TETRASCIENCE

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

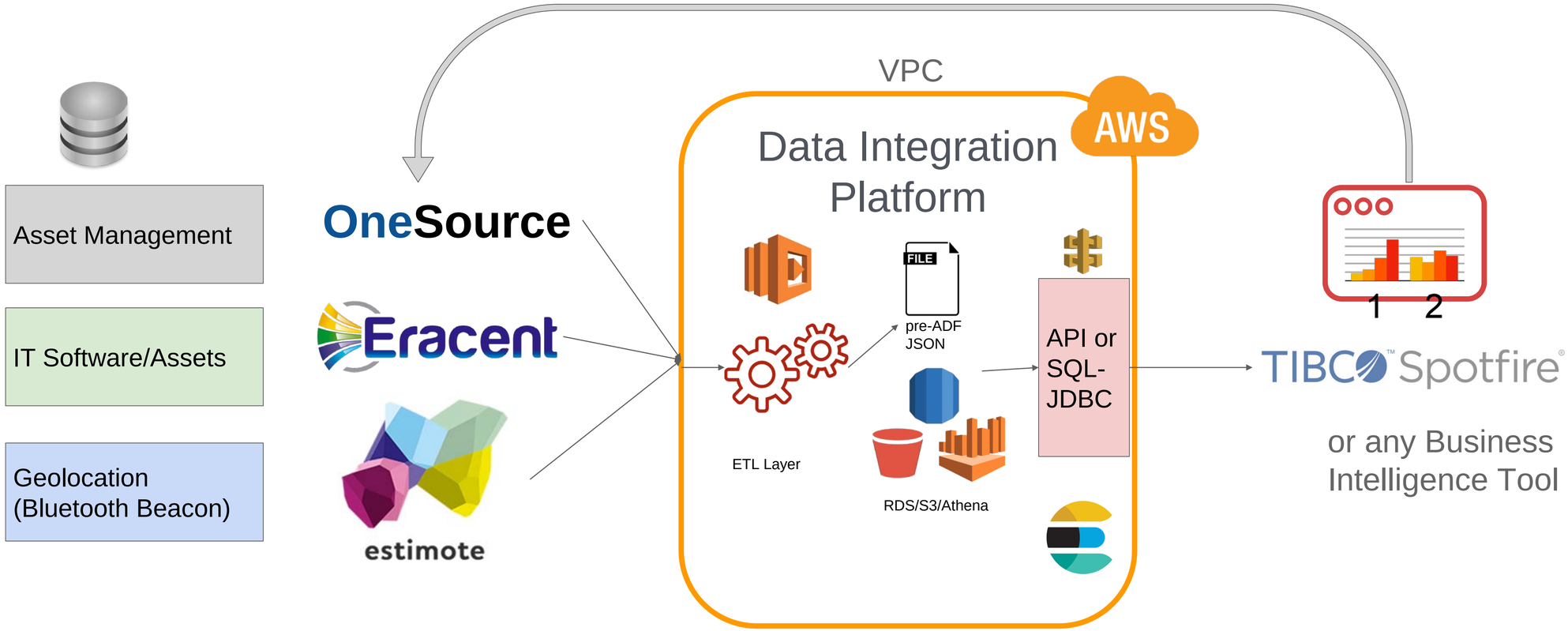
- **Incorrect instrument** connected to computer
- Resulting from **Manual process** for data entry/maintenance
- **Siloed data** across multiple systems, no centralized source
- **Poor data quality** resulting in low data utility/confidence and compounding correction burdon
- **Prioritization of recovery** difficult

Solution Components

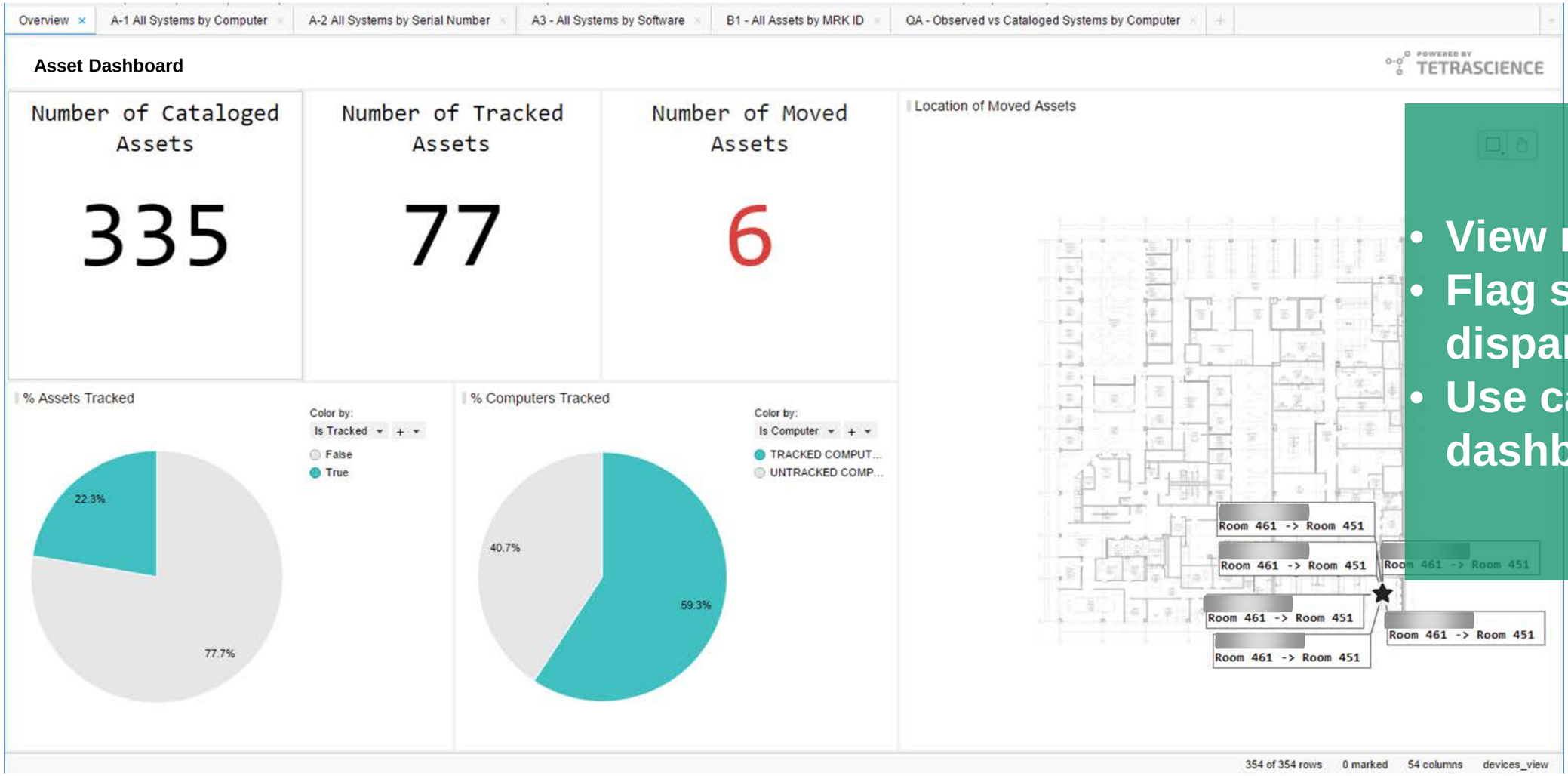
1. Acquire

2. Integrate & Store

3. Visualization & Tooling



Spotfire visualizations & tooling



- View merged data
- Flag system disparities
- Use case specific dashboards

Results

Project Scope

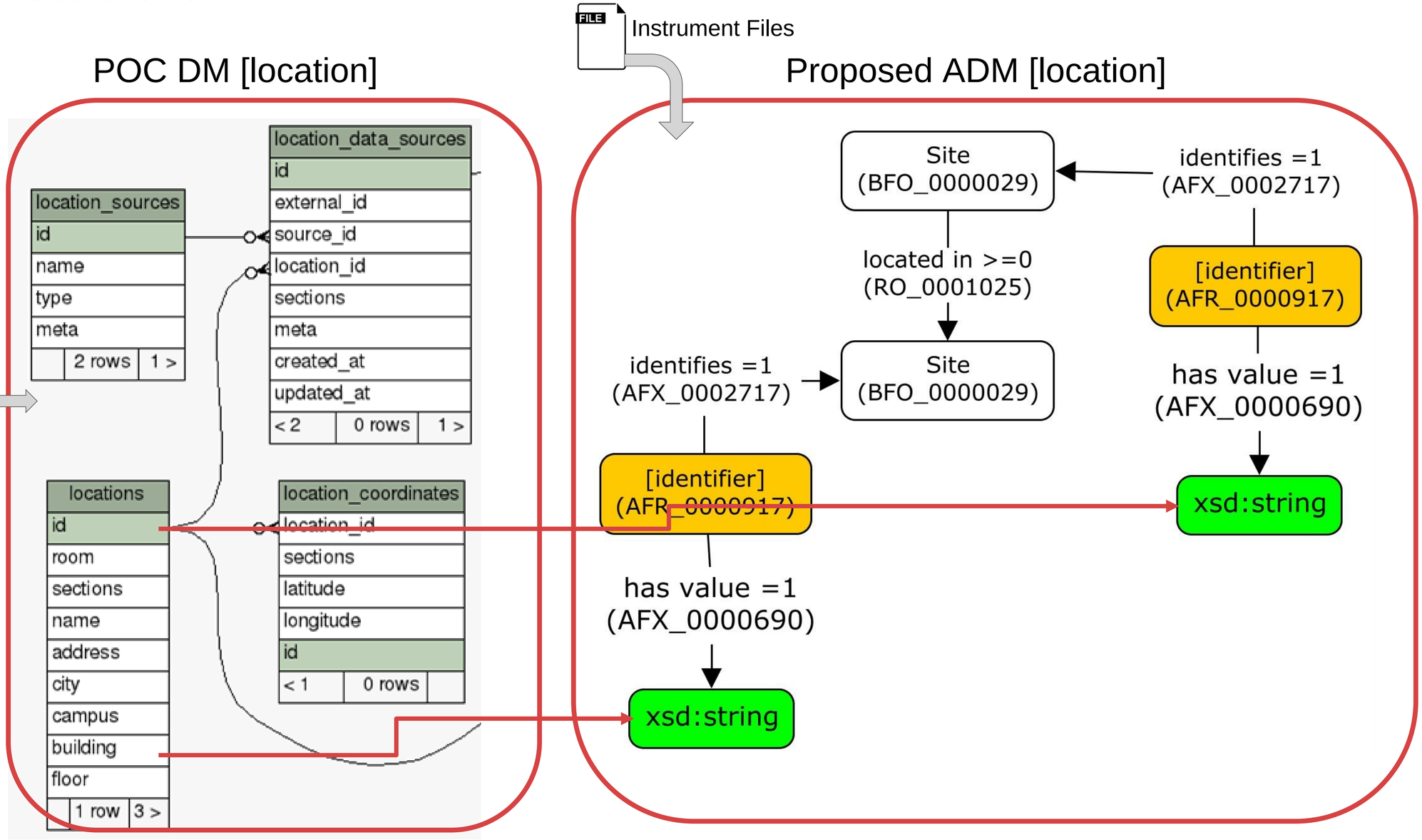
- 1 Location
- 77 Assets (PCs, Instruments, Detectors)
- 4 Month Duration

- 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

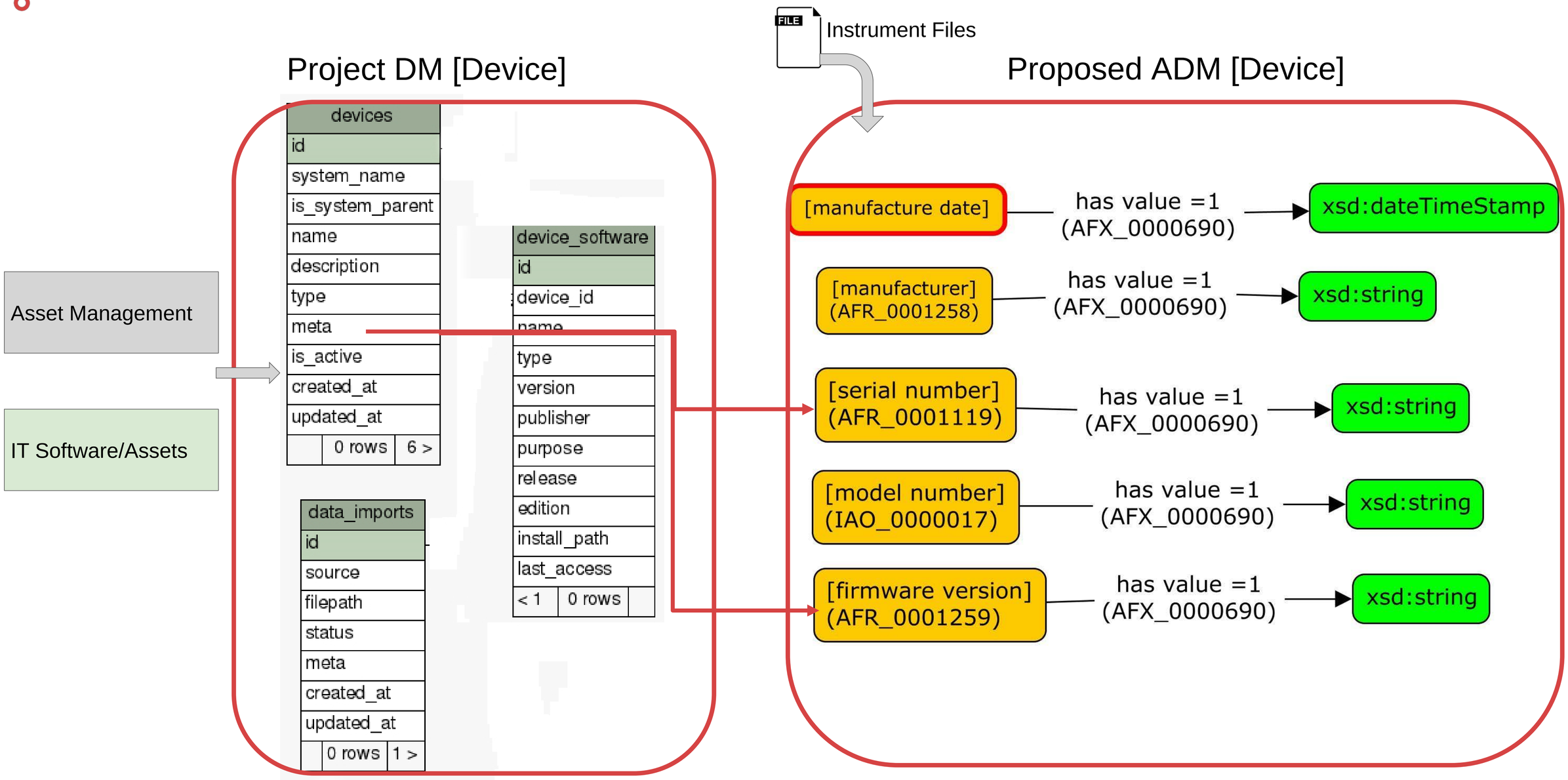
Location Data

Asset Management

Geolocation
(Bluetooth Beacon)



Device Data


Instrument Files
Project DM [Device]
Proposed ADM [Device]
Asset Management
IT Software/Assets
devices
id
system_name
is_system_parent
name
description
type
meta
is_active
created_at
updated_at
0 rows
6 >
device_software
id
device_id
name
type
version
publisher
purpose
release
edition
install_path
last_access
< 1
0 rows
data_imports
id
source
filepath
status
meta
created_at
updated_at
0 rows
1 >
[manufacture date]
has value =1
(AFX_0000690)
xsd:dateTimeStamp
[manufacturer]
(AFR_0001258)
has value =1
(AFX_0000690)
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(AFR_0001119)
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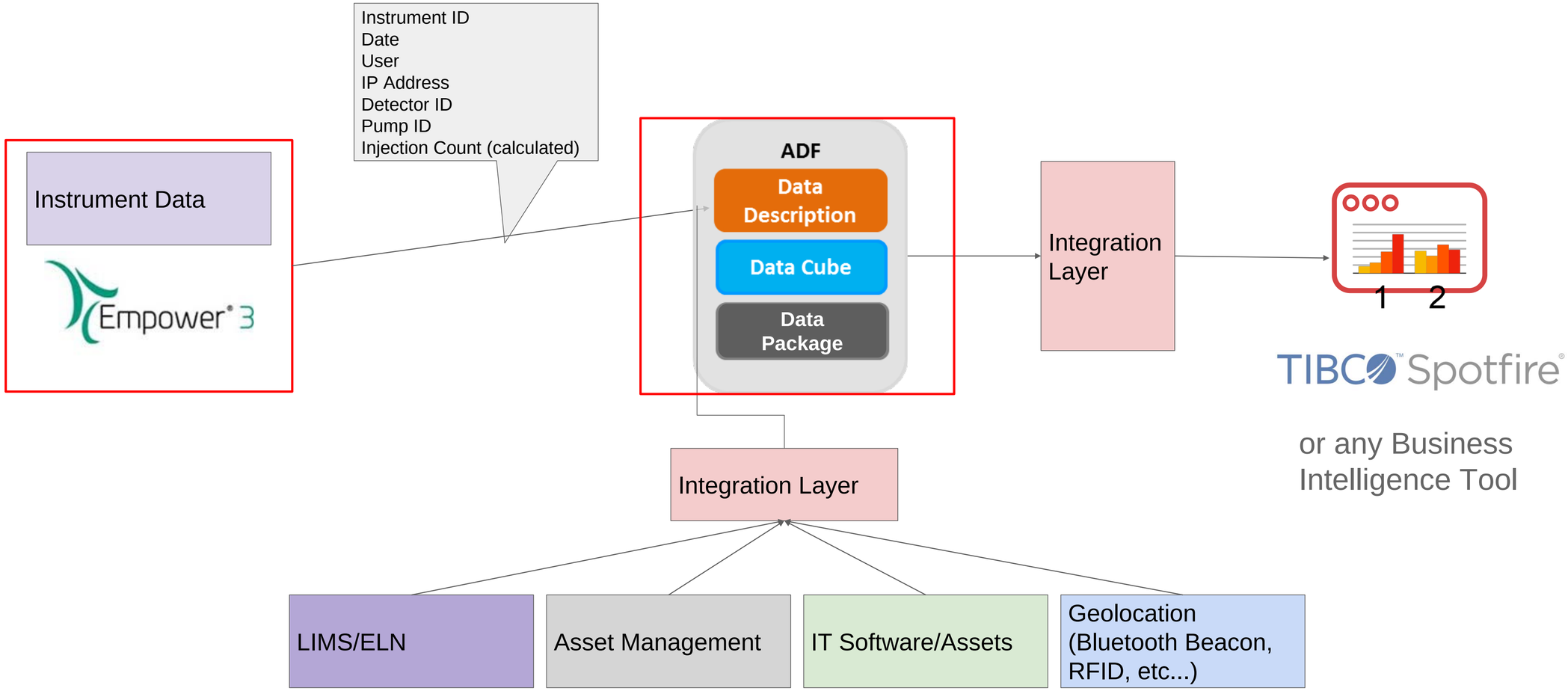
[model number]
(IAO_0000017)
has value =1
(AFX_0000690)
xsd:string
[firmware version]
(AFR_0001259)
has value =1
(AFX_0000690)
xsd:string

Future - ADF Enhancement & Increased Utility

1. Acquire Instrument Data

2. Enhance ADF

3. Visualization & Tooling



Location Use Cases

Location Data Sources

Asset location
Personel 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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