



JavaOne™

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Next Generation Web UX Interop with JavaEE and Silverlight

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Microsoft®
Silverlight™



Demonstrate Silverlight and show how Java™ platform may be used to host, deploy and interact with it.



GOAL

Agenda

- What is Silverlight?
- Architecture
- Silverlight / Java Platform Scenarios
- Silverlight Features
- Summary
- Questions and Answers

Unified Design / Development Process



Designer



Developer

Select Me! 3

Select Me! 1

Select Me! 2

Select Me! 3

Select Me! 4

Select Me! 5

Select Me! 6

Select Me! 7

Select Me! 8

▶ XAML ▶

Select Me! 3

Select Me! 1

Select Me! 2

Select Me! 3

Select Me! 4

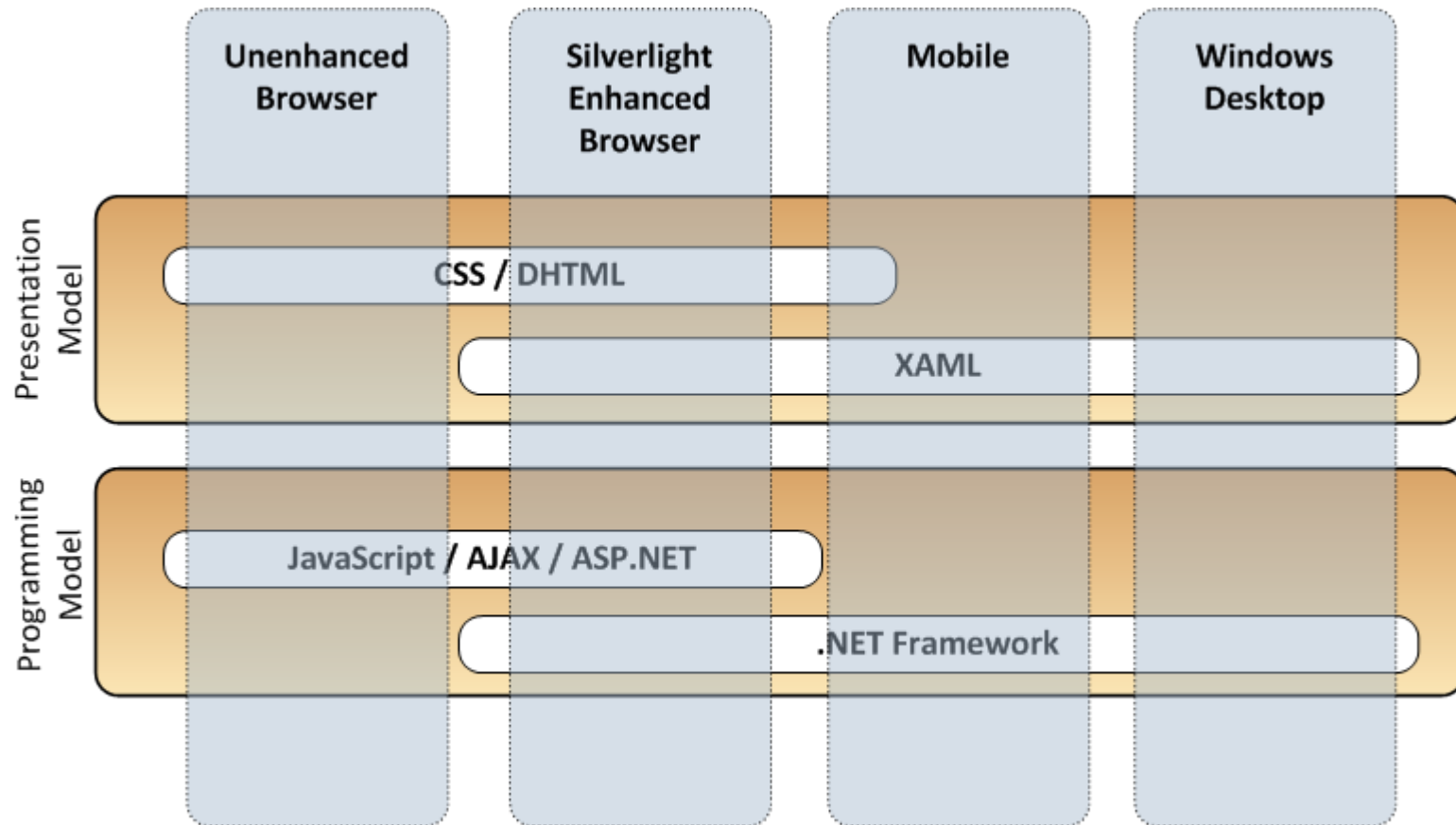
Select Me! 5

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Select Me! 7

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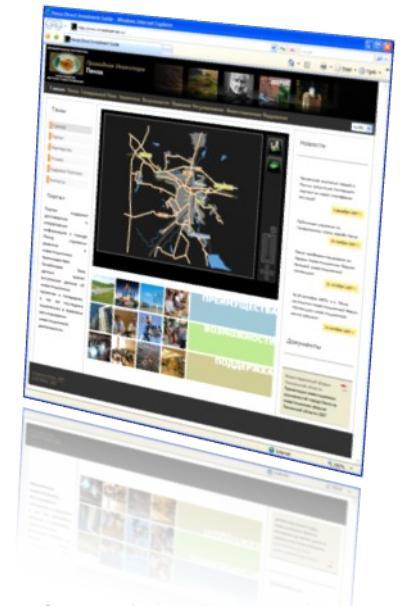
Client programming continuum



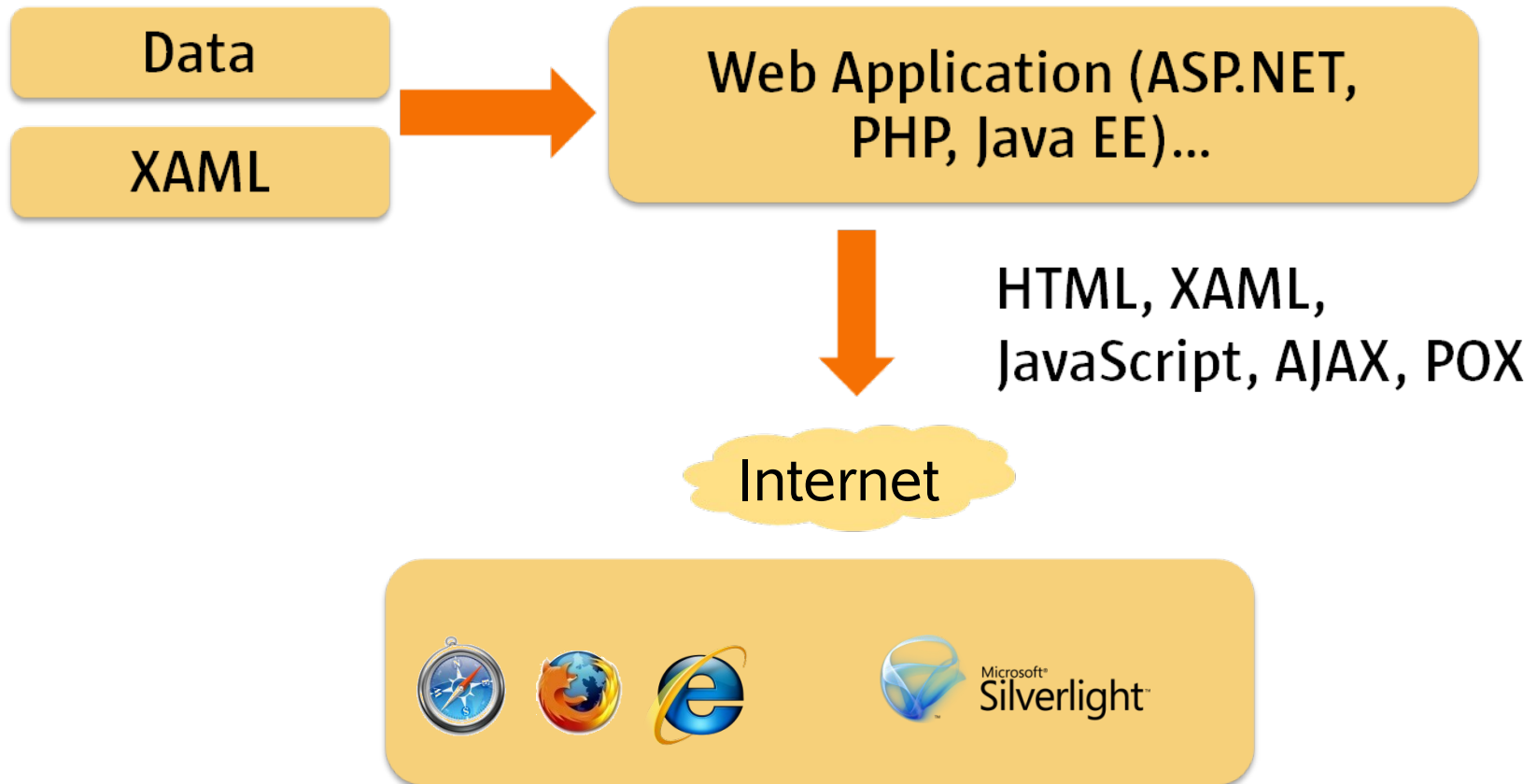
What is Silverlight?

- Silverlight is a cross-platform, cross-browser, cross-device plugin that renders XAML and exposes a programming model
 - XAML: XML Presentation Model supporting clean separation of design and implementation
 - Support for Mac, Windows, Linux and Mobile
 - Firefox, Internet Explorer, Safari,
 - JavaScript™ programming language and .NET programming model in the browser

- Two Versions in the Wild
 - 1.0 Released in 9/2007
 - 2.0 Beta Released in 3/2008



Web Friendly Architecture



Some Features of Silverlight

- Cross-Platform .NET 3.5 CLR
 - Windows, Mac, Linux
 - Approximately 4.5mb download
- Robust Networking Stack
 - SOAP, sockets...
 - cross-domain
- Data Binding, XAML Templates
- Powerful Data mapping support
 - Language Integrated Query Language (LINQ) to XML
- HTML DOM Integration
- Rich UI controls, graphics, media and interactivity



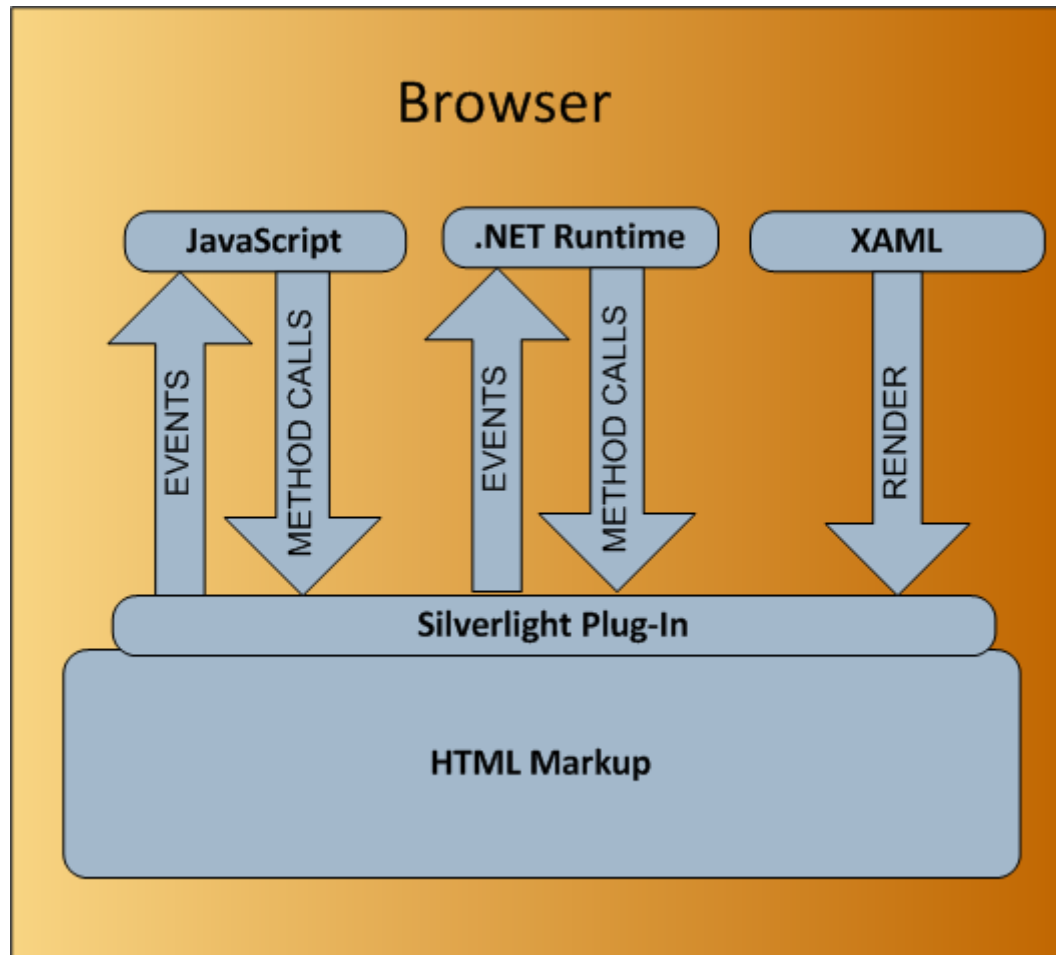
Live SilverlightSites

VIDEO

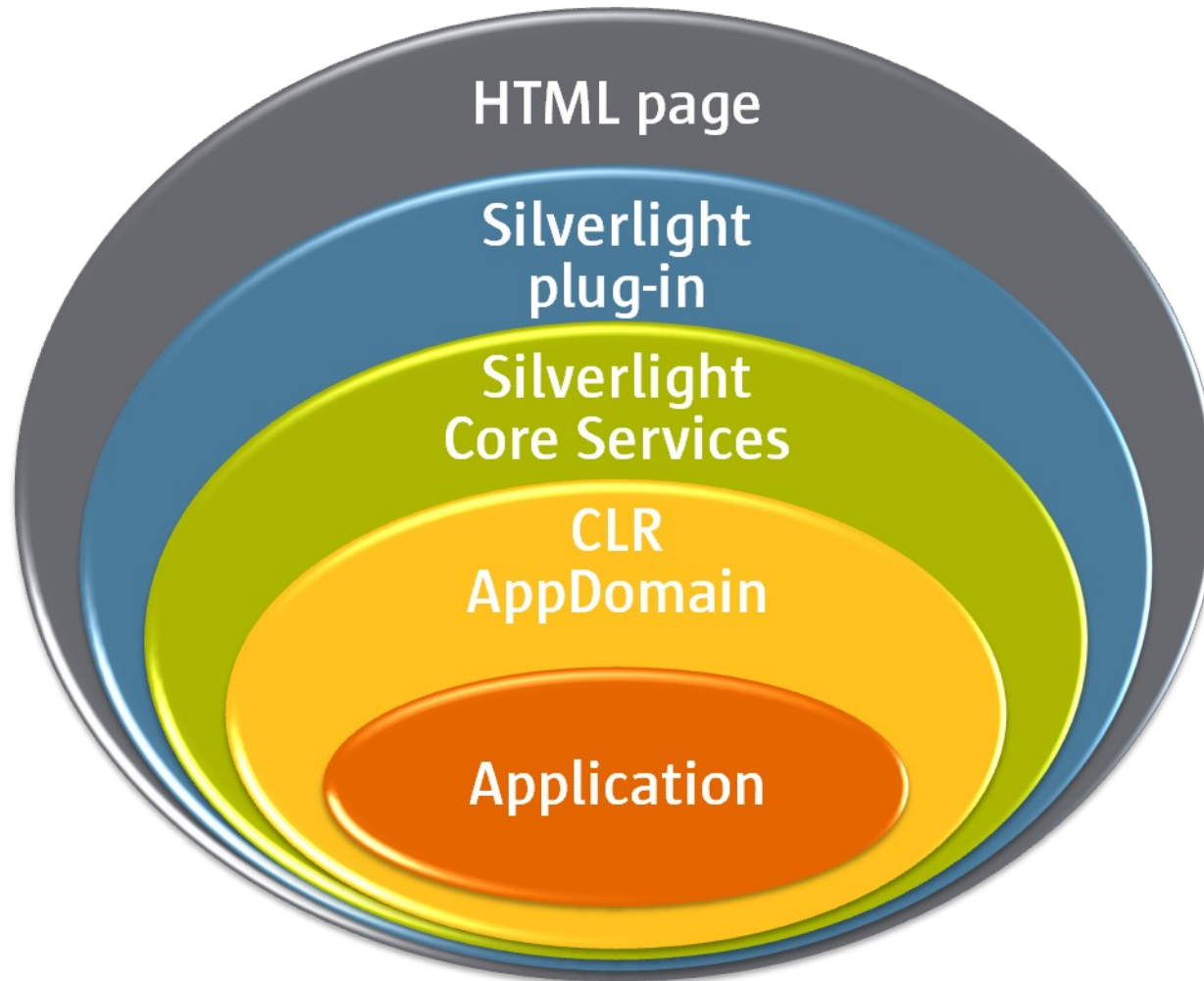
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Silverlight Applications in the Browser



A Closer look at .NET in the Browser



Silverlight Development Model

- Unmanaged Silverlight: JavaScript programming language / AJAX
 - Same Code for HTML DOM and Silverlight
- Managed Silverlight: .NET
 - Cross-platform Version of .NET Framework
 - Fully Supports VB and C# in the Browser
- DLR: Dynamic Languages
 - Managed JScript, IronRuby, IronPython
- Silverlight class library
 - Subset of .NET class library
 - Extensible controls, XML Web Services, networking , LINQ APIs

More about XAML

- Silverlight application content can be sent to the browser in text-based XAML files
 - This means the search engines can potentially index them!
- XAML DOM is wide open to JavaScript programmers
- XAML DOM uses a render tree that can be updated from the JavaScript programming language
- XAML layout markup file (.xaml file) can be augmented by code-behind code

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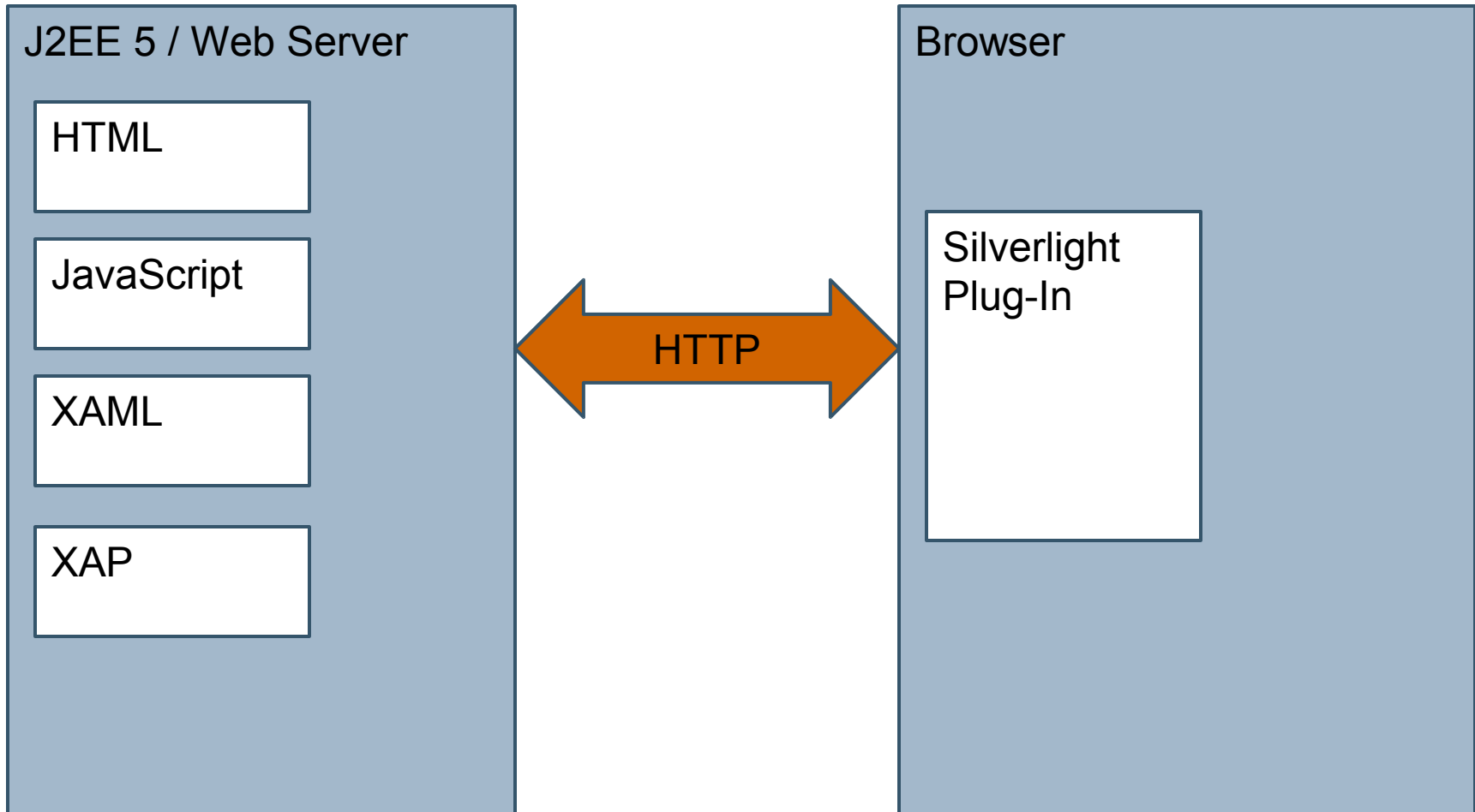
Silverlight and Java Platform

- Java technology-based services can Generate XAML
- Java technology-based servers can host Silverlight components and applications
- Silverlight can consume Java platform-generated POX
 - AJAX Programming Model in JavaScript programming language
 - System.Net APIs in .NET
- Silverlight can consume Java platform-hosted Web Services
 - SOAP over HTTP
 - Tool-generated proxies
 - Cross Domain Rules adhered to
- Silverlight can consume Java platform-generated syndication feeds

Some Scenarios for Java Platform and Silverlight

- How to host Silverlight applications on your web server
 - Doesn't have to be IIS – Apache is fine too!
- How to use Java Servlet APIs and JavaServer™ Pages (JSP) to generate XAML
- How to make XAML dynamic using AJAX and Java platform
- How to consume Java platform-generated POX in Silverlight
- How to consume Java platform-hosted Web Services
- How to consume Java platform-generated Syndication feeds
 - RSS and ATOM

Scenario 1: Java Based Server hosts Silverlight

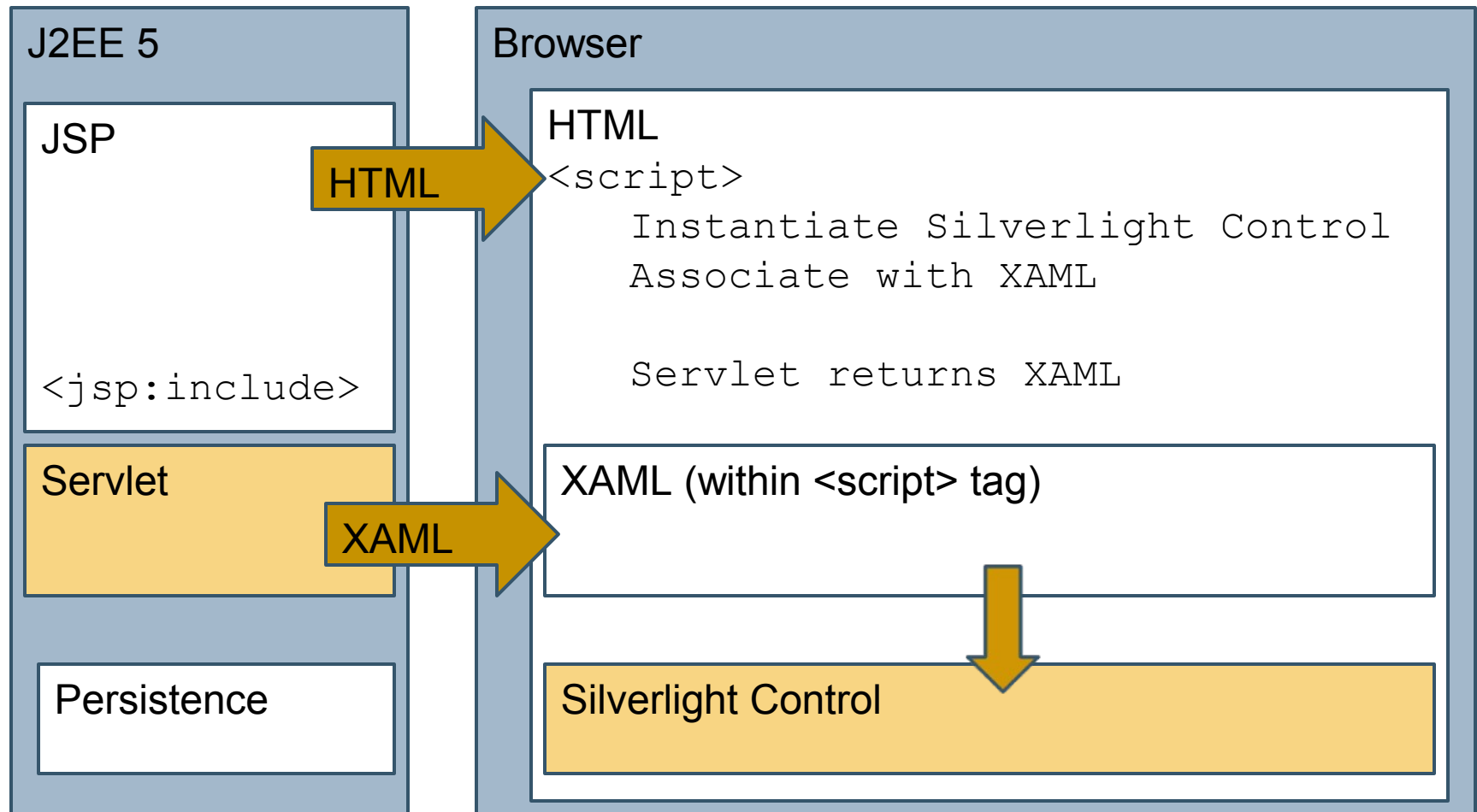


Scenario 1: Java Based Server hosts Silverlight



DEMO

Scenario 2: Java Platform and Static XAML

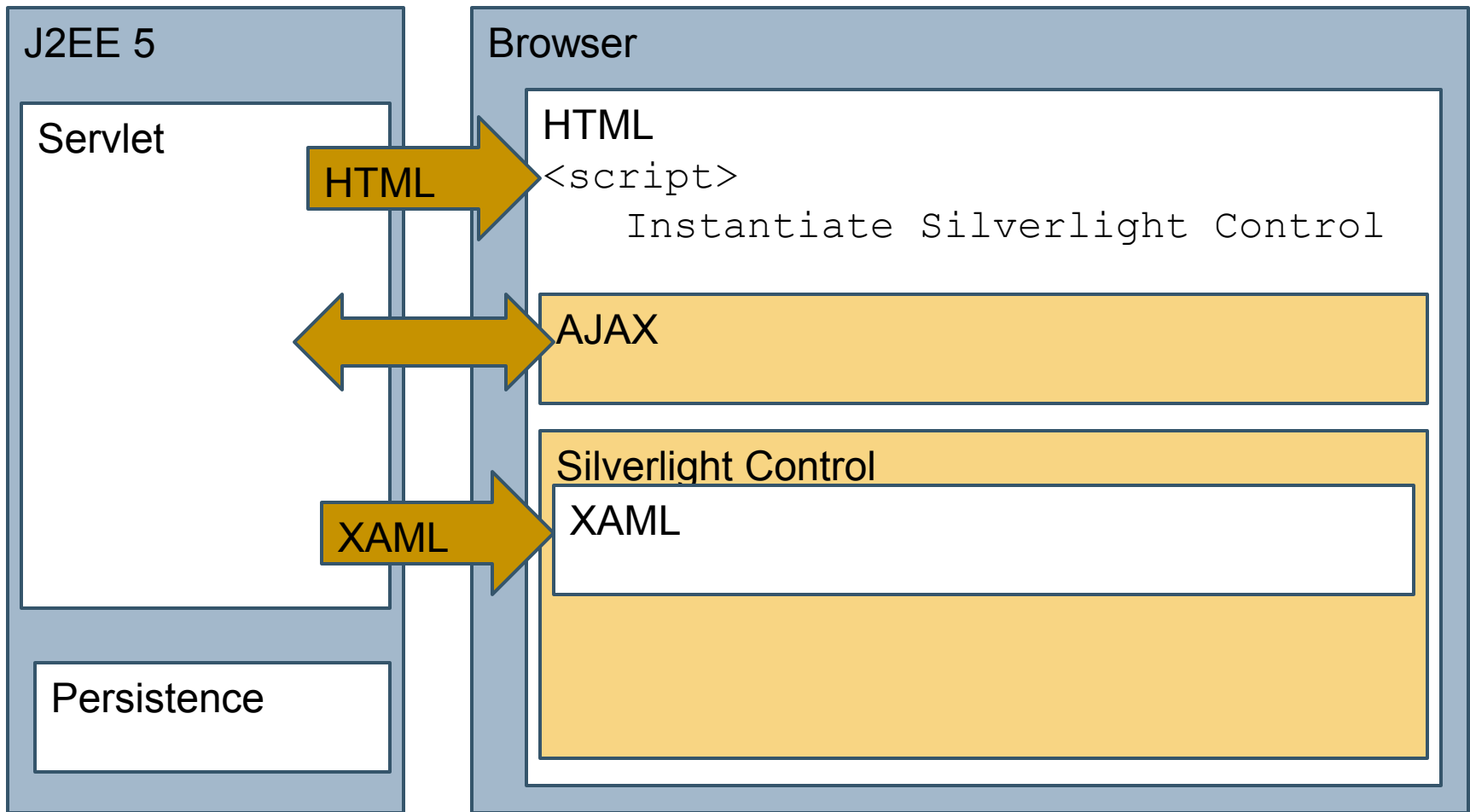


Scenario 2: Java Platform and Static XAML

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DEMO

Scenario 3: XAML over HTTP with AJAX

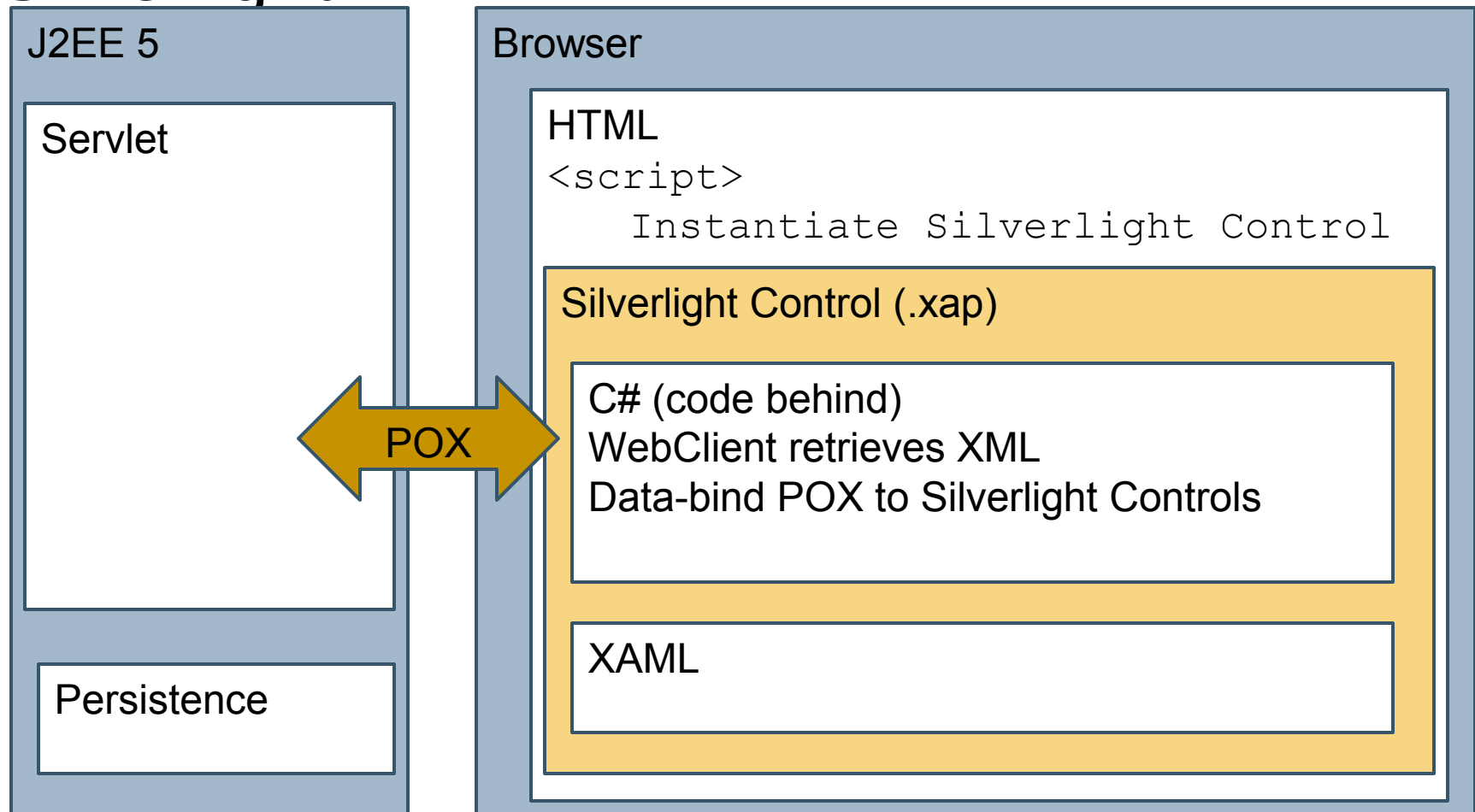


Scenario 3: XAML over HTTP with AJAX



DEMO

Scenario 4: Java Based POX with Silverlight

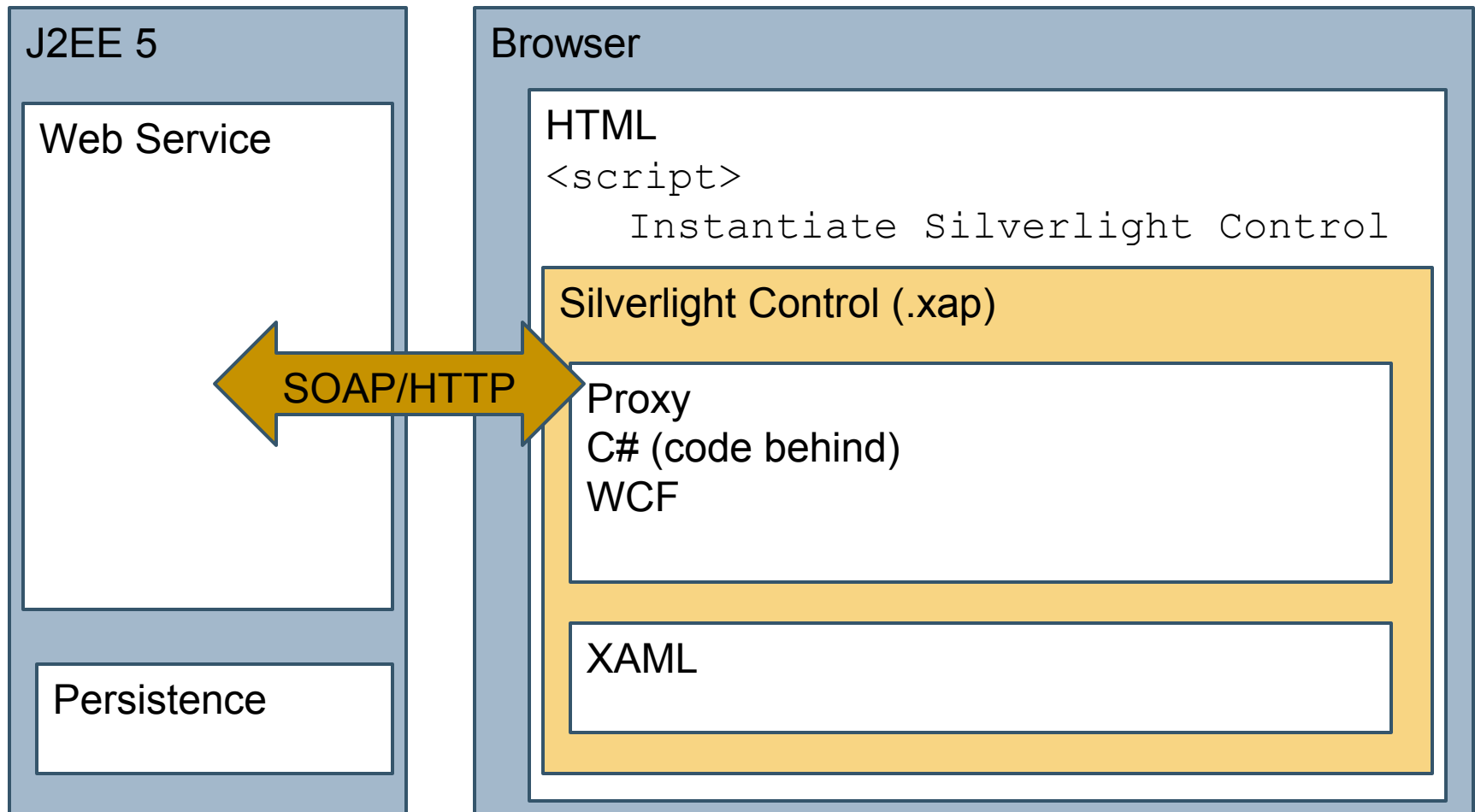


Scenario 4: Using Java Based POX with Silverlight

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Scenario 5: Java Web Services

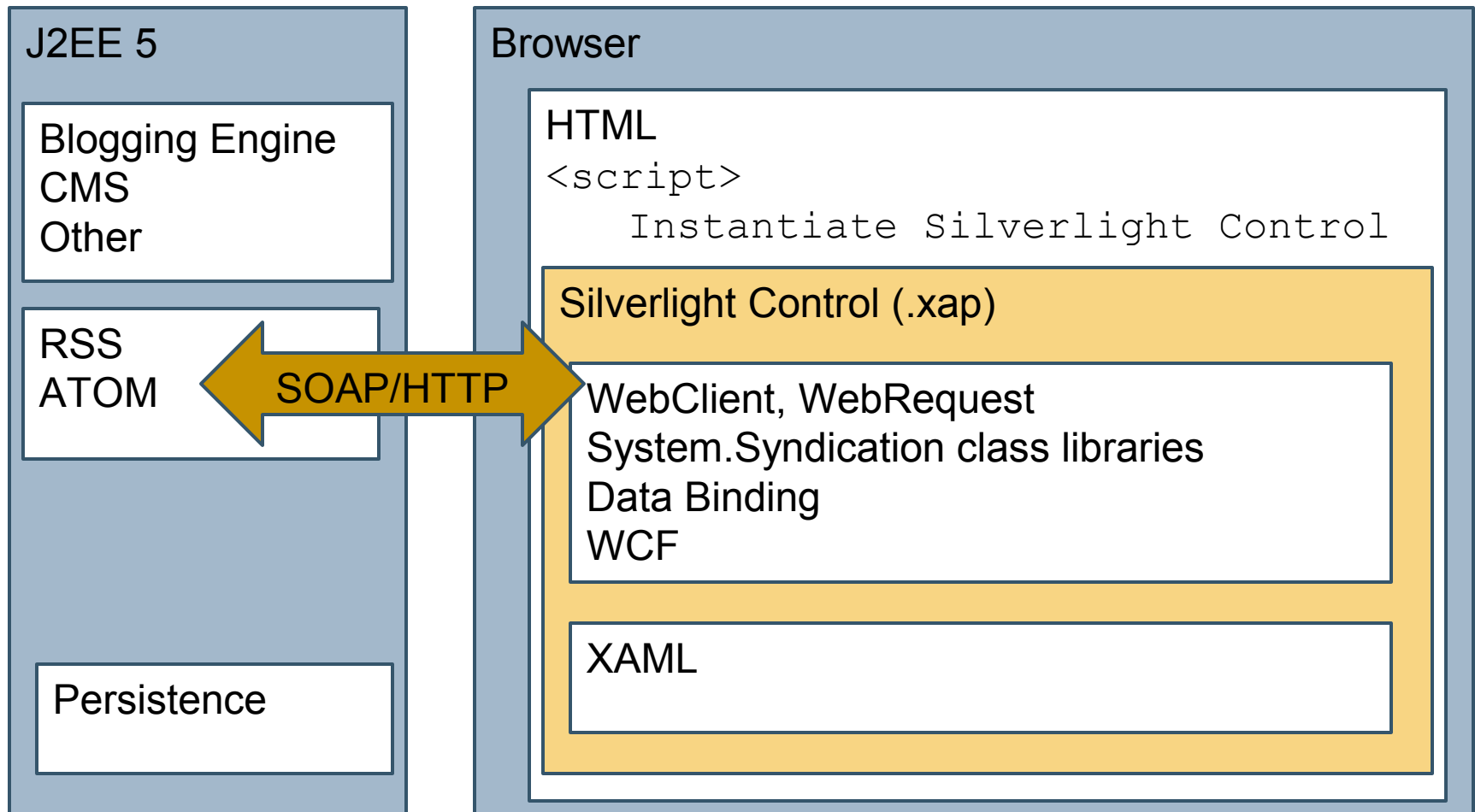


Scenario 5: Java Web Services

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Scenario 6: Syndication



Scenario 6: Syndication

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Some notes on Interoperability

➤ Data and Transport

- POX over HTTPS
- AJAX over HTTPS
- XAML over HTTPS
- WCF middle tier supports WS-*

➤ Cross-Domain –two policy files

- clintaccesspolicy.xml
 - Silverlight policy file
- crossdomain.xml i-
 - a de-facto standard for allowing access to assets on a Server

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High Performance Runtime

- .NET in the Browser gives us more than just a flexible programming model
- It also greatly adds to performance!
- Consider the game of chess
 - Chess algorithms involve complex look-ahead processing
 - We built a chess algorithm in both JavaScript and C# programming languages
 - Let's see the results

Silverlight Performance

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Deep Zoom

- A Silverlight control that allows sparse scene graphs to be rendered within the browser
- Provides bandwidth-optimized access to super high resolution, zoomable images
- Provides virtual canvas for zooming into an out of images
- Difficult to explain – best seen in a demo!

Silverlight and Deep Zoom

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Let's not forget media!

- Silverlight <MediaElement> can render Windows Media
 - WMV 7,8,9
 - VC-1 High Definition
 - WMA and MP3
 - DRM possible
 - Streaming and On-Demand
- Markers and Marker events possible
 - Static (defined at encode time)
 - Dynamic (addable at run time)
 - Fully programmable

Silverlight and Media

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Summary

- Silverlight is a browser plugin that renders XAML
 - XAML is XML-based, so easy to generate/host from Java platform
 - No server components needed
 - JavaScript/AJAX Programming Model
 - .NET Programming Model
 - Connectivity via WebClient, WebRequest, WCF, Syndication
- Silverlight applications can be hosted on non Microsoft servers
- Silverlight works happily with Java based services
 - XAML over HTTP
 - Consume POX with AJAX or .NET Libraries

For More Information

➤ Links

- Community Site: <http://Silverlight.net>
- Main Product Site: <http://www.microsoft.com/Silverlight>
- MSDN Center: <http://msdn.microsoft.com/Silverlight>
- Online Forums: <http://Silverlight.net/forums>
- Online SDK: <http://msdn2.microsoft.com/bb188266.aspx>

➤ Top Silverlight Blogs

- Tim Sneath: <http://blogs.msdn.com/tims>
- Mike Harsh: <http://blogs.msdn.com/mharsh>
- Joe Stegman: <http://blogs.msdn.com/jstegman>
- Laurence Moroney: <http://blogs.msdn.com/webnext>

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THANK YOU

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