



CLOUD COMPUTING

Research assignment



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ASSIGNMENT PLAGIARISM DECLARATION

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Introduction

What is cloud computing? Per (Griffith, 2016) In simple terms of cloud computing which means assessing your data and programs through the internet. In fact, when we referring to the “cloud” (Griffith, 2016), we are referring to the internet. This research assignment will address the overview of cloud computing and its levels such as the infrastructure(IaaS), platform (PaaS) and software as-a-service(SaaS). Furthermore, it will also address the features and requirements for cloud monitoring solution which basically show all the benefits of cloud computing. This assignment also goes into the basic detail of the generic components and systems of cloud monitoring systems in terms of its, software, services and configurations. I have chosen Monitis, Cloud watch and logic monitor and gave an overview of these cloud monitoring solutions.

Lastly, I discussed the future trends of cloud monitoring and how it will progress in the future.

Overview of cloud computing

Cloud computing is a kind of computing technique where IT services are provided by massive low cost computing units connected by IP networks Qian, L., Luo, Z., Du, Y. and Guo, L., 2009. Cloud computing: An overview. Cloud computing, pp.626-631.

These services include providing servers, storage, databases, networking, software, analytics and more through the internet. There are many uses for cloud computing some of which are hosting websites and blogs, storing and backing up data, creating new apps and services, streaming audio and video, analysing data for patterns and making predictions and delivering software on demand.

Levels of cloud computing services

Infrastructure as a service(IaaS)

IaaS also referred to as hardware as a service (HaaS) provides virtualised computing resources over the internet. Basically, the provider's hosts hardware, software, servers, storage and other infrastructure components on behalf of its users.

Furthermore IaaS, can handle tasks including system maintenance, backup and resilience planning. Its services have elastic scalability. Some examples of IaaS providers are Amazon Web Services Elastic Compute Cloud (EC2) and Secure Storage Service (S3) Am Bhardwaj, S., Jain, L. and Jain, S., 2010. Cloud computing: A study of infrastructure as a service (IAAS). International Journal of engineering and information Technology, 2(1), pp.60-63. Some of the advantages of IaaS include enabling users to applications anywhere, a system which is scalable, flexible, virtualised and automated Bhardwaj, S., Jain, L. and Jain, S., 2010. Cloud computing: A study of infrastructure as a service (IAAS). International Journal of engineering and information Technology, 2(1), pp.60-63.

Software as a service

Software is provided through a network usually the internet. This means users do not have to worry about configuration, deployment and maintenance of applications due

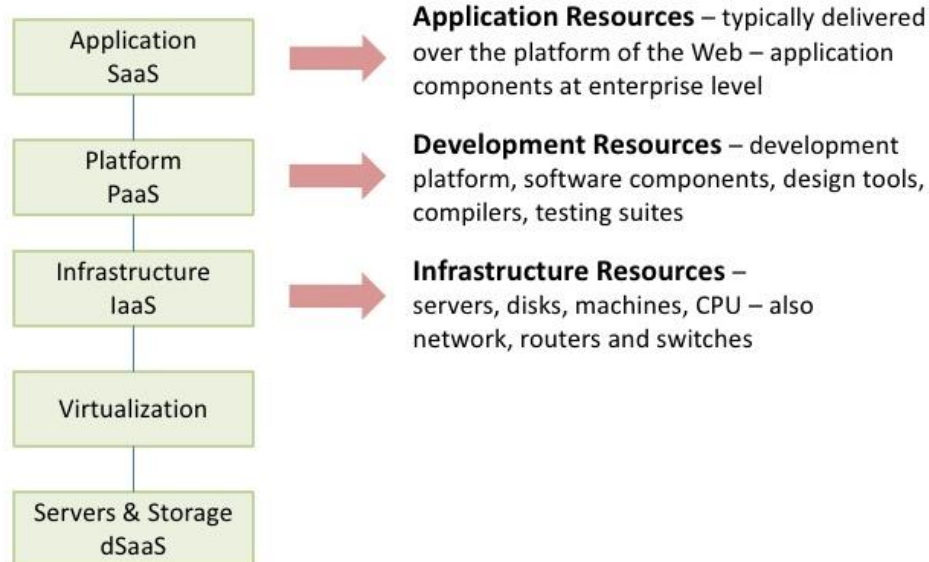
to be handled by the vendor. Since SaaS applications are made available through the internet, users can access them from anywhere and at any time if there is an internet connection. Per Mell, P. and Grace, T 2011, cloud computing, applications are available through either a program interface or a web browser. The advantage of SaaS is that end users can access data anywhere and at any time thus, making sharing data and collaborating easy.

Platform as a service

Platform as a service (PaaS) which is also known as on demand web based or SaaS solutions is used to build and run custom applications. Basically, the client does not need to install, configure or maintain operating systems, databases and application servers as this is provided (Rouse, 2015). Users typically access PaaS through a web browser. Most PaaS platforms are geared towards software development as they offer a variety of advantages such as allowing developers to frequently change or upgrade operating system features. It also helps development teams collaborate on projects. PaaS providers host the hardware and software on its own infrastructure. Also, PaaS does not replace a business infrastructure as businesses rely on it for key services. Some examples of PaaS are Salesforce.com, Force.com and Amazon Web services (Rouse, 2015).

Components of Cloud Computing

- **Layers and Service Models**



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Requirements and features

- Capacity and Resource Planning (Aceto, 2012)
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- Capacity and Resource Management, it does this monitoring by keeping track of hardware and software matrices. It also provides data analysis. (Aceto, 2012)
- SLA Management (Aceto, 2012)
- Billing (Aceto, 2012)
- Troubleshooting as in finding the cause of problems in possible components. (Aceto, 2012)
- Performance management (Aceto, 2012)
- Security management, cloud monitoring is meant to keep enterprise applications safe from cyber crime (Aceto, 2012)

Monitis

Monitis is a web based monitoring tool and application performance management (APM) tool, which can monitor servers, networks, cloud services and even mail servers. Its application program interface (API) provides support for custom functionality (Anon., n.d.). One of its major key features is that monitoring takes place in over 30 locations around the world and can check intervals in as short as minute. Two years of history monitoring data is available. Monitis also offers reports such as performance, service level agreement metrics(SLA), outages and email. It also has an alert system for example the data centre can alert a customer when their network is down. It uses a dashboard to display data such as top page views, page build and load times, user browser and geographic information. Furthermore, it can monitor a server's processor, memory, storage devices, bandwidth, processes and services (Anon., n.d.).

Logic Monitor

Logic monitor allows its customers to monitor across cloud layers example Caspase and IA as (Martinez, 2017).It is a tool used for network monitoring ,infrastructure monitoring and website monitoring .Logic Monitor has a customizable web portal where data is displayed (Martinez, 2017) .Their dashboards are customizable .Each metric being monitored appears on its own widget. Its alerting feature allows its user the ability to create and configure escalation chains. Lastly reports can be organised in folders (Martinez, 2017).

AmazonCloudWatch

It is a monitoring service for amazon web service (AWS) cloud resources and the applications which run on AWS (Anon., n.d.). It can collect and track metrics and log files. Its features include monitoring Amazon EC2. Metrics like CPU utilization, data transfer and disk activity can be viewed. Furthermore, it can also monitor and store logs in real time (Anon., n.d.) .It can also set alarms if a threshold is met. Lastly users can view graphs and statistics, metric data is kept for 15 months.

Software

A data supplier which is responsible for for collection and monitoring data and providing them to the data manager via handlers, this done through software.

Monitoring agents for various operating systems, subsystems, databases, and applications collect data and send it to the server. A Command Line Interface (CLI). This CLI is used to manage your monitoring environment and can also be used to automate many of the administrative functions.

Services

The basic services offered will be monitoring resources like CPU, memory and network usage. It will also record log data for instance errors and any type of type of issues that have occurred. It can also create report for stakeholders to make decisions.

Configurations

The IT intrusted will be adjusted per the agreement between provider and users. Policies will be made to scale the infrastructure, in these policies will contain the number of servers, hardware and the amount of data will be stored daily.

Future of cloud monitoring

Due to the complexity of cloud monitoring systems it needs to become more scalable, effective and fast (Alhamazani, 2015). Per (Alhamazani, 2015) decentralised approaches are gaining more over centralised approaches. In terms of networking architecture unstructured P2P networks are preferred over the structured P2P

because its more efficient .Performance burden should not be placed on the system , monitoring tools should be integrated in such a way that it manages the performance of the system as a whole (Solution, 2017).Cloud monitoring solutions should aim to minimize energy consumptions and cost. Automatic Problem pattern detection will ensure potential issues are detected, also AI will help to find problems faster and lastly Voices will allow stakeholders to interact with their monitoring tools (Anon., 2017). As of this year per (Solution, 2017), cloud monitoring solutions will be able deliver optimal performance to IT infrastructures, and all IT resources will be monitored continually and it will be able to detect issues.

Conclusion

Despite the costs cloud services provide many advantages for its users. It has become a solution to various computing issues such as performance, and storage. Through its powerful reporting and graphing strategies businesses and individuals can make justifiable and proper decisions. Cloud providers are learning that there IT infrastructure they providing should be scalable and adapt to the needs of their users. Users are learning that to take maximum benefit of the cloud, they need to understand their IT intrusted. With the emergence of AI cloud computing in the future will only become faster and more efficient. Information is the commodity of the future and thanks to the cloud computing advantages its making it apparent.

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