

# BUILDING A PRIVATE CLOUD

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Private clouds are currently one of the most popular concepts in cloud computing.

They promise the flexibility of cloud infrastructures without sacrificing the control of owning and maintaining your own data center. For a definition of cloud

architectures see my previous blog on Cloud

Types (<http://www.definethecloud.net/?p=109>.)

Private clouds are an architecture that is owned by an individual company typically

for internal use. in order to be considered a true cloud architecture it must layer

automation and orchestration over robust scalable architectures. The intent of

private clouds is the ability to have an infrastructure that reacts fluidly to business

changes by scaling up and scaling down as applications and requirements change.

Typically consolidation and virtualization are the foundation of these architectures

and advanced management, monitoring and automation systems are layered on

top. In some cases this can be taken a step further by loading cloud management

software suites on the underlying infrastructure to provide an internal self service

Software as a Service (SaaS) or Platform as a Service (PaaS) environment.

Private cloud architectures provide the additional benefit of being an excellent way

to test the ability for a company to migrate to public cloud architecture.

Additionally if designed correctly private clouds also act as a migration step to

public clouds by migrating applications onto cloud based platforms without exporting them to a cloud service host. Private clouds can also be used in conjunction with public clouds in order to leverage public cloud resources for extra capacity, failover, or disaster recovery purposes. This use is known as a hybrid cloud.

Private cloud architectures can be done in a roll-your-own fashion, selecting best of breed hardware, software, and services to build the appropriate architecture. This can maximize the reuse of existing equipment while providing a custom tailored solution to achieve specific goals. The drawback with roll-your-own solutions is that it requires extensive in-house knowledge in order to architect the solution properly.

A more common practice for migration into private clouds is to use packaged solutions offered by the major IT vendors, companies like IBM, Sun, Cisco, and HP have announced cloud or cloud-like architecture solutions and initiatives.

These provide a more tightly coupled solution, and in some cases a single point of contact and expertise on the complete solution. These types of solutions can expedite your migration to the private cloud.

When selecting the hardware and software for private cloud infrastructures ensure you do your homework. Work with a trusted integrator or reseller with expertise in the area, gather multiple vendor proposals and read the fine print. These solutions

are not all created equal. Some of the offered solutions are no more than vaporware and a good number are just repackaging of old junk in a shiny new part number. Some will support a staged migration and others will require rip-and-replace or at least a new build out.

There are several key factors I would focus on when selecting a solution:

### **Compatibility and Support:**

Tested compatibility and simplified support are key factors that should be considered when choosing a solution. If you use products from multiple vendors that don't work together you'll need to tie the support pieces together in-house and may need to open and maintain several support tickets when things go awry.

Additionally if compatibility hasn't been tested or support isn't in place for a specific configuration you may be up a creek without a paddle when something comes up.

### **Flexibility vs. Guaranteed Performance:**

Some of the available solutions are very strict on hardware types and quantities but in return provide performance guarantees that have been thoroughly tested. This is a trade off that must be considered.

### **Hardware subcomponents of the solution:**

Building a private cloud is a large commitment to both architectural and organizational changes. Real Return On Investment (ROI) won't be seen without both. When making that kind of investment you don't want to end up with a subpar component of your infrastructure (software or hardware) because your vendor tried to bundle their best of breed X and best of breed Y with their so so Z. Getting everything under one corporate logo has its pros and cons.

### **Hardware Virtualization and Abstraction:**

A great statement I've heard about cloud computing was that when defining it if you start talking about hardware you're already wrong (I don't remember the source so if you know it please comment.) This is because cloud is more about the process and people than the equipment. When choosing hardware/software for private cloud keep this in mind. You don't want to end up with a private cloud that can't flex because your software and process is tied to the architecture or equipment underneath.

Source: <http://www.definethecloud.net/building-a-private-cloud/>