

DevSummit DC

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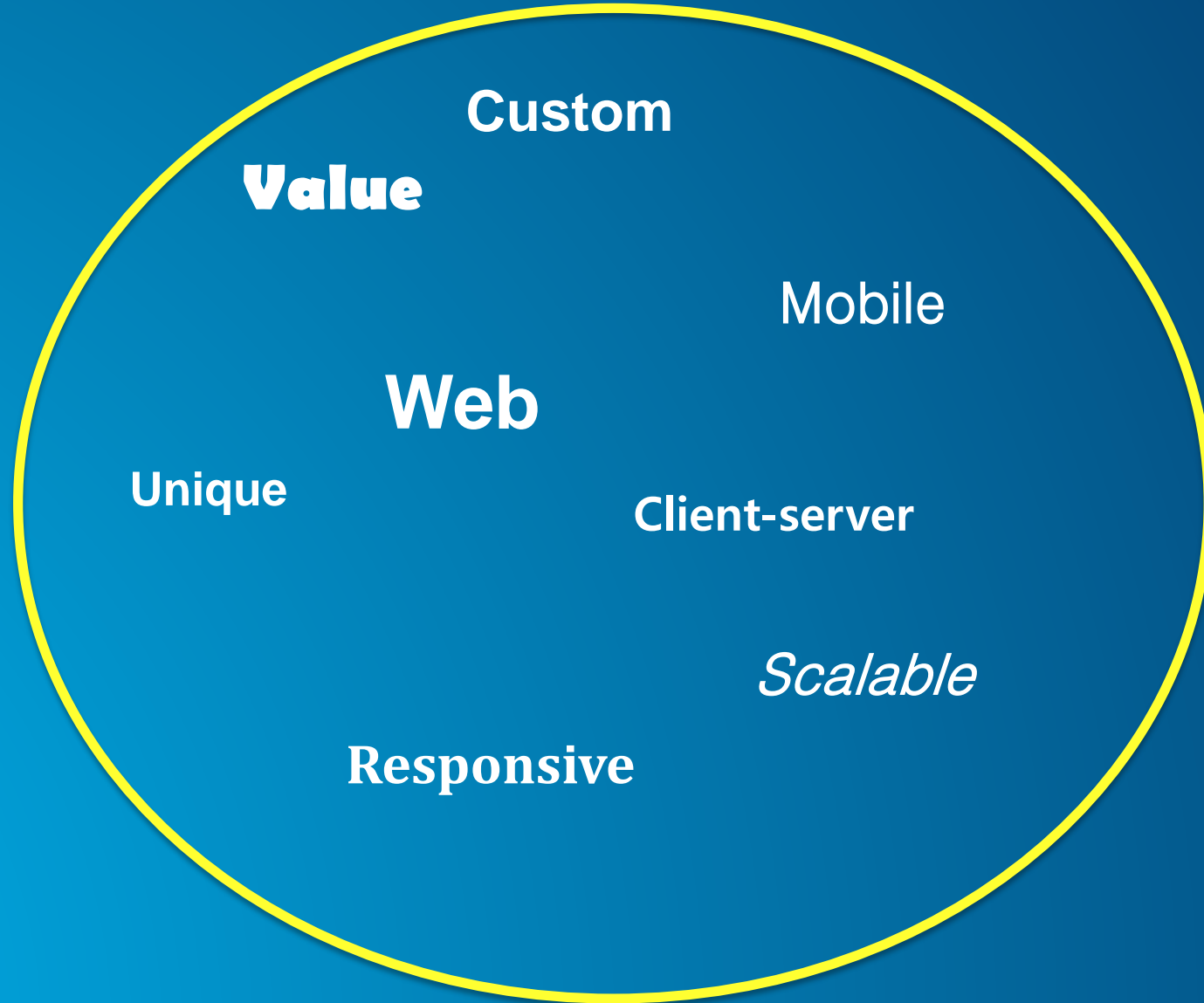
ArcGIS for Server for Developers

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Introduction

- Hello
- What is an SOE?
- How do you create one?
- Advanced Topics
- Sneak peek at the future..

Does this sound like your application?



Server provides....



but if you need more....

Control over your edits.....

Security over my data....

Performance.....

Functionality....

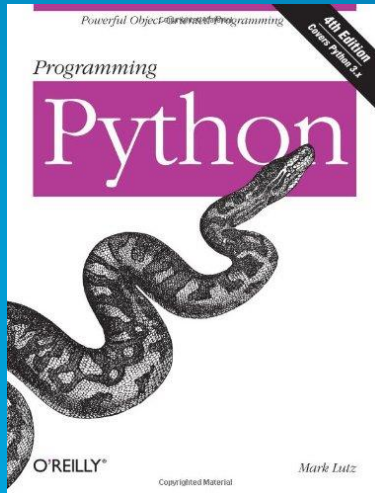
then you may need to create an SOE.....

What is an SOE?

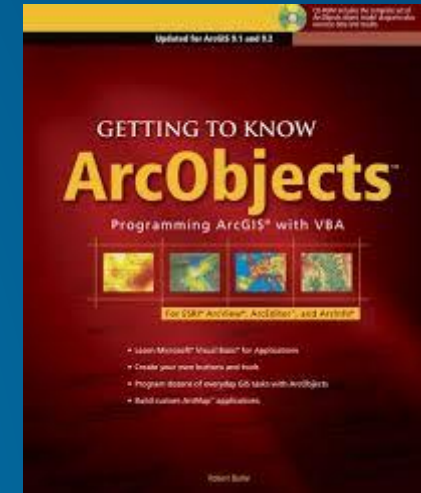
What is an SOE?

- **Clients send input, SOE sends output**
 - Like a “stored procedure” for GIS
- **Custom code you have written**
- **Runs in a map or image service process**
- **Exposed through Esri’s REST and/or SOAP handler**

Geoprocessing



SOEs



Geoprocessing

- **ModelBuilder and Python = Easy**
 - Lower barrier to entry, especially for non-programmers
- **Re-use**
 - Same analytics you use in ArcGIS for Desktop
- **Analysis**
 - +900 out-of-the-box geoprocessing tools (coarse-grained)

SOEs

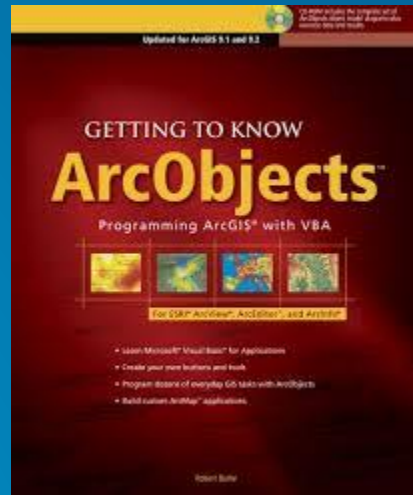
- **In Process = Fast**
 - Low overhead per request
- **Code re-use**
 - Same code you might have used in e.g. an ArcGIS for Desktop extension
- **ArcObjects = Powerful**
 - +10.000 COM interfaces and +20.000 COM classes (fine-grained)

Examples

- **Enforce business rules on edits**
- **Restrict access, insert definition queries for each user**
- **Work with complex geodatabase features, topologies, networks, etc**

Creating an SOE

Requirements



IServerObjectExtension

- **Init = get service references**
- **shutdown = clean up resources**

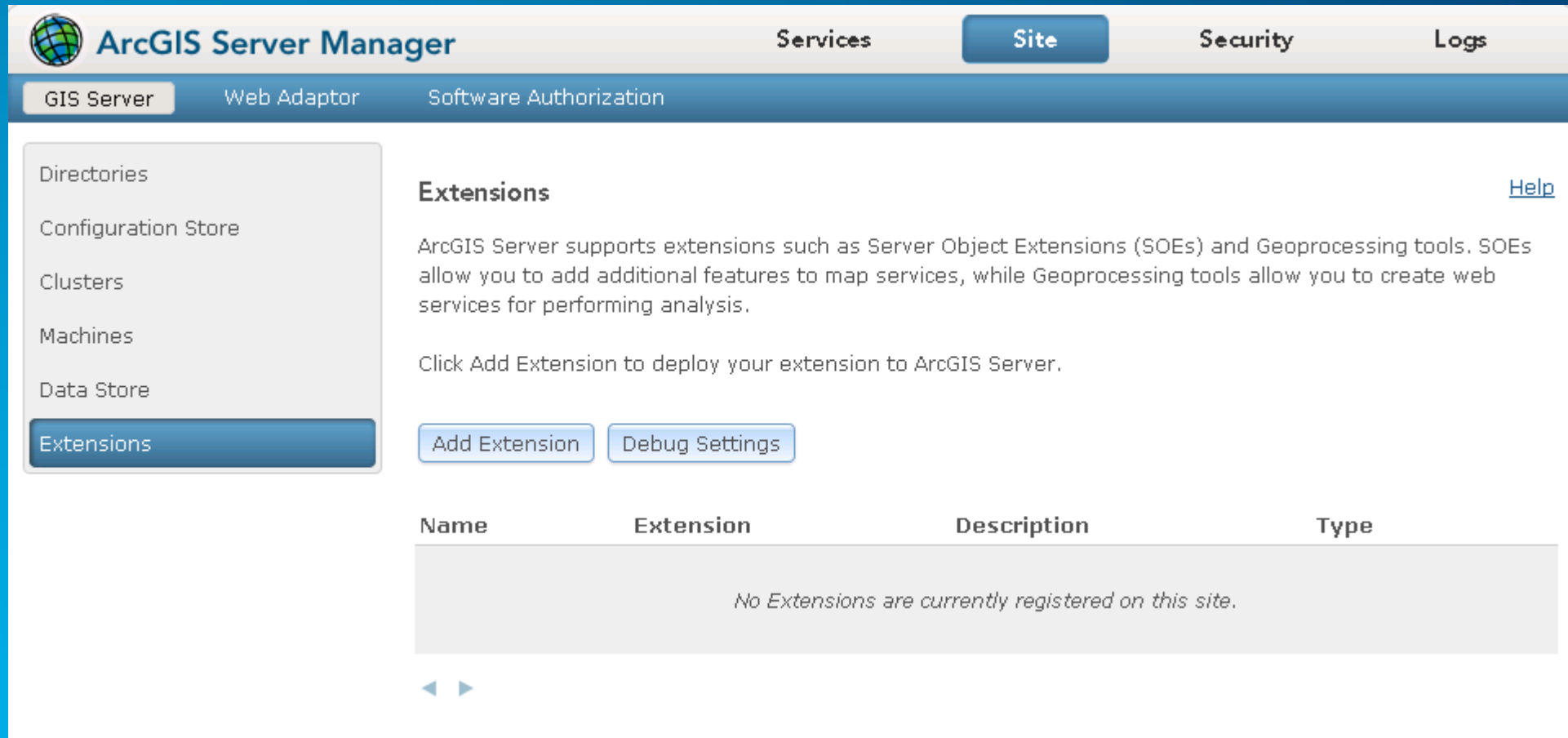
IRESTRequestHandler

- `handleRESTRequest` = code linking to your business logic
- `getSchema` = json about your SOE

Demo: Creating an SOE

Deploy an SOE

- Create *.soe file and deploy in Manager



The screenshot displays the ArcGIS Server Manager web interface. At the top, there is a navigation bar with the ArcGIS logo and the text "ArcGIS Server Manager". To the right of the logo are tabs for "Services", "Site" (which is currently selected), "Security", and "Logs". Below this is a secondary navigation bar with tabs for "GIS Server", "Web Adaptor", and "Software Authorization".

On the left side, there is a vertical sidebar menu with the following items: "Directories", "Configuration Store", "Clusters", "Machines", "Data Store", and "Extensions" (which is highlighted with a blue background). The main content area is titled "Extensions" and includes a "Help" link. The text explains that ArcGIS Server supports extensions like SOEs and Geoprocessing tools. Below the text are two buttons: "Add Extension" and "Debug Settings".

At the bottom, there is a table with the following headers: "Name", "Extension", "Description", and "Type". The table body is currently empty, displaying the message "No Extensions are currently registered on this site." at the bottom of the table area. There are also navigation arrows at the very bottom of the page.

Name	Extension	Description	Type
<i>No Extensions are currently registered on this site.</i>			

Demo: Deploy an SOE

Debugging and Logging

Debug Settings

- How it works
- Delay Startup
- Port Range (Java)

Logging

- Log everything
- Unique error codes
- ServerUtilities (Java)
- SOESupport (.Net)

Advanced: Getting user information

- Getting user name
 - For SOEs being built for security reasons

How to:

- Instantiate *EnvironmentManager*
- Call *getEnvironment*
- Call *getUserInfo* and get the *name* property.

Summary

- **SOEs**
 - **Allow you to take inputs, respond with your output
business logic running within the ArGIS Server framework**
 - **Powerful
with great power comes great responsibility**
 - **Good performance
if you code things well**

Sneak peek into the future..



- In ArcGIS 10.3.1 for Server there will be a new addition to the extensions family:
Server Object Interceptors
- Instead of creating new operations – and having to create or extend clients to understand these new operations – you will override or enhance existing operations.
- That means same operation signatures, meaning *no change* to existing clients including ready-to-use apps such as Collector for ArcGIS and Explorer for ArcGIS.
- Development and deployment will be almost identical to SOEs.



Understanding our world.