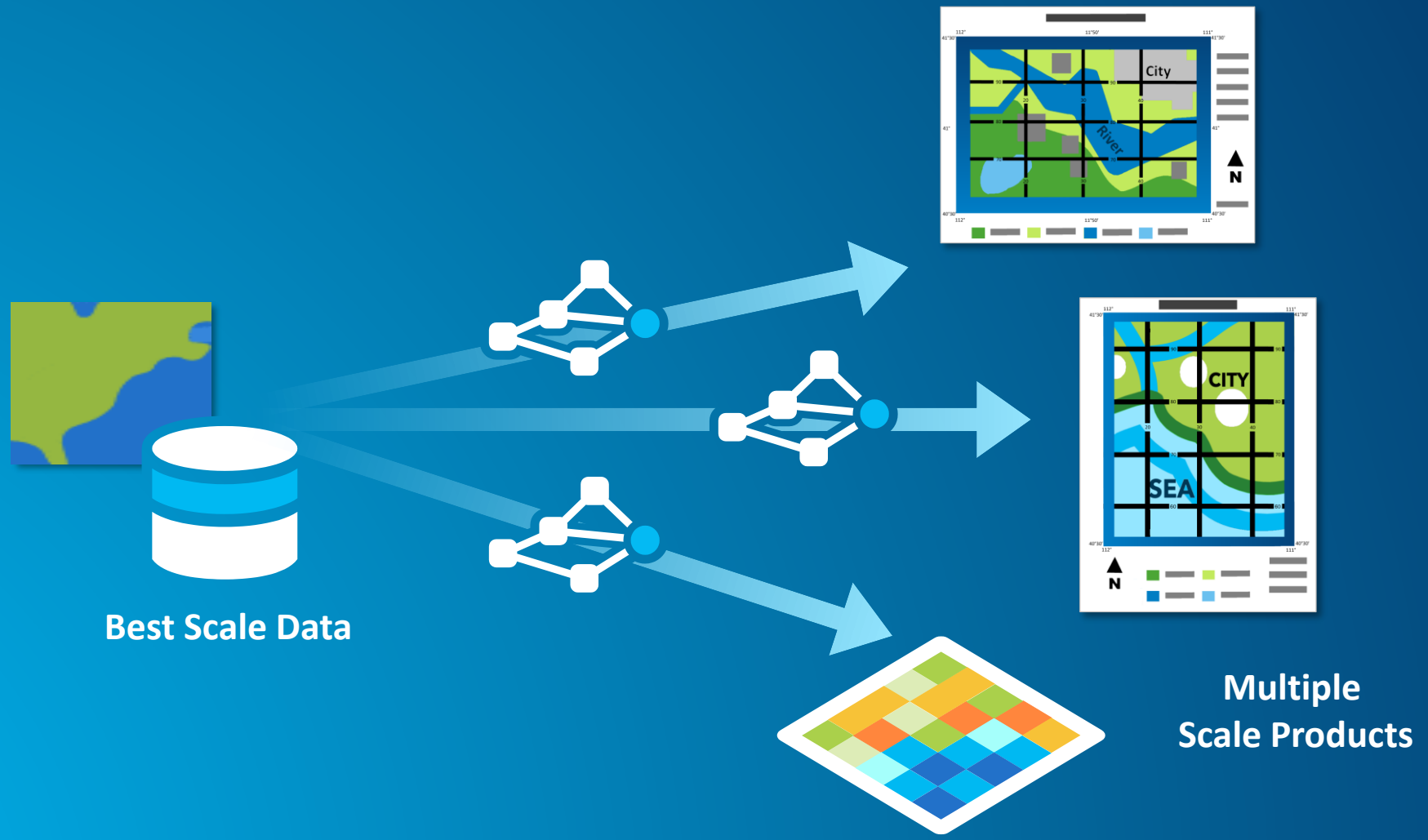
Esri Production Mapping: Distributed Generalization Workflows

Amber Bethell

Automated Generalization



Generalization Sessions

Desktop Mapping:
Generalization for Multi-Scale Mapping

- Generalization tools available without extensions

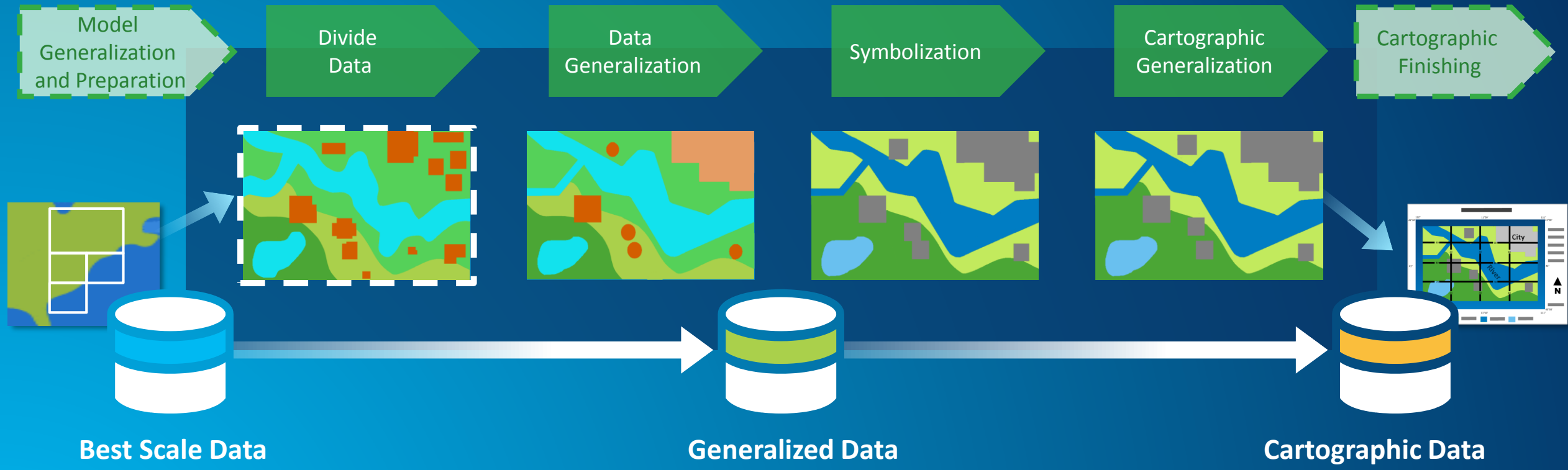
Esri Production Mapping:
Creating Map Generalization Models

- Generalization tools available in Esri Production Mapping Extension
- How to build GP models for generalization

Esri Production Mapping:
Distributed Generalization Workflows

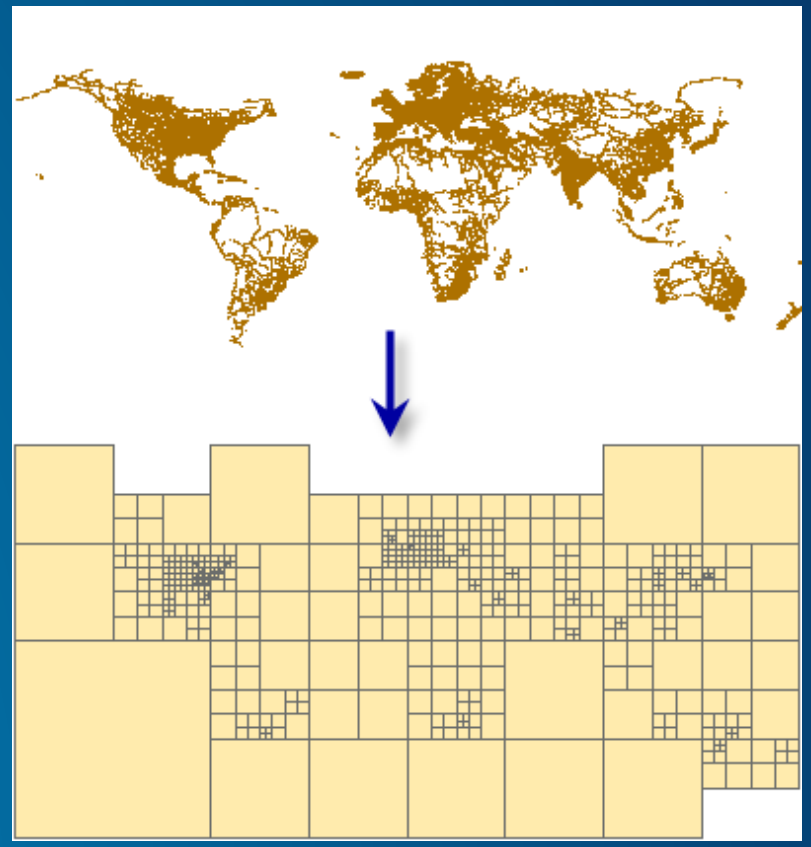
- How to deploy generalization models in production

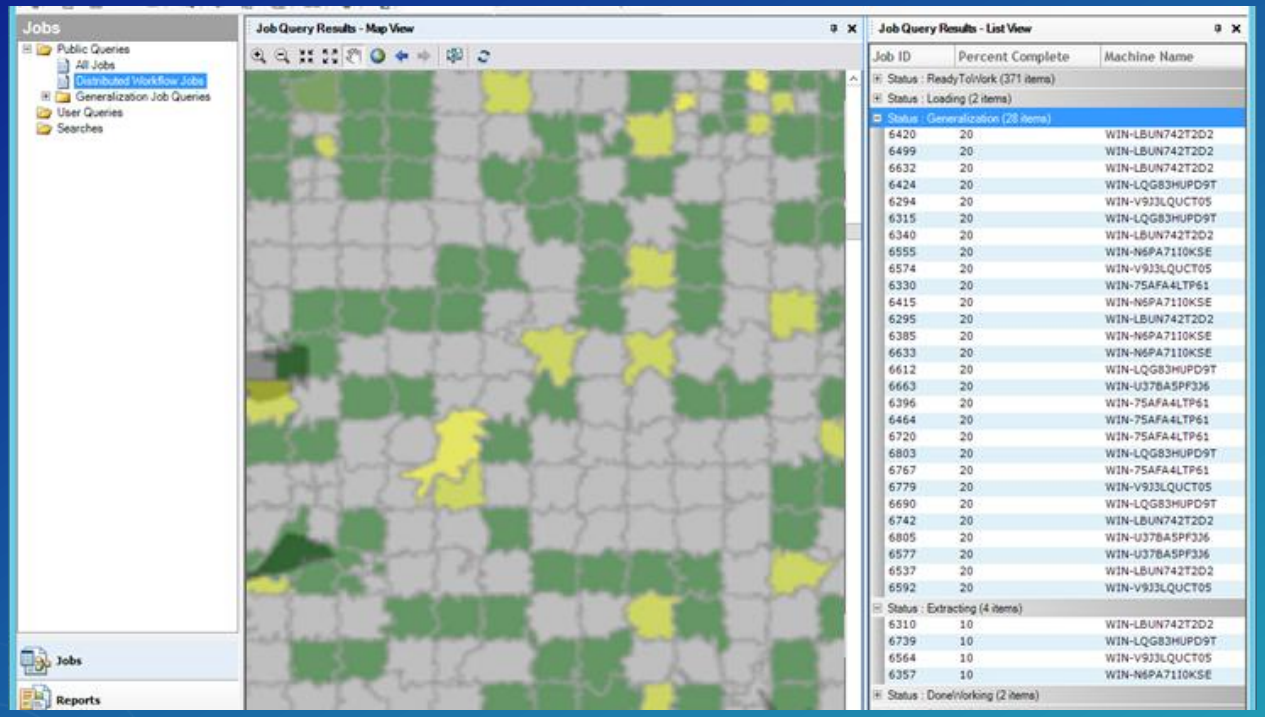
Generalization Workflow



Problem

- Generalizing large amounts of data.
- Managing the division of data, generalization of each partition, and merging of the data back into a single seamless database.



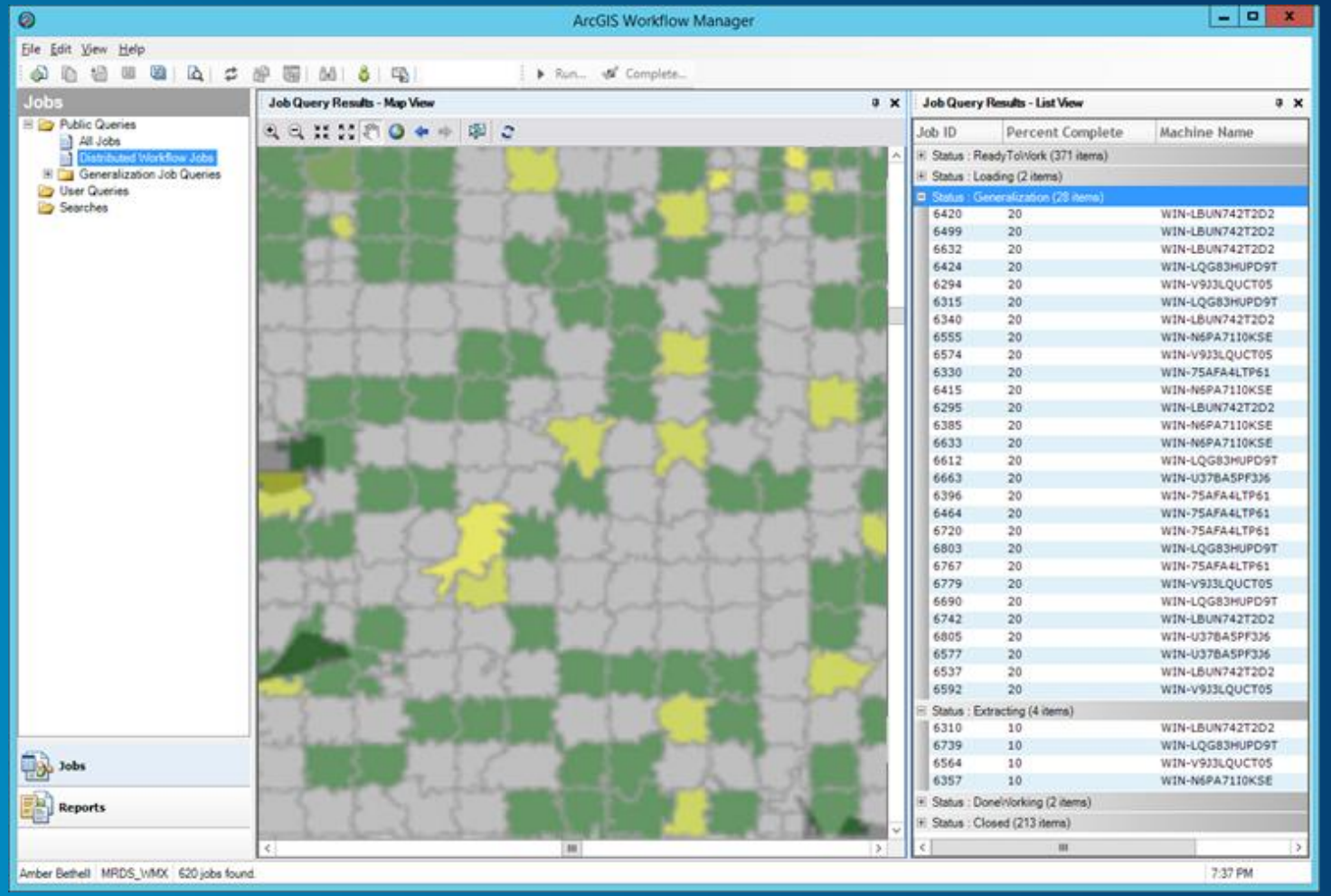


Distributed Generalization

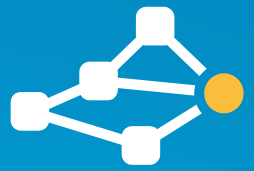
Demo

Distributed Generalization Workflows

- Generalize large datasets by partition as Workflow Manager jobs
- Manages processing across multiple machines and CPUs



Workflow Manager Capabilities



Configurable

- Easy to plug in your models and scripts into workflows
- Extensible with ArcObjects and Python

COTs

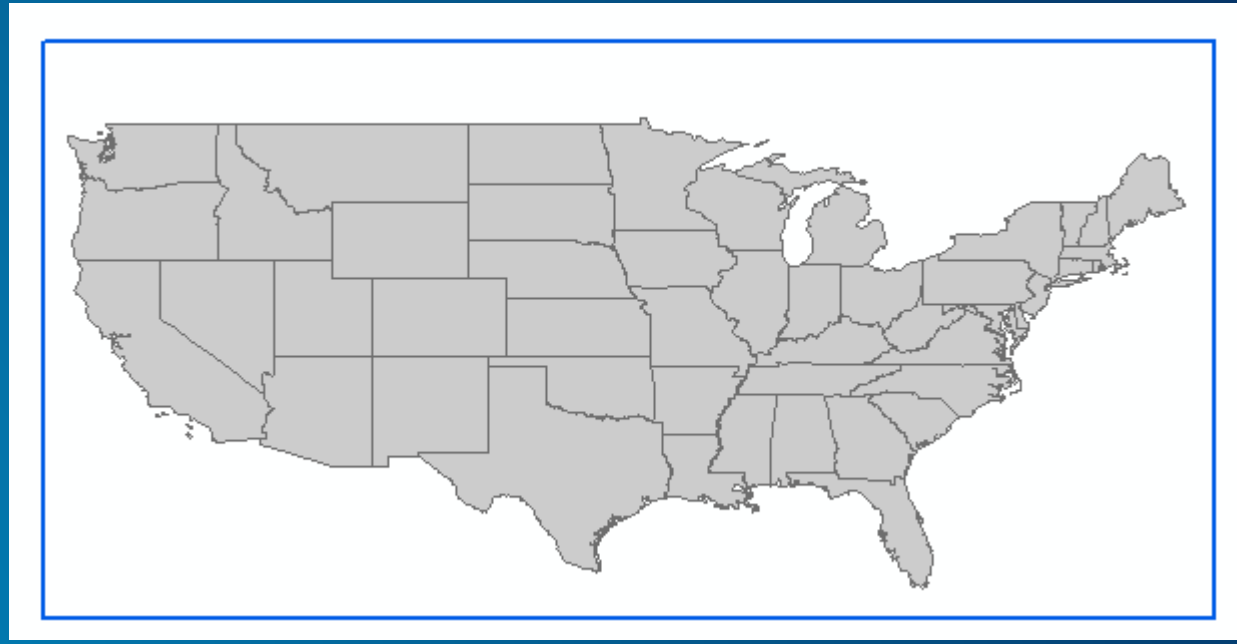
- Software already used by many organizations
- Ability to view workflows and status in ArcMap, Pro and Server

Job Management

- Centralized database with jobs
- Built in history and tracking

Parent Job

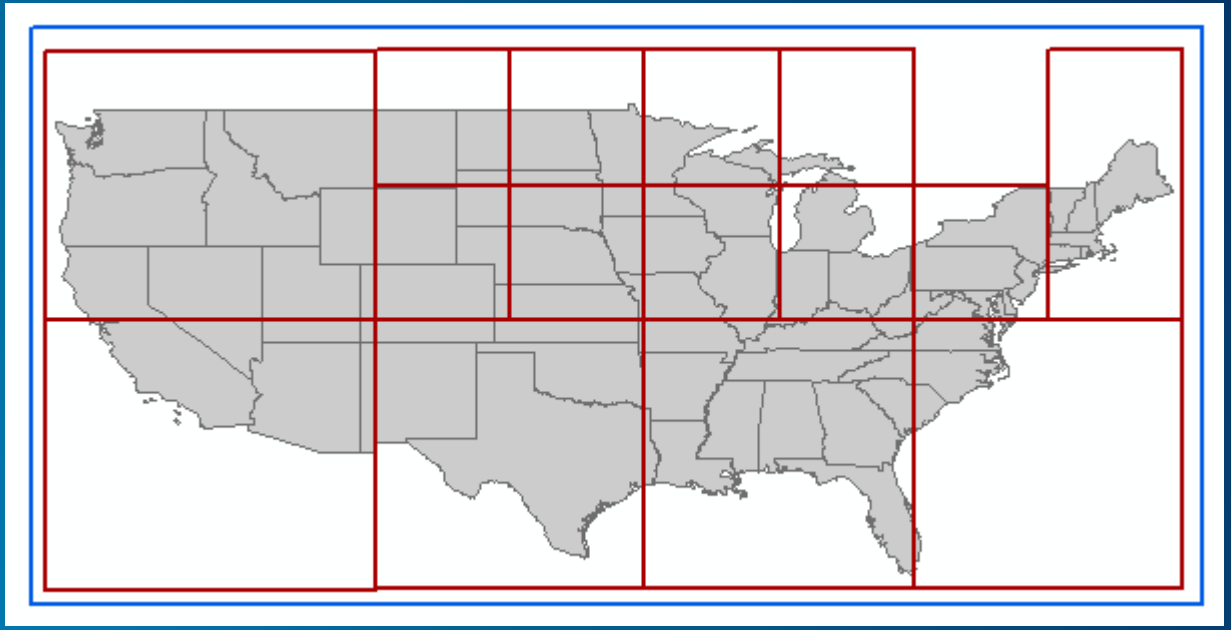
- **One parent job for entire area being processed**
- **Run on a single machine**



Performs any pre-processes → Child Jobs automatically created from Partitions → Waits until all child jobs are complete → Combine data and Perform Edge Matching

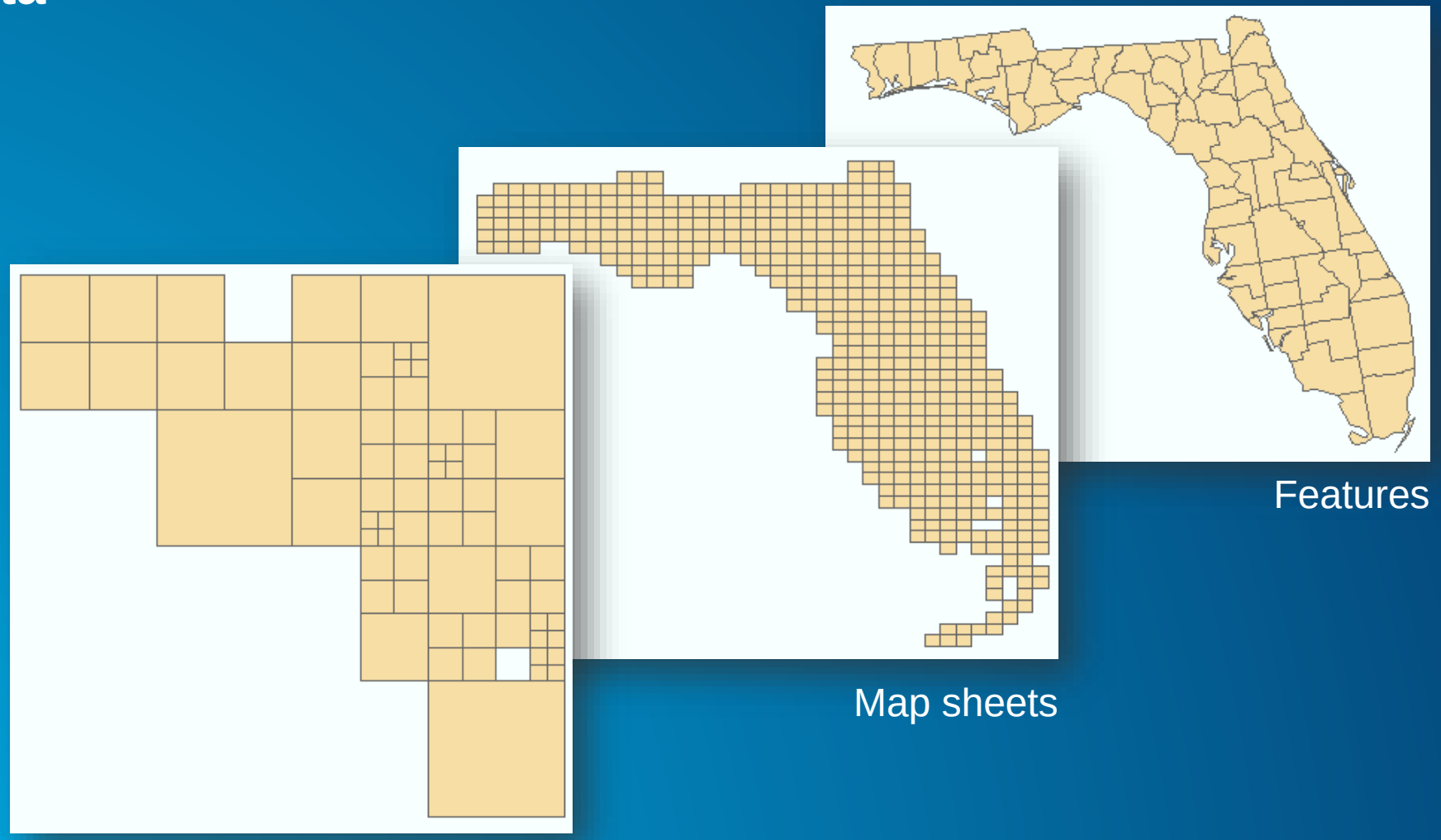
Parent Job

- **Performs pre-process operations against the entire area (i.e. creating partitions)**



Performs any pre-processes → Child Jobs automatically created from Partitions → Waits until all child jobs are complete → Combine data and Perform Edge Matching

Divide Data

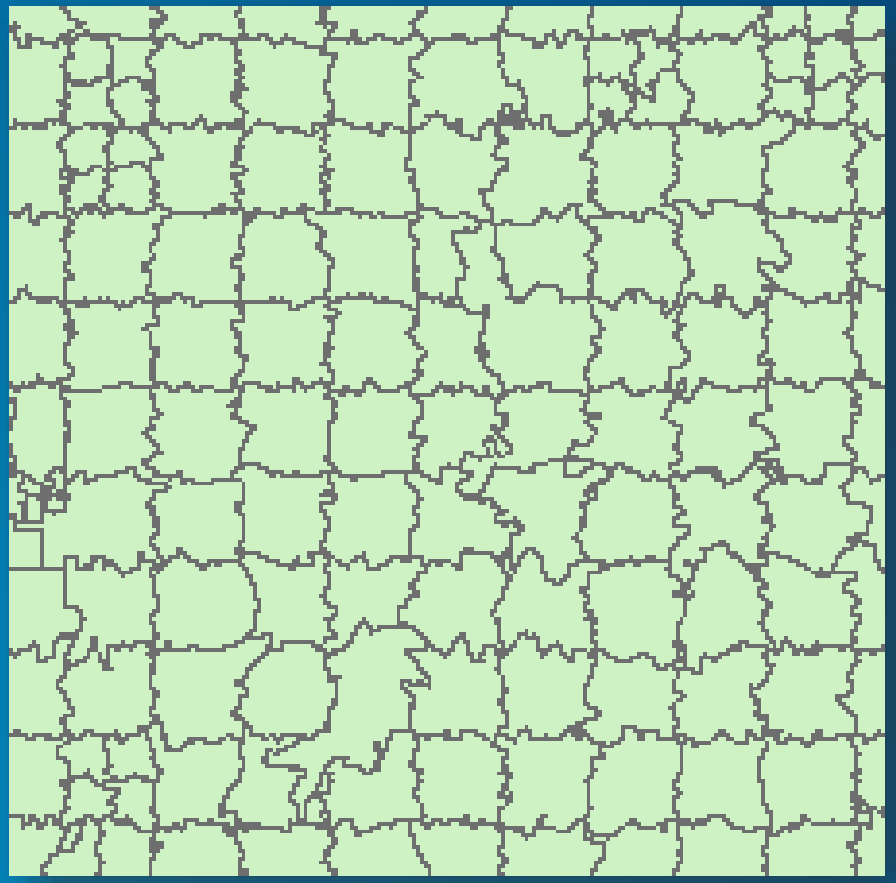


Features

Map sheets

Cartographic Partitions

Divide Data



Combination

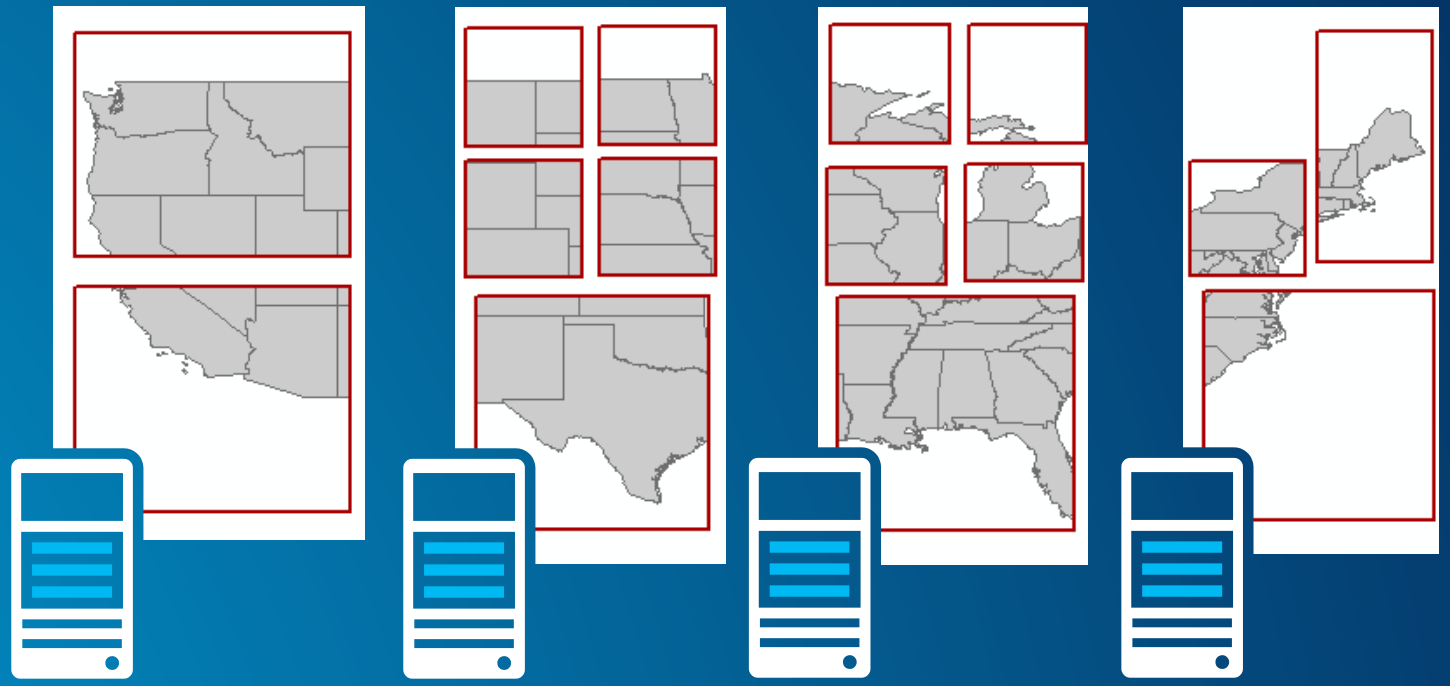
Parent Job

- Creates one child jobs for each partition
- Waits until all children are complete before finishing parent job

Performs any pre-processes → Child Jobs automatically created from Partitions → Waits until all child jobs are complete → Combine data and Perform Edge Matching

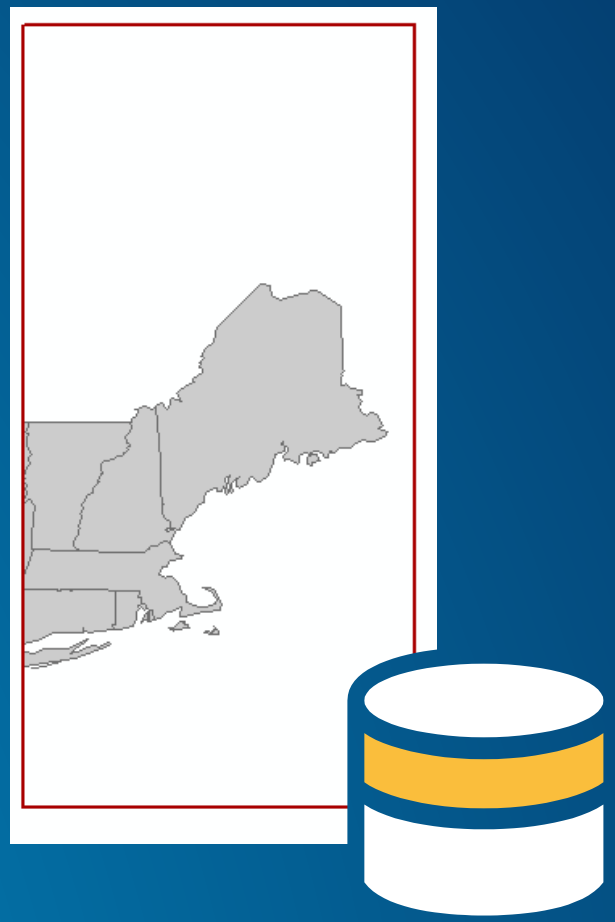
Processing Machines

- Child jobs are identified by processing machines and automatically begin to execute



Child Jobs

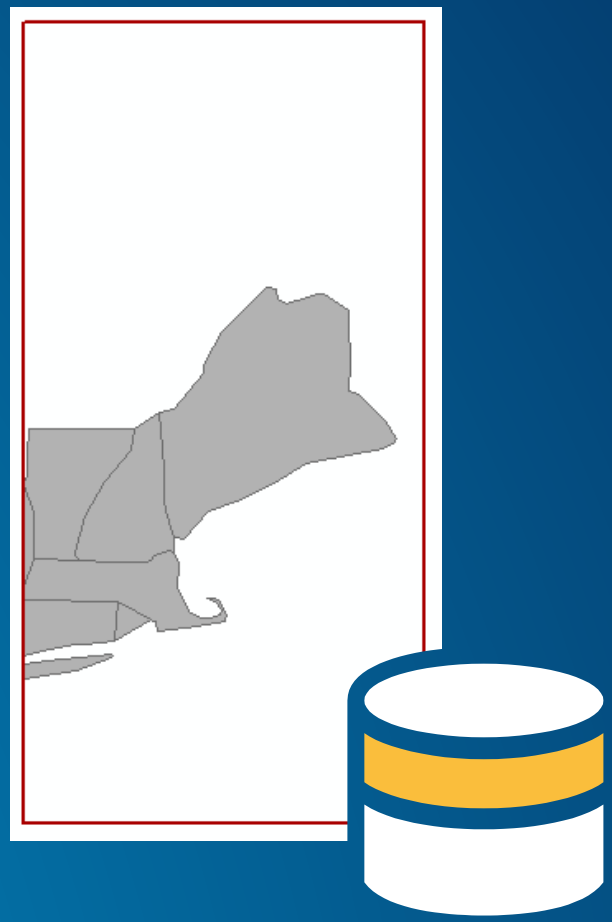
- **Data in job Area of Interest extracted to local file geodatabase**



Data Clipped to job AOI → Clipped data generalized → Generalized data made available final processing

Child Jobs

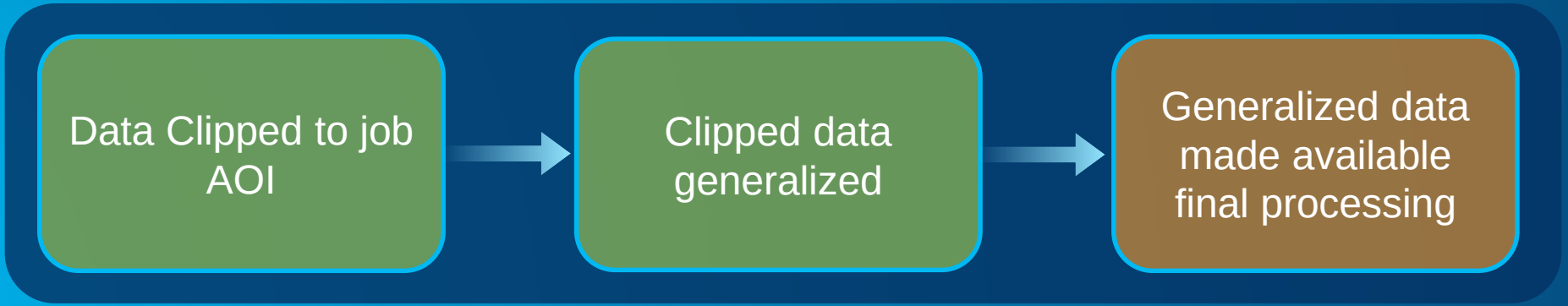
- **Generalization operations performed on clipped data**



Data Clipped to job AOI → Clipped data generalized → Generalized data made available final processing

Child Jobs

- **Child job makes results available by sharing data as attachment or loading into SDE**



Parent Job

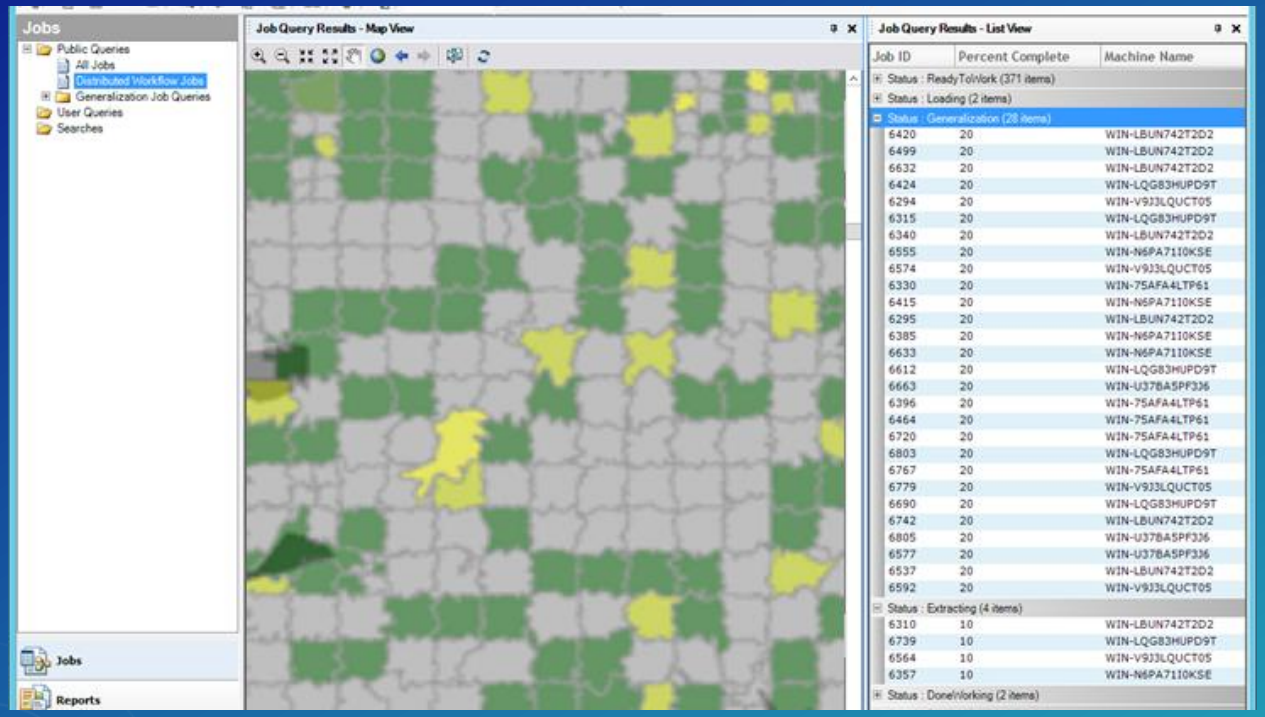
- **Data Combined into single database**

Performs any pre-processes → Child Jobs automatically created from Partitions → Waits until all child jobs are complete → Combine data and Perform Edge Matching

Parent Job

- **Perform final processing and edge matching**

Performs any pre-processes → Child Jobs automatically created from Partitions → Waits until all child jobs are complete → Combine data and Perform Edge Matching

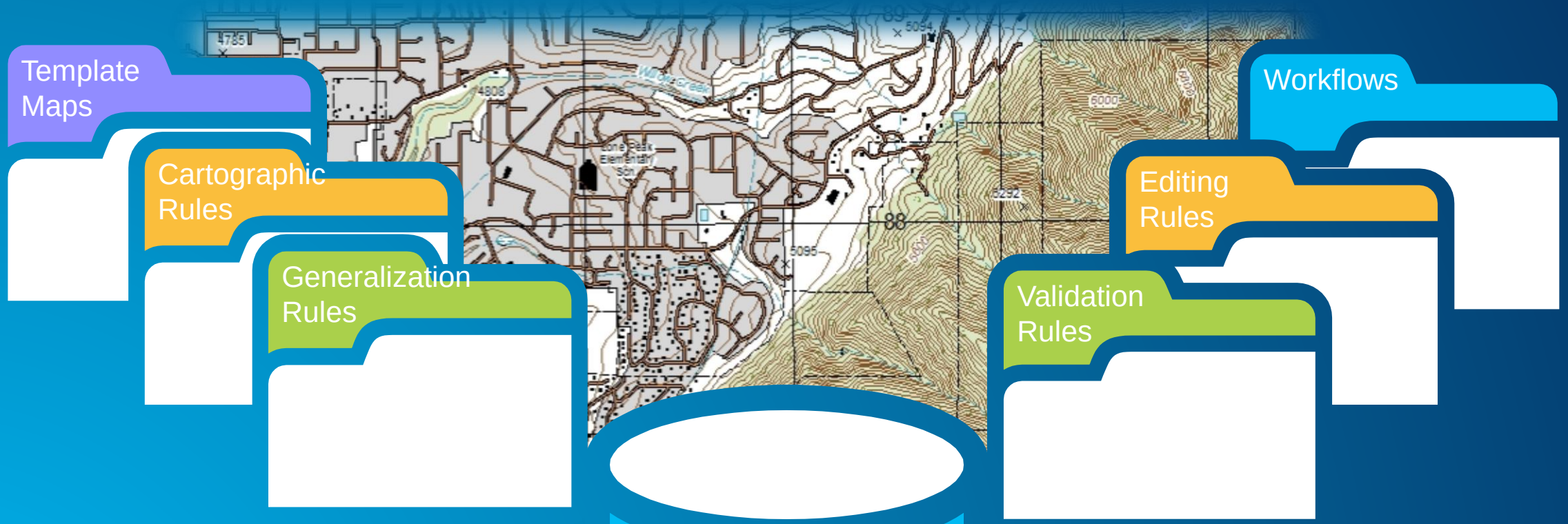


Distributed Generalization

Demo

Civilian Topographic Model (CTM)

Enabling Production Mapping for Topographic Mapping

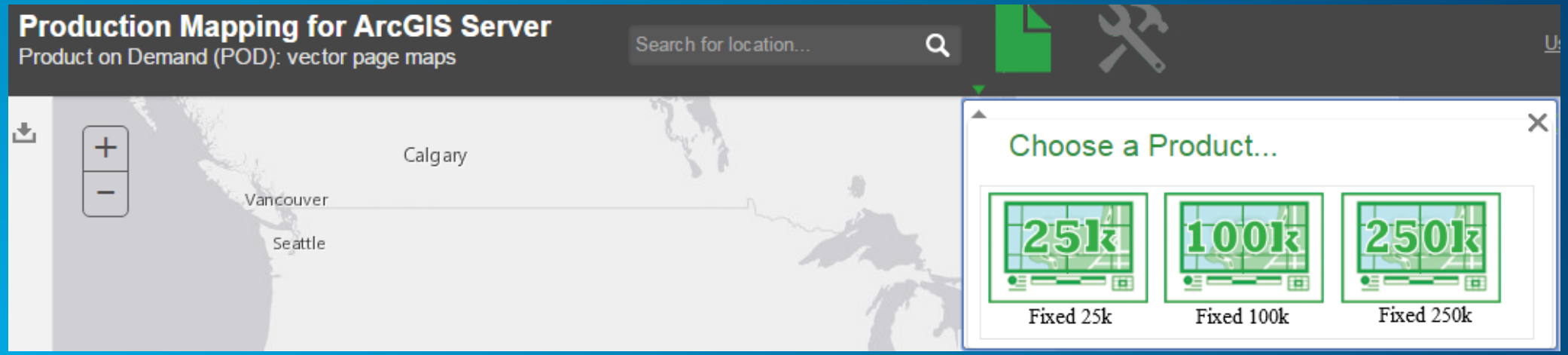


Derived from NFDD

https://github.com/esri/ctm

Server Based On-the-fly Generalization

- Choose product and desired scale
- Map extent generalized to scale when requested



http://pmsrvdemo.esri.com/productondemand//

Method Comparison

Distributed

- Entire area processed at same time
- Data reprocessed periodically throughout year
- Quickly generate products using staged data
- Generalized data persisted
- Leverages Desktop machines for processing

On-the-fly

- Data processed over small extent when needed
- Products take longer to generate but always using latest source data
- Generalized data is temporary
- Leverages Server machines for processing

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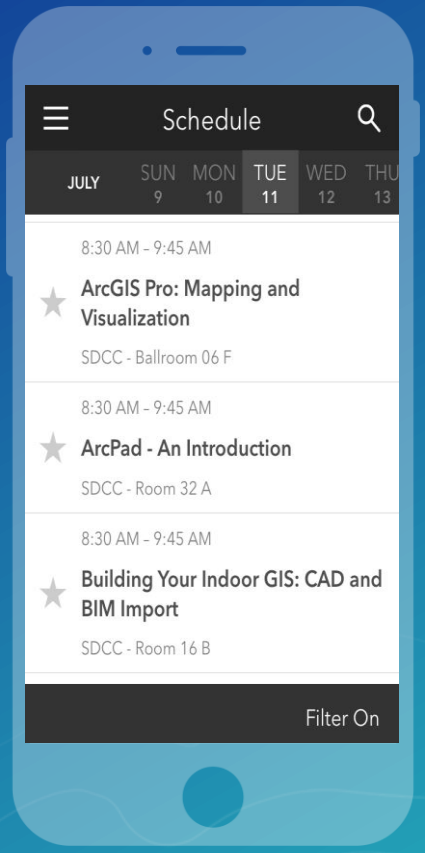
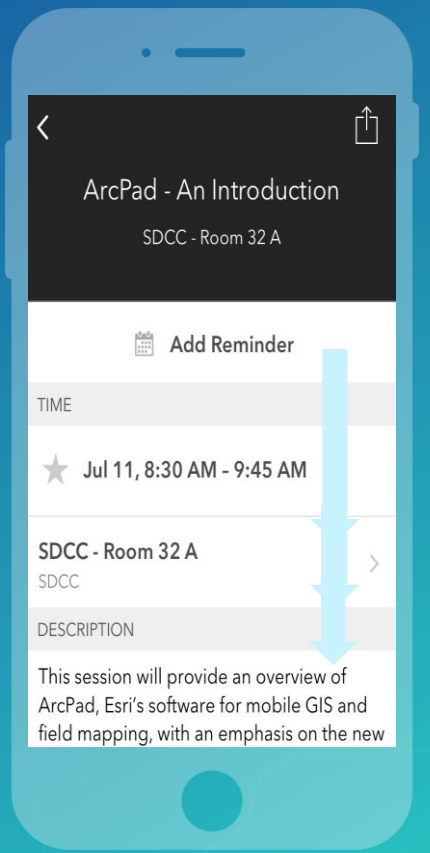
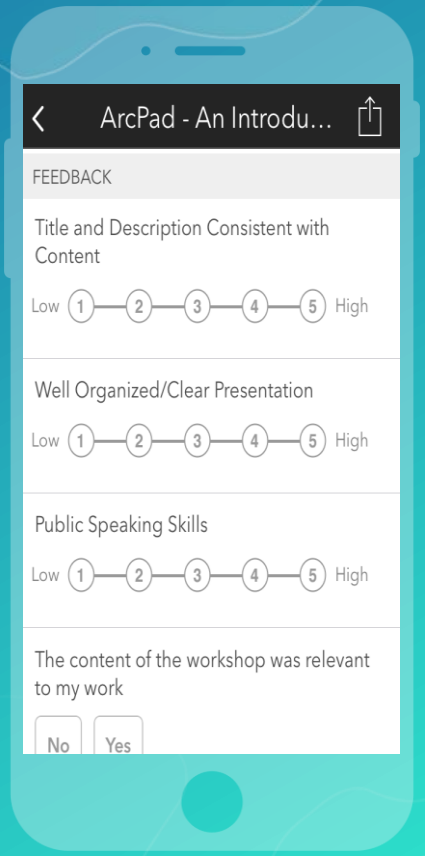
Select the session you attended



Scroll down to find the survey



Complete Answers and Select "Submit"

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