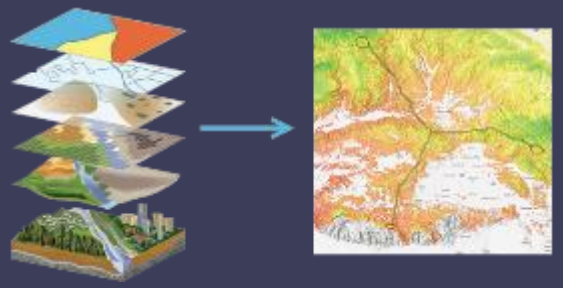
ArcGIS Pipeline Referencing An Introduction

Anjali Bhangay

William Isley

Pipeline Referencing Overview

Information Model



- Routes
- Events
- Intersections

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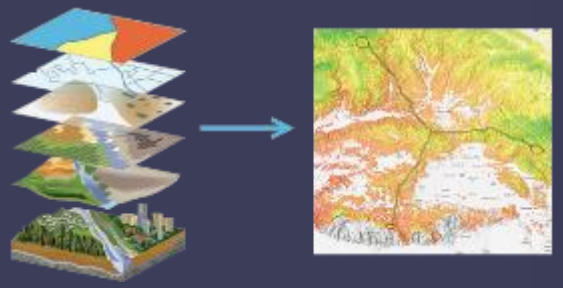

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ArcGIS Pro

- LRS network editing
- LRS management
- Geoprocessing

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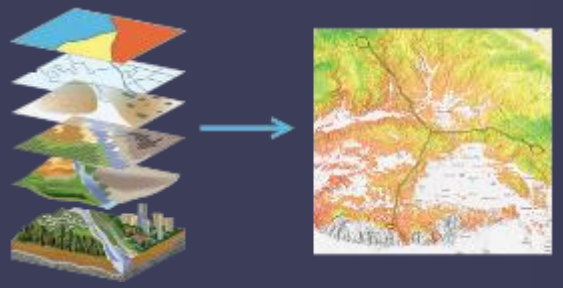

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ArcGIS Enterprise

- LRS web services
- Developer API samples

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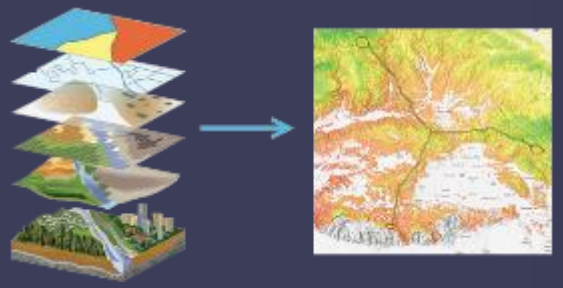

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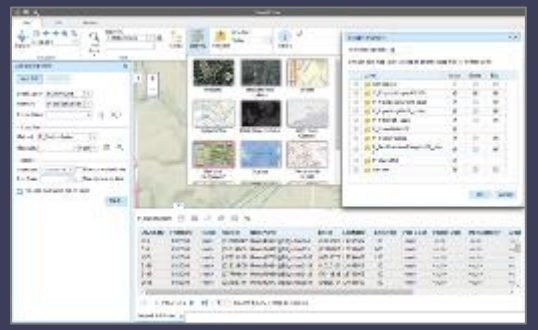
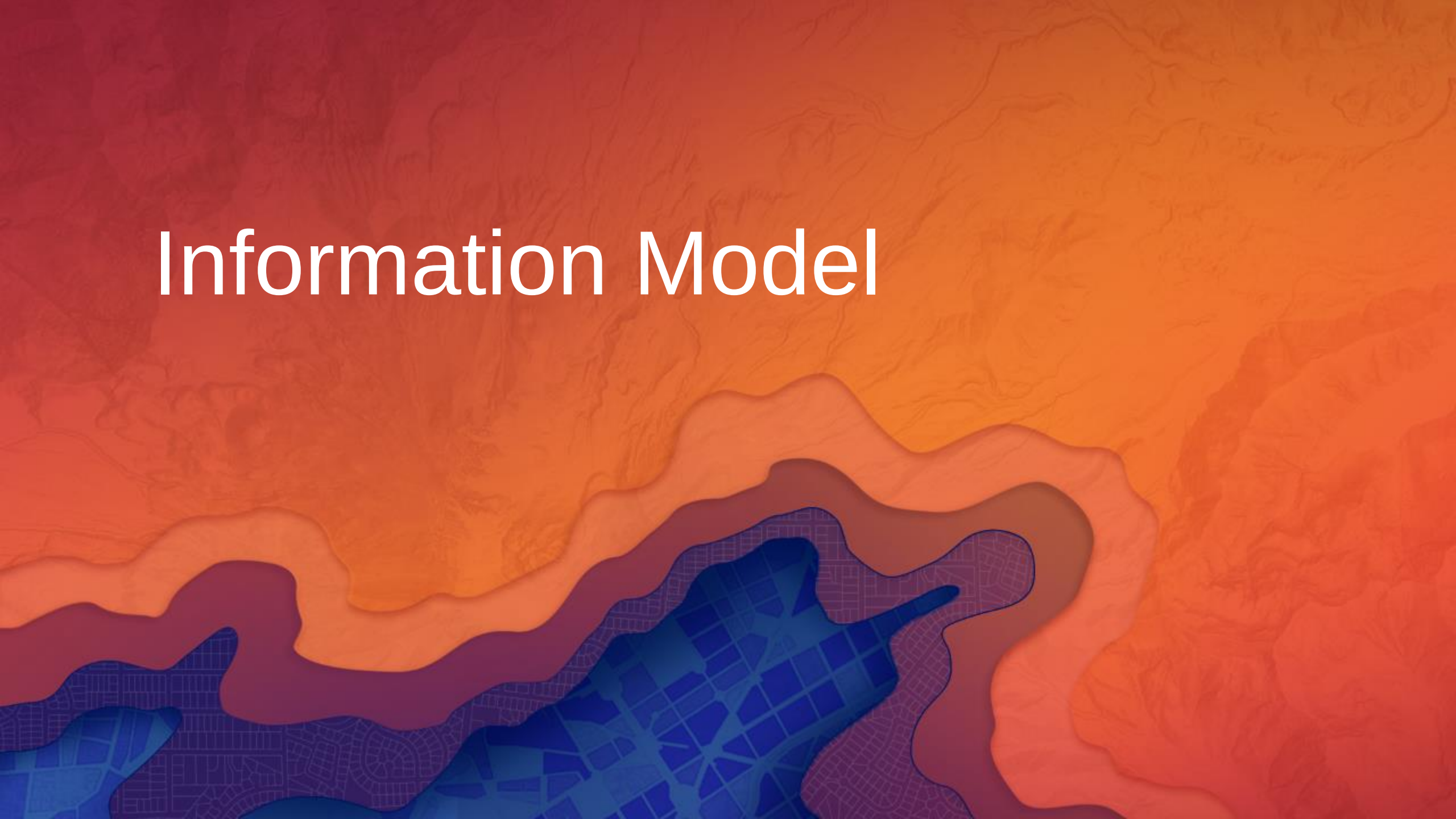
Web



- Event editing
- Event query
- Event QC

Information Model



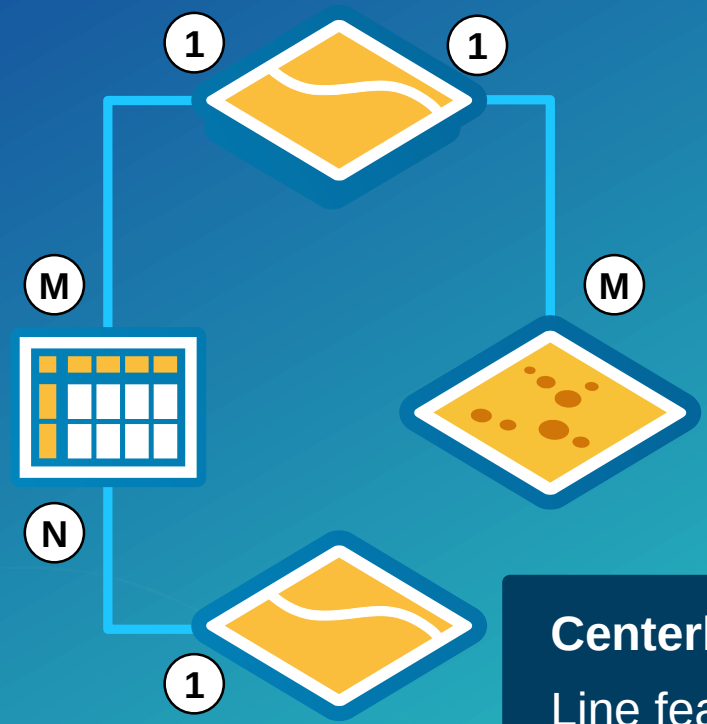
Location Model

Schema for route centerline management

Routes *(Network)*

M-enabled Route polyline features

Separate feature class for each LRS Network



Centerline Sequence

Key table for M-N relationship between Centerline and Route

Calibration Points

Point feature class that stores route measures

Centerline

Line feature class that stores route geometry

Location Model

Schema for route centerline management

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M-enabled Route polyline features

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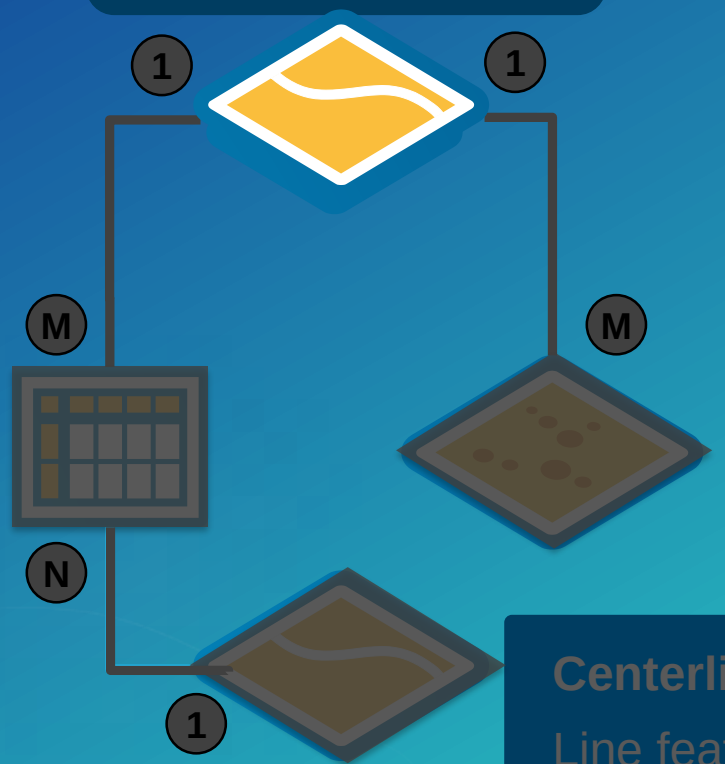


Centerline Sequence

Key table for M-N relationship between Centerline and Route

Calibration Points

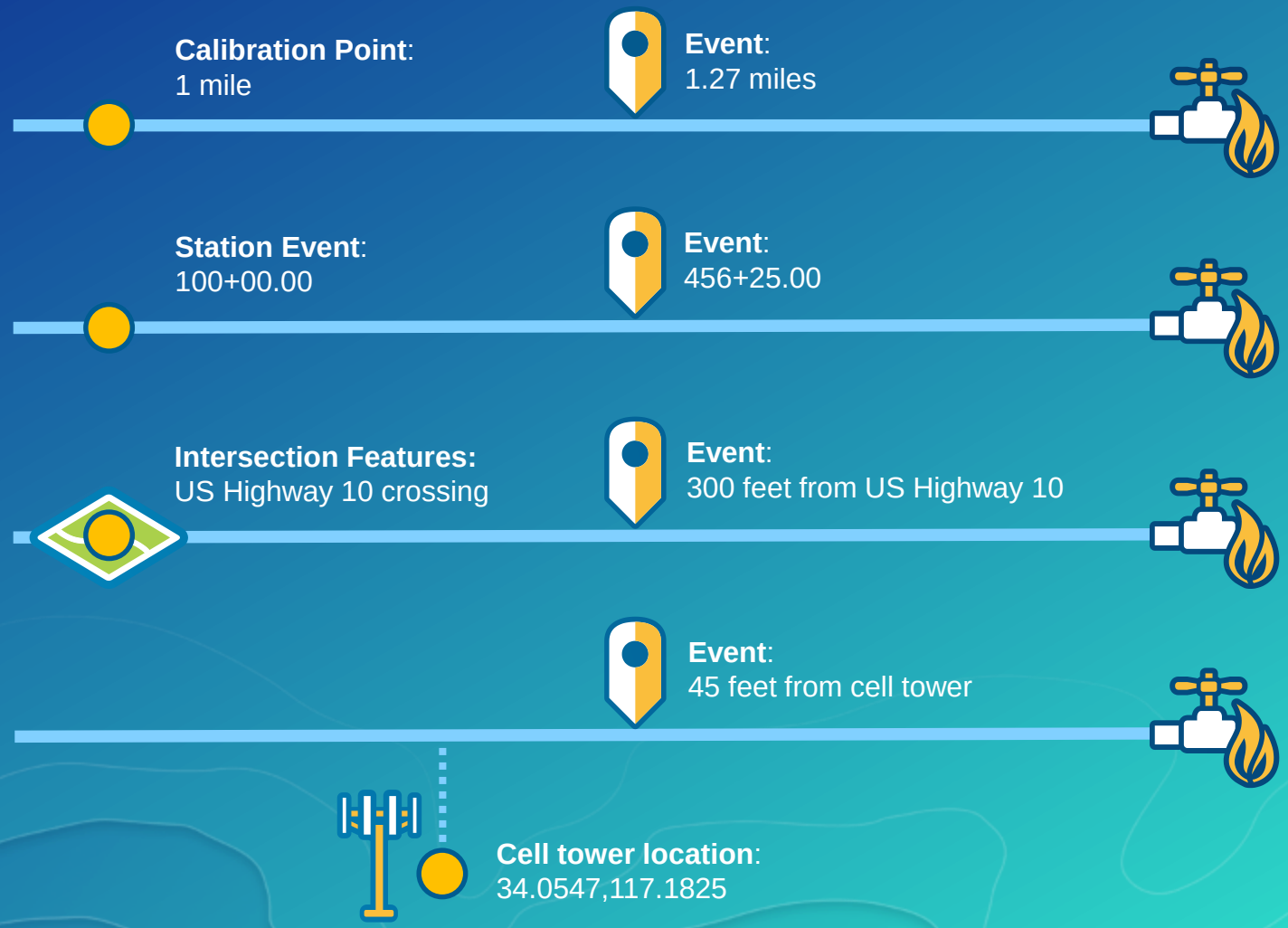
Point feature class that stores route measures

Centerline

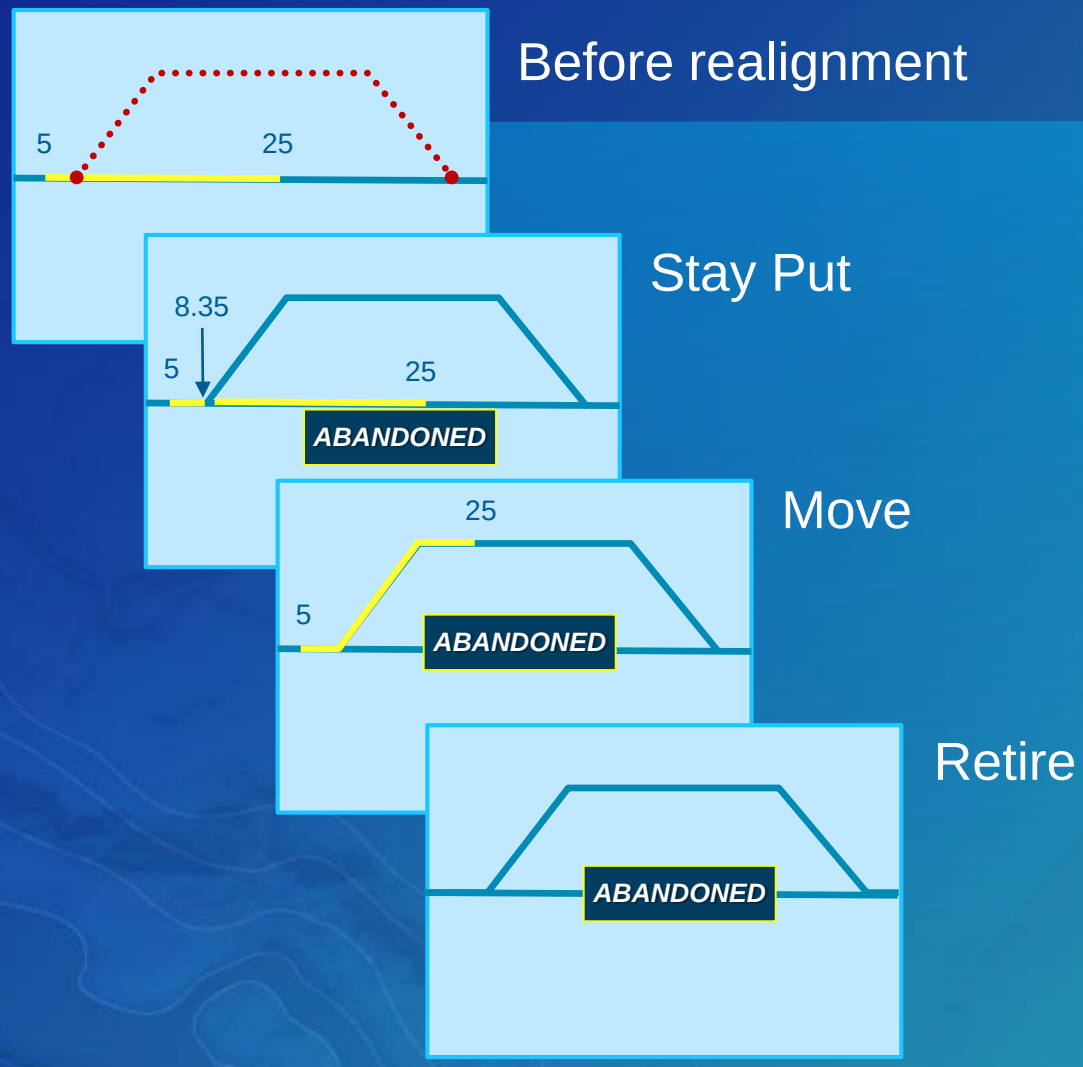
Line feature class that stores route geometry

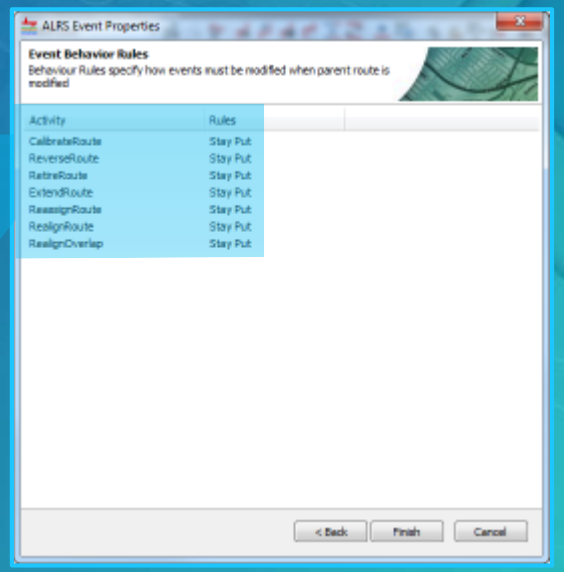
Event Location Methods

- Route and measure
- Stationing
- Referent and offset
  - Intersections
  - Events
  - Features
- Coordinates and offset



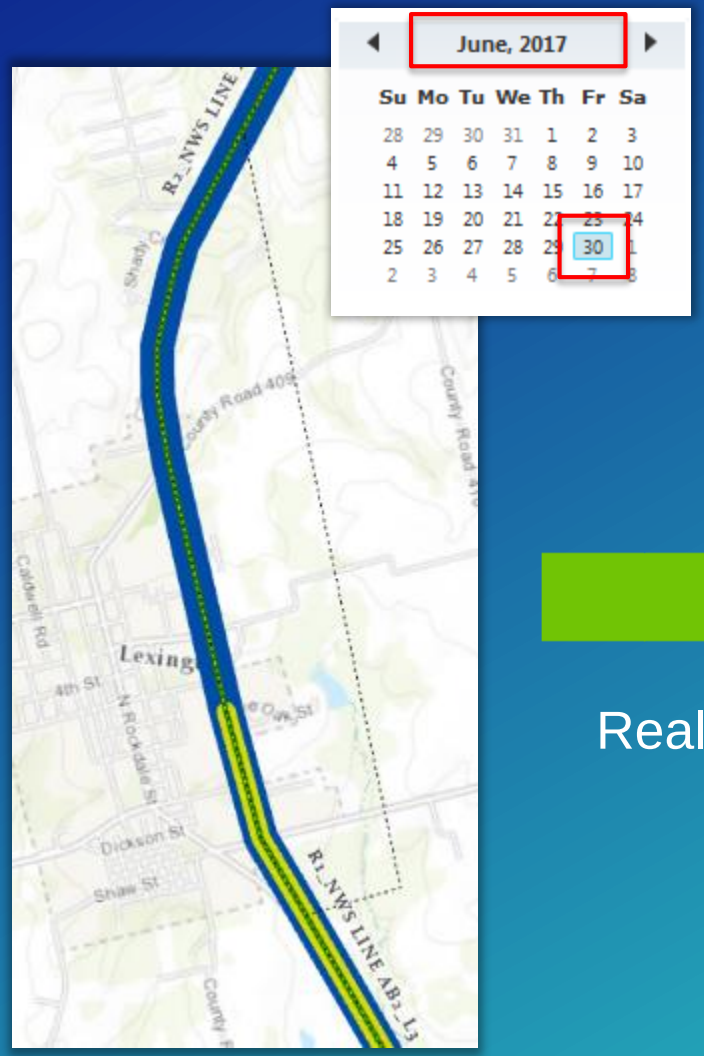
Event Measure Behaviors





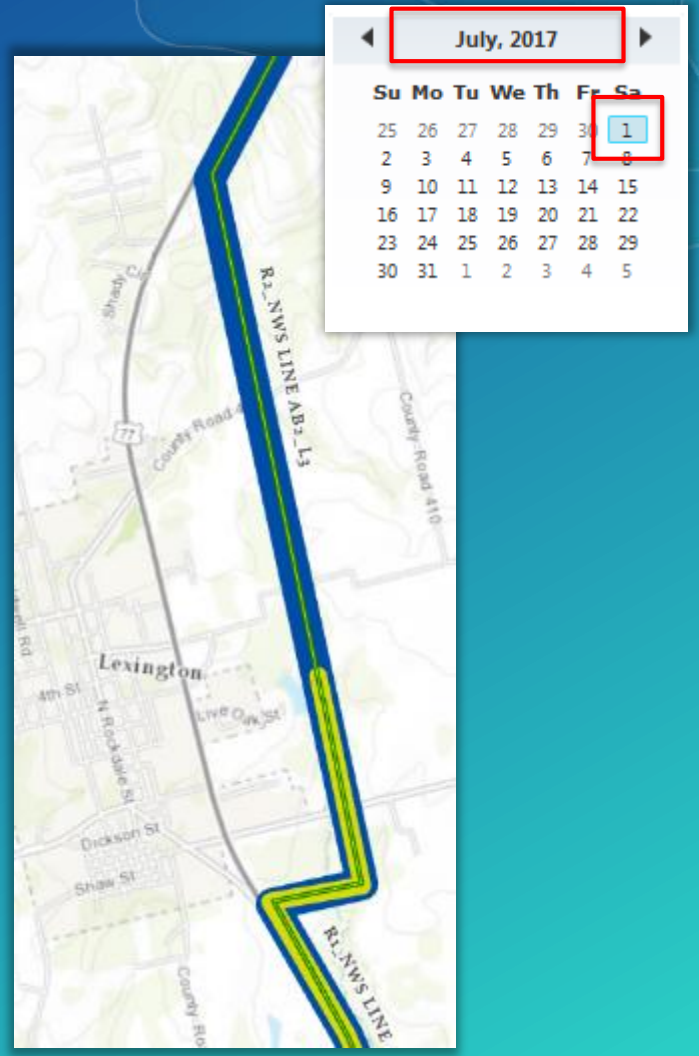
When the LRS routes are edited, measure behavior rules can be applied to events.

Time Aware Model



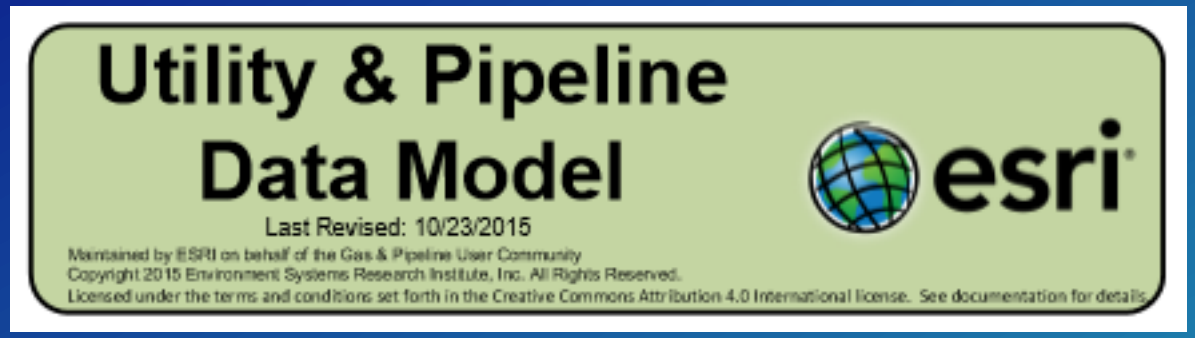
Before

Realignment



After

Industry Data Models



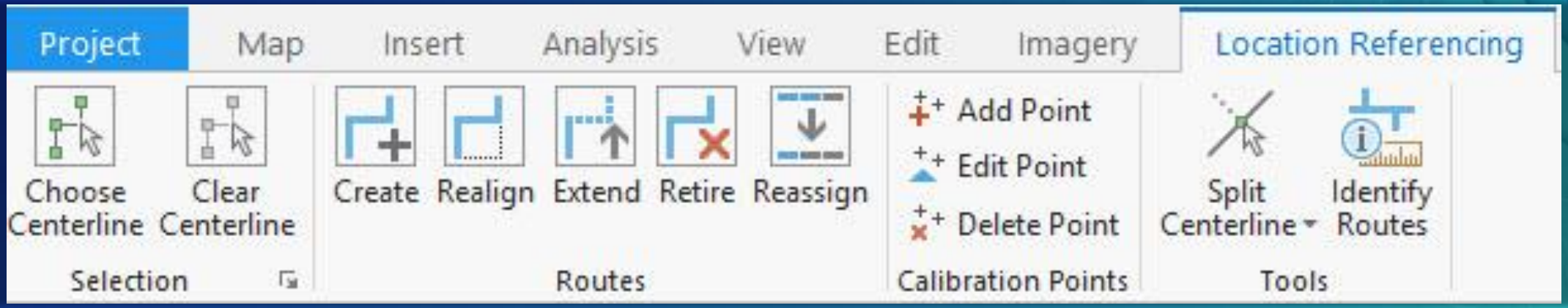
,

,

or any schema that implements the location model.

Platform Components

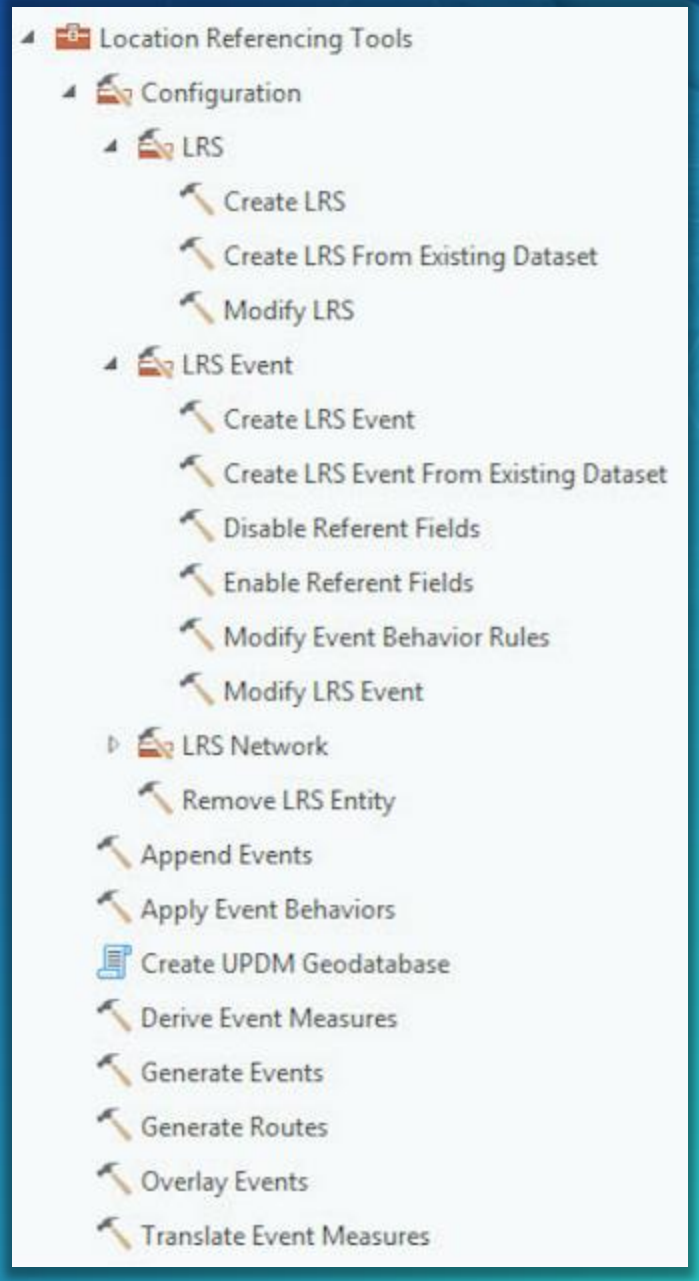
ArcGIS Pro Ribbon Toolbar



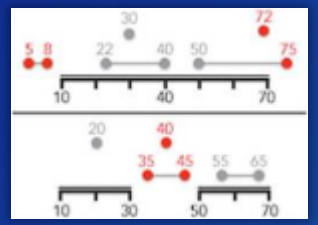
Route, calibration point, and centerline editing.

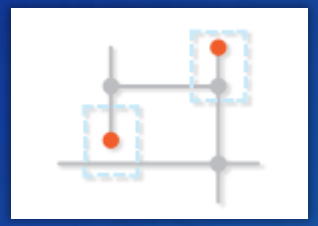
Geoprocessing Tools

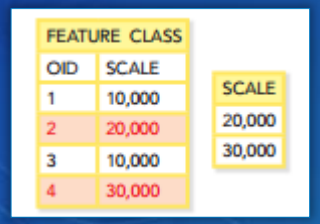
- **Modeling**
- **Loading**
- **Transformations**
  - Event Measure Behaviors
  - Dynamic Segmentation
  - Measure Translation



Quality Control with Data Reviewer



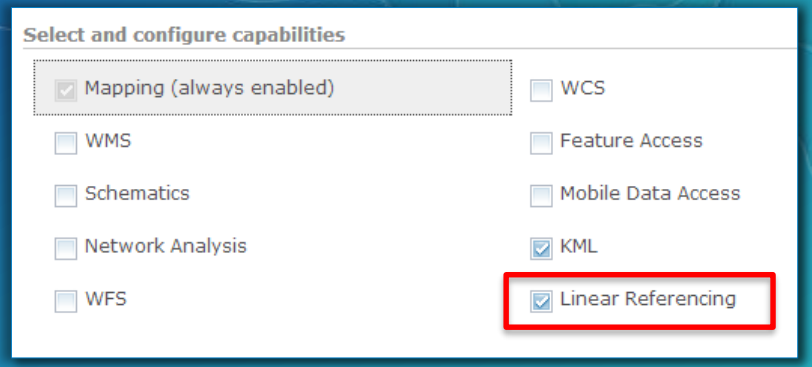


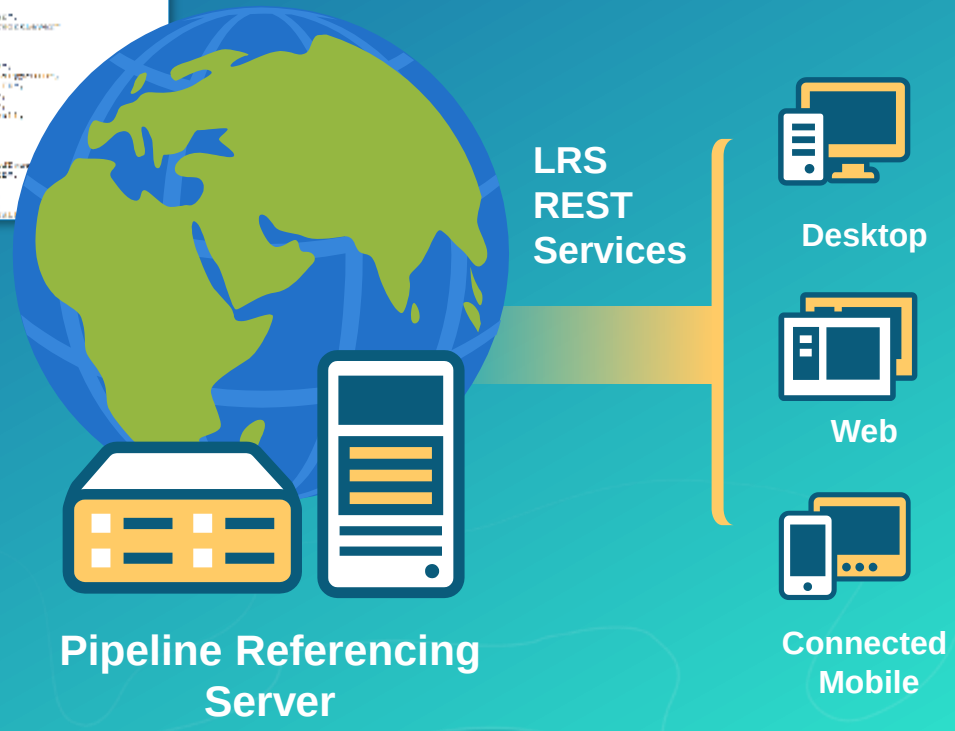


- **Detect measure based errors**
  Event measure gaps, overlaps, invalid measures, Non-monotonic or routes that aren't calibrated…
- **Detect spatial errors**
  Dangles and overshoots (connectivity), self intersection…
- **Detect mismatches** (SQL checks)
  Invalid combinations of construction materials and operation pressures, event orphans…

Linear Referencing for ArcGIS Enterprise

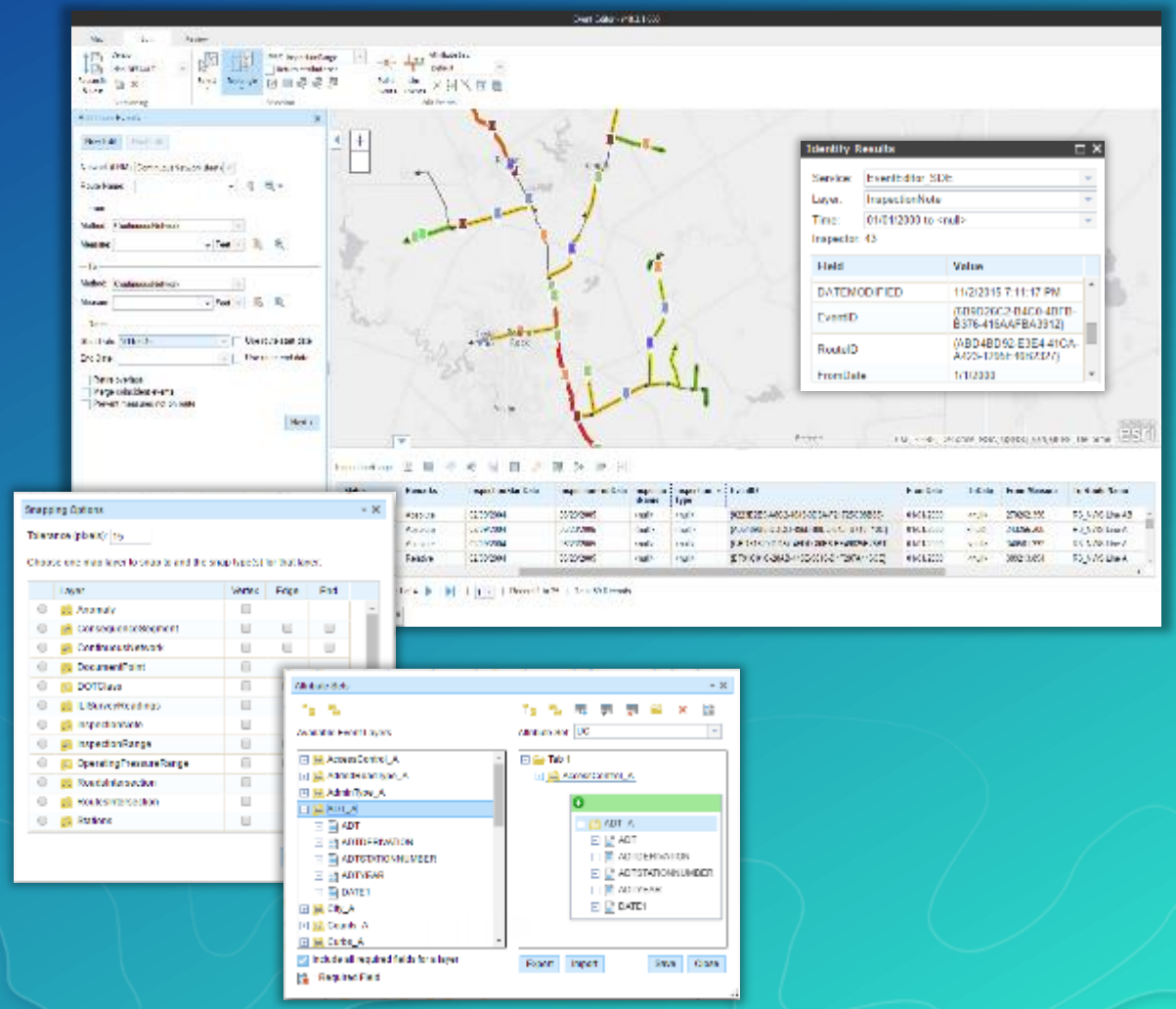
- **GIS Server**
  - Mapping, Query, Geoprocessing, …
- **Pipeline Referencing Server**
  - Event editing
  - Coordinate to measures
  - Measure to coordinate
  - Query attribute sets
  - Check events *(gaps, overlaps, invalid measures)*
  - Measure translation





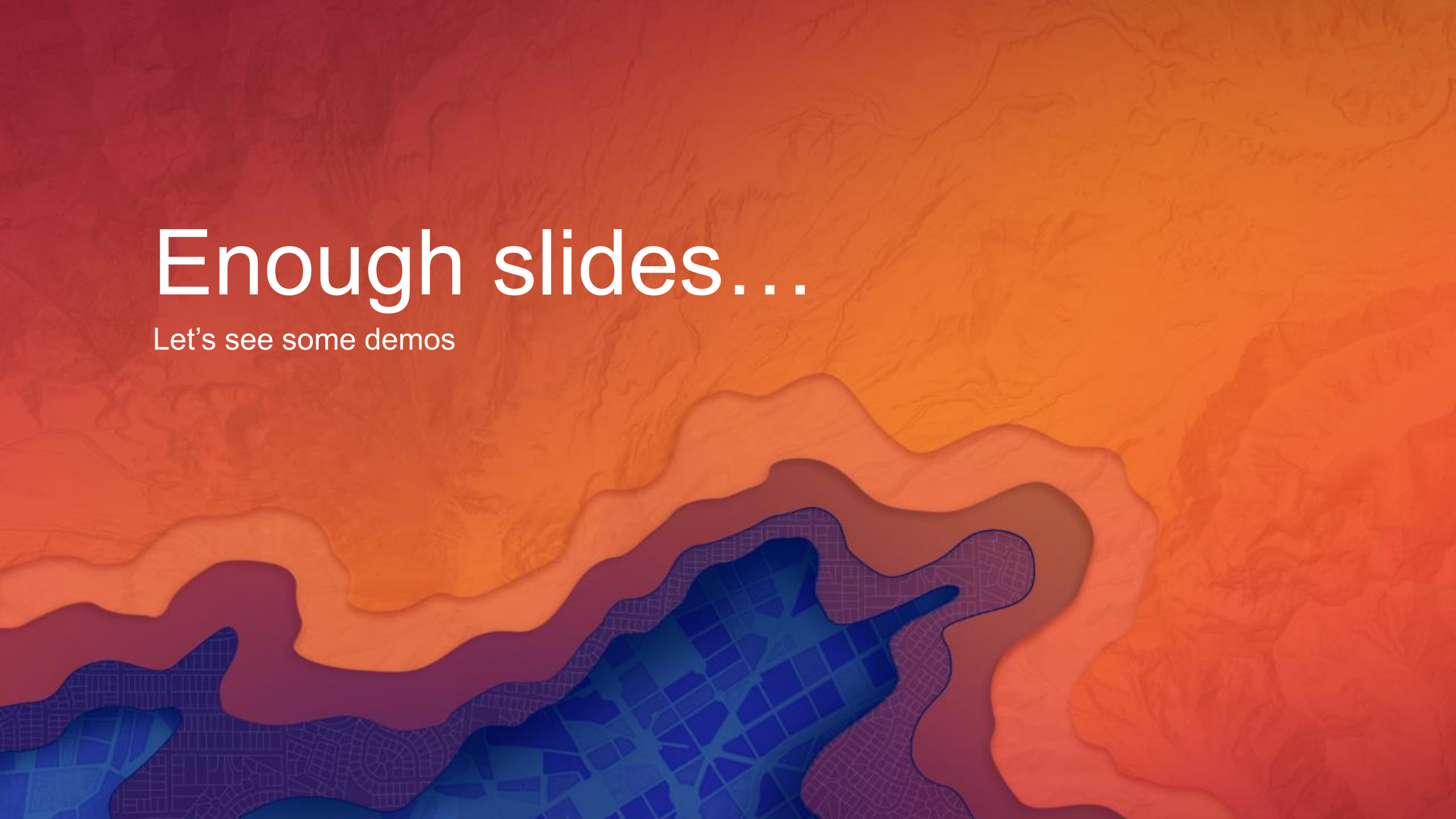
Event Editor

- **Editing**
  - Lines and Points events
  - Tabular selection results
  - Attribute set results
- **Selection**
  - Select by route, attribute, geometry, proximity
  - Single layer results or attribute sets
- **Error Checking**
  - Gaps, overlaps, invalid measures
  - Data Reviewer batch checks



Enough slides…

Let’s see some demos



Pipeline Referencing Roadmap

Future release themes subject to change

ArcGIS Release Timeline

Pipeline Referencing Roadmap

Future release themes subject to change

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Future release themes subject to change

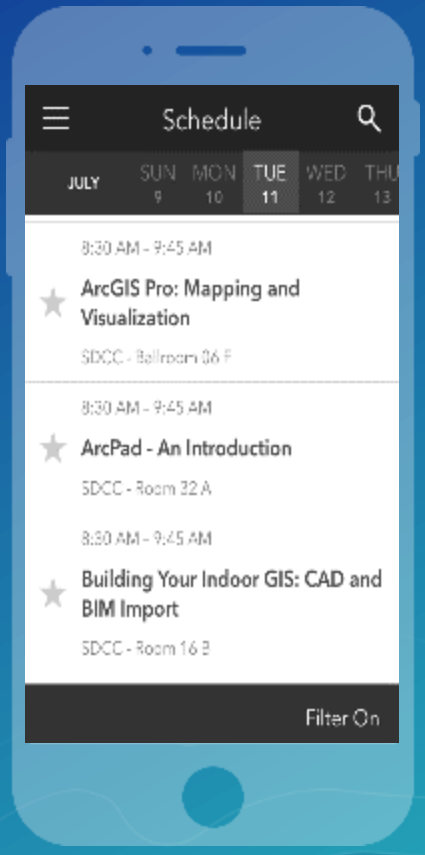
- **REST-based Network Editing**
- **Utility Network Integration**
- **Conflict Prevention**
- **Modeling Enhancements to ArcGIS Pro**

ArcGIS Release Timeline

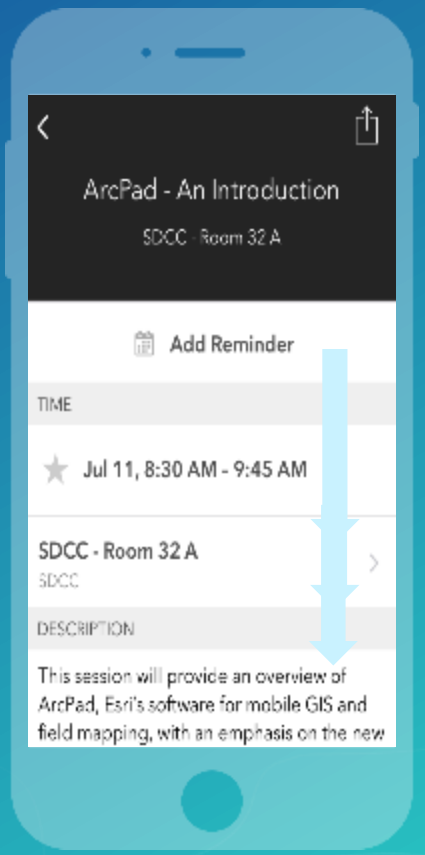
Please Take Our Survey on the **Esri Events App!**

Download the Esri Events app and find your event

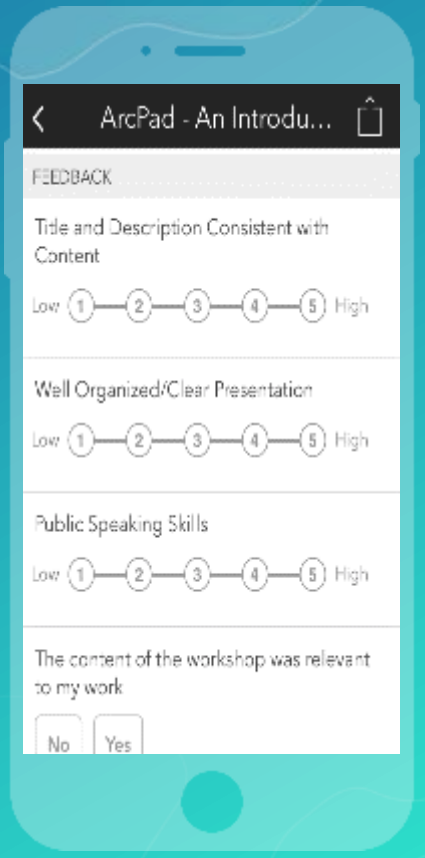
Select the session you attended



Scroll down to find the survey



Complete Answers and Select "Submit"



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THE SCIENCE OF WHERE