AMMOS-PDS Pipeline Service (APPS)

NASA-Planetary Data System
Management Council Meeting

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Why APPS ?

ISSUES	SOLUTIONS
Early detection of problems in the science product labels (as early as they are generated).	APPS Validation, Reporting - Most ("all") problems can be fixed by the PDS delivery date because they were identified early.
Product SIS not in sync with the PDS4 model.	APPS LDT - GUI to enable easy Mission label (dictionary) creation. (no XML experience required) - Eliminates the split between an ops and an archive label.
Manual Archive Volume Generation.	APPS Bundle Service - Eliminates the problem of manually creating archive volumes during operations (manual process, very tedious) - Uses BPMN standard to specify and extend (if necessary) the process of creating bundles.
PDS4 Transition arduous.	APPS LDT, Transformation, Validation, Bundle - *"I am so glad we have a tool like this to helps us understand how to navigate through PDS4.", Payam Zamani, InSight MIPL SE.* - Transform PDS3 to (best-effort) PDS4 constructs to provided a starting point for the label design.
No common platform for PDS Engineers and Mission Engineers to design, exchange, validate and track science products.	APPS Web Console ("webtop") - All tools can be shared and accessed from a single console/desktop (light-weight <via browser>, everyone can use <no UNIX/Linux experience required to use the tools>). - Future tools can be added to the platform. - Single sign-on (CAM) provides secure access & information exchange with minimal user intervention.
Manual spot checks.	Bundle Validation (future) - Complete archive bundle data validation against label information will provided a much better and improved archive product.

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APPS Role

- *Partner with PDS to develop a pipeline service that integrates PDS4 tools and standards, and infuses them into the missions, from concept to product delivery into PDS Archive(s).*

- *Provide missions with an early view into PDS4 compliance level (as the first products are being generated), allowing adequate time for developers and operations personnel to build and provide a fully PDS compliant science product.*

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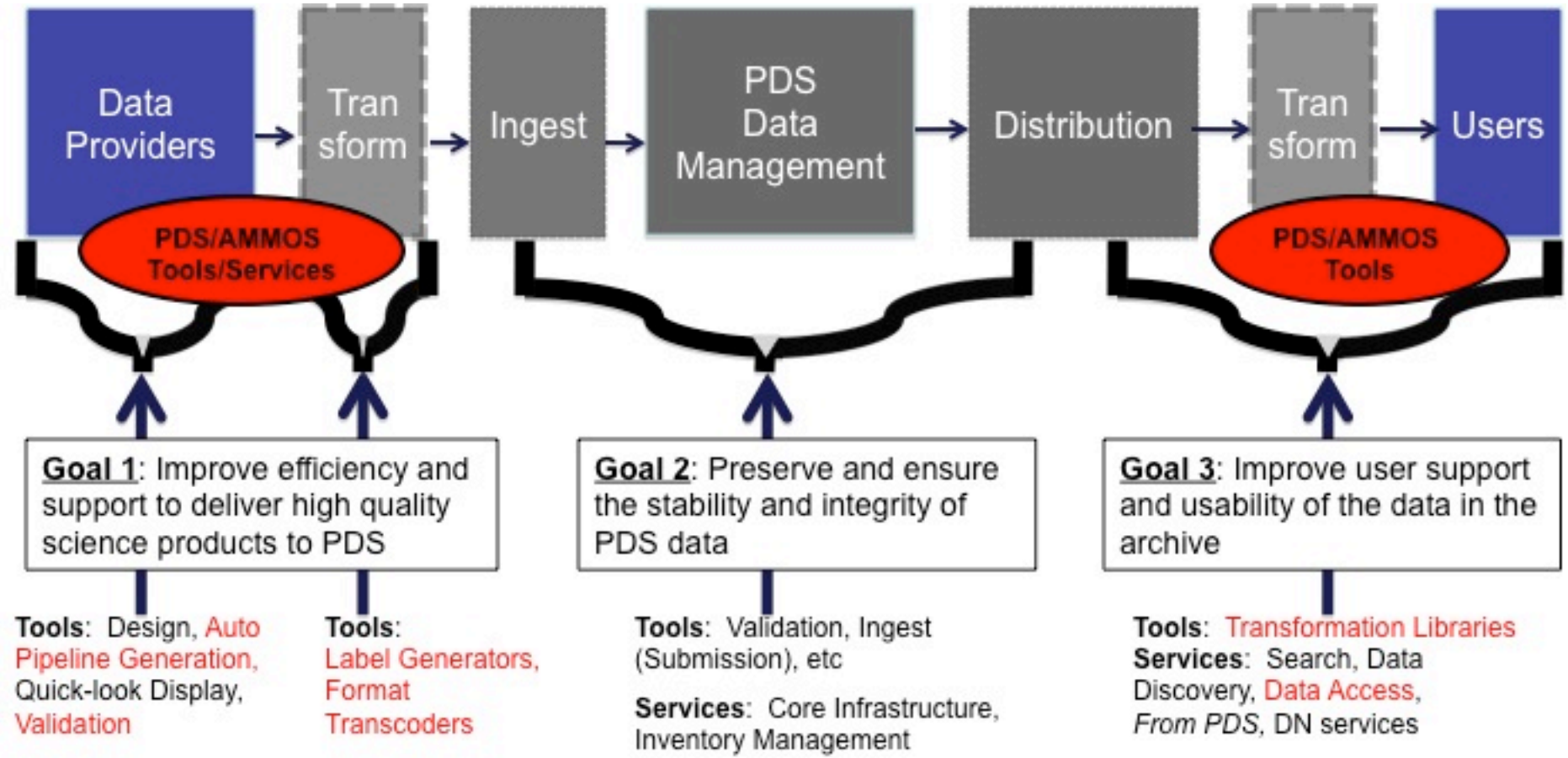
Vision



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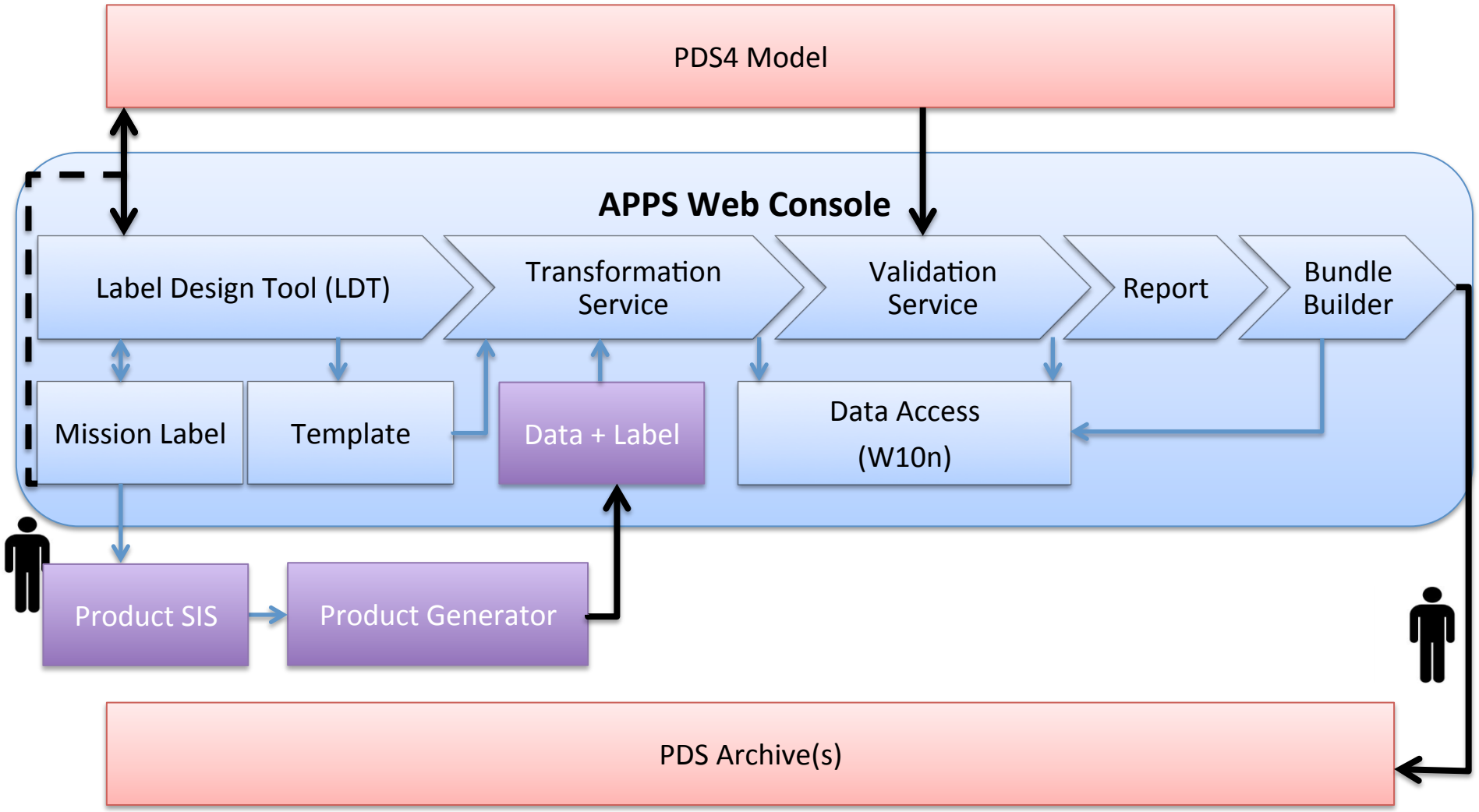
Today: APPS Pipeline



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APPS Components Description

- LDT
  - Label Design Tool (using PDS4 Model) *(https://apps-ldt.jpl.nasa.gov)*
- Transformation (transcoder)
  - PDS to PDS to ImageIO and back
  - Using Velocity templates (commonly used PDS4 practice)
- Validation (using PDS vTool)
  - Generate both XML and JSON reports
- Reporting (various queries to the APPS database)
  - JSON reports
- Bundle Builder
  - Using Business Process Model Notation (BPMN 2.0) Standard process definitions.
- Web Console

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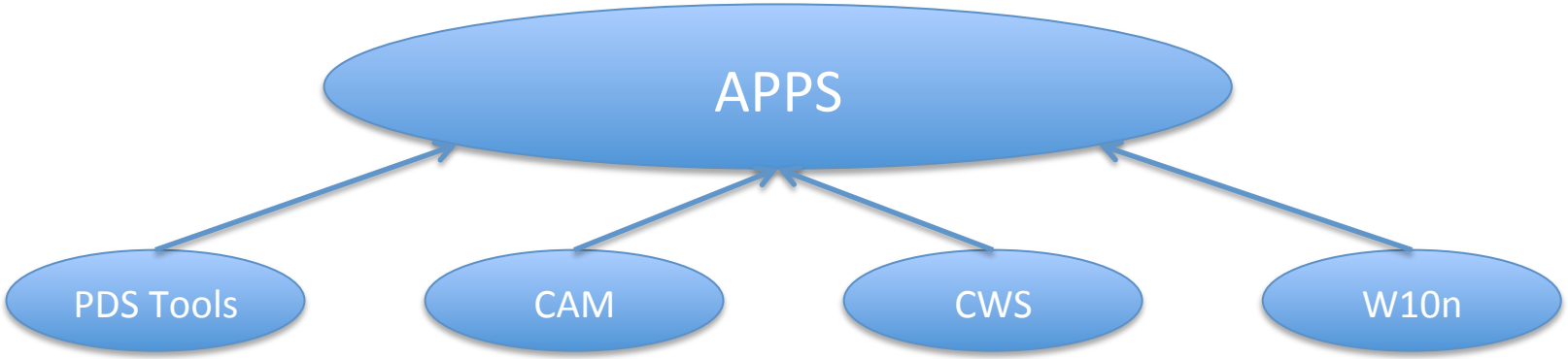
Technology Profile

- Infusion of AMMOS technologies as part of the strategic AMMOS goals:



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Demo Agenda

Demo of the following components:

1. APPS LDT
   - Generate Mission Label.
   - Generate SIS Appendix.

2. APPS Transform-Validate pipeline
   - Populate the system with data

3. APPS Reporting
   - Explore and describe system components
     1. Workspace navigation (Web Console)
     2. Lookup validation reports, keyword search, generate temporal reports, etc.
     3. Webification workspace (W10n), database (NoSQL), message bus (AMQ)

4. Bundle Builder Service
   1. BPMN-driven deployment (CWS)
   2. Configuration, features

5. Project adaptation(s)

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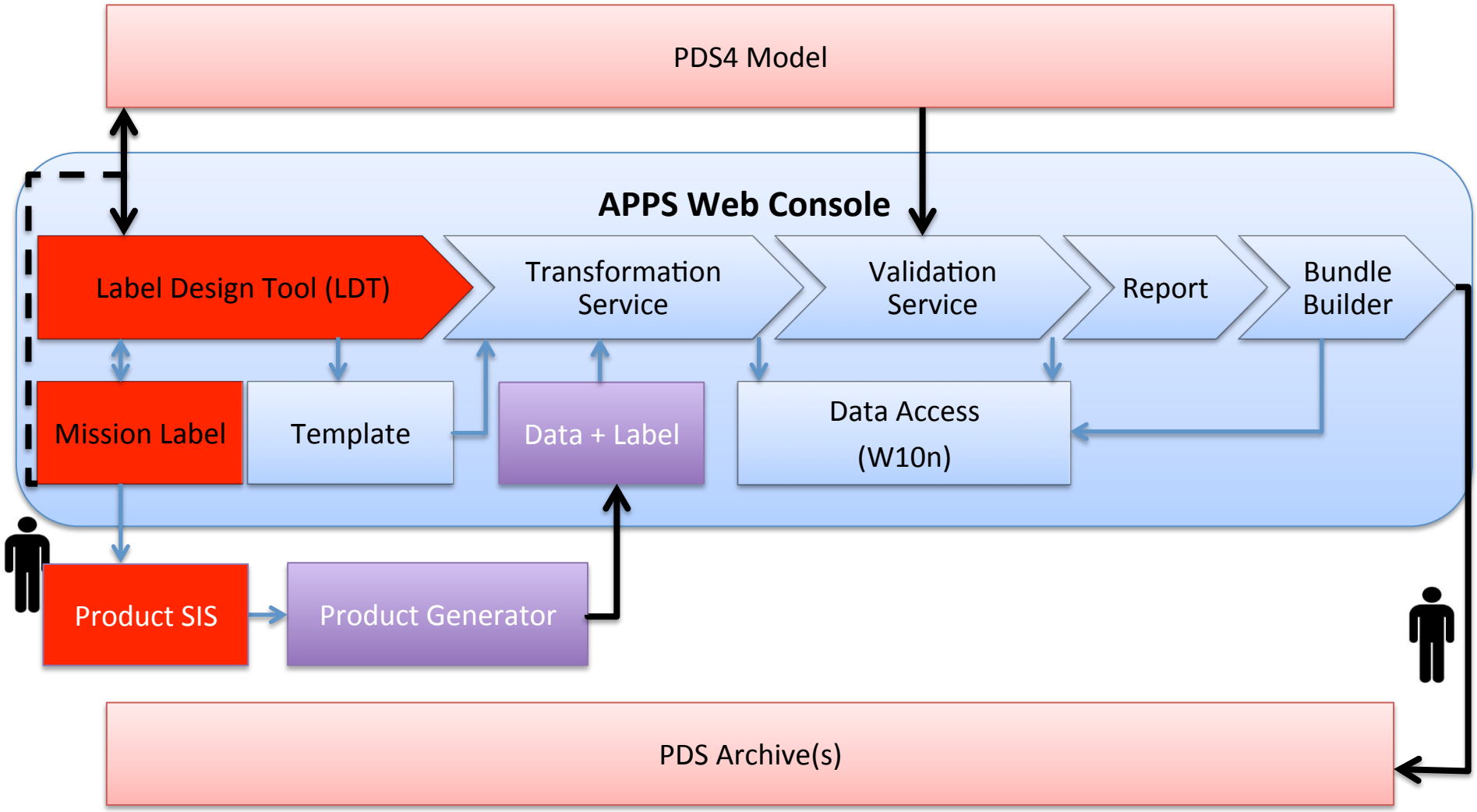
APPS Pipeline Demo



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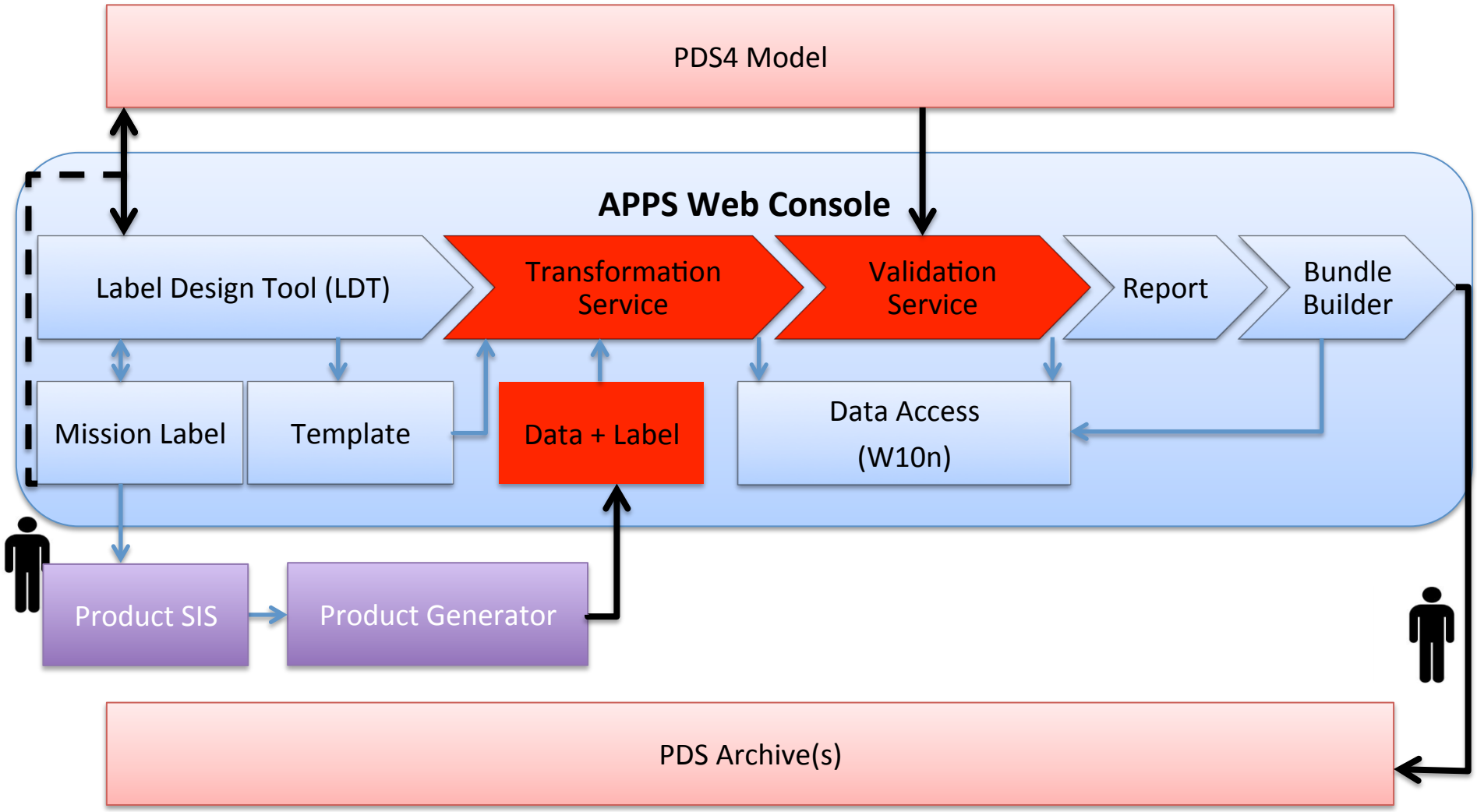
APPS Pipeline Demo



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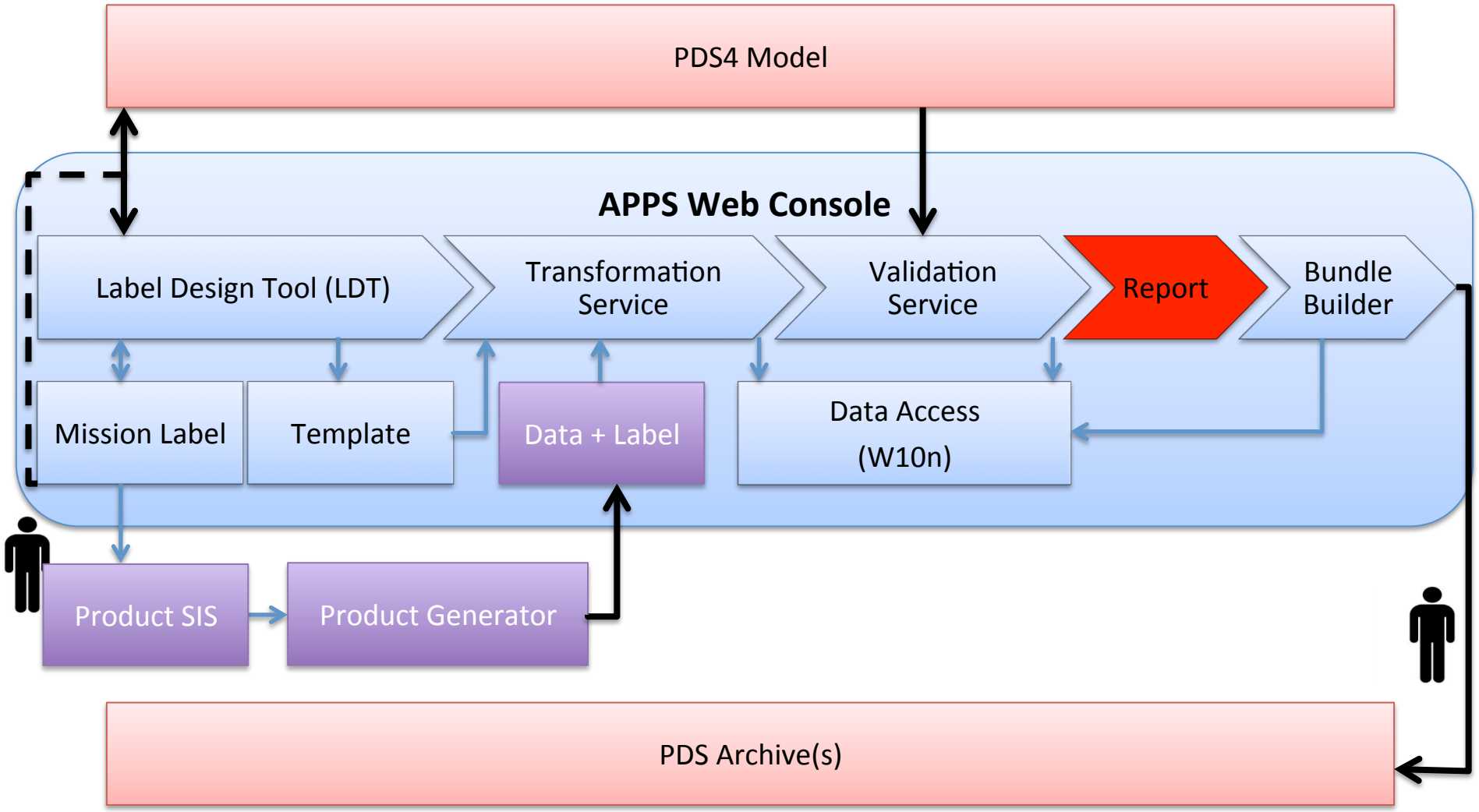
APPS Pipeline Demo



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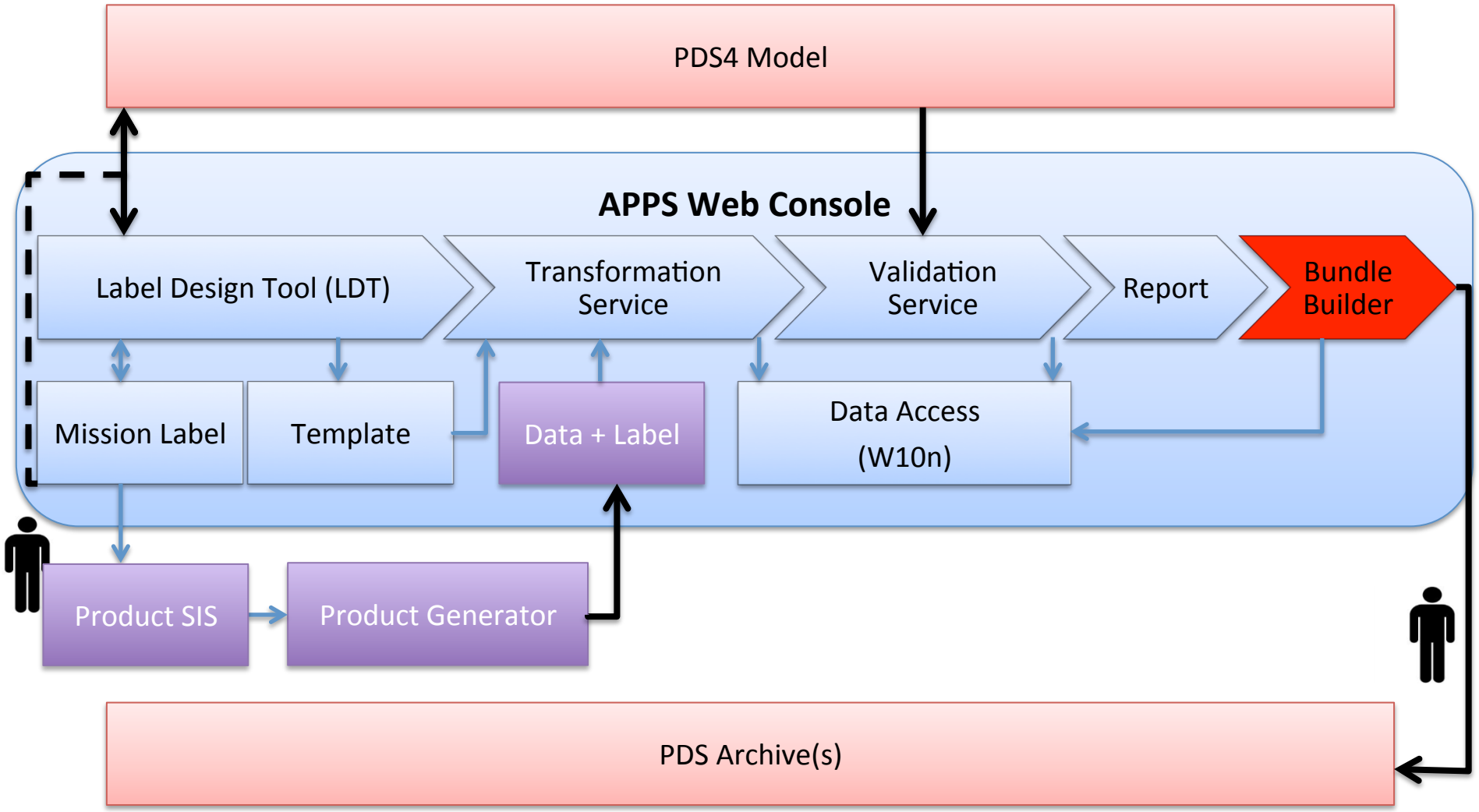
APPS Pipeline Demo



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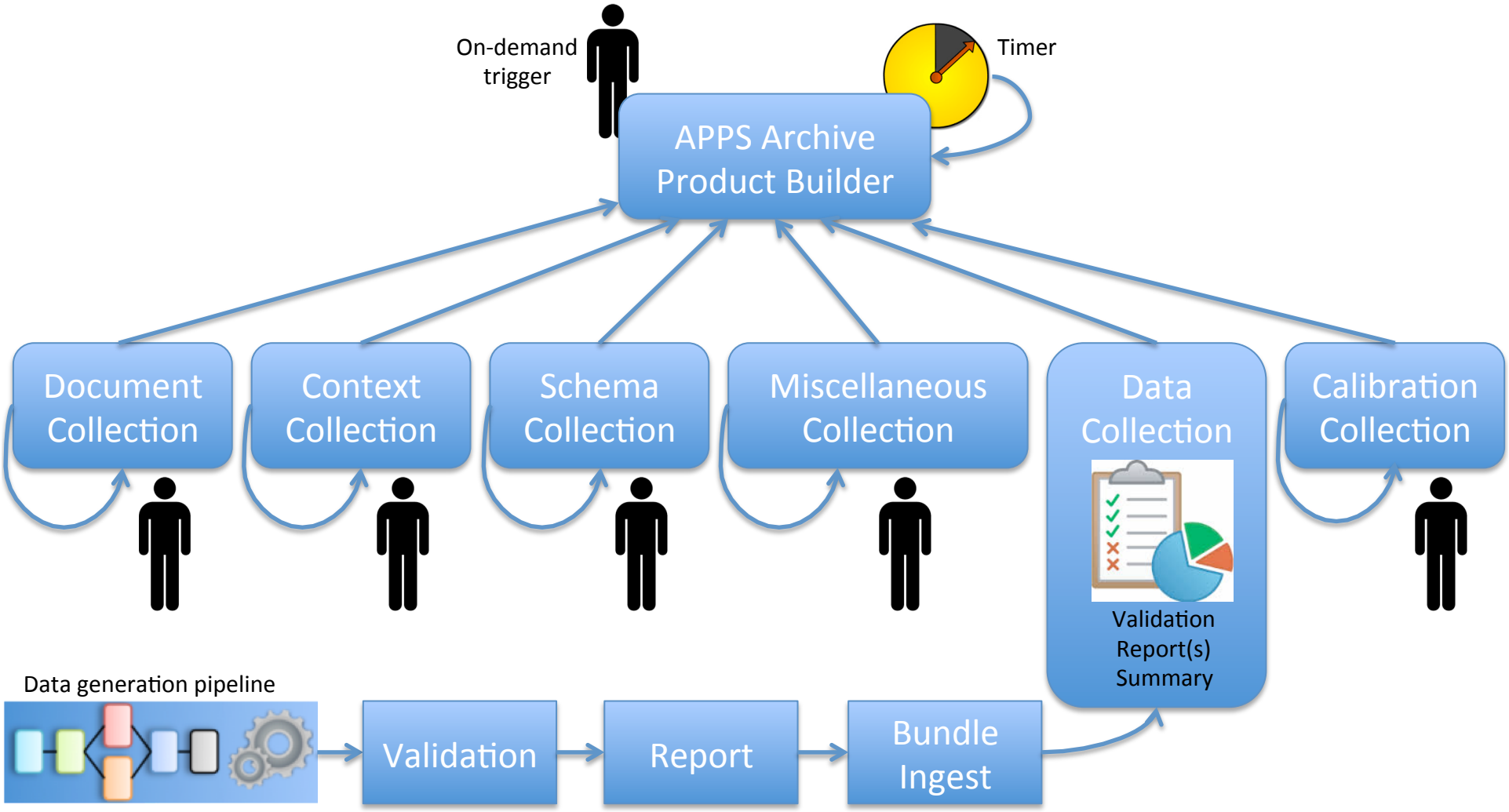
APPS PDS4 Bundle Builder view



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