



Evolution For Enterprises In A Cloud World



Foreword

Cloud is no longer an unseen, futuristic technology that proves unattainable for enterprises. Rather, it's become the norm; a necessity for realizing cost efficiencies and digitally transforming the way enterprises see, store, and capitalize on their data. Common misperceptions say cloud is strictly about data, when in actuality many of the best systems and applications are currently being developed in the cloud. Migrating to the cloud is necessary to stay competitive, and it's essential to deliver a great experience to the end user.

To that end, solutions are necessary now. Private, public, hybrid, off-prem, on-prem – the list of variables in cloud migration and storage is deep and wide. The total IT spend on cloud services in 2015 was 30-percent. That number is expected to grow each year and reach 47-percent by 2020 .

Is your enterprise ready? Have you researched your options? This report will explain specific ways your business can make the move to cloud seamlessly.

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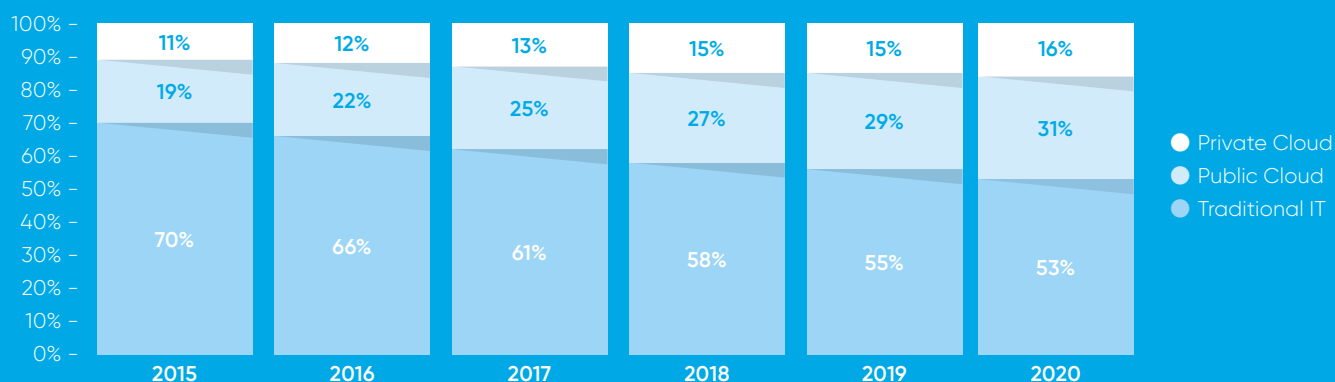
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Industry Trends In The Cloud

Adoption of cloud computing has reached a tipping point and is accelerating to become the dominant driver of IT spend. Today, 95% of technical professionals in a broad cross section of organizations state that their companies are using some form of cloud.¹ As shown in Figure 1

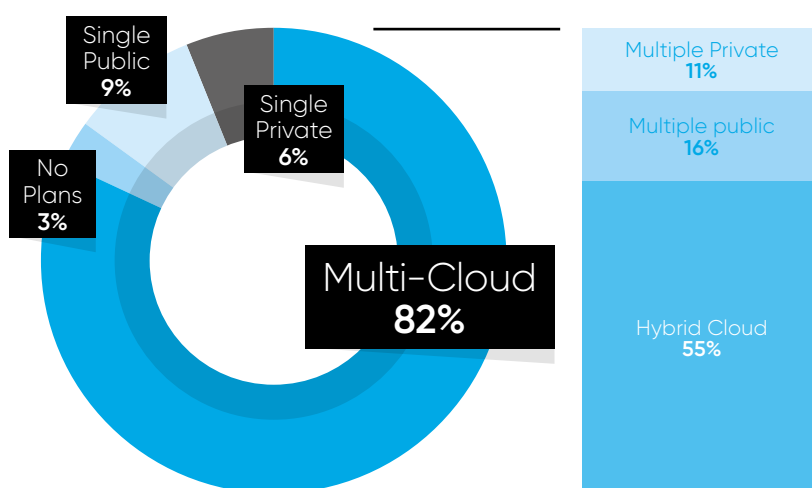
below, it is predicted that by 2020 close to 50% of IT infrastructure spend will have shifted to the cloud. Cloud growth is not restricted to public environments; private cloud environments have become more robust in their service offerings.

Figure 1: IT Budget Spent On Cloud Services¹



The predominant enterprise cloud deployment strategy that has emerged in recent years is a hybrid model: managing services across private and public cloud environments. Recent studies validate the continuation of this trend: as shown in Figure 2, 82% of enterprises use multiple clouds with 55% having a hybrid cloud architecture. This strategy allows CIOs to optimize their IT roadmap to address different requirements for different applications and to select the right vendor and solution based on their needs.

Figure 2. Cloud Use In The Enterprise²



¹ RightScale, 2016 State Of The Cloud

² Synergy Research Group, USA Today, February 2016

Security, Control, & Multi-Layered Challenges

While the hybrid cloud emergence is beneficial for the CIO, it brings with it four key challenges:

1. New security vulnerabilities
2. End-to-end visibility and control of the data flowing to the cloud
3. Stealth IT – lines of business going to the cloud directly without IT organizational support
4. Interoperability – ability to seamlessly connect between private cloud and public cloud

The first two challenges, security and control, are tied to data management concerns. Recent technology trends – the explosion of the mobile workforce, increasing adoption of cloud, big data analytics, and internet of things (IoT) devices – have created new security vulnerabilities for the CIO. There is more data than ever before moving between multiple access points, clouds, and applications. This creates more points of vulnerability and increased complexity of monitoring on an end-to-end basis. In addition, the cloud enables easier access to data which drives a requirement to have improved monitoring and management of the access and usage of the data in the cloud.



The second two challenges, stealth IT and interoperability, are tied to ease-of-use and performance concerns. Lines of business are now having a greater impact on a company's IT strategy, mainly because the barriers that prevented them from doing so have been erased. Previously when a business leader, for example, a sales branch manager at manufacturing firm needed a specific Customer Relationship Management (CRM) application, the manager would have to go to IT and the request would be tied to a capital ask. Today that same leader can easily begin using a cloud-based CRM solution, accessible from mobile devices outside of the corporate network, and simply expense the application use.

An IT department may not even be aware that a new solution has been deployed until there are performance or security issues. The CIO must quickly adopt new services to provide personnel the agility they demand, while at the same time managing the application roadmap and plan for interoperability between multiple environments.

These dynamics have significantly changed enterprise IT. In the previous example, the CIO is unaware of the CRM application being accessed by a mobile workforce over the internet. Yet, the CIO is held accountable for data protection and application performance. Today's CIOs are

building a cloud plan with many of their clients' applications hidden in activities they do not see. The overriding complexity in a hybrid cloud environment is not only in engineering the connectivity and security to multiple clouds, but also in creating a simple solution for the enterprise that gives IT control and provides employees high performance. Enterprise customers are looking for a single provider to bring together security solutions, dynamic networking, and reliable cloud services in an easy to manage package.

Strategy And Value

As the trend of IT spending increases on cloud services, your enterprise's migration roadmap must be well designed and adhered to. It's a high priority to find a provider that can utilize leading cloud technology and have the ability to scale in network services and data center assets to deliver a hybrid solution over a multi-year evolution. You must be able to lead your business to the cloud with confidence.

There are considerable differences between on premises IT and cloud-driven IT environments that need to be addressed when migrating to the cloud. Today, more than 90% of organizations both large and small are using some form of cloud computing, according to VDC Research Senior Analyst Eric Klein. This trend is expected to evolve, as more than two-thirds of CIOs expect

"More than 90% of organizations today are using some form of cloud computing."

to be running the majority of their enterprise's workload in the cloud by the end of this decade, Klein said, with more than half of organizations having cloud-first policies.

Like any form of digital transformation, there will be challenges at the onset of making the cloud move. Jim Degliumberto, CIO of healthcare transportation company Southeastrans, Inc., spearheaded his enterprise's transition to a hybrid cloud approach, but faced a few obstacles before realizing the benefits. Some of those challenges included having to access legacy applications for the migration; securing systems and data; ensuring his enterprise was compliant with industry regulations; and making sure the network he chose was consistent with low latency and high throughput.

The benefits in a post-migration era, however, are tremendous, Degliumberto attests. Southeastrans is now able to place all mobile apps in the cloud, builds new systems on a common cloud technology using a modular approach, has on-demand data pull, and can rely on "sanitized" data.

Why The Network Matters

Customers' needs have evolved with the cloud, and this evolution is changing the structure of Enterprise IT. As development and operations come together to create better applications in an agile environment, the realization that the network matters has become evident. To generate a simple experience, reliable performance, and high security, it is essential to build environments and applications with network architecture in mind. Providers are starting to enable software defined networks, where network functions are virtualized. This software foundation makes the network more responsive and flexible for enterprise customers, and the agility it affords can be harnessed to provide end users an optimal experience.

Optimizing Apps in the Public Cloud

Users need a highly secure and bandwidth-flexible connectivity between the enterprise network and a cloud provider. Utilizing an embedded architecture that delivers a superior application experience for SaaS providers, cloud providers, and end users is most desired. All of that can be found in AT&T NetBond for Cloud®.

As cloud adoption accelerates and the mobile workforce scales, lines of business are purchasing directly from cloud providers, without thought to infrastructure. CIOs are left struggling to manage multiple cloud environments, interoperability, and security across access points.

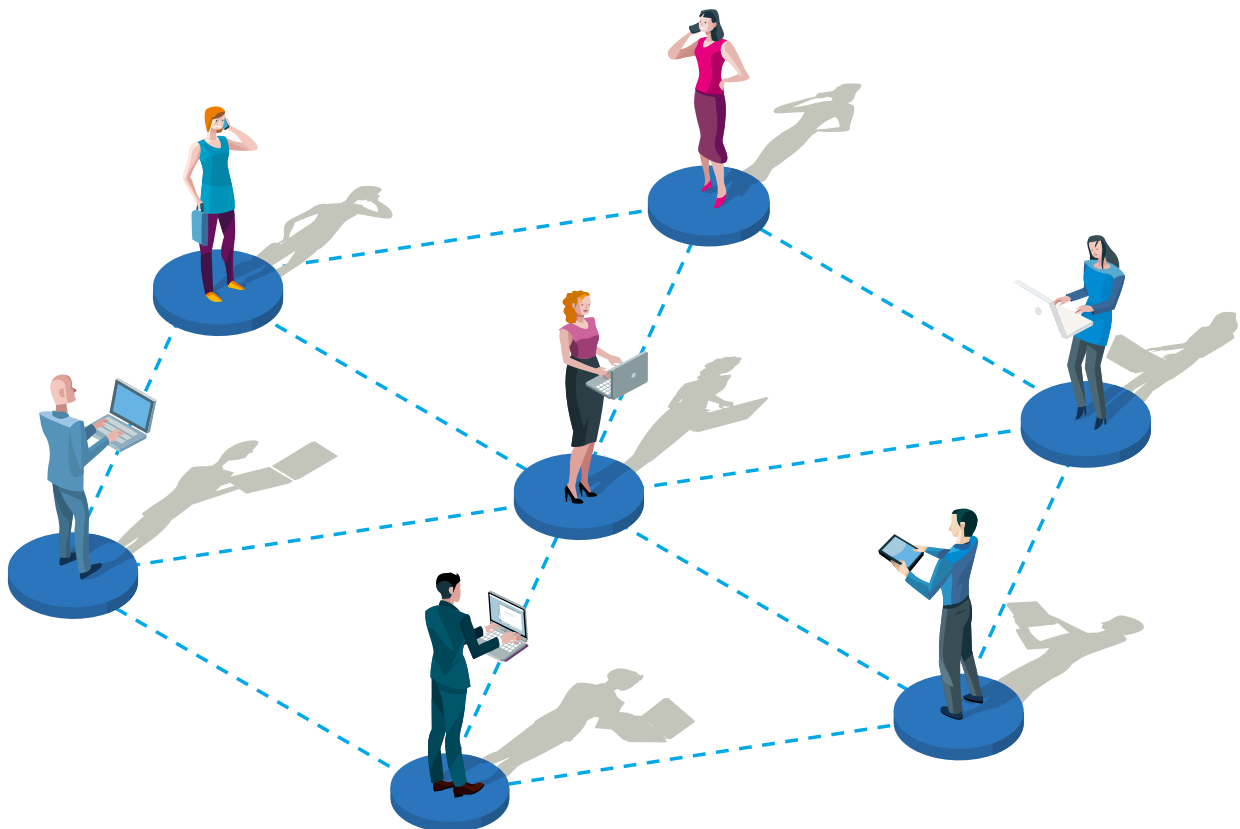
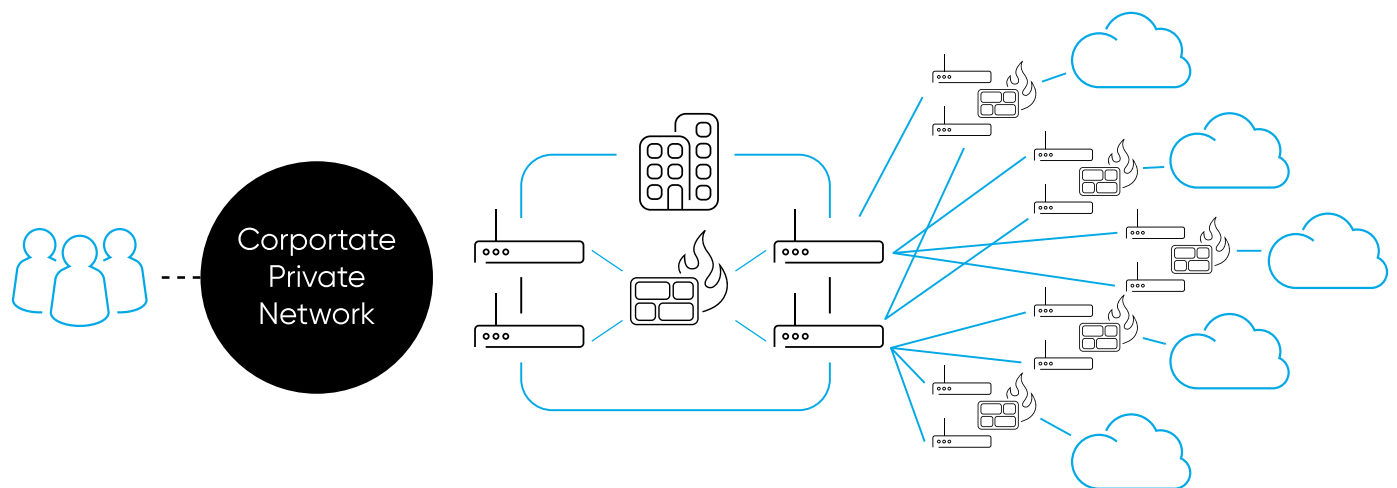


Figure 3: How AT&T NetBond for Cloud® Works

Quite simply, AT&T NetBond for Cloud® turns a complex customer solution into a simple customer solution (Figure 3).

AT&T NetBond for Cloud® turns a **COMPLEX** customer solution



Into a **SIMPLE** customer solution

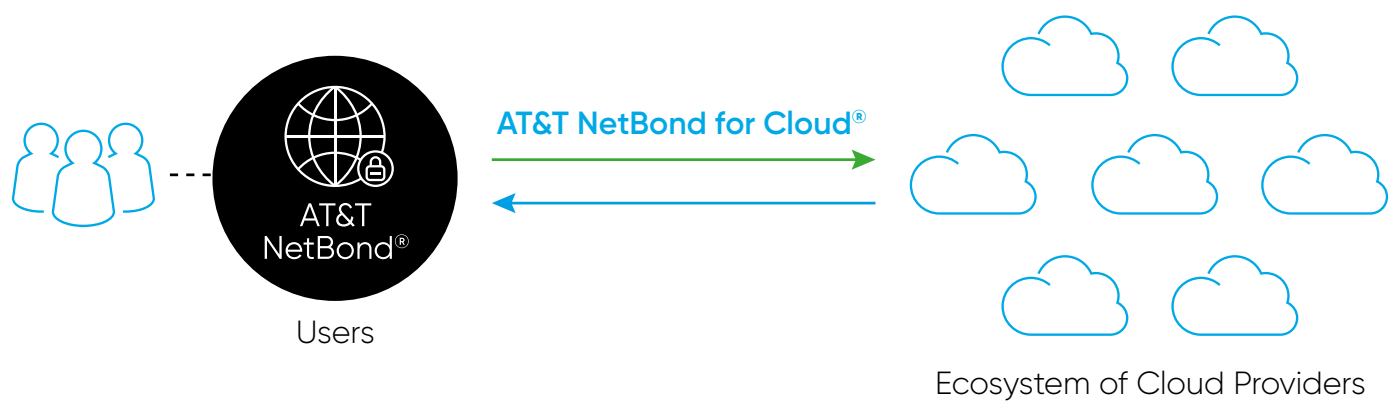
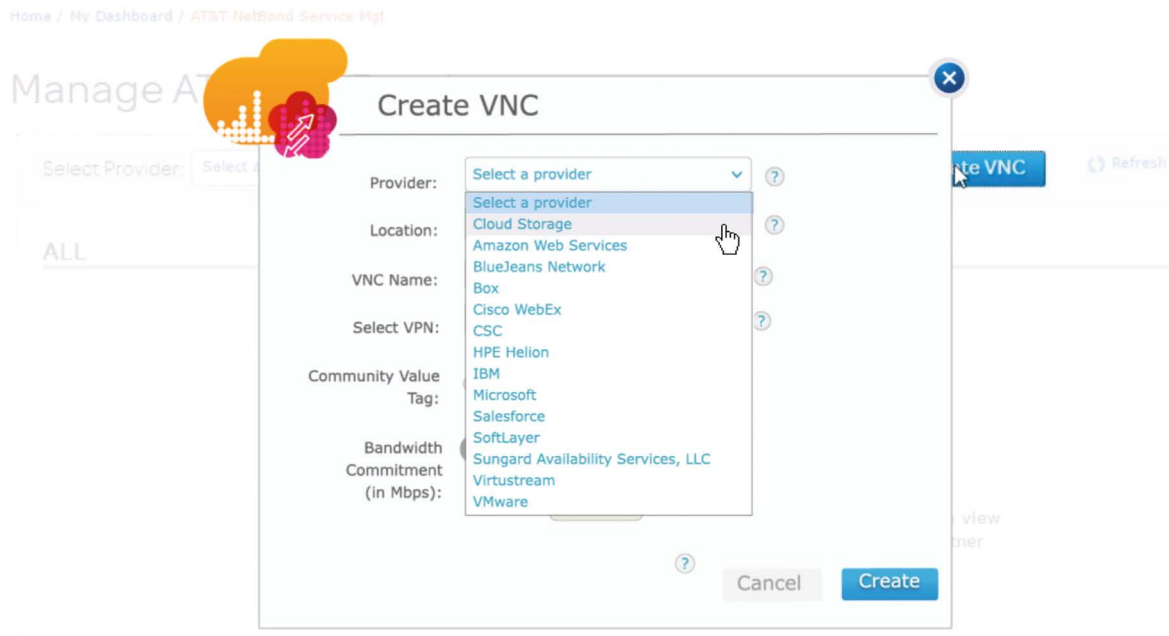


Figure 4: The AT&T NetBond for Cloud® Portal

AT&T NetBond for Cloud® also gives users the ability to add cloud connections with the click of a button in real time, enabling customers to quickly provision and modify their cloud infrastructure.

AT&T NetBond for Cloud® Portal



The APIs in AT&T NetBond for Cloud® integrate with cloud providers to deliver unique offers. For example, NetBond's integration with CSC's Agility Cloud Management Platform can enable a more holistic solution for application management and orchestration across multiple

clouds, a solution for enterprise customers. These APIs have also enabled relationships with Systems Integrators who utilize AT&T NetBond for Cloud® in their other services. Enterprises use the APIs to build AT&T NetBond for Cloud® portal functionality into their cloud services.

Managing Private Environments and Private Cloud

Software defined networking is transforming the data center space as well. Providers like AT&T see data centers as an extension of the global network and increased their investment in recent years. Upgrading the data center network to SDN technology allows security functions and cloud services to seamlessly deployed, reducing provisioning and maintenance intervals and expense.

This is essential as colocation is often used as the first step of migration from a legacy on premise solution to the cloud. Enterprises must begin their journey to the cloud by planning for disaster recovery; a redundant private

environment in colocation protects businesses from service outages.

Furthermore, these data centers have access to the NetBond ecosystem of cloud providers to support hybrid cloud architectures. In addition, Cloud Service Providers (CSP) can integrate into these data centers providing optimal performance and cost. In this way data centers are critical to our hybrid cloud strategy – the meeting place of the public and private cloud environments – all connected by a highly-secure and agile network. CIOs can now utilize the AT&T network to connect their private and public cloud environments – simply, securely and with high performance.



Conclusion

It's time to elevate your reach to the cloud. AT&T is deploying virtualized network functions to create an overarching system of software solutions for all businesses.

Widening the enterprise's portfolio of cloud services will strengthen data collection capabilities and enhance cost savings. Having the ability to expand and navigate cloud services with the click of a button from a single dashboard through NetBond brings greater opportunities to enterprises that are grappling with digital transformation.

Much like consumer patterns, businesses are following suit in the app and software buying spaces, scaling quicker than IT departments can handle. Using solutions like NetBond, both lines of business and IT can find have a partner to keep infrastructure costs down while still accelerating productivity.

AT&T's innovative network capabilities allow customers to deploy or migrate to the cloud with confidence.