

Cloud Application of e-Governance System Using Advanced Wireless Networks

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Abstract: In This paper we describes the new cloud Application framework using J2ME application in mobile networks system for everyone in e-Governance, it is used for different purpose relating for computer new advanced technology like science, electronics, environmental science and many more fields etc... In this e-governance cloud framework we design a new computing system using J2ME application for communication, sharing and transferring data as a social networking of other relevant areas who has communicated to citizen to citizen, business to business and in this application we can providing the information to everyone through SMS, MMS messages and conferencing alert system like . In this technology we can used the alert system for citizens and that is sending an alert message for every related tip and we can communicate to every lower class peoples like citizen to citizen and people to people with the help of java machine application. Here we can use speech compression algorithm for voice recognition system, whereas typical automatic speaker or language identification systems are not capable of handling compressed speech. Information and Communication Technology (ICT) also used in e-Governance as alert facility and give the suggestion, GPS system related tips for you and your children's. Here web Service is used to deal with the interaction between the server end and the customer end, and supports the issue of backstage service end program. This paper also describes e-governance framework system for advanced technology using J2ME with java mobile applications technology in advanced e-governance.

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1. Introduction:

We see Cloud Computing as a computing model, not a technology. Here we can share a multiple a data. In this model “customers” plug into the “cloud” to access IT resources which are priced and provided “on-demand”. Essentially, IT resources are rented and shared among multiple tenants much as office space, apartments, or storage spaces are used by tenants. User can deliver the all type of data transmission in this framework. Delivered over an Internet connection, the “cloud” replaces the company data center or server providing the same service. Thus, Cloud Computing is simply IT services sold and delivered over the Internet [1].

Although a .Net developer with an eagerness to try out new technologies, I was never excited enough by Windows Azure Cloud PaaS to give it a try. Thus we can use the J2ME application for e-Governance framework. But after the latest update on June 7th 2012, my perception of it has changed. To say the least, just a week after the latest update – it is definitely a reinvention of Azure with neat UI, UX and many added features. [2]

2.0 Types of Cloud Computing:

2.1 Software as a Service (SaaS)

Is the most widely known and widely used form of cloud computing? It provides all the functions of a sophisticated traditional application to many customers and often thousands of users, but through a Web browser, not a “locally-installed” application. SaaS design software for cloud. Little or no code is running on the Users local computer and the applications are usually tailored to fulfill specific functions. SaaS eliminates customer worries about application servers, storage, application development and related, common concerns of IT. [1]

The consumer uses an application, but does not control the operating system, hardware or network infrastructure on which it's running. Cloud offers applications as a service. Imagine a case of new state like Uttarakhand deciding to move to E-Governance to offer some services on districts level. There are scenarios like homing to a rogue based on his speech signatures, detecting a friend or foe on a tele-network, allotting resources and value added services based on the cloud framework, biometric access control over the networks etc. The state need not to purchase applications, hardware and software. In this

application we can update our friendly environment. They can make a request for a particular service from the cloud provider. In this framework we can communicate the every field. Applications instances can then be created for their use. Numerous applications can be provided as standard services, where departments can request and manage online without wait for development. [3] Some of the applications can be:

- Birth , death , cast certificates management System
- Job portal to provide employment support to users
- E-Procurement management system
- E-police, E-court
- Municipal management system
- Water Boards, Electric , Telephone Billing and Payment Systems
- District Management Solutions

Highest-profile examples are Salesforce.com, Google's Gmail and Apps, instant messaging from AOL, Yahoo and Google, and VoIP from Vonage and Skype.

2.2 Platform as a Service (PaaS)

Platform as a service is a delivering the service to consumer fast and easily. Delivers virtualized servers on which customers can run existing applications or develop new ones without having to worry about maintaining the operating systems, server hardware, load balancing or computing capacity. Here we can deliver the services as a user friendly. These vendors provide APIs or development platforms to create and run applications in the cloud – e.g. using the Internet. Cloud servers manage the all type of services. Managed Service providers with application services provided to IT departments to monitor systems and downstream applications such as virus scanning for e-mail are frequently included in this category.

Well known providers would include Microsoft's Azure, Sales force's Force.com, Google Maps, ADP Payroll processing, and US Postal Service offerings. [1]

The consumer uses a hosting environment for their applications. The consumer controls the applications that run in the environment (and possibly has some control over the hosting environment), but does not control the operating system, hardware or network infrastructure on which they are running. The platform is typically an application framework. In traditional model of e-Governance the departments have to wait till they purchase, deploy and start working with. Now in PaaS model if some

Government departments requiring resources for new Operating system of for new Database software they can request and get resources instantly .[3] Some online application that requiring middleware services to run the process can be provided instantly. Some of the working platforms that PaaS provide are:

- Dynamic Operating System
- Dynamic Query Service
- Dynamic Database Software services
- On demand Middleware Services
- On demand Workflow Services

2.3. Infrastructure as a Service (IaaS)

Delivers utility computing capability, typically as raw virtual servers, on demand that customers configure and manage. Here Cloud Computing provides grids or clusters or virtualized servers, networks, storage and systems software, usually (but not always) in a multitenant architecture. IaaS is designed to augment or replace the functions of an entire data center. This framework saves cost (time and expense) of capital equipment deployment but does not reduce cost of configuration, integration or management and these tasks must be performed remotely. [1]

The consumer uses "fundamental computing resources" such as processing power, storage, networking components or middleware. The consumer can control the operating system, storage, deployed applications and possibly networking components such as firewalls and load balancers, but not the cloud infrastructure beneath them. Java application used in web services and it provide the server to client services. E-Governance applications like Indian railway or Indian bank ATM services requires a model which can offer 24 hours and all 365 days online services to end users , for that a great infrastructure availability is required . There is a need of unlimited supply of power, CPU services, applications and server services. When operating from cloud using IaaS model e-Governance applications can use unlimited supply of CPU, storage and bandwidth when operating from cloud. Thus, applications perform better on cloud compared to traditional architecture. [3]

3.0 J2ME Application in e-Governance:

J2ME is aimed squarely at consumer devices with limited horsepower. Many such devices like a mobile phone or pager have no option to download and install software beyond what was configured during the manufacturing process. With the help of java mobile application we can access the data. With the introduction of J2ME, "micro" devices no longer need to be "static" in nature. Not unlike a web browser downloading Java applets, an implementation of J2ME

on a device affords the option to browse, download and install Java applications and content.

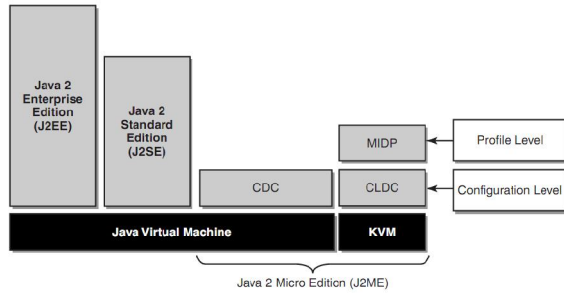


Figure 1 Different application of Java [9]

4.0 Brief Architecture in Cloud Computing

Cloud computing architecture, just like any other system, is categorized into two main sections: Front End and Back End. Front End can be end user or client or any application (i.e. web browser etc.) which is using cloud services. Here cloud provides the brief architecture of e-governance framework. Back End is the network of servers with any computer program and data storage system. It is usually assumed that cloud contains infinite storage capacity for any software available in market. Cloud has different applications that are hosted on their own dedicated server farms. [4]

In Figure 2 it is shown how the basic cloud computing service IaaS is composed of a set of virtualized resources, namely CPU, memory, storage and network transport. But let’s take one step back and look at the two main reasons to virtualized resources: one is security - to restrict access to resources in order to offer a ‘virtual private’ environment, the other is resource separation in order to avoid resource conflicts. [5]

4.1. Benefits of Cloud Architecture

In a traditional architecture, the services offered are bound to a physical machine. One has to maintain the redundancy in terms of the physical services. This model increases the cost of deployment and becomes expensive to maintain as number of services increase. Cloud computing offers:

- On-demand self sufficient service
- Ubiquitous network access • Location independent resource
- Rapid elasticity

5. Challenges with Traditional Infrastructure [6]

- **Application Life Cycle Management:** cost-effective management of structured data throughout and testing to archiving and retirement replication facility needs to be provided and its cumbersome. It may cause

duplication of resource and departments. As the complexity and sophistication of the software development task has grown it needs to use increasing numbers of tools.

- **Software licensing and Support:** application the licensing is required application is sufficient enough.
- **Scalability:** Traditional infrastructure to frequently upgrade to meet these challenges, software redundant.
- **Accountability:** The applications in traditional infrastructure don’t have accountability.
- **Modifiability:** Traditional infrastructure example as they are not inherently scalable the provisioning cost and time for moving from 100 users to 10000 users could eat up lots of resources.
- **Physical security:** It involves the provision of a activities with a focus on preventing unauthorized physical access to computing equipment. includes:
 - (1) Threats and facility requirements,
 - (2) personnel physical access control,
 - (3) microcomputer physical security

6. Securing Java application in Cloud Computing

For anybody building and deploying Java Web applications and J2ME provide the web services. Whether internal business applications or public facing applications for general usage, hosting the application is a primary consideration. Most J2ME devices require the class files and additional resources (e.g. picture files) to be put in a Java Archive (JAR) file. A JAR file conforms to the widely adopted ZIP format and features some additional meta data. Most importantly JAR files provide compression of the bundled files. Compression is optional, but should always be used for MIDlets. [8] Google App Engine (GAE) provides a hosting environment that is potentially suitable for both types of applications. Before choosing GAE as the deployment environment a number of decisions, both technical and commercial must be made. [7]

GAE runtime environment uses Java 6 so supports developing applications using Java 5 or 6. The runtime environment has some restrictions which enable it to provide scaling and reliability. A GAE application must not :

- Write to the file system- Google provides a data store as an alternative
- Open a socket – Google provides a URL Fetch service as an alternative
- Spawn a new thread

Conclusion

J2ME application is a part of java application here we can implemented a software for communication of server to client. In this paper we will discuss the strategy, security system framework, architecture, and solution details cloud computing brings to the industry and governments with the help of java application. Using J2ME application we can create a high protected security system for e-governance. It is application used in wireless mobile phones and accesses the data and transmits the data. For the purposes of this paper, we will focus on the data center aspects of e-governance cloud computing framework. IT professionals who are evaluating cloud computing strategy and cloud data center solutions. Using java application we can focus for the communication and transferring data to one person to another person like Skype, Google, etc... Cloud computing system is changing the way that IT resources are utilized and consumed. Public sector and federal government entities want the ability to access infrastructure how and when they choose. We can use the e-governance cloud data to this purpose with java mobile application.

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