Agenda

- ArcGIS Server architecture
- Distributing and scaling components
- Implementing security
- Monitoring server logs
- Automating server administration
- What's new in 10.2?
- Backup and restore
- Q&A
Server architectures

Sterling Quinn
Pre-10.1 architecture
Motivation for architecture change

- Performance (64 bit)
- HTTP only
- Faster installation
- Scalability and elasticity
- High availability
- Cloud deployments
- Linux improvements
Single machine deployment with Web Adaptor

- Easily block admin end points
- Forward compatibility
  - Connect via port 80
  - GIS site name
- Leverage Web tier features
  - Security
  - Logging
- OOTB reverse proxy
Multiple machine site

- **Web Server**
- **Web Adaptor**
- **ArcGIS Server site**

- **GIS Server 1**
- **GIS Server 2**

- **Configuration store**
- **Server directories**
- **Data**

HTTP://80
Join site checklist

- Same ArcGIS Server account across all machines
- All machines can see config-store & server directories and have read/write/create permissions to these via ArcGIS Server account
- No mix of Windows and Linux among machines
- Necessary ports open on each machine:
  - 6080
  - 6443 (for HTTPs)
  - 4000 – 4005+ (communication between GIS Servers)
- Each machine has valid log location
Multiple machine site with clusters

ArcGIS Server site

cluster A

GIS Server 1

GIS Server 2

GIS Server 3

cluster B

http://80

Web Adaptor

Web Server

Configuration store

Server directories

Data
Multiple machine site with clusters

Web Server

Web Adaptor

cluster A

cluster B

GIS Server 1

GIS Server 2

GIS Server 3

http://80

Configuration store

Server directories

Data
Benefits of clusters

- **Hardware isolation**
  - Cluster contains machine with the same hardware specs

- **Dynamic allocation of resources**
  - You set thread instances per machine, NOT per service like previously
  - You can re-assign machines to different clusters at different times

- **Isolate intensive processes** in their own cluster
High Availability Configuration

Web Server
  Web Adaptor
    http:6080
  GIS Server 1
    Server Dirs
    Config-Store

Web Server
  Web Adaptor
    http:6080
  GIS Server 2
Active-Passive Failover Configuration

ArcGIS Server site

GIS Server 1

Server Dirs
Config-Store

GIS Server 2

Server Dirs
Config-Store

Web Server

Web Adaptor

ArcGIS Server site

http: 6080

http: 80

NLB
Implementing Security

Shreyas Shinde
Security is tiered

- Installation security
  - OS permissions on install directory, server directories and configuration store
  - ArcGIS Server account (OS account)
  - Database account

- Security for published geo content
  - Administrators, Publishers, Consumers
Identity stores

- Built-in
  - Out of the box
- Windows domain
- LDAP
- Custom identity providers
  - You write the identity provider adaptors and deploy it to Server
Demo: Setting up identity store
Authentication

- **Token based**
  - Out of the box authentication scheme

- **Enterprise authentication**
  - Needs to be configured on the web adaptor
    - Integrated Windows
    - PKI/Client certificates
    - Java EE
    - ...
Demo: Configuring authentication
Authorization

- Role based access control

- Fundamental privileges
  - Publishers
  - Administrators

- For consumers:
  - Set permissions on roles
  - Assign roles to user accounts
Demo: Configuring authorization
Server logs and monitoring
Sterling Quinn
Logs available in Manager

• Each GIS server writes logs locally
• Manager synthesizes logs from all machines
  - Don’t open or edit manually
• Verbose levels for troubleshooting
  - Map draw extents
  - Layer draw times
Demo: Using logs for troubleshooting
Going further

• ArcGIS Server Administrator API lets you query logs and stats through REST
Statistics available in the Administrator Directory

- Administrator Directory gives a window into stats
- Shows number of requests per machine
- Not available currently in Manager
Automating Server Administration

Shreyas Shinde
Why automate?

• Repetitive workflows
  - Add more machines during business hours
  - Start caching during non-peak hours
  - Understand usage

• Very easy
  - Full administration through HTTP API
  - Can program in most languages like Java, Python, C#, Ruby…
Demo

ArcGIS Server Administrator Directory

Home

You should use ArcGIS Server Manager for managing services and GIS servers. The Administrator Directory is intended for advanced, programmatic access to the server, likely through the use of scripts.

Site Root - /

Current Version: 10.2

Resources: machines clusters services security system data uploads logs kml info publicKey

Supported Operations: generateToken exportSite importSite deleteSite

Supported Interfaces: REST
What’s new in 10.2
Sterling Quinn
A taste of what’s new in 10.2

• Integration with Portal for ArcGIS

• Backup and restore

• Disable automatic data copying when publishing
Backup and restore
Shreyas Shinde
Backup

• You want to:
  - Take regular snapshots of your server for archival
  - Move from staging to production

• Through Python tools or through Admin API

• Produces a self contained .agssite (ZIP) file
Restore

- Requires a valid Site

- Import exported .agssite (ZIP) file

- Deletes all current configuration of site and restores site to the configuration in the .agssite file
Demo: Creating a backup
Questions?
Thank you...

Please fill out the session evaluation

**Wednesday Offering ID:** 1307  
**Thursday Offering ID:** 1408

**Online** – www.esri.com/ucsessionsurveys  
**Paper** – pick up and put in drop box
Related sessions

- **ArcGIS Server – An introduction**
  - Tue 3:15PM, Wed 8:30AM

- **ArcGIS Server Performance and Scalability – Optimizing GIS Services**
  - Tue 8:30AM, Thu 8:30AM

- **Securing ArcGIS Server Services – Introduction**
  - Tue 1:30PM, Fri 9:00AM

- **What’s New in ArcGIS 10.2 for Server**
  - Tue 8:30Am, 1:30PM