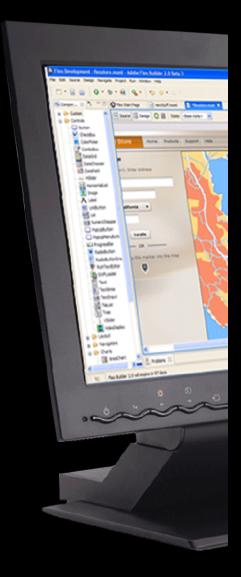


# **RIA Trends**



## **Expressiveness**

**Vector Graphics** 

## **Rich Media**

Audio, Video

#### **Performance**

**VM**, JIT Compiler

## **Real Time**

**Pub/Sub Messaging** 

## **Desktop Client**

**Desktop sandbox, Offline** 

Programming Model Enterprise Integration





# Widest Reach in the World

Flash Player has 99% reach on connected PCs 8 million installs/day









Cross-OS runtime to run rich Internet applications on the desktop.

- Embedded RDBMS (SQLite)
- Database API
- Embedded HTML engine (WebKit)
- File I/O API

- Native OS drag-and-drop
- Network detection
- System notifications
- Application updates



# Flex Programming Model

ActionScript (ECMAScript 4)

MXML

```
<VBox>
  <DataGrid dataProvider="{ws.getProducts.result}"/>
  <LineChart dataProvider="{ws.getProducts.result}"/>
  <Button label="Get Data" click="ws.getProducts()"/>
  </VBox>
```



# ECMAScript 4 Language Characteristics

- Types
- Classes
- Interfaces
- Packages
- Namespaces
- Strong and dynamic typing
- Closures



## Class Library

## **UI Components**

- Datagrid, Tree, List, TileList, HorizontalList, ...
- Tab, Accordion, Menu, ContextMenu, ...
- RichText Editor, Sliders, ...
- ToggleButton, PopupButton, ...

#### Media

Video, Audio, Streaming

## **Layout Management**

- Panel, VBox, HBox, VDividedBox, HDivideBox, Form, Tile, Grid, ...
- Constraint-based layouts
- View States

#### **Data Visualization**

- LineChart, ColumnChart, BarChart, PieChart, HLOC, Candle, Plot, Bubble, ...
- AdvancedDataGrid, OLAPDataGrid

#### **Expressiveness**

- Styling and Skinning
- Effects, Transitions

#### Data

- HTTPService, WebService, RemoteObject
- Producer, Consumer
- DataService
- E4X data binding
- Paging
- Validators
- Formatters



## **Data Connectivity**

- RPC
  - HTTPService
  - WebService
  - RemoteObject
- Publish/Subscribe
  - Polling
  - Long Polling
  - HTTPStreaming
  - Full duplex socket-based protocol (RTMP)
- Data Management
  - Automatic Client to Middle-Tier Data Synchronization
  - Conflict Resolution
  - Automatic Clients Synchronization (Object changes pushed to clients subscribed to object)
  - Offline synchronization
  - Paging



# More Flex Capabilities

- Localization
  - Static or dynamic resource bundles
- Large Application Partitioning
  - Runtime Shared Libraries
  - Modules
- Build Integration
  - Command line compiler
  - ANT tasks
- Unit Testing
  - FlexUnit
- Functional Testing
  - Flex Automation Package
  - Mercury QTP
  - Rational Functional Tester 7.1
  - Borland



## FlexBuilder

- Eclipse Plugin or Standalone
- Design View and Code View
- Code Completion
- Refactoring
- Visual CSS Editor
- Visual Debugger
- Visual Profiler
- Multiple SDK Support
- Data Wizards (ASP, J2EE, PHP, ColdFusion, ...)
- Web Services introspection and stubs generation



## Adobe Flex



Adobe®
Flex™ 3 SDK
Open Source Flex

**MXML and ActionScript 3.0** 

Framework and Class Library

**Command-line Compiler** 

Adobe® LiveCycle® Data Services ES

**Data Management** 

**Web-Tier Compiler** 

**RIA-PDF Creation** 

**Portal Deployment** 

Blaze DS

Messaging

**RPC Services** 

**Service Adapters** 

**Proxy Service** 

Adobe
Rex™ Builder™ 3
Standard Edition

**Visual Layout** 

**Code Hinting** 

**Debugging** 

**Skinning & Styling** 

**Professional Edition** 

**Charting Components** 

Advanced DataGrid / OLAP

Performance/Memory Profilin

Automated f(x) testing suppor



# Rich Internet Applications with Flex and AIR

http://opensource.adobe.com/flex

http://opensource.adobe.com/blazeds

http://flex.org

Christophe Coenraets <a href="http://coenraets.org">http://coenraets.org</a>

