

ANALYSING THE IMPACT OF IAAS INFRASTRUCTURE COMPONENTS TO IMPROVE SYSTEM PERFORMANCE

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Nowadays the field of cloud computing is one of the most important and quickly developing spheres. Cloud services are becoming an important service in Internet computing. IAAS - Infrastructure as a Service, in this service model cloud computing providers provide users with resources in the form of virtual machines, storage, firewalls, load balancers and network devices. The user can host and install any kind of software, both operating systems and applications. The problem with this infrastructure is that the user does not control the physical and virtual infrastructure that underpins the cloud, but they do control the operating systems, storage systems, installed software and have limited control over some networking components [1-3].

The objective of this paper is to assess the impact of IaaS infrastructure components on system performance. The complexity of the task of assessing the impact of individual components on overall performance is that often providers do not provide information about the server architecture.

A key performance factor is the physical architecture of the virtualization system. At the moment the best solution is to use Blade servers that allow for hot-swapping, which improves fault tolerance and failover time. Next in importance is the connectivity factor of the logical structure of the virtual server. Most off-the-shelf solutions today are organised using more than one physical server. This method is fault-tolerant due to periodic maintenance of process states, i.e. "check-points", but has lower capacity and possible delays due to constant synchronisation between servers. Another factor to consider is the type of virtualisation. Types such as paravirtualisation and full virtualisation can lead to critical performance loss. For best performance there is operating system level nesting, which in turn imposes a limitation in the form of using a mono-type operating system.

References

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