2011 Esri Developer Summit
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Getting ready for 10.1

# Road Map for ArcGIS Server Developers

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# Motivation & Agenda

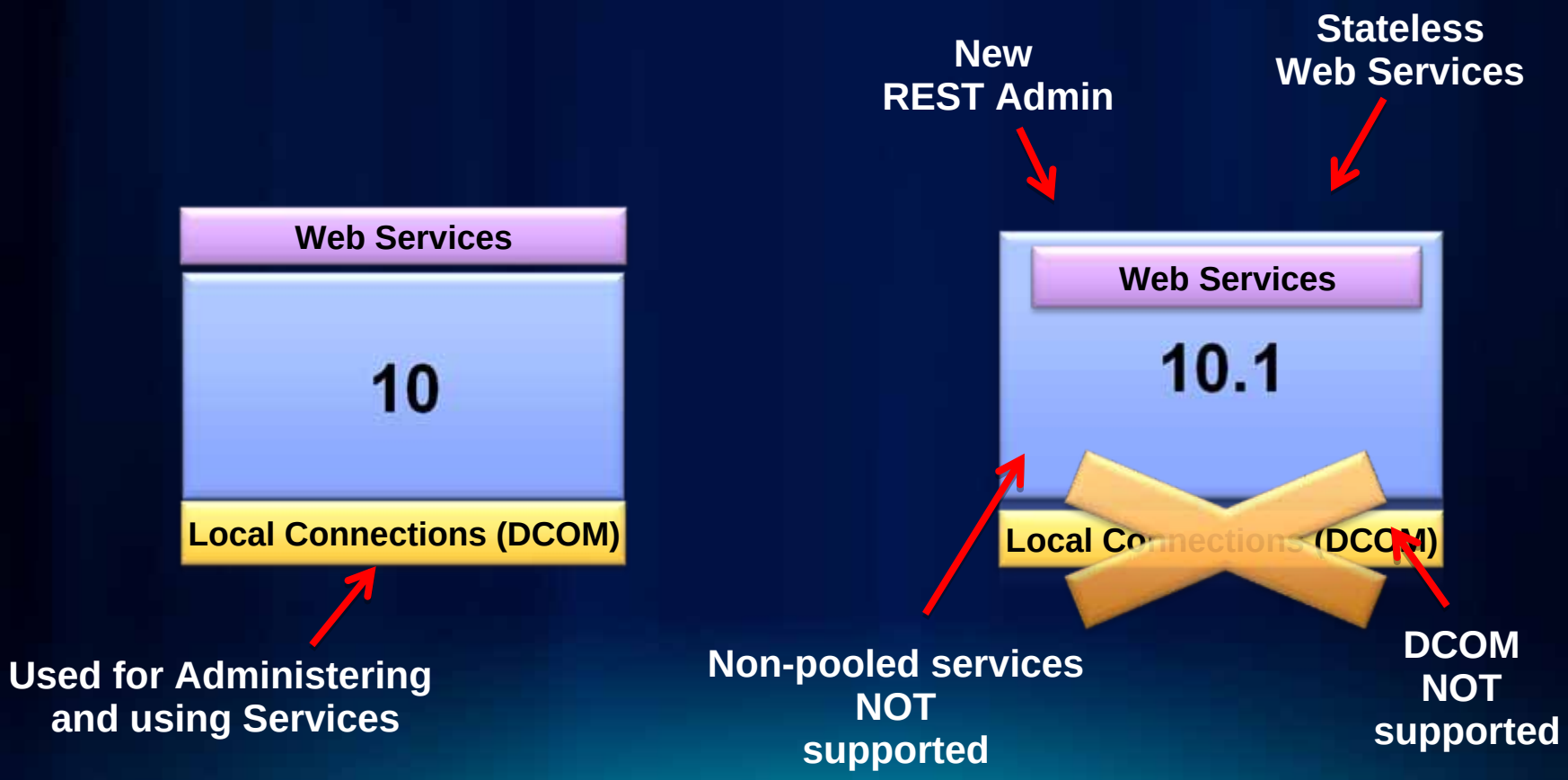
- **Motivation:**
  - Preparing your code and dev patterns for upcoming 10.1
- **Agenda:**
  - The facts
  - How they affect you and guidance
  - Final notes

# 3 10.1 Facts

***3 big changes that will affect you***

# 10.1 is a pure GIS Web Services Server

***Http for using and administering the server (and ONLY http ! )***

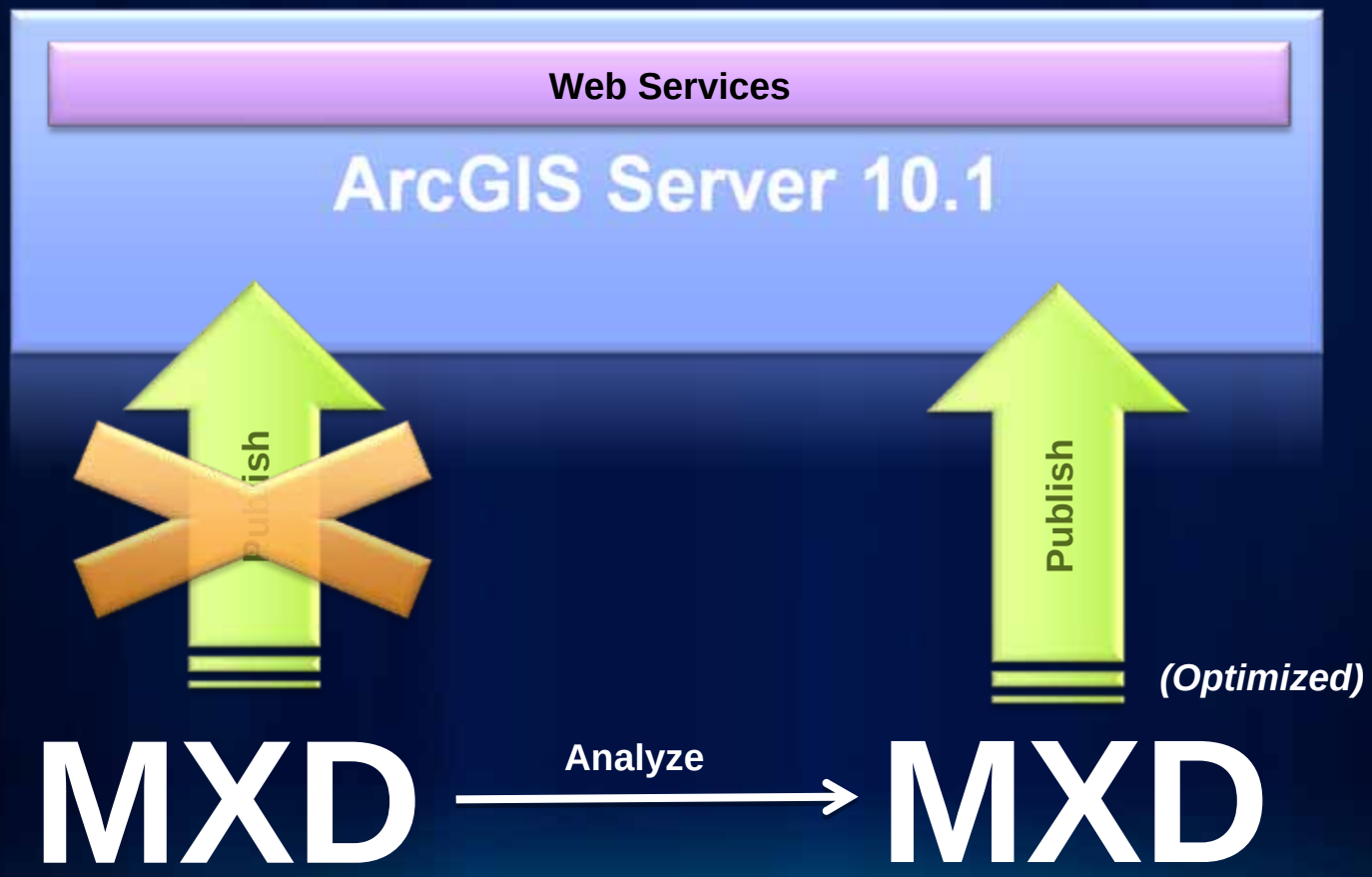


# 10.1 services are stateless

***No non-pooled services anymore***

# 10.1 Optimized Map Services only

***You must analyze your map documents before publishing***

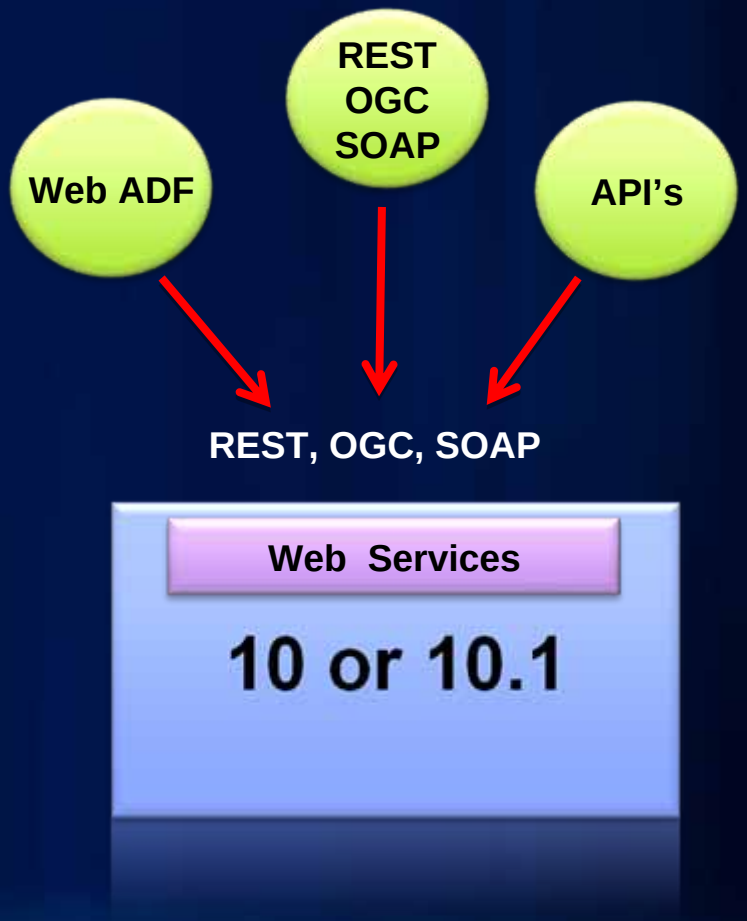


# How is this going to affect me?

***And how to get ready for it***

# If you use Web Services only, no changes

- 10.1 Web Services are backwards compatible
- Your apps work without a change
- Recommendation:
  - API's: *Upgrade to latest version to take advantage of latest services*
  - Web ADF: Move away from it *, or recompile with 10.1




* No active development on Web ADF: 10.1 is last release

If you are

# NOT using the Web ADF at all

Relax…
Until we cover map services

# Move your ArcGIS Server Manager apps to the Viewers

**Faster, better looking, more functional**

**ArcGIS Viewers**

**(Silverlight or Flex)**

**ArcGIS Explorer Online**

**ArcGIS Server Manager App**

**ArcGIS.com Viewer**

# The Web ADF Edit Task will stop working

- **Uses a 'Local Connection'**
- **Move to 'Viewers'**

| | Flex Viewer | Silverlight Viewer | OOTB App in Manager |
|---|---|---|---|
| Edit toolbar | YES | YES* | YES |
| Change version | NO** | NO** | YES |
| Undo-Redo | YES | YES* | YES |
| Snapping | YES | YES | YES |

*** Will be available around 2011 User Conference**
**** We are trying hard to make this a YES by 10.1**

# Your Web ADF Arcobjects code will break

## Server Contexts and ArcObjects proxies are history

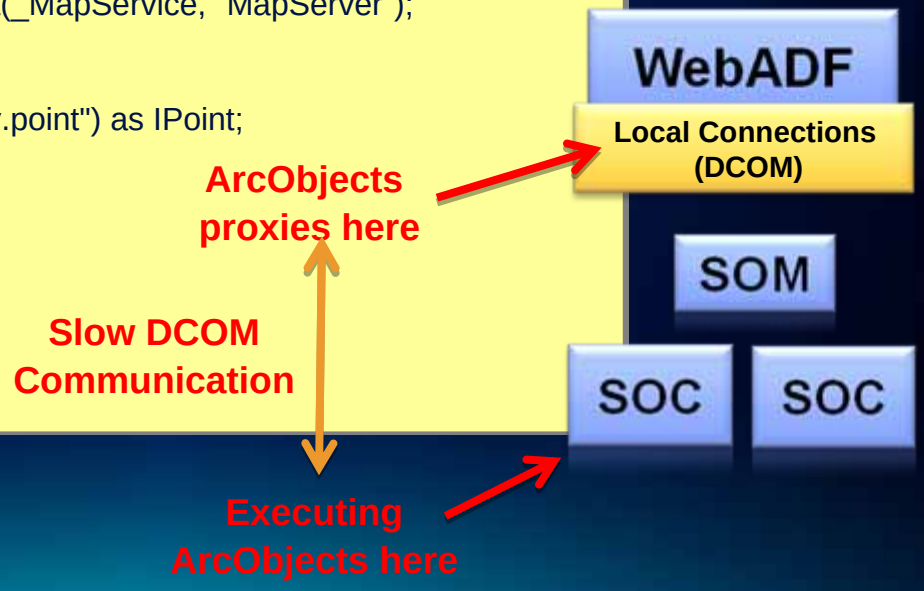
```
//Connect to ArcGIS Server
Identity identity = new Identity(agsUser, pswd, domain);
AGSServerConnection agsconnection = new AGSServerConnection("SOM", identity);
agsconnection.Connect();

//Get a Server Context from an existing Server Object
IServerObjectManager som = agsconnection.ServerObjectManager;
IServerContext sc = som.CreateServerContext(_MapService, "MapServer");

//Instantiate and work with ArcObject proxies
IPoint pPoint = sc.CreateObject("esriGeometry.point") as IPoint;
pPoint.PutCoords(dX,dY);

 <a bunch of ArcObjects code here…>

//Release context
sc.ReleaseContext();
```



Are you saying that

# I can no longer use ArcObjects in my web apps?

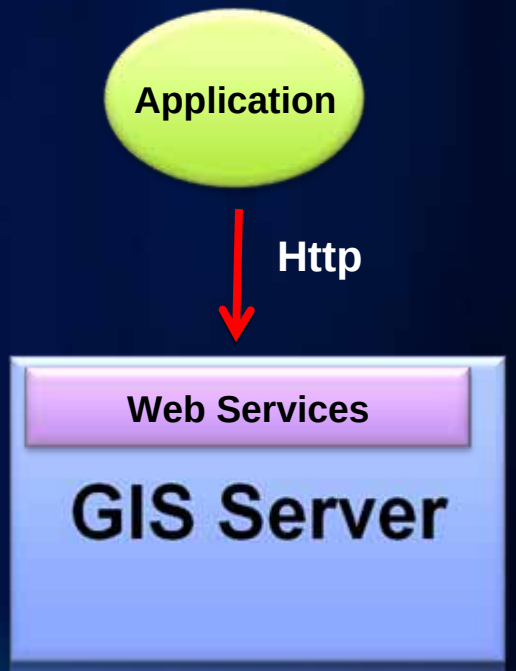
Not at all

But the pattern is different

# Think 'Web Services'

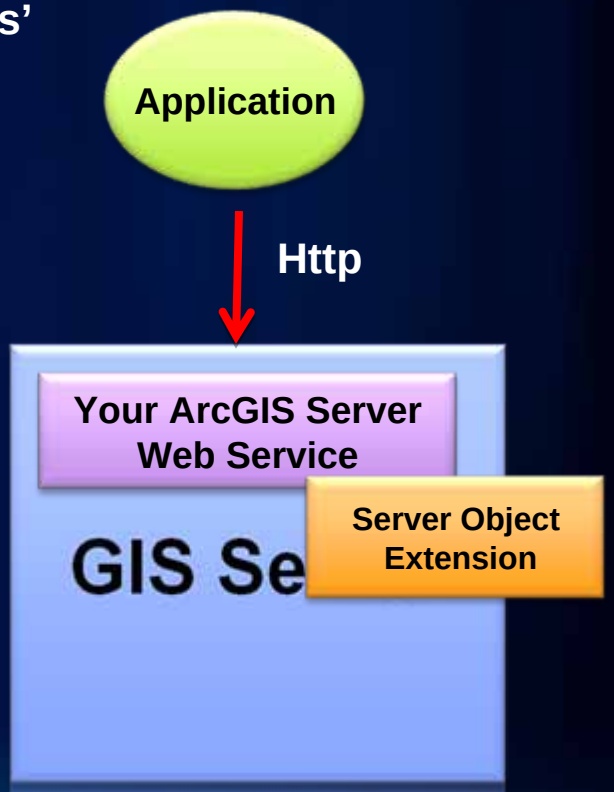
Make web services out of your ArcObjects code

- Detach your ArcObjects code from the app
- Use Web Services



# Introducing Server Object Extensions

- Used to create custom GIS Web Services
  - Extends Map Services with your own ‘capabilities’
  - REST and SOAP endpoints
  - Displays in ArcGIS Services Directory
- Requires ArcObjects SDK
  - Includes Eclipse plug-in
  - or Visual Studio template project
- Leverages ArcGIS Server framework
  - Logging, load balancing and queuing
  - Process isolation, service life-cycle
  - Efficient execution of ArcObjects (fast and scalable)



**Although you should think twice about this:**

Do you **really** need ArcObjects?

# Typical scenarios

***Where you use ArcObjects today, but may get away without***

# I want to change layers in map service

**10.1 lets you do that simply and efficiently**

- **Adding, removing, reordering layers**
- **Changing their symbology**

- **In 10:**
  - **Use non-pooled services , ArcObjects and Local Connections  for that**
  - **Play around with WMS Style Layer Descriptors**

- **In 10.1:**
  - **Dynamic Layers in 10.1 Map Services**

# Introduction to 10.1 Map Services

And 'Dynamic Layers'

**3** → Tell the map service what to draw, in which order and with what symbology

Done on a per request basis. Content to be included in map expressed as json

**2** → Configure the map service to point to your workspaces

**1** → *Add data to folders, and databases (workspaces)

You can actually add data at any time

Show me that!

# DEMO

Craig Williams and Mohammed Hoque (Tanu)

# I want to print a high quality (ArcMap-like) map

**10.1 lets you do that simply and efficiently**

- Create a printable document (PDF preferably)
- That can be printed to ‘exact’ scale
- Leveraging ArcMap layouts
  - It’s look and feel and authoring environment
- Good enough for large plots
  - 33x44 inch maps
- Displaying ALL contents of my web map
  - Services, graphics, selections

- In 10: Write ArcObjects or Python code
- In 10.1: Depends…

# Introducing ‘Export webmap’ service (new at 10.1)

**Print any webmap to a small (max 11x17 inch) piece of paper**

- An out of the box service
- Webmap-in (json), map out (PDF, EPS, PNG, JPEG…)
- Preconfigured with your own ArcMap layouts

**myMap.exportWebMap()**

Extent | Map Service | Image Service | Feature Service | Graphics | Title…

Show me that!

# DEMO

Craig Williams and Mohammed Hoque (Tanu)

# Introducing ArcPy.Mapping (enhanced in 10.1)

**Map automation exposed as a Web Service**

- Python scripting module: works in GP Server
- For map document and layer manipulation and export
- Ideal for fine access to map layouts in Server

- In 10:
  - Powerful but somewhat limited for web map printing
    - OK if you do not need client-side graphics
    - Lots of code otherwise (although simpler than ArcObjects!)

- In 10.1:
  - Enhancements to handle graphics and webmap contents easily

Show me that!

# DEMO

Jeff Barette and Ismael Chivite

# I want to print a high quality (ArcMap-like) map

In summary

- Get familiar with ArcPy.Mapping today
  - Works in 10 and will be enhanced in 10.1
  - The ideal environment for the most demanding printing tasks
  - Powerful scripting environment
- Be aware of the upcoming 10.1 ‘print service’
- Still you can (and will be able to) use ArcObjects
  - We will cover that later!

# Other typical scenarios

**Where you use ArcObjects today**

- **Network tracing*, custom editing workflows, dynseg, surface analysis etc**

Lets talk SOE's now

# DEMO

**Sterling Quinn**

*** Actually, 10.1 also will include out of the box network tracing tools**

# Considerations before you write SOEs

- It’s heavy duty development
  - Probably the most advanced development option for ArcGIS Server
  - If written well, most likely the fastest/most scalable solution
- Can I achieve my goal with out of the box services?
  - Queries to map services, plus geometry service calls…
  - Geoprocessing:  are you familiar with the OOTB tools and python?
- I like SOEs for:
  - Atomic operations that execute very fast
  - But would use GP for long executions (async framework in place)
  - Or operations that are already part of the GP framework

# Considerations while you write SOEs

- **Do not write SOE's on top of MXD based map services**
  - Supported in 10, not supported on 10.1
  - Only write SOEs against MSDs
  - Look at IMapServerDataAccess ☺
- **Do not use Desktop-only ArcObjects libraries**
  - Like reports, ArcMap extensions etc
- **Write Stateless code**
  - Non-pooled services not to be supported in 10.1
  - No notion of stickiness for your SOEs

# Considerations while you write SOEs (and 2)

- Your ArcObjects 10 logic will continue to work
- You will need to recompile with 64bit SDK (in 10.1)
- You will ‘deploy’ your SOE’s through a web service
  - Push once to your ‘site’, we will take care of the rest
  - Think of an SOE, like a Desktop Add-in… but for Server

It seems we look all right!

Well… unless you extensively use non-pooled services

**Which I hope nobody does**

# Last Notes

***A few more things to keep in mind***

If you are

# NOT using the Web ADF at all

It’s time to wake up

# In 10.1 you must analyze MXD map documents

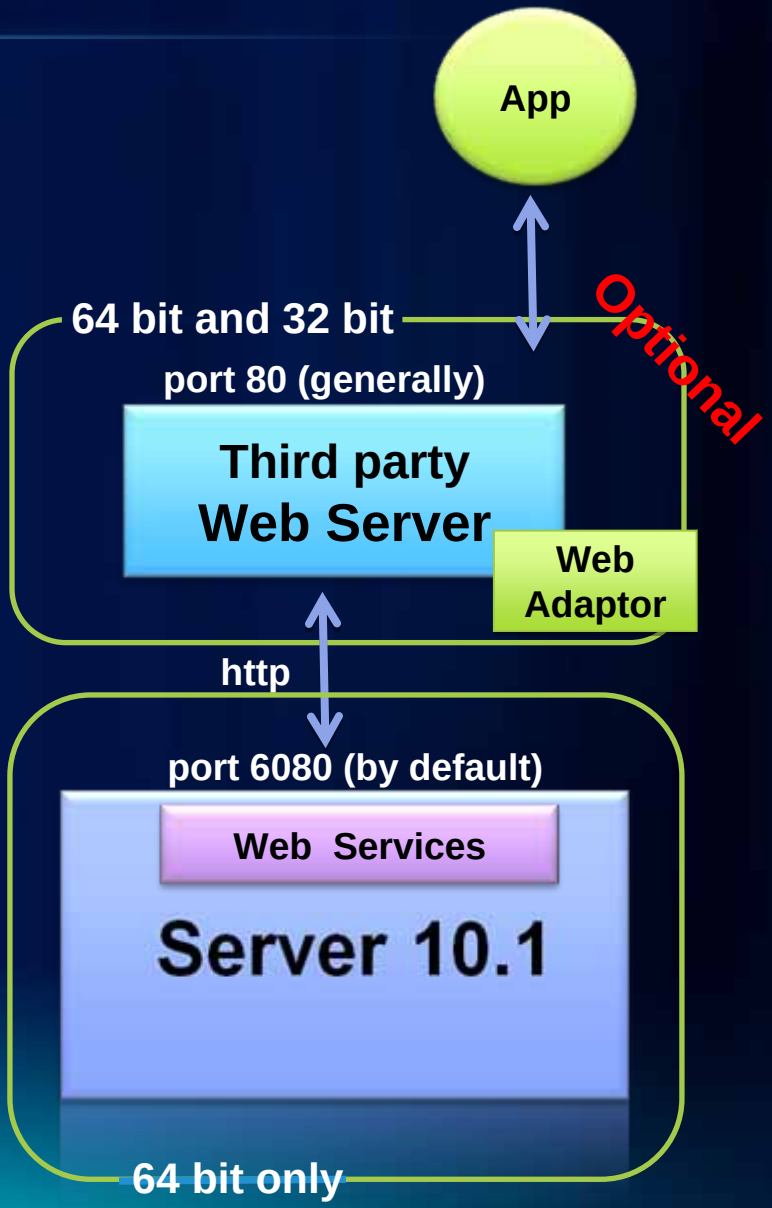
**Before publishing a service (and some things will be dropped in the process)**

| Not supported in 10.1 | |
|---|---|
| TextFiles | Do not add to map service, add to app. |
| Geoprocessing Layer | Workflow for publishing changes. Not needed |
| Tracking Analyst Layer | Already support time layers in all APIs |
| Web Service Layer (OGC, Server…) | Do not add to map service, add to app |
| CAD, Coverage, Personal GDB | Sorry ☹ |
| NetCDF, VPF, Topology Layer | Not planned |
| Linear Referencing Hatch renderer | Not planned. |
| Custom renderers (written in AO) | Not planned. |
| MOLE, Bivariate, | Not planned |

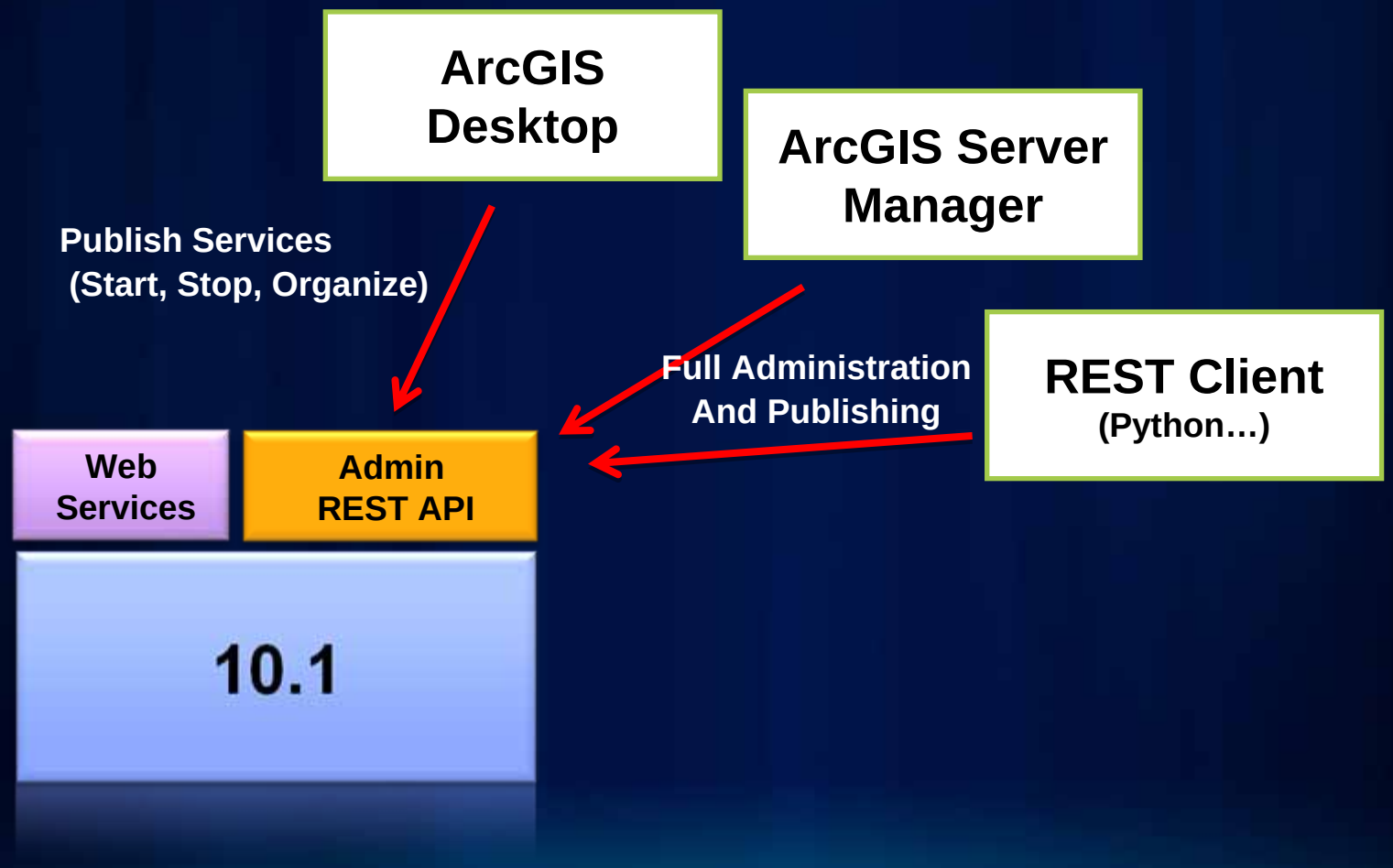
# In 10.1 you cant run on a 32bit environment

- Server is a 64bit native app

- Except:
  - The Web Gateway component
  - Used for integrating into third party web servers



# How do I administer without a ‘Local Connection’?

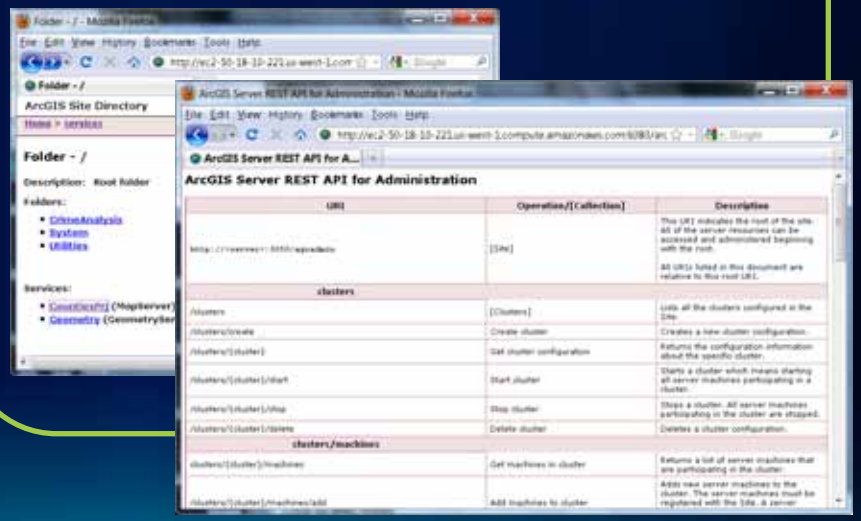


# Administering ArcGIS Server programmatically

- Accessing logs and statistics
- GIS Service Management
- Configuring GIS Server directories
- Adding, removing machines from clusters…

Http calls to the new REST API

YES




Low Level ArcObjects Admin calls

IServerObjectManager
IServerConfigurationStatus
IServerLog…

NO

Complete rewrite: from ArcObjects code to REST API

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