



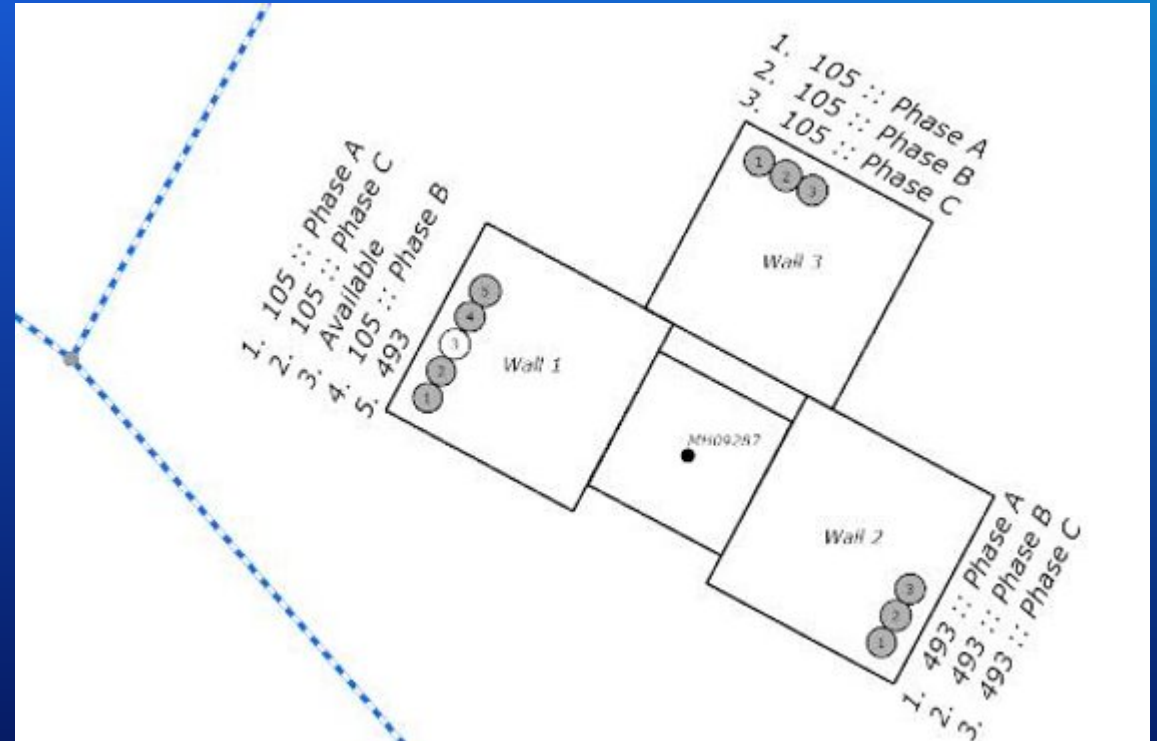
# Network Management with ArcGIS: What's New in the Utility Network

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DEVELOPER SUMMIT

# Nonspatial Objects

- New nonspatial objects are released at ArcGIS Enterprise 10.8.1
- Apply to junction (point) or edge (line) features
- Have full connective, structural, or containment associations as needed
- Participate in subnetworks and traces



# Nonspatial Objects

- Additional fields can be added to represent object attributes
- Can have network attributes or categories as needed
- Enables high resolution models for communication, or network underground as configured to support workflows.
- Nonspatial features can be added via attribute rules or manual creation from related features



# Spatial and Nonspatial Objects

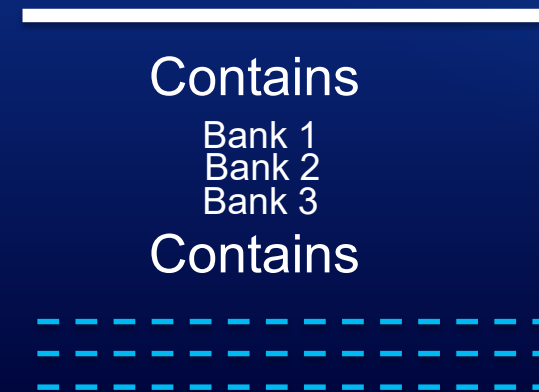
 **Duct Bank Contains Ducts  
Or Nonspatial Objects**



 **Conductor Contains Phases  
Or Nonspatial Objects**

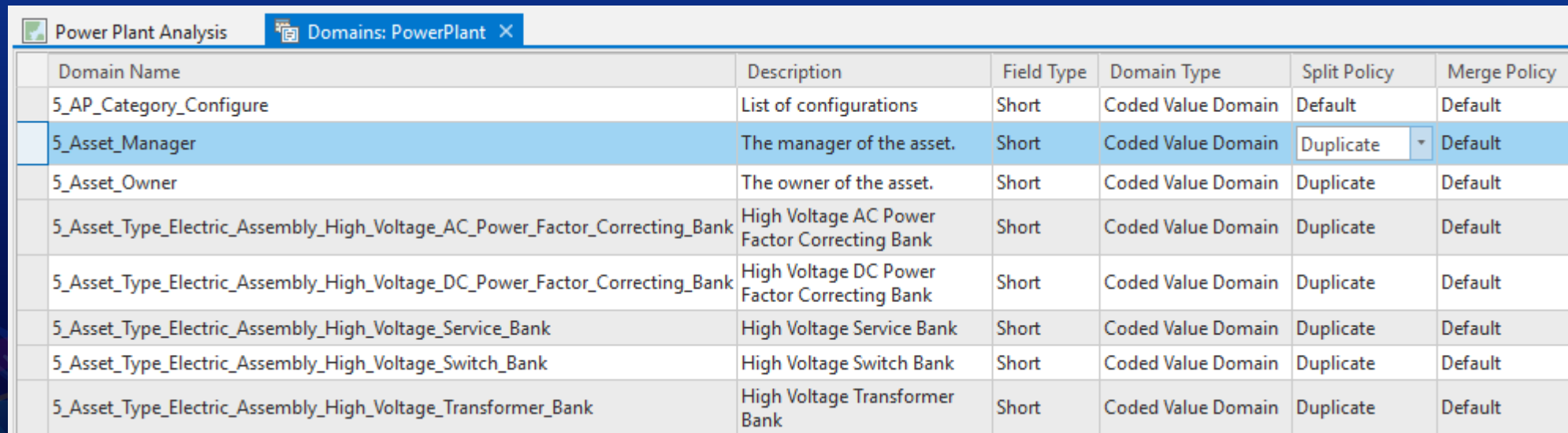


Any combination can be used



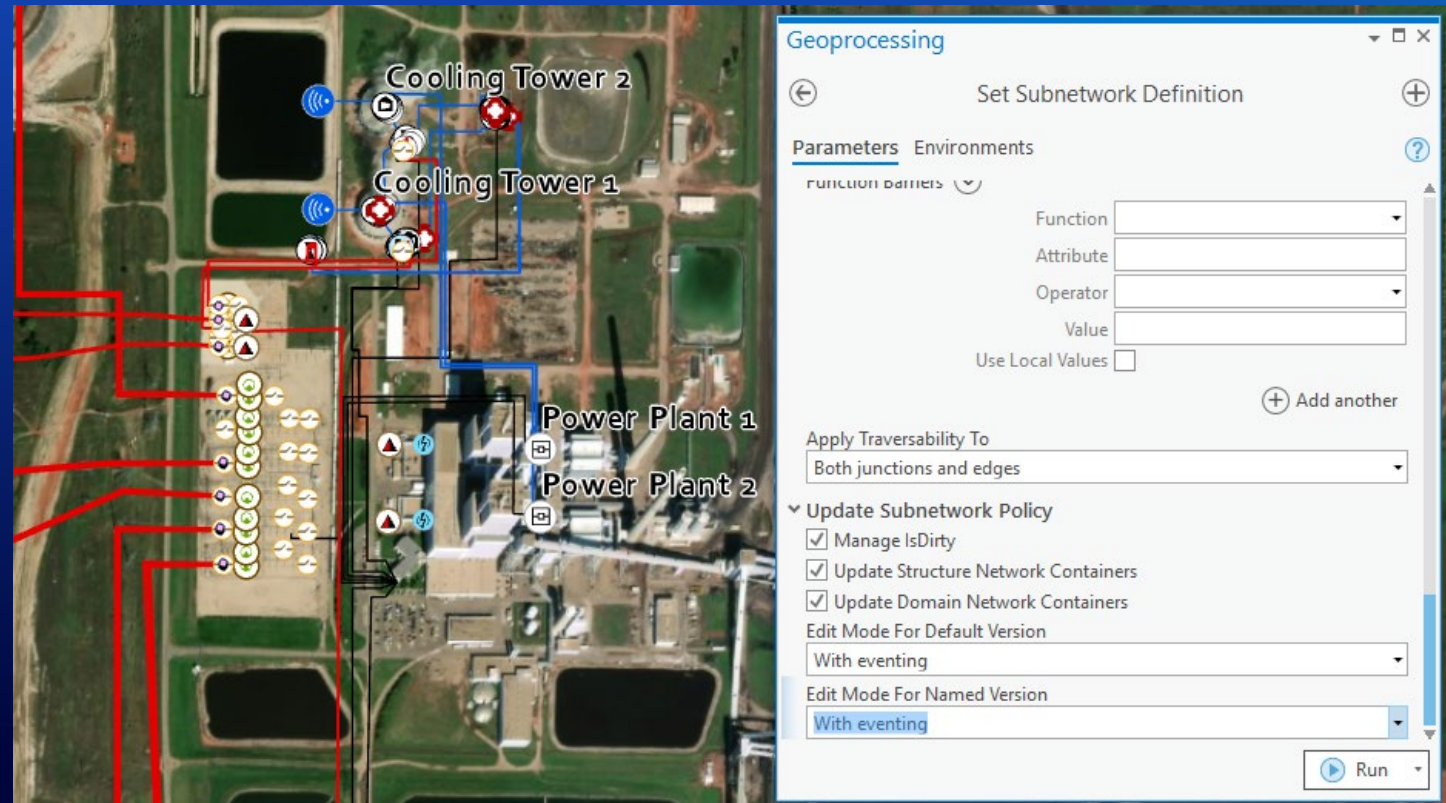
# Split with Relationship Classes

- Provided additional functionality on split events for features with related records
- Merge capabilities have been pushed back to mid-long term

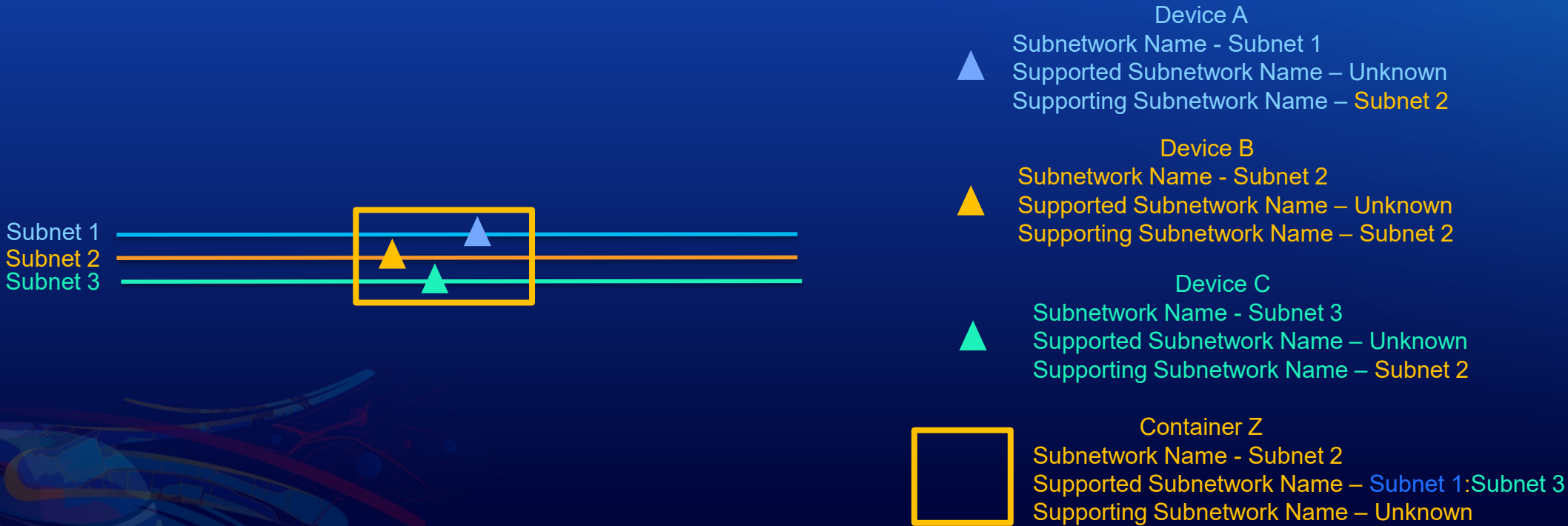


Domain Name	Description	Field Type	Domain Type	Split Policy	Merge Policy
5_AP_Category_Configure	List of configurations	Short	Coded Value Domain	Default	Default
5_Asset_Manager	The manager of the asset.	Short	Coded Value Domain	Duplicate	Default
5_Asset_Owner	The owner of the asset.	Short	Coded Value Domain	Duplicate	Default
5_Asset_Type_Electric_Assembly_High_Voltage_AC_Power_Factor_Correcting_Bank	High Voltage AC Power Factor Correcting Bank	Short	Coded Value Domain	Duplicate	Default
5_Asset_Type_Electric_Assembly_High_Voltage_DC_Power_Factor_Correcting_Bank	High Voltage DC Power Factor Correcting Bank	Short	Coded Value Domain	Duplicate	Default
5_Asset_Type_Electric_Assembly_High_Voltage_Service_Bank	High Voltage Service Bank	Short	Coded Value Domain	Duplicate	Default
5_Asset_Type_Electric_Assembly_High_Voltage_Switch_Bank	High Voltage Switch Bank	Short	Coded Value Domain	Duplicate	Default
5_Asset_Type_Electric_Assembly_High_Voltage_Transformer_Bank	High Voltage Transformer Bank	Short	Coded Value Domain	Duplicate	Default

- Enables the option for Subnetwork Update policy to propagate configured attributes when in a named version.
- Default configuration is still available



- Supporting Subnetwork name
  - Provides information about the subnetwork name of the container that supports the content
  - New fields Supported Subnetwork Name and Supporting Subnetwork Name
  - Can be updated or bypassed during Update Subnetwork process

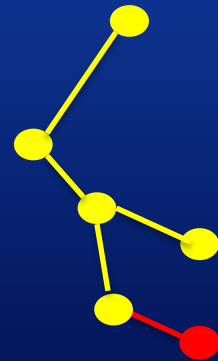


- Manage IsDirty Option to bypass attribute update when executing update subnetwork
  - Applies to Subnetwork table and SubNetLine feature class.
  - Enables subnetwork to be updated but remains in a 'Dirty' state pending further updates

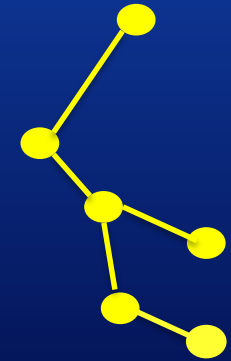
Network – up to date  
Subnet – up to date



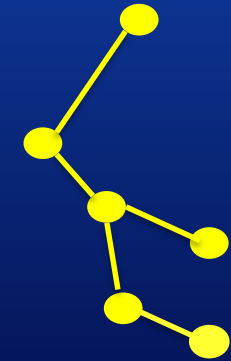
Edit Occurs  
Network – Dirty  
Subnet – up to date



Validation Occurs  
Network – up to date  
Subnet – Dirty

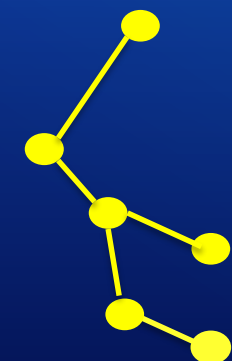


Subnet Update  
Network – up to date  
Subnet – up to date



Or we can bypass isDirty update

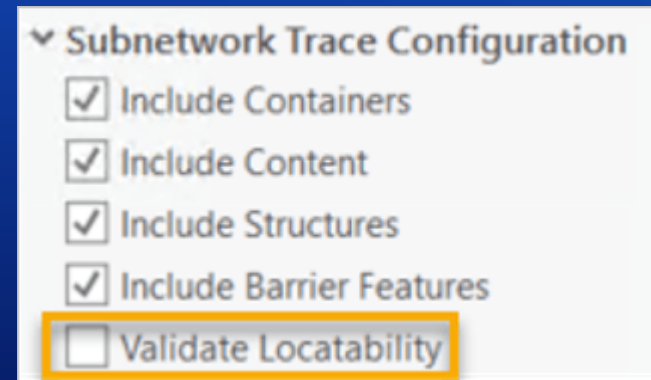
Subnet Update  
Network – up to date  
Subnet – Dirty





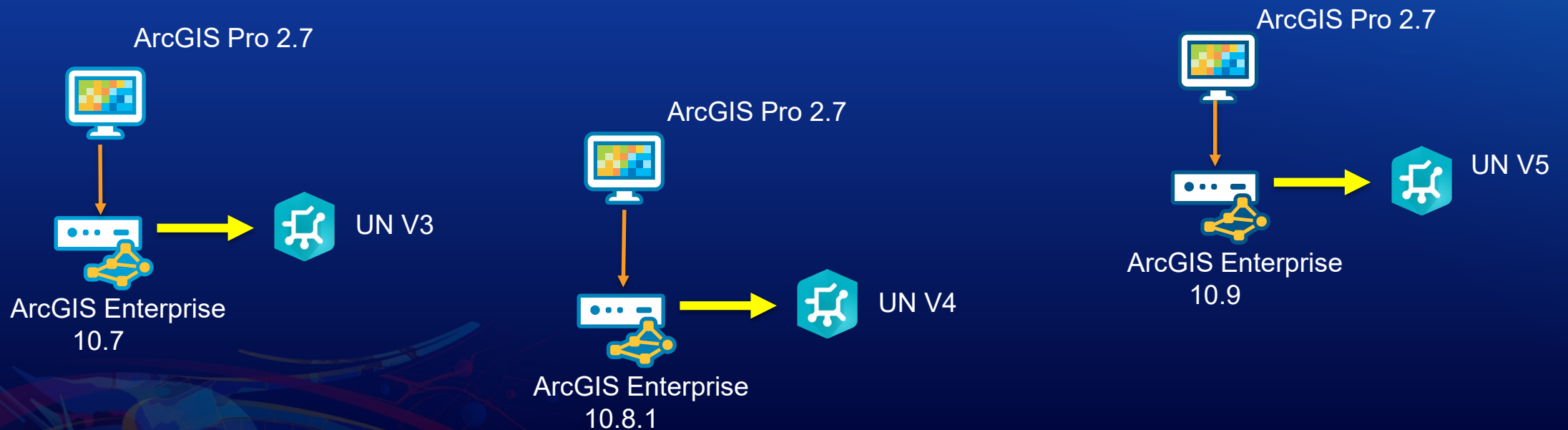
# Subnetwork and Trace Validate Locatability

- Possibility that nonspatial objects could lose spatial locatability in a subnetwork
- Validate Locatability returns orphaned objects within a subnetwork



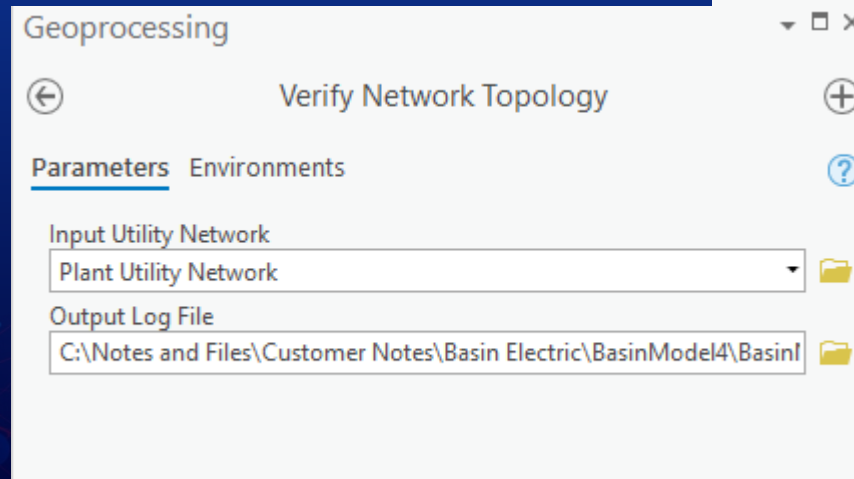
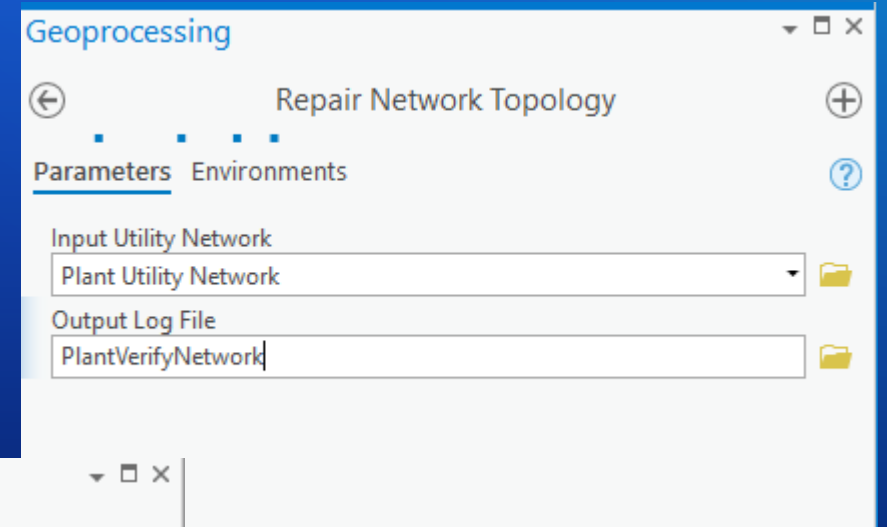
# Generating and Upgrading Utility Networks

- Previous versions of Utility Network were driven by version of ArcGIS Pro
- Now Utility Network Versions are driven by the Server configuration



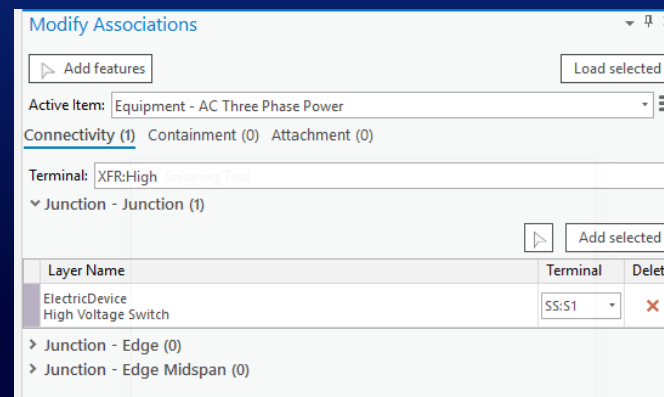
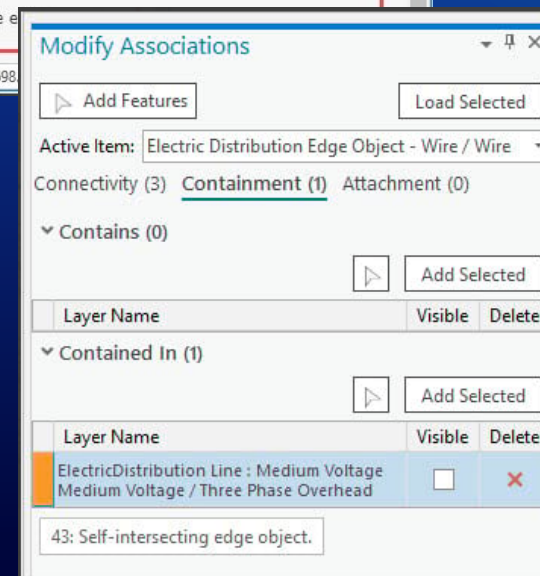
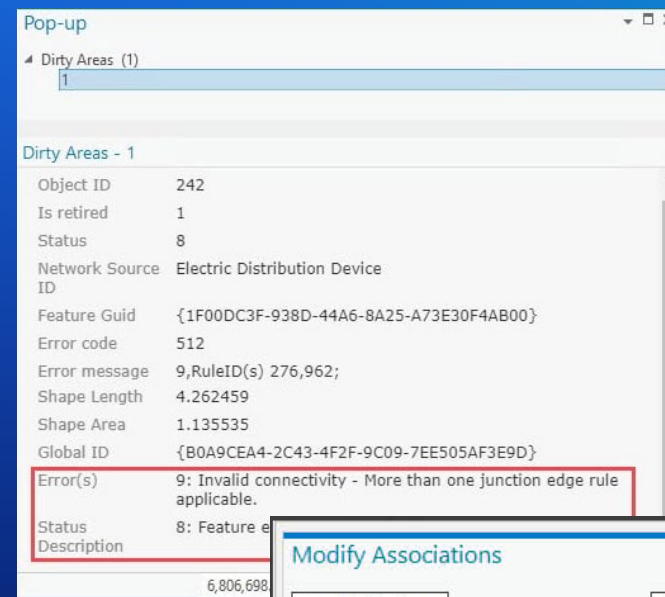
# Verify and Repair Utility Network Tool

- Designed to verify and repair inconsistencies in network tables
- Provides output log file of discovered issues



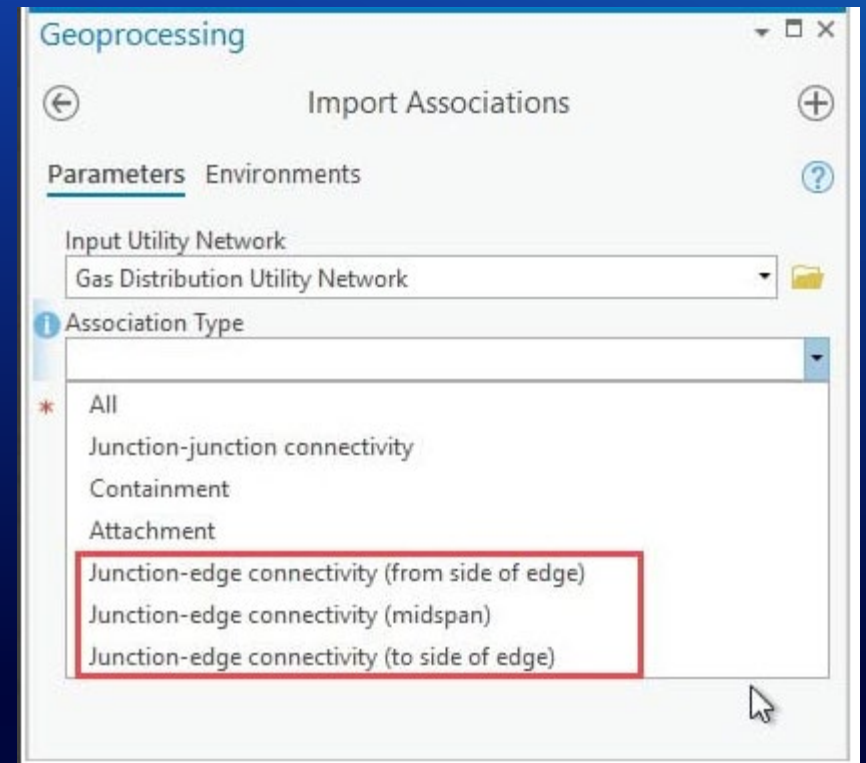
# Updates to Utility Network Error Management

- Error features have been replaced with detailed messaging in the Dirty Area feature
- Associated Features or objects in error are displayed with orange indicator in Modify Associations pane along with ToolTip for additional information
- In Utility Network Version 4 dirty associations are denoted by a purple indicator in the Modification Associations pane
- Dirty areas are no longer generated for the association as a linear dirty area between the features



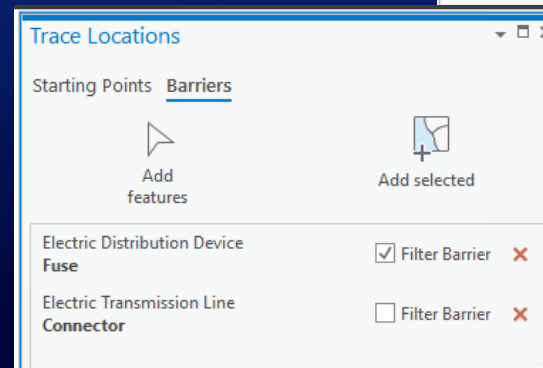
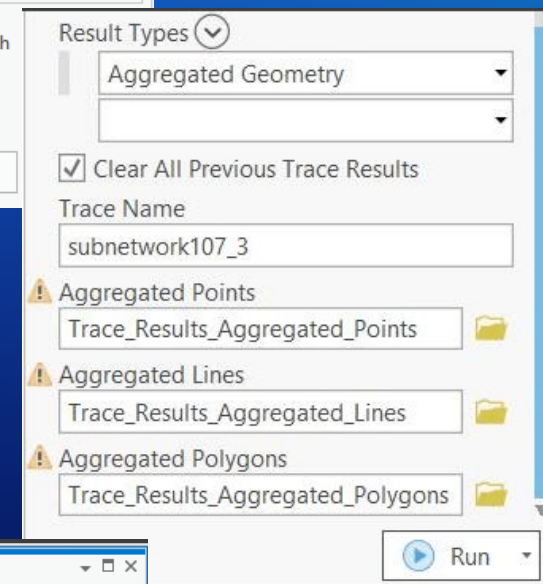
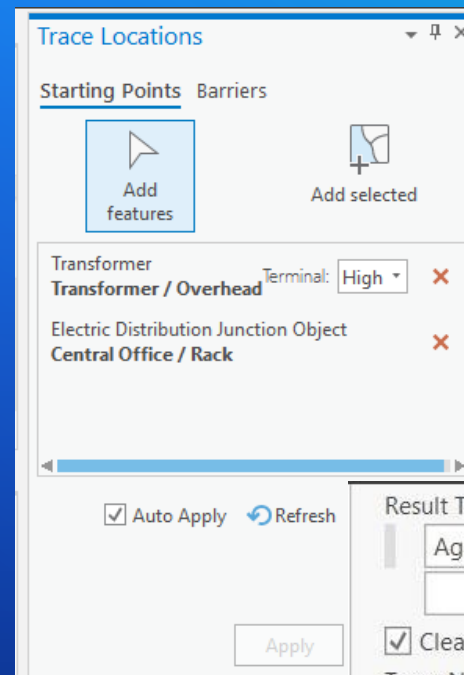
# Updates to Utility Network Version 4 and Version 5 summary of changes

- The error tables that are available up to utility network with version 3 (current utility network at 2.5/10.8) are removed with version 4
- Version 4 introduces nonspatial objects to operational and structural domains
  - New Connectivity Associations
- Version 5 introduces stored trace configurations



# Trace Framework Updates

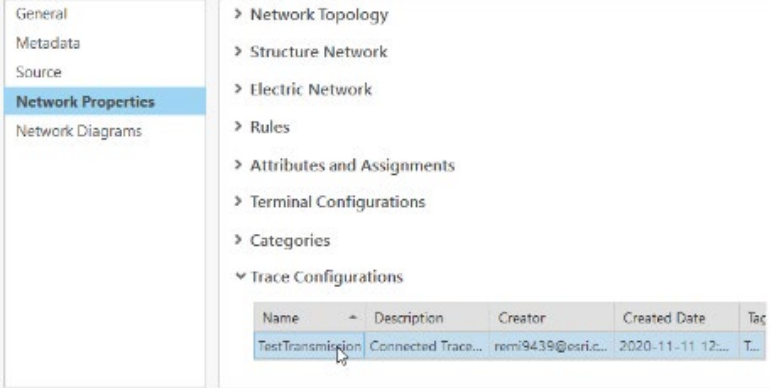
- The Trace Location pane has been updated to support nonspatial objects
  - Junction and edge objects may be used for starting points or barriers
- New Results Types parameter enables output trace results to aggregated geometries
- New feature Include Up to First Spatial Container enables more control in nested containment configurations
- Feature Barriers can now behave like filter barriers to improve traversal behavior with network controllers



# Trace Configuration Tool

- Designed to provide enhanced experience for JavaScript and Runtime platforms
- Enables preconfigured traces to reduce complexities for users
- Stored in the utility network services
- Configured as JSON script

```
TraceConfiguration.json
17  "domainNetworkName": "",
18  "tierName": "",
19  "targetTierName": "",
20  "subnetworkName": "",
21  "diagramTemplateName": "",
22  "shortestPathNetworkAttributeName": "",
23  "filterBitsetNetworkAttributeName": "",
24  "traversabilityScope": "junctionsAndEdges",
25  "conditionBarriers": [{
26    "name": "E:Device Status",
27    "type": "networkAttribute",
28    "operator": "equal",
29    "value": 1,
30    "combineUsingOr": false,
31    "isSpecificValue": true
32  }],
```



Name	Description	Creator	Created Date	Tag
TestTransmission	Connected Trace...	remi9439@esri.c...	2020-11-11 12:...	T...

# Runtime API

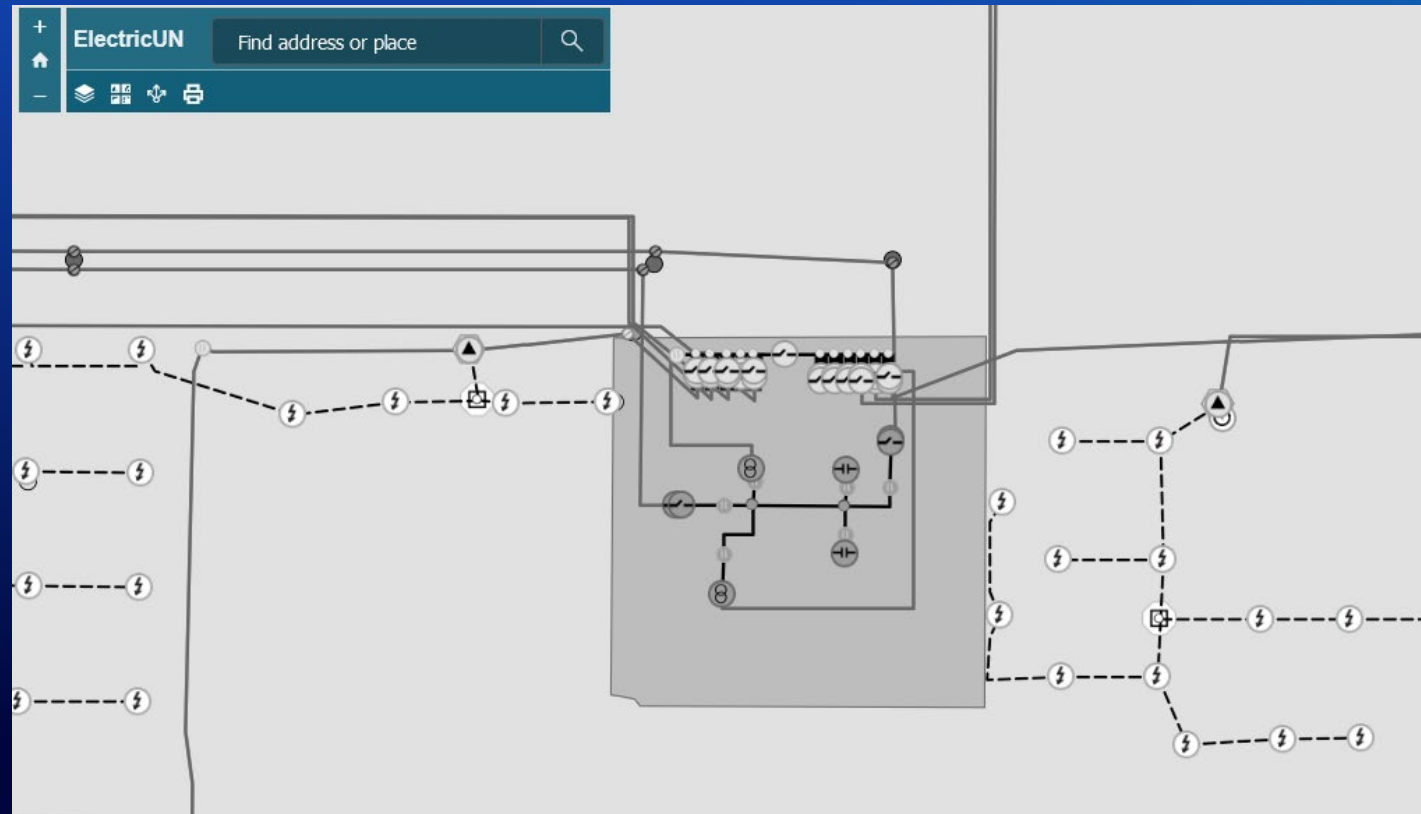
- Utilize Trace Configurations
- Leverage Offline Utility Networks
- Tracing in Field Maps
- Display Filters





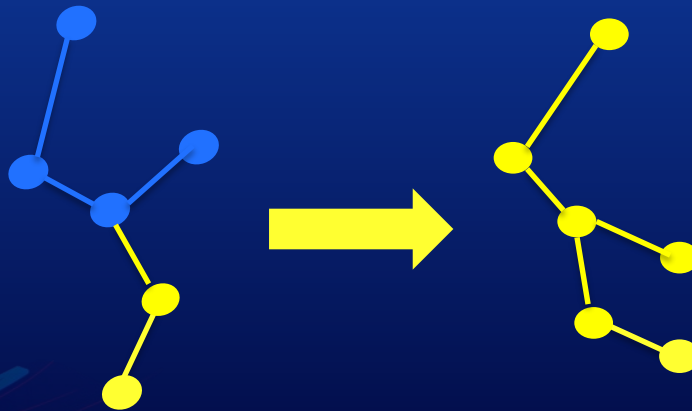
# JavaScript API

- Support tracing through trace configurations
- Other Web configurations and capabilities



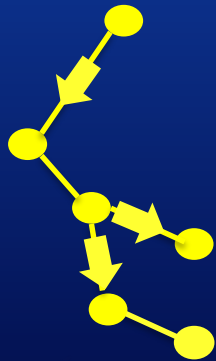
# Partial Posting/Version Cloning

- User interface to post selected features from a version
- Clone named versions for design projects



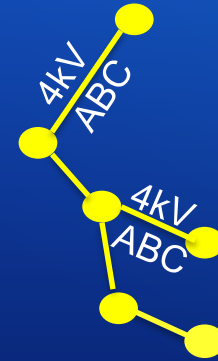
# Flow Direction Display

- Provide graphic display based upon controller location on a subnetwork



# Multiple Propagators

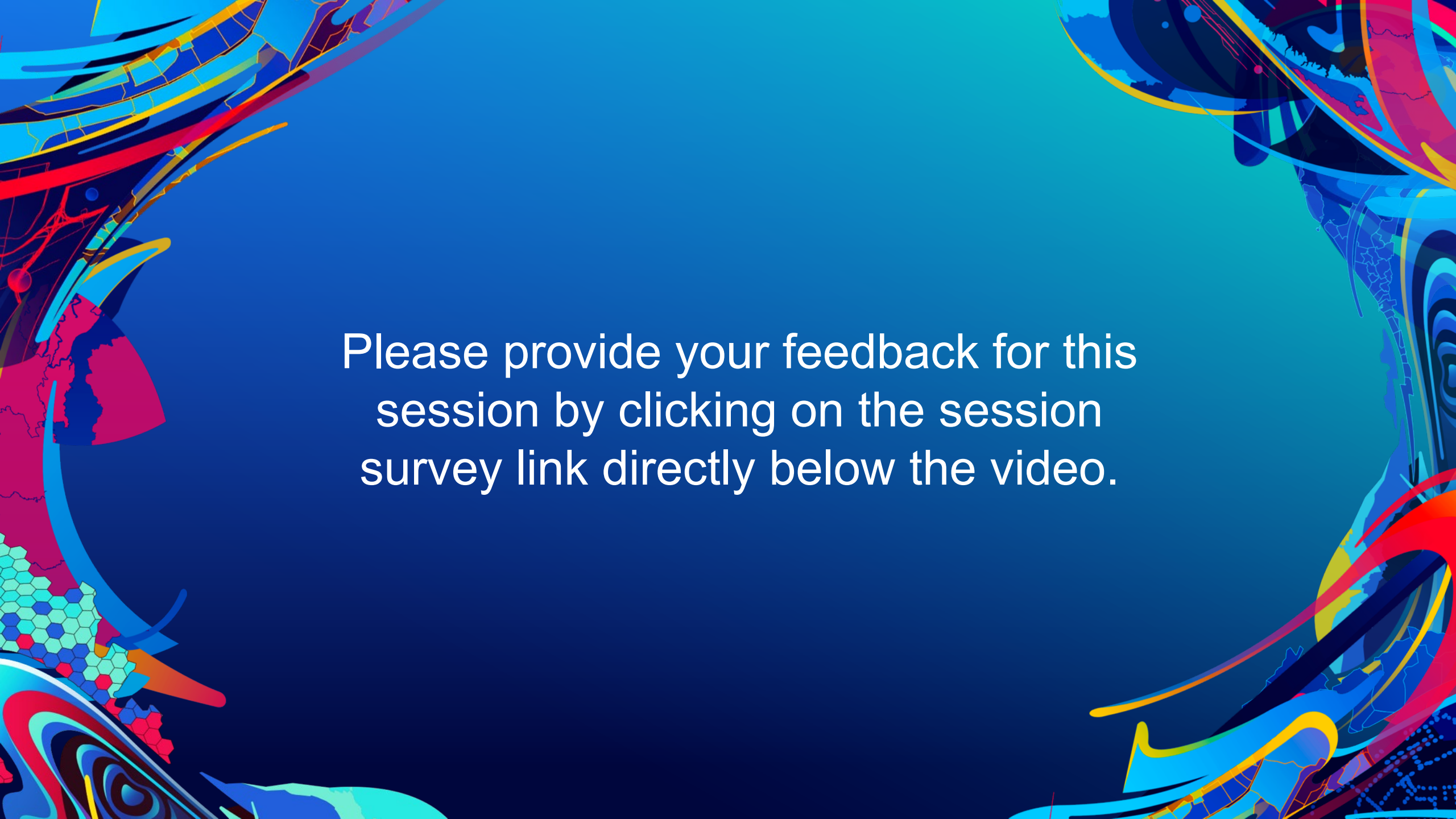
- Ability to support multiple propagators on a single tier
  - Propagate voltage and phase on a single subnetwork





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