Connecting SAP to an Application Network for Enterprise Wide Connectivity

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Agenda

Introduction to GCAA Integration

- Integration Challenges
- GCAA Vision
- Application Network vs Point to Point

SAP Integration Options

- Overview of GCAA Integration Options
  - Incl. File Transfer, BAPI, IDoc, SLT, Odata

New Approach Case Study

- Unlocking Master Data
- Guaranteed Message Delivery
- Unchanged Integrations
- Lessons Learned

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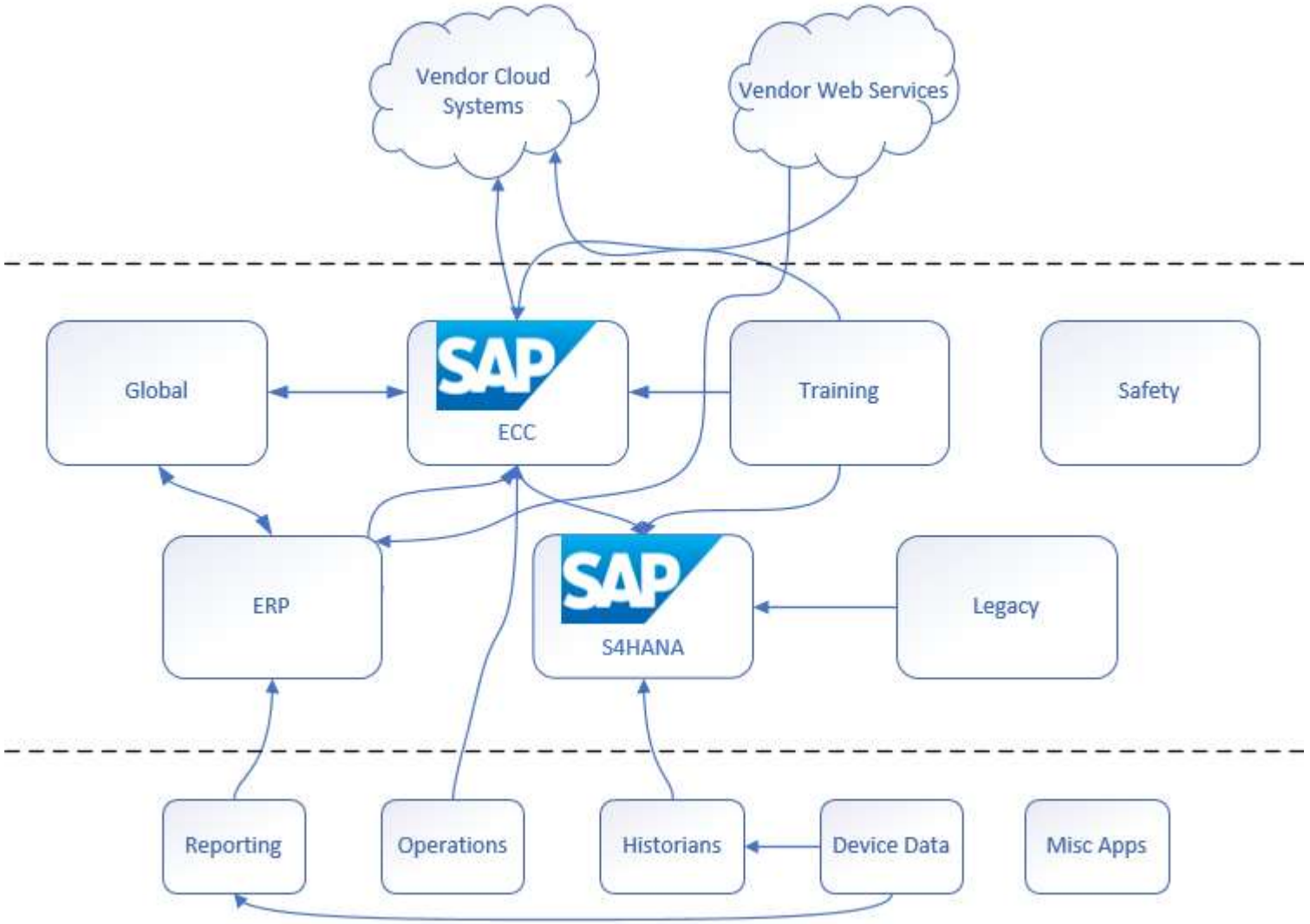
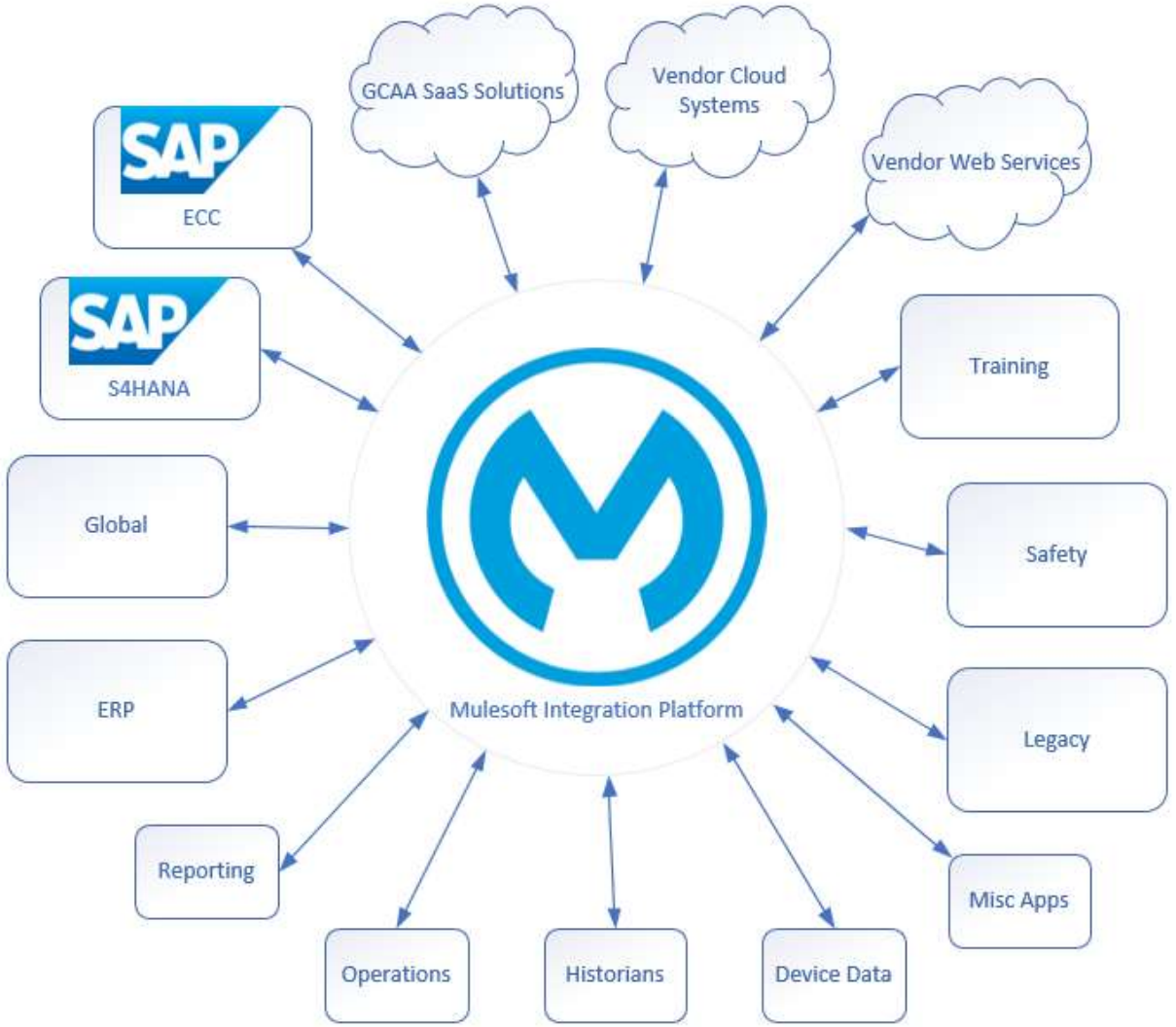
GCAA Integration Challenges

GCAA Integration Challenges



- Enterprise Landscape with multiple critical ERP and supporting systems
- Siloed system support teams
- Ad-hoc point to point integration delivery
- No integration standards
- Specialised skills required to maintain each integration
- Time to delivery

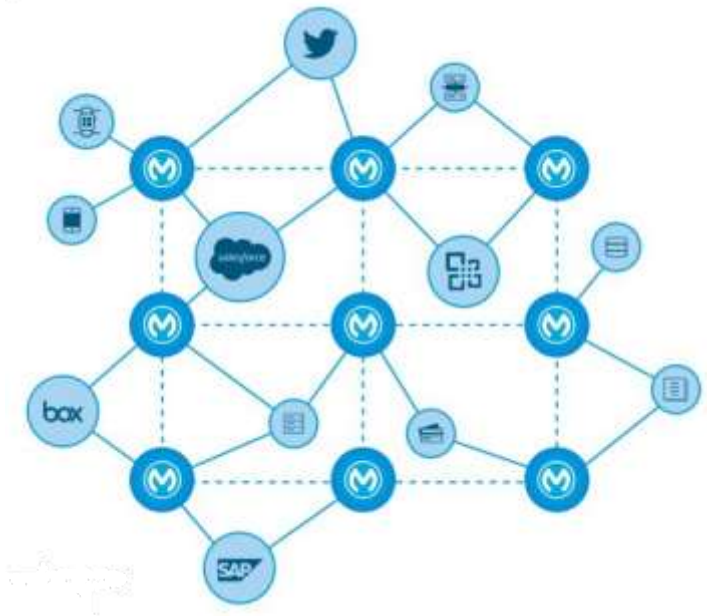
GCAA Integration Platform Vision



- Platform acts as Central hub for integrations over entire enterprise landscape
- Facilitates shift towards SaaS solutions
- Centralise delivery and support of integration projects
- Encourages reusable architecture for integration artifacts
- Standards can be developed and applied easily
- Decreases technical debt and delivery times
- Increased support partner value

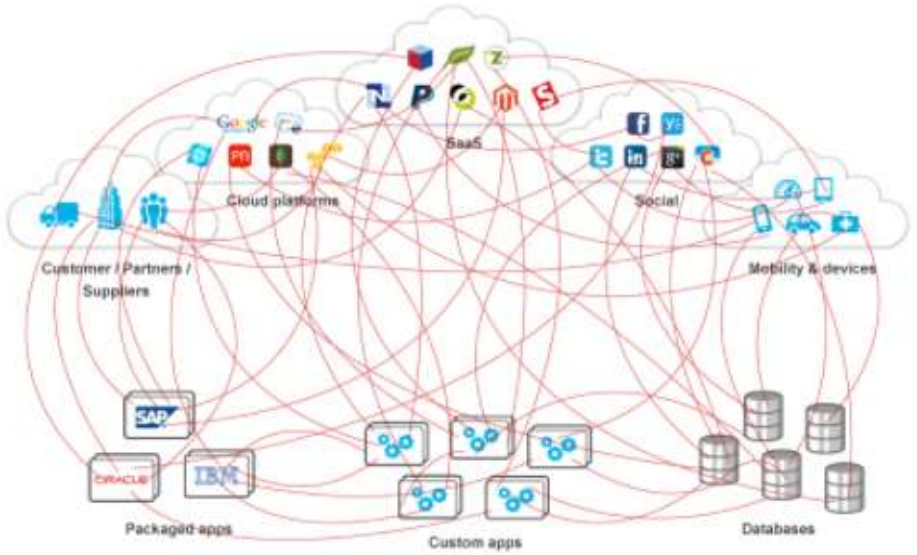
Application Network Vs Point-to-Point

Application Network



- ✓ Re-useable Components and Processes
- ✓ Focus on Unlocking Data
- ✓ Systematic Approach
- ✓ Lower Development as Network Grows

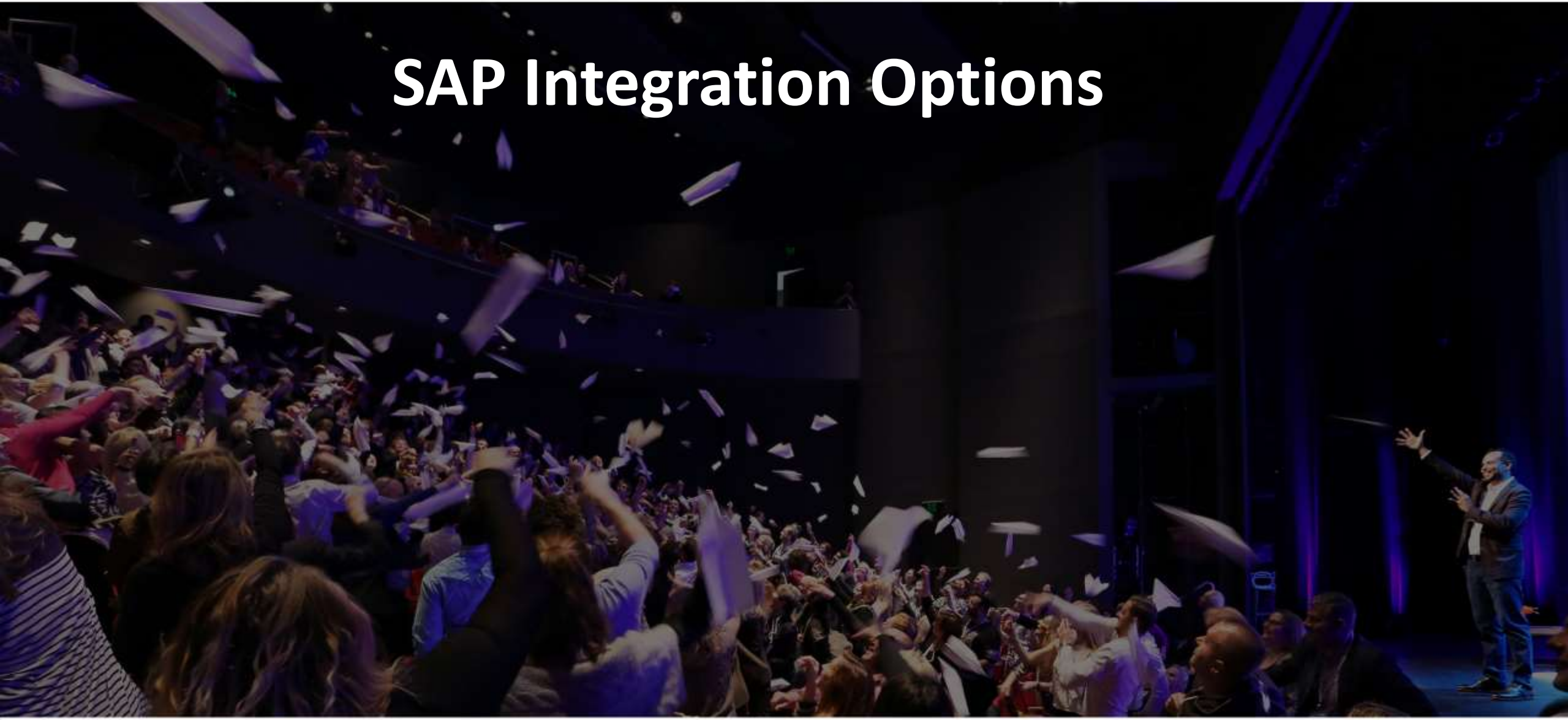
Point-to-Point



- ↓ Minimal Re-use (Copy Paste)
- ↓ Increase Technical Debt
- ↓ Hard to Manage
- ↓ Hard to Monitor and Maintain

Graphics Source: www.mulesoft.com

SAP Integration Options

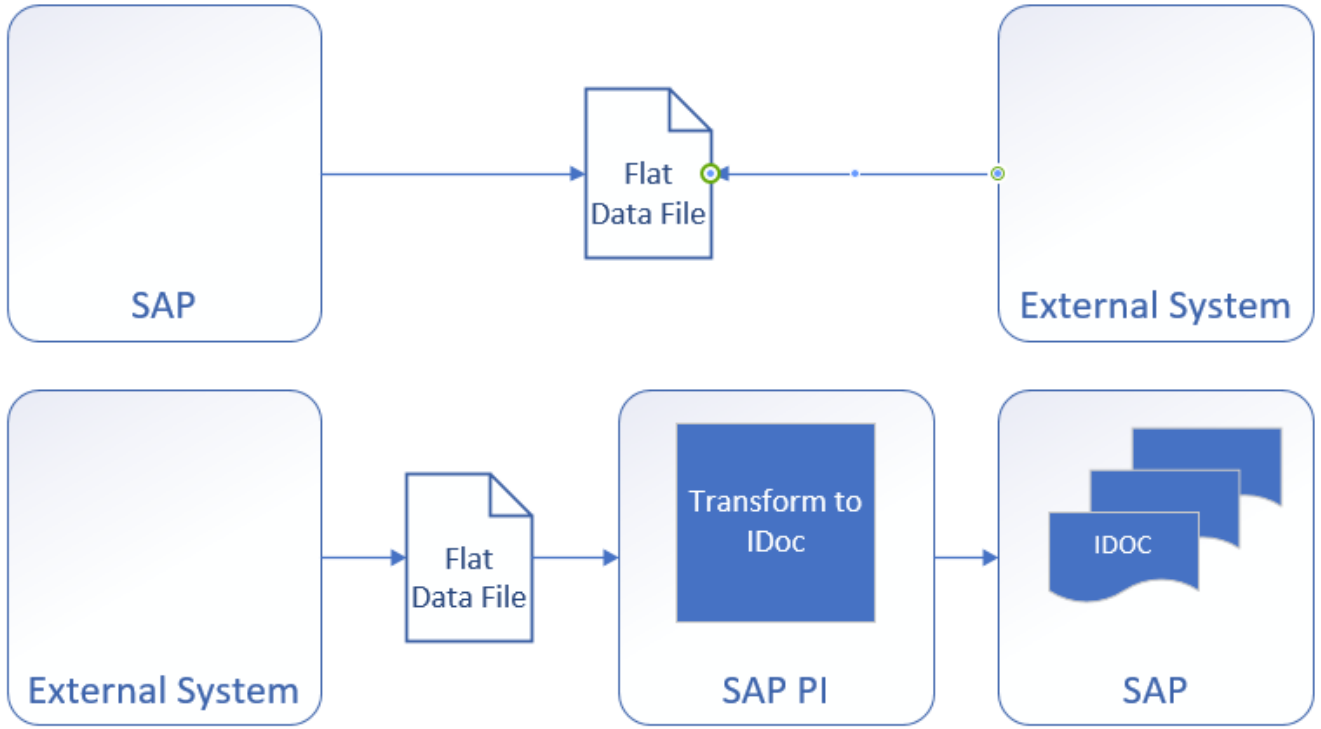


SAP Integration Options – File Transfer

File Transfer

- Create files using background jobs for consumption by external systems
- Ingest files using PI file adapter created by external systems
- PI used to connect to SFTP/FTP servers
- Files require fixed formats
- Data must be structured to remove complexity

- Additional points of failure
- Increased security and storage implications
- Typically requires manual intervention when errors occur
- Only recommended for once-off data migration scenarios

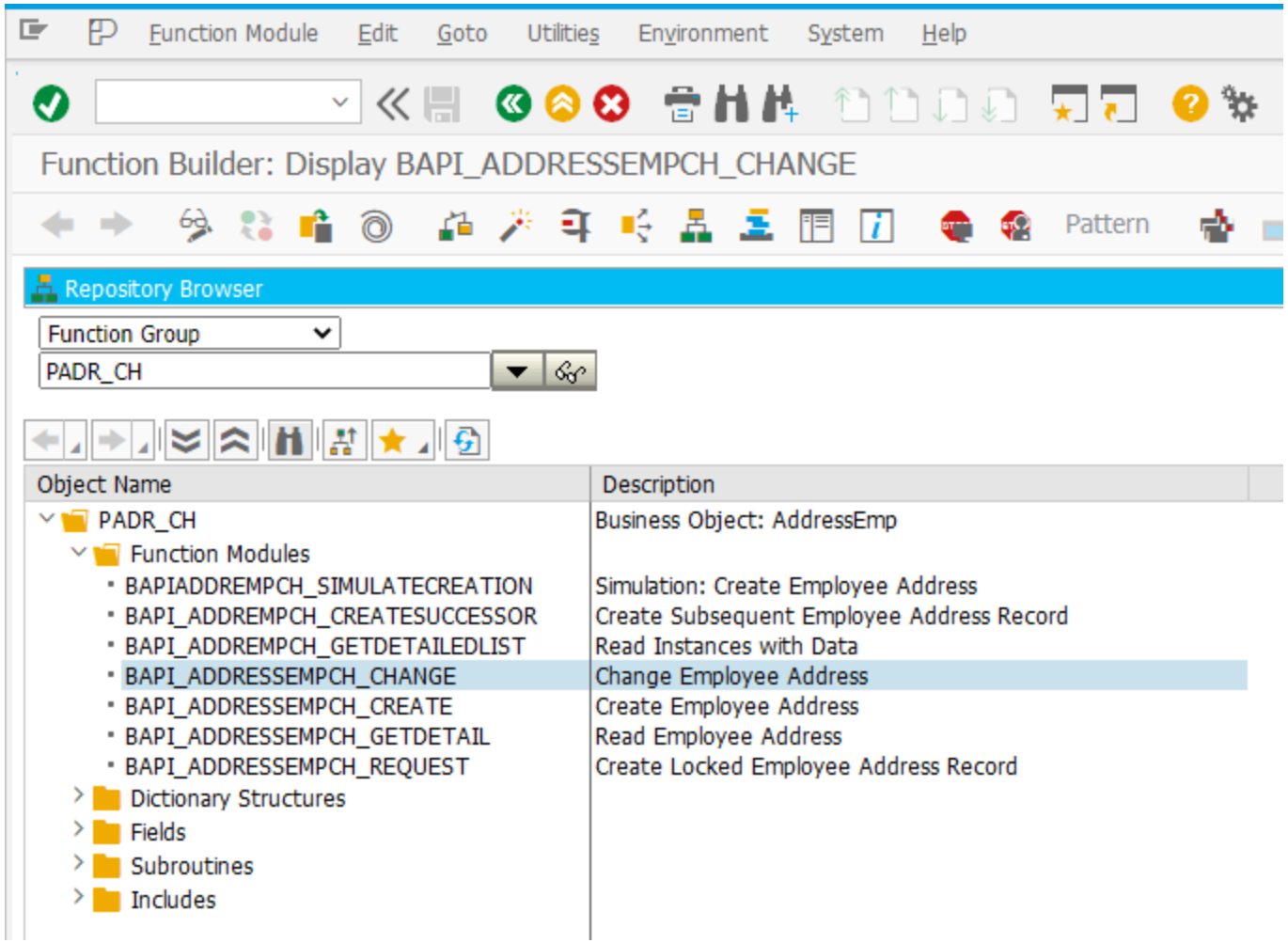


SAP Integration Options - BAPI

Business Application Programming Interface (BAPI)

- SAP provisioned standard interface for accessing SAP business objects
- Offers stability and mitigate technical debt
- Lowers risk during upgrades

- Useful where applicable BAPI meets requirements without extensive customisation of configuration
- External systems can call BAPI function modules

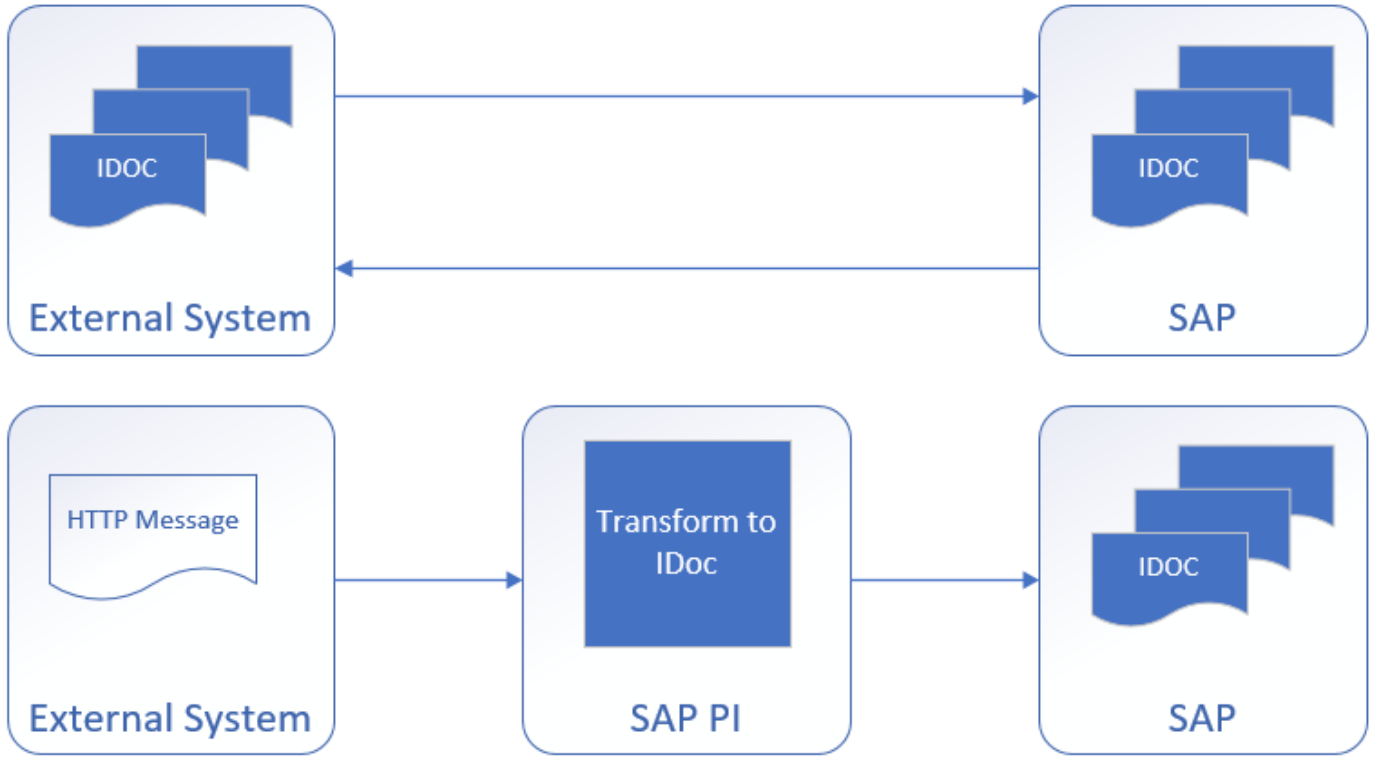


SAP Integration Options - IDoc

Intermediate Document (IDoc)

- Used for transfer of data to and from SAP and external systems
- IDoc types are configured to define the precise format of the messages between systems
- Used in Electronic Data Interchange (EDI) interfaces
- SAP PI can be used to convert a message to an IDoc
- IDoc documents can be queued and processed by custom ABAP processes
- Delivered to external systems in XML format

- Ideal for specific point to point integrations with little to no resuability

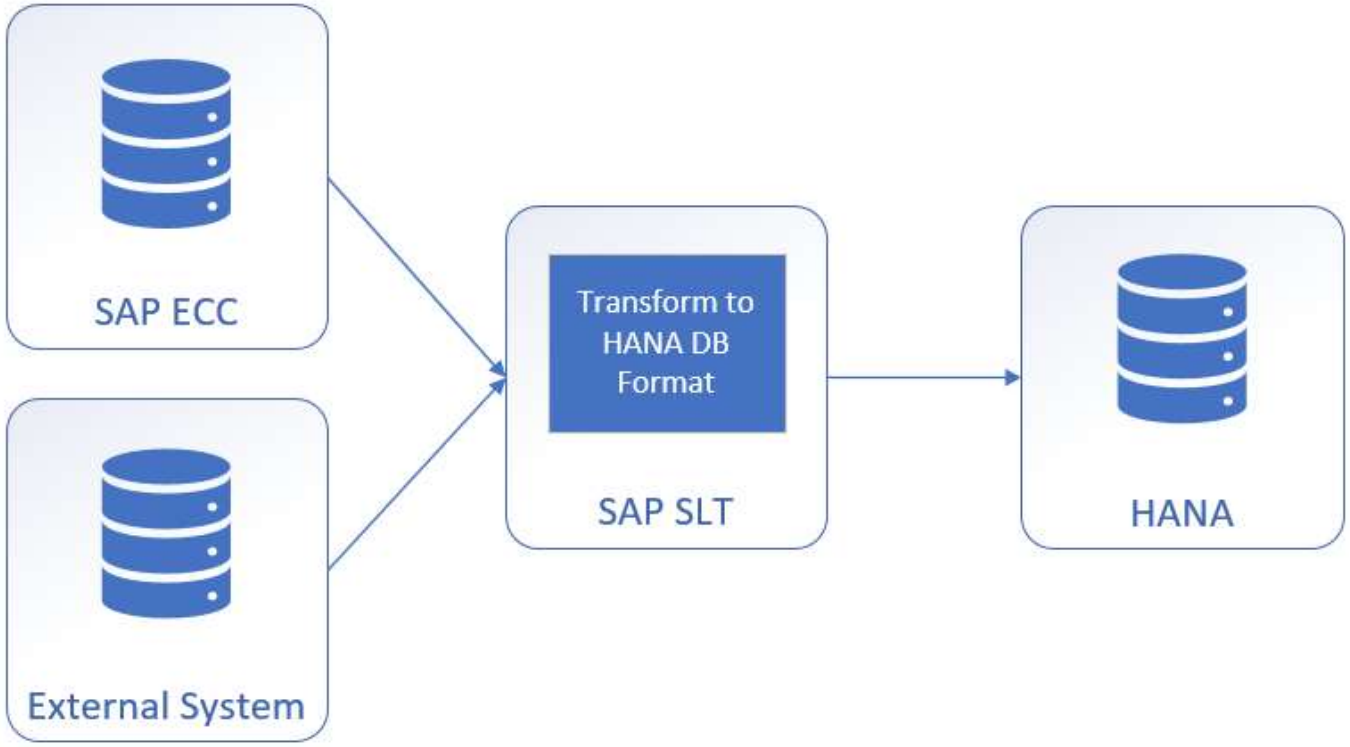


SAP Integration Options - SLT

SAP Landscape Transformation Server (SLT)

- Used for replication of data to SAP S4HANA database
- Data can be sourced from external systems or SAP ECC
- Uses database triggers to detect data changes for replication
- Can apply transformations if required

- Ideal for data objects that need to be replicated for BW reporting
- Reduces transfer loads through delta processing

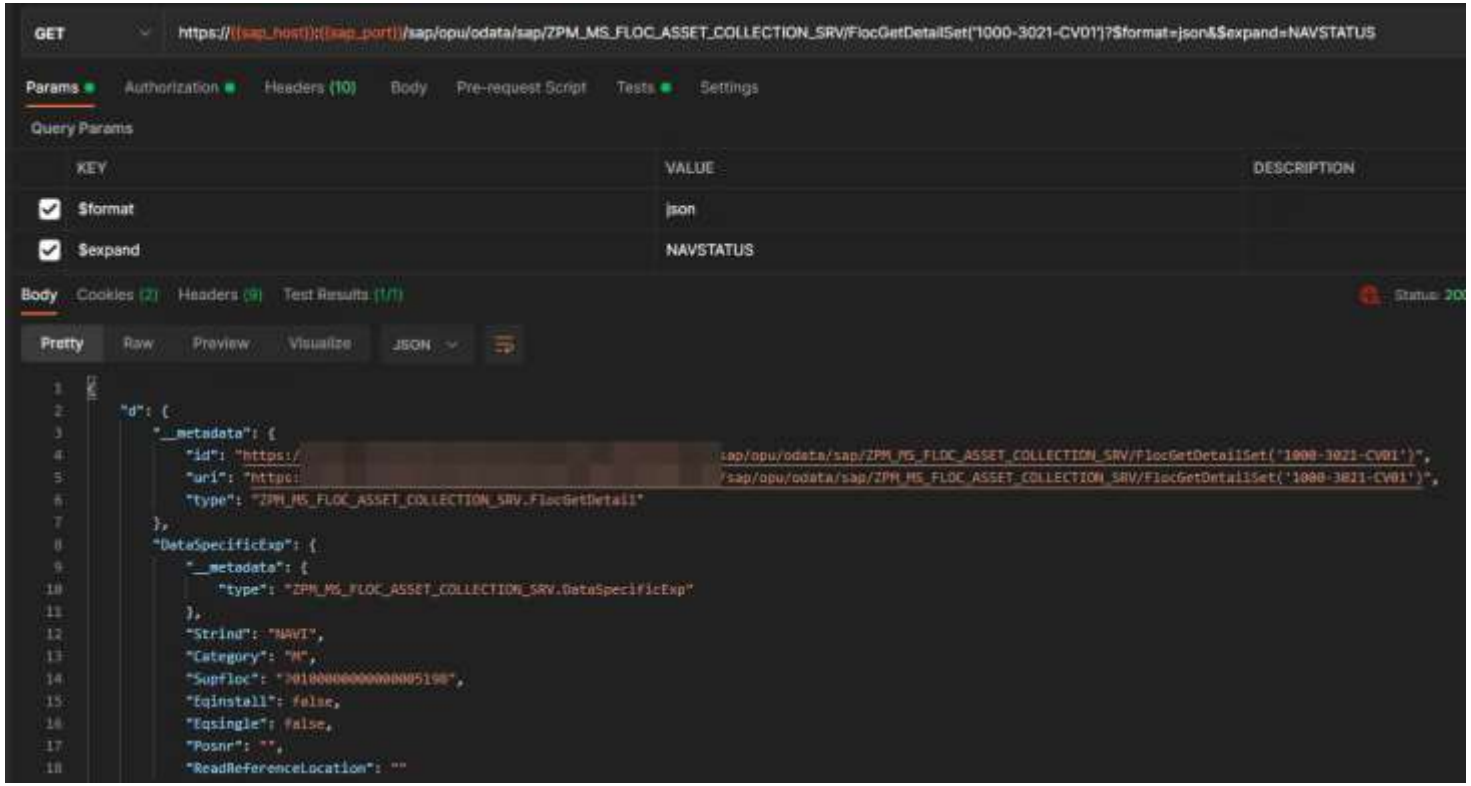


SAP Integration Options - OData

Open Data Protocol (OData)

- Web protocol used to query or update data
- Allows creation of APIs to be consumed by external systems
- Data models are used to provide a schema for the consuming service to perform CRUD operations
- Once created, unlocks the data model for reuse by any number of consumer processes
- Security easily applied to individual models

- Fits with the Mulesoft API-Led Connectivity approach to integration



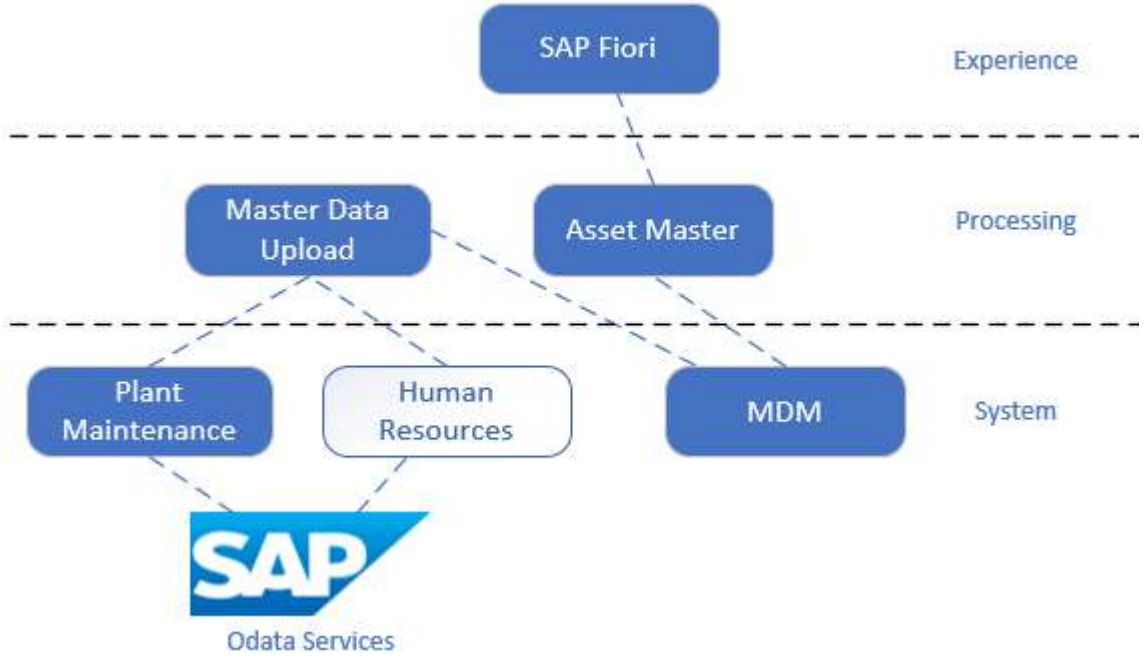
New Integration Approach Case Study

New Integration Approach – Unlock Master Data

User Story: As a plant maintenance administrator I need the SAP functional location data in the Master Data Management (MDM) system so that I can maintain the asset master data.

Old Approach: Create a file extract background job to provide functional location data in MDM compatible format using ABAP code.

New Approach: Use Mulesoft API-Led Connectivity concept to unlock functional location data.
SAP will make the required data available through OData service(s) for on demand requests.
Processing functionality will transform and load data into MDM outside SAP.



New Integration Approach – Unlock Master Data

API specification summary

API title: gcaa-sap-assets-sapi

Version: v1

Supported protocols

HTTPS

API endpoints

/assets

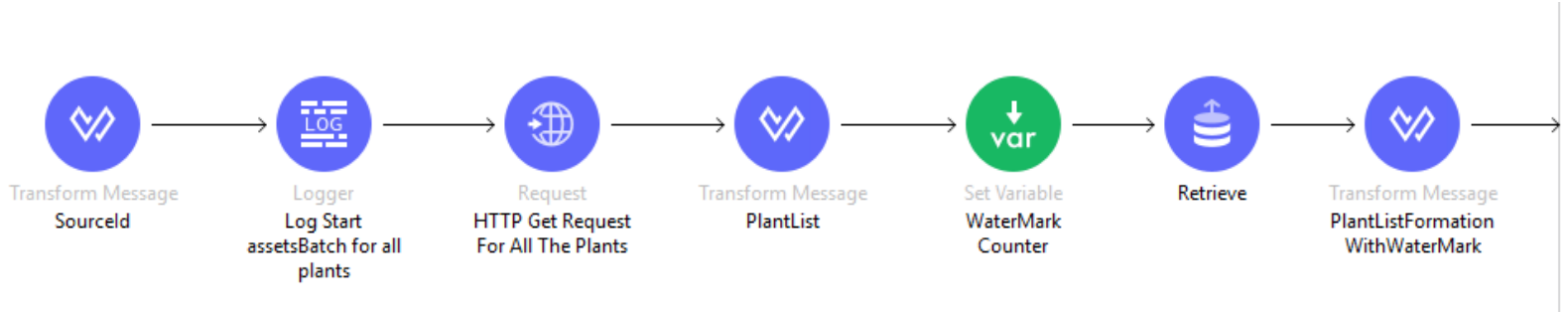
GET POST

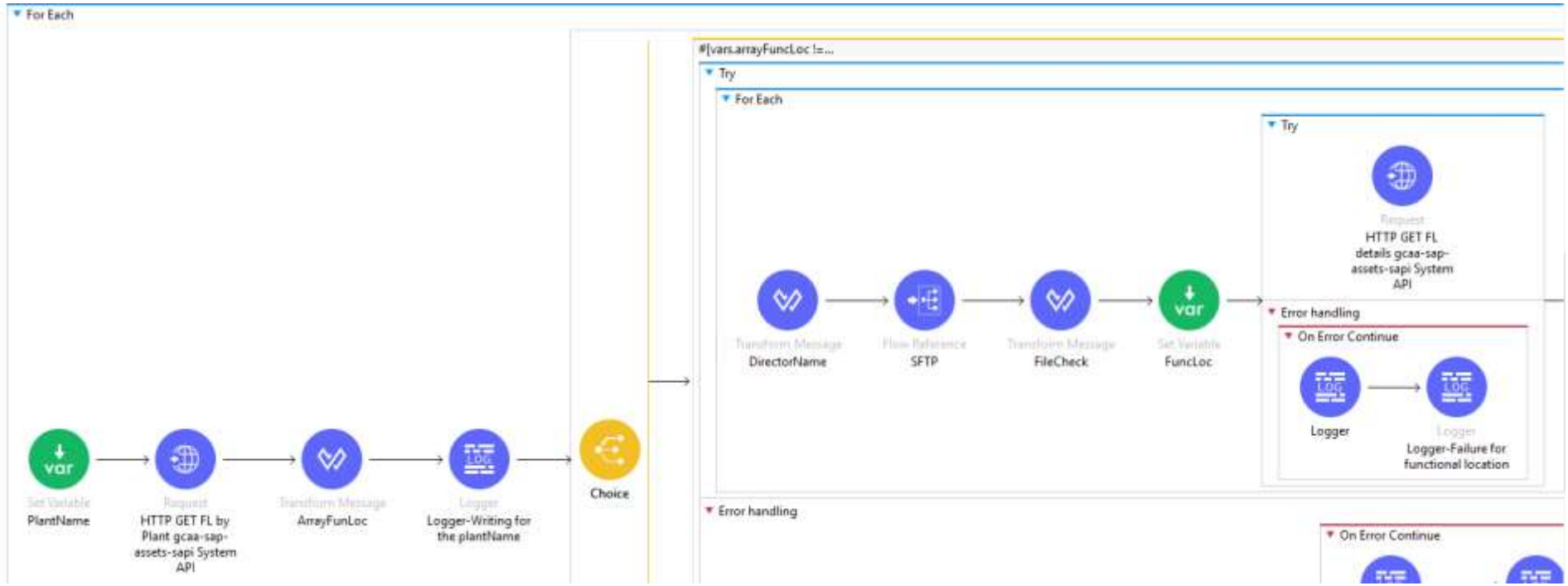
/assetsBatch

GET

/assetsPlantList

GET





New Integration Approach – Guaranteed Message Delivery

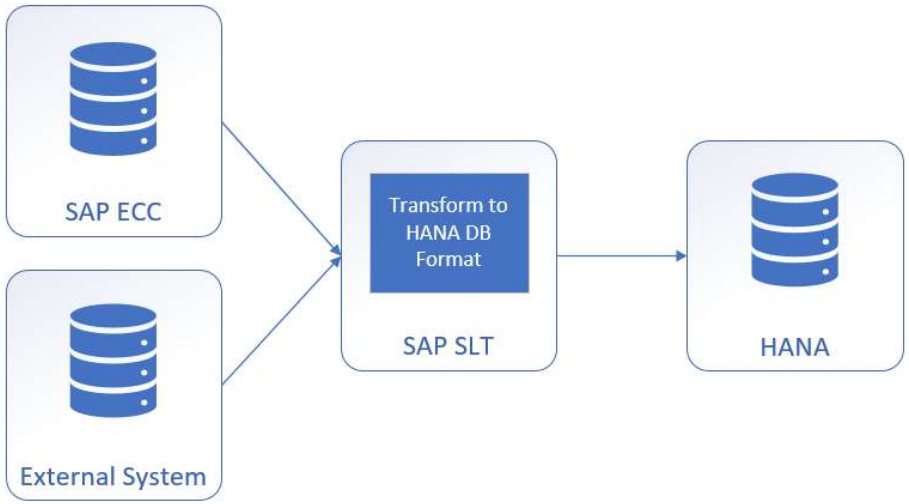
Previous Approach

New Approach

Benefits

- ✓ Reduction in specialised skill sets required
- ✓ External systems may have developed web services existing
- ✓ Error handling and workflow managed entirely in integration platform
- ✓ SAP connection is simplified and reusable for multiple data sources
- ✓ Odata model can be shared for retrieving data

New Integration Approach – EDI/SLT



Why No Change?

- Specific agreed EDI formats means few reuse options
- Standardising format in SAP ECC allows reuse of ABAP consumption code for multiple partners
- Rework provides some regression testing benefits but not worth development effort

- Specific data targeting one source system
- Delta transactions are triggered rather than on-demand consumption
- Large or frequently changed datasets may have licensing implications

Lessons Learned

Do's

- ✓ Consider each integration request holistically
- ✓ Create standard templates for common integration patterns to increase delivery speed
- ✓ Grow the application network wherever possible to realise long term benefits
- ✓ Ensure development guidelines are defined for connectivity to each system
- ✓ Help business users supply accurate information through templated forms
- ✓ Remain flexible in using existing technologies
- ✓ Works towards a C4E model of self-service integration development

Don'ts

- Try to include every use case as a reusable asset
- Overuse canonical data models (CDMs) for transformation of data
- Commence development decisions early. Ensure API specifications are confirmed.
- Forget the operations team!
  - Metrics
  - Logging
  - Documentation

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