Enhancing your Web Experiences with ASP.NET Ajax and IIS 7

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Agenda

• IIS 6
• IIS 7
• Improvements for PHP on IIS
• ASP.NET Integration
• ASP.NET AJAX
Next Generation Utility Computing & Hosting Solutions.

IIS 6 Today

• Proven Scalability
  – MySpace - 23 Billion Page* Views/Month
  – Microsoft.com - 10k Req/sec & 300K ConConnections
  – Match.com 30 million page views daily

• Proven Security
  – No critical IIS 6 hotfixes since RTM

• Proven Trust
  – 54% of Fortune 1000 use IIS (port80software.com)
IIS 7.0 Enhancements

- Modular & Extensible
- Integrated with .NET
- Improved Security
- Agile Administration
- Built in Request Tracing

Create Streamlined Servers
Reduced Attack Surface
Easier to manage
Extend/Modify IIS Features
Fast Diagnostics

Next Generation Utility Computing & Hosting Solutions.
• Modular Pipeline
  – Features are provided in discrete modules
    • Remove or replace modules as you see fit
      – Reduce security exposure
      – Reduce memory footprint
      – Increase performance
  – Add Custom Modules in native or manage code
    • Leverage the power of .NET for all content
    • Integrate with specialized infrastructure
    • Easily incorporate new technologies
Demo

IIS 7 Modularity
IIS 6 Request Processing

Monolithic implementation
Install all or nothing...

Extend server functionality only through ISAPI...
IIS 7 Request Processing

Server functionality is split into ~ 40 modules...

Modules plug into a generic request pipeline...

Modules extend server functionality through a public module API.
IIS6 ASP.NET Integration

- Runtime limitations
- Only sees ASP.NET requests
- Feature duplication

Authentication
- NTLM
- Basic
- Anon

Determine Handler
- CGI
- Static File
- ISAPI

Send Response
- Log
- Compress

aspnet_isapi.dll

Authentication
- Forms
- Windows

Map Handler
- ASPX
- Trace
- ...

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IIS 7 ASP.NET Integration

- **Classic Mode**
  - runs as ISAPI

- **Integrated Mode**
  - .NET modules / handlers plug directly into pipeline

- Process all requests

- Full runtime fidelity

**Authentication**

**Authorization**

**ResolveCache**

**ExecuteHandler**

**UpdateCache**

**SendResponse**

**Basic**

**Anon**

**Static File**

**ISAPI**

**Compress**

**Log**

**Forms**

**Windows**

**ASPX**

**Trace**

**...**

**Map Handler**

**...**

**...**
IIS 6 Extensibility

- IIS 6 extensibility limited to ISAPI filter and extensions
- Web service activation using http only
- IIS 6 Management Console
- UI modifications in MMC are challenging
- Difficult to extend IIS 6 Schema
IIS 7 Extensibility

- IIS 7
  - Native or manage code modules and handlers
  - Host web services using non-http protocols
  - Instrument apps to integrate with IIS 7 tracing

- IIS 7 Management
  - Easy to add your apps to UI
  - Simple to extend IIS 7 schema

- Examples at
  http://www.iis.net/default.aspx?tabid=7
Demo

IIS 7 Extensibility and .NET Integration
FastCGI on IIS7

• Built-in support for FastCGI applications
  – Optimized for high performance and reliability
  – 25x faster than standard CGI
• Performance and reliability tested with PHP
• Internet standard, works with other dynamic languages that support FastCGI including PHP, Ruby, PERL, etc.
• Partnering with Zend Technologies
Improved Security

- Reduced out of the box attack surface
- Streamlined configuration = increased security
- Use .NET role and membership providers
- IUSR is now a built in account (instead of local)
- Process identities added to IIS_WPG at runtime
- New: hidden namespaces via URL Filtering
- Granular control of over delegation
Management Tools

GUI                     IIS Manager
Command Line            APPCMD
Script                  WMI (root\WebAdministration)
Managed Code            Microsoft.Web.Administration

- Manage IIS and ASP.NET
- View enhanced runtime data
- worker processes, appdomains, executing requests
- Manage delegation
- Use whichever management tool suits your needs…
Demo

IIS 7 Management
IIS Troubleshooting

- Significantly reduce need for “crash dump analysis”
- Configure custom failure definitions per URL
  - Time taken
    - “Write Trace log for 200 (ok) response taking over 15 seconds
  - HTTP Status/substatus codes
    - “Write Trace log when you see a 500 error for Invoice.aspx”
  - Error level
- Manage with UI, WMI, API, Appcmd
- Instrument applications with custom trace events
• A framework for building next generation, cross-platform, browsing experiences
  – **Ubiquitous, cross-platform** browser support
  – **Very productive** framework for building AJAX-enabled web applications
  – Rich tool support for **designer** and **developer** workflow
  – **No cost**, free tool support, **easy** to use
Server and Client Centric

• Server-centric web sites and apps
  – Work with existing server application model
  – Keep core UI/application logic on server
  – Improve latency, interactivity, personalization

• Client-centric browser applications
  – Fully exploit DHTML in presentation tier
  – Use AJAX for data, services, composition
  – Enable new immersive experiences

• ASP.NET provides a great framework for both
Partial Rendering

Click

Form Submit

PageRequestManager

Form Data + Custom Header

Partial Rendering Response

Init
Load State
Process
Postback
Load
Postback
Events
Save State
PreRender
Render
Unload

Next Generation Utility Computing & Hosting Solutions.
Reduce Full RoundTrips

- `<asp:UpdatePanel>` control
  - Easily define “updatable” regions of a page
  - Server roundtrips become asynchronous
  - “Atlas” handles all the infrastructure

```xml
<asp:UpdatePanel id="u1" runat="server">
    <ContentTemplate>
        <!-- This content can be dynamically updated! -->
        <asp:Calendar id="cal1" runat="server" />
    </ContentTemplate>
</asp:UpdatePanel>
```
Web Services

• Data and operations exposed as web services
  – Support for SOAP (.asmx) and RESTful models
  – JSON format, object serialization
• Higher-level networking stack
  – Sys.Net.WebRequest – abstracts XMLHttpRequest
  – Script proxies for .asmx enable simple method call model
• Ideal for stateless requests
  – Lean wire format
  – Generally useful in client-centric apps
  – Alternative to partial updates where appropriate
Demo

Update Panel and Web Service Calls
• Object oriented framework built on JavaScript
• Provides automatic cross-browser compatibility layer
• Built-in classes for Web Service calls, Type system, basic DOM operations
• Allows structured programming and encapsulation
• Helps to Reduce JavaScript spaghetti code
For PHP Developer's ...

- Independent from server side technology
- Community project at Codeplex to support PHP Developers
  - [http://codeplex.com/phpmsajax](http://codeplex.com/phpmsajax)
http://www.iis.net

http://blogs.iis.net
http://ajax.asp.net

http://blogs.msdn.com/RobCamer