Unique Integration Tools Leveraging The Core ArcGIS Platform

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Leveraging core ESRI functions allows:

- Custom workflows utilizing out-of-the-box functionality
- Reducing dependency on third-party applications and add-ins
- Lower asset management costs
- Lower operational overhead
- Reduced non-asset information and attributes
Asset Management Challenges

- Data Maintenance – Time & Cost
- Data Quality – Complete & Correct
- Reporting – Efficiency
- Data Redundancy
Asset Management Solution

- Database Level Spatial Data Management:
  - Oracle Spatial (SDO Geometry)
  - SQL Spatial (ST Geometry)
  - Streamline Data Storage Platform (UPDM)
  - Eliminate Data That Can Be Derived
  - Fully Maintained With ESRI Tools (No 3rd Party Needed)
Database Spatial Functions

- Leverage Spatial Data Functions:
  - Intersection Functions
  - Live Buffers
  - On-the-fly Stationing
Control Point Example

- All measures are maintained in the pipe geometry (m-values)
- Vertices are assigned measures, so that geometry changes don’t change measures.
Control Point Example
Valve Example

- Stationing for online features
- Route IDs are derived from linear features (pipes)

![Diagram showing stationing and route IDs]

<table>
<thead>
<tr>
<th>VALVENAME</th>
<th>GLOBALID</th>
<th>STATUS</th>
<th>Current Position</th>
<th>SUBTYPECD</th>
<th>MANUFACTURER</th>
<th>INLETCONNECTME</th>
<th>OUTLETCO</th>
</tr>
</thead>
<tbody>
<tr>
<td>GATE VALVE_001</td>
<td>CC630FC0-CC98-4D5D-856D-7C9E2ADEF2A1</td>
<td>Built - Active</td>
<td>True</td>
<td>6&quot; - Gas - Gate Valve</td>
<td>A.O. Smith Corporat</td>
<td>Flanged</td>
<td></td>
</tr>
<tr>
<td></td>
<td>DDEA3885-9267-14C3-B357-7CB3A6F6A976</td>
<td>Built - Active</td>
<td>True</td>
<td>3&quot; - Gas - Ball Valve</td>
<td>A.O. Smith Corporat</td>
<td>Flanged</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>OBJECTID</th>
<th>EVENTID</th>
<th>STATIONSERIESEVENTID</th>
<th>STATION</th>
<th>VALVENAME</th>
<th>SUBTYPECD</th>
<th>OUTLETCO</th>
</tr>
</thead>
<tbody>
<tr>
<td>1443</td>
<td>{CC630FC0-CC98-4D5D-856D-7C9E2ADEF2A1}</td>
<td>{6F73D2BC-5E6F-4A02-B25D-5BD2A1BD1158}</td>
<td>35</td>
<td>GATE VALVE_001</td>
<td>1106</td>
<td></td>
</tr>
<tr>
<td>1430</td>
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<td>{021D2E0F-29E9-4252-9FDC-81A8DEF9720}</td>
<td>40.11</td>
<td>&lt;Null&gt;</td>
<td>1500</td>
<td>&lt;Null&gt;</td>
</tr>
</tbody>
</table>
Offline Points Example

- Offline points can be buffered to derive stationing
Polygon Example

- Locate enter & exit stations for polygons on linear features (casing on pipeline)
Continuous Reference Mode Example

- Report multiple reference modes without storing and maintaining them
Continuous Reference Mode Example (Cont.)
Data Quality

- Find errors by comparing data attributes to spatially related features (i.e. valve diameters to pipe diameters)

```sql
SELECT v.OBJECTID,
    substr(v.subtypecode, 2, 10)/1000 || "" as DIAMETER,
    case when ps_end.SUBTYPECD is null then
        Null
    else
        substr(ps_end.SUBTYPECD, 2, 10)/1000 || "" end as INPIPEDIAMETER,
    case when ps_beg.SUBTYPECD is null then
        Null
    else
        substr(ps_beg.SUBTYPECD, 2, 10)/1000 || "" end as OUTPIPEDIAMETER
FROM
    valve_mv v,
    pipesegment_mv ps_end
LEFT JOIN
    ps_end
ON
    v.OBJECTID = ps_end.OBJECTID
```
View Data In Many Model Formats

- Data can be stored in a small footprint and be displayed as a different model

- Useful for integrating with third-party applications
  - Class Calculators
  - HCA Calculators
  - Alignment Sheet Generators
Reporting

• Reporting activities can consume large amounts of time and resources
  - Annual DOT reports
  - Railroad Commission
  - NPMS/PHMSA
Reporting (cont.)

- By storing data in a simplified structure, dynamic segmentation is not required

- Spatial database functions assist in breaking information up by polygon boundaries
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Section Header

SUBHEAD INFORMATION