Mozilla's XUL

XML User Interface Language

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What is XUL?

➤ A XML-based markup language for defining graphical user interfaces

➤ Designed to be cross-platform, extensible, easy for web developers

➤ Pronounced "zool" (think Ghostbusters)

XUL Timeline

➢ 1998 – Mozilla switches development to NGLayout rendering engine, decides to completely overhaul the browser

- New browser will use XML-based language for quick cross-platform UI development: XUL is born

➢ 1999 – Milestone 4 released, community's first good look at XUL + themes

➢ 2000 – Netscape 6 released, based on Mozilla 0.6, first major product using XUL for UI

Where is XUL?

➢ You've probably seen and used it already

➢ Mozilla Foundation
- Firefox browser & extensions
- Thunderbird email client
- Sunbird calendar
- Seamonkey (Mozilla suite)

➢ Disruptive Innovations
- Nvu (HTML editor)
- CaScadeS (CSS editor)

➢ Google and Yahoo toolbars for Firefox

XUL & HTML

➢ More similar than you might think

	HTML	**XUL**
Structure	(X)HTML + DOM	XUL + DOM
Style	CSS	CSS
Behavior	Javascript	Javascript (Python soon)

XPFE – Cross Platform Front End

➢ XUL is often used to refer to the entire XPFE family

➢ XPFE includes:

- XUL
- XBL – Extensible Binding Language
- Javascript (Python soon)
- CSS
- XPCOM – Cross platform COM objects written in C++ or Javascript

XUL Example

```
<?xml version="1.0" encoding="UTF-8"?>

<?xml-stylesheet href="chrome://global/skin/" type="text/css"?>

<window id="example"
  title="Hello World"
  xmlns=http://www.mozilla.org/keymaster/gatekeeper/there.is.only.xul
  width="800"
  height="600">

  <button label="Hello World" oncommand="alert('Hello World!');" />

</window>
```

XUL Widgets

➢ Mozilla supports a variety of widgets

- button
- input
- scrollbar
- menubar
- toolbar
- progressmeter
- dialog
- iframe

Extending XUL

➢ You can create your own widgets, or modify existing ones, using XBL

➢ XBL – Extensible Binding Language

- XML-based language for defining reusable widgets and behavior for XUL applications
- Uses CSS to "bind" elements to XML files containing definitions

➢ Shh! Most widgets are just bindings extending three basic XUL primitives (box, text, image)

XBL Example

XUL

```
<button class="helloWorld" />
```

CSS

```
.helloWorld {
    -moz-binding: url("hello_world.xml#helloWorld");
}
```

XBL Example (cont'd)

XBL (in binding.xml file)

```
<bindings>
    <binding id="helloWorld">
        <content>
            <xul:button label="Hello World!" />
        </content>
        <handlers>
            <handler event="command">
                this.sayHello();
            </handler>
        </handlers>
        <implementation>
            <method name="sayHello">
                <body>
                    alert("Hello World!");
                </body>
            </method>
        </implementation>
    </binding>
</bindings>
```

Gecko

- ➤ Gecko is the Mozilla engine

- ➤ Currently the only engine with full XUL/XBL support

- ➤ Rumors of Safari support for XUL

Deployment Options

➢ Firefox / Thunderbird Extension

➢ Standalone application (using XULRunner)

➢ Remote (server-based) application

XULRunner

➢ Standalone runtime environment for XPFE applications

- No Firefox necessary
- No complicated compiling to run as standalone app
- Development should be very similar to extension development
- One engine, multiple applications
- Update engine and applications separately

➢ Firefox 2.0 and Thunderbird 2.0 will run using XULRunner

➢ Nightly builds available for testing

- ftp.mozilla.org/pub/mozilla.org/xulrunner/nightly/

Morf

➢ Morf – homegrown content management system

➢ Editor and administration tool built as remote application using XUL

➢ Heavy reliance on AJAX, DOM manipulation for editor interface

The Good

➢ Fast to develop

➢ Basics are easy – builds upon what you already know

➢ Lots of examples (Firefox is open source!)

➢ Tires have been kicked

The Bad

➢ Lack of good, up-to-date documentation

➢ Books are already out of date

➢ Major resource (www.xulplanet.com) is unstable

➢ Major standalone apps requires lots or work or Firefox until XULRunner is stable

The Ugly

➢ **Remote applications are a pain for anything complex**
- Security in Mozilla products is tight to protect against spoofing
- Signed code or user permission is required for XPCOM and some cross-frame/window targeting
- Remote applications have not been a focus for Mozilla developers

➢ **Sometimes learning can take a long time**
- Everything is obvious and logical in hindsight

XAML

➢ XAML – (expand acronym)

➢ Microsoft's own XML language for defining user interfaces

➢ Syntaxes are similar

➢ Support in Windows Vista & add-on for Windows XP (IE 7)

➢ Windows only

XUL Recommended?

- ➤ Short answer: Yes!

- ➤ Fool around, have fun

- ➤ Get your toes wet before jumping in

Resources

➢ Mozilla Foundation – http://www.mozilla.org

➢ Mozilla Developers Center – http://developer.mozilla.org

➢ XULPlanet – http://www.xulplanet.com

Questions?