

Nervous About Cloud? Go Hybrid Instead.



RACKSPACE®
HYBRID HOSTING

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1. Executive Summary

Hybrid hosting refers to the combination of customer-dedicated servers and public cloud infrastructure used in parallel to meet a hosting objective. Hybrid hosting can provide the security features, performance, and customization of dedicated hardware along with the cost savings, utility, and bursting aspects that cloud technology offers. How best to leverage this technology combination will be dictated by your business rules, industry/regulatory requirements, application capabilities, and budget, among other things. This paper offers an introduction to the concept of hybrid hosting, provides illustrative use case examples, and ends with five questions to consider before making technical changes.

2. What Is Hybrid Hosting?

Various marketing campaigns have helped increase public awareness of the cloud, but they have also inadvertently generated confusion and misperceptions about what the cloud is, and isn't. The following definitions should provide clarity for the purpose of this paper:

- **Public Cloud Hosting:** The hosting of content that resides on a shared/multi-tenant infrastructure that customers purchase as a service. Customers may have administrative access to complete virtual private servers (also referred to as virtual machines or VMs), or they may control content through a portal and not have actual access to the server operating system. Billing is usually a utility-based, month-to-month commitment with no long-term contractual obligation.
- **Dedicated Hosting:** Content is hosted on physical servers that are dedicated to the customer. This can range from pure colocation — where customers procure and install the equipment, and support the content — to a fully managed service, where customers lease the equipment and own the content responsibilities, and the service provider installs and supports the network and server hardware. Pricing is usually based on the number of devices and other technologies that are deployed. Contract terms can range from 12 months to 36 months or longer. Customers pay for the hardware that is deployed regardless of how much it is used.
- **Private Cloud Hosting:** Content hosted on virtualized servers that run on customer-dedicated hypervisors instead of multi-tenant devices. Private Cloud is also referred to as “Dedicated Virtualization Hosting” (VMware, Hyper-V, Xen, etc.).
- **Hybrid Hosting:** The combination of dedicated and/or private cloud hosting with public cloud hosting.

3. Why Consider A Hybrid Solution?

A common perception about virtualization is that moving from physical to virtual servers can lower your hosting costs, and in many cases this is correct. There also exists the perception that cloud hosting is still an emerging technology that lacks proper security features and therefore is not ready for mission-critical applications. In many cases, this is also correct. But, when properly planned, a hybrid configuration can help lower your costs without increasing your security risk or decreasing application performance.

By working with a provider that offers both cloud and dedicated hosting — and the ability to securely connect the two — you can experience the “cure for the common cloud.” After conducting a proper internal analysis, you should be able to identify which of your servers can be virtualized, which need to remain physical, and which can be consolidated or eliminated.

4. Reselling Hybrid Services

Consider the real-world case of an advertising agency taking advantage of a hybrid solution. Before coming to Rackspace, this company supported internal hardware and outsourced parts of their customer-facing infrastructure. They managed multiple contracts with multiple vendors with varying levels of support available, sometimes none at all. As their business grew, they found teams distracted from focusing on core business objectives. Their clients were requesting project services of varying lengths, so paying for hardware not in use during slow periods was becoming expensive. Because their customers ranged from global brand names to niche players, almost all of them required additional capabilities and security features. Furthermore, sites need be 100% available when launching marketing campaigns or new products.

A hybrid configuration can enable such a customer to front online properties with public cloud web servers that can be protected by a dedicated physical firewall and supported by physical database and application clusters. Some projects can run completely on the public cloud while others dictate the need to run on a private cloud.

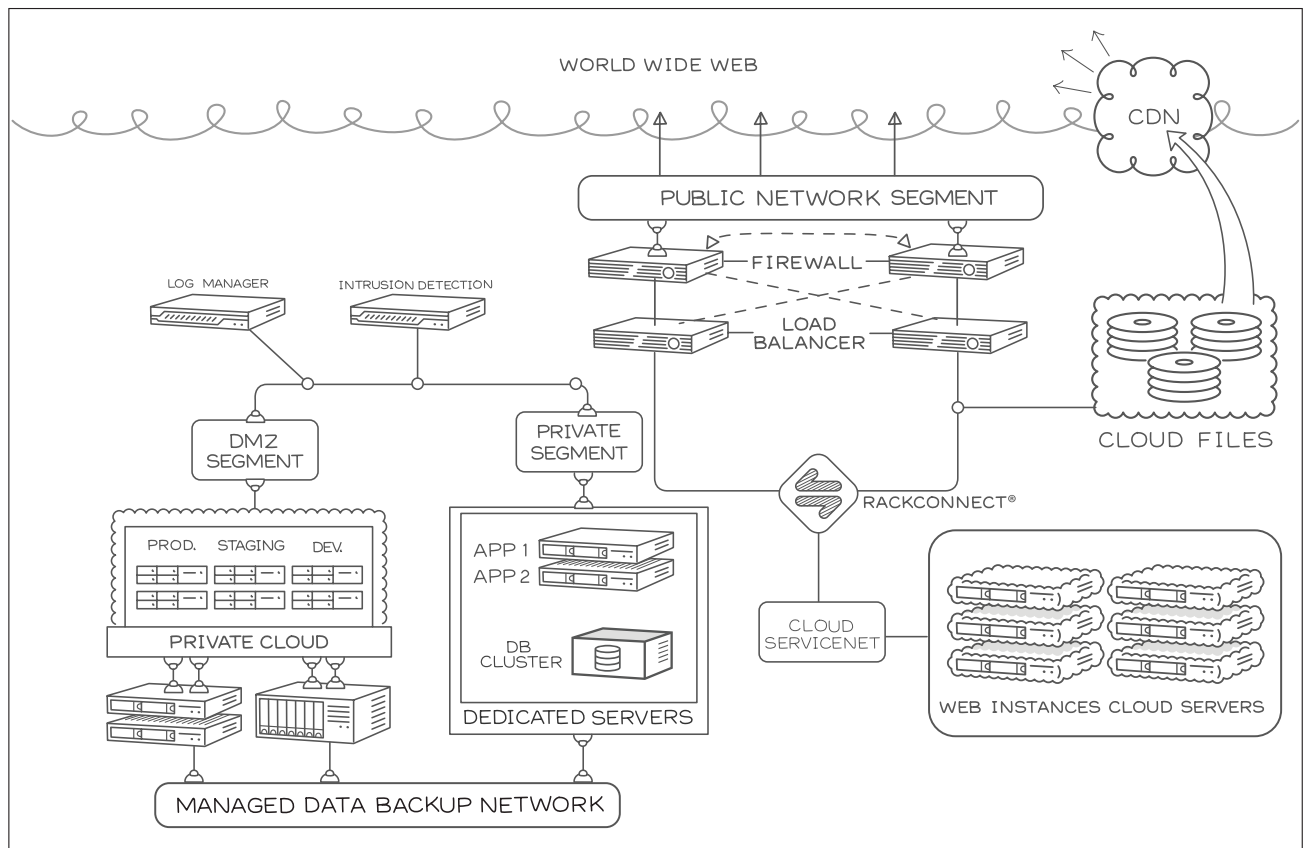


Figure 1: Hybrid configuration including redundant networking, private cloud, six dedicated servers and 13 public cloud servers, plus both dedicated SAN and public cloud storage.

5. Large Physical To Virtual Migration/Consolidation

Hybrid configurations are not limited by scale. In the example below, several cabinets worth of servers and storage in a customer data center are moved off-site while secure VPN tunneling enables access to internal and external applications. By deploying dedicated hypervisors and the necessary supporting infrastructure (high-speed storage, clustered databases, network security, etc.), much of the internal support burden is removed, internal resources are made available for other uses, and operating expenses are lowered (power and cooling, support costs, etc.).

Once migrated into our facility, Rackspace provides industry-leading support, network and power SLAs, and hardware replacement guarantees, all for a monthly fee with no massive upfront capital expenditure. The example below can be expanded to hundreds of servers or more; the benefits are consistent.

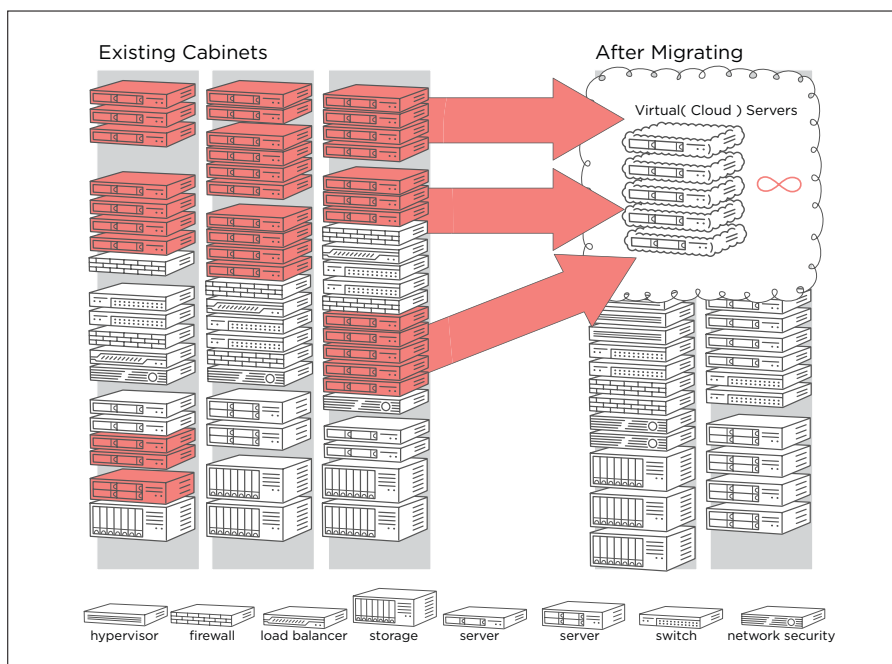
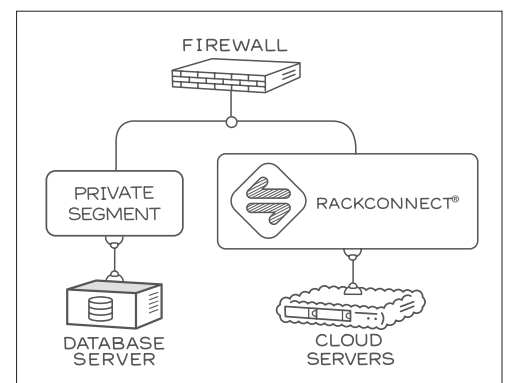


Figure 2: Three cabinets with 40 servers plus network and storage hardware. Red servers are candidates for physical to virtual (p2v) migration. The two cabinets on the right are the end result of the migration.

6. Modest Entry Points

Hybrid hosting can help businesses of all sizes, not just those looking for massive consolidation or hardware downsizing. A very basic configuration can move your business into a hybrid cloud. The illustration below shows customer-facing public cloud servers connected to a dedicated physical database server. The firewall protects the cloud servers while facilitating secure network communication between them and the database server. Rackspace provides a RackConnect™ solution for this secure network connection between dedicated and public cloud infrastructure. This combination provides the best of both worlds: public cloud flexibility and utility combined with a more secure dedicated infrastructure and server hardware.



7. Questions Worth Asking

Potential cloud outsourcing scenarios are infinite. To pursue this concept further requires internal analysis. Find out what your pain points are, define risk levels, and, if possible, get a solid grasp on your true cost of downtime. Knowing how much you lose for every hour of downtime helps you properly scope out your hosting costs.

When planning for the introduction of hybrid hosting into your infrastructure, you should ask yourself the following questions:

- **How well do you understand your current *application* environment?**

Ask for internal utilization reports that provide historical traffic and hardware performance statistics. Data points to gather include peak concurrent users, average and peak bandwidth requirements, storage needs, IOPS requirements, database performance metrics, network segmentation and licensing requirements, among others.

- **Do any *regulatory or industry requirements* need to be adhered to?**

Isolation is often required for compliance to standards such as PCI or HIPAA. They may also forbid the use of multi-tenant infrastructure.

- **Are all of the applications currently running certified or supported by their vendors to run *in a virtualized environment*?**

In some cases, software companies will not provide support if their application is installed on a virtualized platform.

- **Do you understand your current *hardware* environment?**

Server reports can be run to determine historical and average metrics such as processor, memory and disk utilization. Servers running at low utilization are excellent virtualization candidates. It also helps to know the factors that cause spikes in CPU and memory use.

- **Has a *budget* been defined for this project?**

A hosting provider should work with you to help design a system that optimizes your investment while adhering to your technical and financial needs. Many options are available and scope creep gets expensive quickly. This is another reason why knowing your cost of downtime is important.

8. Summary

A hybrid configuration provides the security features, performance and customization of dedicated hardware along with the cost savings, utility and bursting aspects that cloud technology offers. This combination of cloud and dedicated hosting can help businesses of all sizes, with the caveat that while cloud technology may benefit everyone, it is not meant for everything. Figuring out how to efficiently implement a hybrid platform is based on a number of business-specific factors. Finding a trusted, experienced cloud provider is key to helping you discover how hybrid best fits into your business.

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