Building Custom Solutions with Excel Services
Plus Forms Server

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Excel Services
What is it?

- A new server code-base built on SharePoint platform

- Server-side Excel calculation engine

- Browser access to live, interactive server spreadsheets

- Web service access to server-side Excel calculation

Excel Services
Overview

Excel 2007

- Design and author
- Save to SharePoint

Save Spreadsheets

View and Interact

Browser

- High quality web rending
- Zero-footprint
- Interactive: Set parameters, sort, filter, explore

Export/Snapshot into Excel

Programmatic Access

Excel 2007

- Open in Excel for rich exploration and analysis
- Open snapshots

Custom applications

Office SharePoint Server 2007

- Spreadsheets stored in document libraries
- Spreadsheet calculation and rendering
- External data retrieval and caching
- 100% calculation fidelity

- Set values, perform calculations, get updated values via web services
- Retrieve full workbook file

Excel Services Architecture

- Web front-end
  - SharePoint UI
  - HTML rendering + web services
- Application server
  - Loads spreadsheets, refreshes data, calculates
  - Maintains state for interactivity
  - File + query caches for performance
- Office SharePoint Server 2007 provides
  - Solution platform
  - Store: Spreadsheets, connection files
  - Management: Settings, UI, scripting
  - Security: Authentication, Authorization
- Single box or multi-tier
- Independent scale-out
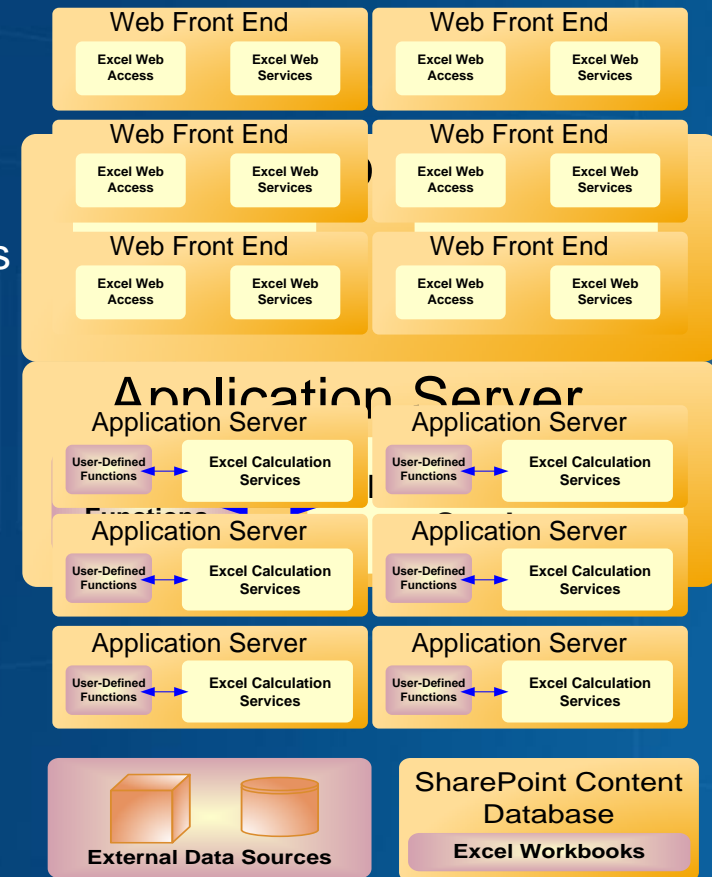
Browser-Based Spreadsheet Rendering

demo

Excel Web Services
Scenarios

- Using server-side Excel logic in applications
  - Author part of the business logic in Excel
  - Protect and maintain proprietary information
- Automating spreadsheet updates on servers
  - Refresh external data and parameterize
  - Process generated spreadsheets
  - Create, store and deliver snapshots
- Custom UI to server-side Excel calculation

Excel Web Services
Functionality

- Open a spreadsheet file
  (Start a session with Excel Services)
- Set values to cells and ranges
- Process the session spreadsheet
  - Refresh data from external sources
  - Calculate spreadsheet or specific ranges
- Get results
  - Values from cells and ranges
  - Entire calculated spreadsheet – live or snapshot

Using An Excel Model In An Application

demo

Using a server side UDF

demo

Summary

- Excel Services
  - Excel spreadsheets processed on the server
  - Web Service API for code access to server Excel calculation
- Blog:

  http://blogs.msdn.com/cumgranosalis/

Microsoft Office Forms Server 2007

2007 Microsoft Office InfoPath Forms Solutions

- Reach more users with better forms
- Automate data-driven business processes
- Rapidly develop and deploy form solutions

xml web services

Smart Client and Browser

WSS, SQL, ERP, CRM…

One Form: Use Anywhere

demo

One form: User anywhere
…with browser-based InfoPath forms

Internet

Firefox

Mobile Device
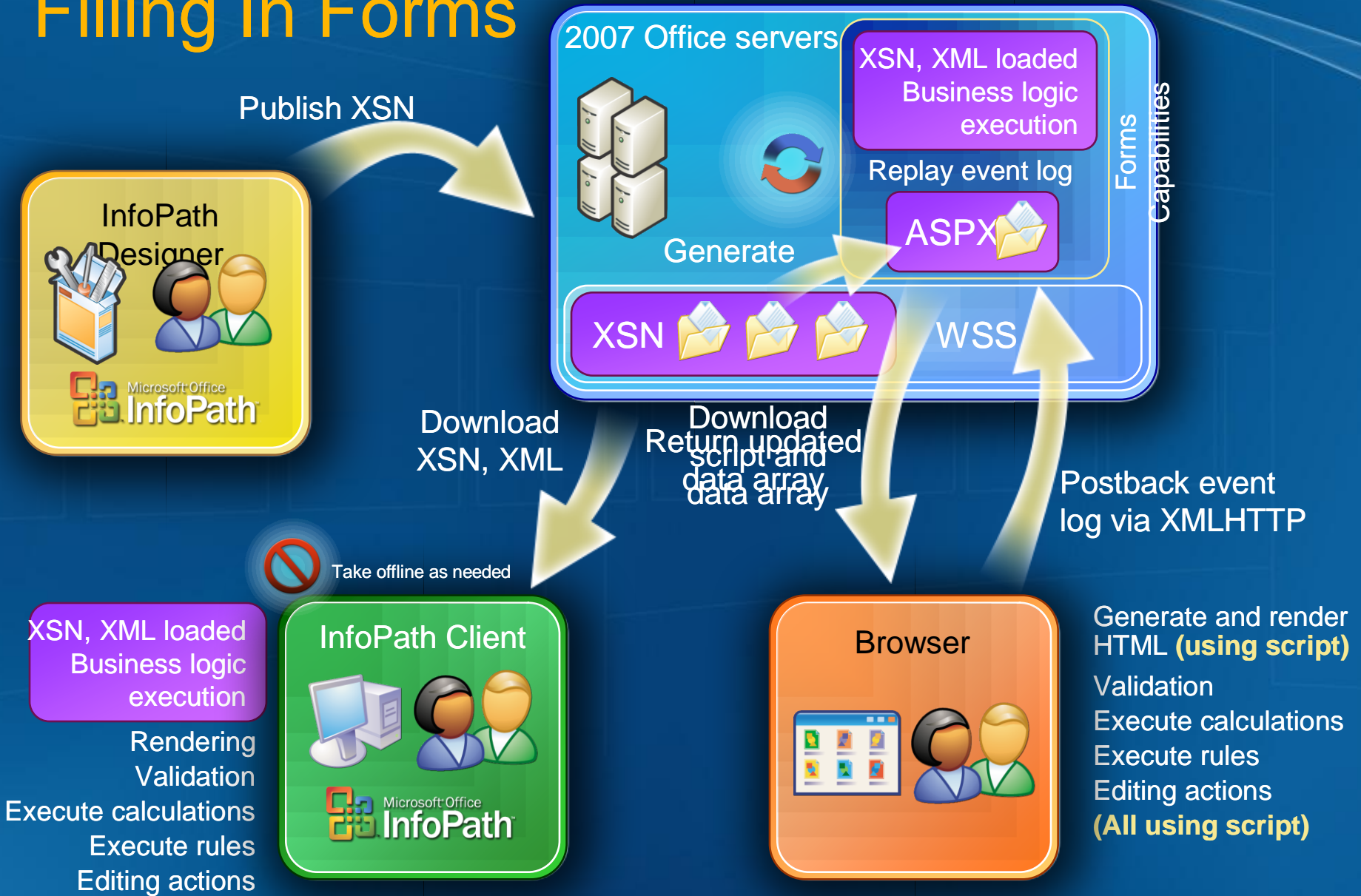
Designed once!

Tested for:
- Internet Explorer,
- Firefox,
- Safari,
- Netscape
- HTML enabled mobile devices

On:
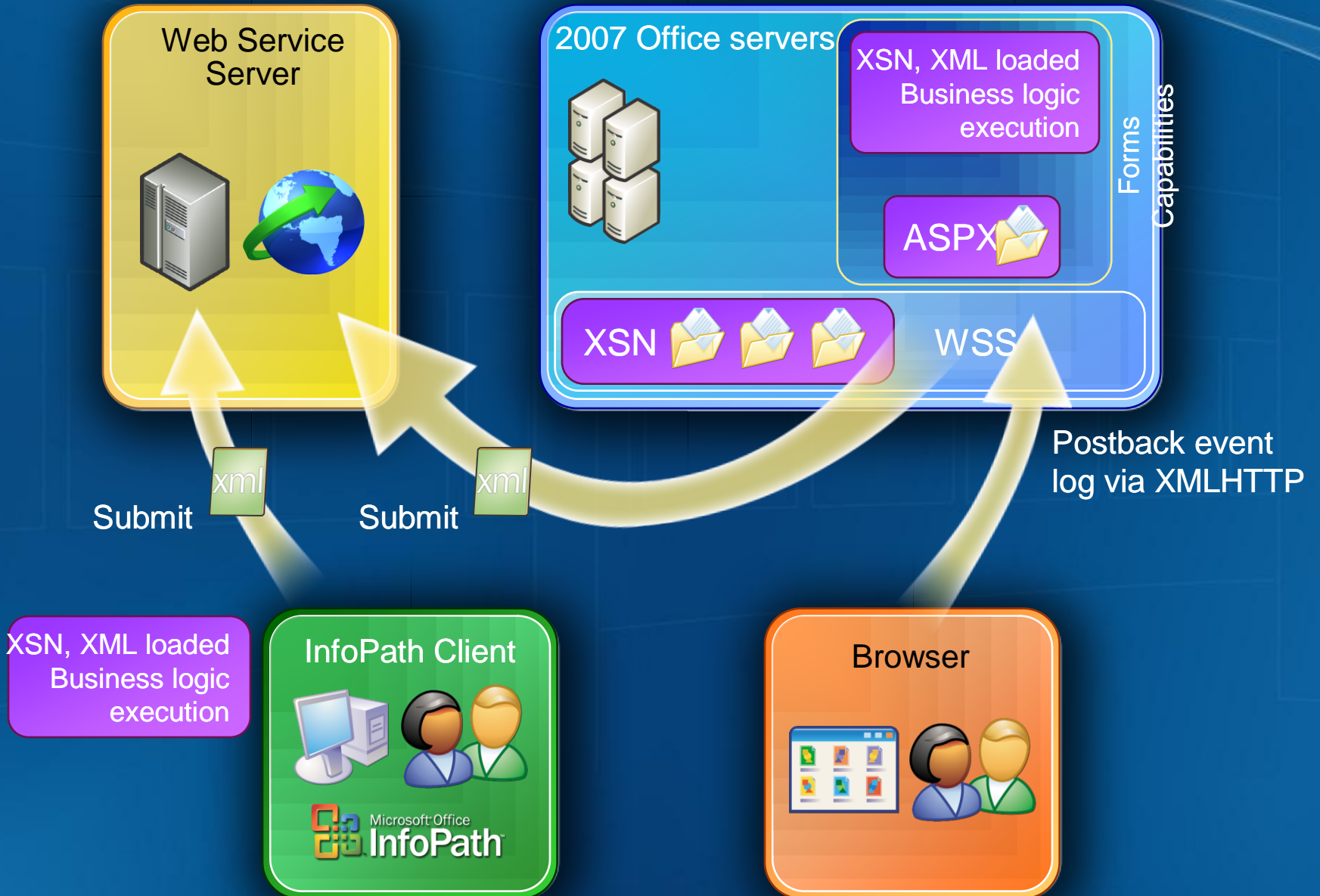- Windows
- Macintosh
- Linux
- Unix

Publishing, Opening, And Filling In Forms

Publish XSN

InfoPath Designer

Microsoft Office **InfoPath**

2007 Office servers

XSN, XML loaded
Business logic execution

Replay event log

ASPX

Generate

XSN

WSS

Forms Capabilities

Download XSN, XML

Download Return updated script and data array data array

Postback event log via XMLHTTP

Take offline as needed

XSN, XML loaded
Business logic execution

Rendering
Validation
Execute calculations
Execute rules
Editing actions

InfoPath Client

Microsoft Office **InfoPath**

Browser

Generate and render HTML **(using script)**

Validation
Execute calculations
Execute rules
Editing actions
(All using script)

Submitting Forms

Design Once Overview
One form for smart client and browser

- Shared
  - Controls
  - Business Logic
  - Data Connections
  - Digital Signatures
  - Managed Code Object Model

- Design Checker: Smart Client-only features
  - Some controls
  - Filters, Roles, ADO Adapter
  - Script, Custom Task Panes

- Smart Invocation
  - Open in smart client, if available.
    - Links in document libraries, Web pages, email, etc.
  - Special URL parameters to force opening in browser

Design Once With Code

- Design code once
  - Use new managed OM (CLR 2.0)
  - System.Xml. (No more MSXML)

- Smart client
  - Code runs in client
  - Data connections called from client

- Browser
  - Code runs on server
  - Data connections called from server
  - Conditional formatting, validation, rules, calculations:
    – all run in browser (Ajax)

- Out-of-band postback
  - Used for code, or for action that must run on server
  - Can control when postback happens:

Design Once With Code …And Deploy To Server

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Two Types Of Form Deployment

1. Simple publishing by end users
   - Publish directly from InfoPath to SharePoint
     - as document library
     - or create Site Content Type
       (for use in multiple doc libs)
   - Form templates must be:
     - Without code
     - Domain trust
     - Data connections using Data Connection Library

Two Types Of Form Deployment

2. Upload to server by administrator
   - Publish from InfoPath ready for upload to Office Server
   - Administrator then uploads via central administration site, or command line
   - Form can then be activated to any Site Collection
   - Supports forms with
     - Code
     - Data Connections managed by administrator
     - Full trust
     - Mobile

Server Administration

- Server administrator is the gatekeeper of forms with code:
  - Controls the form lifecycle
    - Upgrade forms with no down-time
    - Gracefully retire forms
  - Makes forms available to site collections
    - Any form template can be used in multiple places across the server
    - Site content type for each form template
    - Improved library integration and sharing
  - Uses standard WSS administration tools:
    - Central admin site, command line, and object model

Web Site Integration:
1. Launching Forms From Links

- Document Libraries
  - Smart invocation
  - Browser setting
- Links in Web pages or documents
  - Additional query parameters can control behavior
    - XsnLocation - What form to open and from where
    - XmlLocation - What initial data to use
    - OpenIn - Open in browser / client / either
    - SaveLocation - Save Location for data
    - Source - Navigate URL when form is closed

http://mySite/_layouts/formserver.aspx
?xsnlocation=*/formservertemplates/loanapplication.xsn*
&openin=*browser*

Web Site Integration:
2. Hosting Forms Aspx Pages

- Create custom pages containing InfoPath forms
    - Place other chrome and controls around the form
    - Dynamically load forms
    - Change the data in the form
    - Get the data from the form
    - After the form has been submitted…
- Caveats
    - ASPX page needs to run on Office "12" server where forms services are available
    - Page uses full page postback. Form uses „Ajax

Web Site Integration:
Links To Forms - Hosting Forms

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