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PRODUCTIVITY ANALYSIS IN GOVERNMENT SECTOR DUE TO CLOUD COMPUTING IMPLEMENTATION

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ABSTRACT:

There has been a significant push by governments to increase the availability of services to residents and businesses associated with these individuals. Technology and communication have led governments to embrace e-government in order to improve and expedite service delivery. You can now submit everything to you as a service from anywhere at any time thanks to cloud computing, which has recently become a powerful and effective instrument for easing the delivery of services via the Internet. According to this study's objectives, cloud computing implementation and the infrastructure needed for cloud computing in e-government will be examined. E-government risks and dangers are also discussed as are clouds computing models, security measures, and ways of enhancing cloud computing. In order to determine the best methods for requiring cloud computing in e-government, an analytical technique was utilised as a scientific approach.

Keywords: Cloud Computing, e-government; Information Technology, Analysis and Design e-government.

1. INTRODUCTION:

It is a critical and unresolved issue in study on value creation through information technology. Technology's importance has expanded in recent decades as it has become not only an essential part of organisational life, but also a means of rendering traditional methods of organising and creating value unsustainable (Agarwal and Lucas, 2013). According to Brynjolfsson and Hitt (1996) and Anderson (2006), Banker (2006), and Ravindran (2006), there is a lack of empirical research on how IT creates value in public sector organisations. The lack of focus on cloud computing services in the public sector is a bit of a surprise (Wyld, 2010). Having a clear understanding of the benefits cloud computing may offer to government administration is essential because it allows policymakers to maximise cloud

computing's value (CC). In CC, IT resources and apps are no longer purchased as distinct things and used locally on a local infrastructure, but rather, the user only has access to the resources they require through an Internet connection. The effect is that CC recipients only pay for the services they use rather than paying full price for gear and software (pay as you go). "Innovation phase" for the cloud services market is underway, resulting in an increase in innovative cloud solutions and a substantial move toward Cloud Computing (CC), according to IDC. The (Gens, 2014). Because of its relatively recent development, CC's rapid adoption in the public sector has been astonishing (Wyld, 2010). In light of the public sector's reputation for being slow to accept new technology, this is surprising (Harvard Business Review Analytic Services, 2014). According to Gaw and Bender & Levy (2014), while earlier research has focused on the acceptance and hurdles to using CC, empirical studies of how CC delivers value in public sector management are sparse. Based on the above information, the following research question will steer this thesis:. What are some of the ways that cloud computing can improve government operations? The purpose of this study is to provide practical advice on how CC might assist government organisations in being more efficient and imaginative. The public sector relies on such advice to make informed decisions concerning information technology (IT).

Theory suggests that by emphasising numerous non-numerical aspects or elements important to IT value research, this study can add to IT value research. The present calls from the IS research community for a deeper understanding of IT's value in the workplace correlate with this question (Kohli and Grover, 2008). It's also at a time when people are becoming more aware of the computerised environment we live in (Garrison, Wakefield & Kim, 2015). The use of technology to communicate, connect, and do business is expanding among a growing number of individuals, such as those who own smart phones, tablets, smart glasses, and smart watches. Since government has traditionally been perceived as a passive institution, we believe it must change to meet the demands of its residents and deliver services that are both timely and of high quality. This can only be accomplished if the public sector uses digital technologies to improve the efficiency of its administration. Consequently, government agencies might take use of the enormous potential offered by cloud computing to boost productivity and better meet the needs of their constituents. Taking a look at IT-Value

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research in the context of a more traditional, bureaucratic setting like the public sector is exciting, according to us

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2. LITERATURE REVIEW:

"Cloud computing" refers to a network of connected devices and software. Competition among competing applications across the Internet or private networks or a combination of the two is based on the availability, performance and capabilities of virtual machines, cloud computing nodes and software services and Quality of Service (QoS) needs. Cloud Computing is a new technique to designing data centres and organisations that operate in the cloud. Centralised computer resources can save organisations money on infrastructure expenditures, as well as allow them to access their applications from anywhere on the Internet.

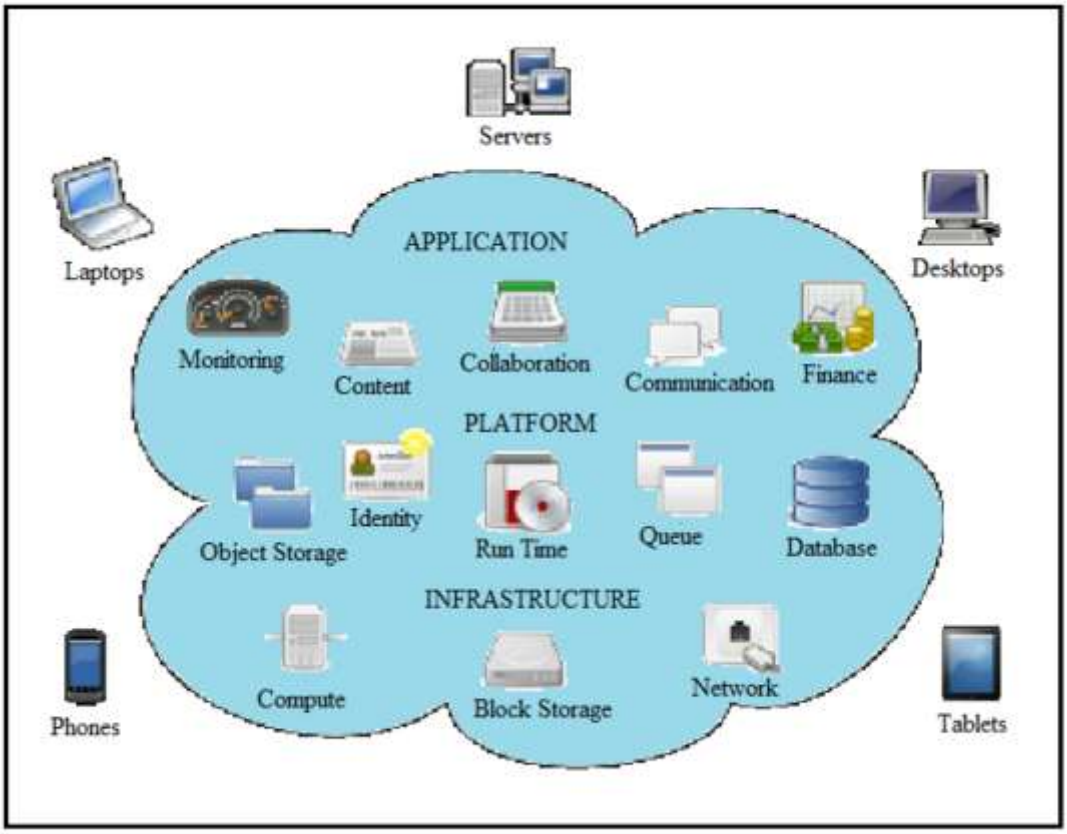

Figure 1: Cloud Computing (Yu, et. al, 2017)

On-demand access to a pool of configurable computing resources (such as networks, servers, and storage) that can be quickly created and released with no administration effort or service provider contact is referred to as "cloud computing." Lighthouse (2010) There are many systems joined together in private or public networks to provide dynamically scalable infrastructure for application, data and file storage at an affordable cost," says Torry Harris of cloud computing.

Traditional utilities like water, electricity, gas, and telecommunications will soon be replaced by Cloud Computing services that are commoditized and supplied in the same way. There are significant changes in computer technology and the location of computing resources that are referred to as "cloud computing." To meet the growing demand for low-cost, efficient computing as well as for centralised data storage and processing, a new computing paradigm known as cloud computing has been developed. how it appears to me Art of customer service For the typical user, the primary advantage of cloud computing is that it eliminates the need for an elaborate computing infrastructure in order to analyse data and run complex software. Indexing, saving, and launching apps are all made easier for the end user thanks to cloud computing. The cloud can be accessed via the internet, which is usually referred to as the gateway to the global network. A tremendous processing capacity may be accessed without a large investment in time or money, and this is feasible thanks to cloud computing.

(Vijai & Nivetha, 2020)it is stated herein Cloud computing has revolutionised the way we think about IT in the last few years. Using the phrase "cloud computing" connotes the use of a virtualized network. It's still a baby. Data may be stored quickly and securely in the cloud. In most cases, it is used to sell hosted services via an application that allows a remote user to administer a client server. "E-commerce" can be defined as "electronic commerce." It was a paradigm shift in the way businesses used to sell themselves. Cloud computing allows businesses to operate more efficiently by allowing them to access their data from anywhere, at any time.

3. METHODOLOGY:

While some governments don't use cloud computing, the survey found that many do, and that some just use a small amount of it. Government information systems should be upgraded to use cloud computing since it has several advantages over older, less efficient systems,

including greater service and security for citizens, at a lower cost. A two-tiered security approach should be implemented by the government, according to our findings throughout our inquiry. An authentication method based on physical devices is used in the first layer, while cloud computing is used in the second. Cloud computing models include public cloud, private cloud, community cloud, and hybrid cloud. According to this research, a hybrid cloud computing method should be used by the government to store both public and secret information. Fingerprints, digital signatures, and router-based authentication methods are currently used by governments to identify individuals. A variety of limitations are associated with these methods. Hardware device authentication for government information systems was developed during this research.

This article proposes the use of hybrid cloud computing for government information systems and security. Our hybrid cloud platform combines the advantages of both public and private cloud computing. A web browser is all that is required to access the hybrid cloud computing platform. This technique allows the government to profit from both public and private cloud computing. As mandated by security requirements, government data is housed on both public and private cloud systems. It is the public cloud that houses data that isn't too private and is beneficial to the broader population. Private cloud data storage is used to store vital information such as military, financial, judicial and police data. The government retains jurisdiction over private cloud services, while cloud service providers retain control over public cloud services.. There are five layers in our approach to security and cloud computing: Access, Access Control, User Diversion, Security, and Cloud Computing Layers.

4. RESULT ANALYSIS AND DISCUSSIONS:

Two or more cloud models can be combined in a "hybrid model" (public, private, or community). In this thesis, we propose a five-layered hybrid cloud computing architecture for government information systems that incorporates both public and private clouds.Hybrid cloud systems can be used by government agencies to host their applications on a variety of cloud web hosting options. Using a combination of public and private clouds, governments can access their applications from anywhere in the globe via the internet by utilising hybrid cloud computing.

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Cloud computing allows governments to rent resources rather than purchasing, installing, and managing them themselves. There should be no sensitive information saved in the public cloud side of our hybrid cloud design. This is a recommendation of our hybrid cloud design. Our hybrid cloud proposal also includes a private cloud for government data, which remains under the control of the government. Data stored in a private cloud is completely under the control of the federal government. In order to access the private cloud, which is hosted on government infrastructure, only government employees who have been granted access can do so..

For government information systems and security, a hybrid cloud computing architecture is being designed. E-governance may be secured using a hybrid cloud paradigm that tackles all of the fundamental security issues.

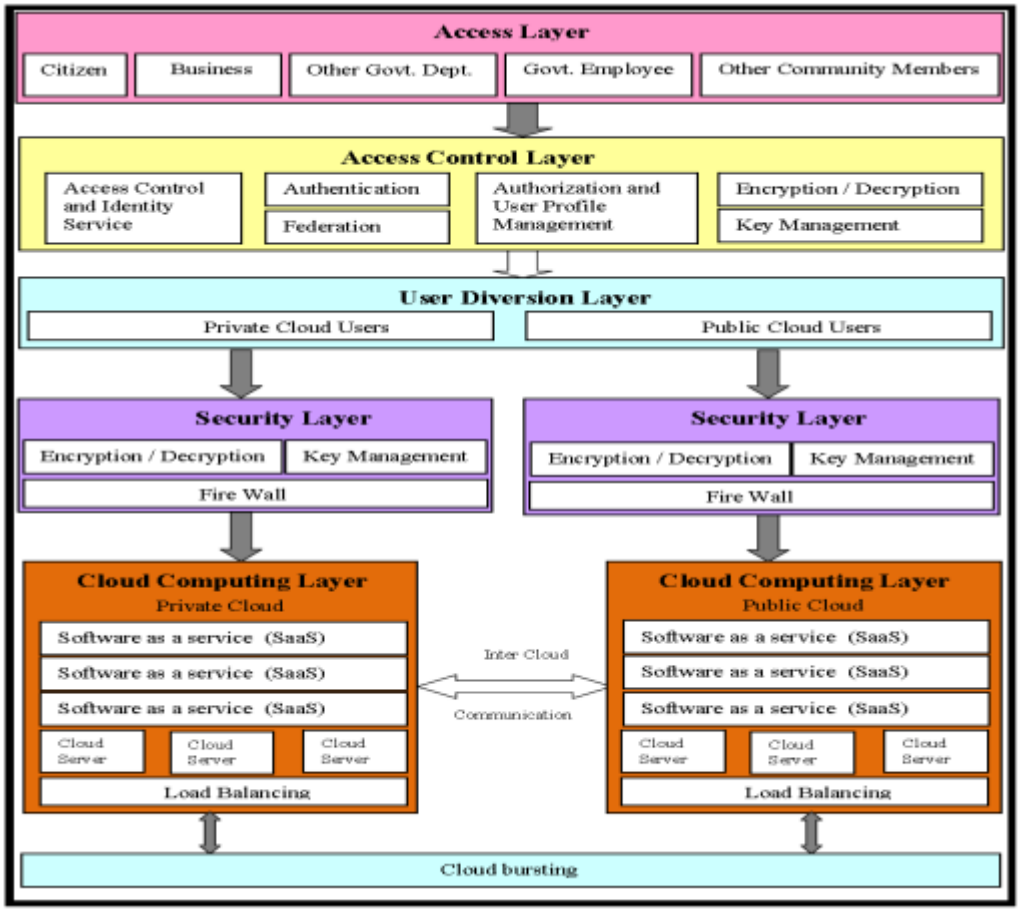

Figure 2: Hybrid Cloud Computing Architecture for E-governance

5. CONCLUSION:

Cloud computing for government information systems and security was the final conclusion of this extensive examination and analysis. For cloud computing, a hybrid cloud model has been investigated and evaluated, and an authentication system based on hardware devices has been developed for data protection. Two or more cloud models can be combined in a "hybrid model" (public, private, or community). Government information systems can benefit from a five-layered hybrid cloud computing architecture that incorporates both public and private cloud computing. Government information systems can benefit from a hybrid cloud approach that includes both internal and external cloud resources. Organizational culture, sophisticated information exchange, and citizen-government ties are also affected. These alterations will make cloud-sourcing decisions and transfers easier for the government and public in the future. The results of this study show that the hybrid cloud model provides the government with a simple and cost-effective solution to provide IT services, regardless of where those services are housed or provided. As a result, this study's device-based authentication method is more secure than other methods now in use. The hybrid cloud allows for new levels of standardisation when users want to use the system. This study divided users into three groups based on their access privileges.

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