Current Tools for Asset Collection and Inspection

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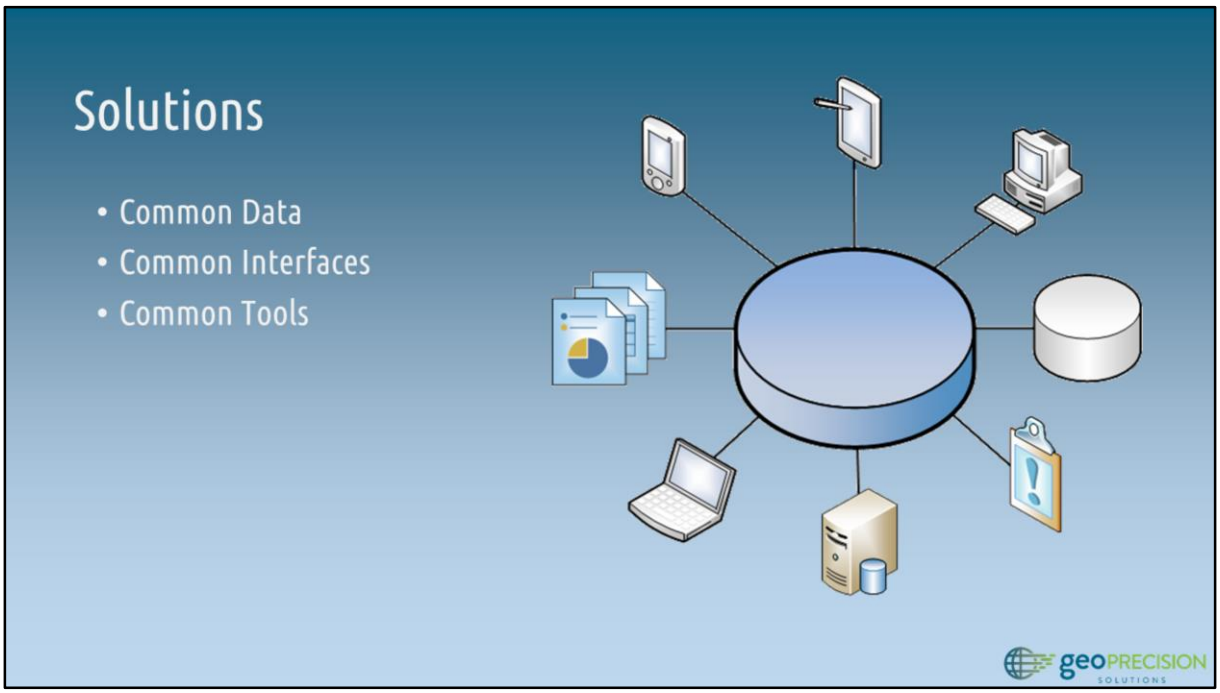
SOLUTIONS

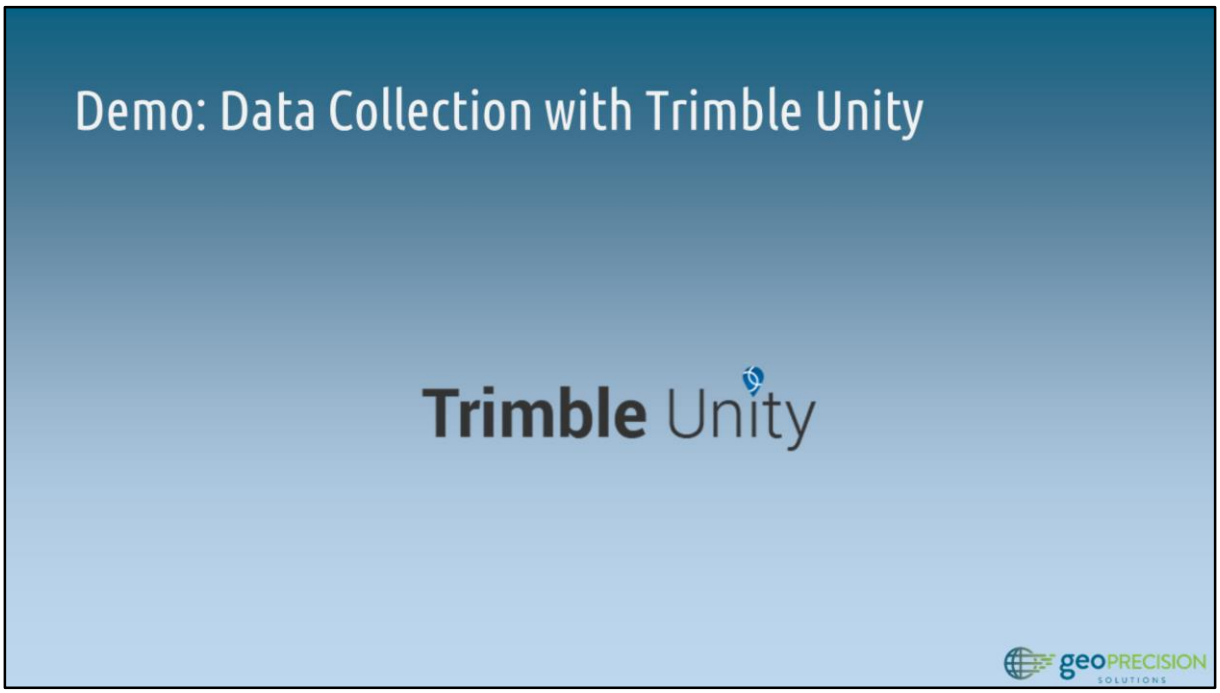
- Field data collection – asset locations, attributes, photographs, inspections
- Access to collected data – field users, office users
- Monitoring - What is happening? Where is it happening? How do I know if a critical event has occurred?

- Data collection – many different tasks
    - Initial data capture > updating attributes > photos & related information > recurring inspections
- Separate systems
    - Data collected to support different needs, different business areas can end up in different systems
    - 'Data Silos' - data may exist that members of an organization are not aware of
- Data Issues
    - Mixture of formats, history, lineage, and storage systems

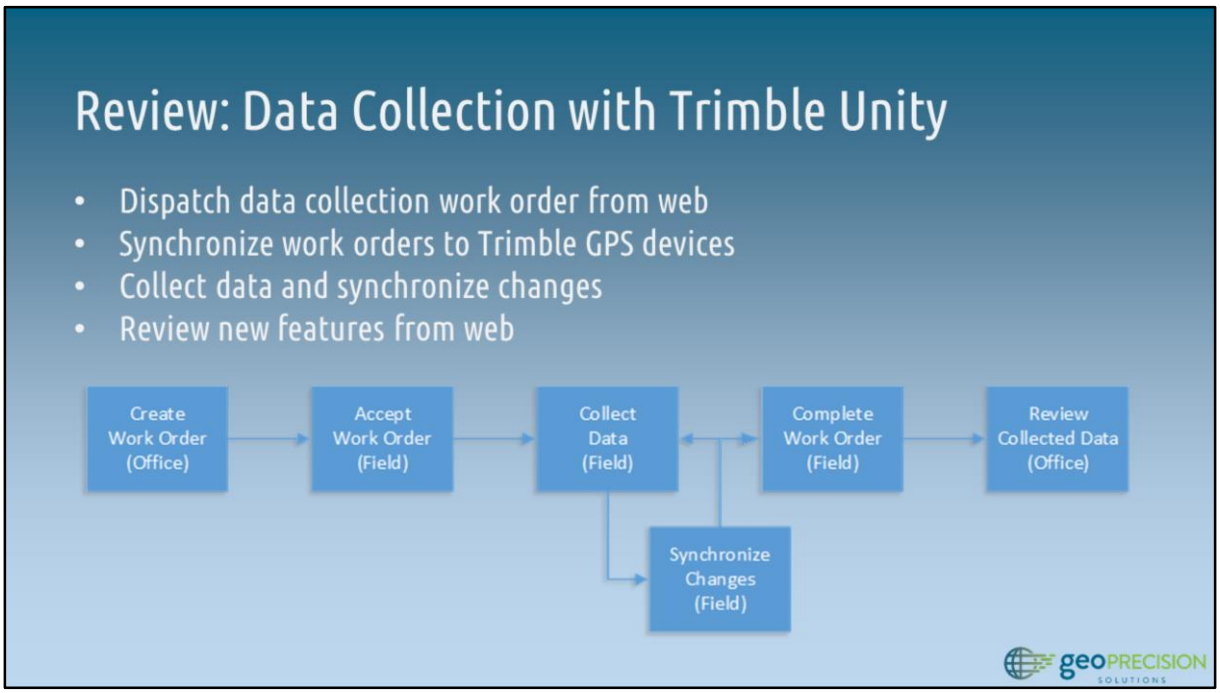


- Common data
  - Organization-wide data model that supports a wide range of activities and business areas
- Common interfaces
  - Software & solutions with a common interface across all devices
- Common tools
  - Web
  - GPS – owned by organization
  - Consumer devices that staff already own

- Data Collection
  - Get data from the field to the office
- Hosted solution, cross-platform support
  - Web, consumer devices (smartphones, tablets)
  - Trimble GPS devices (Including Geo 7x Centimeter edition)
- Features, attribute forms, domains – based on Esri's Local Government Information Model



1. Unity web interface – describe apps
2. Open Water Mapper app
3. Create new data collection work order
4. Dispatch to staff member
5. Staff – mobile device (Geo 7x)
    1. Open app
    2. Show interface (apps – similar to web)
    3. Sync recent changes
    4. Open new work order
    5. Collect one or more features / feature types
    6. Sync changes
6. Web interface – refresh view to show newly collected data
7. Show GPS metadata feature (Lat, Lon, Accuracy, Satellites)



- Iterative process for dispatching, performing, and completing work
- Streamlined process for assignment, completion, and synchronization
    - Data collection and synchronization can be done as many times as needed
        - Work order 'strategy' depends on the organization

Infrastructure Inspections: Trimble Unity

- Assess the health and condition of assets and infrastructure
- Proactive vs reactive activities --> discover potential issues Before a failure occurs
- Maintain on-going history of asset condition

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- Asset maintenance
    - Review and assess asset conditions
    - Proactive vs Reactive – discover issues before they occur
    - Maintenance and inspections to comply with regulations
- Keep track of asset health and activities
- Replace paper forms with a digital solution
    - Eliminate duplicate data entry, gives the ability to query and view historic inspection records

1. Unity web - Open Hydrant or Valve inspection app
2. Create new inspection work order
3. Dispatch to staff member
4. Staff – mobile device (Phone or tablet)
    1. Open app
    2. Show interface (apps – similar to web)
    3. Sync recent changes
    4. Open new work order
    5. Inspect one or more features
    6. Sync changes
5. Web interface – refresh view to show newly collected data
6. Show completion status, pass/fail, etc.
    1. Create follow-on work order for failed asset(s) (optional)

Review: Data Collection and Inspection

- Work order-driven workflows to create, assign, and complete work
- High accuracy data collection with Trimble GPS, low(er) accuracy with consumer devices
- Common interface between field and office devices

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- Dispatch data collection and inspection work orders to staff
- High-accuracy GPS and consumer-grade devices
- Reduce work and complexity
    - Data synchronized back to geodatabase – quickly see progress
    - All data collected in the field – no paper records, no time spent with data re-entry

Activity Monitoring

- Allow managers and supervisors to monitor activities and progress
- View progress and receive alerts when certain conditions are met

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- A lot of activities happening in the field (data collection, inspections) – how to monitor progress?
    - Want to view activities, attributes, and progress as work is ongoing

ArcGIS Online and Operations Dashboard

- ArcGIS Online – a collaborative, cloud-based platform for creating, sharing, and using data, maps, and applications
- Operations Dashboard – application included with ArcGIS Online that provides a common operating picture for monitoring, tracking, and reporting events

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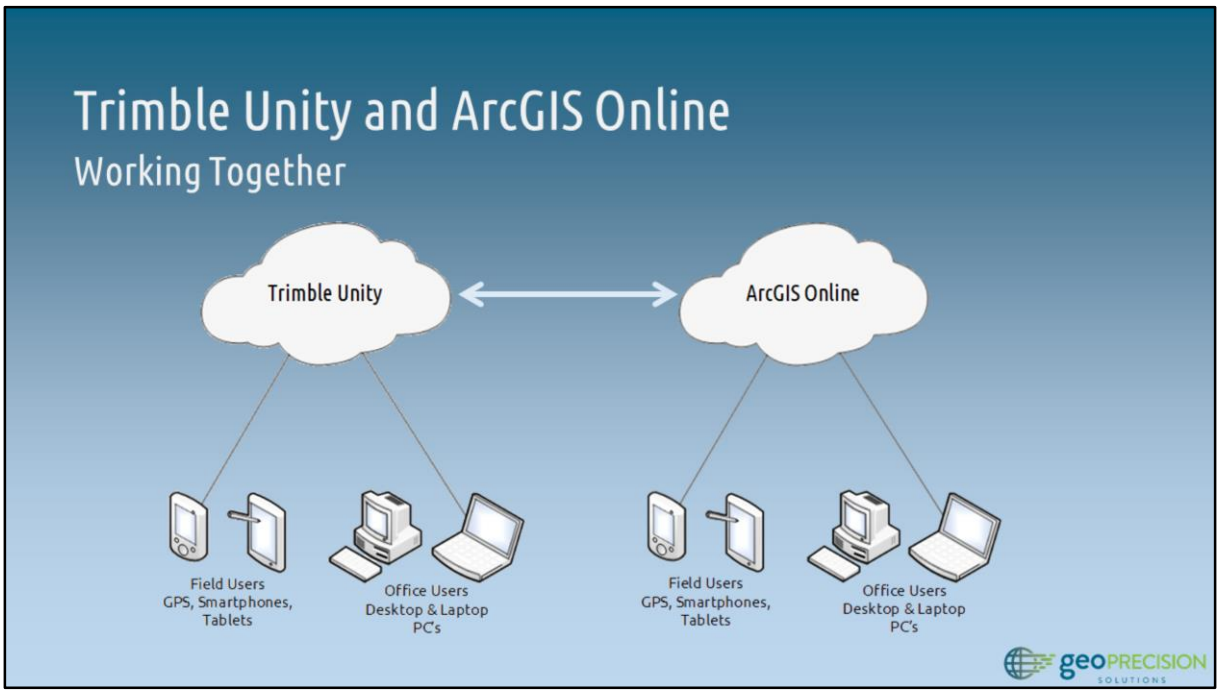
- Use capabilities of ArcGIS Online and Operations Dashboard to provide dashboard and monitoring capabilities
- Sharing data between Trimble Unity and ArcGIS Online environments
    - Create web maps in ArcGIS Online
    - Share web maps with groups and users within your organization
    - Use web maps to create Operational Views
    - Use widgets in Operations Dashboard to monitor activities



- Trimble Unity
    - Dispatch work orders, perform data collection and inspection activities
- ArcGIS Online
    - Create and share web maps that can be used on a variety of devices
    - Use web maps to create operational views in Operations Dashboard

Demo: ArcGIS Online and Operations Dashboard

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- ArcGIS Online
  - Groups > GIS Presentation 2015 - Web Maps and Operational Views
  - Web Map > All Water Data
    - Contains all water data (collected and existing)
    - Show pop-up configuration & editing
    - Show filtering capability (operable hydrants, etc.)
  - Web Map > Water Leaks
    - Simplified view of water leaks and key infrastructure
- Operations Dashboard
  - All Water Data web map used to create a dashboard that shows the status of hydrant and valve inspections
  - Leaks web map used to create leaks operational view showing summary statistics and graphs
    - Export records (beware bug)
    - Print map

Review: ArcGIS Online and Operations Dashboard

- Access data from Trimble Unity within ArcGIS Online
- Use Unity data to create web maps
- Use ArcGIS Online functionality to customize web maps – scale range, visibility, pop-up configuration, etc.
- Create operational views with Operations Dashboard for ArcGIS
- Use widgets in Operations Dashboard to view data attributes, metrics, etc.

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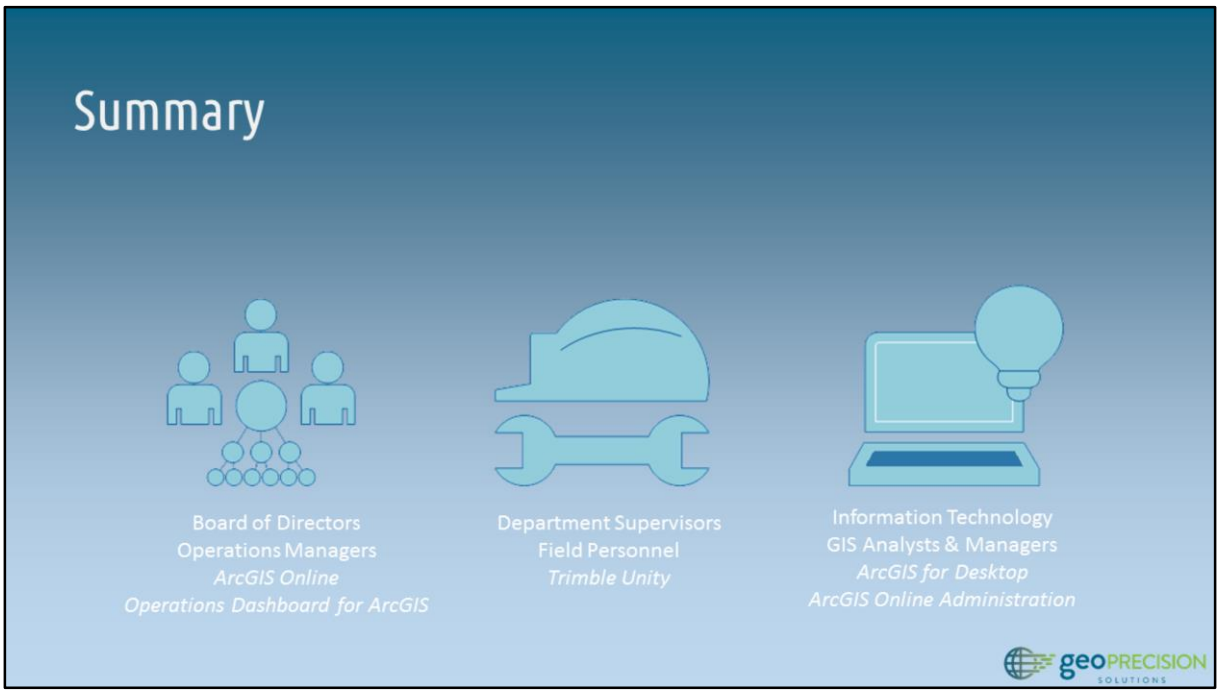

- Data access - Different applications (Unity, ArcGIS Online) for different user groups
- Satisfy needs of different user groups using different applications

- Simple, user friendly interfaces providing access to GIS information to all members of an organization
    - Unity – data collection, inspection, and work orders (Field and Office Personnel)
    - ArcGIS Online and Operations Dashboard – Operators and Managers for assessing data and improving the decision making processes
    - Data accessibility - users don't need to wait for or ask for access to data

Questions?

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