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Virtual machine monitoring in cloud computing

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Abstract

Cloud computing is the delivery of computing as a service rather than a product, whereby shared resources, software, and information are provided to computers and other devices as a utility (like the electricity grid) over a network (typically the Internet). Clouds can be classified as public, private or hybrid. Cloud computing, or in simpler shorthand just "the cloud", also focuses on maximizing the effectiveness of the shared resources. Cloud resources are usually not only shared by multiple users but are also dynamically reallocated per demand. This can work for allocating resources to users. For example, a cloud computer facility that serves European users during European business hours with a specific application (e.g., email) may reallocate the same resources to serve North American users during North America's business hours with a different application (e.g., a web server). This approach should maximize the use of computing power thus reducing environmental damage as well since less power, air conditioning, rack space, etc. are required for a variety of functions. With cloud computing, multiple users can access a single server to retrieve and update their data without purchasing licenses for different applications.

Proponents claim that cloud computing allows companies to avoid upfront infrastructure costs, and focus on projects that differentiate their businesses instead of on infrastructure. Proponents also claim that cloud computing allows enterprises to get their applications up and running faster, with improved manageability and less maintenance, and enables IT to more rapidly adjust resources to meet fluctuating and unpredictable business demand. Cloud providers typically use a "pay as you go" model. This can lead to unexpectedly high charges if administrators do not adapt to the cloud pricing model

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1. Introduction

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Amazon Web Services (AWS) is a collection of remote computing services (also called web services) that together make up a cloud computing platform, offered over the Internet by Amazon.com. The most central and well-known of these services are Amazon EC2 and Amazon S3. The service is advertised as providing a large computing capacity (potentially many servers) much faster and cheaper than building a physical server farm.

Microsoft Azure is a cloud computing platform and infrastructure, created by Microsoft, for building, deploying and managing applications and services through a global network of Microsoft-managed datacenters. It provides both PaaS and IaaS services and supports many different programming languages, tools and frameworks, including both Microsoft-specific and third-party software and systems. Azure was released on 1 February 2010.

1.1. Cost saving for cloud consumers

Opting for the cloud helps a business save money in several ways. For instance, it eliminates the necessity to invest in storage hardware and other physical infrastructure like servers. Besides, a business does not need to hire technical personnel to maintain and service the infrastructure. With cloud service, you pay after certain duration of time depending on the plan you opt for.

1.2. Focusing on core business

In the past, business enterprises which needed large storage spaces found it necessary to hire IT professionals who managed and maintained the infrastructure. Cloud computing is however convenient in the sense that you only concentrate on what means most to you. Since your applications will be run over the internet, you do not have to worry about technical problems and other inconveniences associated with physical unified storage solution spaces. Additionally, you do not have to worry about backup which gives you peace of mind and time to run your business effectively.

1.3. Performance and support

One of the things which make cloud computing so popular to business enterprises is the fact that all your software and applications update automatically. With regards to performance, the cloud service allows employees to work from whatever locations as long as they have reliable internet connection. If the business is going to used shared apps, the employees can sync up their documents so that it looks like they were working from a single office room. Although it’s rare, most companies which offer cloud computing services are willing to attend to any of their clients should they experience technical problems or in the case devastating scenarios such as data loss. And this web application should also support upcoming emerging services which service providers are merging in for their end users. This should solve compatibility issue as well.

2. Existing architecture

Towards a Cross Platform CLOUD API, This technique was researched by Dana Petcu and Ciprian Craciun at Institute e-Austria & West University of Timis¸ Oara, Romania from Second University of Naples, Italy. This general paper states that Cross platform APIs for cloud computing are emerging due to the need of the application developer to combine the features exposed by different cloud providers and to port the codes from one provider environment to another. Such APIs are allowing nowadays the federation of clouds to an infrastructure level, requiring a certain knowledge of programming the infrastructure. Cross platform APIs for cloud computing are emerging due to the need