Recover Faster - An opportunity for device model expansion

Location and Device Data - Sources and Utility

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Outline

Project objectives

• Provide a single perpetually accurate and current inventory
• Provide business process tooling IT system recovery
• Improve data hygiene
• Build something simple & flexible supporting synergies

• Motivation & use cases

• Solution & results
  • Data sources
  • Visualizations & tools
  • Data model analysis
  • Results

• Findings & future incorporation
Motivation

• **Reduce time to find/recover scientific systems** by automating collection of inventory data from multiple sources, removing manual data entry where possible.

• **Improve business process** providing tooling to support the prioritization of system recovery & the process to locate/recover it.

• **Build something that provides value outside of recovery applications** by leveraging systems and technologies that provide synergies for other business users.
Challenges

• Incorrect instrument connected to computer

• Resulting from Manual process for data entry/maintenance

• Siloed data across multiple systems, no centralized source

• Poor data quality resulting in low data utility/confidence and compounding correction burden

• Prioritization of recovery difficult
Solution Components

1. Acquire
   - Asset Management
   - IT Software/Assets
   - Geolocation (Bluetooth Beacon)

2. Integrate & Store
   - Data Integration Platform
     - OneSource
     - VPC
     - AWS
     - API or SQL-JDBC
     - RDS/S3/Athena
     - pre-ADF
     - JSON

3. Visualization & Tooling
   - TIBCO Spotfire
   - or any Business Intelligence Tool

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• View merged data
• Flag system disparities
• Use case specific dashboards
Results

Project Scope
• 1 Location
• 77 Assets (PCs, Instruments, Detectors)
• 4 Month Duration

• 70% all original data “bad” to (0%) - **No More Bad** Data Identification/Removal

• **Improved Update Frequency** from Months to Weeks w/ automation

• Real-Time instrument location/association identification

• Bridged the IT and Instrument asset data silos
Future - ADF Enhancement & Increased Utility

1. Acquire Instrument Data

2. Enhance ADF

3. Visualization & Tooling

Instrument Data

Instrument ID
Date
User
IP Address
Detector ID
Pump ID
Injection Count (calculated)

ADF
Data Description
Data Cube
Data Package

Integration Layer

Instrument ID
Date
User
IP Address
Detector ID
Pump ID
Injection Count (calculated)

Integration Layer

LIMS/ELN
Asset Management
IT Software/Assets
Geolocation (Bluetooth Beacon, RFID, etc...)

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**Location Use Cases**

**Location Data Sources**
- Asset location
- Personnel location
- Sample Location
- LIMS

**Device Data Sources**
- Instrument Data
- Asset Management
- IT Asset Management

**Application Areas**

**Asset Use:**
- Preventive Maintenance
- Automated Location
- Servicing
- Utilization

**Scientific:**
- Data accuracy studies via correlation
- Enhanced automated traceability

**Example Queries**

Find all assets with software version x
Locate assets with missing id
Locate assets that have moved
Locate assets that have moved away from present grouping of assets

Find data generated in this location
Correlate data collected in a location with time series environmental data at that location
Correlate data collected with calibration history
Locate assets that have moved away from present grouping of assets

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