



# ArcGIS Pro: What's New and the Road Ahead

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Esri - Solution Engineer



ESRI PETROLEUM GIS CONFERENCE



# Agenda

- **Introduction to ArcGIS Pro**
- **What's new in ArcGIS Pro demonstrations**
- **What's coming in ArcGIS Pro 2.4 and beyond**





# What is ArcGIS Pro

- 2D/3D Integration
- 64-bit
- Context sensitive
- Ribbon framework
- Connected to the Portal



# What's New in ArcGIS Pro 2.3

- **Map Authoring**

- Heatmap Renderer Enhancements
- Polygon Outline Color Ramps
- Clip to Shape
- Multiple Definition Expressions

- **Multi Scale Mapping**

- Vector tile drawing improvements
- Dictionary symbology

- **Scene Layers**

- Building Scene layer
- Mobile Scene Package
- Partial updates of edited scene layers

- **Text**

- Arcade data access
- Dimensions
- Label abbreviation
- Contour Annotation Tool
- Annotation Map Notes
- Anno in Mobile Map Packages

- **Layout / Arcpy.mp**

- Spellcheck in Layout
- Reference Grids
- Map Series GP tools (completed)
- Clip to Shape
- Legend Patch Shapes
- Map Series SDK

- **Geodatabase**

- Contingent Attribute Values
- Attribute Rule Enhancements
- Branch Versioning Enhancements

- **Map Exploration**

- Reports
- Measure Tool UX,
- Animate EAT
- Flicker

- **Content Management**

- Open in ArcGIS Pro & "Start Pro without a template
- LocateXT tools
- Catalog view improvements

- **Catalog**

- **Catalog home tab upgrades**
- **Project item contextual tabs**
- **Table preview**
- **Expanding favorites**

- **Sharing**

- Publishing to standalone ArcGIS Server with Python
- Support WFS, WMS, WCS, and KML
- Create Scene Layer Package

- **Editing**

- Dimensions
- Association support
- Ground to Grid
- Split By Feature
- Annotation - Follow Feature
- Stereo Editing Improvements
- Divide Polygon
- Fillet
- Midpoint Constructor
- Streaming
- Generalize





# What's New in ArcGIS Pro 2.3 - Page 2

- **Raster**

- Deep Learning for Image Classification
- Working in Cloud Stores

- **Geoprocessing**

- Search enhancements
- New GP options
- ModelBuilder Diagram Improvements
- Scatter plot matrix
- Bubble plot

- **Spatial Statistics**

- Generalized Linear Regression
- Geographically Weighted Regression
- Enhancements to RF

- **Python**

- ArcPy Package (off cycle)
- Python Upgrade
- Python Backstage Enhancements

- **Revit as a Datasource**

- Improve 3D/2D georeference experience
- Add additional Revit Geometry/attributes

- **Geostatistical Analyst**

- 3D Interpolation Framework
- 3D Interpolation Tools
- Visualize 2D surface (slice)

- **Network Analysis**

- Edit network dataset properties
- Web tools for NA
- NA Python API Enhancements

- **3D Analysis**

- Surface feedback in stereo
- Geoprocessing enhancements

- **Motion Video**

- Export to PowerPoint
- Record Live Video
- Show Features on Video
- Save Metadata as Features
- Edit Features on Video Window

- **Geocoding**

- Build Next Generation Locators

- **Data Reviewer**

- Rule Authoring (constraint)
- Workflow Manager integration

- **Workflow Manager**

- Functional Equivalency

- **Business Analyst**

- Custom Data
- Infographics
- Territory Design - constraints support
- New GP Tools

- **Pipeline Referencing**

- Network Editing using REST Services
- Pipeline Referencing geoprocessing tools
- Conflict Prevention

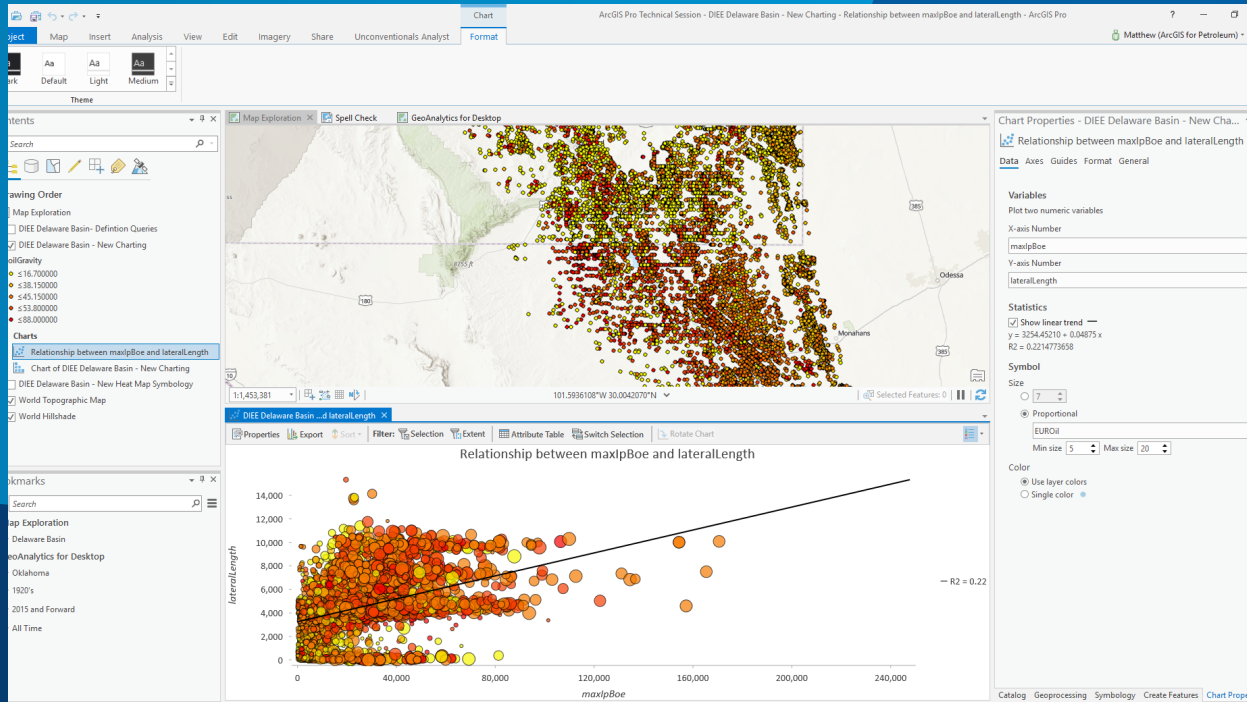
- **Topo Mapping**

- Layout Data Generalization
- Data Management Tools

- **Maritime**

- S-101 Edition 4 Updates from IHO
- Improve S-101 Exporter Performance

# What's new in ArcGIS Pro



# ArcGIS Includes Machine Learning Tools





# Machine Learning Tools in ArcGIS

## Classification

- Pixel & Object Based
- Image Segmentation
- Maximum Likelihood
- Random Trees
- Support Vector Machine



## Deep Learning

- Export Training Data for Deep Learning
- Classify Pixels using Deep Learning
- Detect Objects using Deep Learning
- Non Maximum Suppression



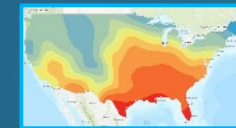
## Clustering

- Spatially Constrained Multivariate Clustering
- Multivariate Clustering
- Density-based Clustering
- Hot Spot Analysis
- Cluster and Outlier Analysis
- Space Time Pattern Mining



## Prediction

- Empirical Bayesian Kriging
- Areal Interpolation
- EBK Regression Prediction
- Ordinary Least Squares Regression and Exploratory Regression
- Geographically Weighted Regression





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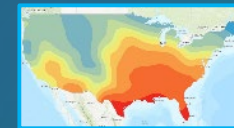
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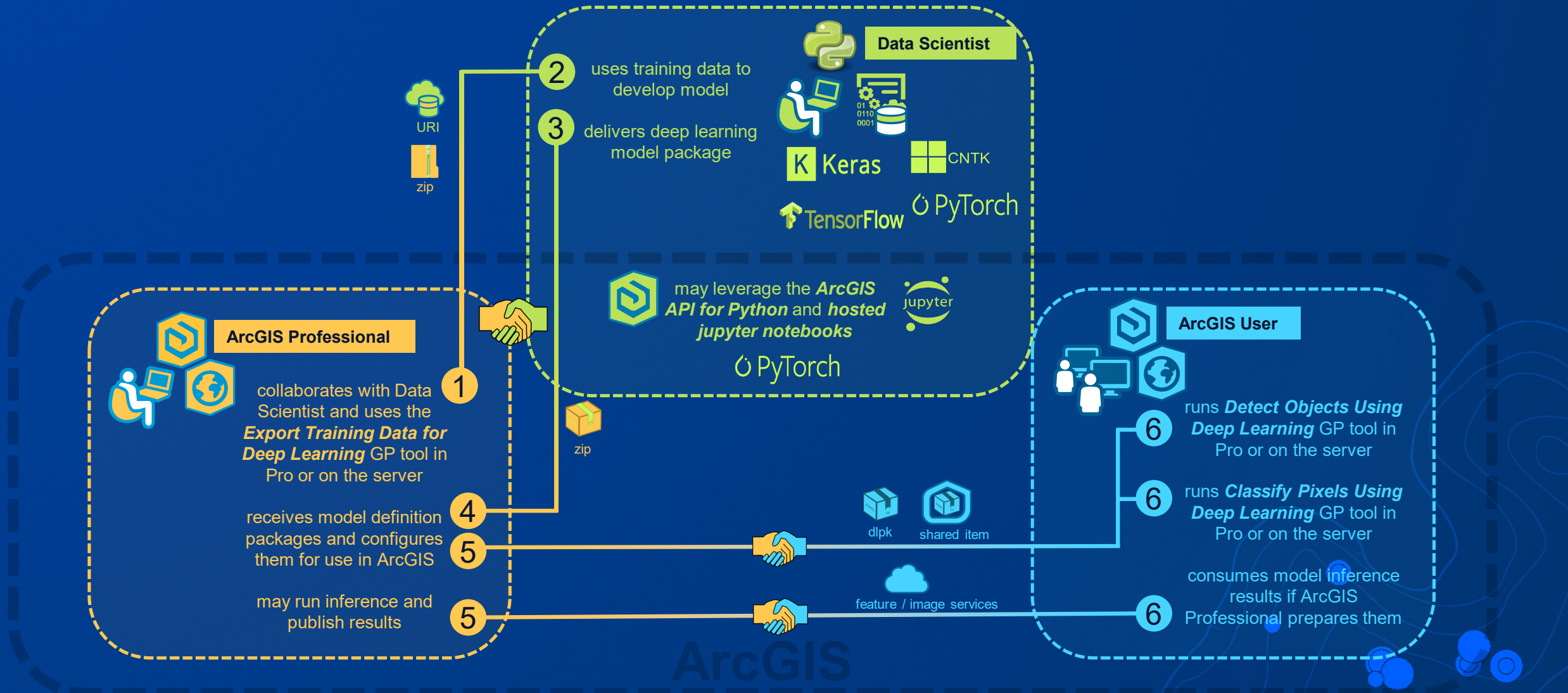
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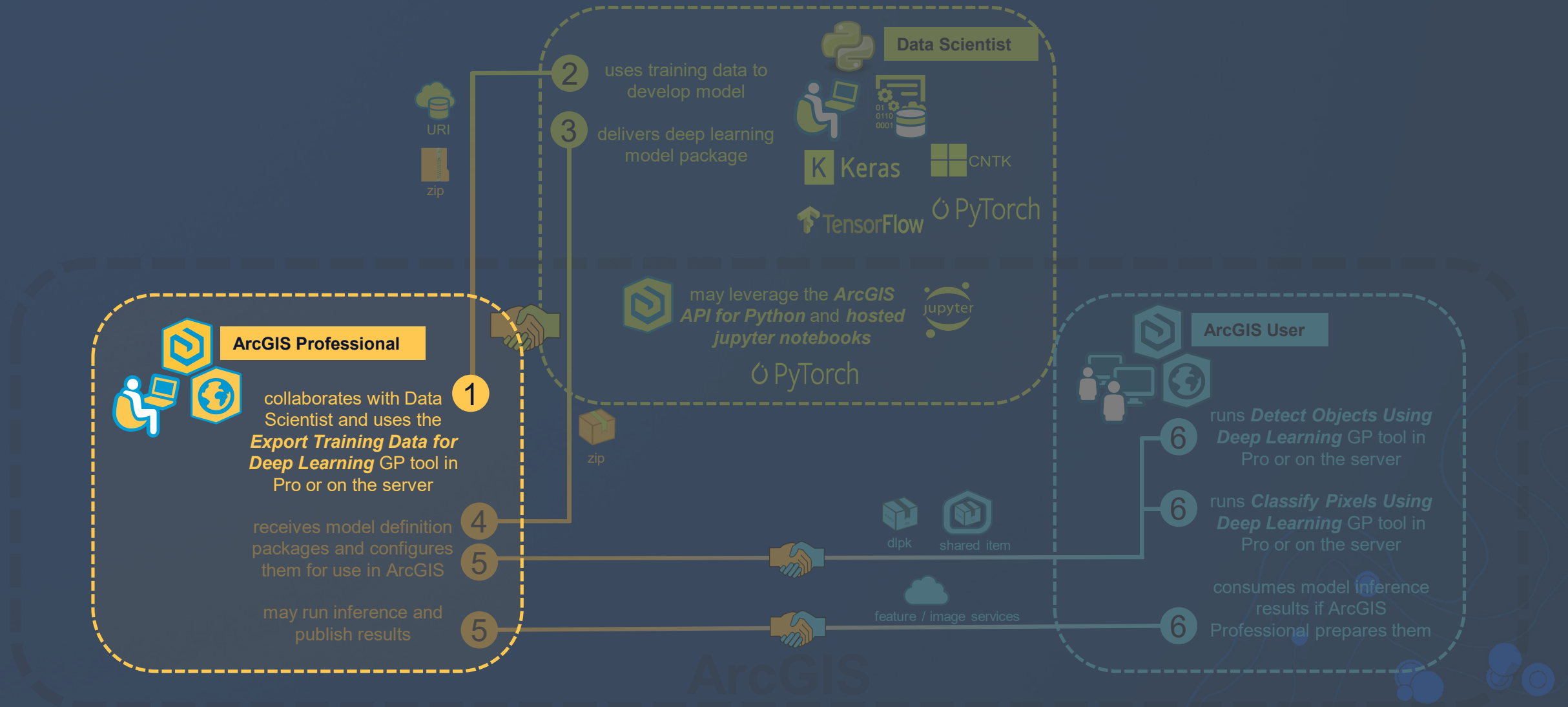
# Machine Learning Workflow for Imagery

## Deep Learning in ArcGIS



# Machine Learning Workflow for Imagery

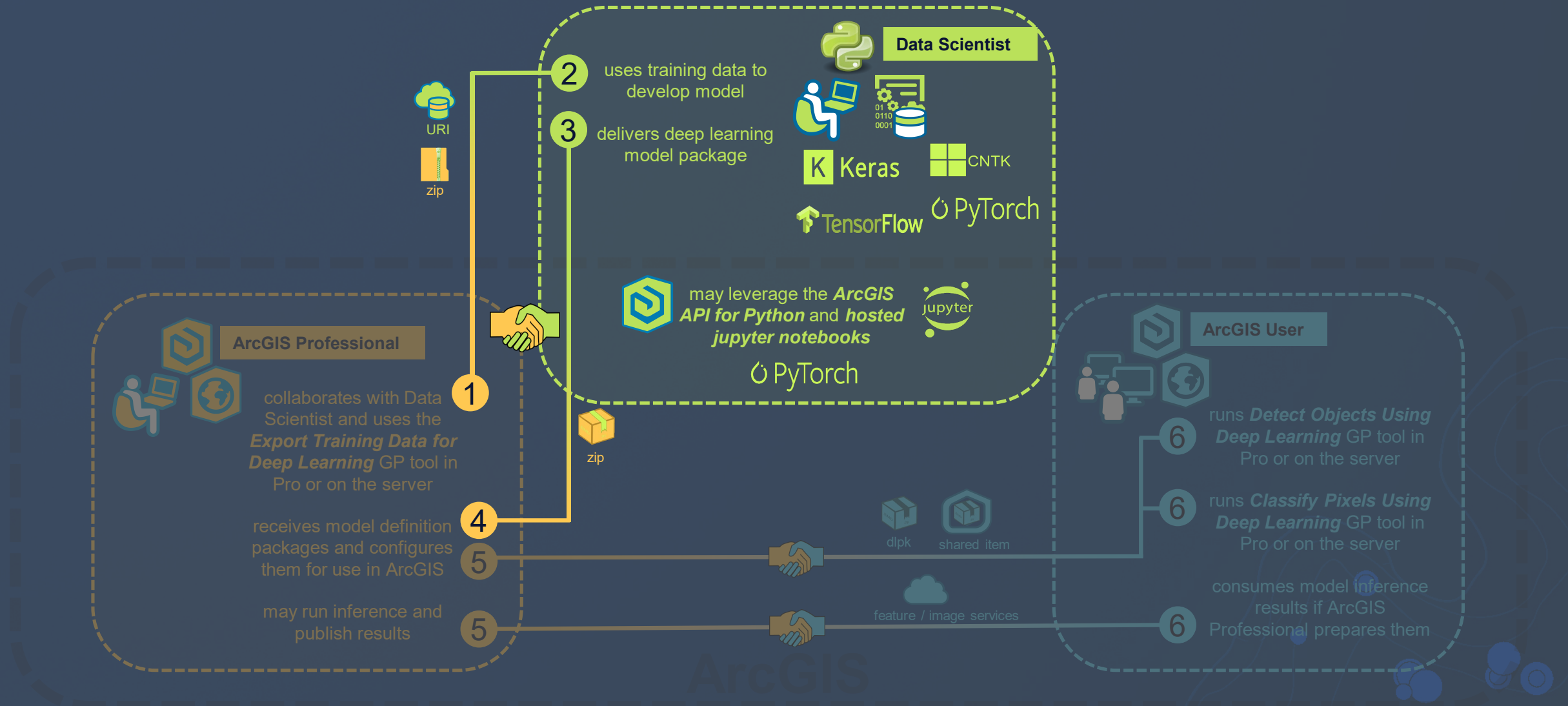
## Building a Training Sample Dataset





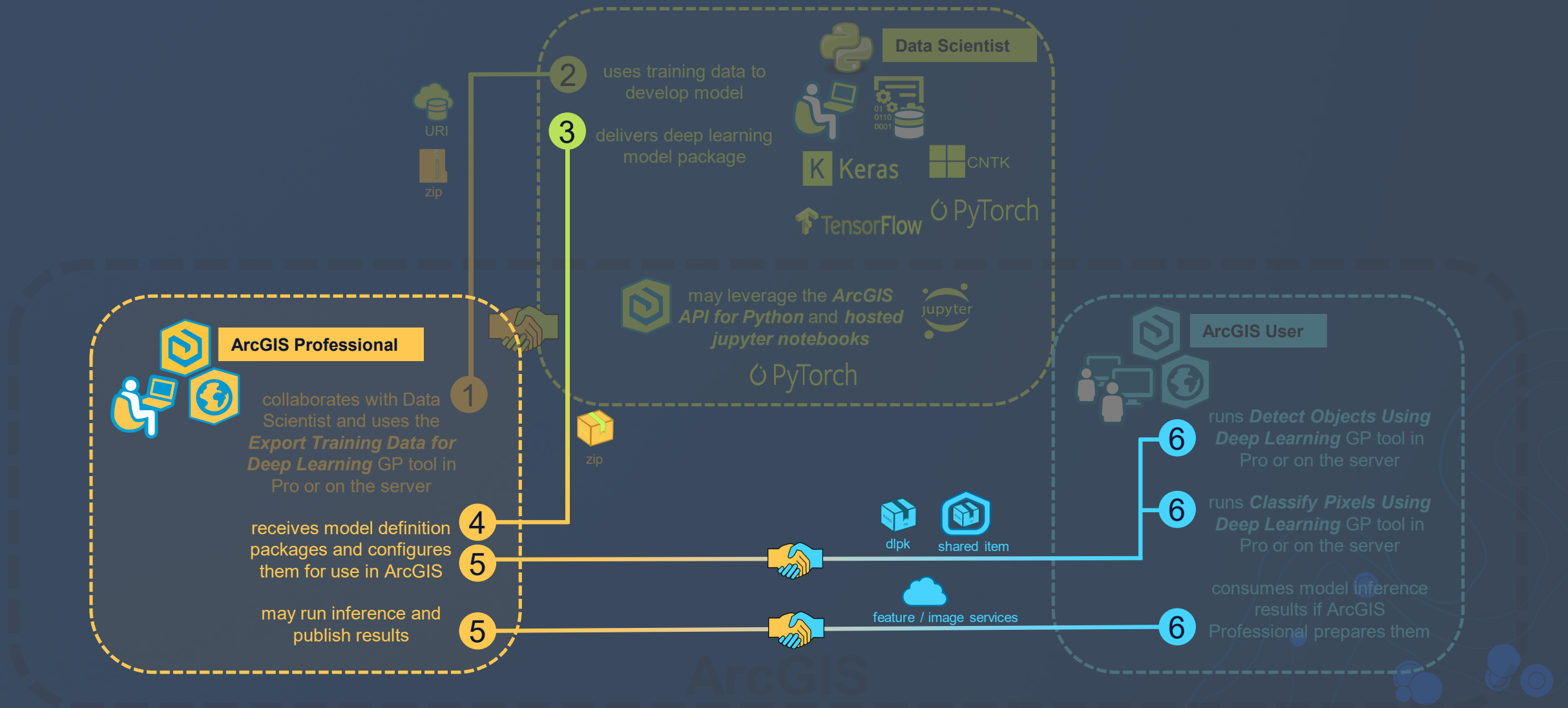
# Machine Learning Workflow for Imagery

## Training the Model



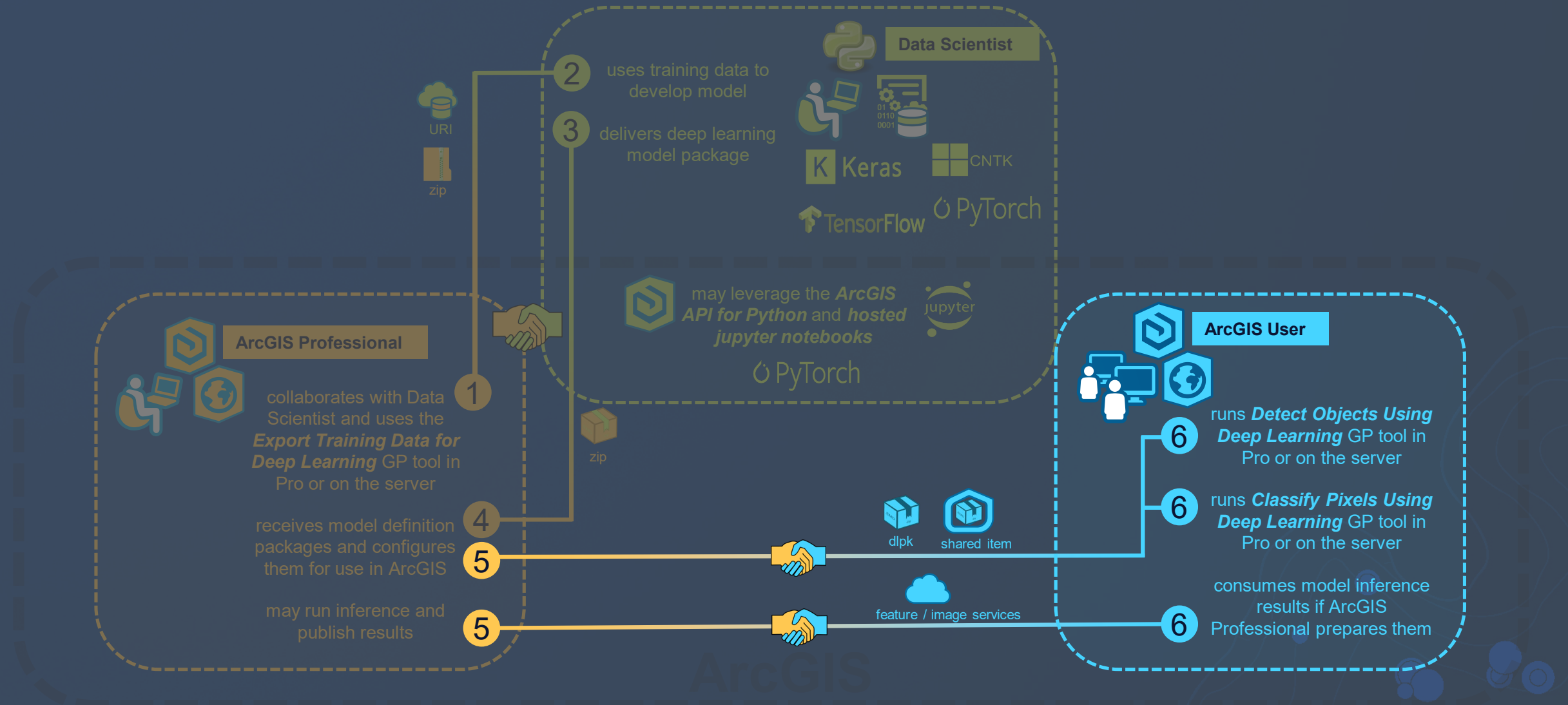
# Machine Learning Workflow for Imagery

## Performing and Enabling Analysis



# Machine Learning Workflow for Imagery

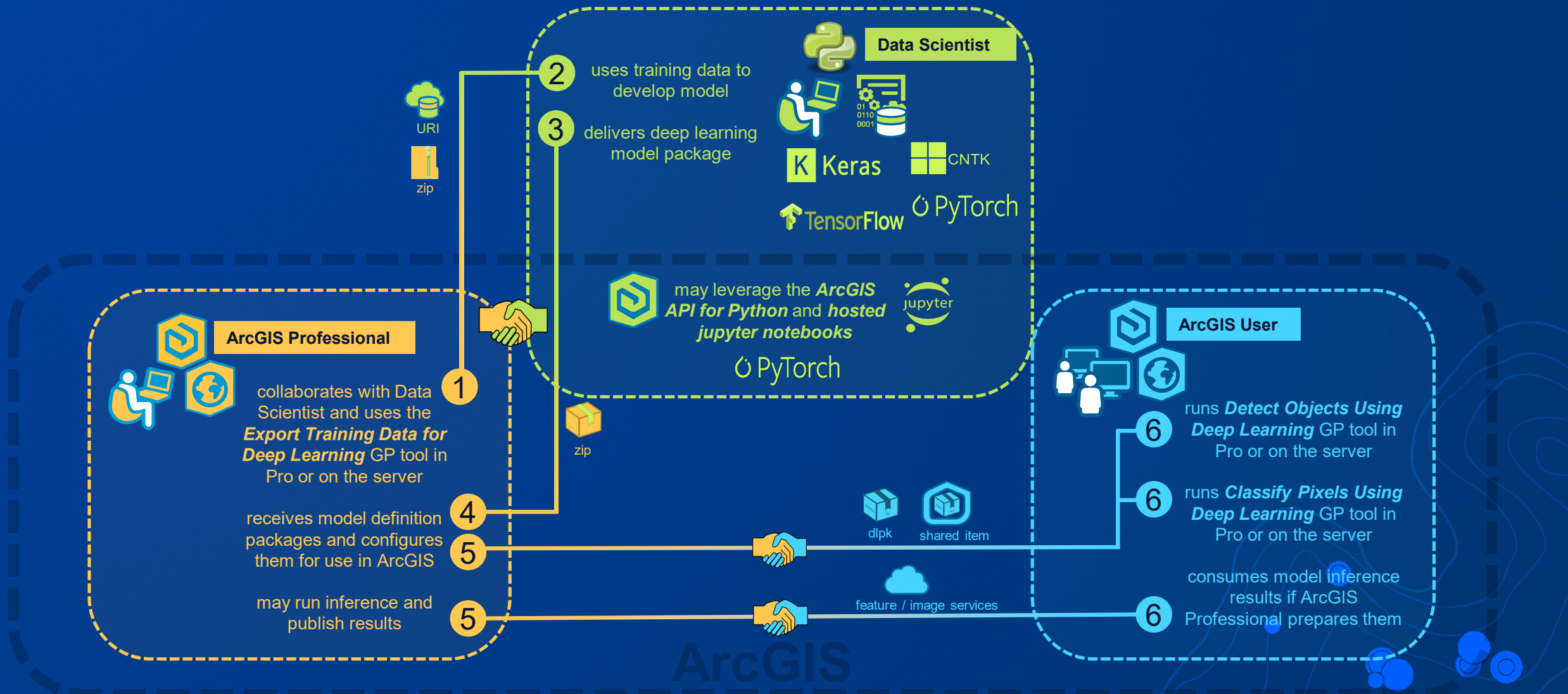
Finding Answers





# Machine Learning Workflow for Imagery

## Deep Learning in ArcGIS



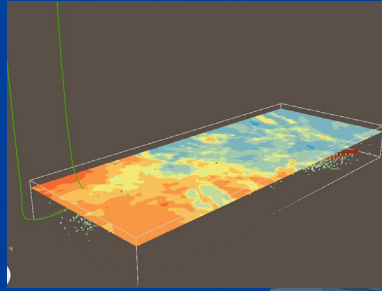


# Well Pad Detection Demonstration

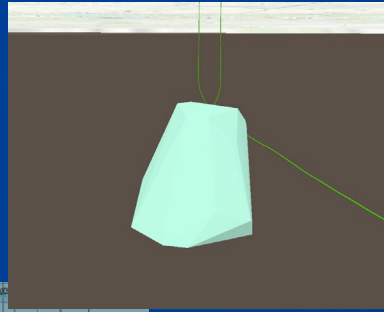


# What's new in ArcGIS Pro

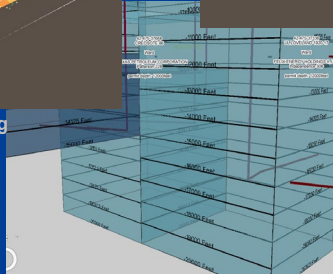
## 3D Analysis and Visualization



3D Empirical Bayesian Kriging



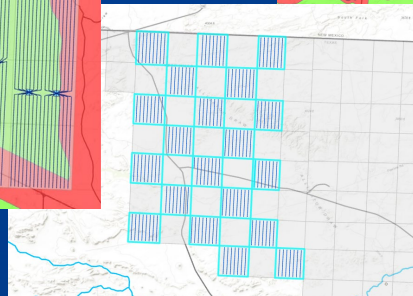
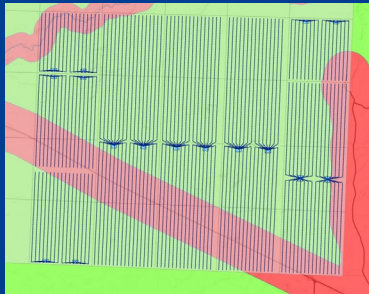
Exploratory Analysis



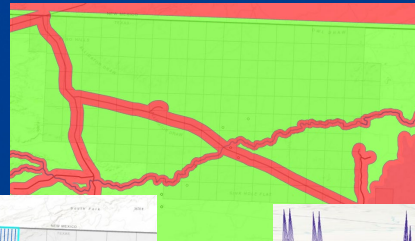
3D Lease Viewer

## Exprodat Unconventionals Analyst

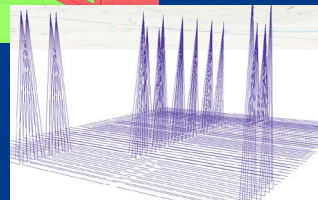
### Well Development Planning



Automated Well Stick Creation

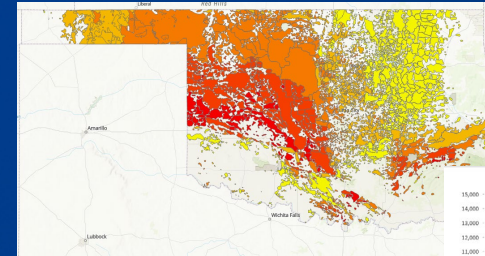


Drilling Constraints



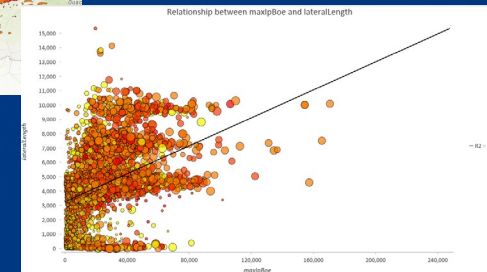
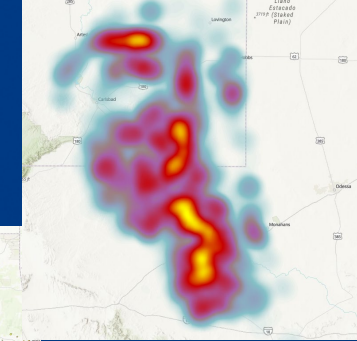
3D Wellbore Planning

## Map Exploration



GeoAnalytics on the Desktop

## Heat Map Symbolology in ArcGIS Pro



New Charting Tools

## Detected Well Pads



## Well Pad Detection



Map Flicker





# What's coming next

## Improvements

- Parcel Management
- Offset printing
- Parallel desktop processing using Spark
- Dynamic Feature binning
- Projects in the Enterprise
- Raster Pixel Editor
- Tie Point Manager
- Geoprocessing leveraging spatial databases
- Voxel layer
- Materials (point symbols)
- Animated Water Symbol
- Create New Network Dataset

## Near-term

- Animated Symbols
- Materials
- Multipatch editing in stereo
- Heat chart
- ModelBuilder to Python
- Geoprocessing scheduler
- Layer blend modes
- Presentations
- GPS support
- Dynamic feature clustering
- Voxel layer sharing
- Python notebooks
- New Extensions

## Mid-term

- Terrain Editing
- 3D Mesh as ground
- High Fidelity rendering

*\*Subject to change*



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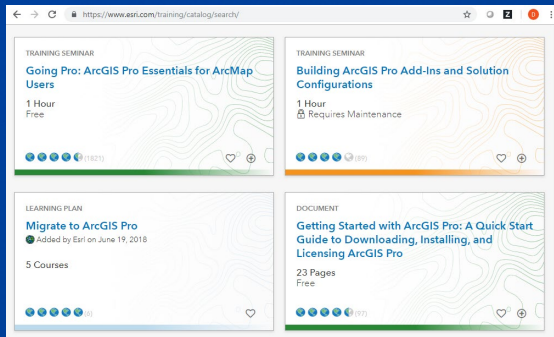
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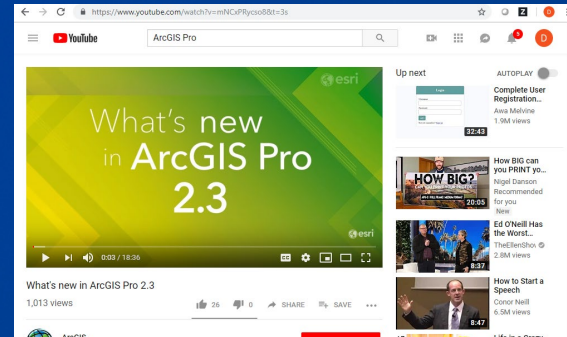
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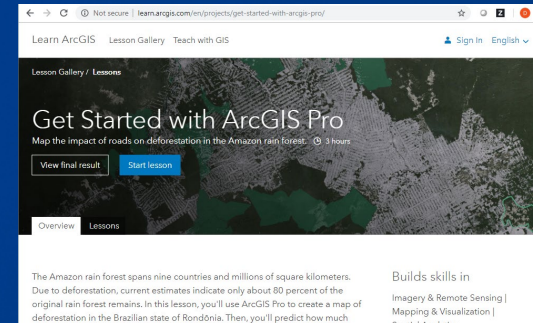
# ArcGIS Pro Resources



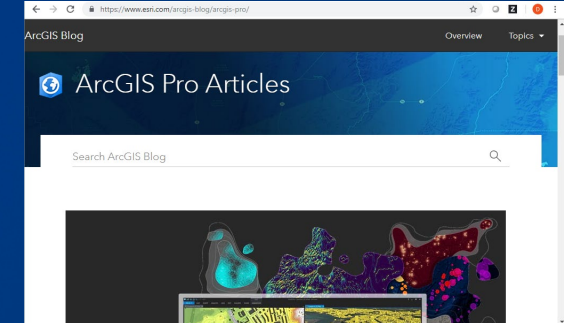
Training Classes



Videos



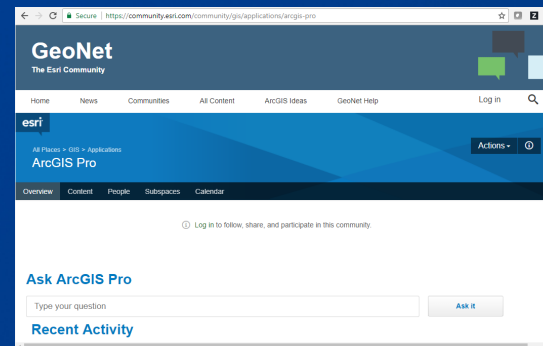
Learn.ArcGIS.com



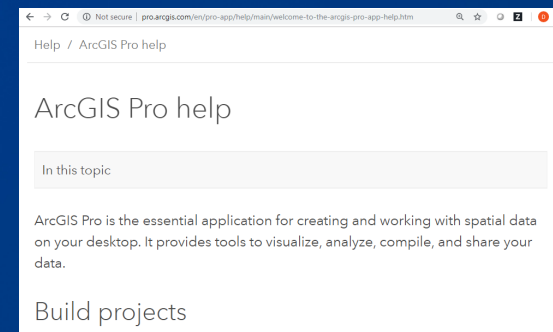
Blogs



Books



GeoNet



Help



Developer Resources





# ***THE SCIENCE OF WHERE™***

# **Thank you!**

## **Questions?**

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