Cloud Computing for E-Government Challenges- A Survey

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Abstract - Over the previous years, numerous organizations, government and people have been begun to adopt the web and online advances in their attempts to take advantages of costs decrease and better use of existing assets. The cloud computing is the method for registering which expects to give better communication style, high accessibility and capacity assets in a protected domain by means of the web stage. The E-governments around the globe are confronting the proceeded with spending challenges and expanding in the span of their computational information so they have to discover approaches to convey their administrations to nationals as monetarily or economically as possible. Considering E-government is one of the parts that is attempting to give administrations by means of the web so the cloud computing can be an appropriate model for executing E-government design to enhance E-government efficiency and client fulfillment. In this paper, the selection of cloud computing procedure in actualizing E-government driven organizations has been contemplated by concentrating on the relationship between E-government and cloud computing by posting the advantages of creation E-government in view of cloud computing. At last in this paper, the difficulties confronted the usage of cloud computing for E-government are talked about in points of interest.

Keywords- E-government, cloud computing, grid computing, components, implementation

I. INTRODUCTION

Today, individuals expect that all administrations and open administrations should be accessible in any event cost, most extreme speed and the base time it takes, in this way, it is basically critical that governments can give the best administration which individuals anticipated. So over the years, the creating or developing nations, started to accelerate every one of the administrations to online administrations and make a more noteworthy engagement with citizens, and the advancement of best administrations that might be accommodated day by day exercises, particularly in government offices who communicate straightforwardly with subjects. Consistently we are watching the many-sided quality of the e-governments with the goal that the size of their computational information is expanding day by day. Consequently, an appropriate model for actualizing e-government is required to incorporate System proficiency and client fulfillment [1]. As we specified Cloud Computing was presented in different styles, for example, Grid computing and administration oriented engineering, additionally the most recent and most total model for actualizing E-government is cloud computing. A model for cloud computing is important in light of the fact that, with critical potential for cost decrease through enhancement, high accessibility and execution, increment economic effectiveness. Alternate advantages of cloud computing in e-government should not be ignored obviously, i.e., security, integration and reusability of administrations can be noted [1].

II. E-GOVERNMENT

Today, the utilization of ICT keeping in mind the end goal to enhance efficiency and effectiveness, straight forwardness and similarity of financial and data trades or changes inside the administration, between the government and its subordinate associations, amongst government and nationals, and
amongst government and the private area, is called "E-government" [2, 3]. The meaning of E-government is with the end goal of the production of such an administration to exploit new innovation to give better administration to natives. E-government forms are engaged with observing and enhancing the efficiency and effectiveness of government. E-government changes the unidirectional (up to down) relationship into an intelligent connection between the administration, nationals, organizations, governments and other open area representatives [4]. Images demonstrate that a government can interface government divisions and people to each other's. E-government images are as per the following:
1. Government to government
2. Government to business
3. Government to citizen
4. Government to employees

COMPONENT:-
Components of three level design with a review of E-Government administrations is displayed underneath. For E-Governance administrations three level engineering applications can use qualities of various stages and distinctive programming parts at the diverse tiers.
1. Modifiability: As duties are isolated, it turns out to be anything but difficult to supplant the code at any level without influencing different levels as modifiability is pixie compositional driver of the case.
2. Versatility to deal with numerous customers: Each customer is light weight and all entrance to the framework is through the center level. The center level can share the database association over the customers, and if center level progresses toward becoming bottleneck, we can convey a few servers executing the center level code; customers can interface with any of these servers.
3. Incorporated Data Access: In numerous applications, the information must be gotten to from a few sources. This can be taken care of straightforwardly at the center level, where we can halfway oversee

![Typical architecture for an E-Governance application](image)

**Figure 1. Typical architecture for an E-Governance application**

III. CLOUD COMPUTING

Cloud computing is a model for empowering helpful to access to systems and applications rapidly, basic arrangement of configurable processing assets (e.g., systems, servers, stockpiling and applications) that can work with pretty much nothing or interface with the specialist organization to give or be discharged immediately."[5, 6]

At present, the three kinds of administrations are known shared characteristic [5, 6]:
Software as a Service (SaaS) - administrations that gave by this layer, utilizing applications that are running on a cloud foundation, and it is accessible through an interface, for example, a web program [7]. SaaS is a completely operational condition for program administration and an interface [8].

Platform as a Service (PaaS) - in these sorts of administrations, customer is possible to put application or bought programs on the cloud framework set [7].

Infrastructure as a Service (IaaS) - this type of administration delivery has given a chance to clients, for example, handling power, stockpiling, systems and other basic processing assets, and even the working framework and applications [5].

NIST characterizes four kinds of models as takes after [5, 6, and 8]:-

Public cloud: Public cloud foundation is accessible for open use, in which the assets and the Internet Applications and web administrations are accessible through the web [10].

Private cloud: Private cloud, use for the selective utilization of just a single association, so everybody in an association could get to information, administrations and application programs, yet clients outside of the association couldn't access to the cloud [6, 10]. Cloud frameworks can be utilized just in one association [9].

Community cloud: Group cloud used to administration to an open. The gathered cloud framework might be shared between at least one associations, yet the vital point is that the asked for request is shared amongst all, and they have a similar approach.

Hybrid cloud: Most recent model is hybrid cloud which are a blend of at least two mists (open, private or gathering). Truth be told it is a situation where different inside and outer cloud specialist co-op, are utilized [10].

Here are the five key highlights of distributed computing [5, 11]:-
1. Service request on self.
2. Ubiquitous system get to
3. Location-autonomous asset pooling.
4. Rapid versatility.
5. Measured administration.

IV. RELATIONSHIP
Cloud computing advances have numerous advantages in various parts of E-government. These advantages talked about in the accompanying focuses:-

1) Scalability: Cloud processing assets, for example, CPU, servers, hard drives can be obtained naturally in any amount whenever to fit developing number of clients.
2) Availability and Accessibility: cloud computing applications and data are facilitated online hence it has high accessibility and nationals can utilize them at whenever and from anyplace.
3) Cost Saving: cloud computing frameworks don't have to buy and introduce the ICT types of gear and programming alone building.
4) Backup and Recovery: Since every one of the information is put away in the cloud, backing it up and reestablishing is substantially more straightforward than conventional way.
5) Unlimited Storage: Storing data in the cloud gives you relatively boundless capacity limit.
6) Green innovation: Cloud processing is moderately great in effective utilization and gives eco-
frameworks through virtual administrations. Despite the fact that cloud computing offers a ton of favorable circumstances to E-government, a few issues and difficulties should be focused on or to be met while applying distributed computing. Implementation of cloud computing with E-government are highlighted in Table 1.

<table>
<thead>
<tr>
<th>Stage</th>
<th>Main Implementation contents</th>
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<tbody>
<tr>
<td>ICT Initial Stage (1960s ~ 1970s)</td>
<td>• Introduction of computers to the statistics business of Economic Planning Board (1967)</td>
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<td>• Administration ICT 5 year basic plan establishment (1978)</td>
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<td>e-Government incubation period (1980s ~ 1990s)</td>
<td>• Administration ICT business (NBIS)</td>
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<td>• National period of computing network business (1987)</td>
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<td>e-Government base preparation period (mid 1990s ~ 2000)</td>
<td>• Establishment of ultra high speed information communication base</td>
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<td>• Framework enactment on ICT Implementation law</td>
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<td>e-Government starting period (2001 ~ 2002)</td>
<td>• Implement e-Government 11 tasks</td>
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<td></td>
<td>• Enact laws on e-Government (2001)</td>
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<td>• Prepared the base for linking and integrating government institutions and departments</td>
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<td>• Implement e-Government 12 tasks based on opening, sharing and cooperation of businesses.</td>
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<td>• Data Disclosure Act (2013)</td>
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Table 1. Implementation of cloud computing with E-government

The principle issues and difficulties for embracing distributed computing for the E-government are the following and are depicted in figure 2:

1) Security and protection: Security prerequisites must be satisfied on a few layers where the usage of cloud computing incorporates propelled security advancements [12] [13] [14]-[15].
2) Data security and consistence: a few information insurance controls don't permit the capacity of computational information in different nations, which is fundamentally not expert by most cloud specialist co-ops.
3) Interoperability and information transportability: There is an absence of standards when utilizing and actualizing cloud computing administrations. Clients should have the capacity to change between cloud specialist co-ops with at least risk and cost, so governments may need to embrace open principles arrangements for the cloud [16].
4) Identity and access administration: As cloud computing administrations achieves totally on the accessibility and speed of the Internet as a transporter amongst customer and specialist organization, speed and accessibility [15].
V. CONCLUSION

The main features of cloud computing, measured services, elasticity, and resource pooling may make it an ideal solution to e-government implementation challenges, which include cost and lack of compatibility. Consequently, this study contributes to the understanding of cloud computing the context of e-government. It offers an effective way to share information between citizens, reducing efforts in providing services, budget management and cost effective. This paper gives insight to the issues of cloud computing in E-government and investigates the importance of the new technologies to be adopted in implementing E-government such as cloud computing which provides the overall strategy and techniques to manage E-government content in general. In the future, we will study how to implement E-government services using cloud computing in more details by giving some suggestions in how to select the most effective services in the cloud to achieve a best implementation of E-government using cloud computing.

REFERENCES


