



5 Critical Private Cloud Migration Mistakes

A Whitepaper from BlueStripe Software

Summary

The promises of Private Cloud applications seem to be limitless - extreme cost savings, consolidated data centers, and efficient resource use. The reality is that Private Cloud *can* achieve these goals, but only with the right planning for application deployment, specifically around ensuring application performance. This paper describes the five most common mistakes organizations make when deploying Private Cloud applications - and the most efficient ways to avoid them.

Private Cloud *can* be a good place for optimizing operational costs around applications, but there are some big pitfalls, especially when moving complex applications partially or wholly into private clouds. Here's a breakdown of the 5 biggest mistakes organizations make when deploying applications in private cloud environments – and some ideas for how to avoid them.

1. Migrating Servers – not Applications
2. Failing to Recognize new Management Requirements
3. Missing Performance Data Inside the Cloud
4. Hoping Application Performance Stays the Same
5. Ignoring the Big Picture

Companies are looking to Private Cloud implementations as the ultimate goal of enterprise-wide virtualization. Others are looking at Private Cloud migrations as a stepping stone to “public cloud” application deployment. Regardless of the reasons, Private Cloud deployments are growing, and mission critical applications are using those environments.

Thus, it is critical for IT operations to be aware of the challenges the Private Cloud creates around business application & service behavior. The five mistakes discussed in this paper are merely the most common manifestations of how running applications in private clouds aren't exactly the same as running them on physical servers.

The 5 Biggest Mistakes

1 Migrating Servers Instead of Applications

Most Private Cloud projects have goals of consolidating servers, centralizing data centers, and reducing capital and operating expenses. Any administrators that consider performance focus on server statistics such as CPU, Memory, and disk usage. Ignoring performance of the applications that run on the private cloud usually results in miserably long bridge calls, first to determine where the new application performance problems are, then to fix them, and finally to review how this could have been missed during the private cloud roll-out.

Avoiding Mistake #1

Always consider the application(s). It sounds easy in principle, but taking an application-centric approach to any IT endeavor requires more than simply running some scripts or taking end user measurements on a few web-facing applications. Application systems are actually a complex system of processes, servers, transactions, interactions, and resources (some of which are shared). Taking an application centric approach means understanding the make-up of any given application, PLUS the impact of other applications (and tools) may have on the resources needed by the application to deliver appropriate business services.

2 Failing to Recognize New Management Requirements

As private cloud migrations grow, more application components wind up inside the Private Cloud, and are likely to run on virtual servers. IT organizations short on budget and short on time try to use their traditional management tools to continue to monitor applications in the virtualized world of Private Cloud.

If they realize that these tools can't operate within virtual environments, then they augment those tools with additional tools that are special Cloud (or Virtualization) oriented APM tools. Sadly, these new "virtual application" management tools have the same gap as conventional tools. They just sit on the opposite side of the gap, seeing application performance in virtual space, but not in physical.

Avoiding Mistake #2

IT operations teams can't break through the physical /virtual barrier (or even the barriers between disparate technology silos) by combining data from multiple tools. Management tools must be able to explicitly monitor applications as they run on virtual servers, physical servers, and across the physical / virtual boundary.

Anything less will leave a lot of blind spots throughout the applications.

3 Missing Performance Data Inside the Private Cloud

Middleware systems and application servers have created a black box mentality for many architects, giving them the luxury of re-using components and designing robust application systems. Unfortunately, application functionality in – and out of – a private cloud isn't a true black box. Depending on how much of a specific application system runs in the cloud, by not managing apps as they run IN THE CLOUD results in too many application management holes, leading once again to those miserably long bridge calls.

Avoiding Mistake #3

Organizations should manage the application systems they're running – everywhere they run – in physical, virtual, and even cloud environments – monitoring and managing the critical applications the same no matter where they are.

This is especially true when shared resources are involved, such as Private Cloud environments. Not only is it important for the application owners – and those hosting the non-cloud portions of the applications – to understand exactly where any bottlenecks are, it's equally important for the private cloud operations team to understand how applications and resources are performing within the private cloud, itself.

Don't make your Private Cloud a black hole of performance data. Make sure to monitor application performance across the environment.

4 Hoping Application Performance Remains the Same

While akin to “ignoring application performance altogether,” the performance benchmark is vital enough to stand on its own. Even organizations that have performance goals for their private cloud projects don't begin their performance management by performing comprehensive benchmarks. Traditional tools simply lack the ability to compare apples to apples across different operating environments, so the team just doesn't bother. They may take some end user measurements before and after a transition, but that doesn't help explain things.

Avoiding Mistake #4

To quote an old adage, “hope is not a strategy.” Ensuring performance across any given event such as server virtualization or a new application deployment requires performance benchmarking before and after the event. Even organizations that want to benchmark, though, aren't sure how to run true comparisons. Private Cloud environments make it difficult to measure, let alone compare, performance over different time spans.

The critical need for benchmarking is a normalized measurement, ensuring the closest “apples to apples” comparison of performance. And the best performance measurement across disparate technical environments is via applications, since application functionality remains the same, regardless of environment.

Of course, that means that application performance monitoring and management tools must be able to measure the same way across all environments – physical, virtual, or cloud.

5 Ignoring the Big Picture

Ignoring the Big Picture is actually one of the biggest mistakes organizations make in any application deployment, but it can create horrifying results in private cloud migrations. The visibility barriers created by applications running in private cloud environments lead to even greater problems, though.

Using tools to monitor / manage servers will provide no context as to how device performance impacts (or doesn't impact) business services. Management tools for specific technologies can't see outside their silo. The result is that an already visibility-challenged organization that migrates to a cloud environment has even less ability to see how all their system components interact with each other.

By ignoring the structure of application systems, IT operations & support teams find themselves always guessing at the cause of ANY application problem. The vicious cycle of application management revolves around application complexity and this lack of knowledge. As application systems grow more complex, it is even more important to know application structure, while it is less likely to be able to know that structure. That's why organizations, especially those moving to private cloud environments, must move to application management solutions that automate the discovery and mapping of application systems.

Avoiding Mistake #5

There are 2 key aspects to avoiding mistake number 5. First, naturally, is a commitment to **not** ignore the big picture. You have to want to understand the make-up of your applications, monitor all applications that may impact a given application system, and commit to take action on all application problems. Most organizations have no problem with committing to the idea of taking a bigger picture view of their application systems.

The second aspect is much more difficult. The second part of taking a big picture view of managing application systems is to use tools that are also committed to the idea of applications being larger than just the pieces that make them up. That is a much harder hill to climb, since traditional APM tools **rely** on their single-mindedness regarding platforms and "deep dive" tools for code – or other technologies.

Conclusion

The benefits from migrating IT systems to Private Cloud environments don't just happen automatically. They require diligence and planning. To ensure success, organizations must consider IT level performance in addition to traditional business metrics such as server consolidation, capital reduction, and operating expense savings. In fact, performance should be the critical measure of the success of any private cloud project.

Benchmarking before and after the event is an absolute must, with a focus on application performance – since applications are the only entity within the IT infrastructure that operate the same across any environment. Thus, an application monitoring and management solution that can operate similarly across all IT environments is required for ultimate private cloud success.