APPLICATIONS FOR E-GOVERNANCE

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Abstract:
E-Governance is the application of information and communication technology to achieve efficiency, effectiveness, transparency and accountability in Government to Government, Government to Employee, Government to People and Government to Business. It enables peoples to make best use of automated administration processes that are accessible on-line. In this study, we illustrate the creation of a virtual environment by using existing technologies to specific e-governance applications on distributed resources. The technologies refer to an infrastructure that involves the integrated and collaborative use of all computing resources into a single virtual computing environment.

Key words: *technologies, applications, e-governance;*

JEL classification: *H11 - Structure, Scope, and Performance of Government; L86 - Information and Internet Services; Computer Software*

INTRODUCTION

The large computational enable sharing a wide variety of geographically distributed resources including supercomputers, storage systems, data sources and specialized devices owned by different organizations to create virtual enterprises and organizations. They allow selection and aggregation of distributed resources across multiple organizations for solving large-scale computational and data intensive problems in science, engineering and commerce. The parallel processing of applications on distributed systems provide scalable computing power. This enables exploration of large problems with huge data sets, which is essential for creating new insights into the problem. Peoples applying for a new building approval (water) connection is one of the e-governance applications that require large computational and data storage capability.

We strongly feel that for the ultimate success of large computational as a production-oriented commercial platform for solving problems, they need to support e-governance applications. In an environment, a set of resources can dynamically team up to solve a given problem. This type of mutually agreed teaming up is quite useful for developing computational e-governance applications for executing parallel application tasks that have high degree of message communications for sharing partial results. E-governance is the use of information and communication technologies to support good governance. The key characteristics of all e-governance projects are:

a. The number of users of the system is enormous
b. As time progresses, the number of applications will increase. Hence the system has to provide facilities for handling large loads.
c. All e-governance applications must strictly adhere to specifications otherwise it is liable for legal prosecutions.
d. The hardware and software heterogeneity exists in all spheres of e-governance. Hence there is a need for extensive integration.

According to Wikipedia, the important anticipated benefits of e-government include improved efficiency, convenience and better accessibility of public services.

The problem under consideration is how to obtain a building approval (water-connection) from municipality. It is assumed that municipality have computerized their operations and are web-enabled.

The stages in obtaining a building approval (water)-connection are:

a. The applicant has to submit an e-application for a new building approval (water-connection).
b. The web server checks whether the Survey Field Number (SF number) of the land belonging to the applicant has been regularized by the concerned government authorities.
c. Once the web server identifies that the SF number is a regularised one, the building plan is approved and the plan approval charges are calculated and levied.
d. The server also verifies whether the building has obtained an electricity connection from the government electricity board. And all necessary charges for the same have been remitted.
e. The server then calculates the house tax based on the plinth area and location of the house.
f. The server then verifies whether the house tax and area development charges have been paid up-to-date.

Once all these are completed, the server then approves the building approval (water)-service connection, allots a building approval (water)-connection serial number and then calculates the appropriate building approval (water)-connection charges. The figure 1 shows the Interactions between servers.

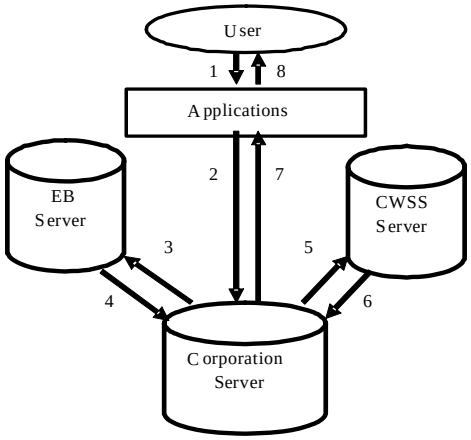

Figure 1. Interactions between servers

The details of the Figure 1 are given below:

a. User submitting e-application for new building approval (water) connection
b. S.F number verification, plan approval verification & house tax calculation request to the server
c. EB connection verification request to the server
d. EB connection verification response by the server
e. New building approval (water) connection request to the Combine building approval (water) Supply Scheme (CWSS) Server
f. New building approval (water) connection approval number allotment.
g. New building approval (water) connection approval number allotment to the user

The design features that are required to provide users with a perfect computing environment are given below. Four main features describe a technologies are:

1. Multiple Administrative Domains and Autonomy
2. Heterogeneity
3. Scalability
4. Dynamicity or Adaptability

The steps necessary to realize this technologies include:

1. The integration of individual software and hardware components into a combined networked resource.
2. The deployment of:

3. Low-level middleware to provide a secure and transparent access to resources.
4. User-level middleware and tools for application development and the aggregation of distributed resources.
5. The development and optimization of distributed applications to take advantage of the available resources and infrastructure.

This technologies are made up of a number of components from enabling resources to end user applications and is shown in Figure 2.

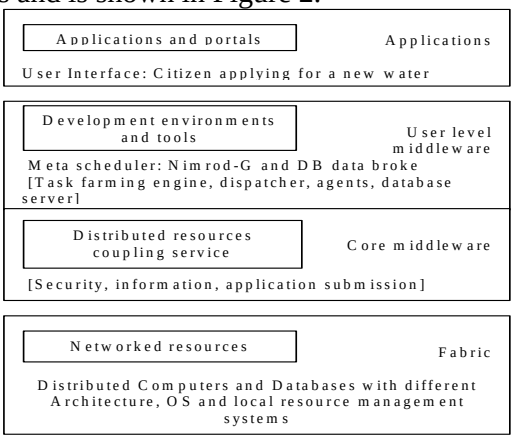

Figure 2. The architecture and components

The key components of this technologies are:

a. **The Technologies fabric:** This consists of all the globally distributed resources that are accessible from anywhere on the Internet. These resources could be computers running a variety of operating systems as well as resource management systems such as Load Sharing Facility, databases and special scientific instruments such as a radio telescope.
b. **Core middleware technologies:** This offers core services such as remote process management, co allocation of resources, storage access, information registration and discovery, security and aspects of Quality of Service (QoS) such as resource reservation and trading. Managing resources and scheduling application tasks for execution on global resources.
c. **User-Level middleware:** This includes application development environments, programming tools and resource brokers for
d. **The Applications and Portals:** The applications are typically developed using an enabled languages and utilities such as message-passing interface or the parameter specification language.

The key components of this technologies are: Interface, resource discovery and scheduling, scheduling flow manager, dispatcher and lets receptor:

1. The user entity contains the application description and sends user requirements to the broker through the interface.
2. The broker resource discovery and scheduling module interacts with the GIS entity to identify the contact information of the resources and then interacts with resources. It creates a broker resource list that acts as a placeholder for maintaining resource properties, a list of lets committed for execution on the resource and the resource performance data as predicted through the measurement and extrapolation methodology.
3. The scheduling flow manager is used for mapping lets to resources depending on the user's requirements.
4. The dispatcher selects the number of lets for each of the resources that can be staged for execution according to the usage guidelines to avoid overloading resources with single user jobs.

5. The dispatcher then submits lets to resources using the asynchronous service.
6. When the let processing completes, the resource returns it to the broker's let receptor
7. Module, which then measures and updates the runtime parameter and it serves in predicting the job utilization rate for making scheduling decisions.
8. Steps 3-6 continue until all the lets are processed. At the end, the broker returns updated experiment data along with processed lets back to the user entity.

CONCLUSION

Implementing an e-Governance solution will lower the cost of developing, deploying, managing government solutions and providing better services to peoples. The study has identified typical areas for e-governance. As a case study, we have presented a scenario of a people applying for a new building approval (water) connection. We have implemented the application with the usage this technologies environment.

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