



the
POWER
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JAVA™



JavaOne
FOR THE POWER OF THE POWER

It's Not Over 'til the Fat Client Sings

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The Client, the Server and the Rich User

Apps Can be Fat, Thin, Rich or Poor

Users demand better GUI experiences

Browser enhancing technologies—AJAX, Flex

Desktop Java™ technology in this space with JWS
technology, ULC, Swing, SWT, Eclipse RCP

Agenda

The Death of the Client

The Death of the Browser

The Browser Strikes Back

AJAX, Flex

DEMO

The Client Strikes Back

ULC, JWS Technology, Swing,
SWT, RCP

DEMO

The Death of the Client

- Applet downloads over low bandwidth
- Microsoft pulling Java VM from browser
- Early Swing releases
 - Performance and memory issues
 - Fidelity of Swing client versus native toolkit app
- Alternative “virtual machines” like Flash
- The ubiquity of the browser
 - HTML becomes “write once, run anywhere”
 - Server side deployment of code simplifies system management issues

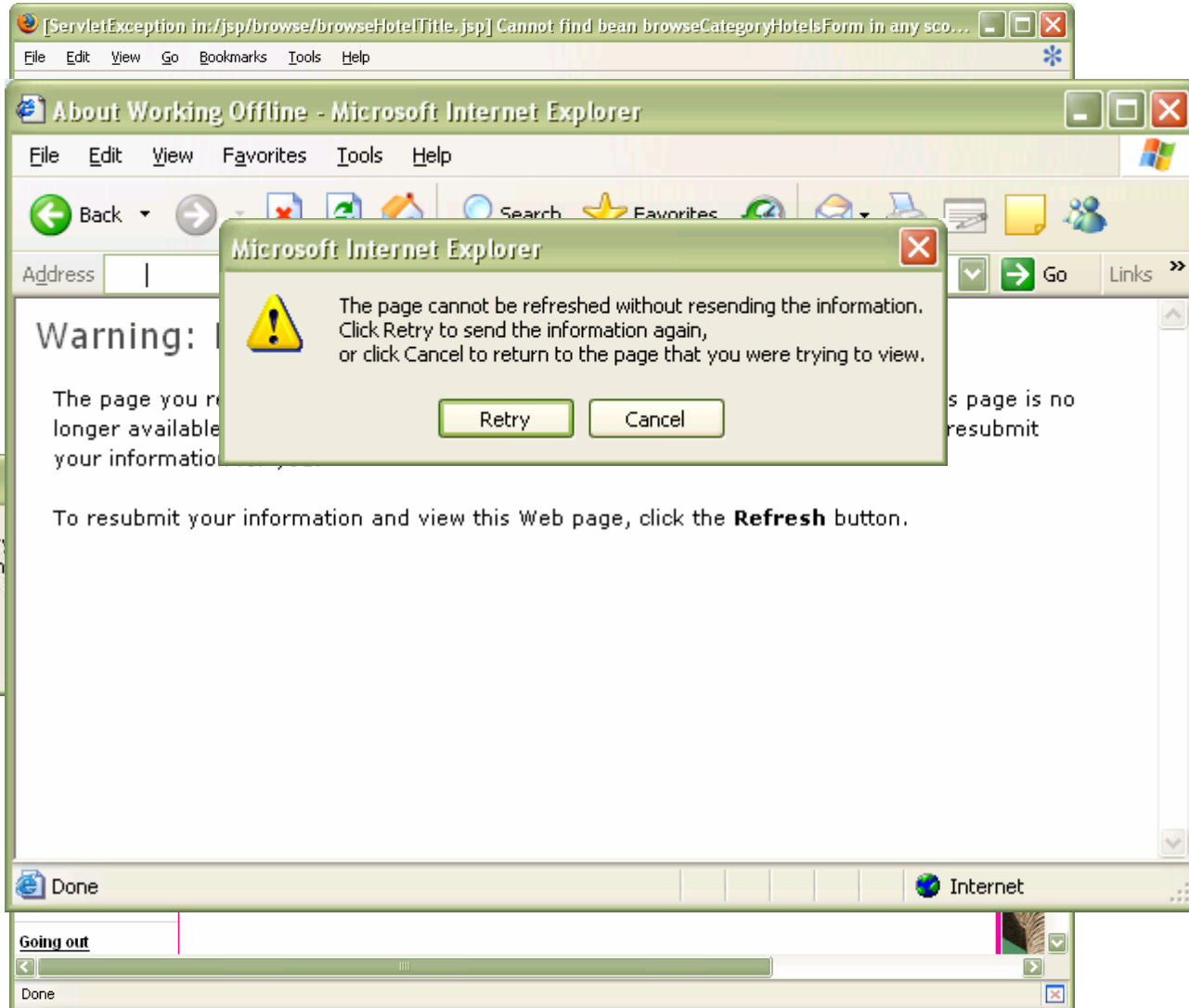
The Death of the Browser

- Poor user interface experience
 - Scrolling experience poor
 - Megadata “1 to 10 of 2 million results”—next and previous
 - Validation round trips to server
 - Error messages in-line with data
 - Scroll bars used on input forms
 - Navigation
 - Back and forward buttons
- Graphical mainframe
 - Page based latency bound model

The Death of the Browser

- “Billions of dollars are wasted every year in lost productivity as people wait for Web pages to perform duties that could have been handled better by a 1984 Macintosh-style graphical user interface application”
Jakob Nielsen
- “There was one feature that was temporary in Mosaic: the Back and Forward buttons. That never made a lot of sense to us. Back to what? Forward to what? We thought there would be a better way to navigate. But no one ever came up with one”
Marc Andreessen

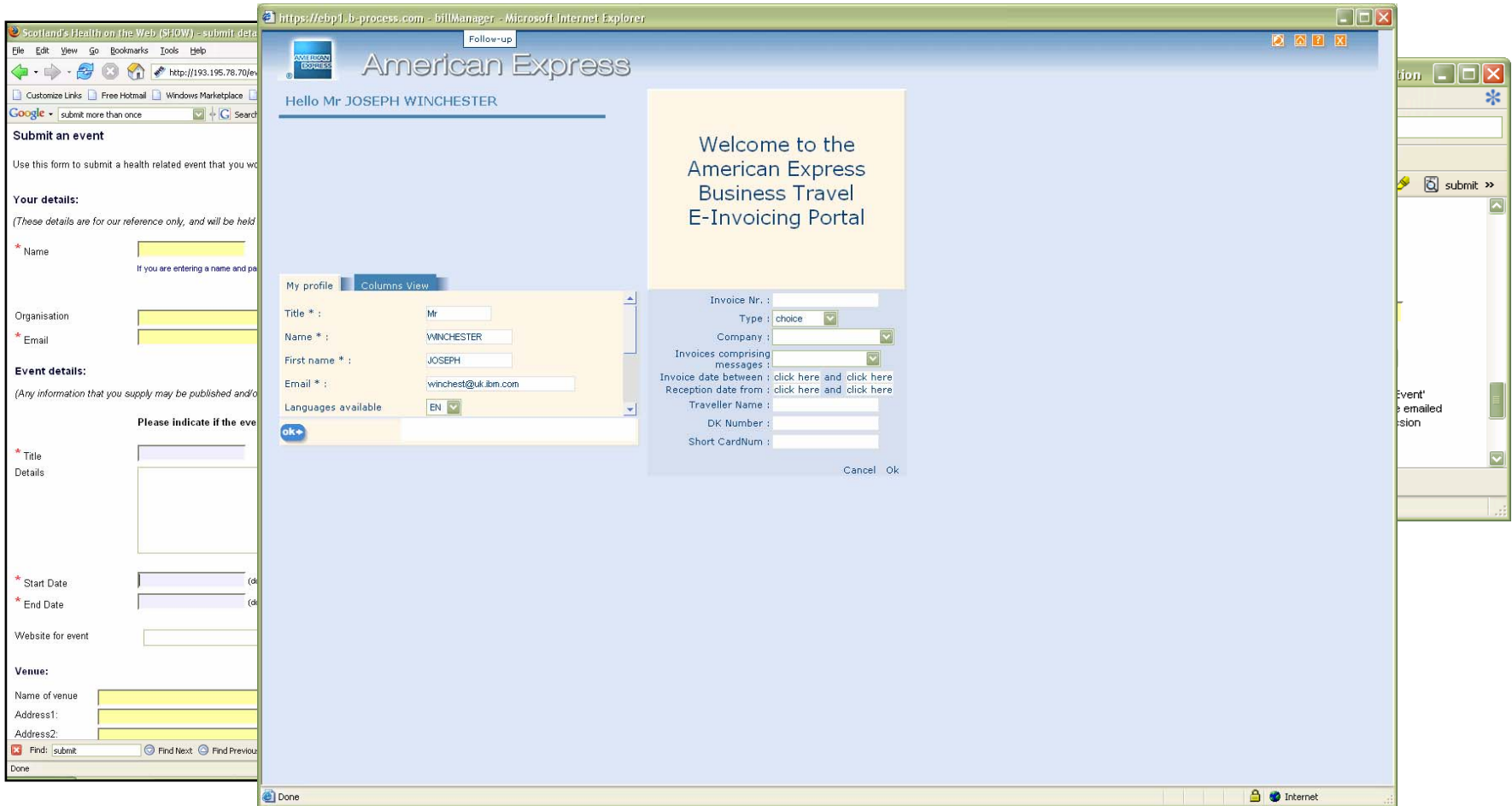
Reliability of the Browser



Confirm

The page you are trying to view is no longer available. To resubmit your information, click the Refresh button.

Usability of the Browser

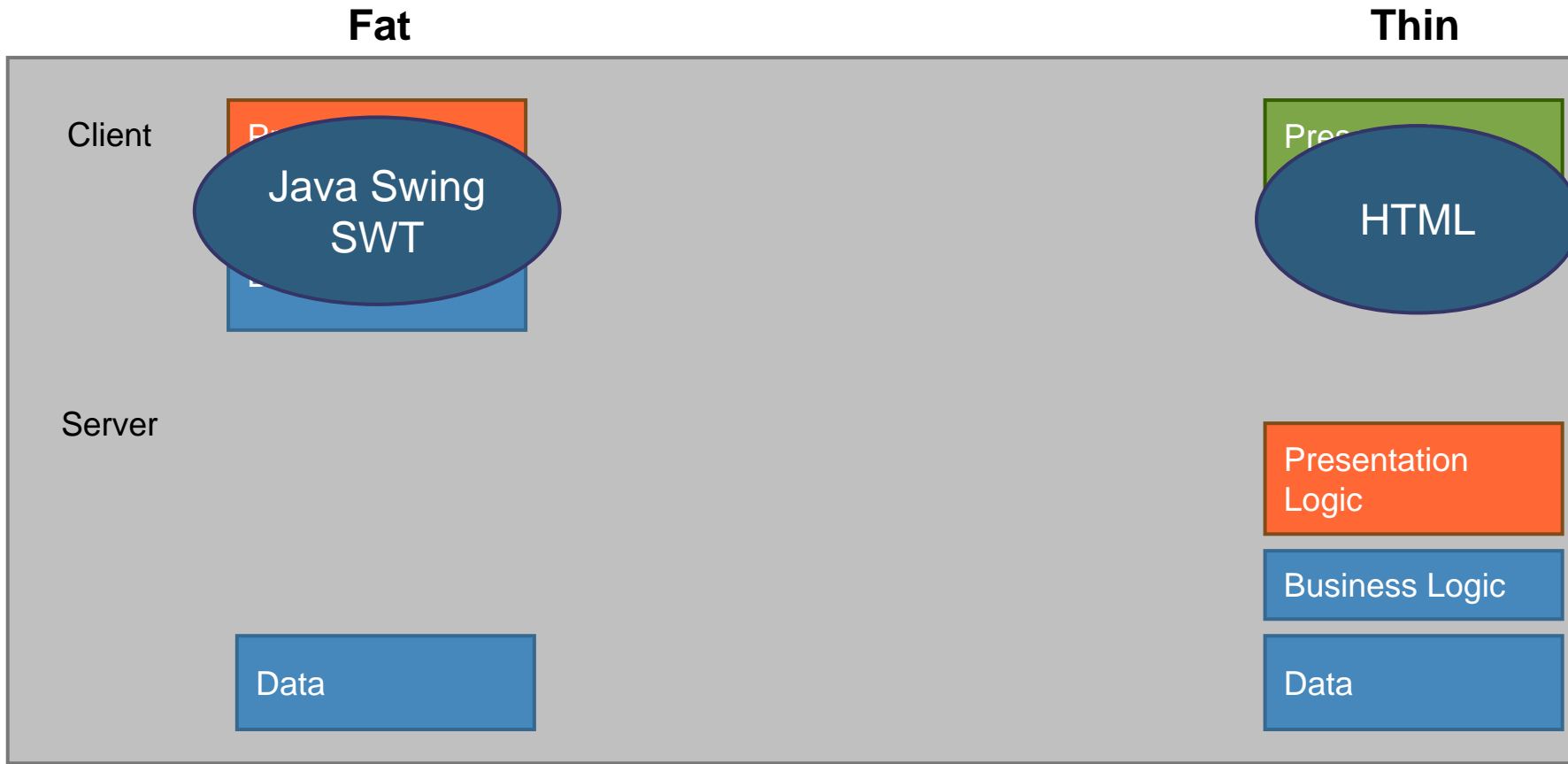


Rich Application, Poor Application, Desktop Application, Browser

“The basic pros and cons are simple: Web applications are easier to deploy, while rich clients offer faster response times enabling much more interesting user interfaces. Web-based applications with their sucky, high latency, inconsistent user interfaces are a huge step backwards in daily usability. I love my rich client applications and would go nuts if I had to use web versions of the applications I use daily”.

Joel Spolsky

Server Is Server, Client Is Client and Never The Twain Shall Meet



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The Client Strikes Back

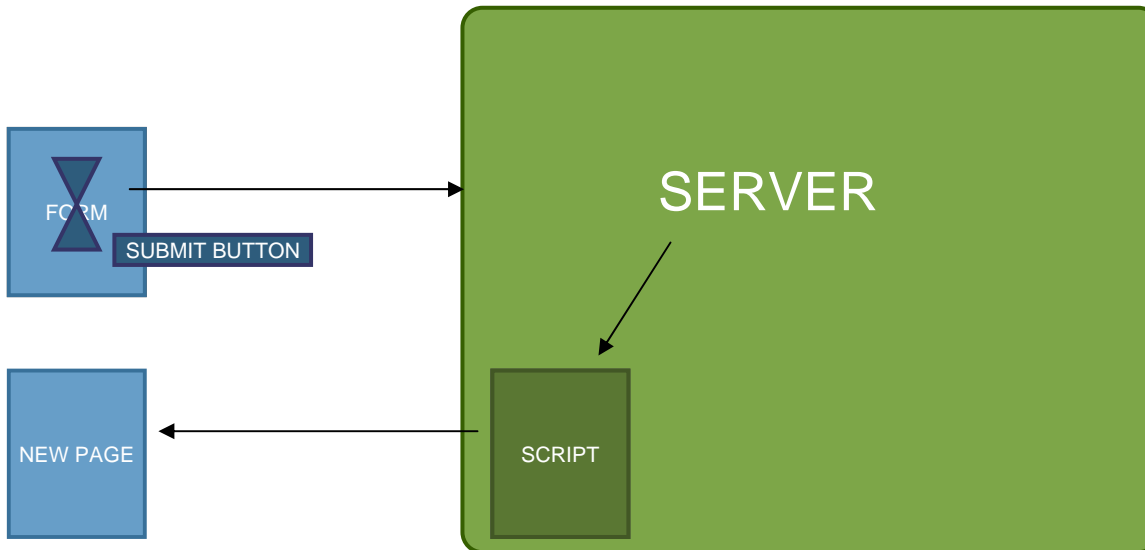
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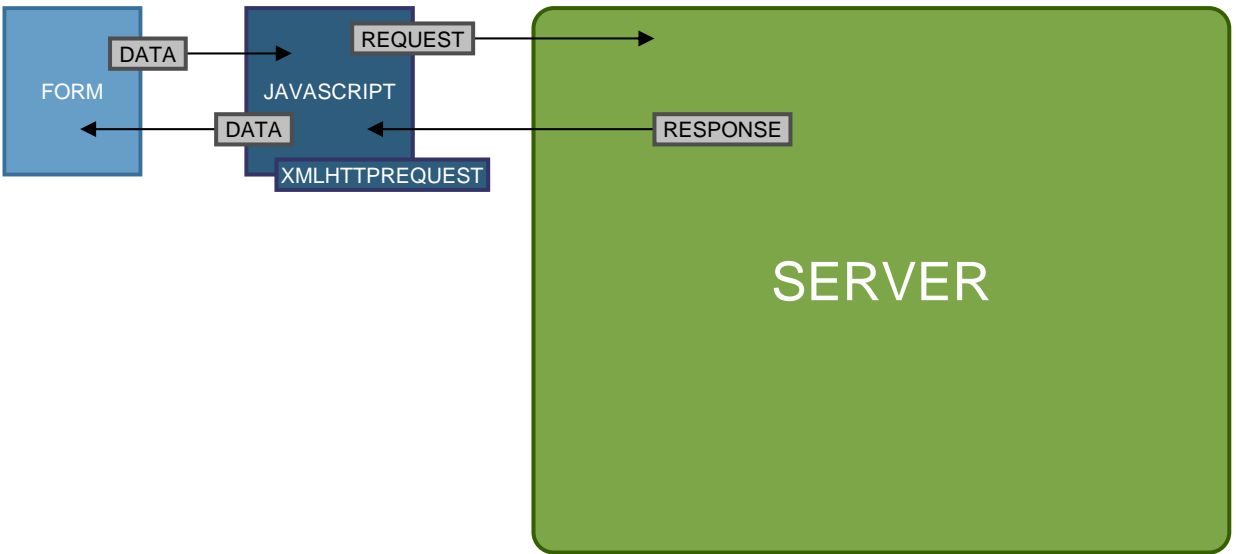
The Browser Strikes Back

- AJAX—Asynchronous JavaScript and XML
 - Stay on the page so there isn't the issue with state management
 - Send the request to the server asynchronously and get called back when it's finished so user interface is not blocked
- Flex
 - 98% browsers have Flash plugin installed making it a ubiquitous “virtual machine”
 - Flex audience to attract enterprise developers, rather than Flashy scripters

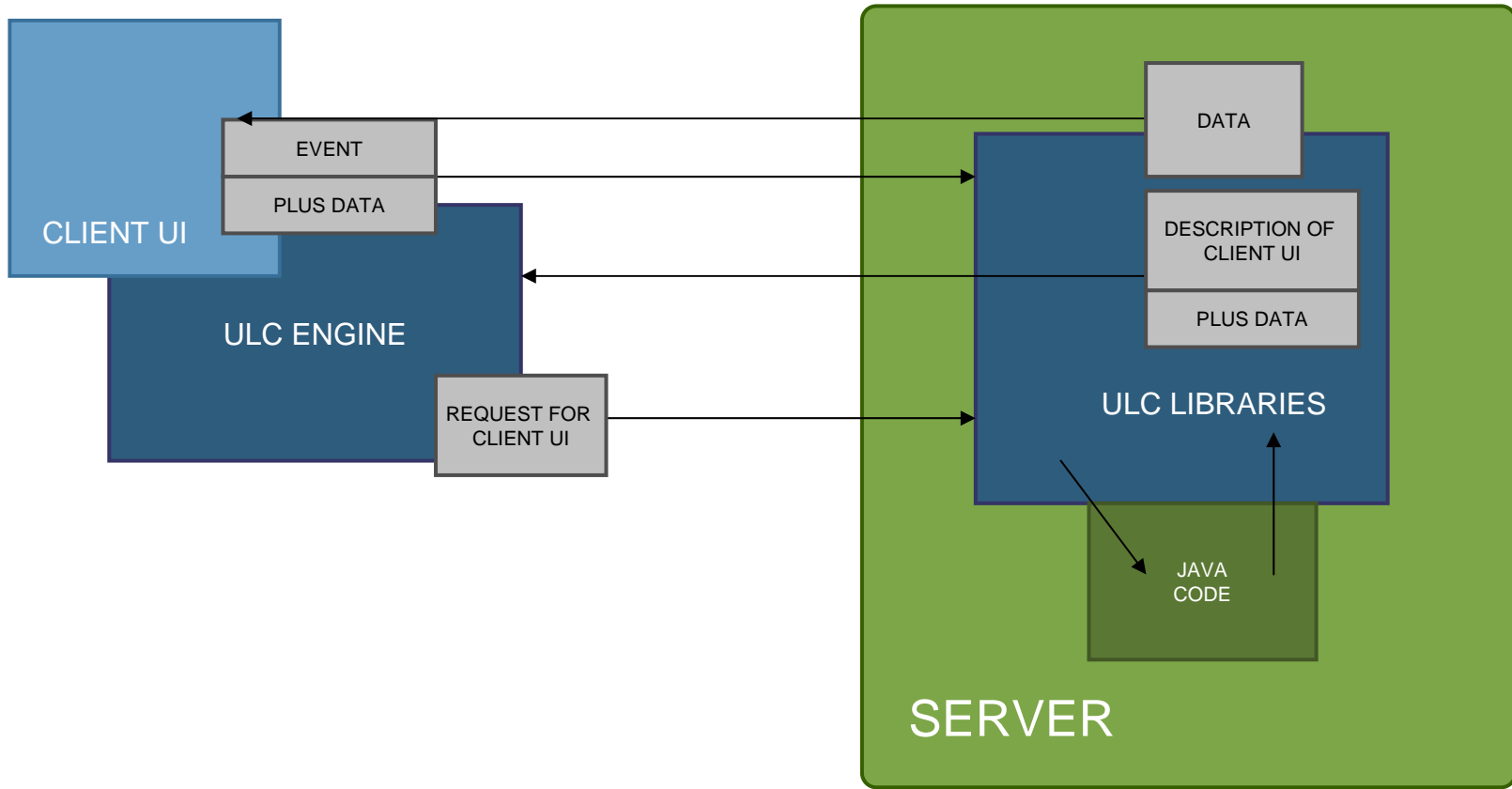
HTTPRequest



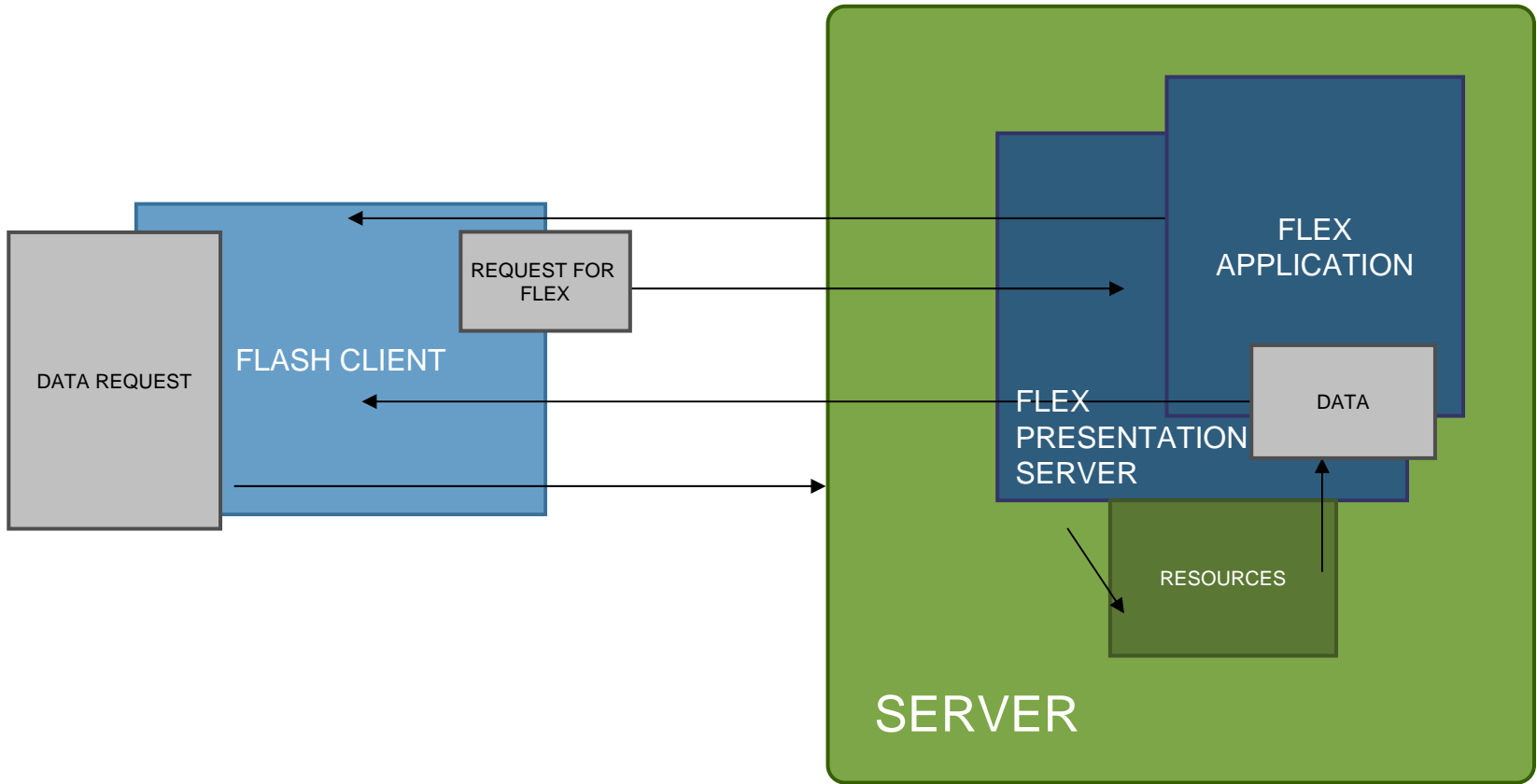
AJAX



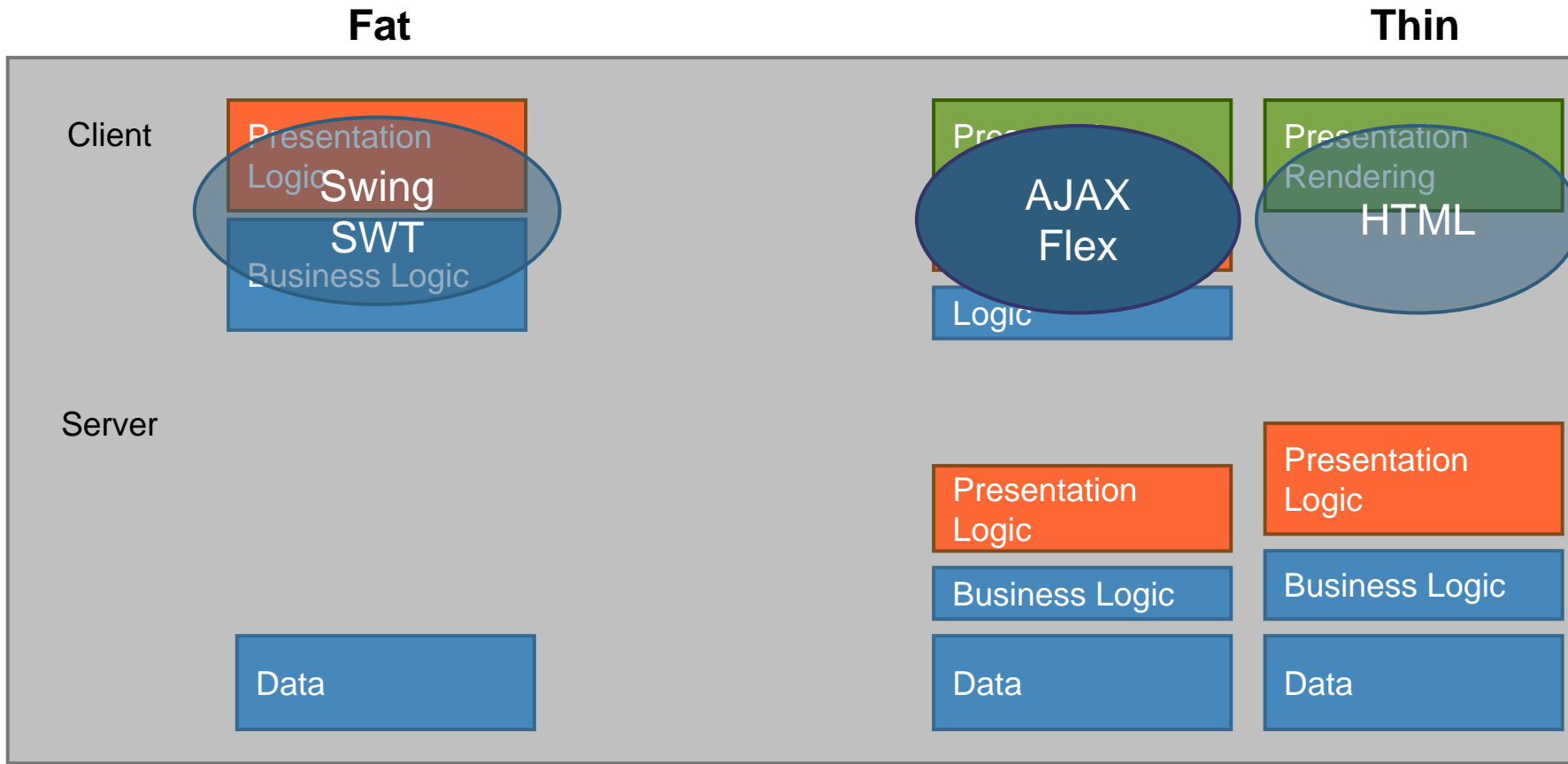
ULC



Flex



The Browser Puts on Weight



Write Once, Run Somewhere

```
var xmlHttpRequestHandler = new Object();
xmlHttpRequestHandler.createXmlHttpRequest = function(){
    var XmlHttpRequestObject;
    if (typeof XMLHttpRequest != "undefined"){
        XmlHttpRequestObject = new XMLHttpRequest();
    }
    else if (window.ActiveXObject){
        // look up the highest possible MSXML version
        var tryPossibleVersions=["MSXML2.XMLHttp.5.0",
                                "MSXML2.XMLHttp.4.0",
                                "MSXML2.XMLHttp.3.0",
                                "MSXML2.XMLHttp",
                                "Microsoft.XMLHttp"];
        for (i=0; i< tryPossibleVersions.length; i++){
            try{
                XmlHttpRequestObject = new ActiveXObject(tryPossibleVersions[i]);
                break;
            }
            catch (xmlHttpRequestObjectError){
                //ignore
            }
        }
    }
}
return XmlHttpRequestObject;}
```

What's Up with AJAX This Year ?

- Cool
 - GoogleMaps is cool
 - It makes the browser experience less bad
- Doom
 - Because JavaScript doesn't scale
 - Proprietary browser extensions will extinguish it
 - It's the server trying to control presentation
 - People will stretch it and become disillusioned

What's Up with the Desktop?

- Cool
 - GoogleEarth is cooler
 - It makes the browser look like a dumb screen
- Destiny
 - PCs can do more than just render HTML
 - Java is a first class, mature, GUI toolkit
 - It gives a better user interface experience
 - It gives a better developer experience

Agenda

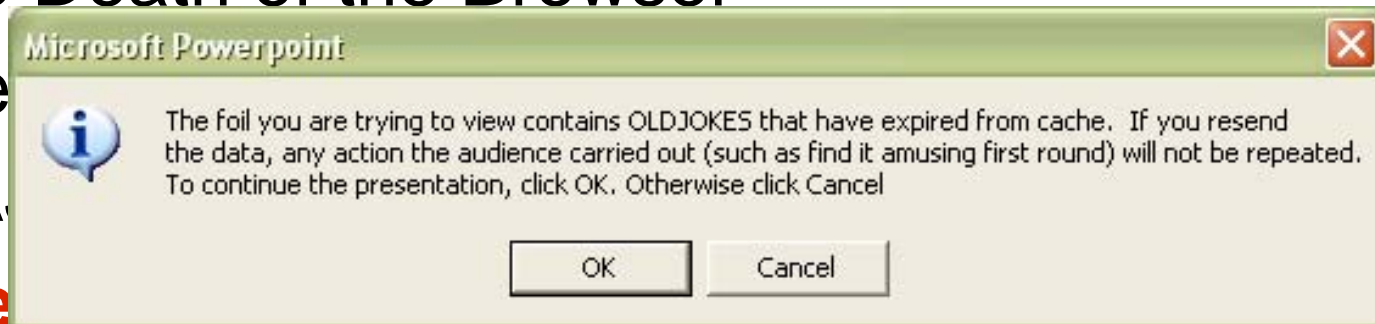
The Death of the Client

The Death of the Browser

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**ULC, JWS Technology, Swing,
SWT, RCP**

DEMO

The Client Strikes Back

- Swing improvements
 - Mustang support for Web Service clients
 - SwingLabs cool stuff rolled into JavaSE
 - DataBinding JSR
- Eclipse
 - SWT: Java based GUI toolkit using platform widgets
 - Eclipse Rich Client Platform
- Java Web Start software
 - Deploy Java based clients in a server passive pull model

Swing

- Swing improvements
 - SwingX with custom components (data pickers, logon screens, image panels, etc...)
 - Drop shadow borders, searching, highlighting, sorting, look and feel plugin model
 - JPanel with painting delegates, gives “Flash” animation capabilities
- JDesktop Integration Components (JDIC) providing features that move into Mustang
 - Tray icon was in JDIC but is now part of Mustang.
 - Desktop API where you can request and launch a viewer for a given doc type
- Databinding
 - Similar to binding in ADO.NET DataSet; makes working with databases easier

Java Web Start Software

- Users download and launch Java based apps with single click
- Integration with desktop, no need to run within browser
- Java Web Start runtime manages JREs
- Server side deployment of new versions, lazily pulled down to clients
- Java based Security model through certificate signing
- Java Network Launching Protocol forms

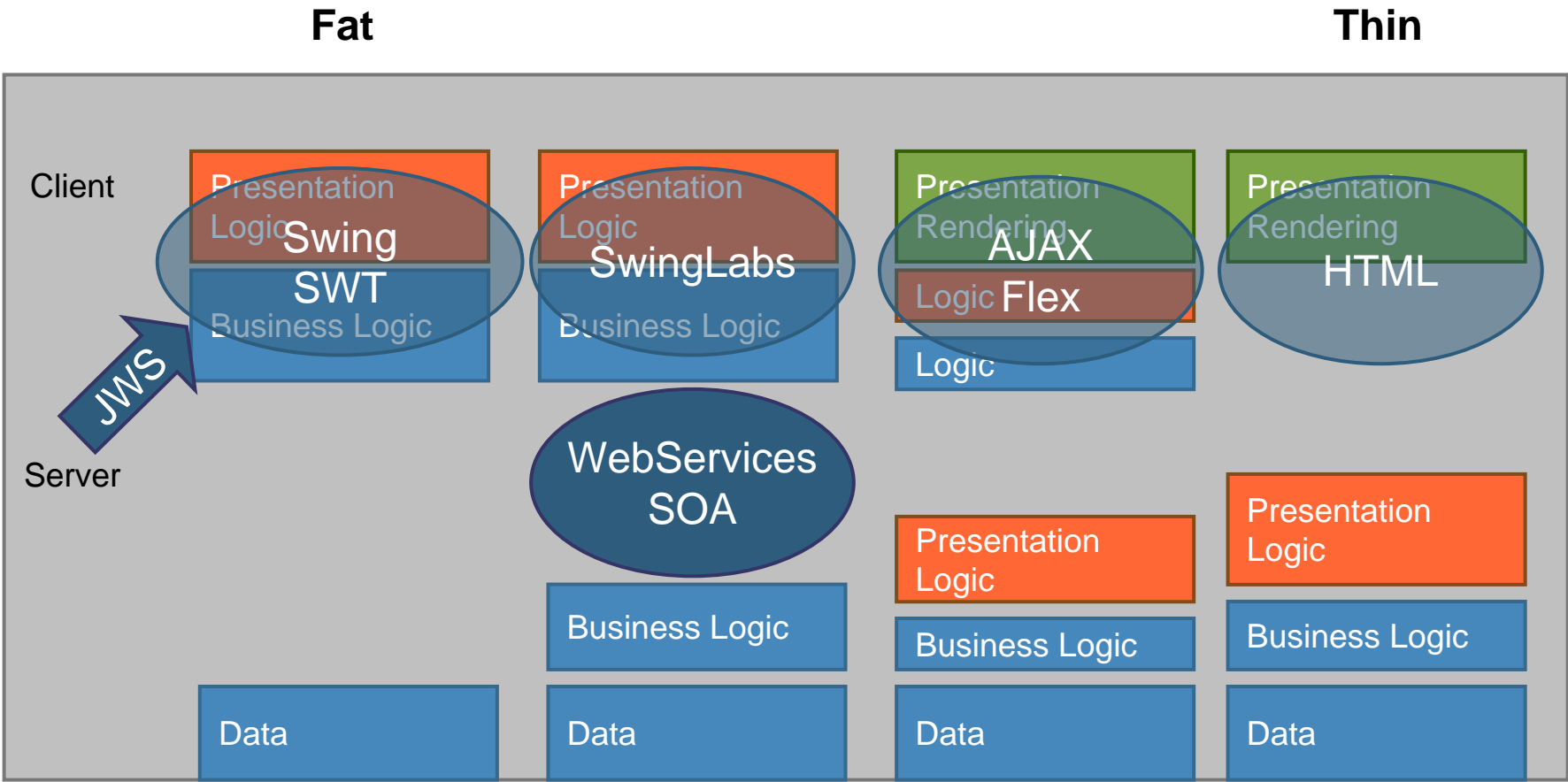
Eclipse Rich Client Platform (RCP)

- Eclipse IDE workbench API available for non-IDE applications
 - Plugin architecture. Extensible by adding directories that augment the workbench functionality OSGi
 - Views are moveable, resizable, arrangeable parts of the GUI that contain a primary control
 - Perspectives arrange views by stacking or placing them to use real estate
 - Help system, toolbar, search
 - SWT native Java widget toolkit
- Works well with Java WS and Java NLP technologies

DEMO



The Client Strikes Back



Summary

- The important argument is now about fat vs. client; it's about rich content delivered in different ways
- Browser is reclaiming the client with alluring technologies like AJAX and Flex
- Swing and SWT are mature proven GUI toolkits
- You can't build Google Earth or office applications on the web using scripting languages
- The client is back; it's up to us to deliver and win this time round



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