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by Soetam Rizky Wicaksono

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MODELING MULTI DEVICE E-DEMOCRACY USING XML WEB SERVICES

Soetam Rizky Wicaksono

Information System Department, Ma Chung University, Malang - Indonesia

Abstract

E-democracy should happen as two way communication between citizens and their government (also politician), not just one way information from government to its citizens. Knowing its function, so e-democracy which usually being built as web based application had better been built as multi device application. This paper tries to model the prototype of multi device e-democracy using XML Web Services since that e-democracy implementation itself is not well known in Indonesia. On the other hand, the prototype will give freedom for any province or department to adapt it in many other ways. The prototype also explain some impact that must be considered in implementation plan, thus e-democracy will fulfill all sides involved which are citizens, government and also politicians.

Keywords: E-democracy, XML Web Service, Multi Device

1. Introduction

E-democracy is about citizens communicating with politicians, government and agencies (Collins, 2002). It involves a debate that stresses *being in touch* or just *letting them know* and *feedback/responses* among its implementation. Thus, e-democracy should happen as two way communication between citizens and their government (also politician), not just one way information from government to its citizens.

Some people (especially in Indonesia) said that e-democracy is just another term for e-government, or e-democracy is just about voting online for political election and whatsoever. E-democracy actually part of e-government as e-government consists from two part which are called EGT (Electronic Governmental Transactions) and e-democracy (Suomi, 2008).

Knowing its function that e-democracy should be in two ways communication, so e-democracy which usually being built as web based application had better been built as multi device application. This multi device application should follow trend among its citizens, thus it can be easily accessed and also it will not be reason for both sides (citizens and government) to ignore e-democracy.

Especially (again) in Indonesia that originated from many cultures and differ education background, implementation e-democracy that only being implemented as web based application will be a big deal for many people. Since that many politicians and also citizens that cannot access internet easily in Indonesia will be great alibi for them to ignore existence of e-democracy implementation.

For examples, e-democracy can be implemented in mobile application that will be easily accessed by mobile phone, or it also can be implemented as integration seamless application using Microsoft Office application for long and complex document communication. However, big problem will occur in this implementation, because the diversity of data format and also the integration will cause many departments to uniform their application.

This problem actually can be easily solved using XML Web Services, since that XML Web Service will seamlessly integrate many data format from many application in varying programming language. Also that XML Web Services will eliminate trouble in multi device implementation whatever of programming language will be used in its execution (Cerami, 2002).

This paper try to model the prototype of multi device e-democracy using XML Web Services since that e-democracy implementation itself is not well known in Indonesia. On the other hand, the prototype will give freedom for any province or department to adapt it in many other ways. Thus, next prototype that being proposed can give big picture of how to implement e-democracy using XML Web Service, and how to integrate it in multi device environment.

2. E-Democracy

Democracy is constitutive of a meaningful form of communal life and is to be understood as a form of collective self-discovery. Citizens can only thrive in a closely knit group with shared values and meaningful communication and interaction (Hoven, 2005).

So, e-democracy must have sharing features in its implementation, and that will differ between e-democracy and e-government in EGT ways (Suomi, 2008). E-democracy must have at least three participations which are (Gronlund, 2003) :

1. The general public

   This is the most frequent and salient target group. This group will include individual citizens to interact with government and politicians in order to express their aspiration.

2. Among politicians
   Assume that politicians are a b[illegible]d with communication problems, since that they travel a lot and often encounter a need to be at two places in same time.
3. Politicians-administrator
   One of the problems in democracy is that politicians increasingly have difficulty keeping pace with the administration in understanding problems they are to decide about. Not only are many local politicians' non-professionals working part time with politics. Also the professional politicians find that there is an increasing amount of technical details which requires considerable expertise to understand and time to investigate. This will include DSS (Decision Support System) or AI (Artificial Intelligence) application to help them solving their problems faster.

E-[illegible]mocracy is always assume as web application in its creation and diffusion of knowledge through discussion and the in[illegible]ion of citizens in the public decision making process (Moreno-Jimenez and Polasek, 2003). E-democracy is also considered as part of e-government, while e-government consists from two parts which are (Su[illegible], 2008) :

1. E-democracy
   Catering for democratic processes in government.
2. [illegible]GT (Electronic Governmental Transaction)
   Containing many applications such as health care (eHealth), taxation, public procurement and police operations, to mention some examples.

3. XML Web Service

A web service is any service that is available over the Internet, uses a standardized XML messaging system, and is not tied to any one operating system or programming language (Cerami,2002). Web Services expand the Web from a user front end to an application service. Web Services represent a fundamental shift, one that promises tremendous benefits in terms of productivity, efficiency, and accuracy. Indeed, corporate IT organizations are only just beginning to understand the full potential of Web Services (Ha[illegible]man, 2003).

With Web Services, the originator of a Web connection is no longer just the consumer or supplier of information. The originator can participate in a distributed application environment and issue remote procedure calls to request services. The use of Internet standard protocols and other standards by Web Services allows services to work across diverse environments, solving cross-platform inter[illegible]erability issues (Hartman, 2003).

The core principles that have driven the design and implementation of the Web services architecture protocols are as follows (Cabrera, 2005):

1. Message orientation
   Using only messages to communicate between services and realizing that messages often have a life beyond a given transmission event.
2. Protocol composability
   Avoiding monoliths through the use of infrastructure protocol building blocks that can be used in nearly any combination.
3. Autonomous services
   Allowing endpoints to be independently built, deployed, managed, versioned, and secured.
4. Managed transparency
   Controlling which aspects of an endpoint are (and are not) visible to external services. Protocol-based integration restricting cross-application coupling to wire artifacts only.

4. Model Prototype

Prototype that being built in this paper is using UML notation and common block diagram in order to generalized the model, so it would be applicable and adaptable for many model of e-government implementation. The proposed prototype hopefully also can be a reference for big blueprint of e-government in many areas and many ways.

General prototype of common e-democracy is shown in figure below:

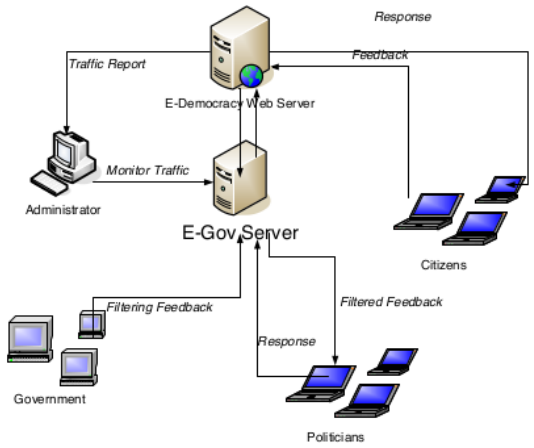

Figure 1. General Prototype of E-democracy

In general an e-democracy implementation is described in these steps:

1. When citizens give their aspiration to government and/or politician, then they must visit government web site and give their feedback in it.
2. As we all know in Indonesia that politician is always assume as parliamentary council (*DPR=Dewan Perwakilan Rakyat*), and they do not responsible in e-government system. Thus, they only receive feedback that has already been filtered by government, especially local government. Local government information department or commonly named as *dinas infokom* usually responsible in filtering process.
3. Later, after politician give their response to e-government website, citizens then can access it also. For some e-government website is administered and maintained by independence software house, it will

monitor traffic to assure that e-government website is running smoothly.

However, when e-democracy is implemented in multi device environment prototype will change as described in next figure:

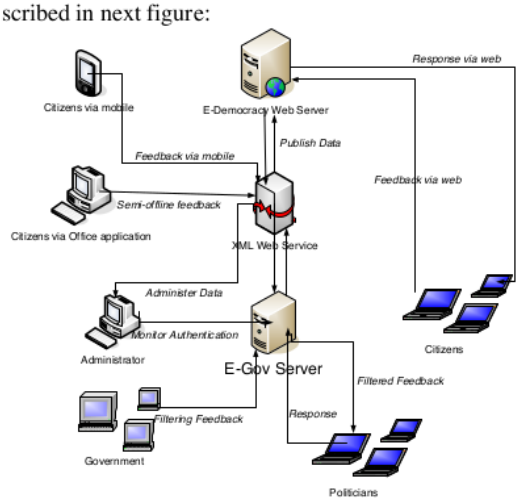

Figure 2. Prototype of multi device e-democracy

The big differences among first prototype and second prototype are:

1. Feedbacks that come from citizens are not always come from e-government website. However, they can come from other devices such as mobile phone (which can use mobile application platform built under J2ME) or PDA (which can use Windows mobile application). They can also come from semi-offline application such as Microsoft Word's document that has already been injected with VBA using XML Web Service to access it with disconnected concept.
2. All of feedbacks then filtered in XML Web Service as global function that will fit them all into (whatever) e-government data format. XML Web Service should be built by local government authority to assure that it will fit with e-government data format. All of application in multi device should also be built and being deployed freely and easily access by citizens.

On the other hand, XML Web Service in this case should fulfill security standard, so its implementation must be done very carefully. Since that e-democracy is full with political will and intrigue, hence it is clearly shown that e-democracy will face many challenge and danger in its implementation.

It also must be clearly declared that e-democracy is about aspiration and interaction from citizens to government and/or politician. So, e-democracy cannot be as marketplace for politician neither for government to campaign their own political movement or election campaign. This will bias e-democracy purpose, and it will make citizens lose their trust in e-democracy existence (Collins, 2002).

As mentioned before about security existence in multi device e-democracy, then it should include authentication process in it. Global picture of activity diagram of e-democracy that use XML Web Service as bridge in multi device application and also its authentication process, is shown in next figure:

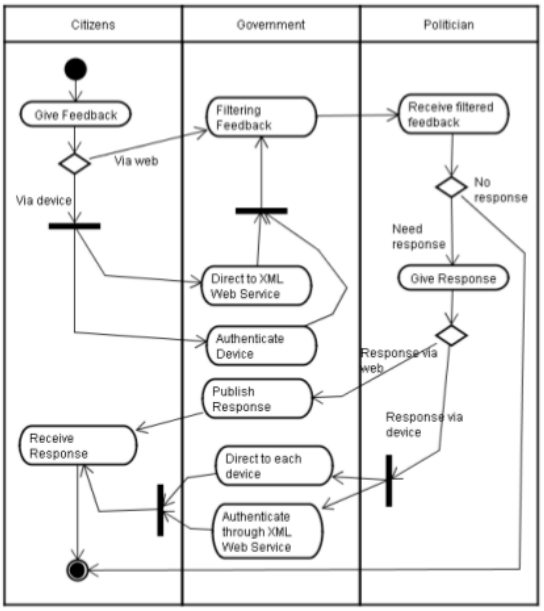

Figure 3. Activity Diagram

5. Impact and Consideration

When implementing this prototype or breakdown it into smaller there will be some impacts (technical and non technical) that must be considered which are:

1. As mentioned before, security matter is one of most important thing to consider. Since that e-democracy implementation might have many intrigues inside it, so XML Web Service, which always comes in plain text, must have encryption algorithm inside it.
2. On the other hand, multi device should be deployed in global format. Especially when it deals with multi vendor device, the application can be in different platform but must have the same output.
3. E-democracy implementation, at first, will give hope to citizens; however it should come with good socialization. Thus, it must have good coordination between technical team and governmental team, and also from each political party where politician belong. If socialization is not successful in its implementation, then it does not matter how good is e-democracy have become, citizens will not have its advantage.
4. Reliability of web server which hosts XML Web Service must be in great condition. Otherwise, when feedback and response traffic from citizens' multi device reach its peak, there might be big jam happen.
5. Great impact of e-democracy implementation is change of culture. E-democracy which always assume as *high-tech thing*, especially in Indonesia, will come with many resistance, whether from citizens, government or politicians. Thus, socialization must be *down to earth* in order to make the assumption disappear.

6. Conclusion

As a result of this paper, the conclusions are:

1. There is big difference between e-democracy and e-government implementation. E-democracy need feedback and response action, and also e-democracy is part of e-government itself.
2. Modeling e-democracy with multi device technology is not impossible using XML Web Service technology that can help technical team to uniform each data format from different platform and also different programming language implementation.
3. When implement or just breakdown the prototype, there must be some impact to consider. Socialization must be planned carefully in order to support its implementation. Reliability of hardware and also careful software implementation must be done, since that e-democracy is public service that will impact many sides.

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