Rich Internet Applications

- **1992**: MAINFRAME (Text UI)
- **1998**: WEB APPLICATIONS
- **2004**: RICH INTERNET APPLICATIONS (Desktop, Integrated media GUI)

**Key Terms**:
- LOCAL vs. GLOBAL
- REACH
- RICH
- GDUI
- TEXT UI

**Timeline**:
- 1992: MAINFRAME
- 1998: WEB APPLICATIONS
- 2004: RICH INTERNET APPLICATIONS

**Concepts**:
- Rich Text UI
- Integrated media

**Sources**:
- James Ward – Adobe Systems
- jamesward.org
RIA Technology Trends

2006
Web Browser
HTML/JavaScript
Ajax/Flash/Flex

Cross-
Phone/Device

Windows
Only

Web Pages
JIT Deployment
Dumb Client
Page-Based Model

Rich Internet
Applications
JIT Deployment
Rich Client
Robust App Model

Lightweight
Desktop Apps
JIT Deployment
OS Integration
Offline Operation

Native
Applications
Heavyweight Install
Native OS Integration
Offline Operation

Cross-
Platform
RIA Technology Trends

2006

Web Browser
HTML/JavaScript
Ajax/Flash/Flex

Rich Internet Applications
JIT Deployment
Rich Client
Robust App Model

Lightweight Desktop Apps
JIT Deployment
OS Integration
Offline Operation

Adobe AIR Desktop

Cross-Phone/Device

Cross-Platform

Windows Only

Web Pages
JIT Deployment
Dumb Client
Page-Based Model

Linux/OS X

Rich Client
Heavyweight Install
Native OS Integration
Offline Operation
Although amazing things have been accomplished within the confines of Javascript, using technologies like Ajax, JSON, GWT etc., these are nonetheless confines. We bump up against their limits every day, and those limits are not going away.

I believe that to solve the user interface problem, we need the equivalent of a domain-specific language dedicated to the user experience. For me, Flash-based technologies like Flex are the best solution to this problem.
Web 1.0 Example

- Pentaho Dashboard
  - Limited interactivity
  - Static Data Visualization
  - Limited Customizability
SOA + RIA = SOARIA (That’s a fun word)

- Exposing the backend as services
  - SOAP
  - JSON
  - XML
  - Other

- RIAs interact with the backend solely via services
  - No view logic runs on the server in a true RIA
  - Services are usually stateless
RIA – Transforming the User Experience

- Better End-User experiences
- Better Business-User experiences
- Visualize and enter data in a new way
- Thick clients – Do more on the client
  - Paging
  - Sorting
  - Caching
  - Binary protocols
Building a RIA Dashboard on Pentaho

- Create a Sample Dataset
- Build a UI Prototype
- Build it fast and disconnected from the back-end
- Test it with users
- Iterate and refactor until the experience is amazing
- Connect it to the back-end
How Flex Works

Flex Builder IDE

Flex SDK

- MXML
- ActionScript
- Flex Class Library

MXML and ActionScript

```xml
<?xml version="1.0" encoding="utf-8"?>
    xmlns="*" layout="absolute"
    creationComplete="initApp()">

    <mx:Script>
        private function initApp():void {
            hs.send();
        }
    </mx:Script>

    <mx:Panel layout="vertical" top="10" left="10"
        right="10" bottom="10">
        <mx:TileList itemRenderer="Thumb" width="100%" height="100%"
           dataProvider="(hs.lastResult.catalog.product)" />
    </mx:Panel>

</mx:Application>
```
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Compile

.swf
How Flex Works

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Compile

.swf

Browser

- Flash Player

Web Server

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Compile

.swf

Web Server

Browser

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Compile

.swift

Browser

- Flash Player

Web Server

- XML/HTTP
- REST
- SOAP Web Services
- Flex Data Services 2
- J2EE Application Server

Existing Applications and Infrastructure