Automate Publishing of Web Layers Using ArcPy

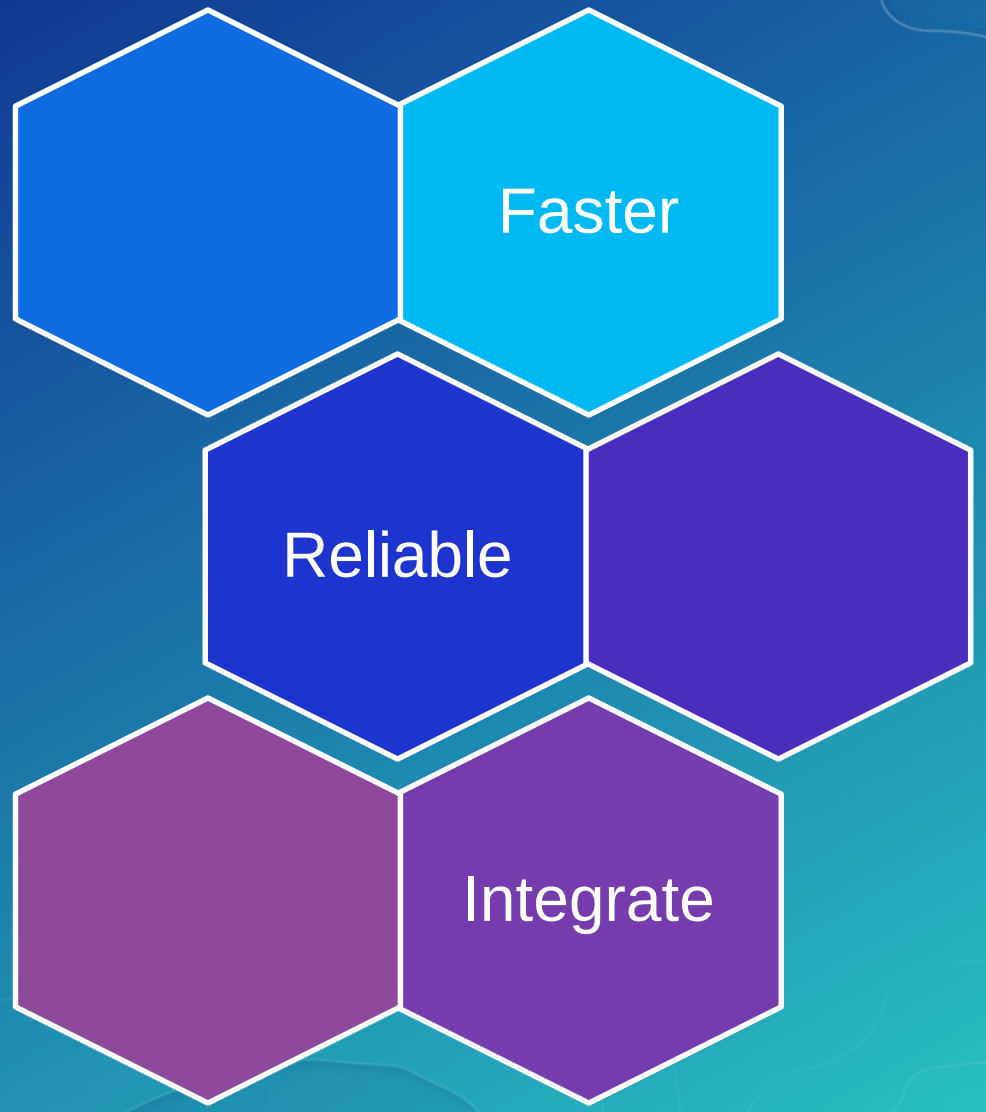
Chunming Peng

Shilpi Jain

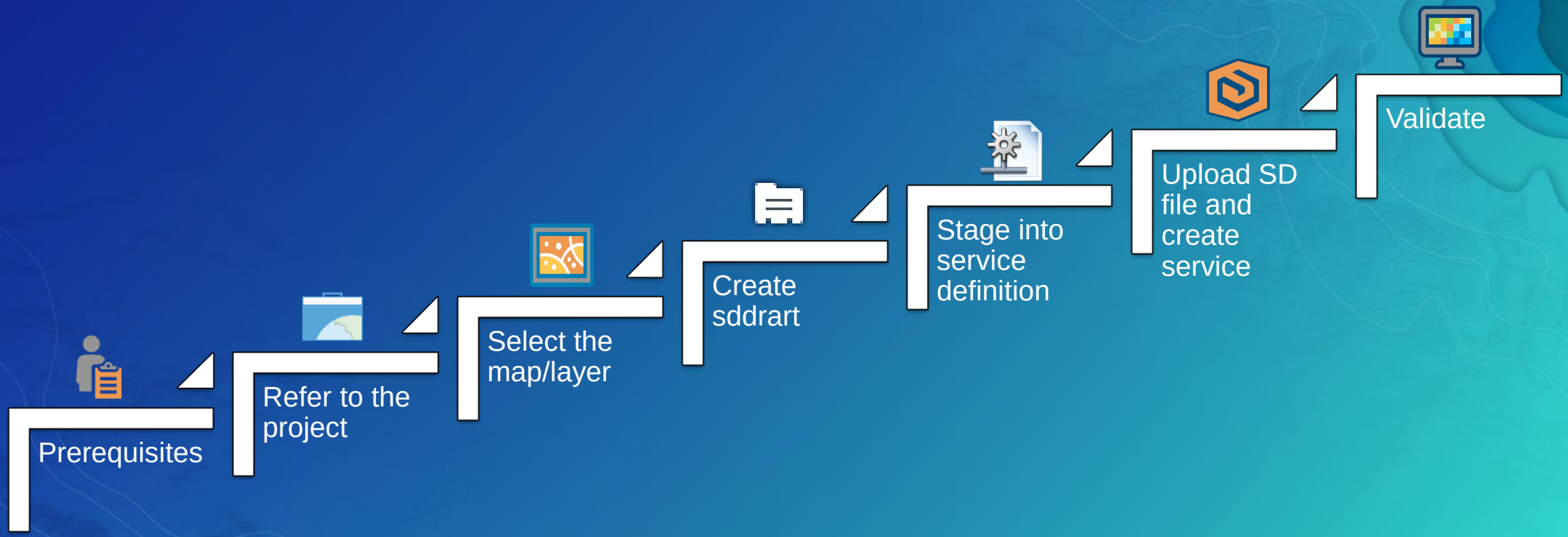
Agenda

- Why automation
- How to implement (Demo)
- Q & A

Why automation



How


Prerequisites
Refer to the project
Select the map/layer
Create sddrart
Stage into service definition
Upload SD file and create service
Validate

Arcpy Tools

1. CreateWebLayerSDDraft

Python

```
CreateWebLayerSDDraft (map_or_layers, out_sddraft, service_name, {server_type}, {service_type}, {folder_name}, {overwrite_existing_service}, {copy_data_to_server}, {enable_editing}, {allow_exporting}, {enable_sync}, {summary}, {tags}, {description}, {credits}, {use_limitations})
```

http://pro.arcgis.com/en/pro-app/arcpy/mapping/createweblayersddraft.htm

2. Stage Service

Python

```
StageService_server (in_service_definition_draft, out_service_definition, {staging_version})
```

https://pro.arcgis.com/en/pro-app/tool-reference/server/stage-service.htm

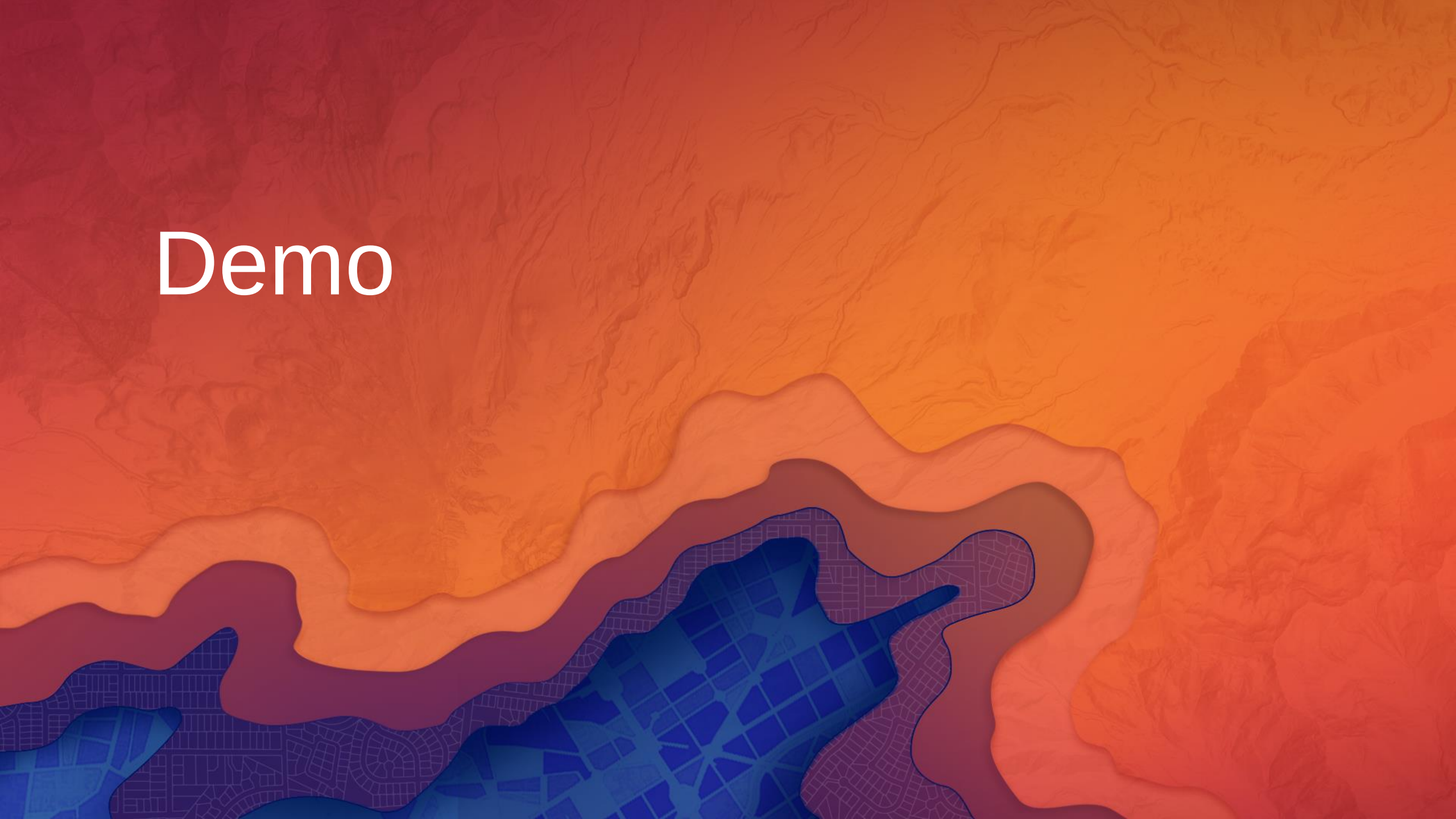
3. Upload Service Definition

Python

```
UploadServiceDefinition_server (in_sd_file, in_server, {in_service_name}, {in_cluster}, {in_folder_type}, {in_folder}, {in_startupType}, {in_override}, {in_my_contents}, {in_public}, {in_organization}, {in_groups})
```

https://pro.arcgis.com/en/pro-app/tool-reference/server/upload-service-definition.htm

Demo



Demo #1 – hosted feature service

```
# list the paths for the input aprx, output sddraft and sd files in variables
aprxPath = r'C:\temp\UC2017\PublishingSamples\Project\USCities\USCities.aprx'
sddraftPath = r'C:\temp\UC2017\PublishingSamples\Output\USCities.sddraft'
sdPath = r'C:\temp\UC2017\PublishingSamples\Output\USCities.sd'

# Maintain a reference of an ArcGISProject object pointing to your project
aprx = arcpy.mp.ArcGISProject(aprxPath)

# Maintain a reference of a Map object pointing to your desired map
m = aprx.listMaps('Map1')[0]

''' the first step to automate the publishing of a map, layer, or list of layers to a hosted web layer using ArcPy.
   The output created from the CreateMapSDDraft is a Service Definition Draft (.sddraft) file.
   Syntax = CreateWebLayerSDDraft (map_or_layers, out_sddraft, service_name, {server_type}, {service_type},
                                   {folder_name}, {overwrite_existing_service}, {copy_data_to_server}, {enable_editing},
                                   {allow_exporting}, {enable_sync}, {summary}, {tags}, {description}, {credits}, {use_limitations})
'''
arcpy.mp.CreateWebLayerSDDraft(m, sddraftPath, 'USCities_UC2017', 'MY_HOSTED_SERVICES', 'FEATURE_ACCESS')

''' The Service Definition Draft can then be converted to a fully consolidated Service Definition (.sd) file using the Stage Service tool.
    Staging compiles all the necessary information needed to successfully publish the GIS resource.
'''
arcpy.StageService_server(sddraftPath, sdPath)

'''  Finally, the Service Definition file can be uploaded and published as a GIS service to a specified online organization using the Upload Service Definition tool.
    This step takes the Service Definition file, copies it onto the server, extracts required information, and publishes the GIS resource.
'''
arcpy.UploadServiceDefinition_server(sdPath, 'My Hosted Services')
# end
```

Demo #2 – hosted map service

```
# list the paths for the input aprx, output sddraft and sd files in variables
aprxPath = r'C:\temp\UC2017\PublishingSamples\Project\USCities\USCities.aprx'
sddraftPath = r'C:\temp\UC2017\PublishingSamples\Output\USHighway.sddraft'
sdPath = r'C:\temp\UC2017\PublishingSamples\Output\USHighway.sd'
serviceName = 'USHighway_UC2017'

# Maintain a reference of an ArcGISProject object pointing to your project
aprx = arcpy.mp.ArcGISProject(aprxPath)

# Maintain a reference of a Map object pointing to your desired map
m = aprx.listMaps('Map1')[0]

# create a list of layers which contains the 2nd and 3rd layers of the map
lyrs=[]
lyrs.append(m.listLayers('U.S. National Transportation Atlas Interstate Highways')[0])
lyrs.append(m.listLayers('U.S. States (Generalized)')[0])

''' the first step to automate the publishing of a map, layer, or list of layers to a hosted web layer using ArcPy.
   The output created from the CreateMapSDDraft is a Service Definition Draft (.sddraft) file.
   Syntax = CreateWebLayerSDDraft (map_or_layers, out_sddraft, service_name, {server_type}, {service_type},
                                   {folder_name}, {overwrite_existing_service}, {copy_data_to_server}, {enable_editing},
                                   {allow_exporting}, {enable_sync}, {summary}, {tags}, {description}, {credits}, {use_limitations})
'''
arcpy.mp.CreateWebLayerSDDraft(lyrs, sddraftPath, serviceName, 'MY_HOSTED_SERVICES', 'TILED')

''' The Service Definition Draft can then be converted to a fully consolidated Service Definition (.sd) file using the Stage Service tool.
    Staging compiles all the necessary information needed to successfully publish the GIS resource.
'''
arcpy.StageService_server(sddraftPath, sdPath)

'''  Finally, the Service Definition file can be uploaded and published as a GIS service to a specified online organization using the Upload Service Definition tool.
    This step takes the Service Definition file, copies it onto the server, extracts required information, and publishes the GIS resource.
'''
arcpy.UploadServiceDefinition_server(sdPath, 'My Hosted Services')

# Creates and updates tiles in an existing web tile layer cache.
input_service = r'https://tiles.arcgis.com/tiles/EguFTd9xPXEoDtC7/arcgis/rest/services/' + serviceName + r'/MapServer'
arcpy.ManageMapServerCacheTiles_server(inputService, [73957191, 36978595, 18489298], "RECREATE_ALL_TILES")
```

Conclusion

- Why automation
- How to implement (Demo)
  - arcpy.mp.CreateWebLayerSDDraft
  - arcpy.StageService_server
  - arcpy.UploadServiceDefinition_server

Questions?

Contact

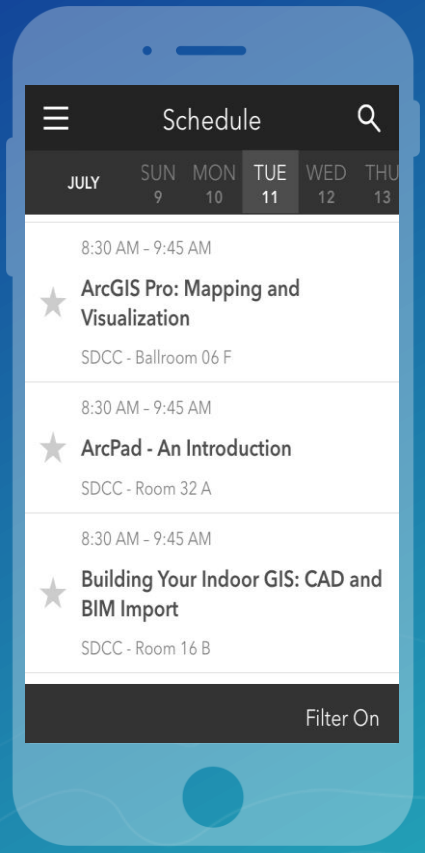
shilpi_jain@esri.com
cpeng@esri.com

Github Link

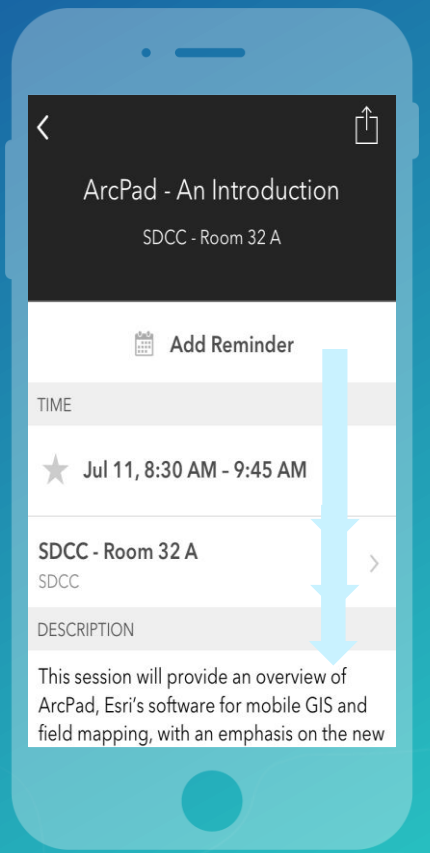
Please Take Our Survey on the **Esri Events App!**

Download the Esri Events app and find your event

Select the session you attended



Scroll down to find the survey



Complete Answers and Select "Submit"