Cloud Infrastructure Network Security

Research Problem:

Cloud computing has become the core internal part of the software development industry. It is a combination of resources and network services offered over the internet without any hardware infrastructure setup cost. It serves as a platform providing services in various domains right from Virtual Environment resources, databases, messaging services and parallel machine learning and Business intelligence services. Due to the leverage of many technologies in one place, it inherits the security issues which persist in those individual platforms involving secure access authentication, authorization, access management, security controls and services.

Through this paper we are exploring the security issues that persists in the cloud infrastructure and the possible solutions and policies to mitigate them or minimize the risk of threats that can be exploited by threat agents

Research Problem Statement:

The architecture of cloud computing consists of various kinds of distributed systems with wide usage and network connectivity across multiple regions and cross-continents. The problems which it inherits from its multi-tenancy and agile work model are Misconfigurations, Shared tenancy vulnerabilities, meeting and billing evasions. One of the things which every organization needs to look up while building out or migrating their traditional infrastructure into the cloud would be the accessibility and ability to prevent data-theft and cross-control access.

Due to the heavy transfer of data in real-time with the high-speed mobility in the infrastructure available in the Cloud services providers causes the lack of transparency issues and losing out the full control. There are some vulnerabilities which are commonly happen like Misconfiguration which is result from the lack of understanding of shared model for example cloud service policy give access to resources without justifying user role. Weak authentication and authorization are examples of Poor Access Control Vulnerabilities. Cloud user accounts using MFA are compromised using password reset links to single factor authentication email accounts. There are some other vulnerabilities like shared tenancy vulnerabilities, supply chain vulnerabilities, Data recovery vulnerabilities. Over-metric and data abuse using the unexpected high billing evasion cycles are examples of metering and billing evasion vulnerabilities.

All the above observations call for the need of Security as a Service and solutions like Moving target defense to safeguard the systems from various types of attacks.

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