

Rich Internet Applications

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Agenda

- What is RIA?
- RIA vs traditional Internet applications.
- Why to use RIAs?
- Running RIAs.
- RIA Technologies.
- Pros and Cons of RIA

What is RIA?

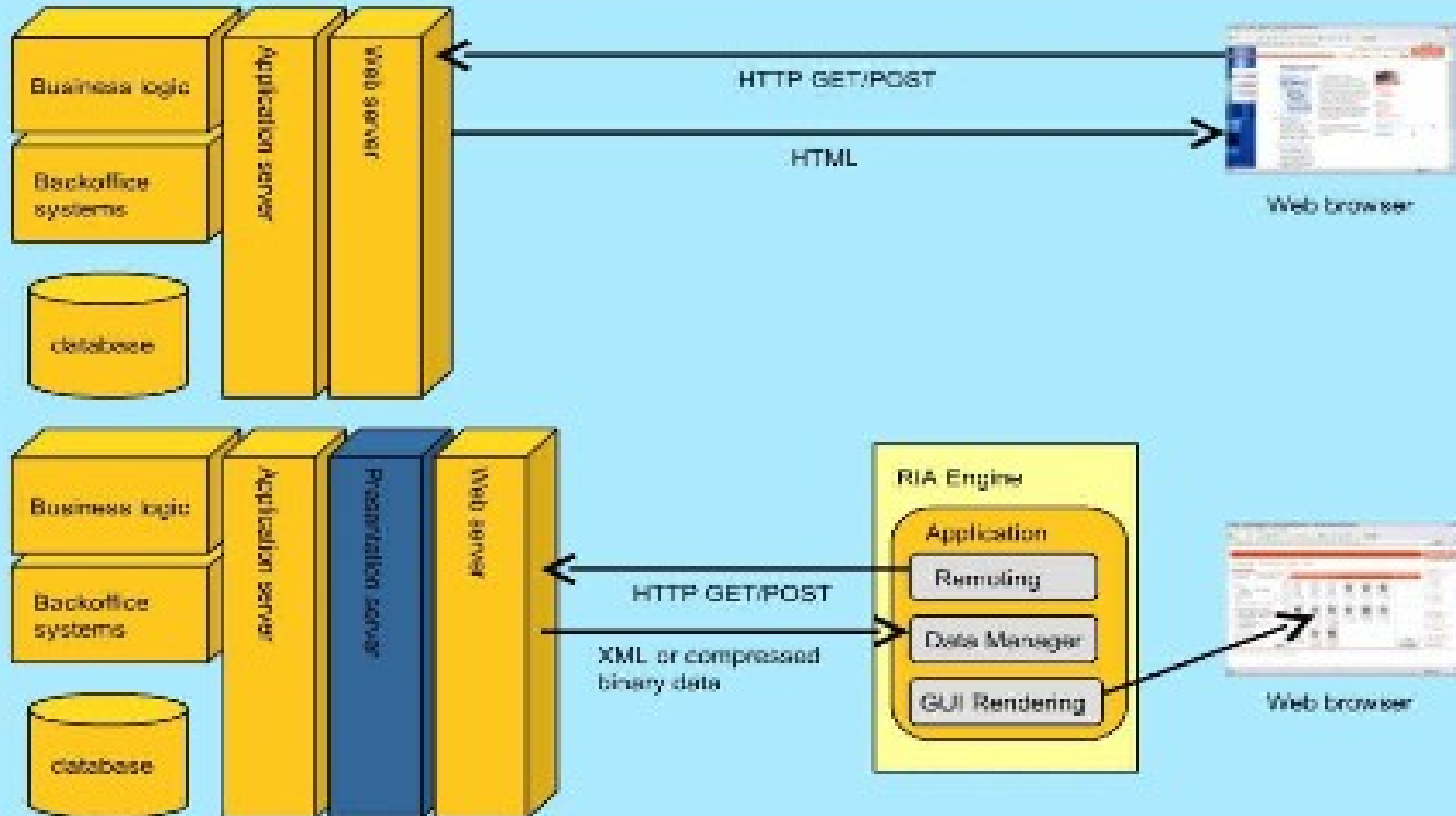
RIAs are **web** applications that have most of the characteristics of **desktop** applications.

Ex: Online games, gmail..etc

RIA vs traditional Internet apps

- A richer user experience
- Cross-browser consistency
- Load data without refreshing the page
- “Offline mode”
- Local data storage
- Access to lower level OS resources

Old Vs. New



Source: Mastering Adobe Technologies

Why to Use RIA?

Amount of interaction in the interface of page-based Internet applications.

Goal:

Develop web-top (web desktop) applications that have the responsiveness, look and feel of traditional desktop applications.

Running RIAs

A software/plug-in should be installed on computer's operating system/browser before launching RIAs other than AJAX apps.

The framework typically:

- Downloads, updates, verifies and executes RIA.

The most common RIA run-times are

- Macromedia's Flash, Sun's Java plug-in and MS Silverlight.

RIA Technologies

- Ajax
- GWT
- Adobe Flex
- MS Silverlight
- JavaFX
- Others (Laszlo, coldfusion and java web start,..)

AJAX (Asynchronous JavaScript and XML)

- Group of interrelated web development techniques (HTML, CSS, JavaScript,...) to create RIA (like gmail).
- Web clients can submit and retrieve data from server without reloading the page.
- JavaScript processes the data in the background and renders it asynchronously.

AJAX

AJAX is a RIA technology!!!

- IT depends on the browsers support of JS!
- If browser does not support (or disabled) JS or XMLHttpRequest, will not be able to properly use Ajax pages.

GWT (Google Web Toolkit)

Allows web developers to create and maintain complex JavaScript front-end applications (Ajax) in **Java**, and handles cross-browser issues.

GWT apps can operate in two modes:

- **Hosted mode**: as java bytecode within JVM
- **Web mode**: as pure JS and HTML compiled from java source.

Adobe Flex

The Flex is a cross-platform, open source framework for creating rich Internet applications that run identically in:

- All major browsers and operating systems, and
- Beyond the browser with Adobe® AIR™.

By (Adobe Flex)

Offer presentation server that can be installed on the server side.

Adobe Flex

Developers do not need to be worried about dealing with differing browser implementations of JavaScript or CSS

Developers can focus on the application's development.

Flex framework runs on Adobe's cross-platform Flash Player.

MS Silverlight

- Similar to Adobe flash
- Integrated multimedia, graphic, animation and interaction into a single runtime environment
- Not fully cross-browser/platform as Microsoft claims.
- It is free

JavaFX

- Expressive RIA platform for all screens of your life.
- Combines Java capabilities with media functionality via a simple & powerful script lang.
- Developers and Designers can work together!
- Provides advanced graphics, audio, and video rendering with support for hardware acceleration

JavaFX

- A powerful data binding feature a simple syntax for synchronizing the state of multiple Objects, that allows GUI components to automatically change state with changes in underlying data.
- JavaFX plug-in is available for Netbeans IDE & Eclipse IDE
- Free & “Open source”

JavaFX “hello world”

```
import javafx.scene.*;
import javafx.stage.Stage;

Stage {
  title: "Hello World"
  Width: 250
  height: 50
  scene: Scene {
    content: [
      Text {
        content: "Hello World!"
        x:0
        y:12
        font: Font {
          name: "Sans Serif"
          size: 12
        }
      }
    ]
  }
}
```

Pros of RIA

- Richness
- Performance
- Compatibility
- Advanced Communication
- Security

Cons of RIA

- Clients need to install extra tool to run RIAs
- Content may be incorrect when user clicks reload or back buttons.
- Linking to, book-marking and saving can be tricky

References

<http://javafx.com/learn/>

<http://www.adobe.com/products/flex/>

<http://en.wikipedia.org/wiki/>

<http://www.microsoft.com/silverlight/overview/>

Q & A
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