

DIGITAL MAPPING TECHNIQUES 2026

The following was presented at DMT '26
May 10 - 13, 2026

The contents of this document are provisional

See Presentations and Proceedings
from the DMT Meetings (1997-2026)
<http://ngmdb.usgs.gov/info/dmt/>

ArcGIS + AI: Smarter tools for geologic mapping

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Access (as of 5/13/2026)

AI in ArcGIS

- [Catalog of Deep Learning Models in ArcGIS Living Atlas](#)
- [Survey for access to ArcGIS Pro Assistant \(Need Version 3.5+, 3.6+ for ArcPy capability\)](#)
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- [Intro to Building Agentic Mapping Applications \(Esri Developers Documentation\)](#)

Resources

AI in ArcGIS

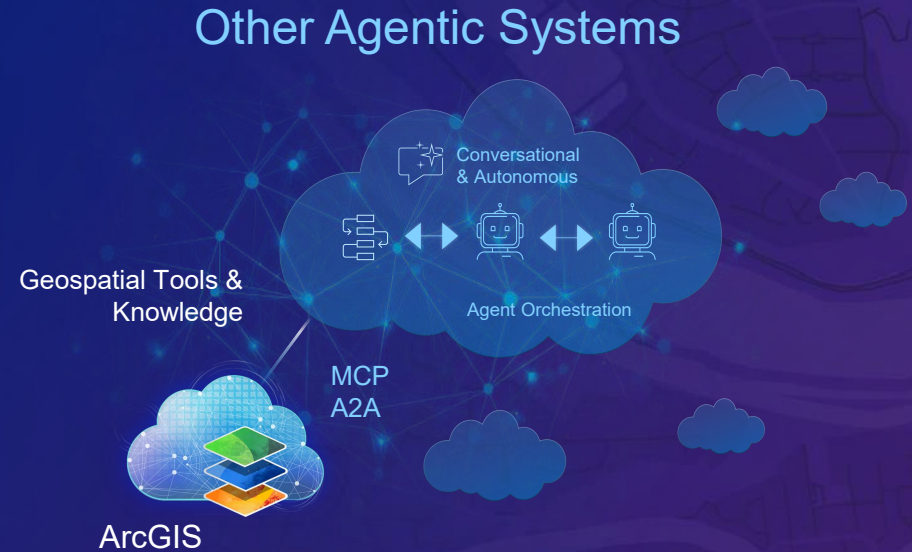
- [Catalog of Deep Learning Models in ArcGIS Living Atlas](#)
- [Deep Learning in ArcGIS Pro \(Documentation\)](#)
- [Configure AI Assistants \(Documentation\)](#)
- [Intro to Building Agentic Mapping Applications \(Esri Developers Documentation\)](#)
- [Esri Geospatial AI eBook](#)

Geospatial AI

Two Important Complementary Stories



Geo-Centric | Bringing AI to ArcGIS



Geo-Enabled | Bringing ArcGIS to AI

ArcGIS as a Geospatial AI Platform



GeoAI



AI Assistants



AI Agents

ArcGIS as a Geospatial AI Platform



GeoAI



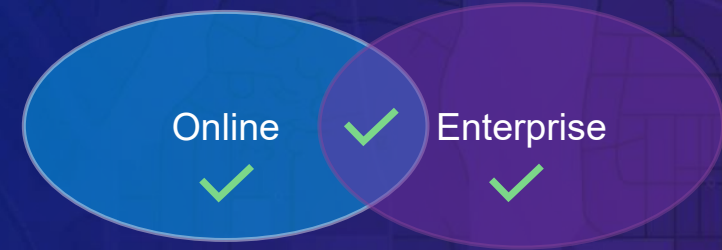
AI Assistants



AI Agents

GeoAI Tools and Models

AI-Driven Geospatial Data Extraction & Analytics



Data Types:

- Imagery, 3D, Text, Vector and Time Series

Workflows:

- Feature Extraction, Change Detection, Text Entity Extraction . . .
- Similarity Search, Predictive Analysis, Anomaly Detection . . .

GeoAI Models:

- Ready-to-Use, ArcGIS Living Atlas of the World
- Train Your Own, Deep Learning Studio, Pro or Python



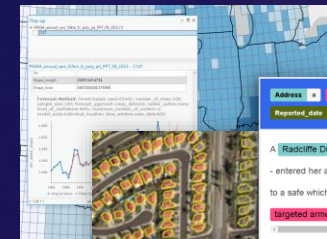
3D Feature Extraction



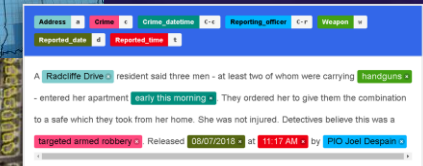
Change Detection



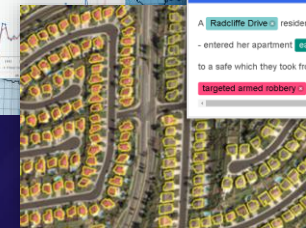
Time Series Forecasting



Entity Extraction



Landcover Classification



Building Footprint Detection

Use Pretrained Models

Differentiators

- Applications
- Accuracy
- Data Types
- Tasks
- Size
- Fine-tunable
- Domain

Task-specific Pretrained Models



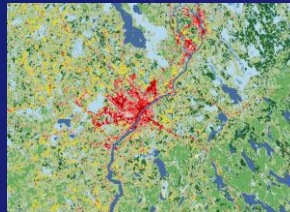
Building Footprint Detection



Water Body Extraction (SAR)



Car Detection

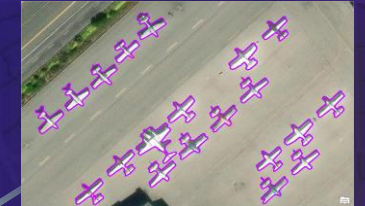


Land Cover Classification

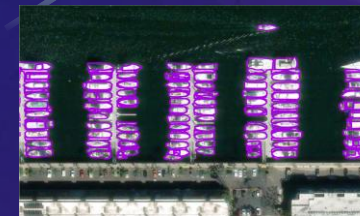
Single focused task

Generalized Pretrained Models

1 model - many applications



“Planes”



“Ships”

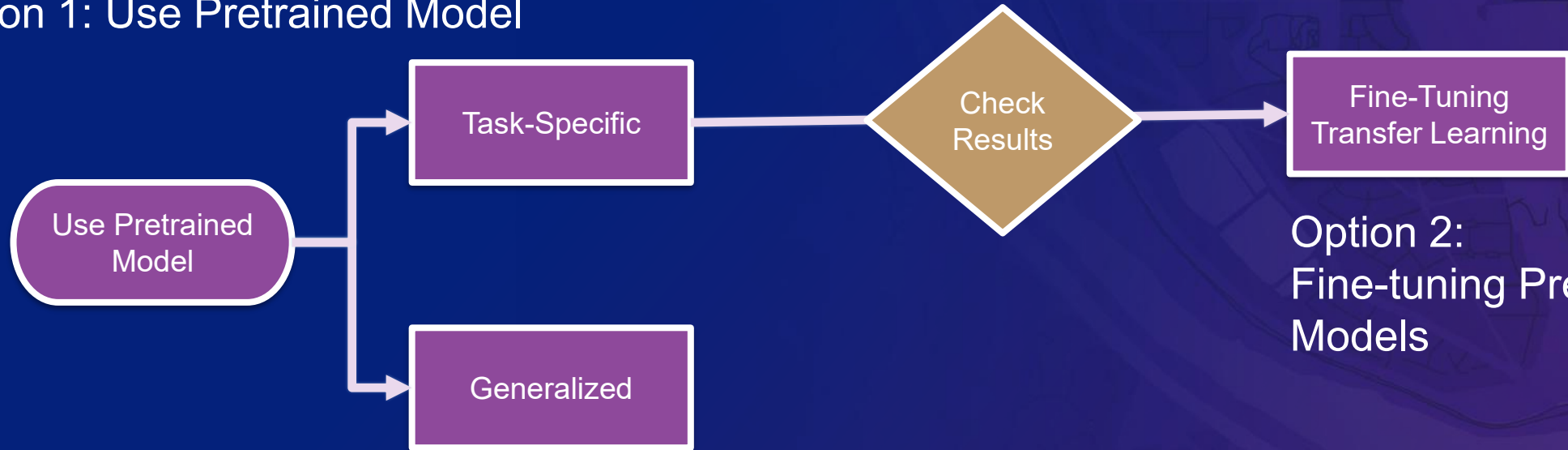


“Red cars”

Versatile through prompts

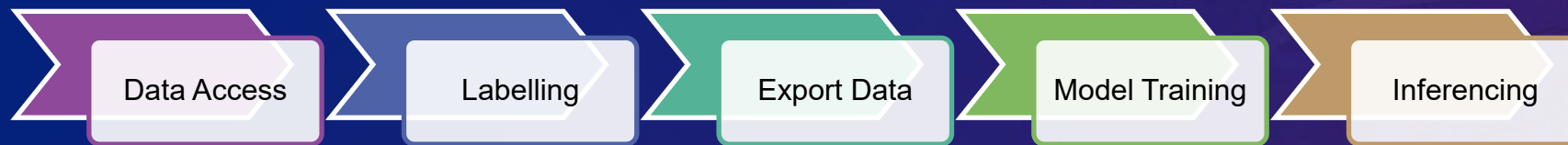
Common Workflows

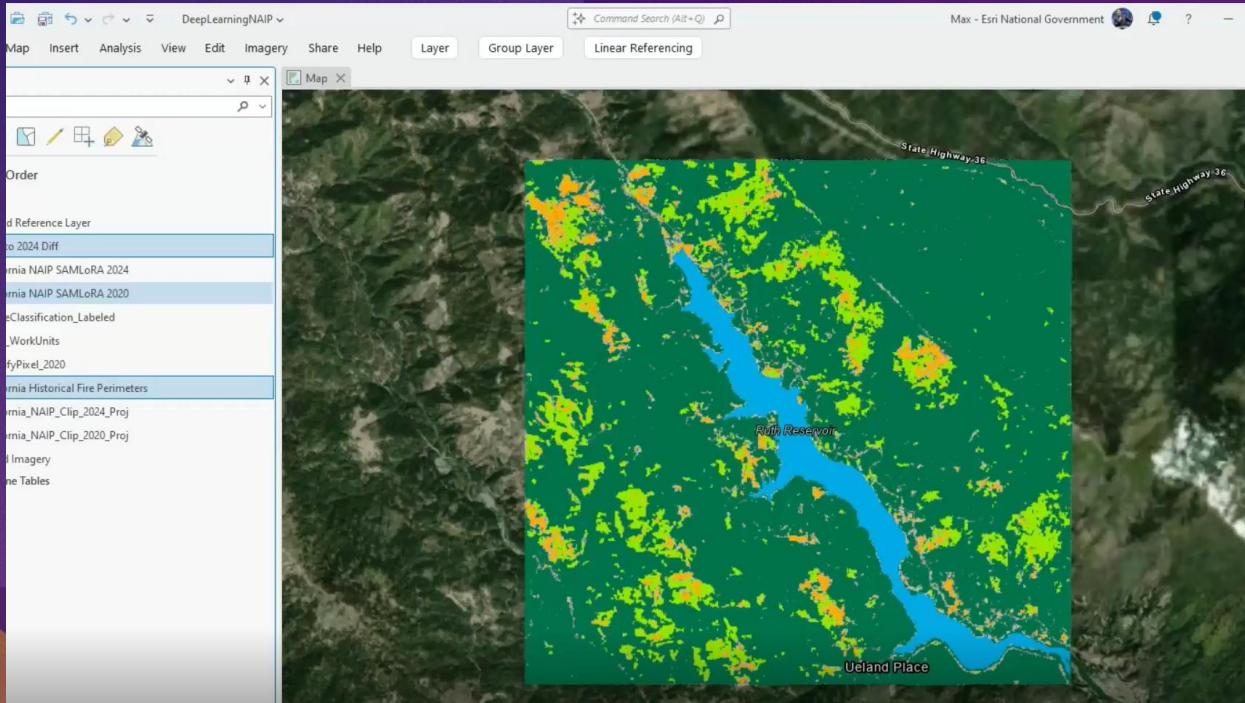
Option 1: Use Pretrained Model



Option 2:
Fine-tuning Pre-trained
Models

Option 3: Train Your Own Model





GeoAI

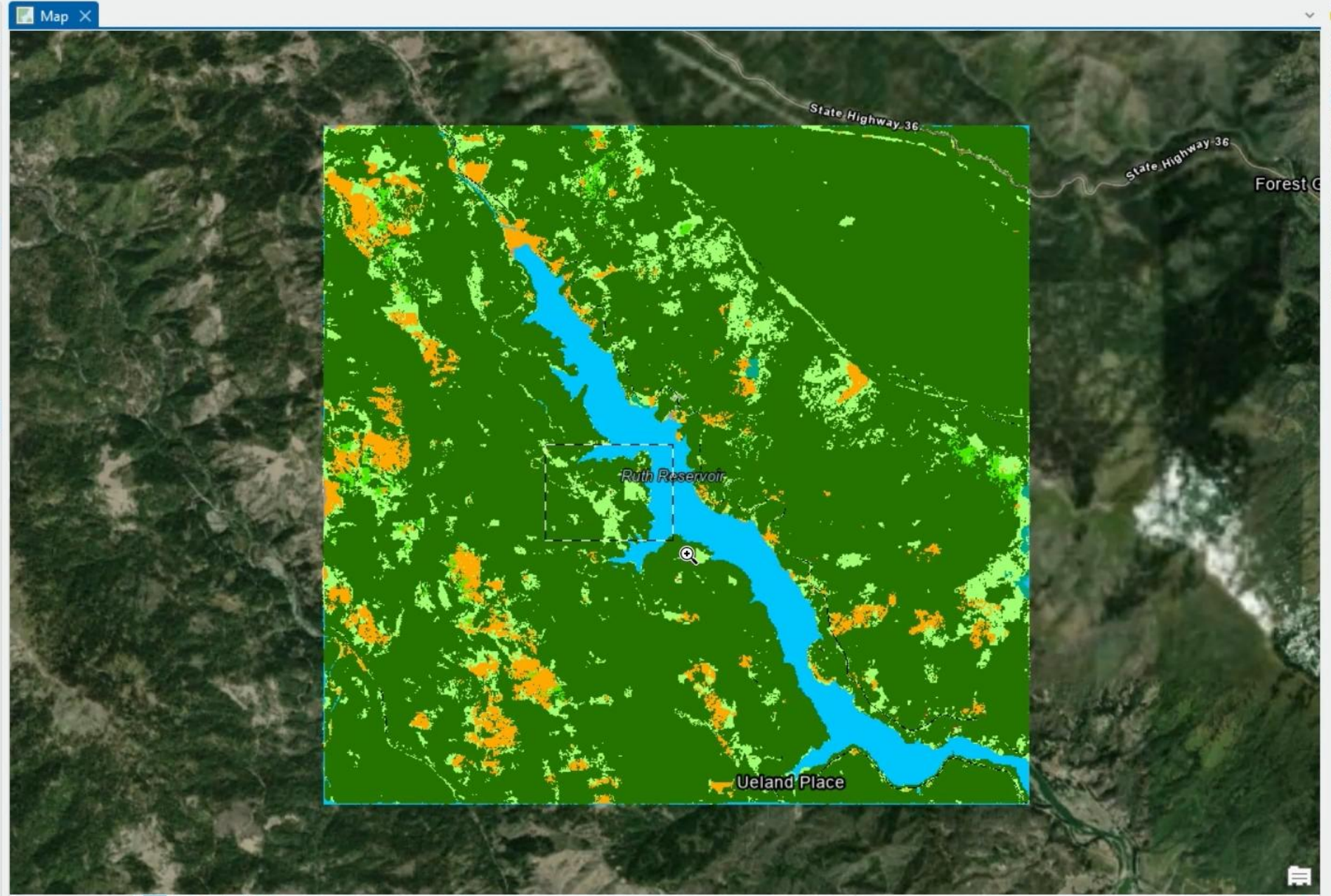
Pre and Post Fire Land Cover Classification

Contents

Search

Drawing Order

- Map
- Hybrid Reference Layer
- 2020 to 2024 Diff
- California NAIP SAMLoRA 2024
- California NAIP SAMLoRA 2020
- ImageClassification_Labeled
- LULC_WorkUnits
- ClassifyPixel_2020
- California Historical Fire Perimeters
- California_NAIP_Clip_2024_Proj
- California_NAIP_Clip_2020_Proj
- World Imagery
- Standalone Tables




Home Gallery Map Scene Notebooks Groups Content Organization

Helen Turvene
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Tree Detection

Overview



Deep learning model to detect trees in high resolution imagery.

Deep learning package | Authoritative Living Atlas Subscriber

Item updated: Apr 16, 2026

Description

This deep learning model is used to detect trees in high resolution drone or aerial imagery. Tree detection can be used for applications such as vegetation management, forestry, urban planning, etc. High resolution aerial and drone imagery can be used for tree detection due to its high spatio-temporal coverage.

This deep learning model is based on DeepForest and has been trained on data from the National Ecological Observatory Network.

Using the model

Follow the [guide](#) to use the model. Before using this model, ensure that the supported deep learning libraries are installed. For more details, check [Deep Learning Libraries Installer for ArcGIS](#).

Details

Number of downloads
53,112

Size
123.155 MB

Item ID
4af356858b1044908d9204f8b...

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Owner
Esri
esri_analytics

DLPKs

Model Pages

ArcGIS as a Geospatial AI Platform



GeoAI



AI Assistants



AI Agents

ArcGIS AI Assistants

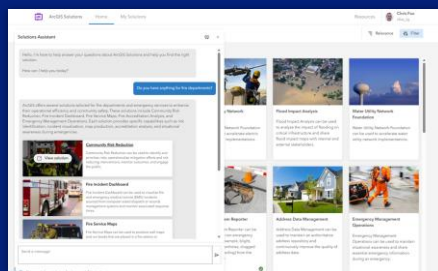
Streamlining Your Work and Making ArcGIS Easier



Arcade (Code Generation)



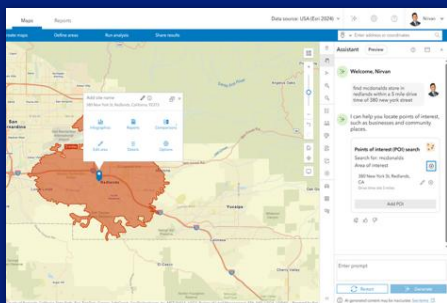
Solutions (Discover and Deploy)



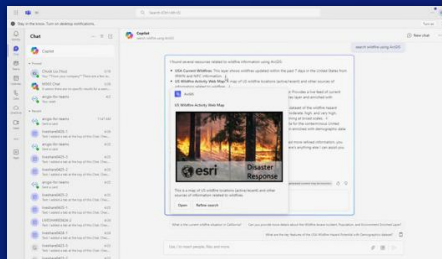
Documentation (All Products)



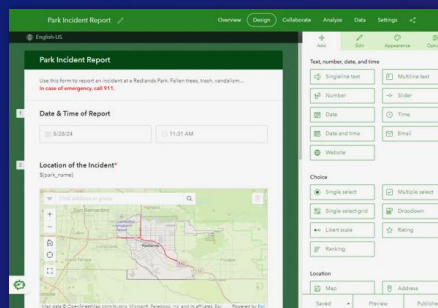
Business Analyst (Analysis & Mapping)



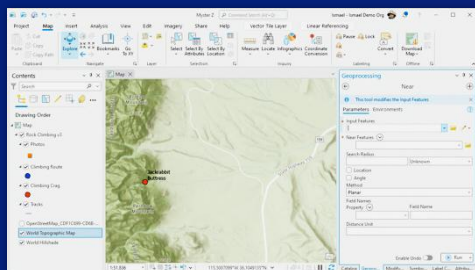
ArcGIS (Copilot Integration)



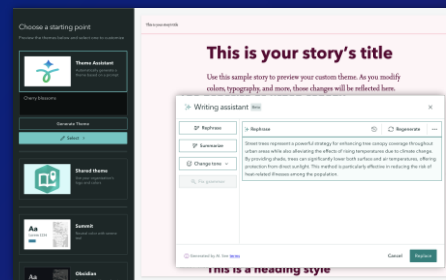
Survey123 (Survey Creation)



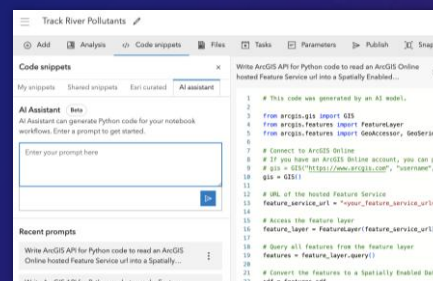
Pro (User Productivity)



StoryMaps (Storytelling, Writing)



Notebooks (Code Generation)



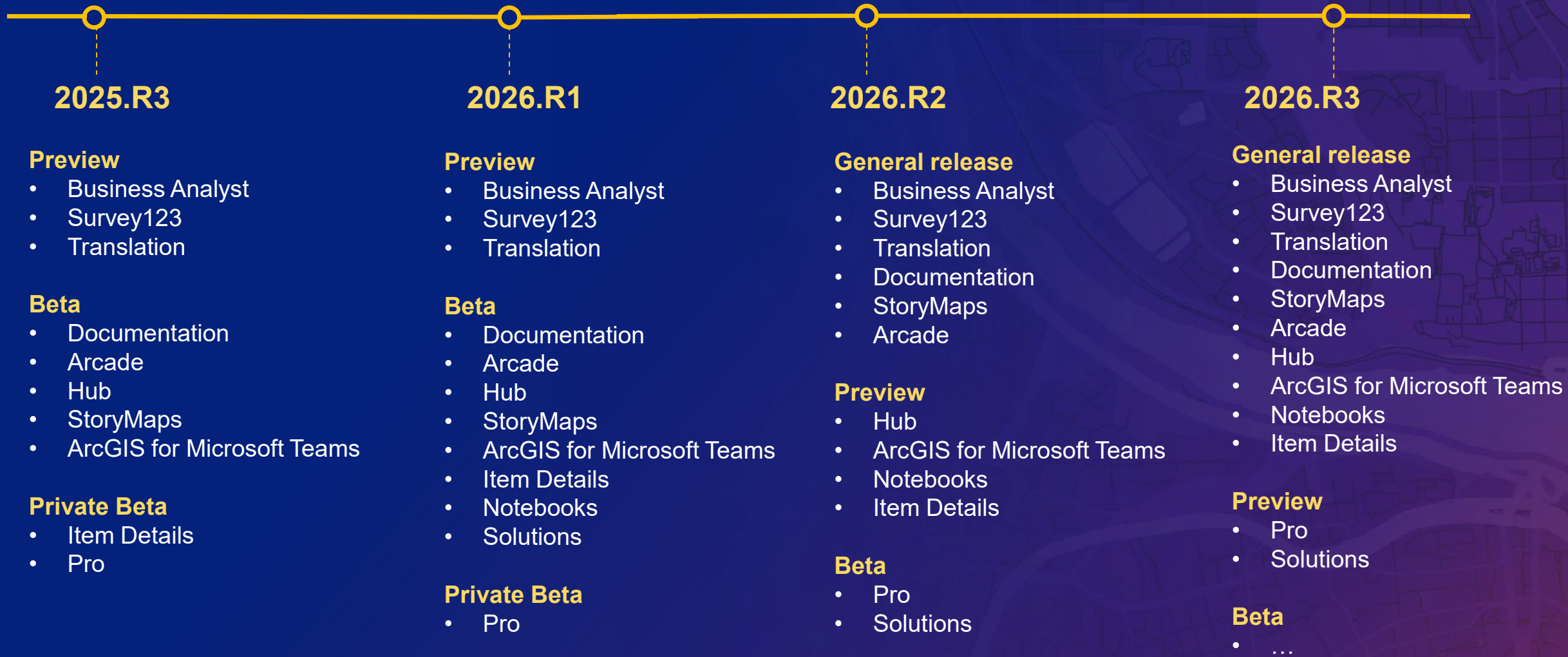
Apps

- Pro
- StoryMaps
- Hub
- Business Analyst
- Instant Apps
- Survey123
- Field Maps
- Drone2Map
- Microsoft Teams
- Notebooks
- ArcGIS Solutions
- ...

Powered by Natural-Language and Generative AI

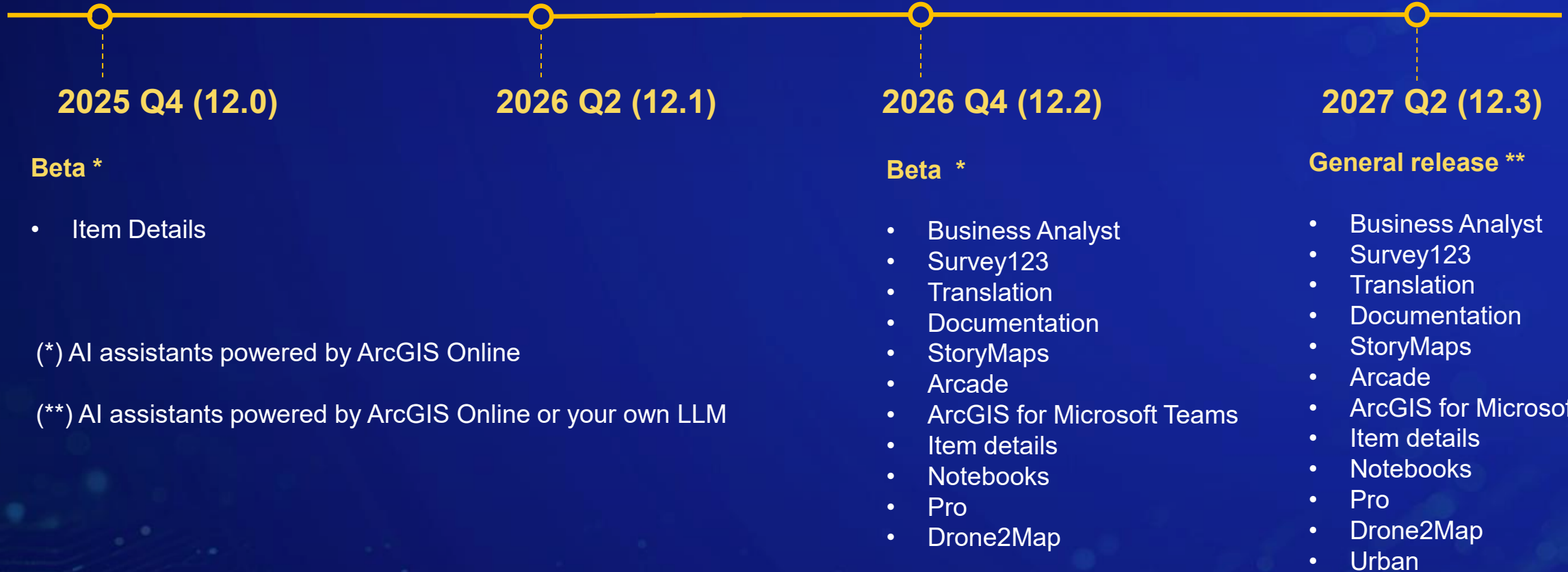
... Helping users be more productive

ArcGIS Assistants (Online) | Release Plan *



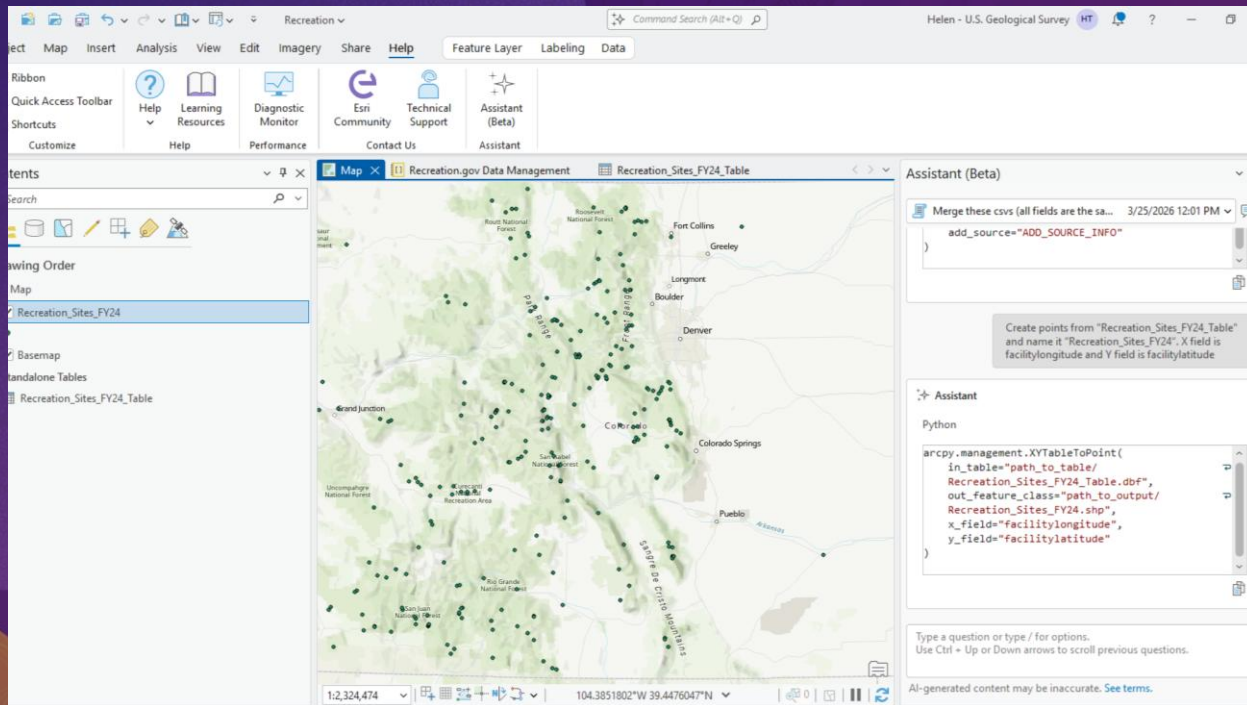
* Tentative release plan. Subject to change.

ArcGIS Assistants (Enterprise) | Release Plan



(*) AI assistants powered by ArcGIS Online

(**) AI assistants powered by ArcGIS Online or your own LLM



Assistants

ArcGIS Pro Assistant (ArcPy Capability), Arcade Assistant, and Item Details Assistant

ArcGIS as a Geospatial AI Platform



GeoAI



AI Assistants



AI Agents

ArcGIS for Agentic AI

Supporting Geo-Enabled and Geo-Centric Workflows



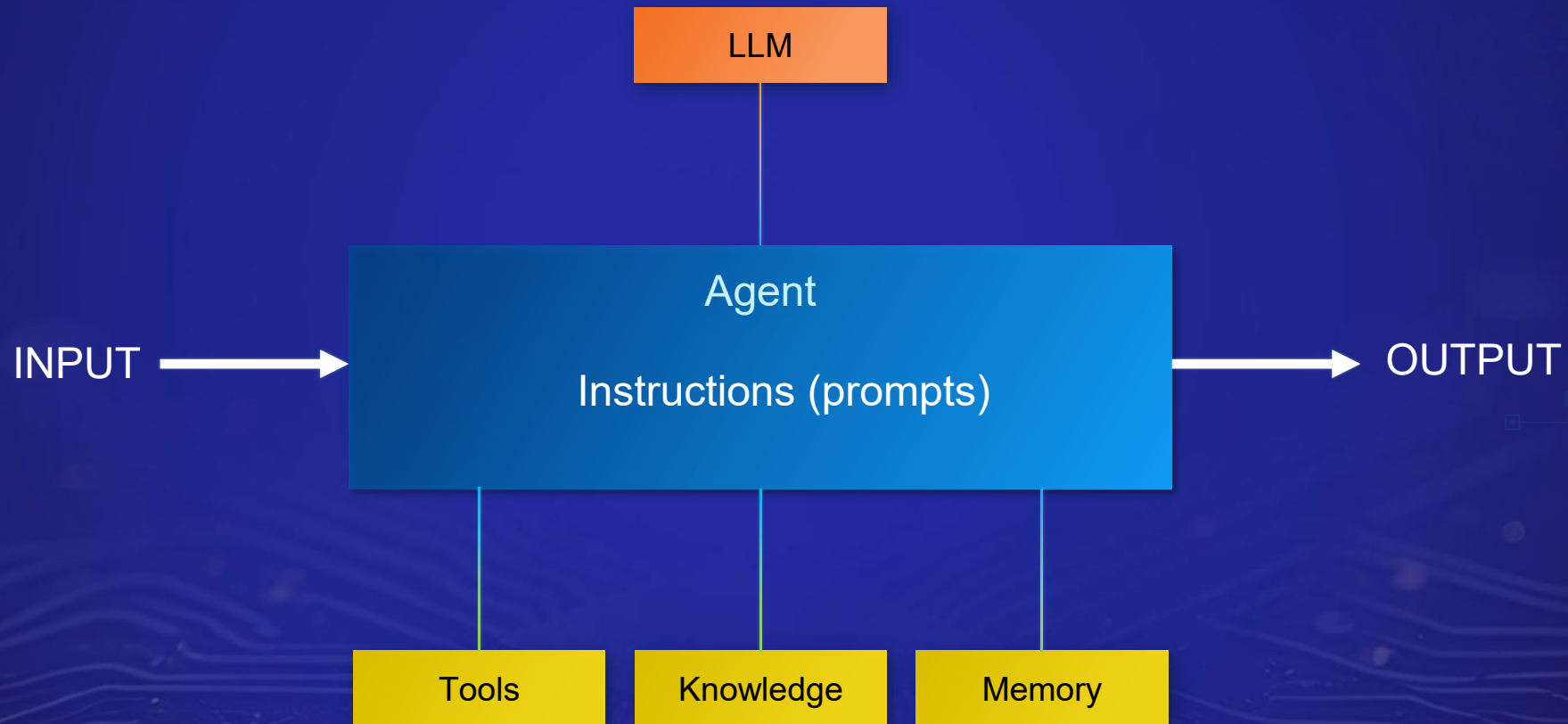
GEO-CENTRIC

“Bringing Agentic AI to GIS Workflows”

GEO-ENABLED

“Bringing GIS to Agentic Ecosystems”

What is an AI Agent?



Agentic Workflows



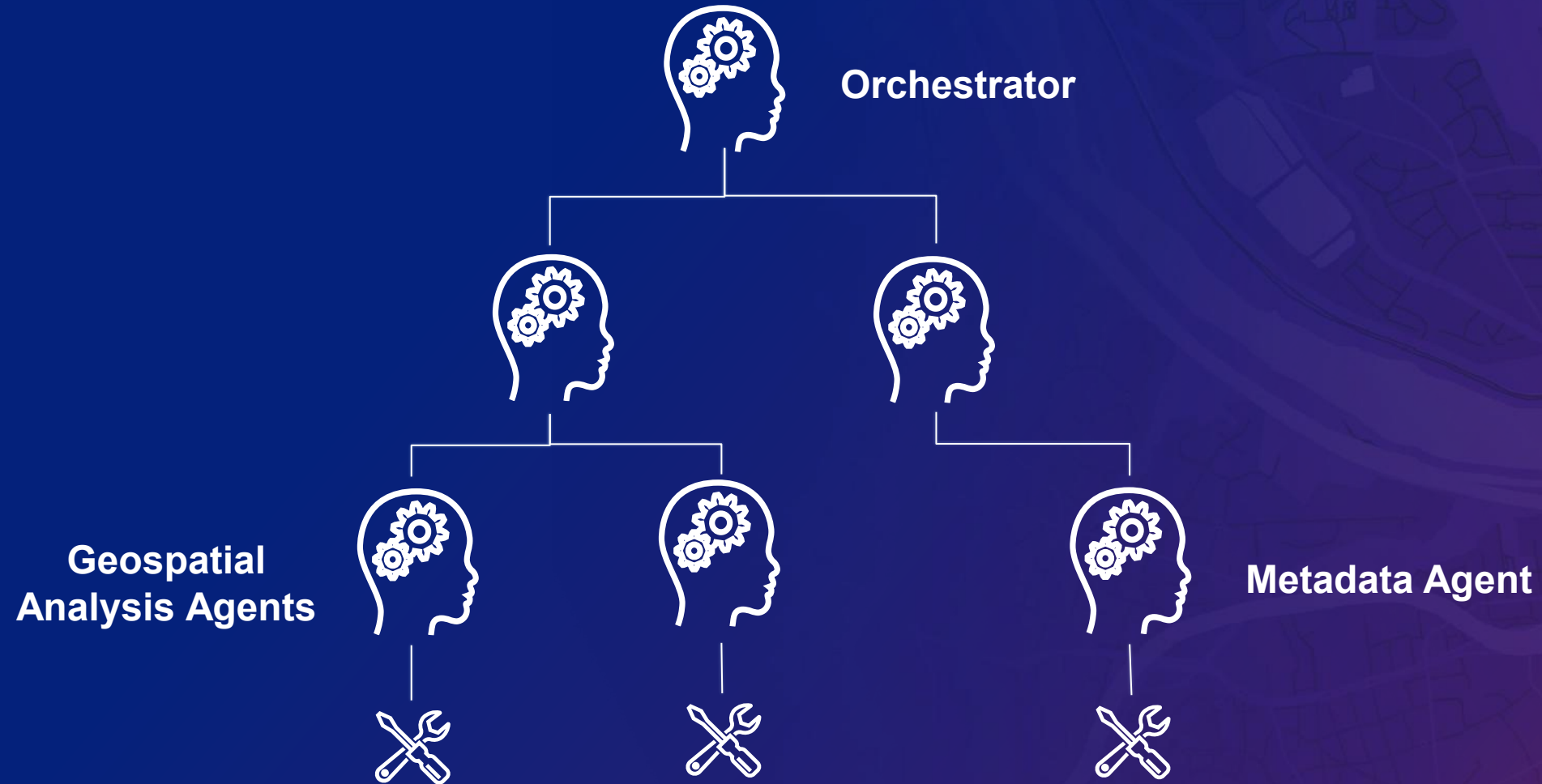
What is a Geospatial AI Agent?

A **Geospatial AI Agent** is a type of agent that has been specifically configured to handle geospatial tasks.

These agents understand the foundational principles of geography, GIS tools and geospatial data.



Agentic Workflows



Recreation Explorer

Welcome to the National Recreation Explorer. Ask a question to get started.

Show me the summits over 14000 feet

matches the example of identifying peaks by elevation criteria.

Showing 94 of 94 total records

Peak Name	State Name	Elevation
Mount Sherman	Colorado	14036
Mount Shasta	California	14162
Mount Baldy Peak	Colorado	14064
Front Range Peaks	Colorado	14294

Find trails that allow non-motorized watercraft

Find the parks within Atlanta, GA

Type your prompt...

Esri, TomTom, Garmin, FAO, NOAA, USGS, EPA, NRCAN, Parks Canada

Agentic Application

Recreation Explorer

ArcGIS for Agentic AI

Supporting Geo-Enabled and Geo-Centric Workflows

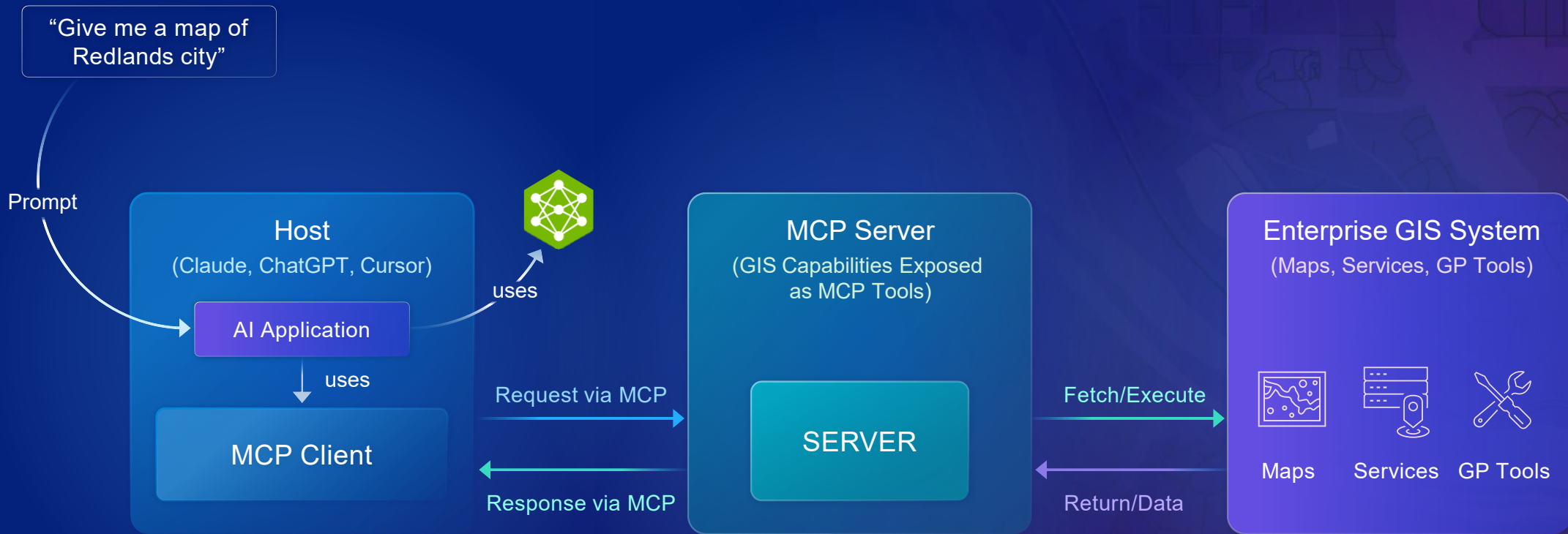


GEO-CENTRIC

“Bringing Agentic AI to GIS Workflows”

GEO-ENABLED

“Bringing GIS to Agentic Ecosystems”



Agent Builder Vision

Design and Deploy Your Own Geospatial Agents

Visual design (no coding needed)

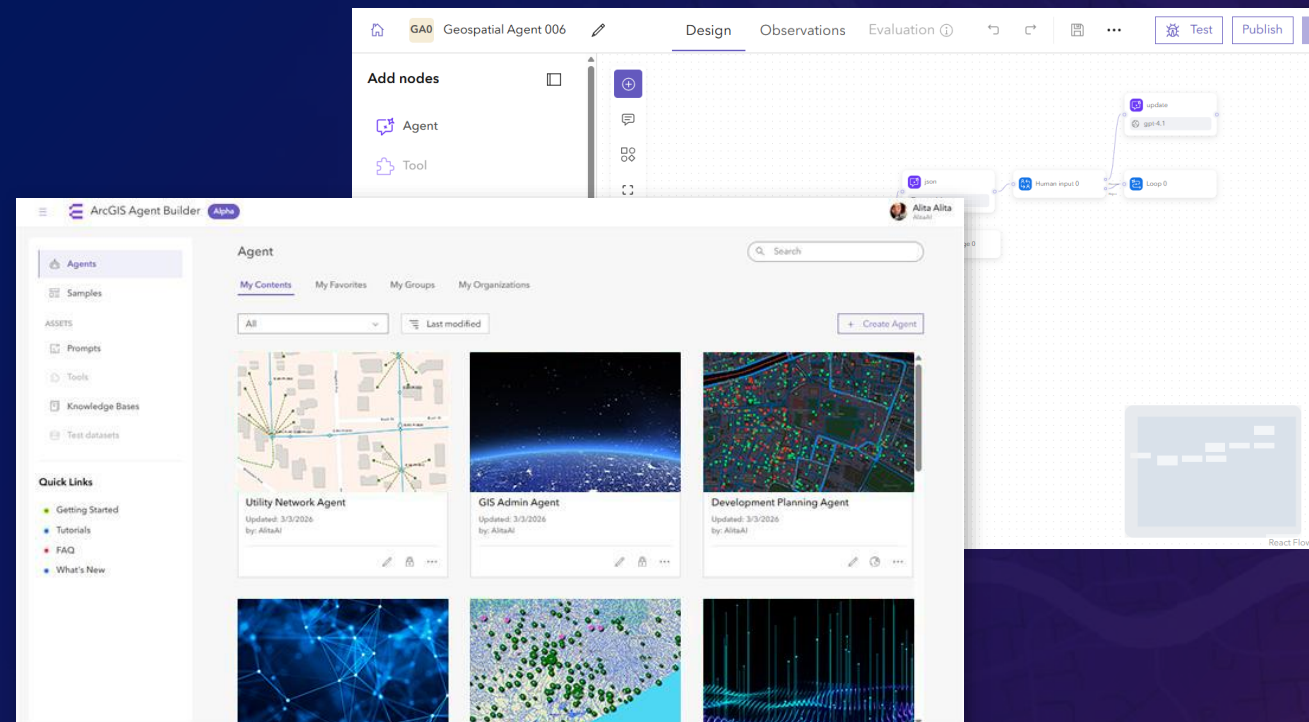
Easily leverage GIS resources

Deploy agents into ArcGIS

- Enterprise
- Online

Use agents in:

- ArcGIS applications
- Third-party agentic apps (via A2A)



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The background features a complex abstract design. On the left, there are several overlapping geometric shapes in shades of purple, blue, and orange. Below these, a grid of icons is visible, including a scale of justice, a classical building facade, a globe, and a star. The right side of the image is a solid gradient from dark purple at the top to bright orange at the bottom.

Thank you!