3DEXPERIENCE®

Cloud Migrations Strategies and Methodologies

M. Maier

DASSAULT SYSTEMES | The 3DEXPERIENCE® Company

3DEXPERIENCE®

DASSAULT SYSTEMES | The 3DEXPERIENCE® Company

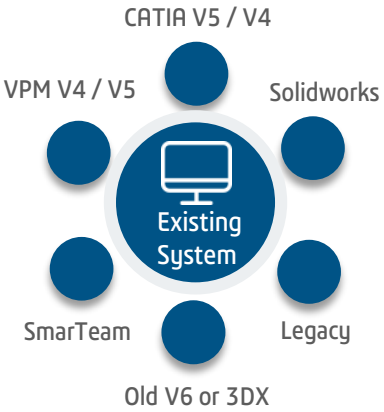
Agenda

- General Overview
- Migration Strategy
- Transition Tools
- Conclusion

TRANSITION & UPGRADE TO 3DEXPERIENCE Platform

TRANSITION TO 3DEXPERIENCE PLATFORM LANDSCAPE

Customer Legacy Systems



- Business Processes & Architecture
- Data Volumetrics, Complexity &, Integrity
- Parametrization, Integrations

Brands

- No. of Brands
- Unified Data Model

Industries

- Industry Processes
- Industry Complexity
- Domains

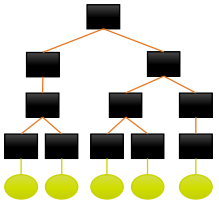
Leverage Platform Benefits

- Best Practices
- Leverage OOTB
- Faster Upgrades in future

On Cloud
On Premise

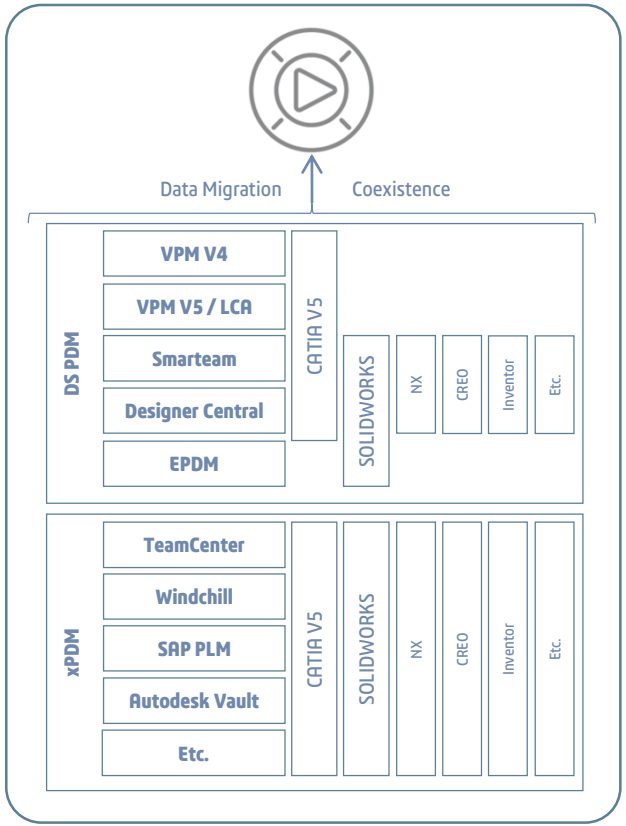
Business Processes

Data



TRANSITION & SCENARIOS

3DEXPERIENCE TRANSITION VOCABULARY PER SITUATION



Data Migration & Coexistence

Definition

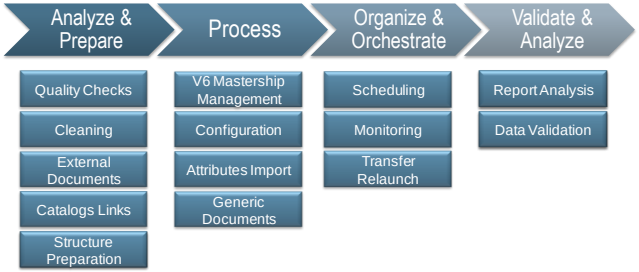
- Data Migration (Mig) = data is moved from a legacy to the **3D**EXPERIENCE platform
- Coexistence (Coex) = Data Back & forth exchanges between the maintained legacy and the **3D**EXPERIENCE platform

TRANSITION IS ALWAYS A WHOLE PROJECT

- A coexistence project is **complex**
- In order to succeed **service offerings** have been developed
  - Transition Factory
  - EDAT
  - 3DS-IMPALA
  - Route to Cloud
  - **Etc…**

The **Transition Services** offer consists of:

- **Methodology**
- **Tools**
- **OOTB functionality**



Agenda

General Overview

Migration Strategy

Transition Tools

Conclusion

CUSTOMERS LANDSCAPE

3DEXPERIENCE PLATFORM FINAL TARGET LANDSCAPE

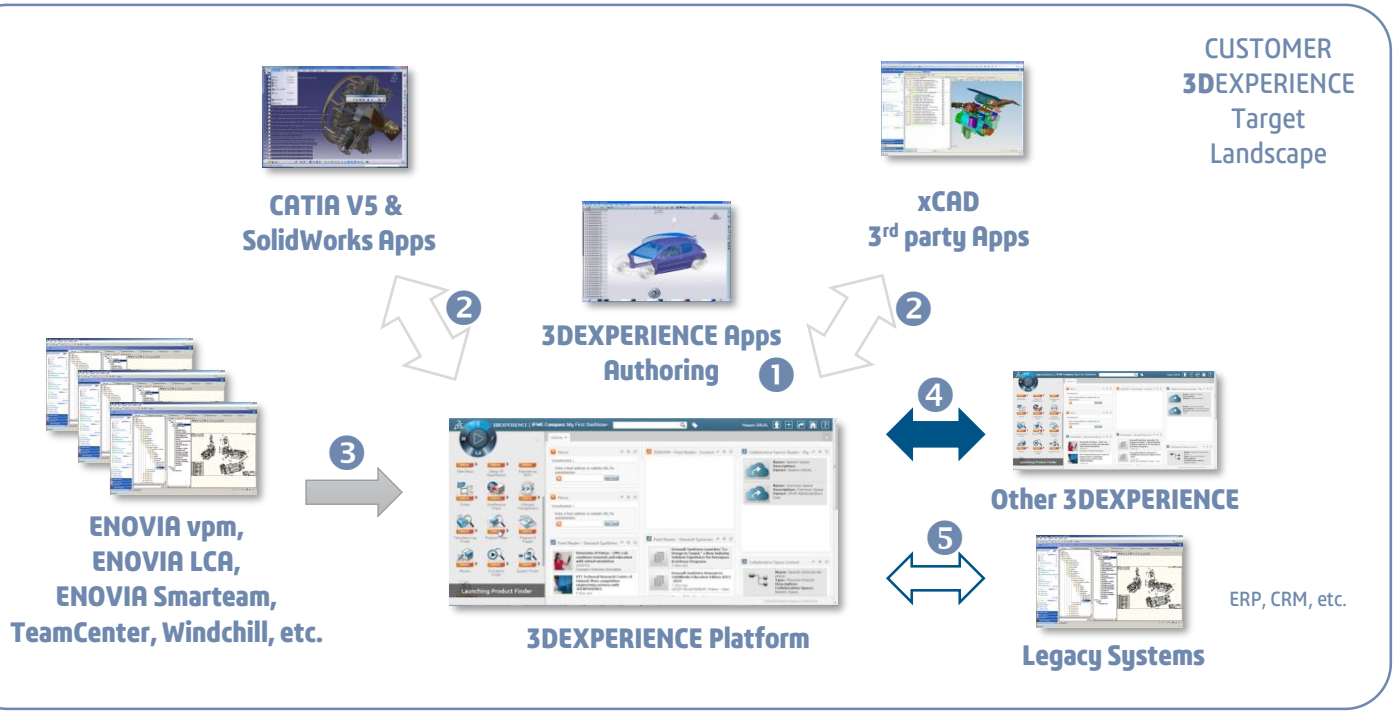
❶ Dassault Systèmes 3DEXPERIENCE Platform Native Applications

❷ Dassault Systèmes CATIA V5, Solidworks or 3rd Party CAD Application Integration (Power'By)

❸ Dassault Systèmes PDMs (ENOVIA vpm, LCA, Smarteam, Designer Central) and 3rd Party Legacy PDMs Transition
- Not for Cloud -

❹ Briefcase exchange with other 3DEXPERIENCE platform

❺ Legacy Systems Integration by EIF and iPaaS



Native Integration In 3DEXPERIENCE Platform

Transition (Migration or Coexistence)

Data Exchange

Enterprise Integration

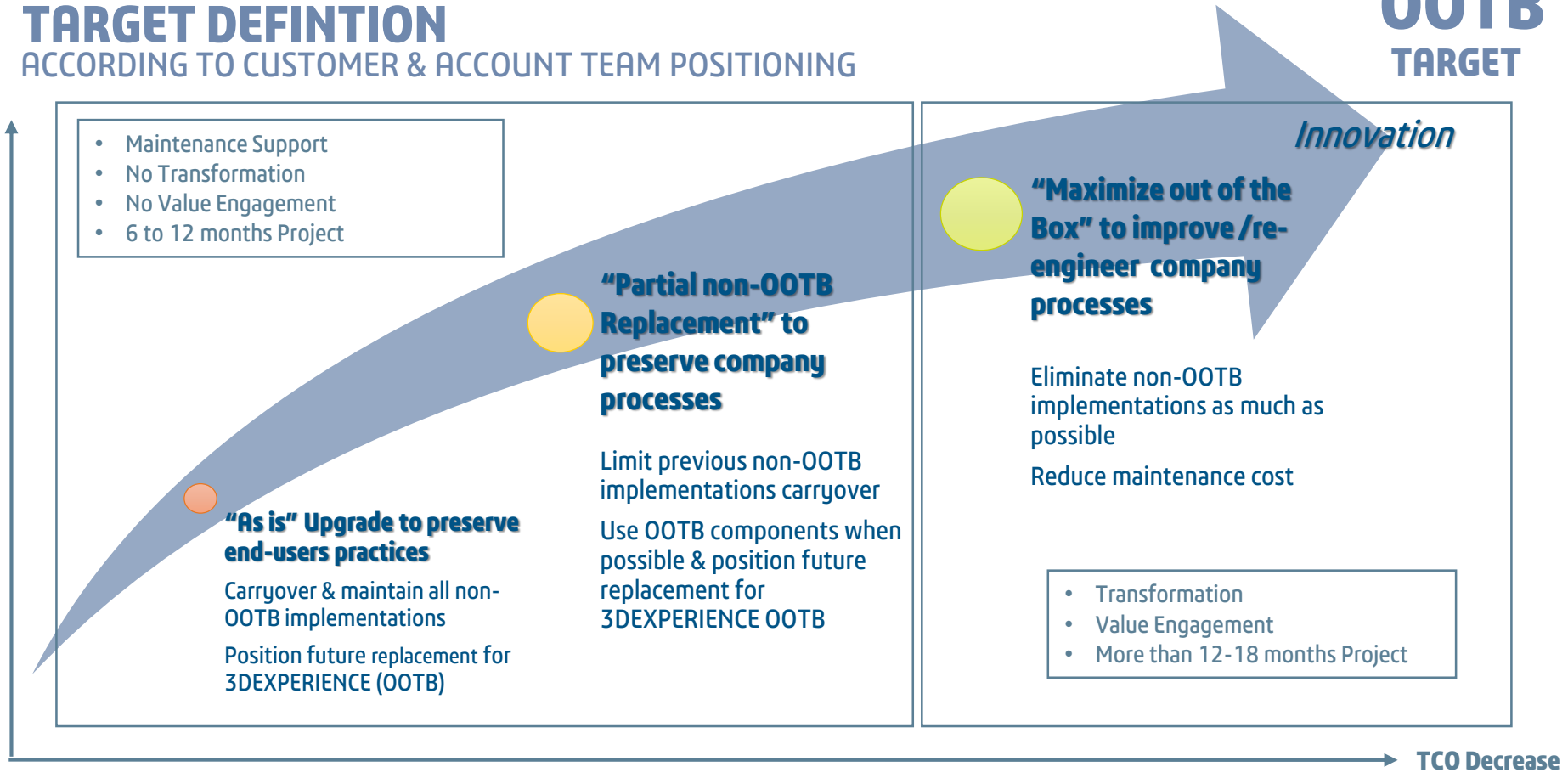
MANDATORY KEY FACTORS FOR TRANSITION STRATEGY

SUCCESSFUL MIGRATION TO **3D**EXPERIENCE Platform

- **Clear target 3DEXPERIENCE platform Definition**
  - Business Processes, Global Architecture (Logical & IT), Data Model, Rules, P&O
- **Clear Source Legacy System Definition**
  - Business Processes, Global Architecture (Logical & IT), Data Model, Rules, P&O, Used Data Types
- **Clear Defined Transition Strategy**
- **Global Approach (Methodology & Tools)**
- **Leadership and Dedicated Teams**
  - Both Customer (Business & IT) & System Integrator

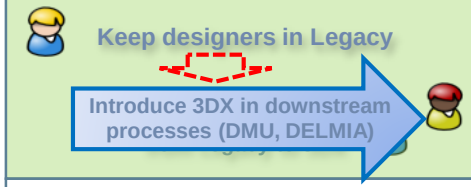
TARGET DEFINTION
ACCORDING TO CUSTOMER & ACCOUNT TEAM POSITIONING

OOTB TARGET



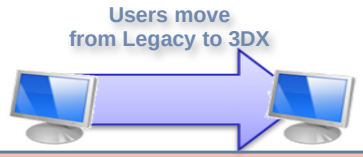
MIGRATION & COEXISTENCE SCENARIOS

3DEXPERIENCE STRATEGY & PRINCIPLES



Supplemental (Downstream processes)

- Keep Legacy System Community
- Introduce 3DEXPERIENCE for downstream processes
- Collaboration between legacy user and mock-up or process engineers



Carry Over / Migration

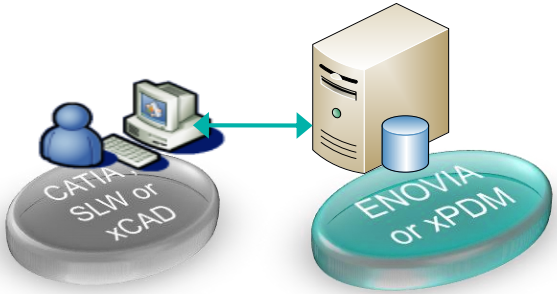
- Reuse / Carry over data from Legacy System
- One shot (migration) or incrementally (carry-over)

Collaboration

- Keep Legacy System Community
- Introduce 3DEXPERIENCE for dedicated Project or Process
- Collaboration between Legacy and 3DEXPERIENCE

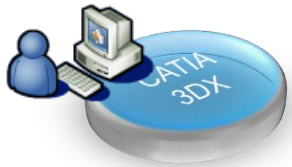
TRANSITION METHODOLOGY

TIMELINE « Big Bang »



Stop
Legacy System
Production
(on project scope)

Start
CATIA 3DX
Production



weeks

days

hours

3DEXPERIENCE adoption

Prepare
Install
Assess
Analyse & Customize
Check
Clean
Identify

Migrate
•Catalogs
•Standards

Migrate
Released data
Issue mgt

Migrate
WIP data
Issue mgt

Update
3DEXPERIENCE master

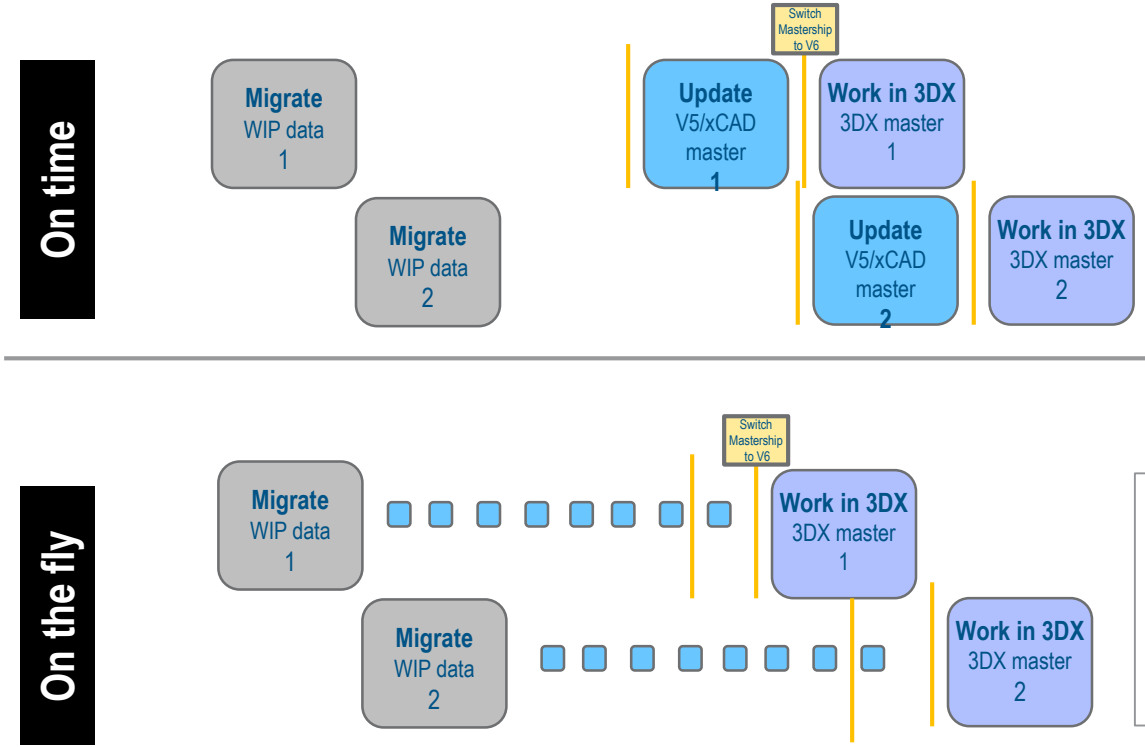
Update
Legacy master
Issue mgt

Periodic Updates
Legacy Master

Time will vary according to customers

Timeline

TRANSITION METHODOLOGY
HOW TO MANAGE UPDATE ?

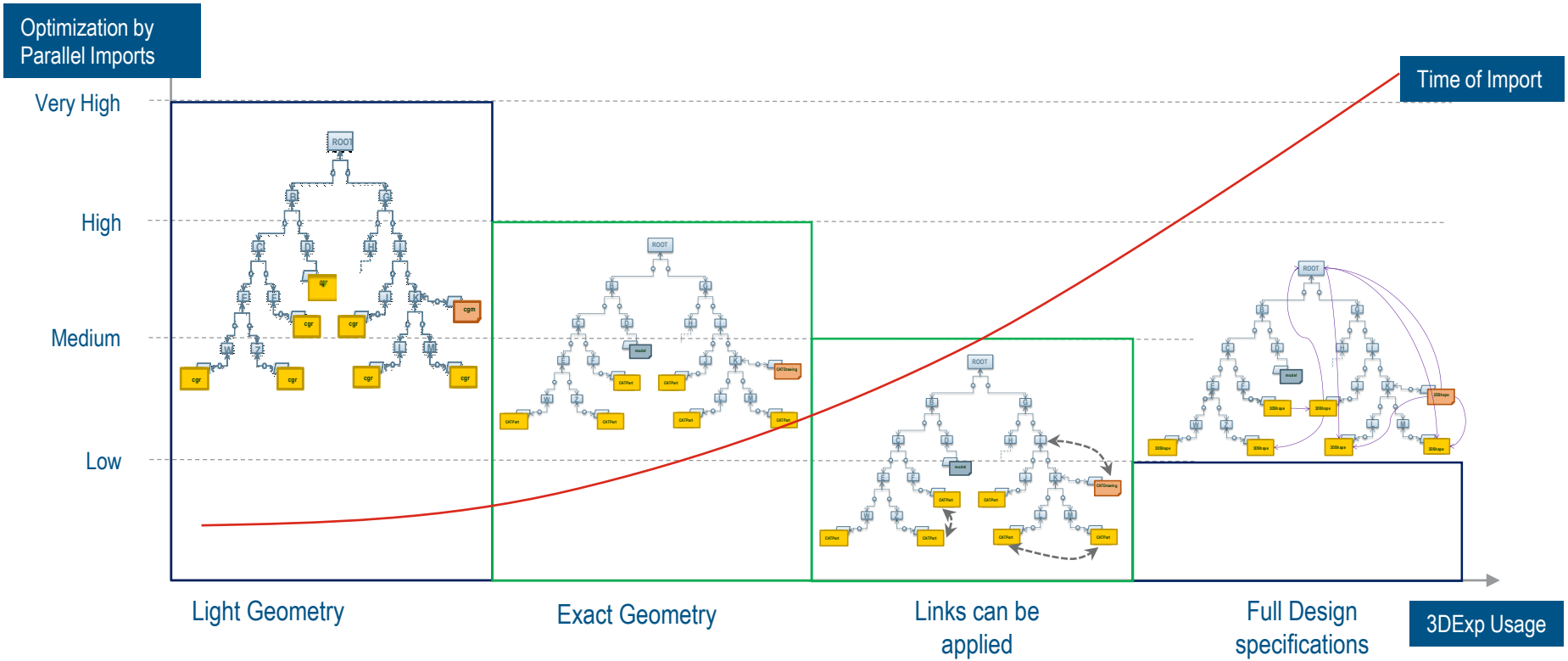


Data is updated in **3D**EXPERIENCE based on :
- object modifications tracking
- only small modification is treated at a time

→ Need additional automation tool

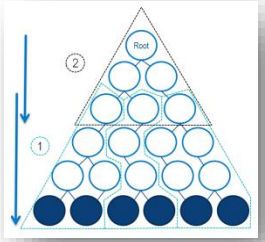
Migration Performance

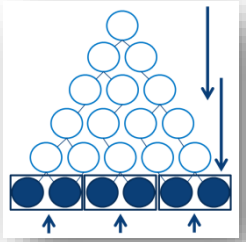
Migration Performance based on data consistency

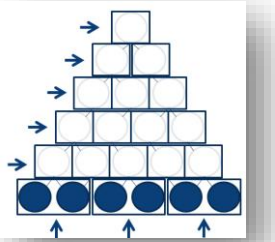


TRANSITION IMPORT STRATEGY

HOW TO MANAGE DATA VOLUMES ?





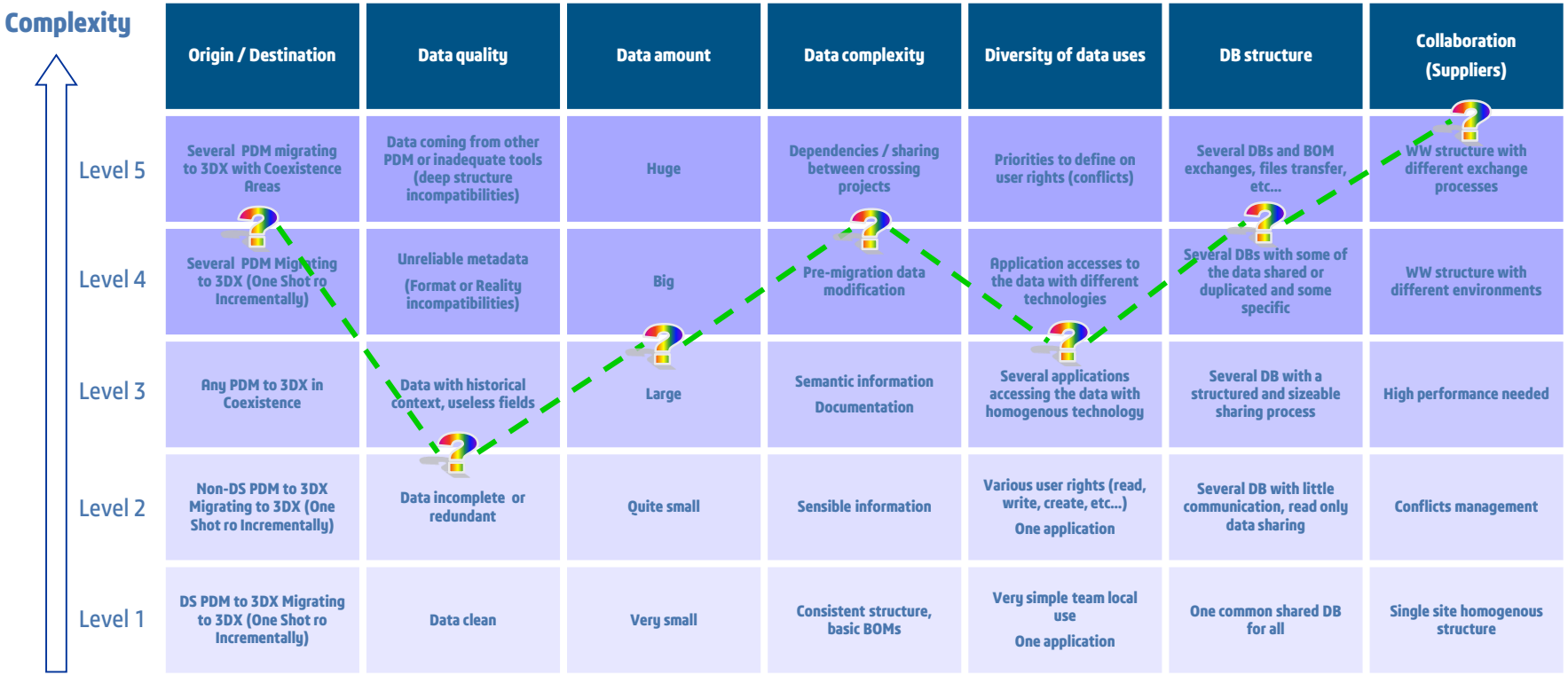


	Top Down	Bottom Up	By Level
OOTB Readiness	Yes	Prep Work	More Prep Work
Parallelization	No	Yes (Leaf)	Yes
Support Contextual Links	Yes	No	No
Reports	1 Big	X Small	XX Small
Ease of rerunning failures	=	+	++
Automatization	=	+	++

MIGRATION COMPLEXITY FACTORS

COMPLEXITY FACTORS

RIGHT SIZING



Agenda

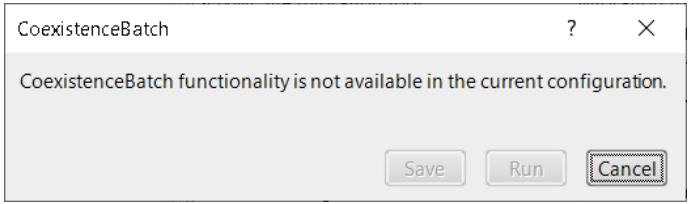
General Overview

Migration Strategy

Transition Tools

Conclusion

DS TECHNOLOGIES CLOUD COMPATIBLE



MQL

JPO

DBDI

XPDM

EIF (WebServices)

EIF (Exchange Service)

FBDI (w or w/o conversion)

3DXML

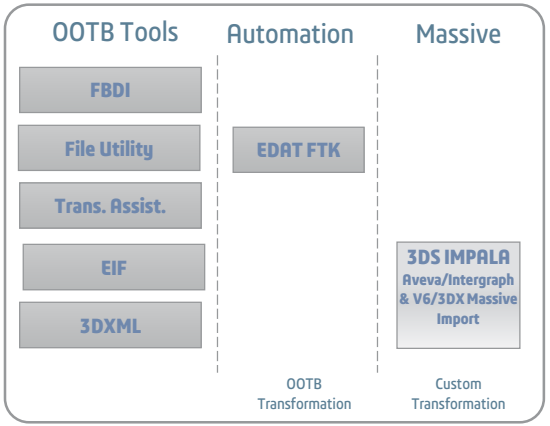
STANDARD Exchange Tools

OOTB ASSETS

TOOLS	DEFINITION	CONTEXT	TARGET EXAMPLES
FBDI	File Based Design Import (with conversion)	Mig	CATIA V5 File Based
CATIA V5 /Solidworks File based Import Utility	File Based Import (without conversion)	Mig	SW / CATIA V5 File Based for PowerBy
EIF Import for CATIA V5 (R2022x – FD03)	**STEP XML based EIF import**	Mig/coex	CATIA V5 PowerBy import by iPaas
Transition Assistant for CATIA V5 and Solidworks	Import from Smarteam and EPDM to Power'By using EIF for CATIA V5 and Solidworks	Mig	ENOVIA ST/EPDM, CATIA V5 and SW
3DXML Import-Export	*3DX to 3DX Data Exchange Service*	*Exchange*	*CATIA / DELMIA / 3DX APPS*
3DX Domains Import-Export	Specific Domains Service	All	STEP, Function Logical, etc.

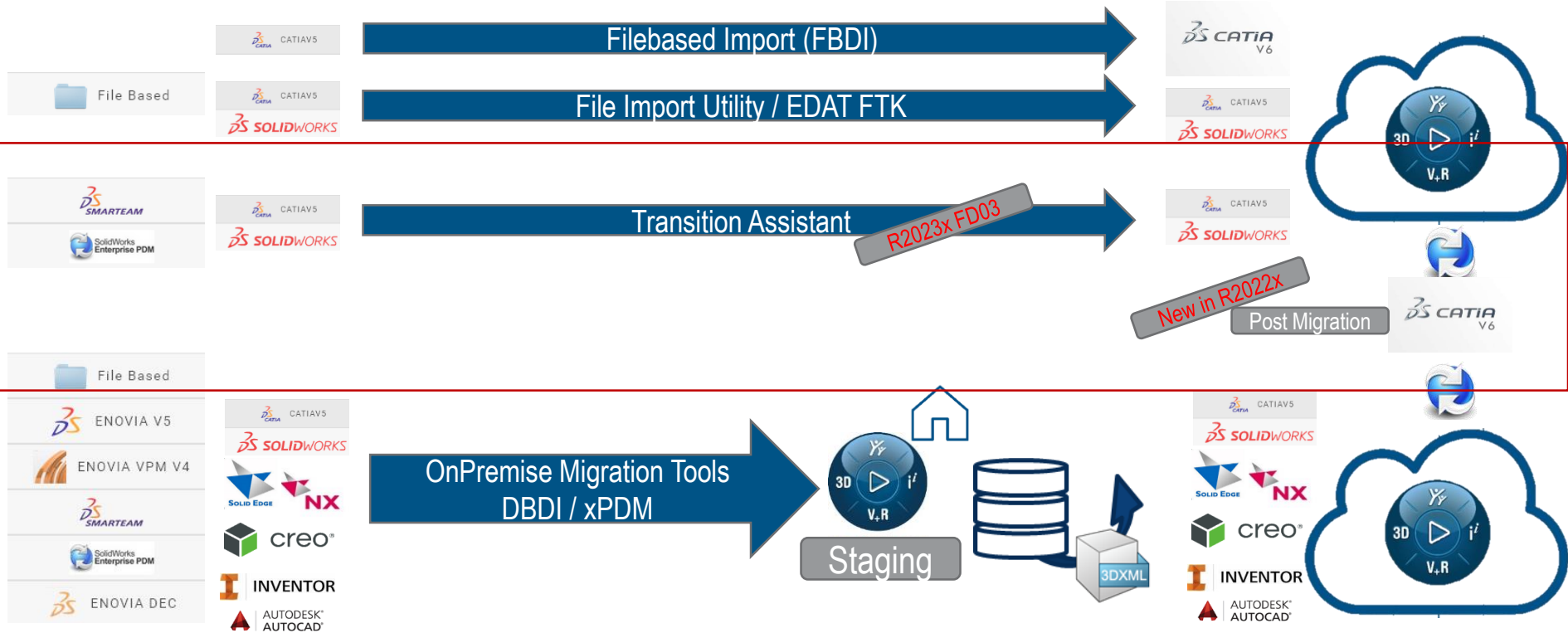
SERVICES ASSETS

Automation, Orchestration, Massive Import /Transformation with EDAT & IMPALA



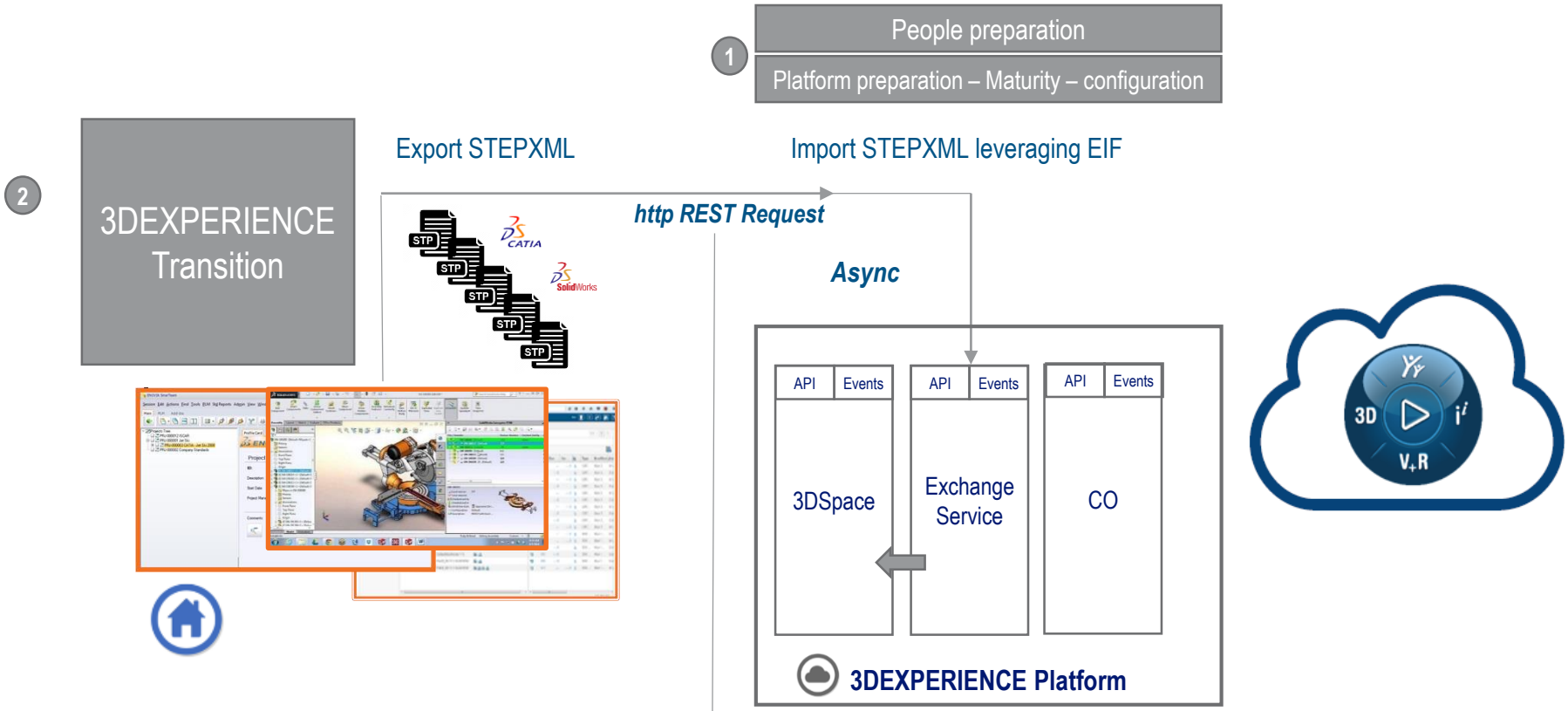
DASSAULT SYSTEMES

TRANSITION Path
HOW TO MANAGE MIGRATION?



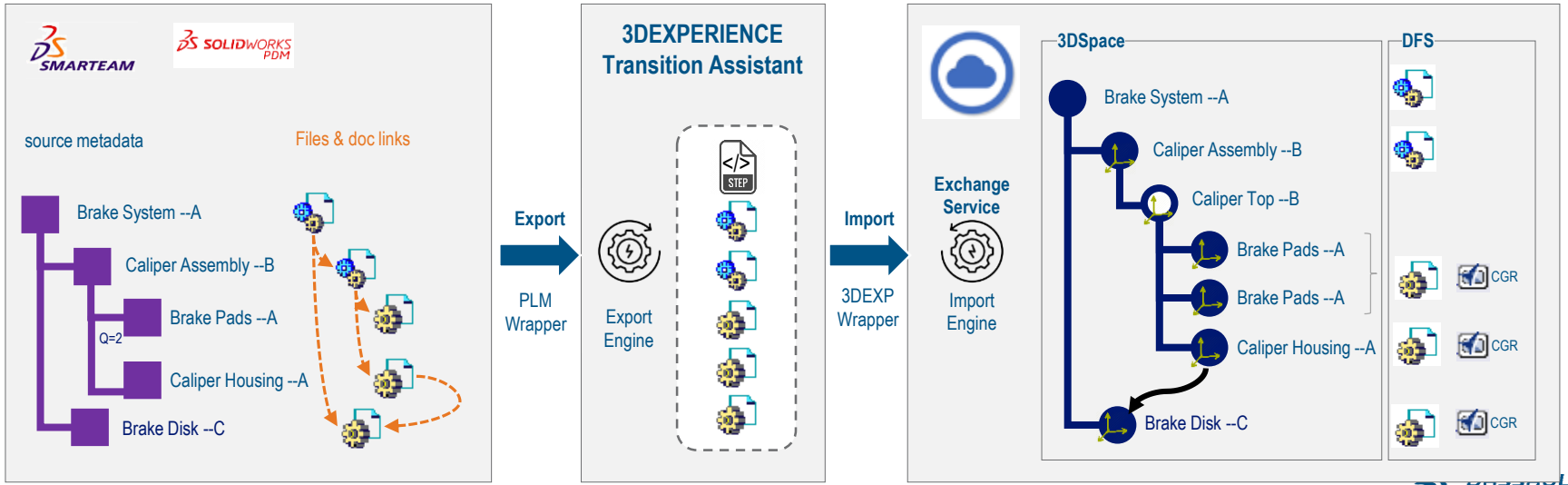
Global Architecture

3DEXPERIENCE Transition Assistant will leverage the new import service that relies on the STEPXML technology.



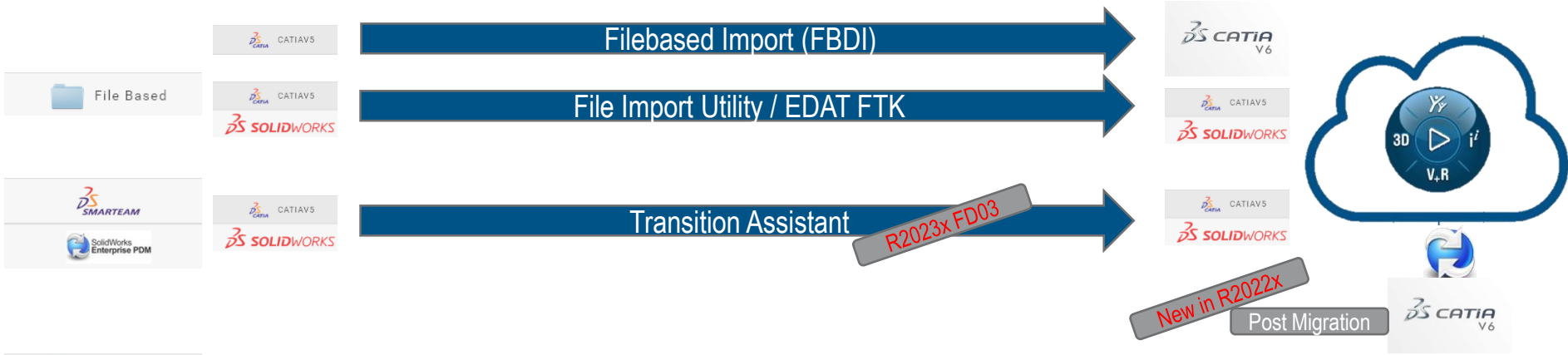
3DEXPERIENCE migration Assistant

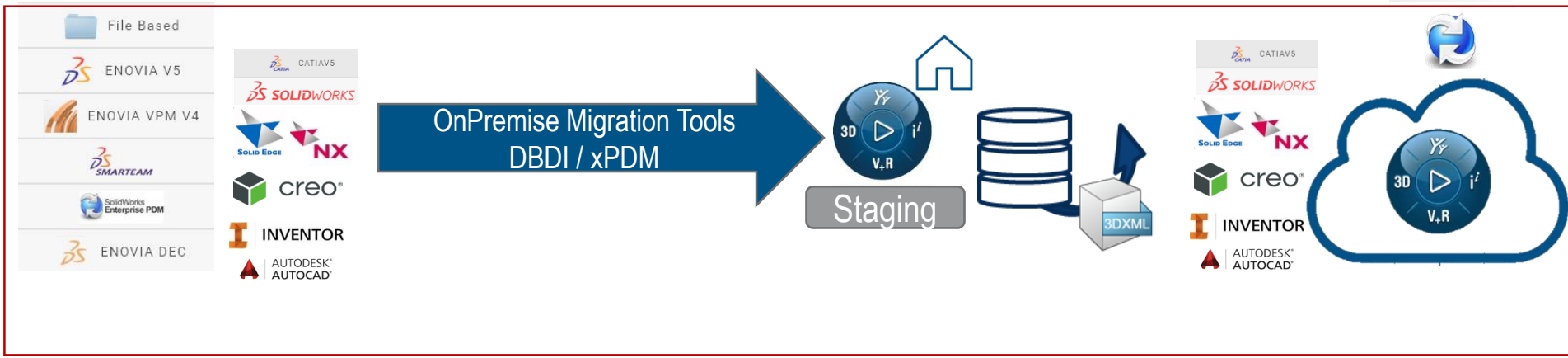
3DEXPERIENCE Transition Assistant is able to **extract** any data type from Smarteam or SOLIDWORKS PDM vaults and **upload** them directly to **3D**EXPERIENCE (including Cloud setup).



Import without conversion (power by mode)

TRANSITION Path
HOW TO MANAGE MIGRATION?

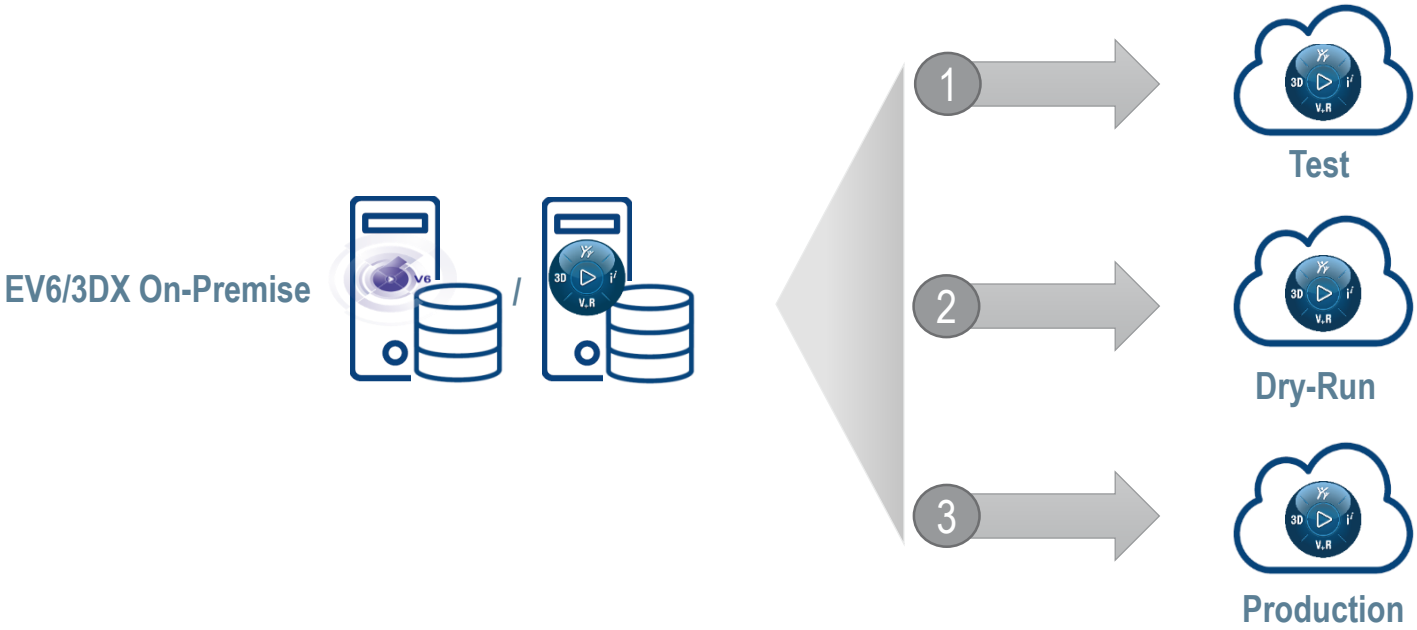




IMPORTANT TO HAVE

TEST, DRY-RUN AND PROD TENANT

- When engaging into a migration from V6/3DEXPERIENCE to the Cloud, it is important to have a cloud tenant for test and dry-run migration purposes, prior to running the migration to production.



On Premise to On Cloud Migration Process

0 Cloud environment Definition including parametrization UCs defined & validated

1 Preparation of Migration Environment

2 Run Data Checker

3 Data cleaning

5 Data Export

3DXML

6 Import

4 Test and DryRun Environment Setup & Configuration

Migration Test/Dry Run Cloud

7 UCs Validation

EV6/3DX On-Premise

9 Import

3DEXPERIENCE On the Cloud

8 Prod Environment Setup & configuration

10 UCs validation

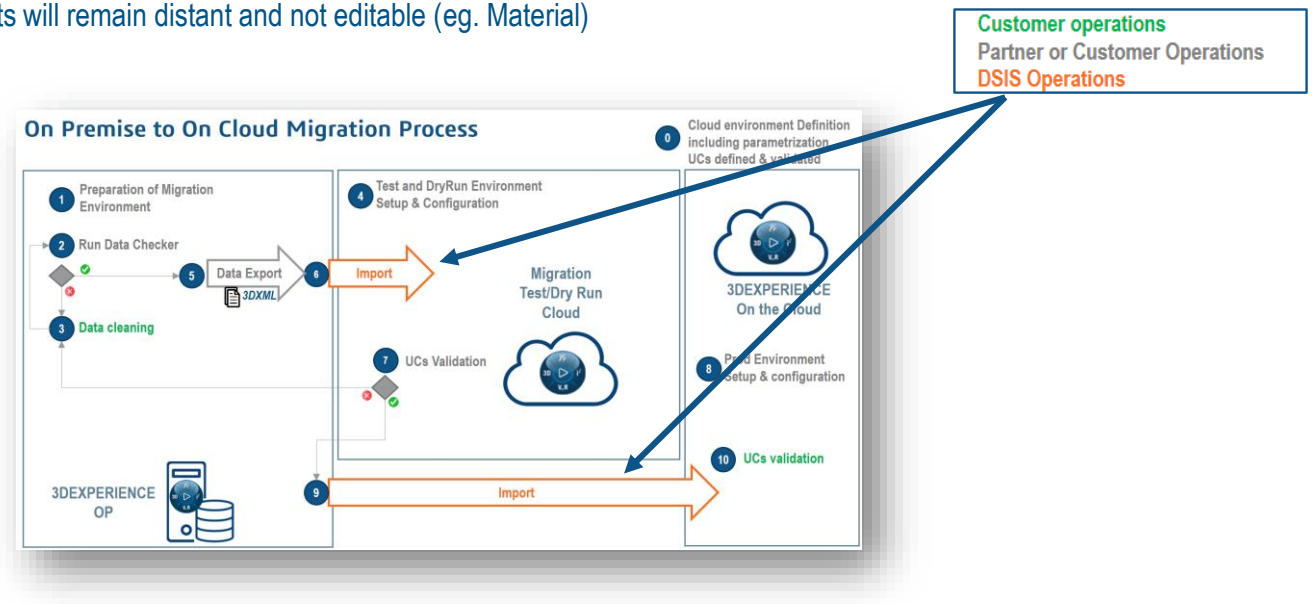
Legend

Customer operations
Partner or Customer Operations
DSIS Operations

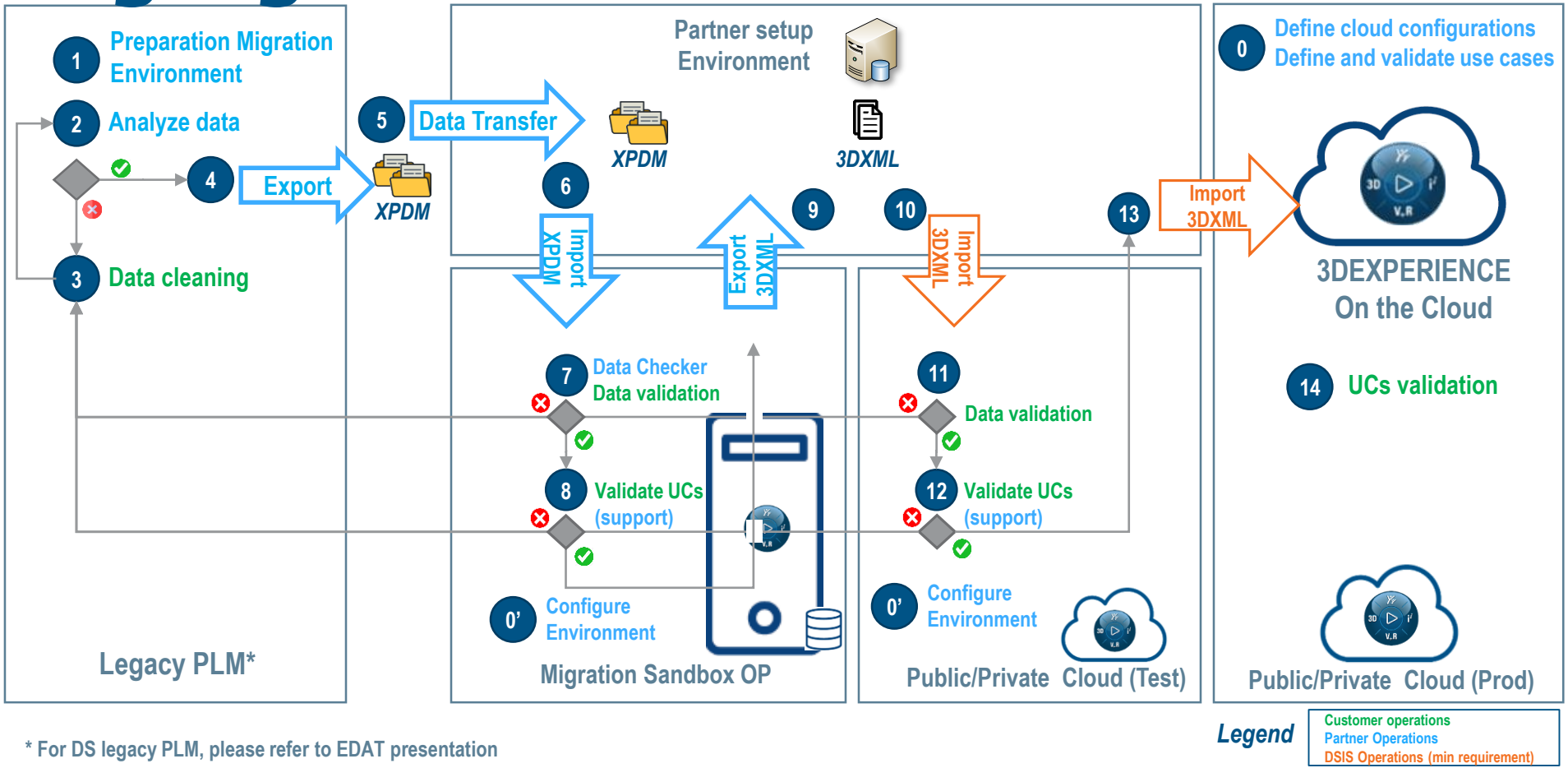
DS SERVICES ENGAGEMENT FOR IMPORT

☞The 3DXML Import to the cloud has to be performed by DSIS/DSGS

- Only DSIS with trained people will get the information tools and Variables from R&D to migrate directly to cloud which deactivates the OOTB Delegation functionality.
- Else, the mastership (authoring write) will remain distant
- Therefore, modification or revision of the data will not be possible
- 3DXML is meant for exchange, not for migration therefore in case of using the Delegation mechanism in context of migration, some objects will remain distant and not editable (eg. Material)



Legacy PLM to CLOUD

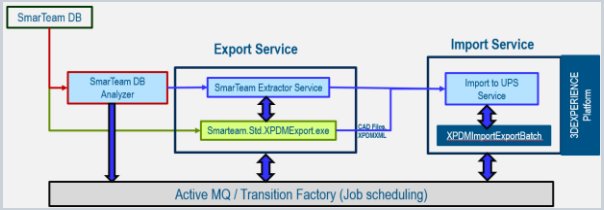
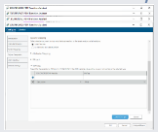
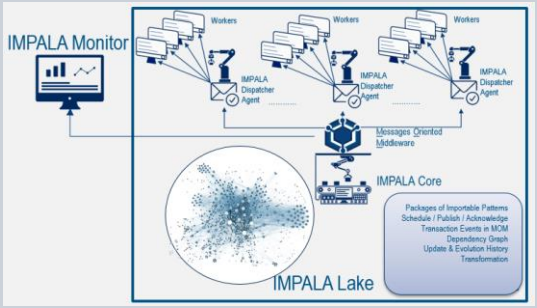


* For DS legacy PLM, please refer to EDAT presentation

Legend

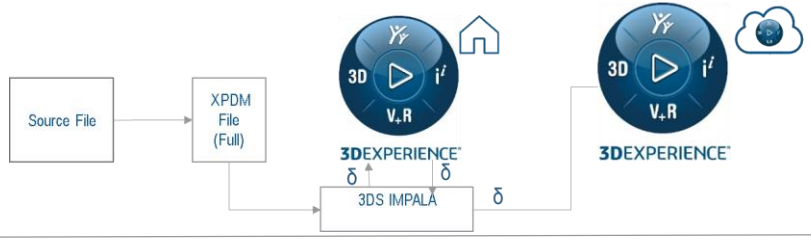
- Customer operations
- Partner Operations
- DSIS Operations (min requirement)

MIGRATION & COEXISTENCE TOOLS

	Channel Primary(Secondary)	Aimed Legacy Source	Target	Main Components	Underlying Technology	Business Model	References
EDAT	CPE (CSE)	File Based CAD: CATIA V5 / SW 	PowerBy V5,SW		ActiveMQ File Utility	Sell to Partner/C&SI 5k€ for standard 10k€ for premium support	
Transition Assistant	CPE(CRE)	PDM: ST, SW PDM CAD: CATIA V5, SW 	PowerBy V5,SW		EIF	TBD	
3DS-IMPALA	CSE	PDM: xPDM, ENOVIA V6 CAD: xCAD (Intergraph, Aveva), CATIA V6 	Full CATIA V6 noneCAD DOC New Structure PowerBy(Plan)		SQL Server Kafka ActiveMQ XPDM(MUX) through OnPrem Staging	Annual Fee (price per year) Based on Dataset size to be transfered 250k€ to 750k€ (exclusive MUX)	POC: McDermott, EXXON EDF Renault

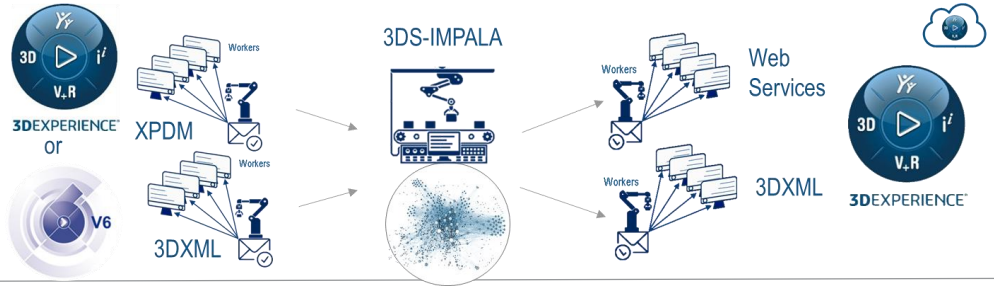
HOW TO MOVE TO THE CLOUD WITH 3DS-IMPALA

Twin Cloud



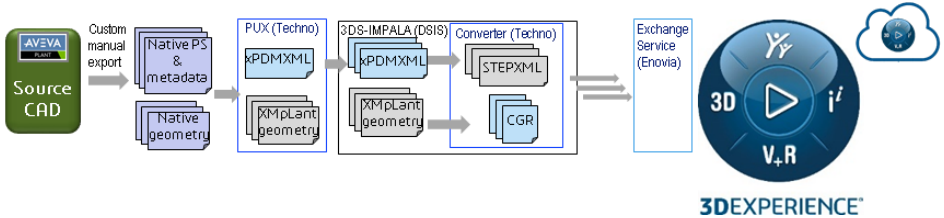
Supplemental (Keep Ids)
OOTB services

Webservices + 3DXML



Source Limitation
Webservices limitations
Only upper structure transformation

Direct to Cloud (EIF)



Full transformation
Limited by Availability of the services on R&D Roadmap

NEW

Agenda

General Overview

Migration Strategy

Transition Tools

Conclusion

General Lessons Learned

Lesson	Return of Experience
Migration is not a pure IT topic	• Functional workshops to drive the scope definition and associated scenarios and expectations • Business always needs to be involved
More than 90% of migration problems are related to customer data and data legacy types **→ "AsIs" assessment phase is a key topic**	• Check legacy Recommendations • Questionnaires • Check Tools
Most critical Data Types	• Assembly Drawing based on filtered structures • Deeply linked CAD structures mostly based on skeletons • Migration of configured structures • Electrical Harness design • Piping Tubing Design
Massive Migration is a key topic in a business perspective and a project itself	• Accuracy on Performance Estimation • Improvements on Performance Capabilities (Top Down / Bottom-Up) • Dedicated Tools and Architecture • Dedicated migration infrastructure needed • Dedicated people from customer with a data knowledge needed
Exploitability & Maintainability of the Migration process need a strong preparation	• Checklists • Troubleshooting guides • Analysis Tools • Reporting should not be underestimated

Lessons Learned for Cloud

Lesson	Return of Experience
Always ask for minimum of two tenants, have a test (staging) tenant and a production tenant	In OnPrem installations usually we use VM wares with snapshot's so we can go back if test import's go wrong or the setup was not complete enough. On cloud there is no way to go back, therefore the testing needs to be done on a test tennant.
Always start with DryRuns on above staging before importing into production tenant	On Cloud we have no way to clean up data after import, using MQL or other server side tools, therefore DryRuns with quality validation is key
When importing data from an OnPrem V6 or 3DExperince instance, it is mandatory to run the "Data Checker"	In order to import clean and consistant data from an OnPrem system an OOTB "Data Checker" tool have to be used to guarantee the quality of imported data.
P&O needs to be defined and fully finished before importing data	On cloud imported data can only be given to user id's which are existing and accepted the invite for the cloud. Therefore if a mapping of user ID's is necessary all users needs to be there and active.

KEY MESSAGES

IMPORTANT REMINDERS

TAKE AWAY

1. A Transition Project is **not trivial** and become very fast complex depending on customer situation
2. Transition is always a **complete Project** of it's own (not only technical activities & scriptings …)
3. Transition Strategy should be **defined at the beginning of Value Definition** as there is a cost involved
4. **Do not focusing on transferring everything** just by principle (Drawings, Links Technology, etc.), limit the scope to the real & necessary customer expectations
5. Don't talk with IT only, **involve the business** as early as possible
6. Ensure the capture of "**As Is**" in **Value Assessment** Phase before Defining the Target Solution
7. Transition should be based on **Standard Service Offerings and Tools**
8. Each **customer specific** context may require adaptations and iterative loops
9. DSGS is able to **support the delivery** on such projects with WW & offshore capabilities
10. The **WW team's objective is to share the best practices** with the GEOs in order to help you


IF WE
TM