What’s New in ArcGIS 10.3 for Server

• Tom Shippee
  Esri Training Services

Technical Workshop
Today’s Agenda

- What is ArcGIS for Server at 10.3
  - ArcGIS Platform story
  - Expanding ArcGIS for Server paradigm

- What’s new in ArcGIS for Server at 10.3
  - Core Server
  - Server extensions (e.g. GeoEvent)
  - Portal for ArcGIS
Foundational Concepts

Server’s place in the platform
ArcGIS Platform vision

Enabling GIS Everywhere

• Designed to be…
  - Simple
  - Integrated
  - Open

• Deployed…
  - Online (SaaS)
  - Software (in your own infrastructure)
Individual identity enables self-service mapping…

- **Named users**
  - License software for use
  - Specify permissions
  - Enable ownership

- **Benefits**
  - Create & manage your own mapping content
  - Control sharing via groups
  - Setup and access your favorites from anywhere
  - Identify authoritative content contributors
ArcGIS for Server’s expanding paradigm

ArcGIS for Server: 10.3

ArcGIS for Server: 10.1

GIS 1

GIS 2

Server Extensions
✓ 3D Analyst
✓ Image
✓ Data Interop
✓ Network Analyst

Built-in store

C:\arcgisserver

ArcGIS Data Store

Registered
Server
Managed
Database

3D Scene
services

Scalable
feature services

Server Extensions

Portal for ArcGIS

ArcGIS Online

Mapping & military extension

Credits for ArcGIS Online subscription services

Real-time GIS
# Growing list of extensions

<table>
<thead>
<tr>
<th>Extension</th>
<th>New after 10.1</th>
<th>Standard</th>
<th>Advanced</th>
</tr>
</thead>
<tbody>
<tr>
<td>Portal for ArcGIS</td>
<td>10.2</td>
<td>Included</td>
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<tr>
<td>Schematics</td>
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<td>Included</td>
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<td>3D Analyst</td>
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<tr>
<td>Spatial Analyst</td>
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<td>Geostatistical Analyst</td>
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<tr>
<td>Network Analyst</td>
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<tr>
<td>GeoEvent</td>
<td>10.2</td>
<td>Optional</td>
<td>Optional</td>
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<tr>
<td>Data Interoperability</td>
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<td>Optional</td>
<td>Optional</td>
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<tr>
<td>Data Reviewer</td>
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<td>Optional</td>
<td>Optional</td>
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<tr>
<td>Image Extension</td>
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<td>Optional</td>
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</tr>
<tr>
<td>Workflow Manager</td>
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<td>Optional</td>
<td>Optional</td>
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<tr>
<td>ArcGIS for INSPIRE</td>
<td>10.2</td>
<td>Optional</td>
<td>Optional</td>
</tr>
<tr>
<td>Esri Roads and Highways</td>
<td>10.2</td>
<td>Optional</td>
<td>Optional</td>
</tr>
<tr>
<td>Esri Production Mapping</td>
<td>10.3</td>
<td>Optional</td>
<td></td>
</tr>
<tr>
<td>Esri Defense Mapping</td>
<td>10.3</td>
<td>Optional</td>
<td></td>
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</tbody>
</table>

*Optional = Additional fee required*
Core ArcGIS Server

What’s new at 10.3?

- Server statistics & reports
- Immutable layer IDs
- Caching enhancements
- New mapping extensions
- Enhanced cloud support
Service Usage Statistics

Monitor total requests, average response time, and timeouts
Immutable Layer IDs

Layer IDs in map services that do not change

Responding to customer demand...

User Assignable Layer IDs for REST Map Services

Under Consideration

I am constantly adding and removing layers from map services. Each time I do, the layerid shifts. This is a pain. If I add a new layer, I have modify the source of my apps to reflect the updated layerid for querytasks, etc etc. This would be a huge plus.

Tags: LayerID REST

15 Comments | Posted by: Buddhatown to ArcGIS Server, Web Apps and APIs Aug 19, 2011
Caching enhancements

• **New Compact V2 cache format**
  - Faster tile retrieval
  - Remove need for .bundlx by using embedded indexing
  - Default format for 10.3+
  - Not backward compatible with a pre-10.3 server

• **New LERC image format**
  - Provide elevation support for 3D scene services
  - Image services only
Enhanced cloud vendor support

- **Amazon (new AMIs)**
  - Include GeoEvent extension
  - Support native Amazon RDS databases (e.g. HA)
- **Better “productization” for Azure**
Server Extensions

What’s new at 10.3?

- Geoevent
  - Tighter integration with Server
  - GeoFence enhancements
  - Stream services
  - Multi-node configurations
- New cartographic extension
  - Production mapping
  - Defense mapping
GeoEvent: Tighter integration with Server

Real-time data

Input Connectors

GeoEvent Services

GeoEvent Extension

ArcGIS Server

Output Connectors

Full GIS integration

ws://
GeoFences: New spatial operators

Buffer, Union, Difference, Symmetric Difference, Convex Hull, Simplifier, Projector

intersect, disjoint, touches, contains, crosses, equals, overlaps, within
Sending Real-time Events to Clients

Patterns – pull and push

• Pull from a Feature Service
  - Must be backed by an multi-user geodatabase (EGDB)
  - Clients poll to get updates

• Push via Web Socket output (10.3)
  - Low latency, high throughput
  - Clients subscribe to features of interest
  - Efficient faster feature display (no header)
Stream Layer

Advantages

- More responsive
  - Features appear on the map right away
- More efficient transfer of data
  - Features are only sent once
  - Messages sent without extra headers
Stream Layer

*What is needed*

- **GeoEvent Extension Output Connector**
  - Feature JSON over Web Socket

- **Browser that supports Web Sockets**
  [http://caniuse.com/websockets](http://caniuse.com/websockets)

- **Web Socket protocol allowed on network**
  `ws://, wss://`

- **No Plugins Required (standard JavaScript)**
Big Data Outputs and Integration

- Archiving of streaming data
  - Improvements to Big Data store output connectors
  - Improved integration with ‘GIS Tools for Hadoop’
  - Improved high volume archiving
Multi-node GeoEvent configuration

• **Setup**
  - Install on host with server
  - Create GeoEvent cluster
  - Join machine to cluster

• **Benefits**
  - Expanded
  - Expands processing capacity
  - High availability
• Create and download authoritative High Quality Cartographic Products

• Includes
  - Behavior-based cartographic calculators
  - Advanced custom print and export services
  - Collection of industry specific map surround elements
  - GP and ArcPyProduction package
  - Starter web app
New ArcGIS for Server Extension

- Incorporating Defense Cartographic workflow
- Includes
  - MGCP Derived Graphic (MDG)
  - Joint Operations Graphic (JOG)
  - Extendable to custom products
    - Points of Interest
    - Lines of Communication
  - Applications
Portal for ArcGIS

What’s new at 10.3?

- Expanded licensing model
- Catching up with ArcGIS Online
- SAML authentication
- ArcGIS Data Store
- High availability
Expanded Licensing Model at 10.3

- Portal now available with *Standard*
- Desktop entitlements
  - Use with Portal or ArcGIS Online
  - But NOT both
- Purchase additional name users
  - Ask your account manager for details

<table>
<thead>
<tr>
<th>LEVEL</th>
<th>Workgroup</th>
<th>Enterprise</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Standard</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Advanced</td>
<td>10</td>
<td>50</td>
</tr>
</tbody>
</table>
Catching up with ArcGIS Online…

- Enable search of features in your web map
- Edit the URLs of services in items
- Decide if you would like people to copy your web maps
- Enable “delete protection” on items
- Save layers as new items
- Add Map Notes and Labeling of features
- Autocomplete when using World Geocoding Service
- .... and more
Security
Integrates with Your Enterprise Security Infrastructure

• Authentication
  - Supports web tier authentication, including Windows Authentication & PKI
  - Supports SSO to your ArcGIS Servers (federated servers)
  - 10.3: Web SSO with SAML

• Users, Roles, and Groups

Users
- Built-in
- Enterprise
  - Active Directory
  - LDAP

Roles
- Anonymous
- User
- Publisher
- Administrator
- 10.3 Custom roles

Groups
- Built-in
- 10.3 supports Enterprise groups
## Portal for ArcGIS: Users and Roles

<table>
<thead>
<tr>
<th>Action Description</th>
<th>With an ArcGIS organizational account</th>
<th>Without account</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>User role</td>
<td>Publisher role</td>
</tr>
<tr>
<td>Search and use public items</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Search and use private items</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Create and share items</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Publish new content as tiled or feature services</td>
<td></td>
<td>✔</td>
</tr>
<tr>
<td>Administer the ArcGIS organization</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manage users and their privileges</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manage items created by others</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use Esri Maps for … Apps, Collector, Operations Dashboard, Explorer, and Web AppBuilder</td>
<td>✔</td>
<td>✔</td>
</tr>
</tbody>
</table>

ArcGIS 10.3 for Server Technology
- Portal admins can configure **custom roles** to add control and flexibility
- Predefined templates are available to get started and further refine the privileges based on the specific workflows in your organization
- Recommend test privileges of role before deploying
Share your web map to create an app

Use a ready to use template

Create a new app with Web AppBuilder
Support for enterprise groups

- **Adding users to Portal**
  - Specify an AD group
  - Set permissions
  - Add users

- **Control group membership**
  - Create Portal group
  - Specify an AD group
  - Members of the AD group are joined to the Portal group automatically
Additional enterprise logon options

Single Web Sign On through SAML
Data registration...

1) Referenced

2) Replaced

3) Server Managed

Publisher (ArcMap)

ArcGIS Server

File GDB

EGDB

SHP

Server

Replicas

Data Store (registry)

File System paths

1) \srv\share \srv\share
2) C:\local D:\srv\data

Enterprise GDB connections

1) shared.sde shared.sde
2) client.sde server.sde
3) ?? managed.sde
Industrial strength data tier

Network data server

ArcGIS Data Store (primary)

- EGDB
- Server
- Managed Database
- Scalable Feature Services
- 3D scene Services

Backup & High availability

ArcGIS Data Store (standby)

- EGDB
- Server
- Managed Database
- Scalable Feature Services
- 3D scene Services
Web Scene

- Authored in ArcGIS Pro
  - Share web scene layer
  - Share web scene

- **New “portal” item type**
  - Conceptually similar to web map
  - Mash-up of 3D/2D web layers
  - Works with new scene service & existing map/image services

- **Visualization**
  - ArcGIS Pro
  - Web GL browser
  - Runtime clients
On-the-fly failover

High Availability in Portal for ArcGIS