



“Efficiency Analysis of AWS Offering Vs. Private/Hybrid Implementations or Traditional Colo”

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It is just so easy to jump on AWS cloud. Create an account, input your credit card info, and you can start building your virtual machines. Easy – no brainer. Really? Yeah, exactly – no brainer!!

Let’s consider a few simple infrastructure case studies. This is what we will use to compare:

1. AWS – we use standard AWS calculator available online: <http://calculator.s3.amazonaws.com/index.html>
2. For vCloud providers, we consider the \$15/\$15/0.15 formula. \$15 per 1vCPU, \$15 per 1G RAM, \$0.15 for 1G of space on SSD accelerated storage pool;
3. For standard colo, we price correspondent server on DELL website using their lease price + adding standard colocation pricing;

Case 1: A Single Server

a. A small class server for a small web site:

1CPU, 4G RAM, 200G hard drive, don’t really care about performance

AWS	vCloud Smaller Provider	Standard Colo
Setup small instance, there is no such thing as 1CPU x 4G of RAM, have to select 2CPU and 4G RAM. Selecting 200G Volume with 100 IOPS on standard non SSD storage Linux on t2.medium.	Get exactly what you need on VMWare cloud: 1CPU x 4G RAM x 200G.	Get smallest server from Dell: Power Edge 220, 1x2C CPU, 4G of RAM, 2 x 300G HDDs in RAID 1 configuration giving you around 200 IOPs.
Need to pay pennies for IP, data transfer. Can be ignored for this situation.	Formula to calculate charges: 15x15x0.15 (\$15 per vCPU, \$15 per RAM, 0.15 for G of standard HDD with SSD acceleration).	Lease price from DELL: 39.00 Colocation space: \$40 Power: \$20 Bandwidth: \$20
	Formula to calculate charges: 15x15x0.15 (\$15 per vCPU, \$15 per RAM, 0.15 for G of standard HDD with SSD acceleration).	There is no redundancy.
64.65	105.00	\$119.00



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b. A middle class server for some all in one processing or dedicated role:

4CPU, 16G RAM, 500G hard drive

AWS	vCloud Smaller Provider	Standard Colo
Setup c4.xlarge instance as 4CPU x 7.5G of RAM, have to select 2CPU and 4G RAM. Selecting 500G Volume with 300 IOPS on standard non SSD storage.	Get exactly what you need on VMWare cloud: 4CPU x 8G RAM x 500G.	Get smallest server from Dell: Power Edge 220, 1x4C CPU, 8G of RAM, 2 x 300G HDDs in RAID 1 configuration giving you around 200 IOPs.
Need to pay pennies for IP, data transfer. Can be ignored for this situation.	Formula to calculate charges: 15x15x0.15 (\$15 per vCPU, \$15 per RAM, 0.15 for G of standard HDD with SSD acceleration).	Lease price from DELL: 47.00 Colocation space: \$40 Power: \$20 Bandwidth: \$20
	Formula to calculate charges: 15x15x0.15 (\$15 per vCPU, \$15 per RAM, 0.15 for G of standard HDD with SSD acceleration).	There is no redundancy. But this solution shows much better savings.
\$232.00	\$255.00	\$127.00

c. A larger server for dedicated role:

16CPU, 32G RAM, 1.2T hard drive

AWS	vCloud Smaller Provider	Standard Colo
Setup c4.xlarge instance as 16CPU x 30G of RAM, have to select 2CPU and 4G RAM. Selecting 1.2 Volume with 500 IOPS on standard non SSD storage.	Get exactly what you need on VMWare cloud: 16CPU x 30G RAM x dedicated RAID group.	Get smallest server from Dell: Power Edge 220, 1x4C CPU, 8G of RAM, 2 x 300G HDDs in RAID 1 configuration giving you around 200 IOPs.
Need to pay pennies for IP, data transfer. Can be ignored for this situation.	Formula to calculate charges: 15x15x cost of dedicated raid group.	Lease price from DELL: 47.00 Colocation space: \$40 Power: \$20 Bandwidth: \$20
	Formula to calculate charges: 15x15x0.15 (\$15 per vCPU, \$15 per RAM, 0.15 for G of standard HDD with SSD acceleration).	There is no redundancy. But this solution shows much better savings.
\$730.88	\$720.00	\$180.00

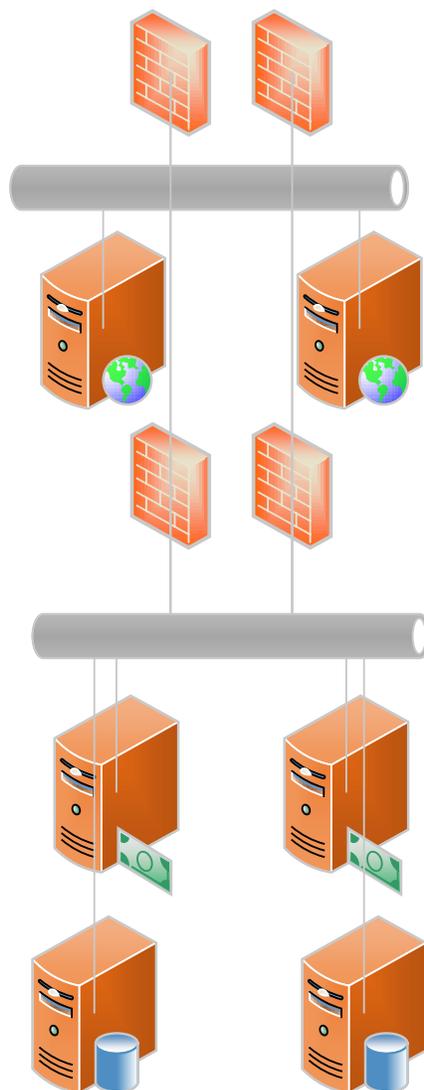


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Case 2: Small Infrastructure

Let’s consider a case of some small scale infrastructure. The targeted infrastructure would consist of DMZ and private segment. DMZ would run 2 load balanced web servers talking to 2 middle tier application servers that are communicating with backend databases.

The targeted infrastructure looks like this:





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Specs for Servers:

AWS	vCloud Smaller Provider	Standard Colo
6xSetup c4.xlarge instance as 4CPU x 7.5G of RAM, have to select 2CPU and 4G RAM. Selecting 500G Volume with 300 IOPS on standard non SSD storage.	4x Get exactly what you need on VMWare cloud: 4CPU x 8G RAM x 500G.	4xSmallest server from Dell: Power Edge 220, 1x4C CPU, 8G of RAM, 2 x 300G HDDs in RAID 1 configuration giving you around 200 IOPs 2xCisco FWs.
Need to pay pennies for IP, data transfer. Can be ignored for this situation You cannot have physical FWs between your environments. Have to play with AWS security zones.	Formula to calculate charges: 15x15x0.15 (\$15 per vCPU, \$15 per RAM, 0.15 for G of standard HDD with SSD acceleration) Get physical FWs including VPN, IDS, IDP etc.	Lease price from DELL: 6x47.00 Colocation space: 6x\$40 Power: 6x\$20 Bandwidth: \$20 Firewalls leas - \$220
	Formula to calculate charges: 15x15x0.15 (\$15 per vCPU, \$15 per RAM, 0.15 for G of standard HDD with SSD acceleration).	There is no redundancy. But this solution shows much better savings.
\$1392.00	\$1530.00	\$982.00



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The smartest way of doing it:

1. Get 3 x larger servers.
2. Server specs we have configured:
 - PowerEdge R320 Rack Server
 - 8 cores each
 - 16G of RAM if each.
 - 2xSAS disks + 2 SSD performance disks giving you 1T supper fast storage per server
3. Total 3 server will create a pool of resources:
 - 24 vCPUs
 - 48G of vRAM
 - 6T of very fast storage

Hardware price: \$16,212 or \$489 per month

Colocation cost: \$120 per month

Power cost: \$120 per month

4. Lease firewalls from colocation vendor: \$150
5. Configure VM optimized virtual storage
6. Configure KVM virtualization

Total cost: **\$720** per month.

Similar infrastructure at AWS would cost **\$1392** per month.

Conclusion:

1. Cloud services for small instances provide advantage to customers.
2. Middle instances provide some benefits and convenience but start loose price advantage
3. Large instances prove to be not cost effective
4. Creating your own virtualized infrastructure in datacenters provide large financial benefits to larger organization.
5. Financial benefits of own virtualization grow with resource utilization increase

For more information or help with building your own virtualized infrastructure, software packages, and exact configuration and price assessments contact **Digital Edge** at 1-800-714-5143 or visit our website at www.digitaledge.net.