

PLM Sync

Solving the Problem of Syncing Data
between PLM Systems

David Pessin
Consulting Engineer
Northrop Grumman

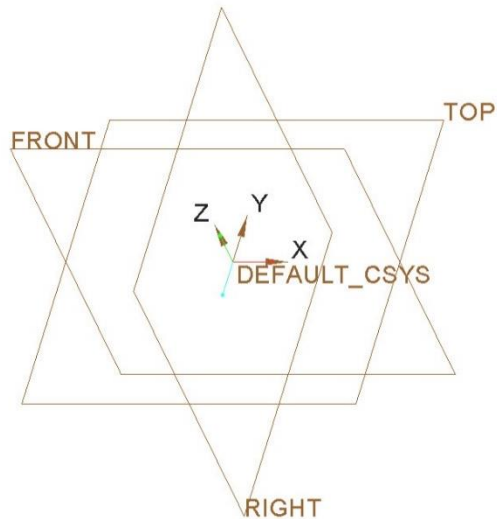


Presenters Bio – David Pessin - Professional

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- **Professional**

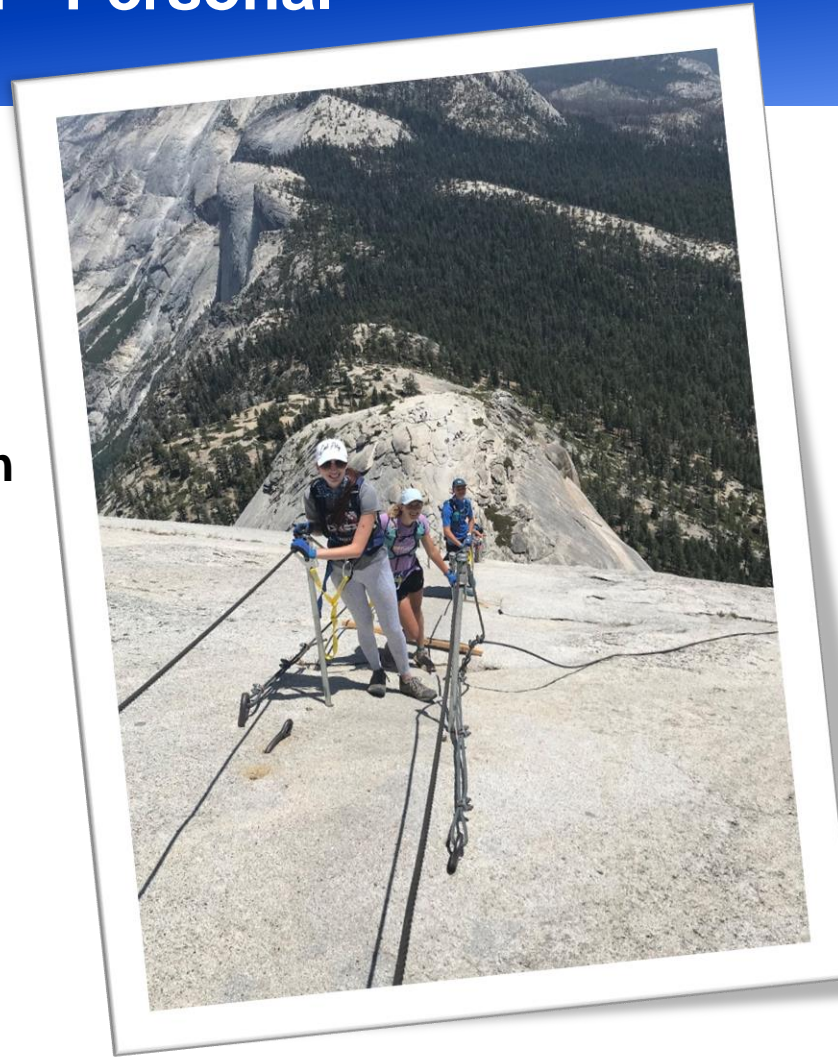
- Consulting Engineer with 20+ years at Northrop Grumman (NGC)
- Work in the Aeronautics Systems sector (NGAS)
- Specialized in Product Lifecycle Management (PLM)
- Former Design Engineer
- First NGC Program: Global Hawk
- Native CAD Tool: Pro/Engineer



Presenters Bio – David Pessin - Personal

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- **Big things I am proud of**
 - Son of Jim and Kathy Pessin
 - Married to Karen Pessin
 - Father of Maya and Alissa Pessin
- **Cool things I have done**
 - Ran a Marathon (once)
 - Climbed Half Dome (twice)
- **Hobbies**
 - Hiking & Camping
 - Playing Guitar and Bass
 - Brewing Beer and Cider
 - “Tasting” Beer and Cider!



Outline

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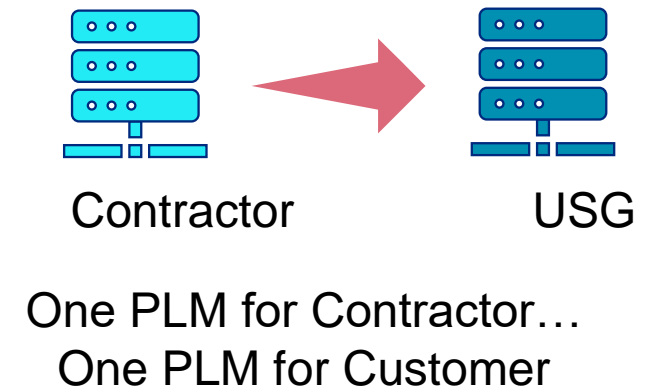
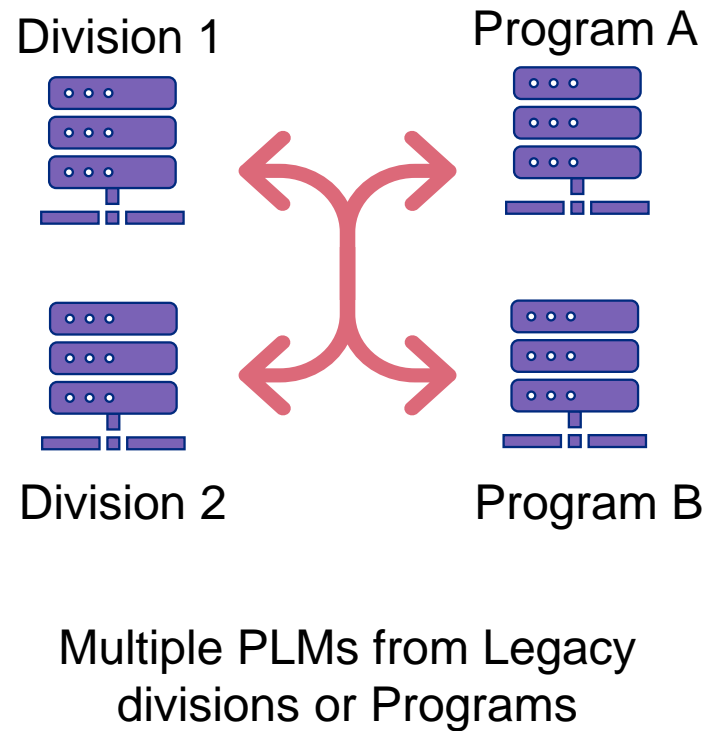
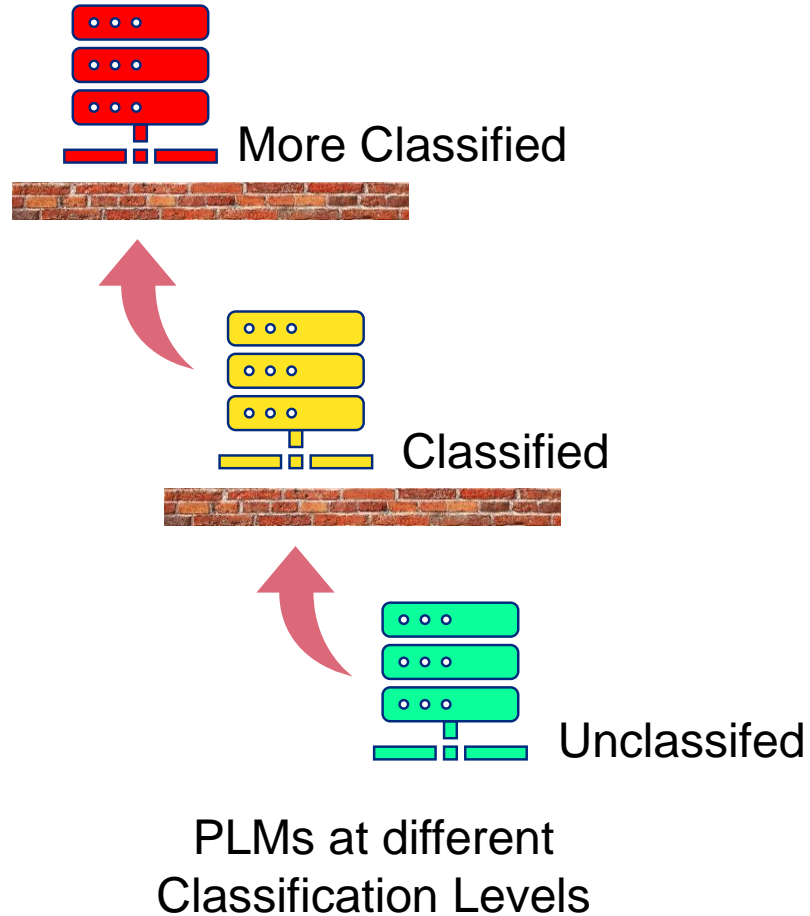
1. The Problem – Keeping data synced between multiple PLM systems
2. NGAS/eQ Technologic “PLM Sync” Solution
 - **How PLM Sync works**
 - **Extract – Move - Import**
3. The Journey Isn't Over
 - **Hurdles and Challenges**
 - **Production Status**
 - **Future Opportunities**

The Problem – Need to keep data synced between multiple systems

The Problem – Need to keep data synced between multiple systems

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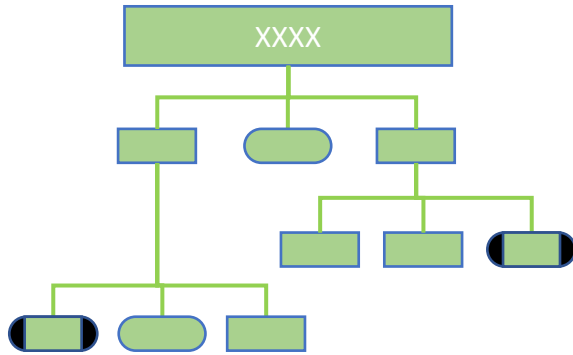
Why would there be multiple PLM systems?



The Problem – Need to keep data synced between multiple systems

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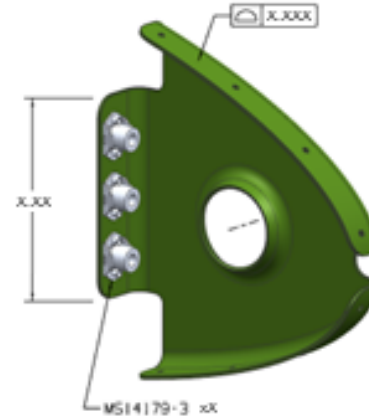
What types of data need to be Sync?



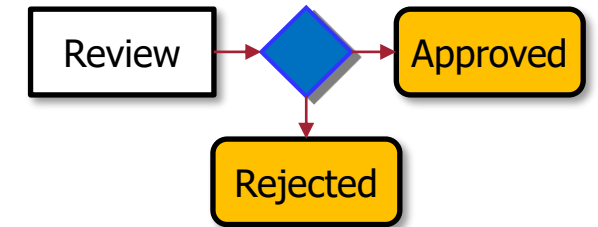
Product Structure



Documents



CAD



Workflow Data

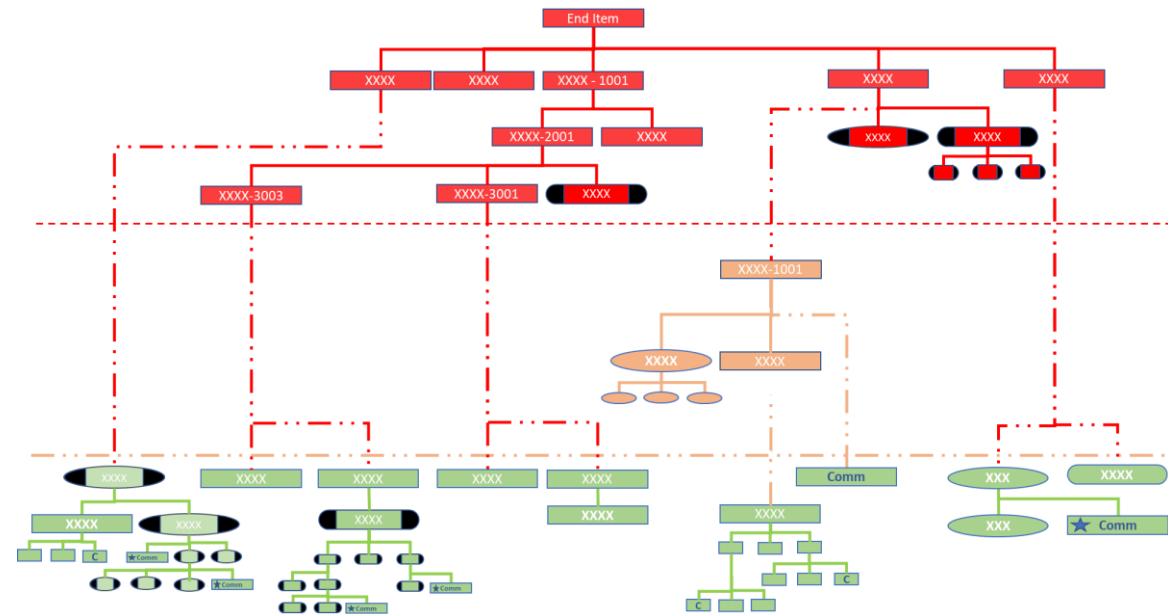
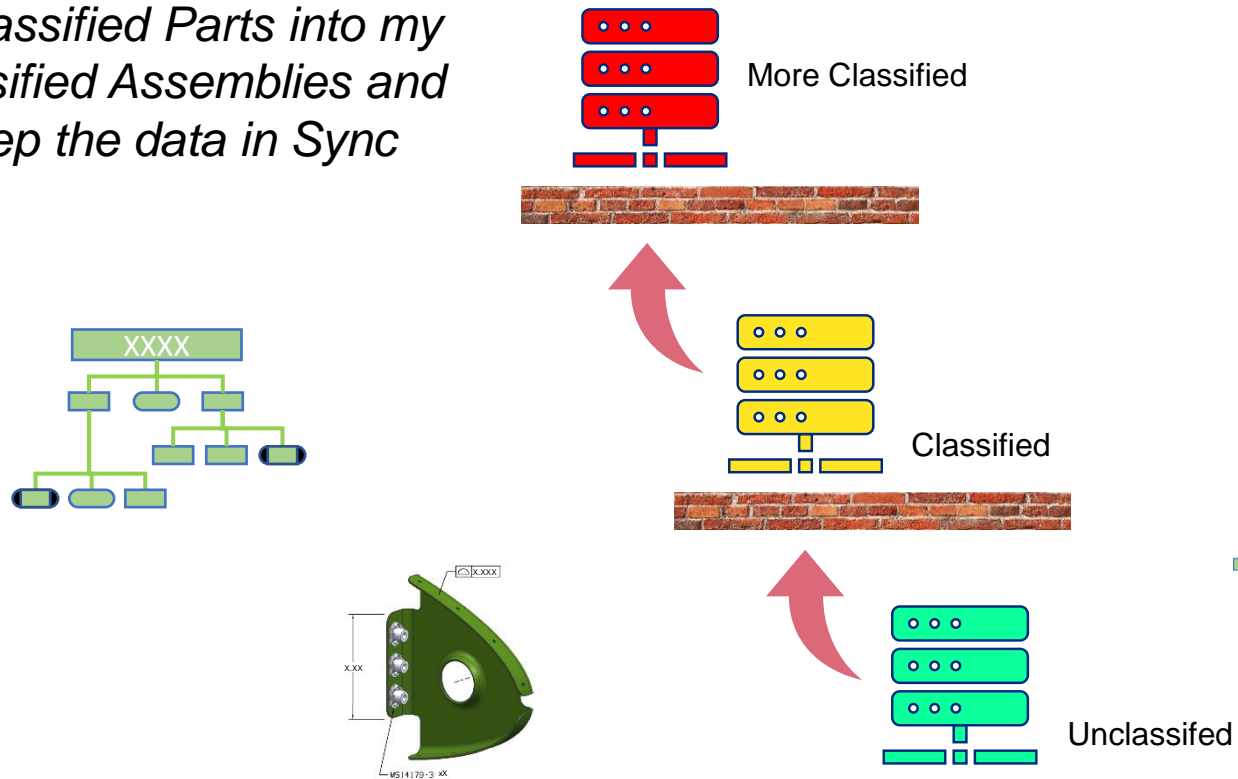
Need to Sync Objects, Relationships, and Files

The Problem – Need to keep data synced between multiple systems

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Scenarios that require PLM Sync

“I need to consume my Unclassified Parts into my Classified Assemblies and keep the data in Sync

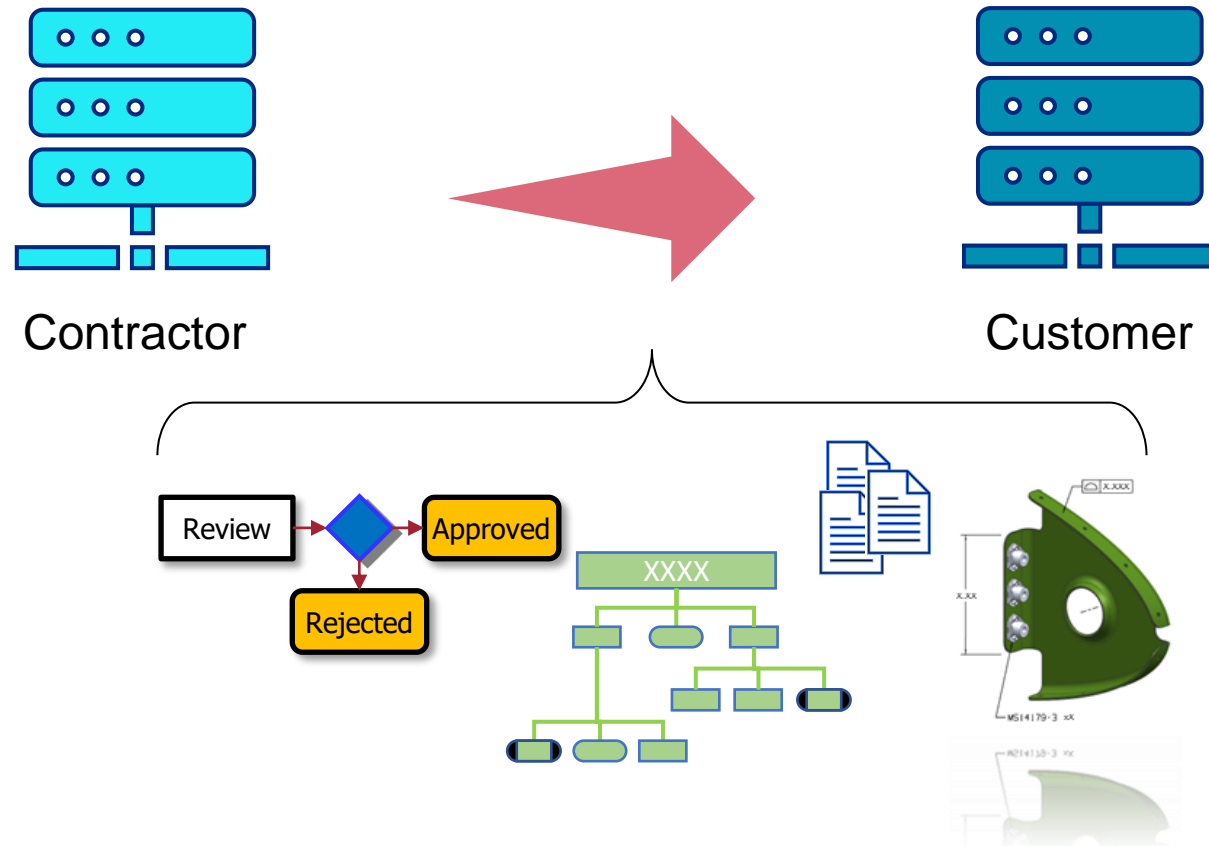


The Problem – Need to keep data synced between multiple systems

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Scenarios that require PLM Sync

“I want send data to my customer and let them review in their system”

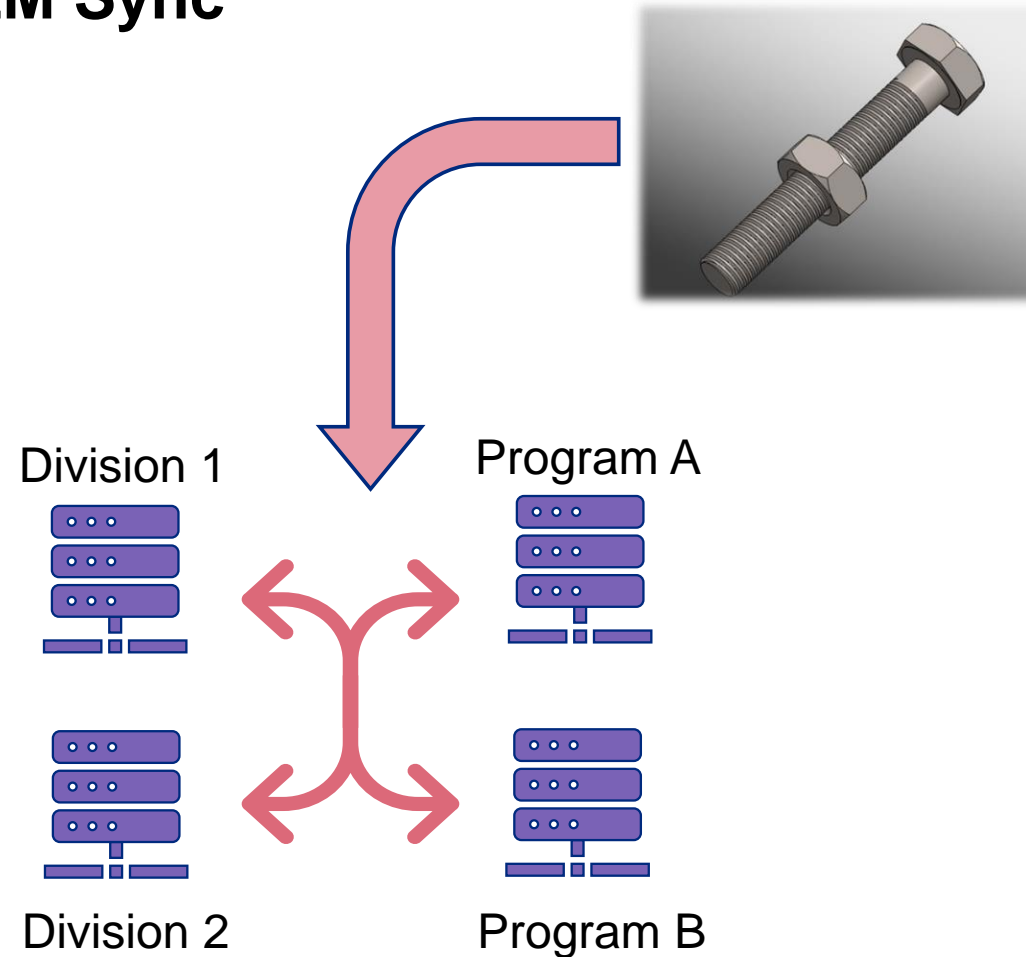


The Problem – Need to keep data synced between multiple systems

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Scenarios that require PLM Sync

“I want to share my Standards data among different databases and keep them in sync”



The Problem – Keeping data synced between multiple systems

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Other Considerations

- Is Digitally Connected?
 - Or... Is the Digital Thread Unbroken?
- Is there one Master?
 - Or... Is the ASOT clear?
- Can the Secondary data be modified independent of the Master?
- When the Master data gets updated, can the Secondary data get updated?
- Can I switch the Master?

NGAS's Solution:

PLM Sync: A custom, eQube-MI based tool

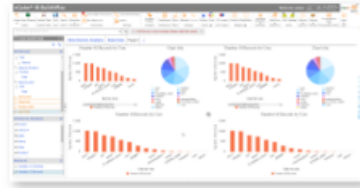
eQube - MI

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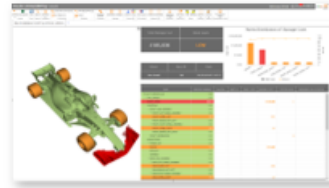
Throughput



Cycle Time



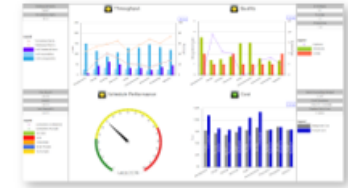
Cost



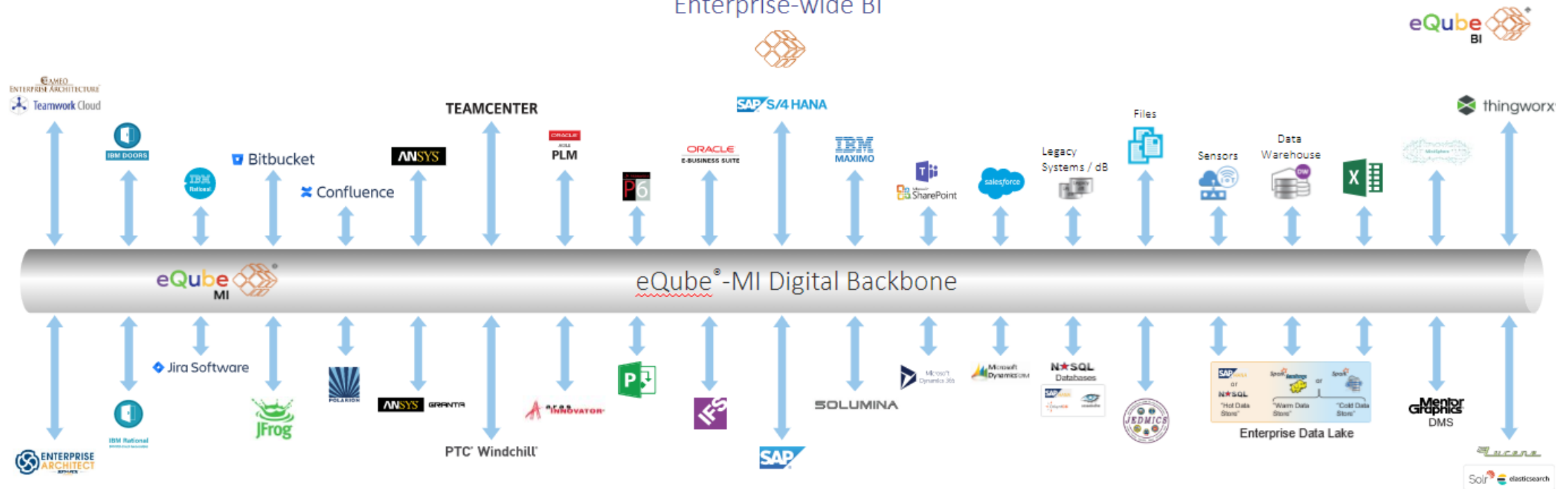
Quality



On Time Performance

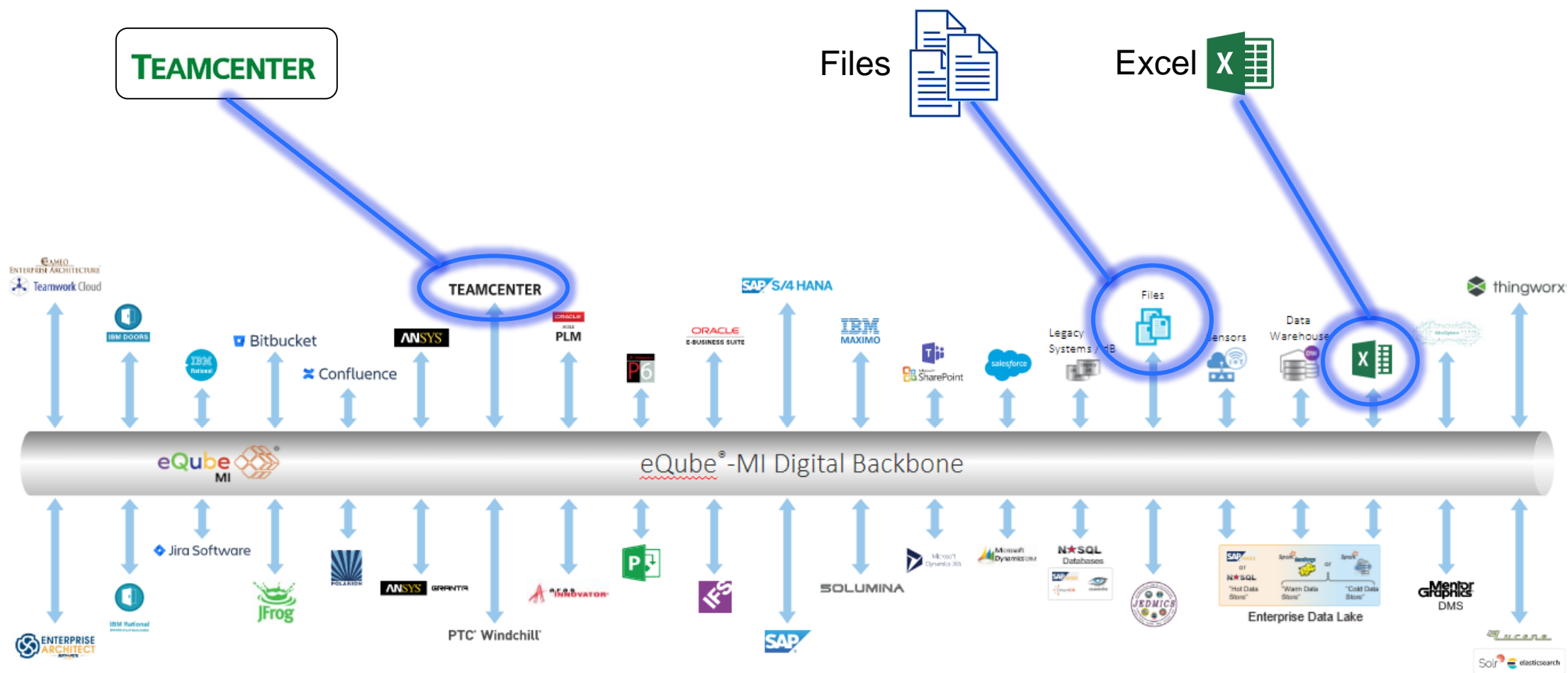


Enterprise-wide BI



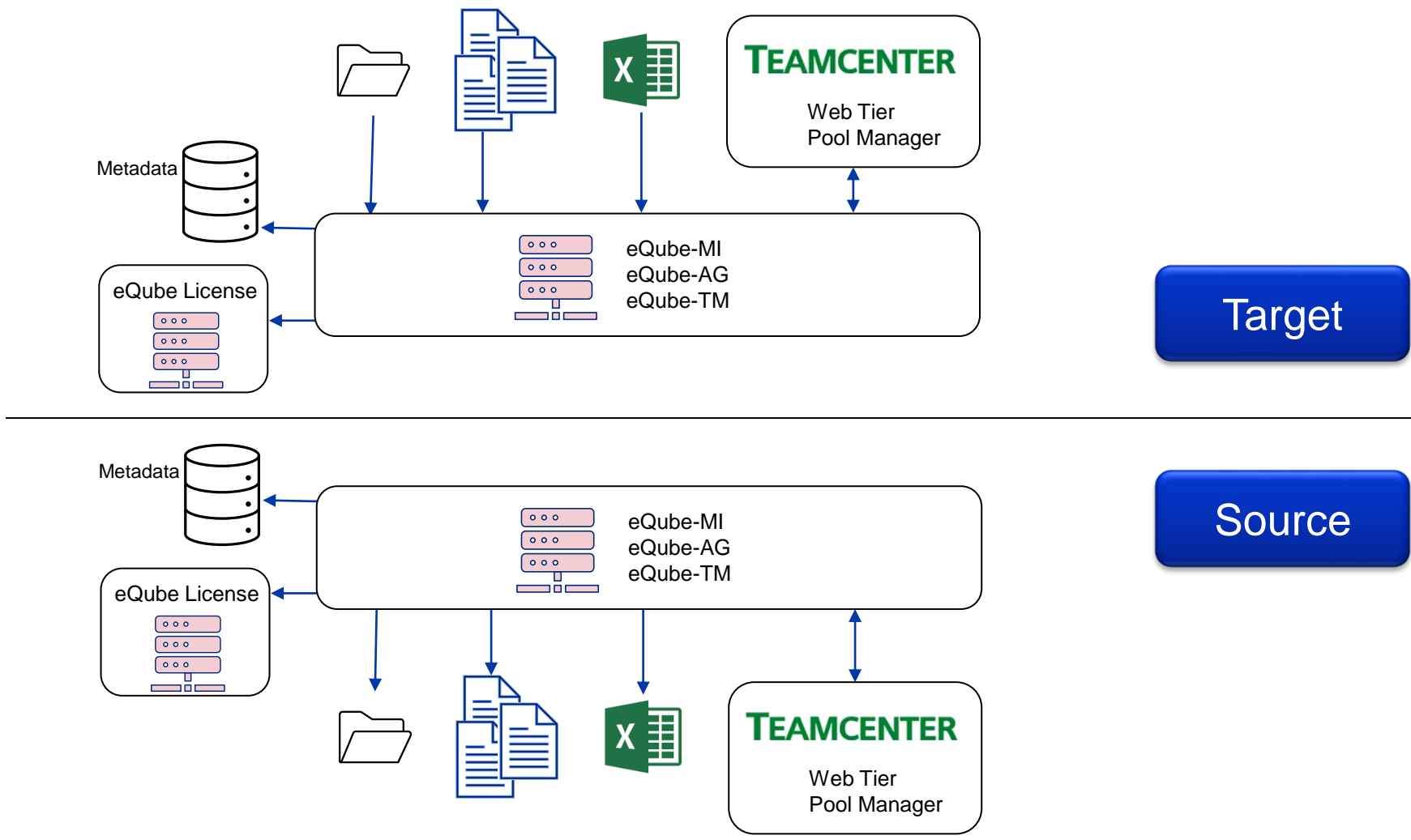
eQube - MI

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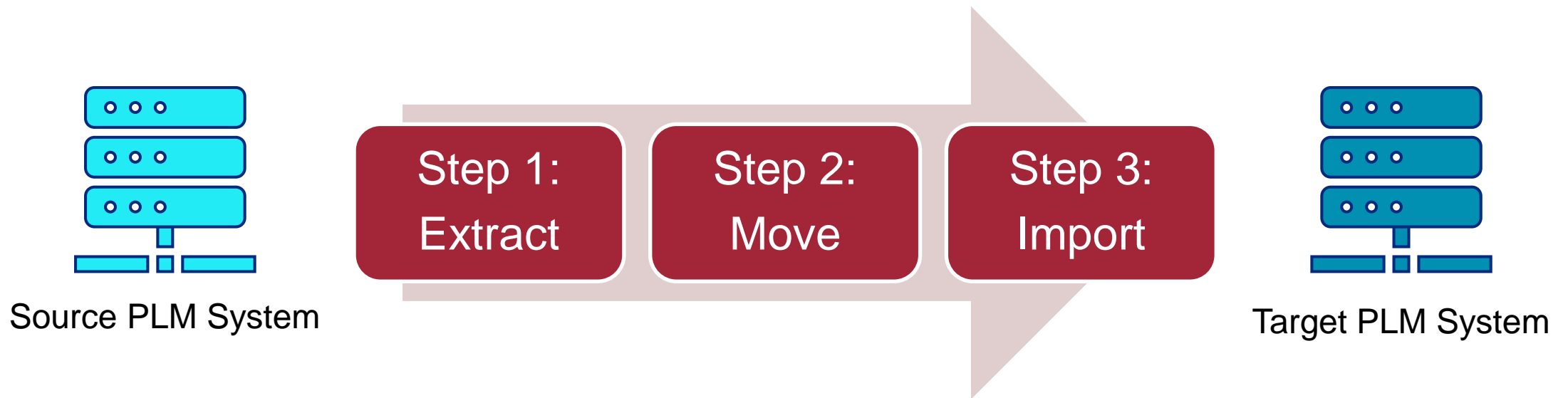
PLM Sync – eQube Deployment Architecture

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PLM Sync – the Simple View

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PLM Sync - Extract

CPLM Sync – 3 Triggers Extract

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Adhoc

DNP20220811_TEST_1

DNP20220811_TEST_1,-

eQube-BI

https://rsavag-wb0539.northgrum.com/CPLM21xi-BI7xPD-VA/home.jsp?uid=acdc

Enter your questions here ...

Extract Report

This report can be used to trigger extracts from MLS for 'N4_NonDesignPart Revision'.

Steps:

1.) Confirm that this is the correct part/revision you would like to extract.

2.) Click on the link provided in the 'Extract Trigger Link' column, where it s

Extract Trigger Link

Item ID

Item Revision

[Click Here](#)

DNP20220811_TEST_1

-

Category	Value
Program	Validation_Testing
Object Type	<div>Comm. Part</div> <div>Change Notice</div> <div>Design Document</div> <div>Design Material</div> <div>Design Part</div> <div>Finish</div> <div>Finish Group</div>
Release Status	<div>Active</div> <div>Approved</div> <div>Approval Pending</div> <div>Archived</div> <div>Back Fix</div> <div>Board Approved</div> <div>Cancelled</div>
Frequency	<div>Monday</div> <div>Tuesday</div> <div>Wednesday</div> <div>Thursday</div> <div>Friday</div> <div>Saturday</div> <div>Sunday</div>

Schedule

Workflow

```
graph LR; Review[Review] --> Decision{ }; Decision --> Rejected[Rejected]; Decision --> Approved[Approved]; Approved --> Extract[Extract to CPLM Sync];
```

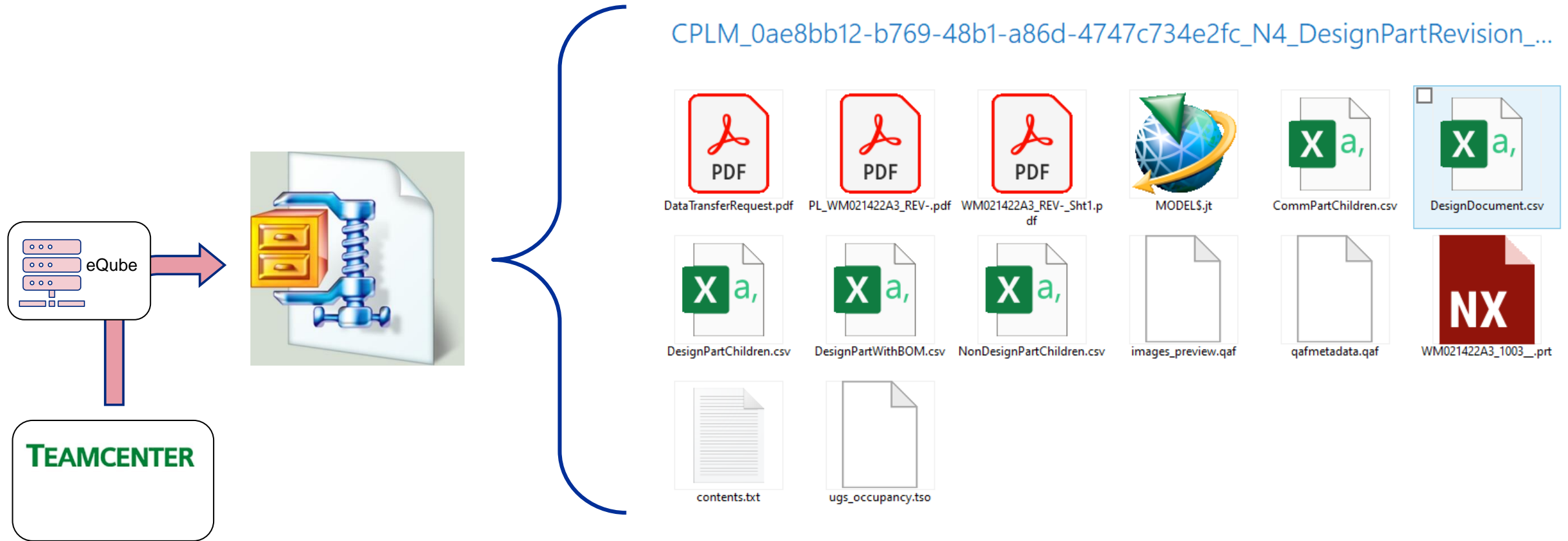
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PLM Sync - Extracted Data

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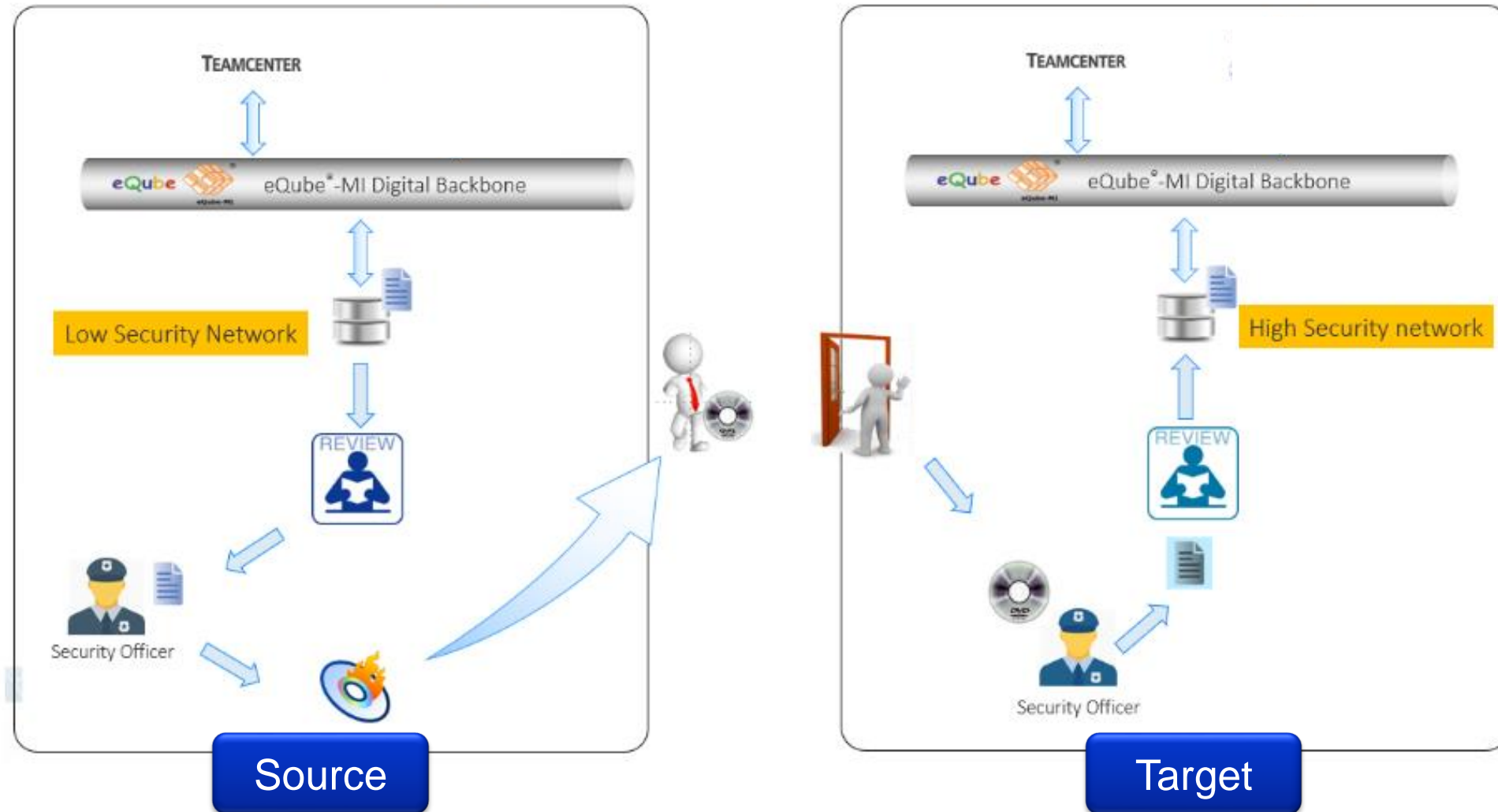
PLM Sync - Move



It's Very Manual....

Example Flow syncing across different security networks

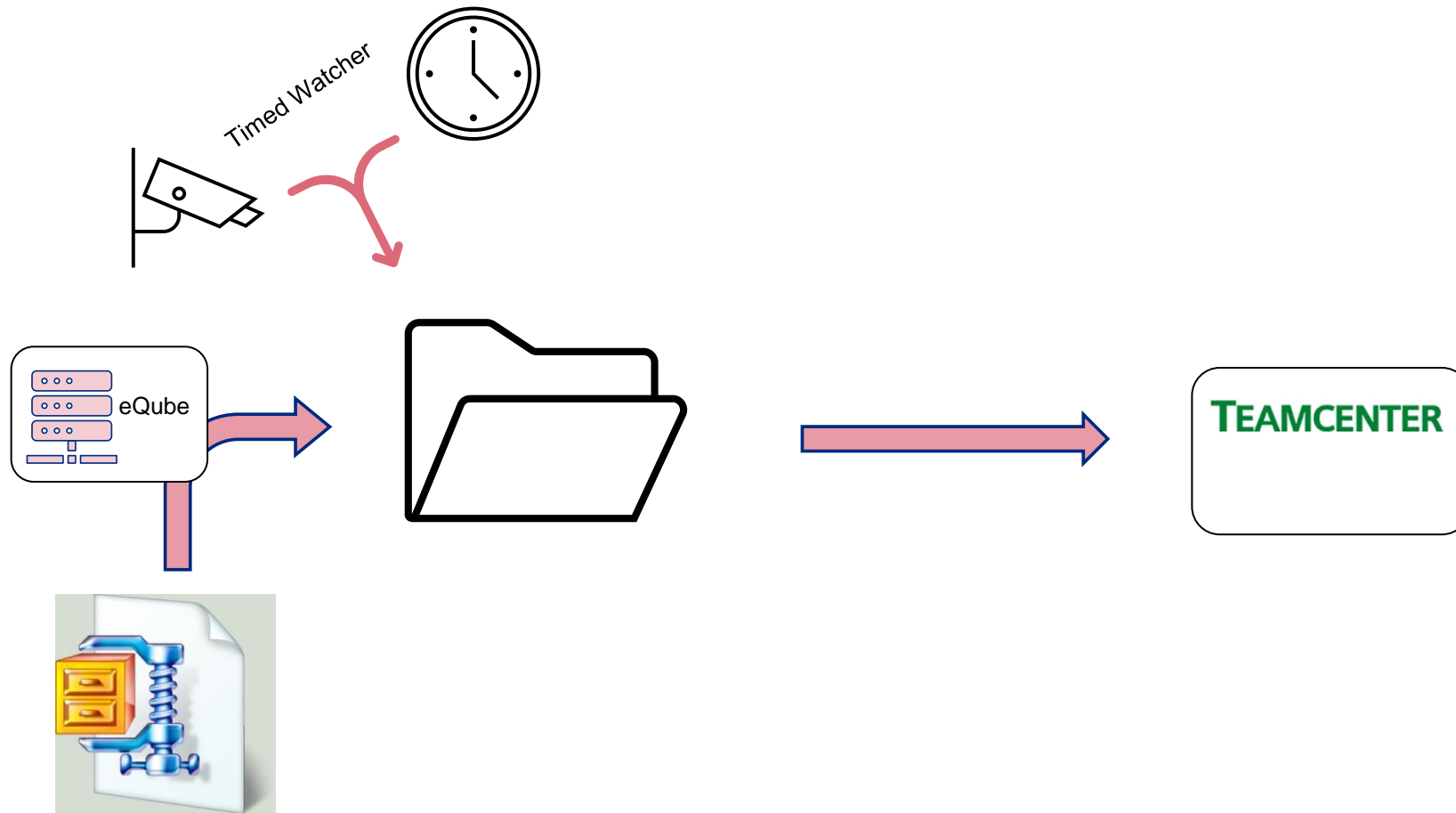
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PLM Sync - Import

PLM Sync – Import Data

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PLM Sync – Import Data

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Synced Data is same in Source System as Target System... Except:

- Synced data is owned by a different Group  Data is locked from editing in Target Environment
- The attribute “Owning Site” is populated with name of the Source System  Data is identified as “Non-Master” and identifies where the Master is
 - Normally Owning Site = null

The Journey Isn't Over

The Journey - Hurdles and Challenges

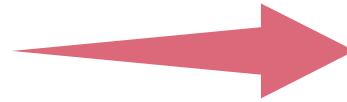
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- **Maintaining Environments for testing**
 - “1 + 1 > 2”
- **Evolving Requirements**
- **Complexity and idiosyncrasies of “real” data**
- **Working with Security to move lots of data often**

The Journey – Production Status

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- **#1 Scenario**
 - **Keep Data Synced between environment in different Classification Levels**
 - **Deployed into Production**
 - **Many of the expected struggles and hurdles are realized**
 - **Working on improving stability and reducing errors**
 - **Critically important to succeed**
 - **It will succeed**
- **#2 Scenario**
 - **Sync data to Customer**

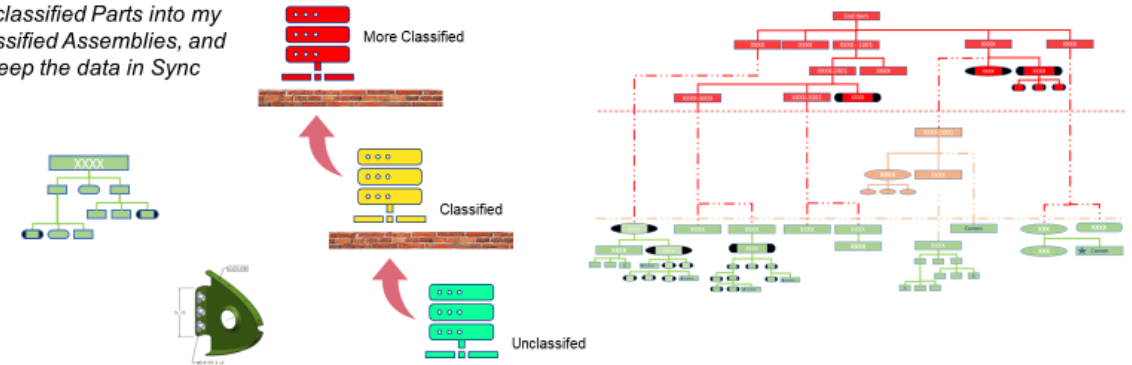


The Problem – Need to keep data synced between multiple systems

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Scenarios that require PLM Sync

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The Journey – Future Opportunities

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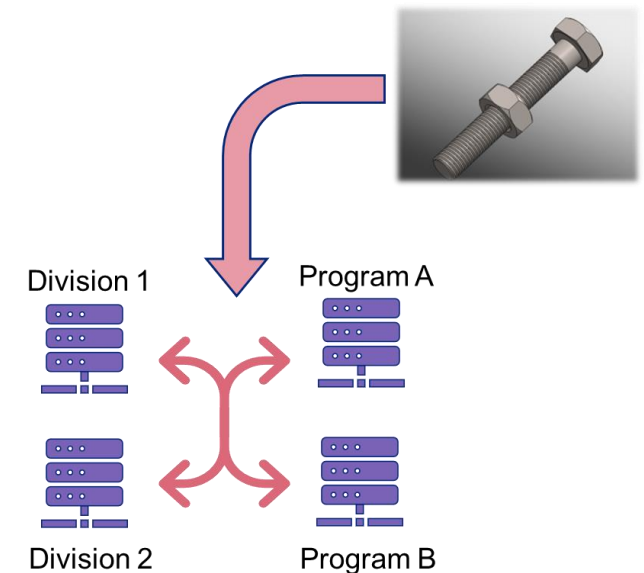
- **Syncing of Standard Parts (and other standard data)**
 - NGC has numerous production systems that all hold a lot of the same standards data
 - Managed by multiple teams

Part Status	Initiate Sync	Transaction Status					
Part Number	Nomenclature	Status in Instance (Master, Subject, Does Not Exist)					
		NGPLM	CPLM (U)	CPLM NGPCN (SC)	TcUA (U)	MPLM (U)	
NAS1149FN216P	WASHER, FLAT	M	S	S	S	S	
NAS1150FN232P	WASHER, FLAT	M	S	S	S	DNE	
NAS1151FN316P	WASHER, FLAT	M	DNE	DNE	DNE	DNE	
NAS1152FN332P	WASHER, FLAT	M	S	S	M	DNE	
NAS1153FN416P	WASHER, FLAT	S	S	S	S	M	

Vision...

Standards data from all PLM systems monitored, managed, and synced

A user-friendly dashboard that shows the status of data in each system and enables management of synced data



Summary – PLM Sync

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- The ability to keep data in sync between PLM systems applies to many scenarios
- The NGAS / eQ Technologic solution is going to be awesome
- Never as simple as it seems

Questions??

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