



How to Avoid the Hidden Costs That Derail Cloud Projects

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Most companies that have embarked on a private cloud journey find themselves in one of two unfortunate positions: Either they've already spent much more than they had planned, or they're struggling with how to ensure that costs don't get out of hand. These are typically companies with sophisticated IT organizations—organizations that ask tough questions and put detailed plans in place. For example, an international bank spent millions of dollars and six months of professional-services time before scrapping its existing cloud project and restarting one with a completely new approach and toolset.

The Challenge: Making Your Private Cloud Fit Your IT Infrastructure Puzzle

Cloud-automation vendors make deploying a private cloud sound easy. If you choose the basic out-of-the-box capability from one of the better vendors, you will be able to get a simple self-service cloud working in at least a few hours and at most a few days. But although that cloud might be a nice proof-of-concept demo, it might not meet your actual infrastructure-management needs. For example, will you need to replace existing technology and best-practice investments to make your cloud work?

Cloud management is not a standalone entity. For your cloud to be successful, it must integrate and work with your existing management infrastructure and best practices. As you evaluate cloud-management platforms, you need to assess how each tool works with your current and future management ecosystem. Your cloud-management choice will not only impact prior investments; it can also limit your future choices.

To avoid some of the hidden private cloud costs, evaluate how cloud-management options will fit with your existing IT ecosystem (see Figure 1):

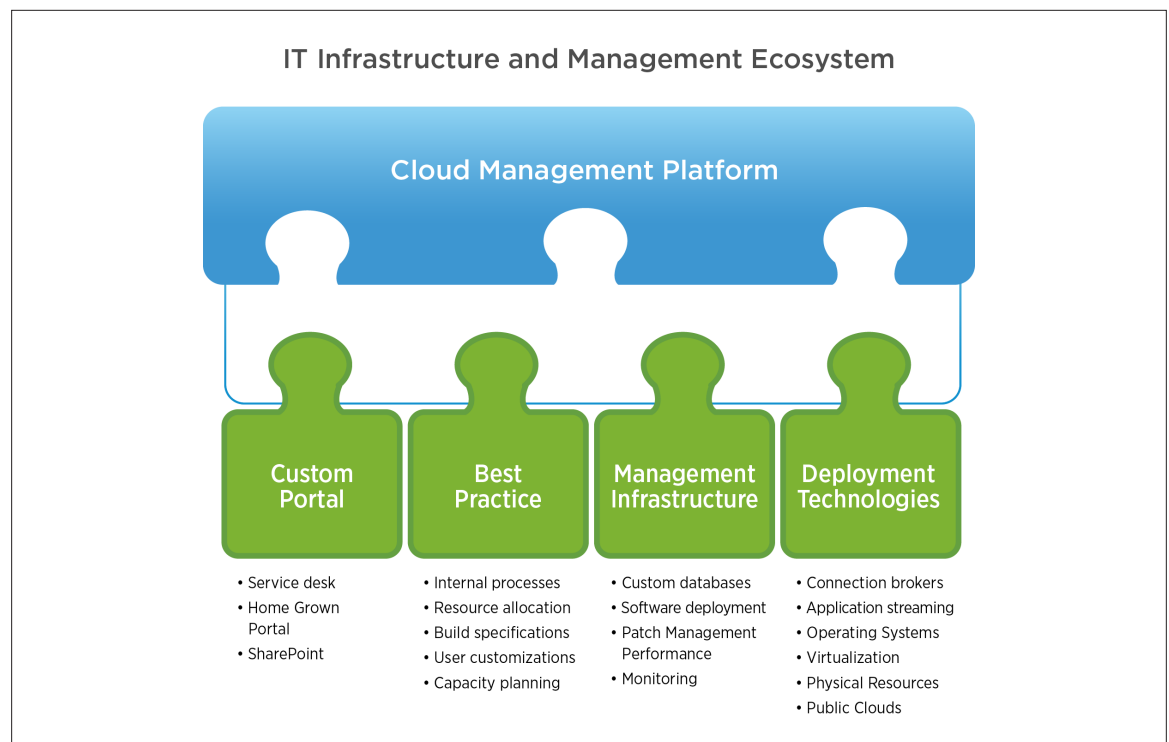


Figure 1. IT Infrastructure and Management Ecosystem

- **Deployment technologies** – Does your cloud-management platform work with the current technologies used to deploy your infrastructure? This includes both the private resources in your datacenters and public-cloud resources. Does it support the operating systems, server-virtualization tools and desktop technologies being used today, as well as the ones you might want to use in the future?

- **Management infrastructure** – Typically, the delivery of a private cloud service requires you to generate a work-order ticket, access an internal database, and use specific tools to deploy software, monitor the environment and take corrective action. How easily does your cloud-management platform work with your current management tools and processes? Will you need to replace those tools or pay for extensive customization to make your cloud-management solution work?
- **Best practices** – As part of continuous process improvement, companies should always be trying to streamline and improve their processes. Deploying a private cloud is a large paradigm shift, and some process changes will likely be needed to facilitate end-to-end automation. However, your cloud-management software should not force changes on you that don't make sense within your company's established guidelines. Remember that substantial changes required by the vendor are likely to be costly in terms of time and effort, if not also technology.
- **Custom self-service portal** – All cloud-management products provide some level of self-service capabilities. An out-of-the-box self-service portal simplifies initial deployment. However, what if your company already has a self-service portal or existing work-order-ticketing system? The last thing you need is yet another portal. How easily can your existing portal be integrated with your cloud-management services, and will you need to spend time and money reproducing all the existing portal's security in the custom portal?

Cloud-Management Extensibility

Extensibility is also a critical factor in private-cloud costs. According to Wikipedia, "In systems architecture, extensibility means the system is designed to include hooks and mechanisms for expanding and enhancing the capabilities without having to make major changes to the system infrastructure." Often this means making modifications at runtime without requiring changes to the original source code.

Most cloud automation products automate only a portion of your provisioning, ongoing management or decommissioning processes. Therefore, an extensible architecture—combined with multivendor support—is needed to facilitate integration with your current IT infrastructure and management ecosystem. These factors have become fundamental components of cloud-management platforms.

With regard to extensibility, cloud-management software products typically fall into one of two categories:

- **Prescriptive tools** – Many cloud-management solutions were built for a specific problem (such as lab management). They have prescribed processes and limited interoperability, and they lack the extensibility features needed to adapt to more broad-scale deployment requirements.

Any tool that requires drastic changes to existing management tools, infrastructure components or operational processes will result in additional capital costs for replacing existing technology, and additional investment in people who can use the new technology and processes.

Another challenge is that your company will likely be unable to achieve the savings you have envisioned, because the automation solution will not meet the needs of the various business units. These business groups will either stay with their current manual process—reducing the percentage of your infrastructure that can be moved to an on-demand cloud—or they will implement a different cloud solution that does not provide the operational scalability and savings you could have achieved with a single integrated solution.
- **Automation toolkits** – Some vendors provide very basic cloud-management capabilities and augment them with separate run-book toolkits or "orchestration" products. This option enables companies to completely customize their cloud solution. However, multiple hidden costs are associated with this implementation choice:
 - **Initial services costs outweigh the software costs.** – These solutions tend to require lengthy and expensive custom-services projects in which services typically cost three times as much as the software.
 - **Customized solutions are not easily extended to other business.** – In addition to incurring higher up-front costs, cloud automation solutions built with an automation toolkit tend to be built specifically for the needs of a single business. When companies try to expand the use of the highly customized solutions, they either have further customization costs or suffer from limited adoption across the enterprise.
 - **Customized solutions make upgrades to newer release difficult.** – Many customizations strand the implementation at a specific release, making upgrades to newer versions difficult and costly.

Mitigating Private Cloud's Hidden Costs

You now have a better understanding of some of the hidden cloud deployment costs and how your automation choice can affect not only costs but also your actual savings. It is important that you gain the ability to adapt and expand automation with tools for both IT operations and software developers. To enable the quickest time-to-cloud value, companies should consider the following capabilities when evaluating cloud-management platform software:

- **Comprehensive out-of-the-box functionality** – First and foremost, you want a cloud-management solution with a comprehensive set of out-of-the-box features. Many vendors focus only on initial provisioning capabilities. Make sure your cloud-management platform automates the complete life cycle, including ongoing management, resource reclamation and decommissioning (including archiving). The more features available out of the box, the less need for costly custom services to extend the product's core functionality.
- **Broad multivendor support** – Make sure that the tool you choose can orchestrate end-to-end delivery across all the technology and management components that make up your implementation. Most vendors only support components from their own offerings. Unless you're a single-vendor shop, that means you might need to discard your prior investments and be locked into that vendor's technology in the future. Multivendor support includes technologies used in your private cloud as well as public-cloud resources.
- **Policy-enabled extensibility** – How extensible is your cloud-management platform by just changing configuration parameters? Can you select different provisioning workflows, collect custom data, define resource limits and service levels, or create custom approvals or reclamation workflows? These are just a few of the many customizations you should be able to make via policies. The more you can customize your cloud deployment via policies, the quicker and more cost-effectively you can deploy a private-cloud infrastructure that meets company specific needs.
- **Business-aware governance** – Just as important as the ability to modify your cloud's behavior via policies is the granularity of the policies that can be configured. They must be granular enough to enable different business groups to have different services that are built and constructed using different processes, resources and service levels. For example, the way you provision and manage IT resources can be quite different for development and testing, as opposed to production or desktops. Business-aware governance and control is fundamental to meeting the unique needs of each business and driving broader cross-group adoption of cloud services.
- **Ability to modify out-of-the-box automation** – Can you easily add tasks or call scripts at various states in the machine's life cycle? Is there a visual workflow-editing tool, with a library of predefined activities, that simplifies the customization process? For example: How easily can you add a self-service command to perform a specific function, access or retrieve information from a custom database as part of the provisioning process, or execute a script to customize a machine configuration? Are you modifying the workflows that ship with the product, or is this a separate run-book automation or "orchestration" tool that you need to bolt onto the cloud-management tool?
- **Automation of additional tasks** – Can the cloud automation platform be used to automate additional tasks that go well beyond simple modifications to out-of-the-box processes? For example, one company extended the process used to provision new desktops to also automate the process of onboarding new employees. If you need this level of extensibility, one factor to consider is the availability of developers with an appropriate skill set. Choosing automation tools based on de facto standards such as Visual Studio and .NET will make it much easier to find developers than if you use a vendor-specific automation tool.

Implementing and managing a private or hybrid cloud doesn't need to be so expensive. Make sure you're armed with the knowledge you need to fully evaluate your cloud vendor's offerings for potential hidden costs. Otherwise, your business might find itself putting cloud projects on hold or having to justify a much-increased budget.

Additional Information

For more information about how to transform your datacenter into an agile cloud, visit the [VMware Cloud Computing Solutions](#) site or the [VMware vCloud Suite](#) site.

For information or to purchase VMware products, call 1-877-4VMWARE (outside of North America, +1-650-427-5000), visit <http://www.vmware.com/products> or search online for an authorized reseller. For detailed product specifications and system requirements, refer to the VMware vCloud Automation Center installation and configuration guide.



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