Czech University of Life Sciences Prague

Faculty of Economics and Management

Department of Systems Engineering and Informatics

Bachelor Thesis

Analysis of New Technologies for eGovernment Services

Namalgama Mudiyanselage Gayan Damitha Bandara NAMALGAMA

Summary

The aim of the thesis is to provide an overall view as to how a cloud computing model could be implemented within an eGovernment framework, and an analysis as to what type of services or vendors could be used for the successful deployment, for service models, to cloud offerings, and to answer the question as to why Cloud computing should be an essential component of e-Government, and also try to tackle the unique constrains.

Hence we combine the power of eGovernement and mGovernment using the Cloud Computing platform to enhance the relationship between the people and their government, and to ensure that we are minimizing bureaucracy and passing down the cost benefit to the people.

We are trying to cover how these three segments can be combined, and to what extend we could provide a reach to the masses while ensuring the standard protocols are not compromised. While Internet and Wi-fi is becoming increasingly accessible along with the IT literacy. This solution has the ability to mold into any governance need, be it information gathering, economic planing, social-cultural welfare and national security.

Keywords: Cloud computing, eGovernment, mGovernment, mobile technology, SaaS, Hybrid cloud, Platform-as-a-Service, Smartphone

Thesis objective and methodology

Objectives of thesis

The objective of the thesis is to provide an analysis for innovative solution to the public sector services, using a cloud computing model, that enables the access of information from the clients mobile device.

Partial goals of the thesis are:

- To develop literature review of current state of online public services and cloud solutions.

- The analysis and design of a specific mobile electronic public service.

- And to make evaluation of proposed solution.

Finally the objective is to provide the citizens with a hassle free, on-demand, solution that satisfies the Governments need to deliver better services in a timely manner, and for citizens to obtain those services without wasting time. Cloud Computing has been selected as the best way to address there concerns, and to ensure that we implement a successful Cloud Computing model, we need make sure that we meet the criteria of the ITPOSMO checklist.

Methodology

Methodology of the thesis is based on the study and analysis of literature and information sources. Practical part of the thesis will consists of analysis and design of sample mobile application of electronic public service. Methods for software engineering such as use case will be done.

The final design will be evaluated with SWOT analysis and compared with other existing applications. Based on literature review and practical part, final conclusions and recommendations will be formulated.

Introduction

The thesis aims to combine technologies such as cloud computing and mGovernment to provide a common platform for all government services. A case study will be taken as an example, which would be the base of designing a new system.

The reason as to why this topic was chose is due to the evolving nature of Mobile usage and the advantages it offers to enhance the already established eGovernment services. Various sources have been quoted as a means of deriving the best practices, and to ensure that the combined experience of studies already conducted would present a strong case for combining such technologies to design a new service, which could be implemented and functional.

Own Solution

In the solution, we have incorporated the technologies for the eGovernment platform, using Cloud Computing, mGovernment where the government could provide an essential service to their citizens. We have analyzed the technologies involved from the perspective of the front-end and the back-end as to how the layers of access could be implemented, and the security required to ensure that data is encrypted and protected.

The solution meets the criteria placed by ITPOSMO, and takes into consideration the SWOT Analysis, and CATWOE methodologies.
We have focused on the types of deployment available and have gone ahead with choosing a Hybrid platform to cater to our own needs and to add an extra layer of security using a Brokered Cloud Storage method.

The Cloud based Passport Issuing Service is an ideal service which could be useful in providing a service to people who are already away from the country, and would be in need of assistance to provide a safe return home without being withheld by law enforcement in their host country, as the host country might have strict laws that could jeopardize the safety of foreign national without travel papers.

Furthermore, the system is secure, and is a powerful tool in storing, retrieving and manipulating information to a complex and cumbersome process, such as issuing a new passport.
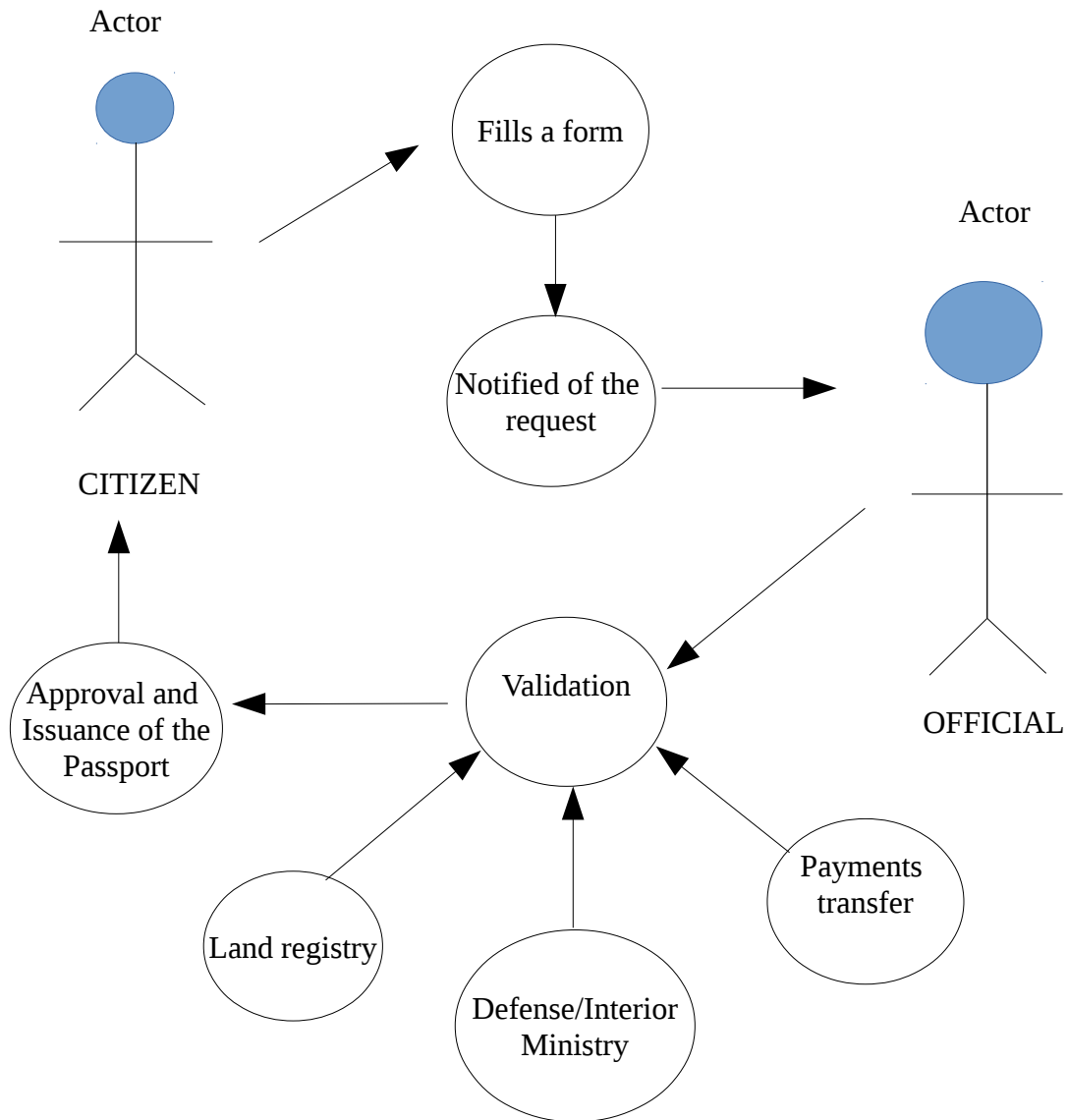
For example suppose an individual wants to apply for a new passport. Following are the steps that he/she will need to take to get in done without even leaving his/her house or

office. Usually the applicant has to visit the office in person, and more than once.

The system we plan to implement enables to possibility for the individual to use their mobile device and log on the website, and fill in the necessary form and click 'apply'.

This solution is based on the intention that the entire govt. system will be connected to a cloud. This is only a brief example of what could be achieved if such an e-government system based on a Cloud computing platform is available.

[Figure 1 Use Case Diagram]

Actor

Fills a form

Actor

Notified of the request

CITIZEN

OFFICIAL

Validation

Approval and Issuance of the Passport

Land registry

Defense/Interior Ministry

Payments transfer

(Source: author, 2015)

Conclusion

The objective of the thesis is to provide an analysis for innovative solution to the public sector services, using a cloud computing model. Thus we have created a new instance of a solution that utilizes the power of Cloud Computing and mGovernment model, in approving and delivering a Passport to any individual with a mobile phone and access to the Internet, using the clients mobile device.

Therefore, we have:

- developed literature review of current state of online public services and cloud solutions.

- analyzed and designed a specific mobile electronic public service.

- made an evaluation of proposed solution.

We have successfully come up with a hassle free, on-demand, solution that satisfies the Governments need to deliver better services to the public no matter which part of the globe the request comes from, in a timely and a secure manner, and for citizens to obtain those services without wasting time.

At the same time we have made sure to follow the ITPOSMO guidelines and developed a Case Study based on the solution that will meet the most stringent standards of the industry.

According to the available options we have decided to use the hybrid option since it is most suitable for our layers. The first being the interaction between the public and the departments, and the second being the interactions between the departments.

As for our infrastructure requirements we could use SaaS methodology to build two layers of applications. The first being the layer required by the public to interact with the departments, and the second layer for the departments to interact with the platform, as this is the concept that would increase security in accordance with Brokered Cloud Storage Access.

The approach will be hybrid as the other methodologies do have limitations in terms of delegating necessary changes as and when required. These options were conceived based mostly on the security considerations, and the management of the overall system.

The example above is purely to convey the need for an e-government platform, and the benefits it could provide to both the citizens and the government in terms of using mobile technologies, and cloud computing to generate and store big data, while improving the coordinating capacity among various governmental institutions.

Technologies such as cloud computing can really improve governance and national security, while adding value to the service provided to the citizens.

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