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To cite this article: H Rayjada and P Shukla 2021 *IOP Conf. Ser.: Mater. Sci. Eng.* **1022** 012058

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Analytical Comparison of Cloud Data Centre Services and Cost

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Abstract. Comparing with the traditional data centre, cloud computing makes it easier for enterprises to scale their services and lowers the cost of access for smaller companies. The cost comparison between cloud computing and the old-style data centre is an important issue of concern. In this paper, the cost roles traditional cloud data centre and server room are settled up, the performance of the data centre and cloud computing were tested based on the compared with the data centre with low workload intensity strength. More than a few data centre have a primary backup of data and servers. The cloud data centre provider like Amazon, Google Facebook data centre are called Availability zones. The availability zones are a within the same region, distinct colocation centre is connected to Virtual Private Cloud network. This research discovering new network architectures for the data centre. In this paper, we considerate the among different data centre charges and network architectures. the comparison on cost using current and predicted trends in data centre cost and power consumption.

Keywords: Data centre cost, Hardware, Cloud Services, VPN.

1. Introduction

The data centre is replacing server rooms to design a modern type and managed by IT staff. The world moves on the cloud, shifting their focus from following old-style private customers to the needs of large cloud service and data storage providers Wenders like AWS, Google, and Microsoft. This paper presents comparison of the clod server services costs namely, AWS, Google, Microsoft, NIC, Ctrls. A minimum services cost calculation approach is used, each of this information of data center costs are evaluated from price compare to physical server's components available on the market. Our 2019 Data Center Marketplace statistical Report emphases on the supply and growth of requests of usage on data center across. The cloud data center is a hybrid, and environments data center in this article, we'll improve in on the largest data center services, staffs and compare customer size, storage and apply trends across them. The results of reveal data center that taken economic savings in each architecture the data center size and design that depend on of data center. The most cost-efficient planning is offers low costs for large server size data centers. In all considered set-ups it has been practical data center scenario.

2. Basic Server Requirement



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2.1. Virtualization Software

Virtualization has revolutionized computing and IT, VM take convert an important part of computing, cloud computing, business and also Small Industry who's not afford mor then especially one server. Still, virtualization is rather then similarly offered to home based users as well small industry. Virtualization software tolerates more than one operating system using virtualization only one Server. The concept of Information technology is use minimum hardware resources that masks the physical nature and limitations of users. VMware provides cloud data center computing and virtualization software [6]. VMW Require Hardware for Workspace ONE Assist Server CPUs 2.4 GHz Processors, 4 Logical Processors, 2 CPUs, 2 Core 2x2 or 4 physicals depending on machine type, virtual machine, or physical, Memory 16 GB, Hard Drive IOPS-200, Hard Drive Space 100 GB for OS drive, Bandwidth 1 MB/per minute [1].

2.2. Windows Server hardware Require

Windows Server Essentials 2012/16/19 64-bit server software operating system. Defines the recommended minimum hardware provisions designed for Windows Server hardware System requirements CPU socket 3 GHz (64-bit processor) or faster for multi-core (two core), Memory (RAM) 4 GB, Hard disk available for systems operating systems storage space 60 GB [2]
Real hardware requirements will be situated based on system configuration, requests and structures select to installation.

2.3. SAP HANA hardware requirements

The SAP HANA hardware requirements is depending on the of SAP HANA version. HANA in installing and Configure to additional features adding and sizing the database storage capacity. ERP SAP HANA requirements hardware CPU core 8 cores, memory RAM 128 GB, Hard disk for storage 20 GB, Network 10 GB/ second backbone connectivity, Bandwidth 1MB/ per minutes [3].

2.4. Standard ERP Systems Requirement

Standard ERP will typically be installed on core Server or Virtual software for ERP system in a business, the core ERP system is combined to on-line front-end server. The serious part of software in business is an ERP. The ERP software cost and unavailable installation is consequently usually very high. The employers expected regular users in a typical system using the Sales, Purchase and Nominal Ledgers, Logistics and CRM. Standard ERP Recommended Server Hardware CPU Core 2.5 GHz 4core, Memory RAM 16 GB, Hard Disk 20 GB, internet 1Gb/s [4].

2.5. SQL Database minimum hardware requirements

The SQL data base Server on 2019 support on the Windows, Linux and Mac operating system. SQL Database minimum hardware configuration requirements to installation. CPU 2Ghz speed, 2 Core processor, RAM 2 GB, Hard Disk space 6 GB.[8]. This is a minimum recommended Hardware for ERP system. CPU core and RAM not major change for up gradation, HDD based on OS and ERP Calculate actual Storage depend on Data base. In addition, configuration RAID server then requires plus storage. The Small and medium Industries require minimum Software Capable Hardware, Table 1 Calculate to bunch of software require to Small and medium Industries ERP require Server Hardware configuration.

Table 1. Minimum Server Hardware requirement to each complete server solution.

Software	CPU	RAM	Storage
VMWare + Windows Server + ERP SAP HANA + SQL DB Server	16 Core	152 Gb	186 Gb
VMWare + Windows Server + Standard ERP + SQL DB Server	12 Core	40 Gb	186 Gb
Windows Server + ERP SAP HANA + SQL DB Server	12 Core	136 Gb	86 Gb

Windows Server + Standard ERP + SQL DB Server	8 Core	24 Gb	86 Gb
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3. Cloud Data Centre Services

3.1. Amazon Web Services (AWS) Data Centre:

The Amazon Data center is provided to this statement includes a total cost of ownership (TCO) among running Amazon Web Services plan on-premises or colocation infrastructure in Amazon Web Services. The on-premises and colocation set-up is built on the account provided in the online portal. The Amazon Web Services colocation infrastructure is an evaluation of the infrastructure defined. These calculations use third-party estimates and expectations. The monthly charge will be based on actual usage of Amazon Web Services differ from the estimates the cost has provided. This online calculator provides a valuation of usage charges for Amazon Web Services created on online support and information on condition that [5]. AWS three years total cost of ownership On-Premises cost is 15116079 and AWS cloud cost is 3604389. his provide just price not more technical details in online quote.

3.2. Google Cloud Data Centre

Google Data Center Policy is a supplier of processing assets for conveying and working applications on the Cloud. His claim to fame is giving a spot to people and undertakings to assemble and run programming, and it utilizes the web to associate with the clients of that product. Google cloud has a massive network of computers optimized for storing objects on the Internet. pay Google the storage and bandwidth costs for storing that object on their servers and letting people access it whenever [6]
1 x sw, total 730 hours per month, VM class regular, Instance type n1-standard-8 (8 Core, 30 GB RAM), Region: Mumbai, Paid OS Cost: INR 89,396.34, GCE Instance Cost: INR 17,457.42, Total accessible local SSD storage space 6x375 GB, Continuous Use Discount is 30%, Effective Hourly Rate INR 168.524/-, Probable Component Cost INR 123022/- per one month, Total Estimated Cost INR 123,022/- per one month. n1- standard and 730 hrs. per month total 3 years const is 4392828.

3.3. Microsoft Azure Data Centre

Microsoft Azure cloud data center earlier known as Windows Azure, is Microsoft's public distributed computing stage. It gives a scope of cloud administrations, including figure, examination, and stockpiling and systems administration. Sky blue is a public distributed computing stage with arrangements including Infrastructure as a Service (IaaS), Platform as a Service (PaaS), and Software as a Service (SaaS) that can be utilized for administrations, investigation, virtual processing, stockpiling, and systems administration [7]. Region India, Operating System Windows, Tier Standard, License SQL Enterprise, D4 v2, one Virtual, 8 Core, 28GB RAM, 400 GB Temporary storage, 2 TB SSD. 3 years plane is 6592356.

3.4. CTRLs Data Centre

On date of we generate query and send mail to Ctrl's Data center for minimum requirement for Data center services and storage. Ctrl's Data centers was set up in October 2007. At Ctrl's cloud data center is more prominent significance to us than keeping applications on the cloud and web and information secure. Our pledge to taking all out responsibility for has brought about an advantageous customer portfolio, including probably the most famous brands in Indian industry. Ctrl's data center is likewise the best option for the new generation business visionary whose trust on Cloud programming needs secure, ceaseless facilitating. The Ctrl's data center also 3 years total approximate cost is 3518712 included all type of assets like ip, firewall, bandwidth.

3.5. WebWerks Data Centre

Webwerks cloud Data Centers are front-runners in India for the past two years. Each of our facility is a High-density, Hyper-scale and Artificial Intelligence-powered infrastructure, offering best-in-class service support and uptime. We aim to maintain and keep raising these standards with new Data Centers across India to ensure that our clients achieve business efficiency by addressing all concerns regarding their Data Center needs with unprecedented ease. 3 years estimated plane 2028960

3.6. National Informatics Centre (NIC) Data Centre

National Informatics Center (NIC) was set up in India 1976, and has ridiculous involvement in Cloud Data Center with giving ICT and e-Governance backing to the Government throughout the previous forty years. NIC initiated "Informatics-Led-Development". The Central Government, 37 State in India Governments/Union Territories, and about 720+ District Administrations of India. Government of India has set out upon an aspiring activity "GI Cloud" which has been named as "MeghRaj". The design vision of GI Cloud incorporates a lot of discrete distributed computing situations spread over various areas, based on existing or new (increased) framework, rules and norms gave by the Government of India. Approximately 3 years cost is 2778264.

Table 2. Comparative Table for Hardware

Tech. Details	Google	Azure	AWS	CTRLs	NIC	Webwerks
Core	8 Core	8 Core	8 Core	8 Core	8 Core	8 Core
RAM	30 RAM	28 RAM	24 RAM	24 RAM	24 RAM	32 RAM
Storage	2 TB	2 TB	2 TB	2 TB	2 TB	6 TB
Per Month	123023	183121	100122	97742	77174	56360
3 Years	4392828	6592356	3604389	3518712	2778264	2028960

4. On Premises Server Cost

The on premises server setup with basic configuration is with 3 years hardware support 287289 it's for reference cost but above all price and technical configuration are based on reference actual charges required bittered bill.

5. Virtual Private Network

The Virtual Private Network creating a secure network tunnel connection to data center network over the Internet. The virtual tunnel works by encapsulating data in an encrypted data packet. The performance of driving the message into the packet address is equivalent to encapsulation and data on the Internet, create a virtual tunnel.

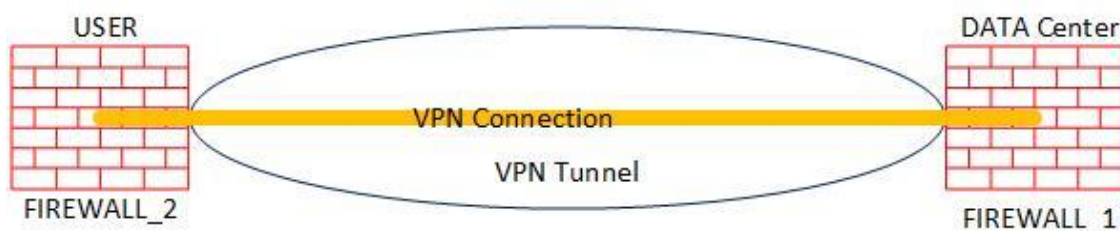


Figure 1. Virtual Private Network Tunnel

The common challenge that all companies' aspect as soon as they outsource their Internet hosting providers is will connect their Company, offices, stores and remote employees to their outsourced hosting set-up in the data center. It is important to inspired and untrustworthy networks after accessing company applications running in the data center.

5.1. Site to Site VPN Connection

The Site to Site virtual Internet connection is the call remote connection data center, connect these VPN locations is the data center is established working through the Internet is lowest charge option. VPN capability to the secure and configure into firewall appliances power before now have the equipment needed. In the intervening time.

5.2. Point to Point VPN Connection

Point to Point Connection is company network and the data center network may be the method to go virtual network. The main advantage of the wireless capability is built into the air connection to main site to data center, is that don't requirement a wired connection at company location. this air connectivity option for the data center locations that do not have ready access to any Internet Service Provider.

5.3. Third Party Connection

The third-party worker is possible and capacity this result is another method of the point to point connection in its area. The company could use any third-party through air connectivity its solutions provider to get a point to point connection between company locations and the data center.

The data center Virtual private network via third-party Service providers has charges mentioned in table3

Table 3. VPN Service Cost Comparative

Description	AWS	CTRLs	Azure
VPN Site to Site per month price	5491	12600	1737
1000 GB Data usage in month	4576	5000	5948
Price per month	10067	17600	7685
Price 3 Years	362412	633600	276660

Conclusion

I was identified at early stage the Small and Medium industry use on premises server room. Small and medium enterprise businesses can't afford Cloud Data center. Medium and private company firing up business, and associate with workers in a server farm.

Client can't be able to choose what equipment is being utilized for worker stacks. Monetary weight associated with framework and upkeep for an on-location worker can be critical, Each Small and Medium Enterprise or company has different needs, and his Small ERP or SAP HANA works for company is basic need not necessarily working to cloud solution.

When medium and small user comes to the local Server Room or Data center there are a many factor to consider, many of which come down to individual preferences. The best way to make server room decision is to determining. The ERP required a simple server to SME database solution is very straightforward.

server room and data center and normalization things in this article is as per require meant and after calculation the local server room is suggestible to SME. In both scenario in this comparative services research paper. Server room and Data center working functionality both same but on premises data center is cost effective.

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