Multi-agent based intrusion detection system for cloud computing - (iaas)

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Abstract:

Cloud Computing has come to represent a significant shift in Information Technology. Companies are excited by the opportunities to reduce capital costs, invest on core competencies and as well by the agility offered by the rapid on-demand provisioning of computing resources with minimal management effort or service provider interaction. However, security concerns have slowed down the uptake of cloud computing services. Trust has been identified as the key barrier to cloud computing uptake as consumers are worried about who has access to their data within the cloud because by using cloud infrastructures, the client necessarily cedes control to the cloud provider. At the same time, service level agreements may not offer a commitment to provide such services on the part of the cloud provider, thus leaving a gap in security defenses. To alleviate the issue of trust, mechanisms of auditability and accountability in a cloud computing environment must be put in place. Hence in this project, we detail the use of a multi agent based framework for file centric intrusion detection in the cloud computing environment with focus on the Infrastructure as a Service model; we design and implement the framework which serves to monitor file creations, modifications or deletions in a cloud computing environment i.e., the framework seeks to answer who did what? At what time? On which file? And what were the changes made? We use the JADE development framework and the PASSI (Process for Agent Societies Specification and Implementation) methodology in modeling the proposed agent based solution as it offers step by step requirements to code guidelines and the much needed iterativeness to fully ensure user requirements are fully captured. The framework depicts aspects of security assurance that assists in efforts to promote the issue of trust in a cloud computing environment hence increase the uptake of the service. The potential beneficiaries of this project are both service providers and consumers of cloud computing services.