Rich Internet Application Development
Assignment One – What? Why? How?
CS2S52

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Abstract

This report covers what is rich internet applications is and some fundamental reasons for using internet applications, as well as some examples of what technologies that are used.

Introduction

This report is an introduction to what is a **R**ich **I**nternet **A**pplication (RIA) and how they are created it covers AJAX and Flex. It also shows examples of a rich internet application and what they have come from. For more information on where this information was found please look at the bibliography and references.

What

A rich internet application is not the same as a basic web page. A basic web page will consist of just text and some pictures. It is a static page and is not dynamically updated, this means that to update the page it has to send a request to the server which will process the request and send it back to the client, normally known as a 'thin client'.

The concept of rich internet application has been around for many years and has been known under the names of:

- Remote Scripting
- X Internet
- Rich (web) clients
- Rich web application

A rich internet application is a web based application that is designed to function and provide features that are normally found on a desktop application. A very good open source example of this is eyeOS. EyeOS is a cloud computing operating system, it acts and looks like a normal operating system but runs in a web browser.

Web 2.0 began life at an O'Reilly Media conference in 2004, although the name suggests that it could be a second version of the internet this is not true it is just a way of saying that developers and end users have started to use the internet in a different way than before, see the table below for some examples.

Below is table showing O'Reilly Media initial brainstorming of what is web 2.0. It also shows where some of the rich internet applications came from.

Web 1.0	**Web 2.0**

DoubleClick	Google AdSense
Ofoto	Flickr
Akamai	BitTorrent
mp3.com	Napster
Britannica Online	Wikipedia
personal websites	blogging
content management systems	wikis

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Rich internet applications tend to be more responsive to the user and proved them with an easier way to use the site and upload information, which is another part of RIA/Web 2.0 being able to upload information to the site to be approved or automatically uploaded.

Only recently has rich internet application become more mature, proving users and developers with free and most of the time easy to use **A**pplication **P**rogramming **I**nterface (API). This proves developers to use such technologies like Google maps for example on there own web site with the ability to customize and suite there needs.

Why

> "The majority of the features of Web 2.0 UIs may be developed using Rich Internet Applications (RIAs) technologies [8] which combine the benefits of the Web distribution model with the interface interactivity and multimedia support available in desktop applications. "

Preciado, J.C.; Linaje, M.; Sánchez-Figueroa, F, (2007), An approach to support the Web User Interfaces evolution, p.1 .

With many people using more than one computer and all having a connection to the internet, it is becoming increasingly desirably to be able to access and edit your documents or e-mails where ever you are. This is where rich internet applications come in to there own.

Because these are internet applications they are stored on a central server, this is where

the term cloud computing comes from, there fore they are not required to be installed on the client computer. Any updates that need to be applied to the application will only have to be applied to the servers, this means that there is no need to make sure that the client has the latest version runing as long as the server that they use is updated they will always have a current version of the application.

Rich internet applications provide network efficiency over a basic web application as a rich internet application can be more intelligent when it decides what data needs to be exchanged between it and the server.

Rich internet applications such as Google's Gmail and Google docs, allow users to access e-mail and document, I.e edit and create, from any computer any where in the world.

Rich internet applications are still not as mature as desktop applications. The main goal of internet applications is to make them just like normal desktop applications. If the web was to be considered as a platform such as Linux or OS X then we would see that the applications for it are no where near as sophisticated. This is what developers are trying to achieve by making the web into a platform they are able to create more interactive web sites and provide users with a whole range of applications.

We already have applications that use the web on the desktop. Take iTunes for example they provide the user with multimedia playback as well as a portal to buy and download media from there network. If the user does not know much about the technologies involved then to them it would be seamless, the whole things is created to look like a desktop application. But in reality it can be broken down into two parts. One will be the media playback, a desktop application, and the other will be the built in web browser taking the user to the internet application which will supply the user with an option to buy and download media.

In the future this could be possible to create a completely online based media playback and purchase application, this would then be one complete application.

How

Rich Internet Application or Web 2.0 is created by using more than one technology. These may or may not consist of the following:

- Adobe Flex
- Adobe Flash
- AJAX
- PHP + MySQL

Adobe Flex is an open source cross platform framework for creating interactive web applications. Flex uses MXUL which is a XML based markup language, which is able to

build and lay out graphical user interfaces. And to create the user interaction with the application it uses Action Script. Action script is the core language of Flash player, it is a subset of JavaScript.

Asynchronous **J**avaScript **a**nd **X**ML, AJAX. AJAX is a mix of scripting languages which was made popular by Google in 2005, by Google Suggest. AJAX uses the following technologies:

- XHTML and CSS
- Document Object Model (DOM)
- XML and XSLT
- XMLHttpRequest
- JavaScript

Using those technologies in conjunction, AJAX is able to produce many different and effective applications such as enabling immediate server-side form validation, creating applications that need real-time upgrades such as an RSS aggregator and creating drag and drop lists.

There is some debate weather AJAX should be considered a RIA technology. Al though AJAX provides the user with a quick response from the server without having to reload the whole page and can simulate the effect of a desktop application. Most of the rich internet applications are created using AJAX.

> "I see a couple of big reasons RIAs have become much more popular in the past few months. One is that a good experience has become a primary requirement for the web. I don't really count Ajax as a full RIA technology, but it has raised the expectation level and made people start to wonder how much better the web can be."

Ryan Stewart, 2007, The role of the desktop in Rich Internet Applications – See references

Although despite the application being on the central server the client is still required to process more than a basic web application, for this is part of the reason how rich internet applications can provide a faster and more dynamic application. For example JavaScript is a client side scripting language, this means that it runs on the client not the server. Most of the rich internet application will try to run as much processes that it can with out being a security risk on the client, freeing up power at the server end.

There are also applications created by Google (Google Gears) and Adobe (Adobe Air) that allow users and developers to run rich internet applications on your desktop as a normal

application, although this removes the central server and access anywhere option, but provides the developers with more scope.

Conclusion

We now know that a rich internet application is an application that has features not dissimilar to a desktop application, but still a long way off. A rich internet application is not to far away from becoming an alternative option to desktop applications. Rich internet applications have many different uses such as being able to use from any computer in the world at any time and any operating system or web browser.

Much of the applications are open source which means that there will be many developers create applications that will allow them to create useful and interesting software. With the power to run internet applications offline it blurs the line between desktop and internet.

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