Implementing Security Rules, Safeguards, and IDS tools for Private Cloud Infrastructures

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1 Background

The cloud computing space has grown over the last several years. Business and Universities are looking at solutions to migrate their existing infrastructure to the cloud. There are several reasons for this type of business shift: costs, scalability, reliability [3]. The cloud offers some precedented advantages to an standardized computational model. One is able to pay for only the resources used, with more recurses added/removed depending on the demand. Another advantage is the ability to spine up/destroy several machines with little overhead. Several companies are fronting the cloud revolution including Amazon, Google, Microsoft, and Digital Ocean.

1.1 Cloud Models

In the cloud computing space several different computational models exist [1].

- Software as a Service (SaaS) allows for the user to utilize applications (I.E. Email, games, etc.) without the need to set up / worry about the underlying infrastructure.
- Platform as a Service (PaaS) give the user the ability to create applications (I.E. Web servers, databases, etc.) without the need to create the entire system from he ground up.
- Infrastructure as a Service (IaaS) gives the users a basic virtual machine with the user needing to setup all nectary functionality.

1.2 Cloud Infrastructure

At the most fundamental layer a cloud computer is a server running in a datacenter that has a hypervisor which then contains and runs another operating system. These hypervisores are the backbone of cloud computing allowing several different virtual environments to use the same hardware. There are several different hypervisors to choose from (Xen, Oracle VirtualBox, Oracle VM, KVM, VMware ESX/ESXi, or Hyper-V) with each having a similar outcome however a different approach to the problem.

2 Related Work

A good starting article [2]

References

[1] Cloud computing.

[2] Bhavesh Borisaniya Hiren Patel Avi Patel Muttukrishnan Rajarajan Chirag Modi, Dhiren Patel. A survey of intrusion detection techniques in cloud. *Journal of Network and Computer Applications*, 2013.

[3] Tharam Dillon, Chen Wu, and Elizabeth Chang. Cloud computing: Issues and challenges. *Advanced Information Networking and Applications (AINA), 2010 24th IEEE International Conference.*