



A Decision Maker's Guide to Cloud Computing and Managed Hosting



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Executive Summary

Organisations have never had so much choice about how to buy their hosting.

From Dedicated to Shared Hosting, Private to Public Cloud, there's an abundance of buzzwords, and precious little straight talking.

The purpose of this guide is to cut through the jargon, and help buyers find a solution that fits their needs. For more help making your choice, please contact Rackspace – the home of Fanatical Support® and the World's leader in hosting.

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Introduction

This document is intended to explain the differences between Dedicated, Virtual and Public and Private Cloud hosting, and to enable the reader to make an informed decision that matches their business requirements.

In recent years, use of Virtualisation has become the norm amongst most large national and international businesses as they come to recognise the benefits that it can offer. This has helped drive businesses away from dedicated solutions. At the same time, the need for virtualisation expertise has increased take-up of Managed Hosting solutions, where the service provider offers a team of certified Virtualisation engineers to set up, maintain and troubleshoot Virtualised infrastructures at the fraction of the in-house cost of hiring such a team.

Virtualisation is also often the technology behind Cloud Computing, enabling Cloud Hosting suppliers to offer scalable and cost effective Virtualised environments to their customers.

Overview of Hosting Services

Managed Hosting

Managed Hosting offers organisations the peace of mind of hosting on dedicated infrastructure, in high-security data centres and supported 24/7/365 by a dedicated team of technicians and account managers. The main benefits of Managed Hosting include converting capex to opex by leasing instead of purchasing hardware and software, having a dedicated team of support technicians at your service 24 hours a day and the security of a SAS-70 Type II and ISO 27001 certified data centre with multiple redundant connections to the Internet.

Dedicated Virtualisation And The Private Cloud

Dedicated virtualisation, or Private Cloud as it is sometimes called, is built on dedicated servers running hypervisor software e.g.VMware, Xen or Hyper-V. The hypervisor software provides a very light-weight Operating System specifically to enable virtualisation, allowing you to create multiple virtual servers on one physical server. Each virtual server exists completely independently from the others, and works the same way as a standard physical server. This allows much higher utilisation of the available CPU resources. Private Cloud combines resource and budget optimisation with rapid scaling up or down, together with the higher security, and improved reliability of a Rackspace Managed Hosting Solution.

The Public Cloud

Public Cloud is often based on Virtualisation technology, and is always delivered on shared hardware (unlike Private Cloud which is delivered on dedicated infrastructure). This means that hosting organisations can provide Public Cloud services at a much lower price point than Private Cloud. Public Cloud is usually offered with so-called “utility pricing”, meaning that customers pay only for the resources used, with the option of paying per hour, day, week or month. That combined with the instant scalability of many Public Cloud offerings (such as Rackspace Cloud Sites) makes it a very attractive proposition for hosting basic websites and applications with unpredictable or seasonal traffic requirements.

How and Why do Organisations Use Virtualisation / Private Cloud?

Virtualisation, or Private Cloud, is most commonly used for server consolidation, or to significantly increase flexibility of an IT infrastructure. The greater security and robustness inherent in a dedicated solution make Private Cloud very attractive to enterprise organisations and ecommerce traders for their core business operations, and for any application that would generally be regarded as “mission critical”. Hosting on dedicated infrastructure also means that Private Cloud solutions can easily meet the compliance requirements for PCI, SOX, etc. and will often result in higher uptime guarantees and better SLAs compared to the shared infrastructure of Public Cloud.

Consolidation

Private Cloud solutions can help businesses rationalise their server estate and ensure that all IT resources are used optimally. It has long been accepted practice for organisations to treat each internal department's IT requirements separately, thereby resulting in many under-utilised servers hosting single applications or websites. Consolidating these using a Private Cloud solution results in better utilised server hardware and cost savings. Another consideration when investigating consolidation using Private Cloud is that of corporate environmental policy – reducing the number of servers used also reduces the amount of power used and therefore can count towards decreasing the corporate CO₂ output.

Flexibility

Private Cloud solutions usually allow you to create and delete virtual machines very rapidly, certainly much faster than the lead-times typically quoted by hosters for deploying dedicated infrastructure. This can be very advantageous in corporate environments, particularly when working on development projects or User Acceptance Testing (UAT). The ability to swiftly create a virtual server from a template with specific settings in a corporate IT environment is unique to Private Cloud, and can be invaluable to developers wishing to test a new version of code. The flexibility of Private Cloud is also highly attractive for ecommerce sites and applications that experience seasonal demand. As the busy period approaches, extra virtual servers can be brought online at short notice to cope with the demand, without the additional cost and lead-time typically associated with provisioning physical servers.

How and Why do Organisations Use Public Cloud?

There are many different reasons why a customer will be attracted to a Public Cloud solution.

Minimal Entry Costs

For any organisation with limited funding, Public Cloud has the benefit of zero or low up-front charges.

Massive Scaling

Public clouds have the benefit of immense scalability. Some public clouds (as with Rackspace Cloud Sites) scale automatically in response to levels of traffic. Other solutions (e.g. Rackspace Cloud Servers and Cloud Files) come with Application Programming Interfaces (APIs), to enable cloud resources to be provisioned automatically by customer applications. Delivering applications and sites this way ensures that whatever the load, the service is never impacted by demand – this use has been tested extensively by highly spiky sites such as those promoting popular musical concerts and political blogs.

Test & Development

Another strong case for the Public Cloud is for software developers. Virtual servers on the Public Cloud can be provisioned on-demand to enable code tests. Once testing is complete, the Virtual Machine, or VM, can be deleted, and no further costs are incurred. This is a much more flexible and cost-effective approach than has been possible previously with dedicated test & development infrastructures.

Static Content Archives and Rich Media

Cloud Storage is an extremely cost-effective solution for organisations that need to keep large volumes of data, either as an internal archive (e.g. for document management), or as an internet resource (e.g. an image library). Static content with undemanding performance requirements is ideally suited to cloud storage because of the storage and bandwidth charges are so affordable.

What are the differences between Private and Public Cloud?

The greatest differences between Private and Public Cloud solutions are the levels of support available, the costs, the extent to which the infrastructure can be secured, and the ability to customise your solution.

As Public Cloud is built on shared infrastructures, there is therefore a very limited amount of customisation available. Equally, the information security consequences of a shared infrastructure may impact how or whether Public Cloud is used with sensitive data. In contrast, Private Cloud, which is built on dedicated servers and with dedicated network devices, can be customised to meet most requirements including handling sensitive data.

Public Cloud is almost always cheaper as it is built on a shared infrastructure – many providers charge on an hourly basis for their service, and some (including Rackspace) have no minimum contract length. This makes Public Cloud a very attractive option for start-ups and businesses with limited funds.

Private Cloud solutions will usually have a dedicated account team supporting them, plus a team of certified virtualisation engineers monitoring and maintaining the platform. In the case of Rackspace Private Cloud, the account team is available 24/7/365 by telephone, email and an online ticketing system. Many Public Cloud providers provide limited support by telephone or Internet chat, and often during business hours only (although Rackspace's Public Cloud offerings are all supported 7x24).

Key Differentiators between Public and Private Cloud

	Private Cloud	Public Cloud
Dedicated Server and Network Hardware?	Yes	No
Can meet compliance requirements, e.g. PCI DSS, SOX, etc.?	Yes	No
Hourly Billing?	No	Yes
Add and delete new server instances within minutes via web portal?	No	Yes
Customisable infrastructure?	Yes	No
Supports Microsoft SQL Databases?	Yes	Yes *
IDS / DDoS Mitigation available?	Yes	No
Dedicated account team?	Yes	No

24/7/365 support?	Yes	Yes **
Is monitoring available?	Yes	No

* Rackspace Cloud Sites supports Microsoft SQL, with database storage available in 100MB increments

** Public Cloud support is often limited to the infrastructure only and accessible via telephone or internet chat

Conclusion

Each of the technologies described above – Managed Hosting, Virtualisation, Public and Private Cloud - meets a specific set of business needs. Their specific features mean that should be chosen carefully - they are not all equally suitable for every application, or for every organisation.

Managed, or Dedicated Hosting

Managed, or Dedicated Hosting is most suited to organisations looking for high uptime guarantees, security, the backing of a comprehensive support team and the ability to customise their environment. Organisations with compliance requirements, such as ecommerce providers are often a good fit for Managed Hosting. As these solutions are designed and built to meet individual customer specifications, they are suitable for most businesses. However, some smaller organisations and start-ups may struggle with the relatively higher costs associated with Managed Hosting.

Private Cloud

Private Cloud is a good match for organisations seeking uptime guarantees, security, support, customisation and flexibility. Creating Virtual Servers containing pre-defined content from templates can help organisations to scale swiftly, be more agile and react to market demands as they change. The ability to consolidate large server farms and better utilise hardware is a proven route to significant cost savings, and may also assist with corporate green initiatives in reducing CO₂ emissions. While sometimes cheaper than Managed Hosting, Private Cloud still carries a price premium as it runs on dedicated hardware, thereby making it unsuitable for highly budget-conscious organisations and small startups.

Public Cloud

Public Cloud is ideal for young businesses seeking uncomplicated IT hosting with minimal outlay and no complicated contracts. The ability of most public cloud offerings to scale effortlessly is particularly attractive for websites and applications that have either seasonal demand, or unpredictable traffic. However, the lack of customisation and uptime guarantees or Service Level Agreements (SLAs) may prove to be a barrier to some.

Another quite separate use of Virtual Servers hosted in the Public Cloud is for test and development of applications and UAT. The flexibility for coders to create new Cloud servers in a matter of minutes and to only be billed for what they use makes this attractive to any software development organisation.

While quick to scale and priced attractively, the shared nature of Public Cloud may be unsuitable for more sensitive applications and data, most typically in the enterprise or ecommerce sector.

The Future of Hosting

As Public Cloud offerings evolve, additional applications will become available in the Cloud, and hosters providing Dedicated or Managed and Public Cloud products will be able to combine the two to provide a hybrid offering. This will enable organisations to host their core applications and data on dedicated hardware and then burst into the Public Cloud to cope with increased demand more cost effectively.