress Report," July 2014



In fact, to keep pace with the increasing demands of cloud, mobility, social business, analytics, and security requirements – and to capitalize on their convergence – an infrastructure needs to get a lot simpler. Servers, storage, and networks can no longer be viewed as separate domains, linked tightly to specific applications and managed in silos using primitive automation tools. Clouds cannot function as detached entities. The entire infrastructure, however virtual and distributed it may be, must operate as a single, cohesive system. It must be data-centric instead of application-centric, with databases that serve many applications and support the easy collection and secure sharing of data from multiple sources. These are critical elements for the rapid-response agility required in today's businesses.

If the new paradigm for all IT components is software definition, the entire infrastructure must become a software-defined environment (SDE). Such an environment optimizes every compute, storage, and network resource to support each given workload, and it does so automatically.

By dynamically assigning and shifting workloads across IT resources based on a variety of factors – including the characteristics of specific applications, the best available resources, and service-level policies – an SDE can deliver continuous, dynamic optimization, plus automated troubleshooting.

Servers, storage, and networks can no longer be viewed as separate domains.

Moreover, an SDE integrates and optimizes outside elements of a hybrid IT infrastructure, applying analytics and automation to grow even more efficient with time. Essentially, control of the infrastructure is shifted to the software. This provides several key characteristics that help meet today's business requirements.

These characteristics include:

- **Responsiveness:** SDE enables real-time response, rapidly and dynamically provisioning the most appropriate infrastructure resources for the tasks at hand, based on established policies and business priorities.
- **Adaptability:** SDE adapts for changing conditions, automatically reconfiguring resources to satisfy new workloads and unpredictable demands.
- **Simplification:** SDE provides centralized, automated cross-domain management of heterogeneous infrastructures, enabling specialized IT staff to take on more strategic tasks.

IBM AS YOUR TECHNOLOGY PARTNER

Companies need tightly integrated, software-define IT environments that incorporate high levels of automation. Most IT organizations do not have the time or skills needed to manage such a vast range of technologies and to integrate and optimize them.

This is where IBM can help. IBM offers solutions, services, best practices, and extensive, industry-specific expertise to transform an existing infrastructure into a cloud-based, dynamic environment that delivers manageability, scalability, and easy integration of new technologies.

IBM's offerings and extensive experience in hybrid IT and SDEs can help companies phase in a platform that leverages the latest innovations in cloud, analytics, mobility, social, and security.

IBM solutions give companies the ability to optimize their infrastructure across compute, storage, network, and cloud. Its portfolio provides an unmatched service automation approach to managed services that allows for simplified, robust management of hybrid IT.

Partnering with IBM, companies can realize many benefits, including:

- Increase agility with a secure, fast-deploying platform for business growth
- Improve infrastructure flexibility to support future requirements
- Reduce costs and simplify management of the hybrid environment using automation and optional managed services from IBM.

IBM's agile infrastructure services comprise a range of offerings, including:

- **IT Transformation Strategy and Design Services** – IBM consultants review your infrastructure and your business priorities, designing a solution that aligns the two more closely and enables a more flexible and responsive environment.
- **IT Infrastructure Strategy and Design Services for Cloud** – IBM experts utilize a unique cloud adoption framework and the IBM Cloud Workload Analysis Tool to help determine which cloud computing model is best suited for your business. They'll identify workloads and processes to migrate, in line with your cost reduction and governance goals.
- **Networking Strategy and Optimization Services** – IBM experts assess your network topography to ensure that it's optimized for your business strategy and operational needs.
- **Network Integration Services** – IBM helps transform your network into an agile and flexible environment ready to embrace new technologies. Leverage cutting-edge trends like Network Function Virtualization and Software-Defined Networking to achieve your automation and cloud goals.
- **Cloud Managed Infrastructure Services** – When you offload cloud management to IBM, you enjoy end-to-end monitoring and support of the storage, network, database, middleware, and groupware elements, letting in-house IT resources focus on business innovation.
- **Cloud Managed Services for System z** – If you're running application workloads in IBM System z, this hosted cloud infrastructure delivers tight security and superlative performance, helping you avoid capital expenses for hardware and software.
- **Server Managed Services/Integrated Managed Infrastructure** – The IMI solution provides a suite of customizable services to help monitor and manage your IT infrastructure more efficiently and improve availability while keeping your assets on-premises.

These solutions and services will help companies support and deploy hybrid cloud environments, embrace analytics more fully, extend services to mobile workers and customers, make more efficient use of social media and social collaboration, and provide end-to-end security across the entire organization.

This, in turn, will enable companies to become more agile and responsive to changing business conditions. IT infrastructure issues will no longer add delays when introducing new services. Resources will be allocated dynamically, enabling the flexibility required to address the variable demands of today's mobile workforce and big data analytics workloads.

In summary, IBM's experience in building and managing hybrid IT environments can help companies get to an SDE rapidly. The IT agility, speed, and resilience afforded by such a dynamic and expertly integrated infrastructure can provide real competitive advantages.

For more information, please visit the IBM Global Technology Services page.

About IBM

IBM is a globally integrated technology and consulting company headquartered in Armonk, New York. Operating in more than 170 countries, IBM helps solve problems and provide an edge for businesses, governments and non-profits. The company develops and sells software and systems hardware and a broad range of infrastructure, cloud and consulting services. Today, IBM is focused on three strategic imperatives – to transform industries and professions with data, to remake enterprise IT infrastructure for the era of cloud, and to enable “systems of engagement” for enterprises.