

A FROST & SULLIVAN EXECUTIVE SUMMARY

Realities for Transforming Your Enterprise Into a Private Cloud

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“ Your private cloud is an investment, so the smart thing to do is to look for a partner that will help you invest in the future of your company to respond not only to today's challenges but to those that may come along the road. ”

— **Lynda Stadtmueller**
Program Director,
Cloud Computing
Frost & Sullivan

Realities for Transforming Your Enterprise Into a Private Cloud

Delivering infrastructure as a service in your organization is only the beginning. The reality is that there is still a significant amount of time spent on packaging, provisioning and managing the software running on the infrastructure. The next step is to examine how to increase the agility of operations and reduce the costs that are spent in managing complex middleware and architecture.

During this eBroadcast, Frost & Sullivan, HP, and TIBCO discussed the real challenges that need to be addressed to evolve existing architecture and operational practices to an optimized, scalable, and resilient private cloud.

MARKET OVERVIEW

The New Technology-Driven Business Environment

May you live in interesting times. This proverb—or curse—can be applied to the changing business environment.

Today's businesses are facing rapid technological, social, and geopolitical changes. Businesses of all sizes discuss common trends that they face. These business trends are not IT trends and yet each one of them impacts or can be influenced by the IT department.

The new IT department must create and deliver applications and business tools quickly, securely, cost-effectively, and with high levels of performance and availability to account for:

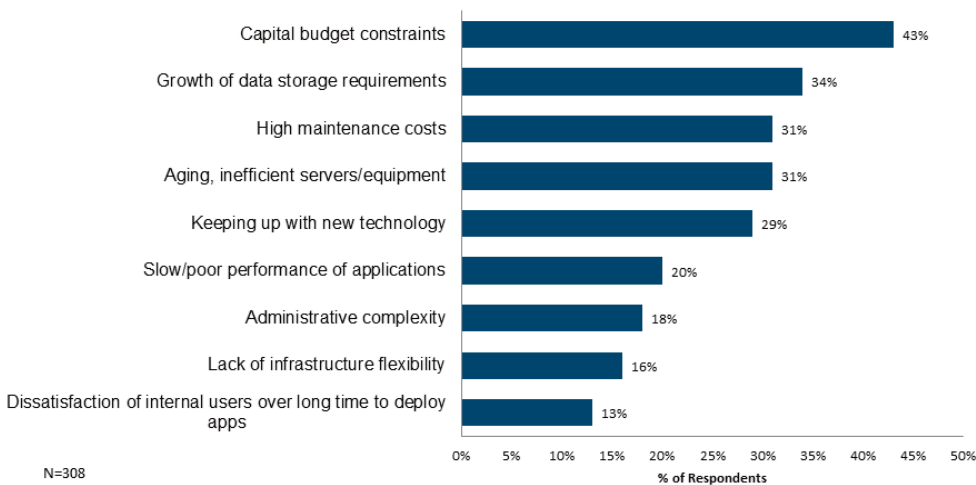
- **Globalization:** Thanks to e-commerce and collaboration tools even the smallest business has partners in the global marketplace.
- **Consumerization of IT:** Customers and employees are confident and comfortable using technology tools to get their job done without IT involvement.
- **Anywhere, Anytime, Any Device:** Your employees, your partners, and your customers expect to do business with you anywhere, anytime, and on any device.
- **Social Business:** Customers expect to have a voice in how you run your business; they're going to contact you and expect to hear back.
- **Data-Driven Decisions:** With the rise in Big Data, predictive analytics, and BI software, businesses can make smarter and faster decisions using the data at hand.
- **Innovation:** In the hyper-competitive business environment, innovation is how businesses are expecting to create a competitive differentiation.

“With all these things going on in business, IT is no longer a supplier to the rest of the business, but an enabler,” said Lynda Stadtmueller, Program Director, Cloud Computing, Frost & Sullivan. “CIOs are sitting at the strategic leadership table and they're propelling businesses forward.”

This creates a new opportunity and a new role for the IT department. The new IT department has the job of creating and delivering applications and business tools quickly, securely, and cost-effectively with high levels of performance and availability all the time.

According to a Frost & Sullivan survey of IT decision-makers, nearly half cited that their top concern/top challenge is running their own data centers with the constraints to the capital budget.

Top Challenges Facing IT Decision-Makers



Source: 2012 Frost & Sullivan Cloud User Survey

"The interesting thing about this is we know that enterprise capital budgets are not decreasing and in many cases businesses are beginning to increase them. But not all that money is available to the IT department anymore. The line of business managers are able to use it to purchase IT technology in a way that they hadn't in the past. That puts an additional strain on IT to do more on a tighter budget," said Stadtmueller.

The Modern IT Department

Today's IT departments are lean, they don't have spare technical personnel even to research or explore new technology opportunities.

As a result, IT has to find a way to free up time and personnel from the maintenance tasks that hold the department back from propelling the business forward.

“The old way of doing things—yesterday's IT department processes—just aren't going to work in today's fast-paced environment,” said Stadtmueller.

A solution exists—the private cloud.

The private cloud is a flexible and scalable data center environment dedicated to an organization that utilizes virtualization, standardization, and automation technologies to create and distribute computing resources to users as needed.

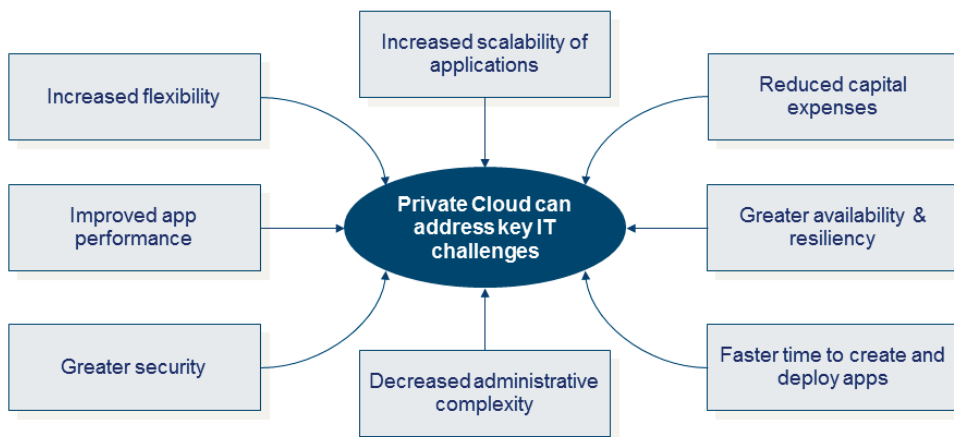
In a private cloud scenario, the IT department becomes the provider of cloud services.

Components of a Private Cloud

The components of a private cloud can be best understood by examining the cloud's layers. These layers include:

- **Infrastructure as a Service (IaaS):** The server, storage, and network allow an organization to pool and allocate capacity as needed to any virtual application. This provides tremendous flexibility regardless of operating system. Any virtualized application can use any as-needed resources.
- **Platform as a Service (PaaS):** A platform offers templates and tools that allow you to standardize and automate many of the tasks that are otherwise done manually. This enables your developers, your operations team, and your admins to move quickly and more efficiently with fewer errors in developing custom applications or adding some custom tweaks to a commercial app.
- **Software as a Service (SaaS):** When you deploy your own corporate applications in a SaaS model, there's little or no client-side software required. A single image of your software is easier to maintain, to keep current, and to control, which makes it easier for your customers.

Why Private Cloud?



One of the top reasons why enterprise IT departments are embracing the private cloud is because it can reduce capital expenses. With the private cloud configuration you can utilize your hardware more efficiently, and you can defer capital expenditures or in some cases avoid them entirely by better utilizing what you have

A private cloud is one of the most effective ways to enable your business continuity and disaster recovery plan because the IT resources, applications, virtual apps, and databases that are in a cloud environment are easily moved. They're easily replicable. You can more easily do a backup and restore as needed to make sure that you've maintained a high-availability environment.

In a business continuity situation your IT staff doesn't have to go to the office or go to the data center, they can dial-in from anywhere that's network-accessible in order to perform their tasks.

Additionally, with a cloud environment you can mandate and deploy a common security profile across all of your applications.

The improved performance of a private cloud means you have compute and network resources available as needed to whatever application needs it.

You can increase the life of your hardware, you can have a more flexible configuration in your data center, and you can be more flexible with your staff because you don't need specialists for each type of application or each type of software.

Thanks to increased scalability of applications there's no more over-engineering

"The private cloud can help transform not only IT processes but business processes to help them become more successful," said Stadtmueller.

“ Today we’re running about 800 applications in our business environment. Several are business critical apps with stringent service-level agreements (SLAs). As we've grown into a global company that means my services have to be up and running 24/7, 365 days a year. ”

— **Steve Bogdan**
Staff Manager, IT
Qualcomm Inc.

Optimizing Your Data Center

The right private cloud can give you a flexible, scalable configuration that reduces capital costs and introduces efficiencies in the way you run your datacenter at the **information as a service (IaaS)** level.

At the **platform as a service (PaaS)** level, a high-functionality platform can decrease development time and reduce time to deploy applications—making the enterprise more nimble and more responsible to changing market needs.

Lastly, at the **software as a service (SaaS)** level, your cloud apps are easy for users to access and for IT to manage control and upgrade.

“Your private cloud is an investment, so the smart thing to do is to look for a partner that will help you invest in the future of your company to respond not only to today's challenges but to those that may come along the road. Choose a partner that offers the full range of cloud services—private, public, and hybrid—and a partner that offers the expertise that helps you implement, manage, and control your cloud strategy,” said Stadtmueller.

CASE STUDY: QUALCOMM

Moving to the Private Cloud

In 2001, Qualcomm, a fabless semiconductor producer and wireless chipset and software technology provider, selected TIBCO BusinessWorks, one of the leading service creation, orchestration, and integration products on the market, as its enterprise application integration platform.

“Today we’re running about 800 applications in our business environment. Several are business critical apps with stringent service-level agreements (SLAs). As we've grown into a global company that means my services have to be up and running 24/7, 365 days a year,” said Steve Bogdan, Staff Manager, IT, Qualcomm Inc.

Before the Private Cloud

As the number of applications Qualcomm is running has grown, the company has run into several challenges, including:

Qualcomm’s **IT budget has not kept pace with its business growth**. “As a result my headcount has been held flat for several years and we've ended up with a server and application admin ratio that is pretty high and is continuing to grow and making SLAs increasingly difficult,” said Bogdan.

As the company's IT organization has grown over the years, it has begun **running out of data center space**, which is putting pressure to limit the number of physical hosts that Bogdan can use to scale up his environment to continue adding new applications.

"As we've had to scale over time, I've had to **implement several different solutions to allow for the efficient growth of these applications** and to be able to manage them and grow them," said Bogdan. The result is a very complex environment that's difficult to manage.

Another challenge is that **upgrading is almost impossible to do**. Bogdan operates one large homogeneous environment, which means that to implement upgrades, it is "almost impossible" to coordinate downtimes across all of Qualcomm's business units.

Bogdan wanted to **improve the automation and administration functions** to reduce the time that his team spends doing repetitive tasks, which could be automated to free up time.

During the deployment and transition to its cloud platform, **the impact on Qualcomm's development team needed to be minimal**. "I have several development teams and they're working on tight project schedules and can't afford to introduce anything to the environment that will slow them down," said Bogdan.

The last challenge was that Bogdan wanted to **improve application reliability and performance**. "Our SLAs are becoming more and more demanding, and I needed to improve the reliability of our environment," he said.

After the Private Cloud

Last year Qualcomm implemented TIBCO Silver Fabric as its cloud platform to deploy BusinessWorks. One of the very first benefits the company realized was that it eliminated the need for "those warm standby instances."

Silver Fabric provides the functionality to recover after a crash. For example, should the system crash or should a host go down, open applications will automatically be repopulated, restarted, and the services will resume on their own.

"Right off the bat we were able to reduce our compute resources requirements by 50 percent," said Bogdan.

Benefits of Sliver Fabric

Qualcomm recognized immediate benefits to using TIBCO's Silver Fabric platform. Chief among them was Silver Fabric's policy-based resource management, which helped with compute resource utilization by not having to have room on a host or a segregate physical host for each business unit. "Now we've seen a greater than 50 percent reduction in compute resources," said Bogdan.

In the old environment before Silver Fabric, Qualcomm was running its production environment on 19 physical hosts: "When we finish our migration, **we will end up with seven to eight physical hosts**, which is pretty significant reduction in cost, datacenter space, and administrative loading," said Bogdan.

Silver Fabric has application programming interfaces (APIs) and scripting capability built into it. One of Qualcomm's first initiatives after deploying Silver Fabric was to build automated processes for deploying applications, thus taking advantage of the reduction in time to deploy and configure applications.

"I had one of my development teams—one of first to move over to Silver Fabric and they had 66 applications to redeploy and I had the development team do it with the scripts and automation that we'd built and they **were able to deploy 66 applications in production in three hours**. In the past that would have taken three to four days and it would have been my team doing it. So now that time has been reduced significantly, I'm able to allow developers to do their own deployments instead of my team doing it," said Bogdan, adding, "That's freed up a lot of labor time for my team.

Silver Fabric has created a very heterogeneous environment for Qualcomm. Instead of relying on physical hosts, the company has logical hosts, and it can deploy logical hosts on a business unit that are not tied to a physical host. Within each one of those logical hosts, Qualcomm can run different versions of the software stack.

"Before I had the one large homogeneous environment. Now I can run and upgrade each one of those logical machines independently and not have to worry about the difficulty of upgrading the software version of the entire environment," said Bogdan.

Silver Fabric has made these functions completely transparent to the development team. The only noticeable change has been that the URL for the administrator user interface (UI) changed as did the names of the hosts used to deploy applications. Despite the change, these applications had the same designer, the same methodology, and the same ability to be viewed and managed through the UI.

"Overall it's been a very successful implementation for my team. The development teams have been happy with it. My admin team is thrilled the labor has been reduced," said Bogdan.

Why Cloud and Why Now?

Your Cloud, Your Way

“The consumerization of IT, to me, is about the next generation of applications, which are more about enabling optimized business value chains to emerge from an existing enterprise than it is about bringing my personal phone or tablet to work or adding links to social networks on my websites,” said Steve Witkop, Tooling Chief Architect, Enterprise Services, Hewlett Packard.

For decades, business capabilities have been forged on **Industrial Age** platforms. Those platforms must give way in order for an enterprise to thrive in the new digital economy. It is no longer enough to have just a Facebook presence, a Twitter account, or a YouTube channel. Extending the enterprise is about fostering a transformational journey providing an incubator of sorts so the existing business capabilities of an enterprise can be leveraged in a way that social business processes and relationships can take form, shape, and color to the benefit of the enterprise.

The private cloud is just one step on this extended enterprise journey, a journey that should start with **your cloud, your way**. For example—an enterprise CFO or CIO needs to sacrifice the existing investments in physical or virtual infrastructure. This is where Tibco Silver Fabric fits from the start.

IT departments already have their hands full managing enterprise systems of record, these are well-known bread-and-butter applications and their databases that run your firm and contain business records. “It’s safe to say that most Industrial Age enterprises would go out of business without their systems of record. This is where the HP CloudSystem Matrix shines,” said Witkop.

More Services, Less Cost

The private cloud provides IT departments with multiple ways to improve their services while lowering their costs. Some common results have emerged from a variety of businesses moving to the private cloud: Some customers have avoided costs altogether, some have eliminated costs, and more have enabled self-service (with less headcount).

What will enterprises do with all the savings and improved services? “My bet is that they’re going to innovate. Those enterprises that want to survive past the Industrial Age need to innovate,” said Witkop.

“ The digital economy is the age of self-service with access to app stores and self-governance of the applications we use, the data we expose and consume, and the people and teams we partake in. ”

— **Steven Witkop**
Tooling Chief Architect,
Enterprise Services
Hewlett Packard

Enterprises are freeing up capital, CAPEX, and OPEX, for the extended enterprise even if they don't realize it by reducing the IT departments budgets and increasing IT spend by the lines of business whose funding is typically spent on projects employing mobile, social and Big Data technologies.

From Inside-Out Innovation to Outside-In

In the technology world, innovation usually seeps out from large enterprise and governments into the consumer world. In the **Digital Age**, we are seeing this happen the other way around, as technologies from the consumer world are seeping into the enterprise world. If you don't keep up—you'll be kicked out.

In terms of social, Big Data, and other innovative technologies, the IT department is uniquely positioned to foster an enterprise platform's move from the Industrial Age to the Digital Age—"but only if they continue change by offering additional enterprise IT enablement services beyond the cloud. The IT department's challenge is shifting innovation inside-out to outside-in," said Witkop.

Businesses have traditionally conducted their work in physical settings or with point-to-point communication tools and employees dedicated to managing that whole operation.

Meanwhile, for decades, IT departments have been focused on helping businesses focus on inside-out innovation.

As the work environment moves online where the dominant communication is mobile or social in nature, enterprises need to focus outside-in, making themselves more adept at facing increasing transaction volumes, regulations and integrations with global markets, and agile at identifying and managing risks, while at the same time being operational efficient and customer-centric.

"The digital economy is the age of self-service with access to app stores and self-governance of the applications we use, the data we expose and consume, and the people and teams we partake in," said Witkop.

The IT department governance role shifts to focus primarily to managing the four social business that an enterprise faces: (1) suppliers, (2) employees, (3) customers, and (4) the marketplace. Additionally, governance shifts to the applications an enterprise provides, what data it exposes, and the legal agreements and industry regulations for the groups it participates in.

How enterprise IT is controlled will have an immense impact on whether an entity will survive in the new digital economy.

The Journey to the Private Cloud Is Underway

“Extending your business capabilities will be a journey, fast or slow, based on an organization's objectives, maturity, risk profile, and other factors,” said Witkop.

First, the consumerization of IT tide has been steadily rising over the past decade bringing technology, devices, and other approaches seeping into your enterprise, permeating decades of digital concrete.

Second, the industrial model of government and businesses is in various stages of atrophy, frozen, or stalled. The costs of staying on an industrial model are now more than the costs of moving to the next generation.

Now we have seen that the efficiency of the cloud frees up the capital to innovate, but it's the line of businesses rather than IT departments that are likely to get that freed-up capital. Getting that freed-up capital can make great customer experiences possible, enable supply chain partners, and empower employees to accomplish business objectives.

Your Extended Enterprise Is Already Running:

If you are planning to move to the private cloud, ask yourself these three questions:

1. Do you have **your cloud, your way**?
2. Do you have outside-in managed services, self-service, self-governed app stores, and API stores? Are you extending your enterprise to suppliers, employees, and the marketplace? Or is your IT department still focused inside-out?
3. What will your extended enterprise stories tell?

Final Thought

The private cloud offers the best way to transform your IT processes to support the next generation of business-enabling technology. For businesses of all sizes, the private cloud is a low-cost and minimally disruptive on-ramp to the cloud: a way to gain immediate cost and productivity benefits, while setting a foundation for future growth that may include other cloud deployment models (public, private, and hybrid) With the right cloud partner by your side, your business can feel confident about taking the first steps on your cloud journey.

ABOUT HP

HP offers the full breadth of converged cloud solutions required by enterprises, service providers, governments, and developers. HP Converged Cloud solutions help you deliver information anywhere, applications anywhere, and infrastructure anywhere for a cloud environment that's flexible and change-ready—and tailored to your business or agency. Learn more at www.hp.com.

ABOUT TIBCO

TIBCO Software Inc. is a provider of infrastructure software for companies to use on-premise or as part of cloud computing environments. Whether it's efficient claims or trade processing, cross-selling products based on real-time customer behavior, or averting a crisis before it happens, TIBCO provides companies the two-second advantage® – the ability to capture the right information, at the right time, and act on it preemptively for a competitive advantage. Learn more at www.tibco.com.

ABOUT QUALCOMM

Qualcomm is the world's largest fabless semiconductor producer and the largest provider of wireless chipset and software technology, which powers the majority of all 3G devices commercially available today. Qualcomm is redefining the experience of wireless mobility by applying our unmatched legacy of wireless innovation to enable new generations of increasingly powerful mobile handsets, computers and consumer electronics devices. Learn more at www.qualcomm.com.

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