

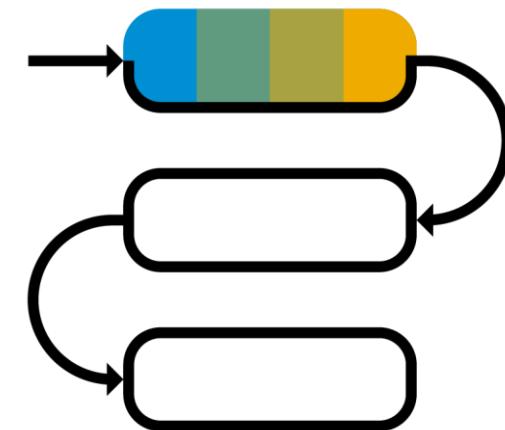


Week 3: Dive Deeper

Unit 1: Developing Enterprise-Grade Integration Flows

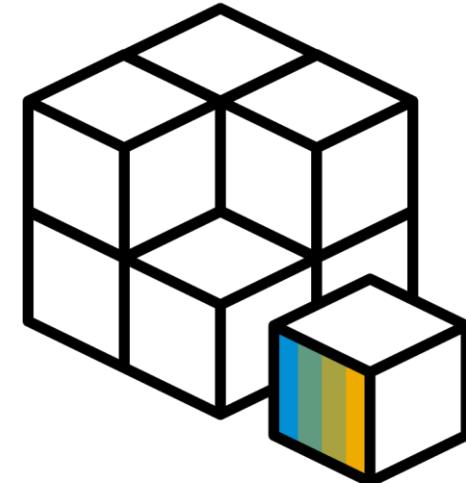
Why the need for enterprise-grade integration flows?

- Simple integration flows are built easily
- But when used in production environment issues might appear
- Any disruption of business-critical scenarios running on Cloud Integration must be avoided
- Integration flows share the resources of a tenant and therefore influence each other indirectly
- Building enterprise-grade integration flows is key to guarantee stability
- Enterprise readiness has many flavors
 - Readability
 - Dependency to external components
 - Error handling
 - Resource-awareness
 - Testing
 - Performance



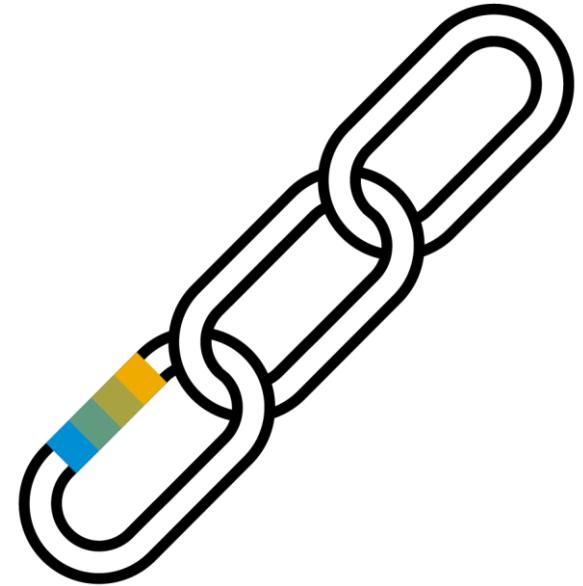
Readability

- Modular design improves readability of the integration scenario
 - Better supportability
 - Supports better flow control by reusability of certain subprocesses from multiple points
 - Fewer mistakes on changes
 - Easier handover
 - If needed, split one flow into two flows
- Externalize parameters
 - Easy change possible
 - No need to understand the flow
- Use graphical flow steps instead of scripts if possible



Dependency to external components

- No control over external communication partners
- Be prepared for maintenance windows
- Anticipate failures
- Relax dependencies
 - Use proper timeouts
 - Use retry to cover temporary network issues
 - Validate incoming messages



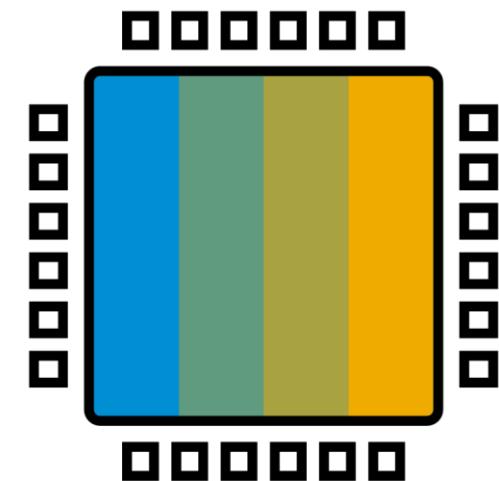
Error handling

- Catch exceptions using an exception subprocess
- Send notifications on errors
- Store helpful error resolution information as MPL attachments
- Outsource the part with potential failure to a separate flow with separate exception handling in order to continue processing afterwards



Resource awareness

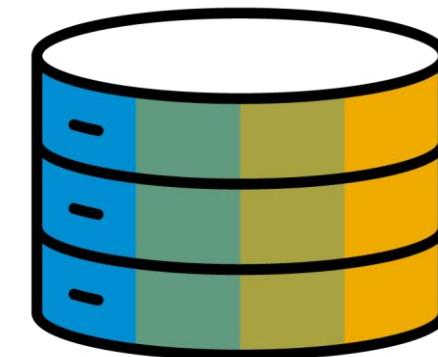
- Tenant's resources are limited
 - CPU, memory, DB size, DB connections
- Design your flow with the payload size in mind
 - Don't use resource-intensive flow steps if you expect big messages (encryption, mapping...)
 - Restrict the payload size
 - Split big payloads into smaller chunks
 - When polling data, use pagination
 - Use streaming when parsing the payload in scripts
 - Remember that multicast steps are cloning the payload in memory
 - Schedule resource-intensive flows at quiet times
- Keep the resources of your communication partners in mind
 - How much volume can the target handle?
 - Use session handling



Developing enterprise-grade integration flows

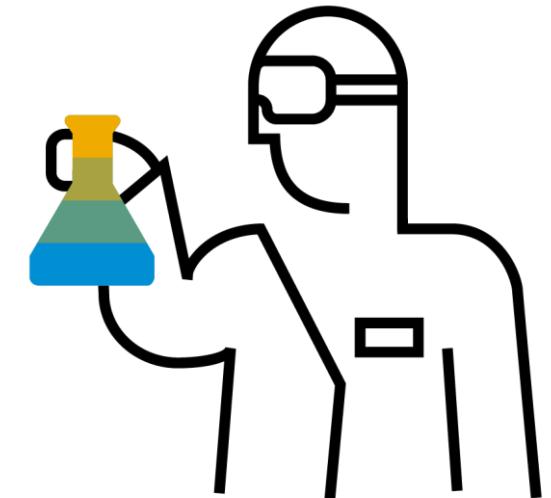
Resource awareness: DB persistency

- Capacity
 - 32 GB database space in total
 - Used for content from data stores, variables, partner directory, MPL
 - On Neo also MPL attachments, persist step content, and trace data are stored on the DB
- MPL attachments
 - Limited tenant-wide to 1 GB storage per 24h (“circuit breaker”) on Neo
 - Use with care
 - Use the *Trace* log level if you need full insights into the flow processing
- JDBC transactions
 - Each JDBC transaction requires a DB connection
 - Flows with activated JDBC transactions block the DB connection for the whole flow processing time
 - Don’t run long-running flows with JDBC transaction enabled; keep flows with JDBC transaction running short
 - For persistence read steps you don’t need a JDBC transaction
- Performance
 - Database access is slower than memory access
 - For intra-flow buffer use properties and headers instead of data store/variables



Testing

- Set up a dedicated test tenant, separate from your production tenant
- Perform 360° testing for new integration artifacts before deploying them on productive tenants
- Use the customer test service
- High volume scenarios
 - Test with realistic volume in a realistic environment
 - Inform SAP about planned high volume runs to ensure best setup



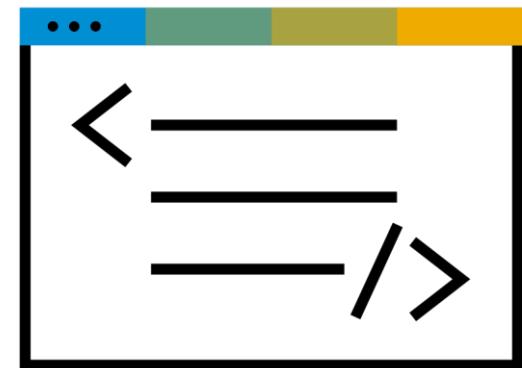
Performance

- Use pushing adapters instead of polling adapters for better scaling
- Use ProcessDirect adapter for flow-to-flow communication
- Buffer in memory rather than via persistency
- If polling big messages
 - Split into many chunks
 - Store and scale the chunks using JMS queues
- Use bulking of messages if possible
- Performance is an end-to-end story!



Scripting

- The graphical flow steps cannot cover all use cases
- External libraries provide features and functions that you want to re-use
- Scripts can be tested in external tools like Eclipse or GroovyIDE
- Access to Cloud Integration artifacts through scripts
 - Partner directory, value mapping, secure store items, etc.
- Bad coding can lead to out-of-memory errors
- Updates of Java / JavaScript / Groovy runtime could break script



Custom scripts are your responsibility!
SAP does not furnish any guarantee for custom scripts.

Developing enterprise-grade integration flows

Design guidelines

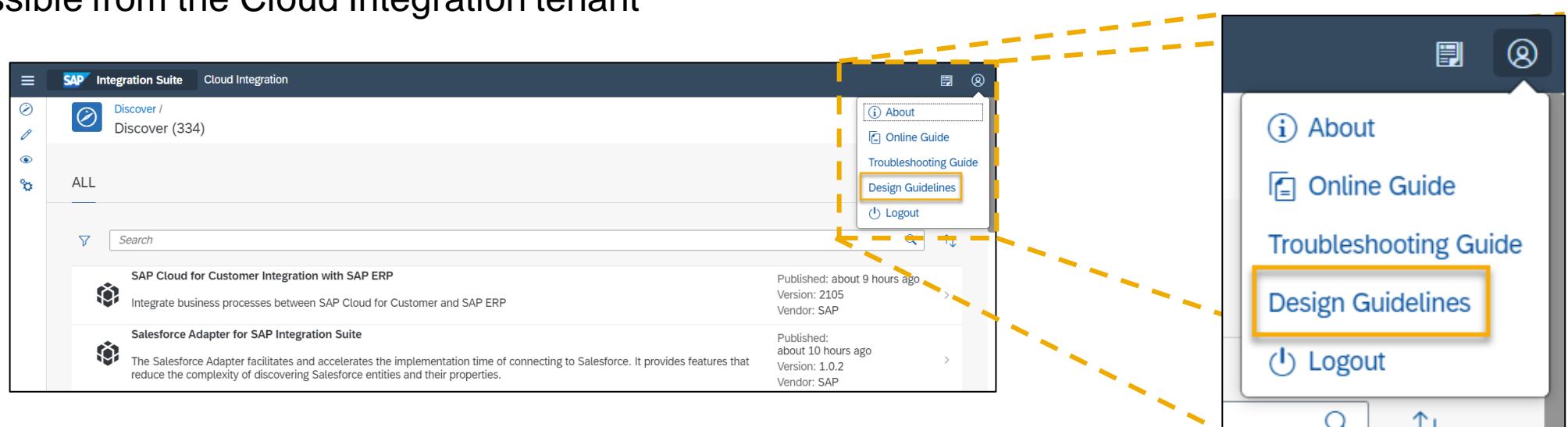
- They cover the guidelines mentioned on the previous slides and much more
- Successor of the “Exemplars” package
- Contain a *Learn the Basics* section
- Come with plenty of integration flow examples
- Postman collections are included
- They are updated frequently
- Easily accessible from the Cloud Integration tenant

The screenshot shows a web browser window with the URL [Home / SAP Cloud Integration / Development /](#). The main title is "Integration Flow Design Guidelines". Below it, a sub-section title reads: "As an integration developer, you need to make sure that you design integration flows in a robust fashion in order to safeguard your company's mission-critical business processes." A descriptive text follows: "This section provides guidelines for integration developers covering the following two main aspects:"

Learn the Basics	Helps you to understand the basic capabilities for modeling integration flows.
Guidelines to Design Enterprise-Grade Integration Flows	Provides guidelines for designing enterprise-grade integration flows. For example, way.
Guidelines to Implement Specific Integration Patterns	Provides guidelines for implementing specific integration patterns. For example,

Three integration packages are listed:

- Integration Flow Design Guidelines - Scripting Guidelines**: This integration package contains integration flows to illustrate the [design guidelines](#) for scripting.
- Integration Flow Design Guidelines - Learn the Basics**: This integration package contains integration flows to illustrate the [design guidelines](#) for modeling.
- Integration Flow Design Guidelines - Enterprise Integration Patterns**: This integration package contains integration flows to illustrate the [design](#) of the most common Enterprise

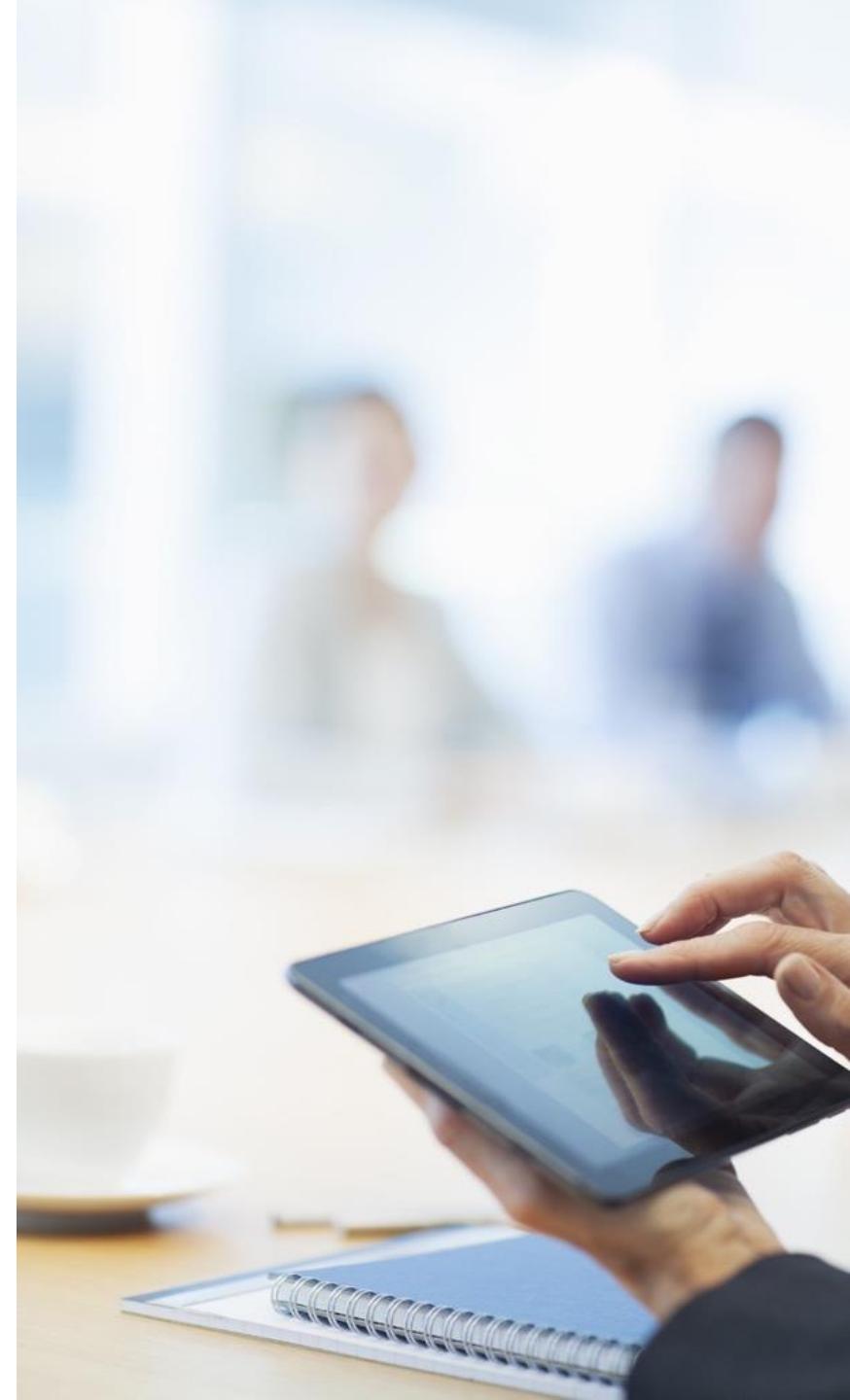


A photograph showing a close-up of a person's hands typing on a laptop keyboard. The scene is bathed in warm, golden sunlight streaming through a window, creating a strong lens flare effect. The laptop screen is visible in the background, and the overall atmosphere is bright and focused.

Demo

Summary

- Having a mature design is important for tenant stability.
- 360° testing is important.
- Keep the resource impact of your integration flows low.
- Performance depends on many factors.
- Use scripting appropriately.
- Check out the design guidelines frequently!



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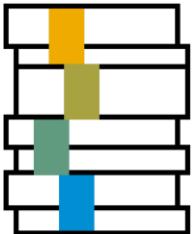
Week 3: Expand Your Skills

Unit 2: Accelerating B2B Integrations

Main components of the Integration Advisor

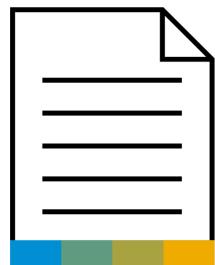
Library of Type Systems

Library of predefined/standardized reusable data types



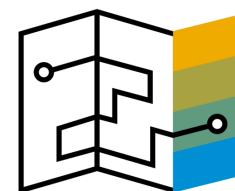
Message Implementation Guidelines (MIGs)

Functional specification describing the (source or target) structure of the customized interface



Mapping Guidelines (MAGs)

Specification of a mapping between a source and target MIG



Runtime Artifacts

Deployable scripts and schemas



Introduction to type systems

A type system has a library of predefined/standardized reusable data types that follow a common syntax and methodology for modeling, naming, and structuring

A type system could be a B2B or A2A library based on a specific syntax representation such as XML or JSON

Typical organizations are standardization bodies such as ISO, United Nations, ASC, etc. or software vendors like SAP SE



UN/CEFACT



UN/EDIFACT



SAP IDoc SAP S/4HANA

What is a Message Implementation Guideline?

A **Message Implementation Guideline** (MIG) is like a functional specification and describes precisely the (source or target) structure of the customized interface

The intention of a MIG is to provide all information on how a customized message interface must be implemented and used, so that the user or implementer doesn't have to refer to any other document or information source

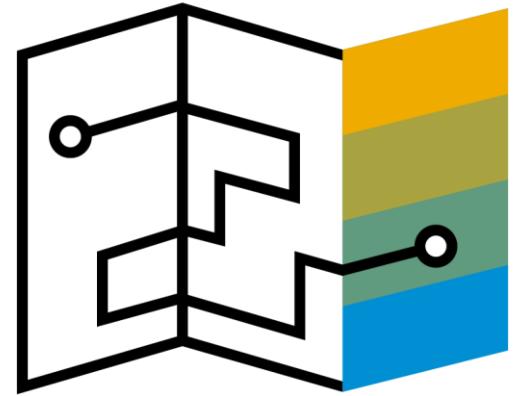
The more information provided in the MIG, the less work when creating the Mapping Guidelines



What is a Mapping Guideline?

A Mapping Guideline (MAG) is used to create a complete **mapping at the semantic level** that covers the aspects, constraints, and parameters from the source and target Message Implementation Guidelines (MIG)

These can be used for internal purposes or can be shared with trading partners as a proposal or reference guideline

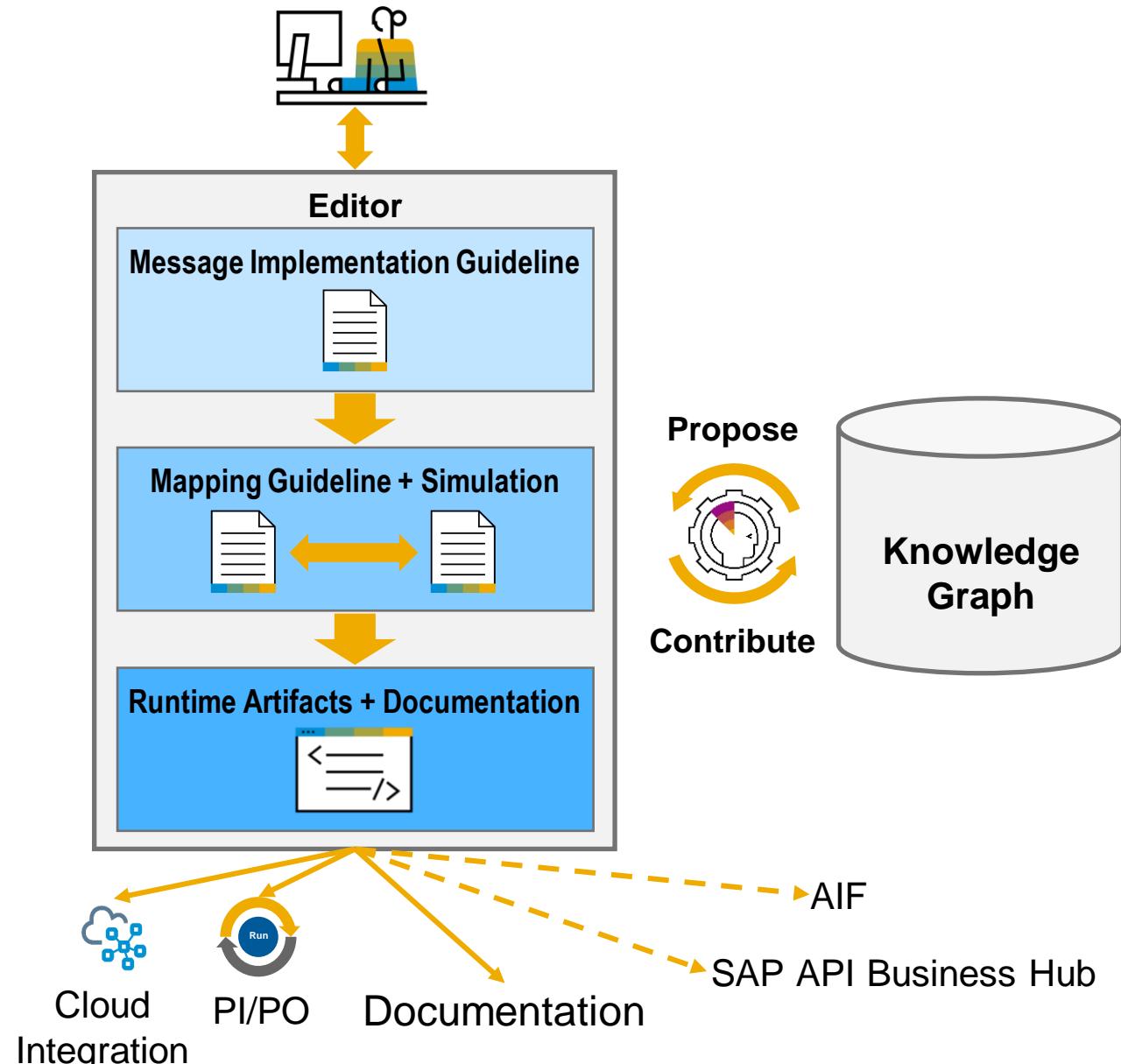


What is the Integration Advisor?

Intelligent one stop shop for creating and maintaining A2A/B2B/B2G integration content, **reducing efforts by 60% or more**

Key Capabilities

- One tool for all phases of integration projects
- Provides all necessary information in a single place
- Addresses business domain experts
- Interface & mapping proposals
- Automatic generation of documentation and runtime artifacts
- Machine learning using crowd sourced learnings

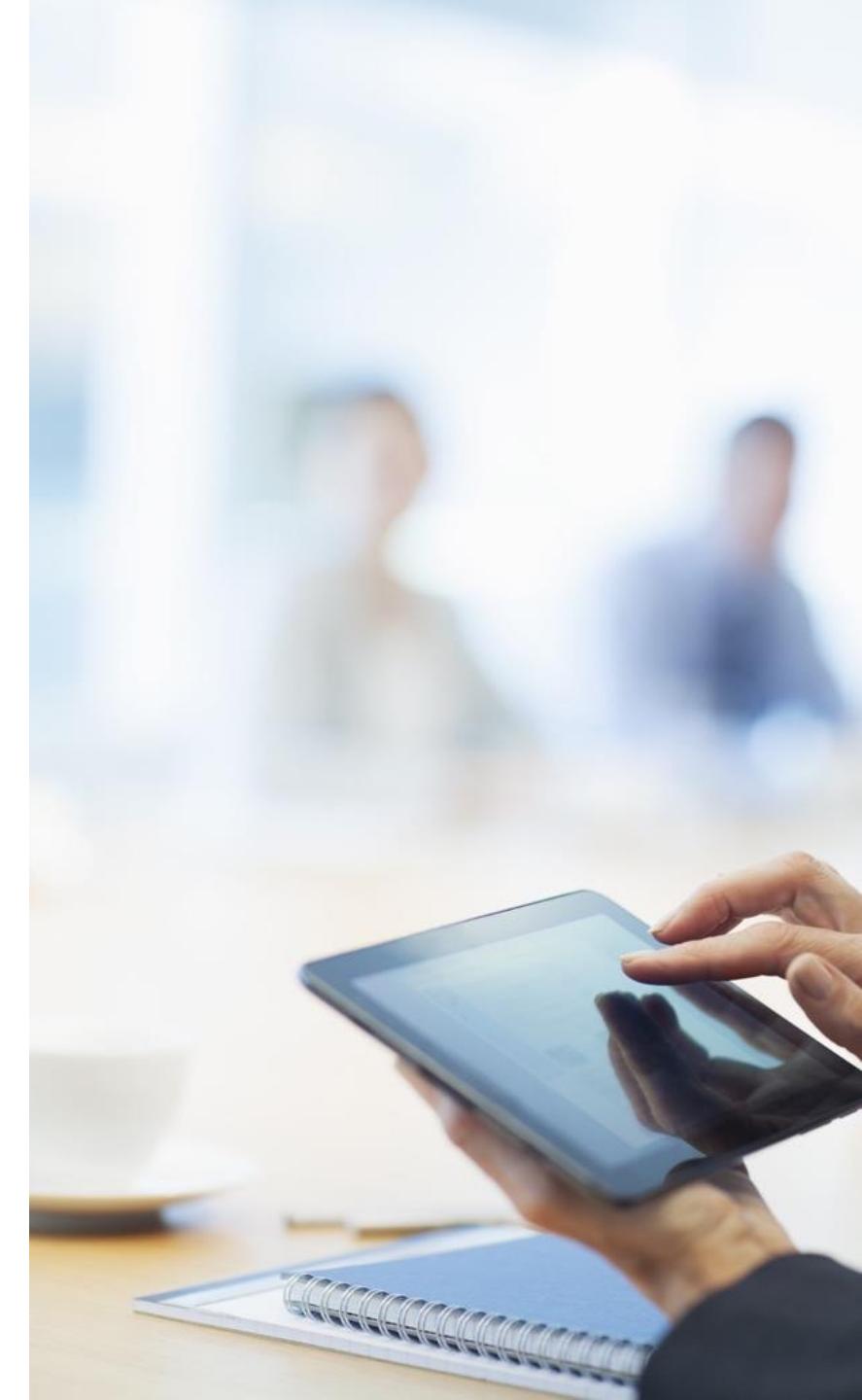


A photograph showing a close-up of a person's hands typing on a laptop keyboard. The scene is bathed in warm, golden sunlight streaming through a window, creating a strong lens flare effect. The laptop screen is visible in the background, and the overall atmosphere is bright and focused.

Demo

Summary

- Integration Advisor is a powerful accelerator for complex integrations from the B2B world but also the A2A world
- Crowd source content
- Machine learning
- Implementation and documentation in sync
- Artifacts can be used in several runtimes



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Week 3: Expand Your Skills

Unit 3: Managing Communication Partners Using the Partner Directory

Managing communication partners using the Partner Directory

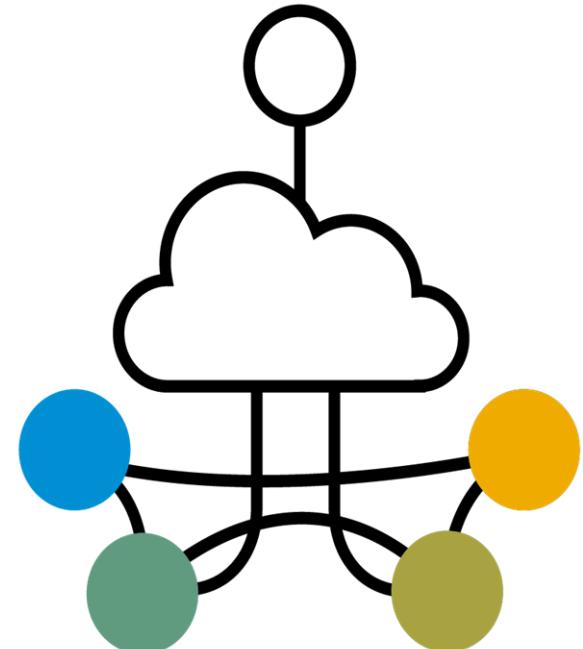
Problem statement

- In the B2B context, integration scenarios often use many communication partners
- New partners are added and old partners are removed while the scenarios are running
- Adding a partner usually means adding another flow or redeploying the existing flow, which might cause interruptions for the other partners
- Offering access to the Cloud Integration tenant for the partners is not an option
- How to manage such a situation?



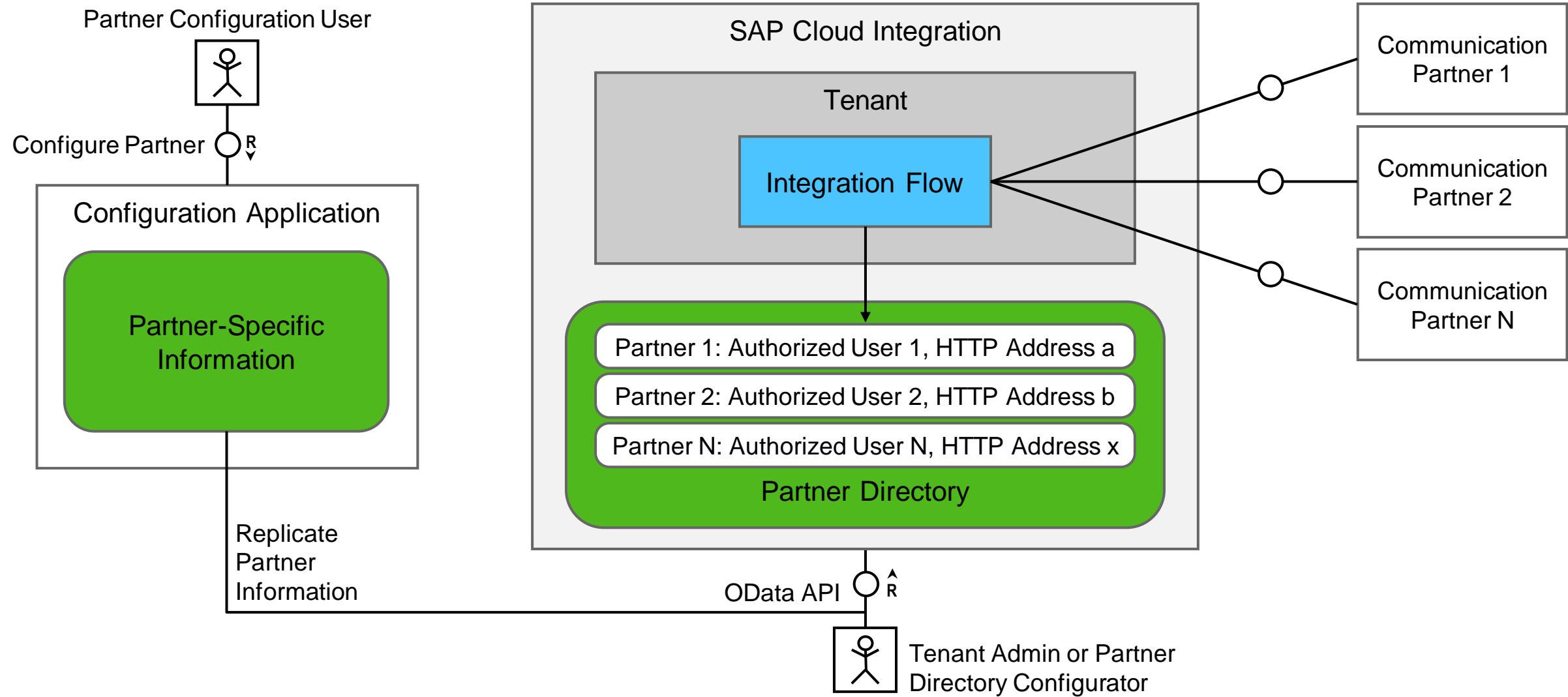
Partner Directory in a nutshell

- The Partner Directory is a storage of runtime configuration parameters
- Access those parameters at runtime via script or Partner Directory URI
- Certain flow steps can dynamically use these parameters
- Partner context determination via inbound message
- Change runtime behavior without redeployment



Managing communication partners using the Partner Directory

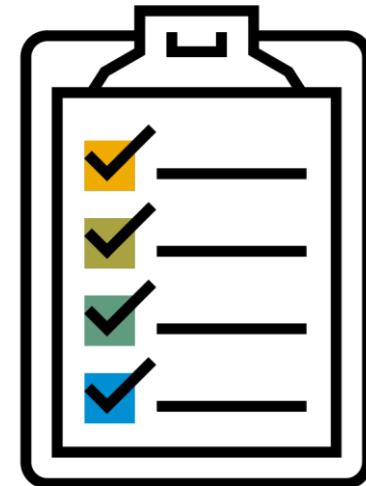
Architecture



Managing communication partners using the Partner Directory

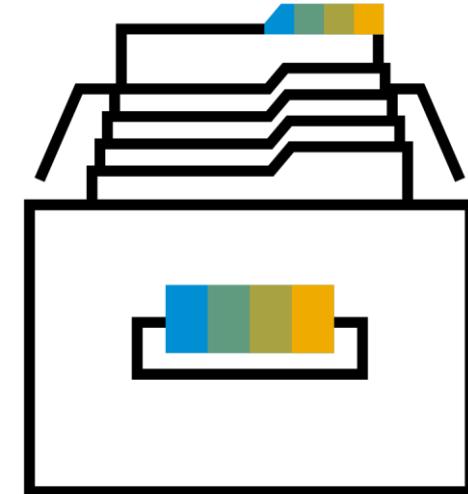
Use cases

- Add communication details of new communication partners
- Change credentials or URL of existing communication partners
- Look up alternative partner IDs/value mapping
- Run partner-specific XSL transformations or schema validations
- Use Integration Advisor's XSLTs at runtime
- Retrieve any partner-specific parameter you want



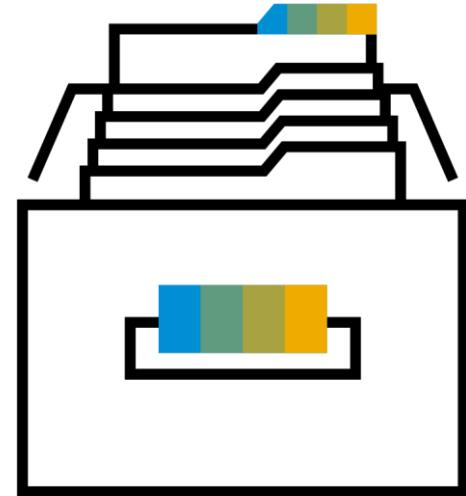
What to store in the Partner Directory

- String parameters
 - Endpoint URLs, credential or key aliases, short parameters...
 - Limit: 2500 characters
- Binary data
 - Certificates, XSLT, ZIP files, schemas...
 - Limit: 260 KB
 - Content can be stored zipped if the flow steps support automatic unzipping (XML validator and XSLT)
 - For Postman-based uploads, the zipped content needs to be base64 encoded



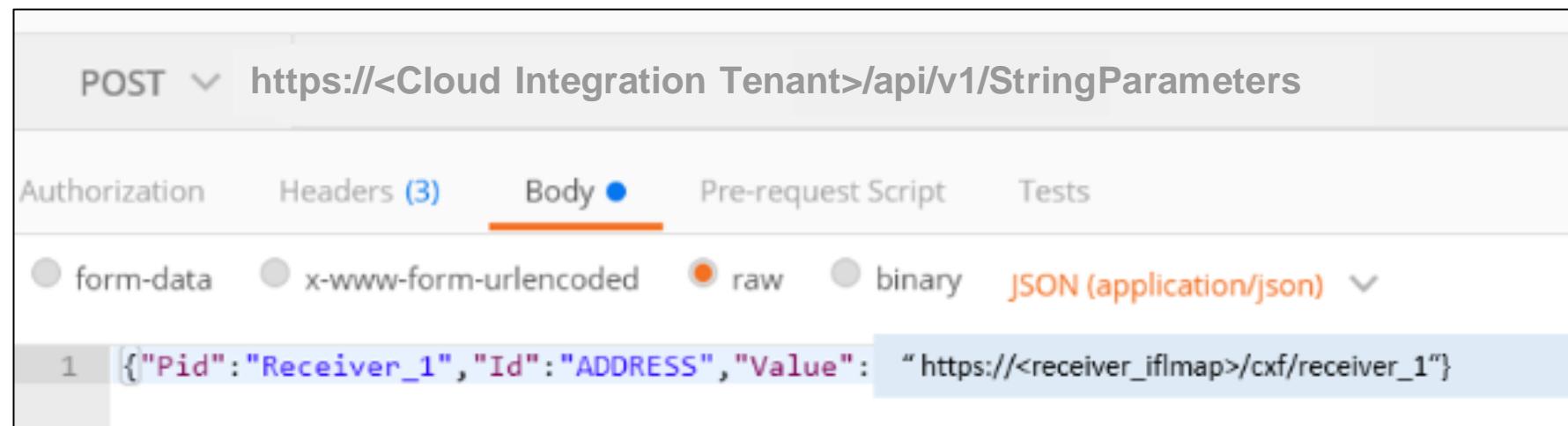
What to store in the Partner Directory

- Alternative partners
 - Lookup service for external IDs similar to value mapping
 - Agency (120 chars), scheme (120 chars), ID (60 chars), partner ID (60 chars)
- Authorized users
 - Representatives for a partner ID for inbound communication
 - Multiple users per partner ID but only one partner ID per user
 - Ensures partner directory access for authorized calls only
- Credentials
 - For outbound communication
 - Partner directory will create credentials directly on the tenant



How to store parameters in the Partner Directory

- Access to Partner Directory via OData API
`https://<Cloud Integration Tenant>/api/v1`
- Details on SAP API Business Hub: <https://api.sap.com/api/PartnerDirectory/resource>
- Mass upload possible via OData batch
- Roles
 - AuthGroup.PartnerDirectoryConfigurator or
 - AuthGroup.Administrator



The screenshot shows a Postman interface for a POST request to the URL `https://<Cloud Integration Tenant>/api/v1/StringParameters`. The 'Body' tab is selected, showing the raw JSON payload:

```
1  {"Pid": "Receiver_1", "Id": "ADDRESS", "Value": "https://<receiver_iflmap>/cxf/receiver_1"}
```

Retrieval of parameters at runtime

- Via script

- def service = ITApiFactory.getApi(PartnerDirectoryService.class, null);
- Java API described here: <https://help.sap.com/viewer/368c481cd6954bdfa5d0435479fd4eaf/Cloud/en-US/ab10d02667fe48309bd2d5cd5e06e4f3.html>

- Via Partner Directory URI

- Credential alias: pd:<partner ID>:<Parameter ID>:UserCredential
- Binary content: pd:<partner ID>:<ID>:Binary
- AS2: pd:<pd parameter name>
- Usage in XSLT, adapters, validators

Method:	POST
Authentication:	Basic
*Credential Name:	pd:partner1:User:UserCredential
Timeout (in ms):	60000



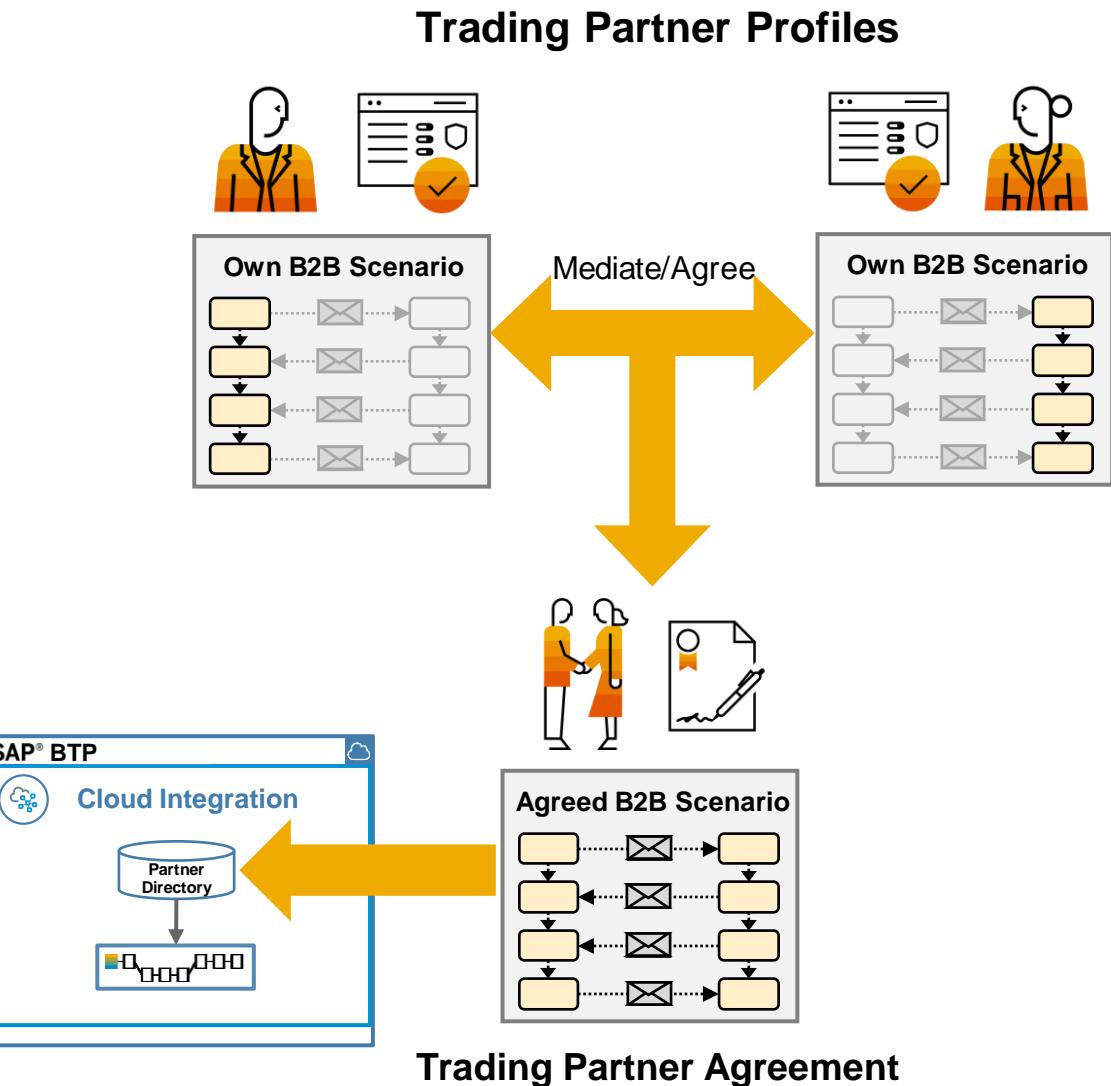
Note: After initial retrieval on runtime node, the parameters are cached to avoid performance impact.

Managing communication partners using the Partner Directory

Outlook and overview

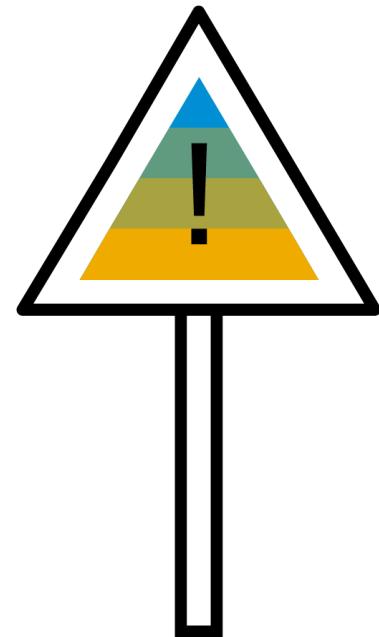
Focus on

- Enhanced onboarding
- Easy maintenance of B2B trading partner network
- Easy usage of Integration Advisor runtime artefacts



Points to consider

- The Partner Directory is not the trading partner management (like you know it from PI/PO)
- Storage of communication-relevant partner information
- Partner Directory storage part of the tenant storage
- Credentials are stored in the secure store
- Other values are not encrypted
- No versioning of parameters



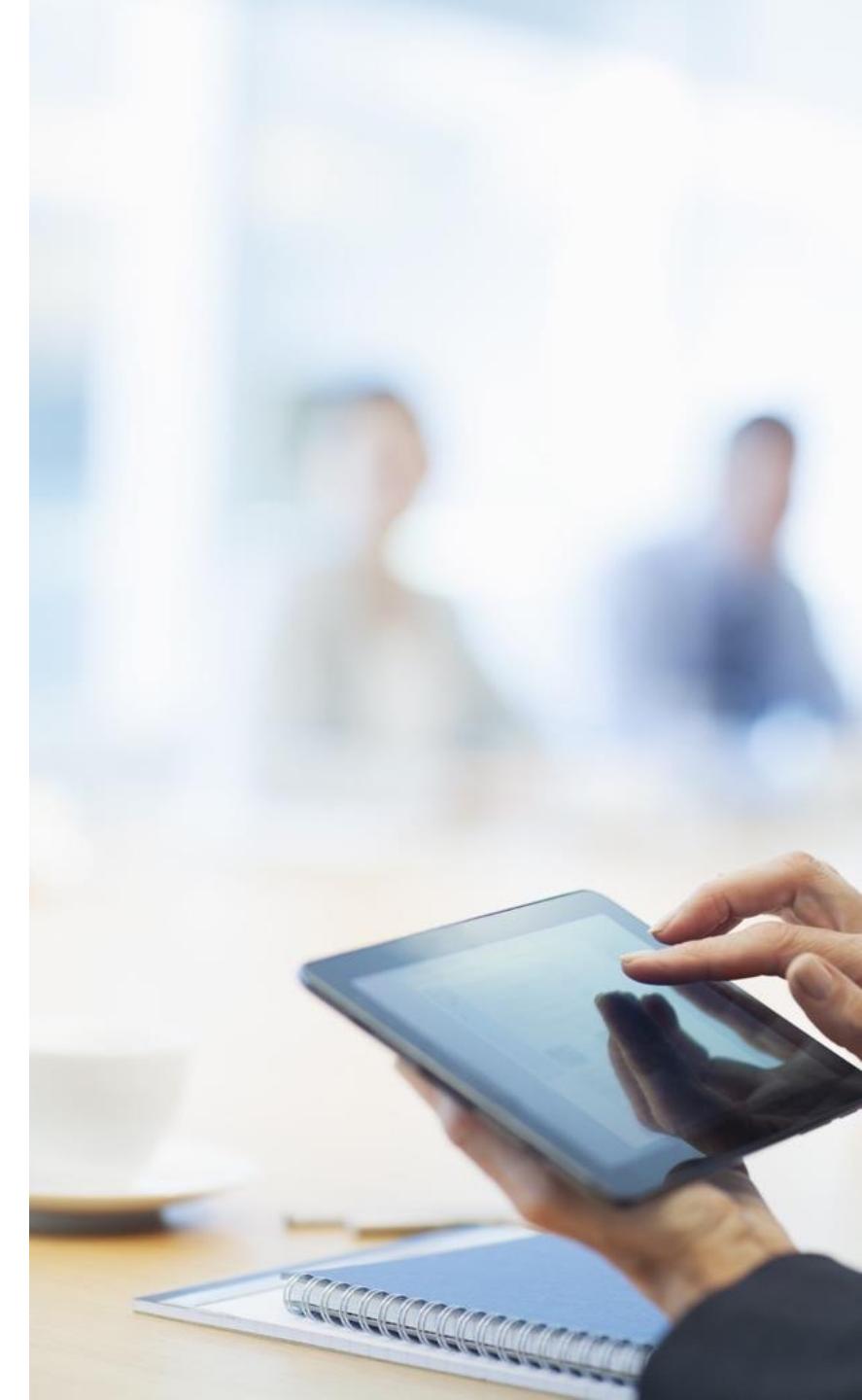
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Demo

Managing communication partners using the Partner Directory

Summary

- Powerful externalization component
- Change of runtime behavior without redeployment
- Offers capabilities like value mapping
- API package available on SAP API Business Hub
- Integration Flow Design Guidelines for the usage of the Partner Directory available on SAP API Business Hub



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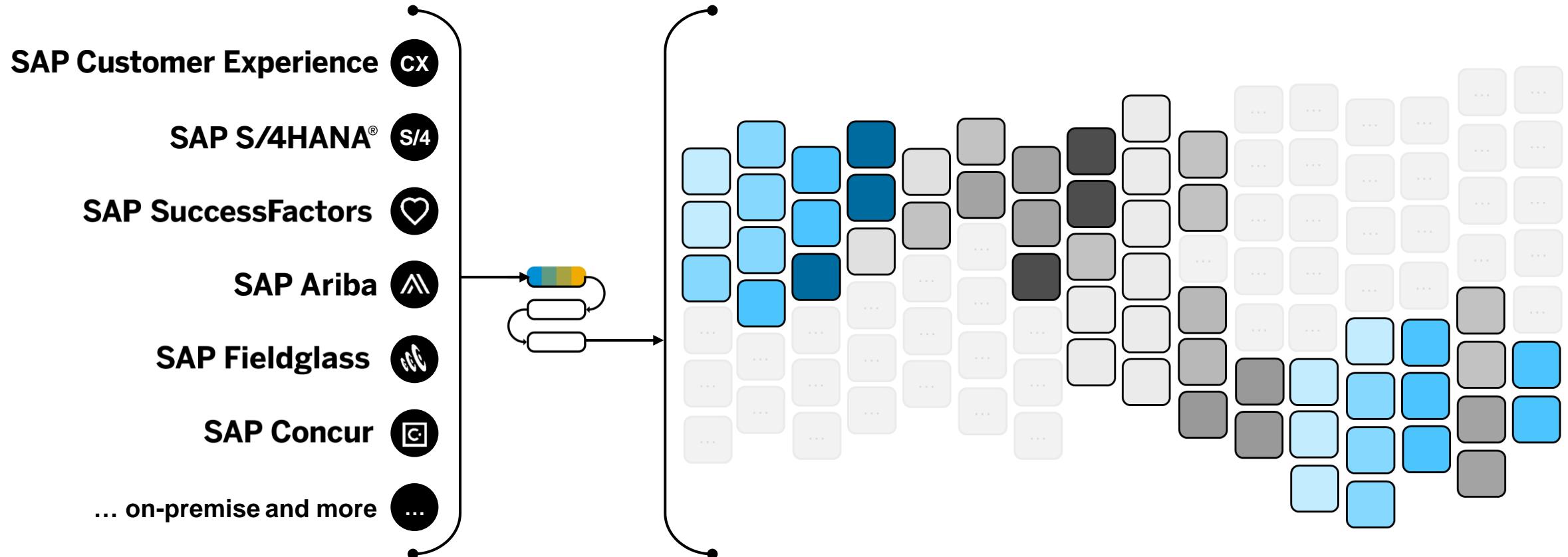


Week 3: Dive Deeper

Unit 4: Accelerating Third-Party Connectivity

Accelerating third-party connectivity

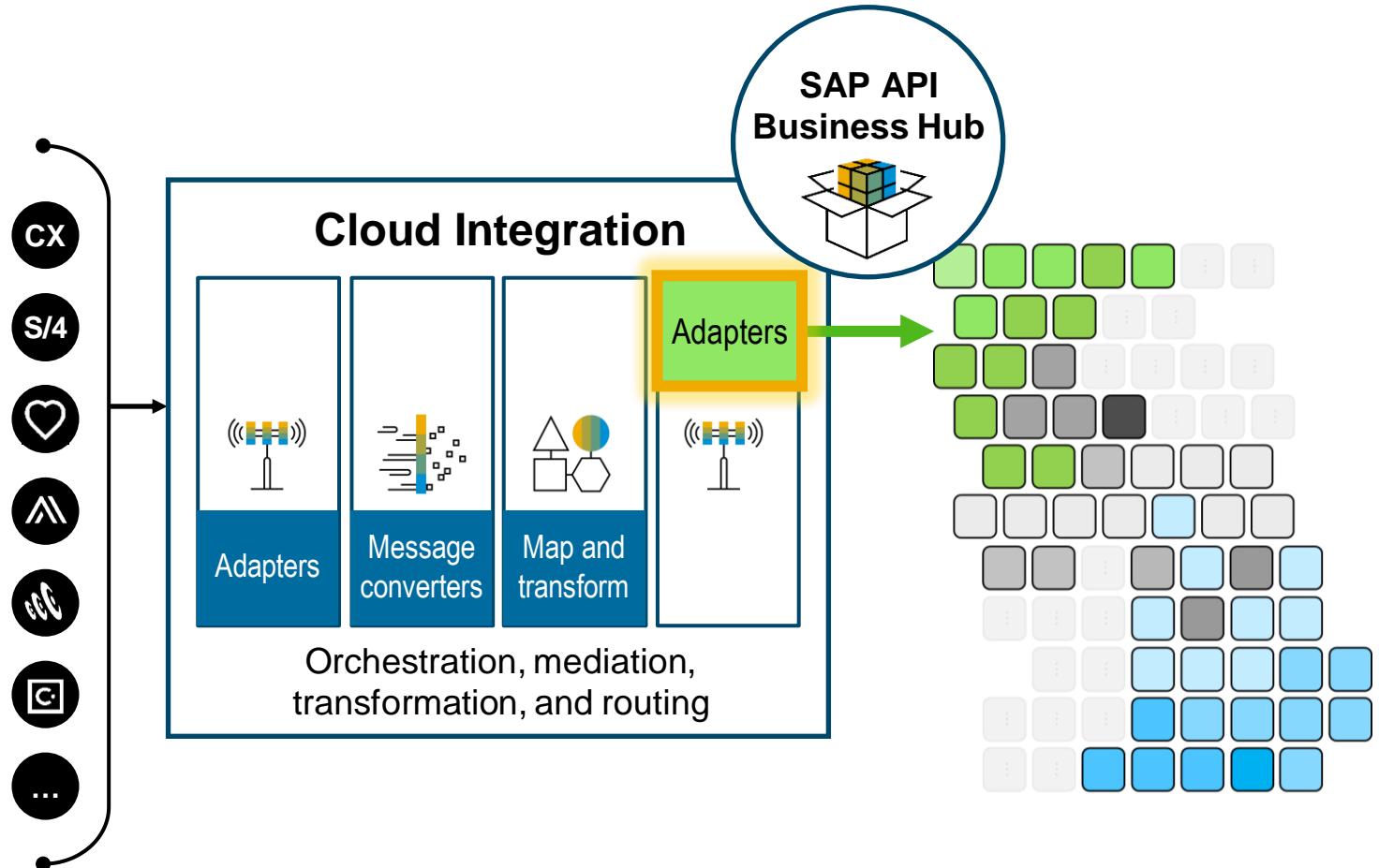
Customer landscapes are more heterogeneous than ever



70% of our customer integrations are to non-SAP systems
(CRM, social, payments, documents, governments)

Comprehensive set of (built-in) connectivity options

- Comprehensive set of **standard adapters** gives you the wide range of connectivity options that you can use while implementing your integration scenarios
- **Cloud connector** enables you to securely connect to on-premise systems
- Building **custom adapters** using the adapter development kit



Rich set of protocol and application-based adapters



Protocol-based adapters

- HTTP, HTTPS (incl. REST client)
- SOAP
- OData V2 & V4
- SFTP
- IDoc, RFC, XI
- LDAP
- Mail (SMTP, IMAP, POP3)
- JMS, AS2, AS4
- Kafka*
- JDBC
- AMQP
- Process Direct

* for multi-cloud only

** for German fiscal management

*** for SAP Integration Suite, standard & premium editions



App-based adapters

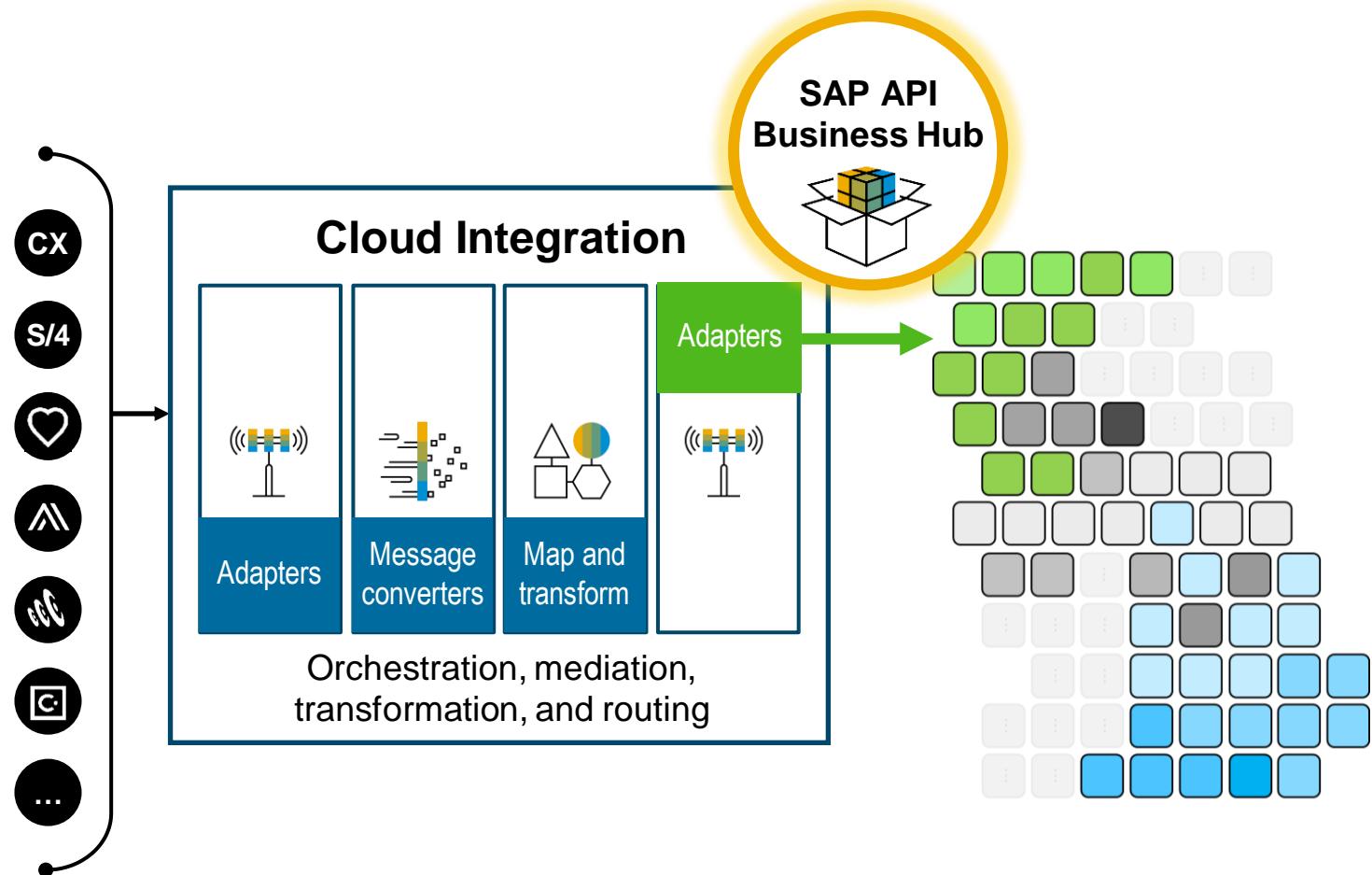
- OpenConnectors
- SuccessFactors
- Ariba
- Facebook
- Twitter
- Elster**
- Salesforce
- Microsoft Dynamics CRM
- Amazon Web Services
- SugarCRM
- ServiceNow***
- Workday***

Full list of adapters

- by SAP in [SAP Help Portal](#)
- by partners in [SAP API Business Hub](#)

Profit from quick time to value through out-of-the-box integration content

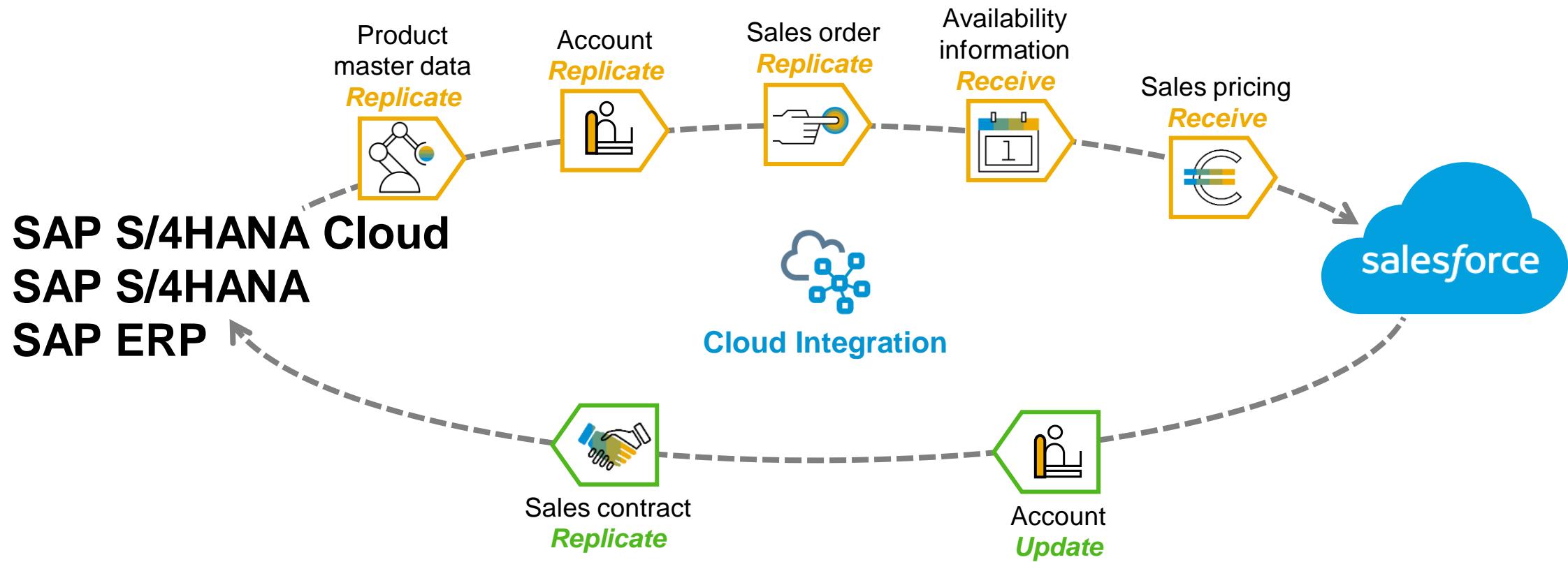
- Leverage out-of-the-box integration content to non-SAP applications such as Salesforce, Google, Facebook, Twitter
- Full support and updates of available content
- 50% of integration packs in context of non-SAP integration scenarios
- Integration packs developed by SAP industry and LoB organizations and partners
- Continuously publishing further integration packs at SAP API Business Hub



Accelerating third-party connectivity

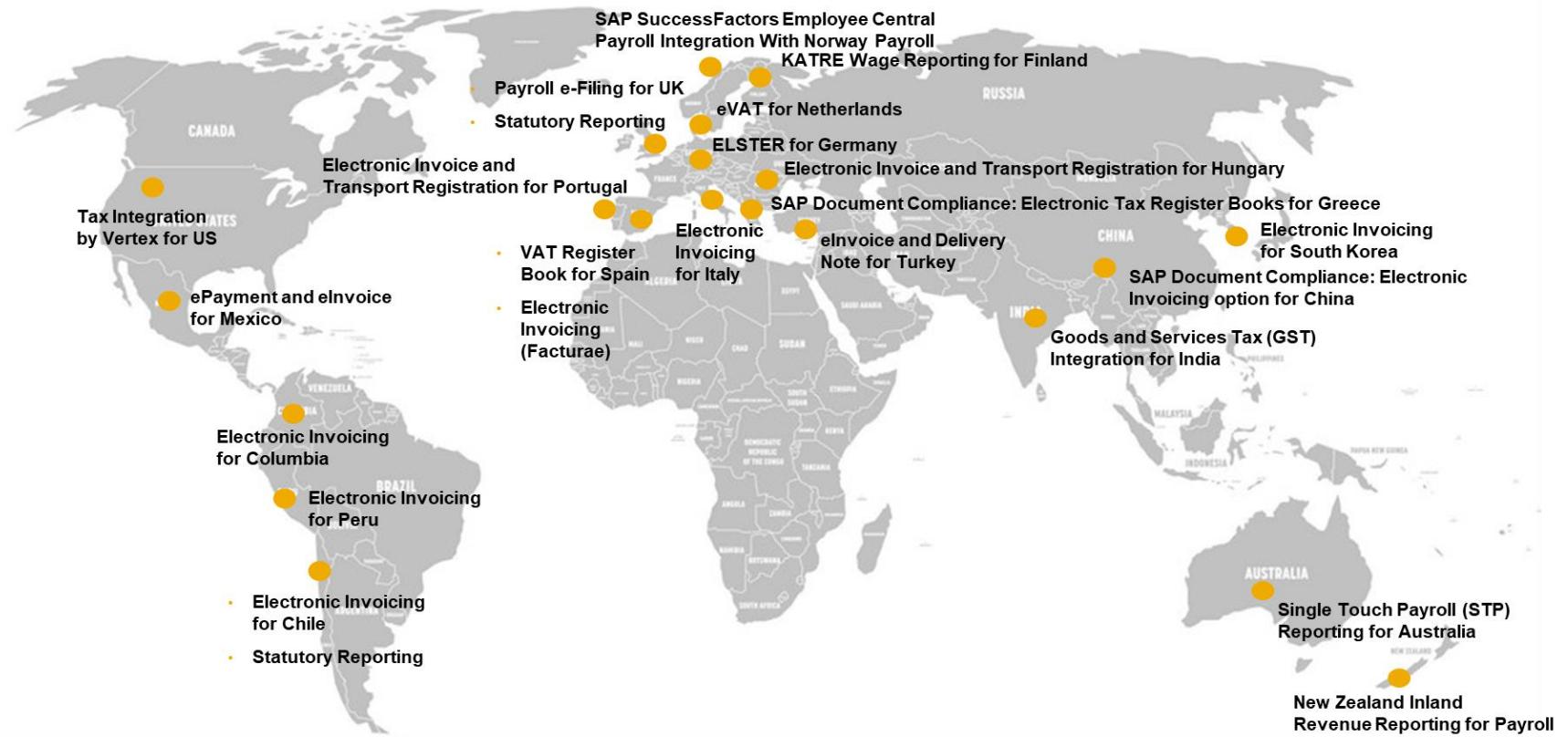
SAP S/4HANA Cloud and SAP S/4HANA or SAP ERP – Salesforce

- No additional costs for SAP S/4HANA Cloud and SAP Integration Suite/Cloud Integration customers
- Up to ten times faster implementation and 5 times faster in execution

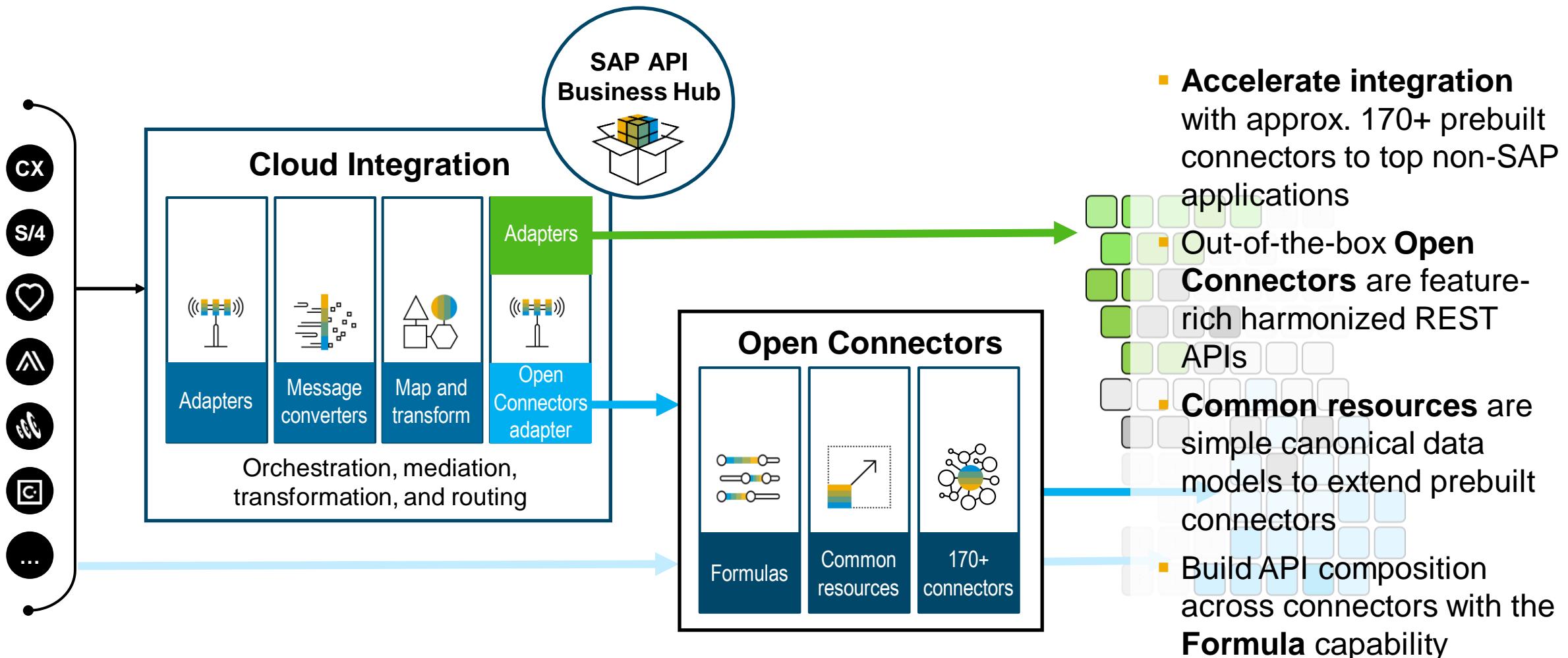


Digital compliance – e-government integration cloud

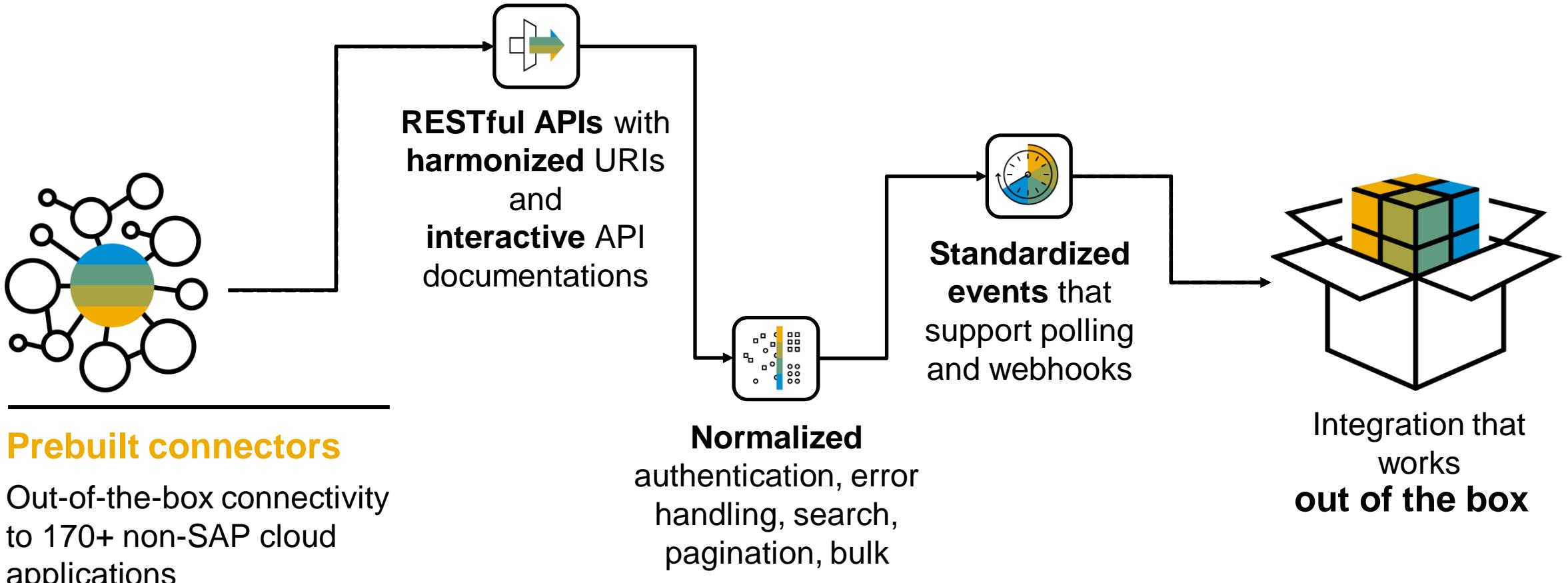
- Stay compliant in multiple e-government scenarios across the globe
- 30+ integration packs on SAP API Business Hub available



Extended connectivity to numerous non-SAP applications



Open Connectors are more than just a connection



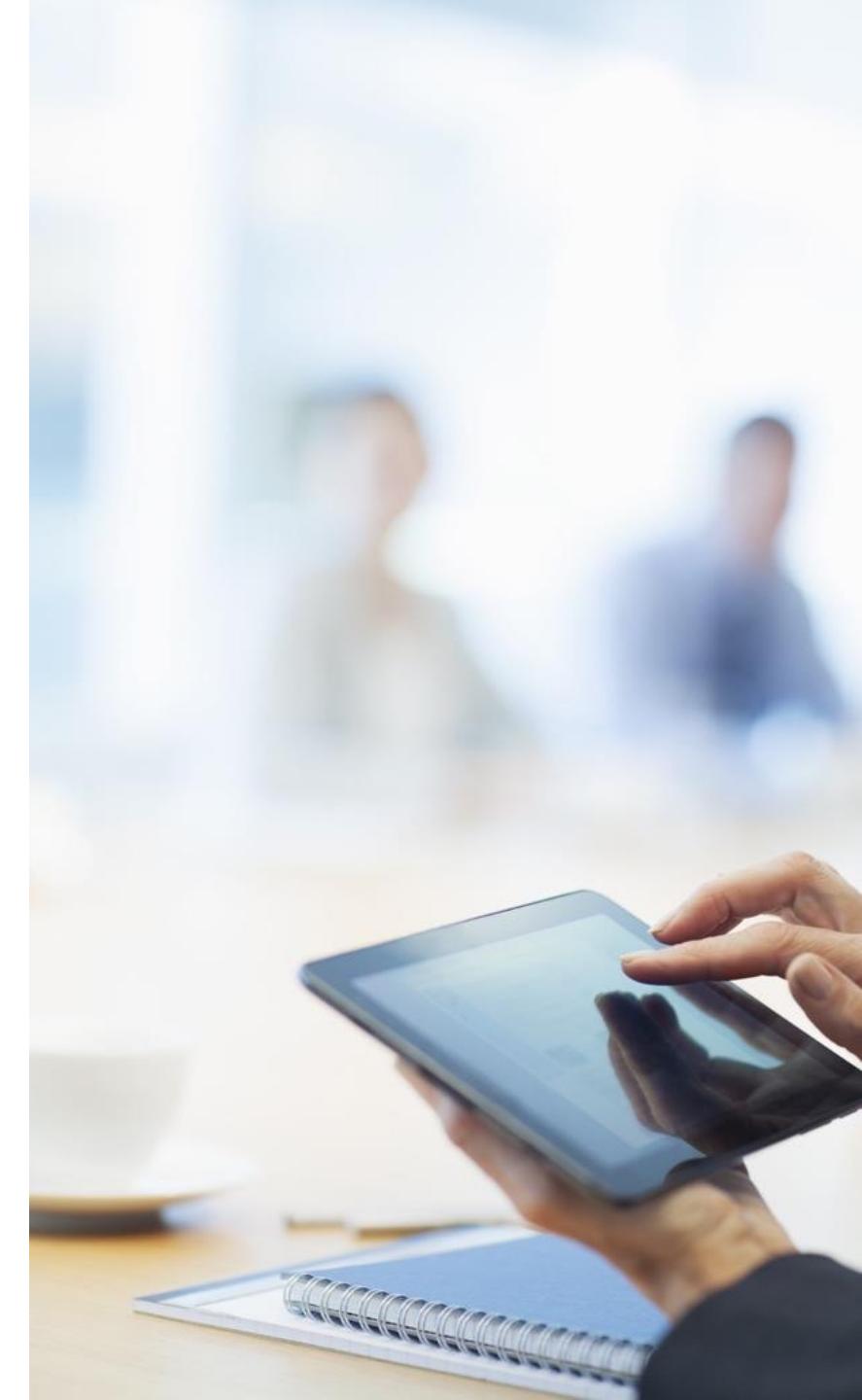
Build own connectors using the **Connector Builder**

A photograph showing a close-up of a person's hands typing on a laptop keyboard. The scene is bathed in warm, golden sunlight streaming through a window, creating a strong lens flare effect. The laptop screen is visible in the background, and the overall atmosphere is bright and focused.

Demo

Summary

- Integration to non-SAP applications is an important ambition for SAP.
- Simplify integration tailored to your specific requirements by choosing from ~2,000 integration packs using SAP API Business Hub.
- Extend the rich set of Cloud Integration connectivity options with further technical connectivity through 170+ Open Connectors to drastically reduce time to connect to top non-SAP SaaS applications.
- The OpenConnectors receiver adapter supports XML and JSON content formats and common HTTP methods.
- Use the wizard in the Open Connectors capability of SAP Integration Suite to create your own connectors to non-SAP applications.



Thank you.

Contact information:

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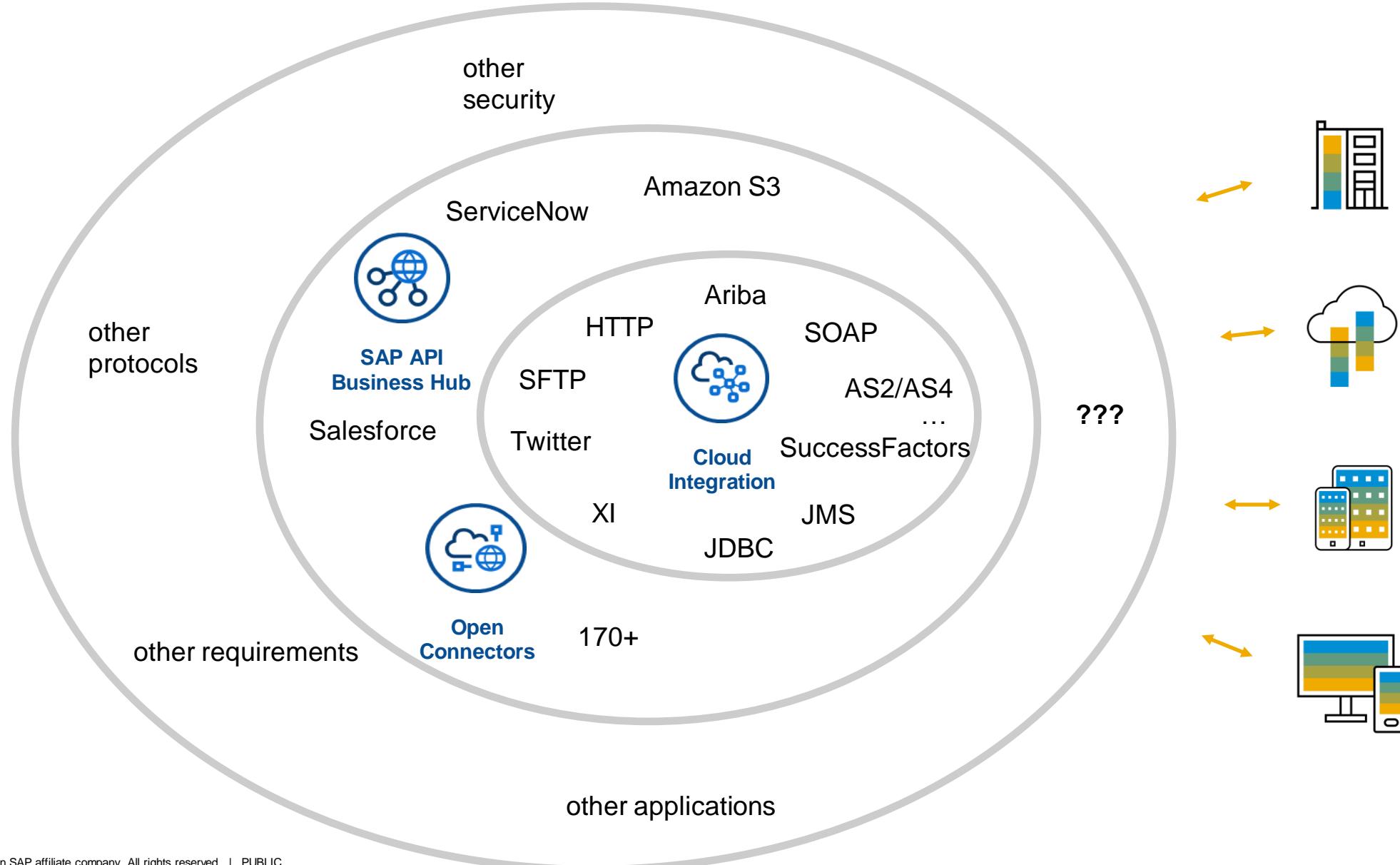
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Week 3: Dive Deeper

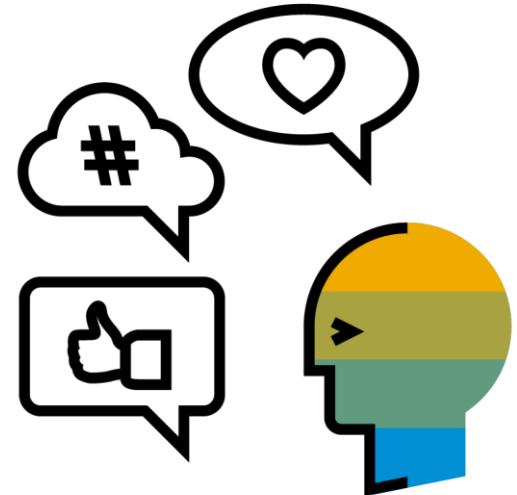
Unit 5: Building a Custom Adapter Using the Adapter Development Kit

Need for custom adapters



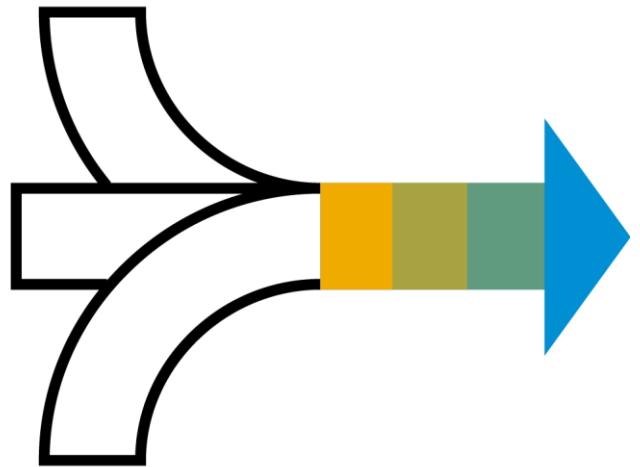
Benefits of adapter development kit (ADK)

- Perfect tailoring of an adapter to custom integration needs
 - Custom protocol
 - Custom mapping
 - Custom security
 - Custom application
 - Better performance
- For partners
 - Publish an adapter to connect to your product via Cloud Integration
 - Build an adapter and monetize it via SAP Store
 - Adapter certification possible



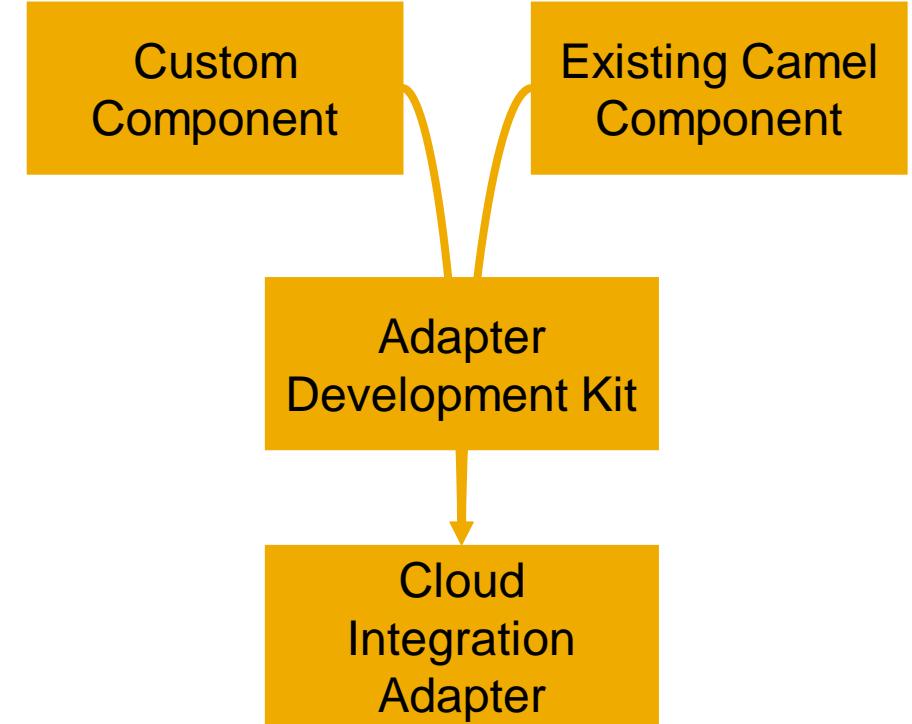
Prerequisites

- Familiarity with Apache Camel
- Familiarity with OSGi
- Familiarity with Java
- Familiarity with Apache Maven
- Eclipse Oxygen
- Eclipse plugin for adapter development
 - <https://tools.hana.ondemand.com/#cloudintegration>



Important during implementation

- Cloud Integration is based on Apache Camel
- All adapters are based on Camel component scheme
- Custom adapters have to follow the Camel component scheme
- Wrapping an existing Camel component
 - Use the non-Maven-based ADK approach
- Implementing an own component from scratch
 - Use Maven-based ADK approach



Touchpoints of custom adapter

Cloud Integration is based on Apache Camel!

Question:

Apache Camel contains plenty of existing components!

Are they not directly usable?

Answer:

Open source components are not yet Cloud Integration-ready.

- UI for designer
- Monitoring & tracing capabilities
- Usage of cloud connector
- Providing endpoint URL
- Connection to Cloud Integration components
 - Persistency
 - Credentials
 - Key material

 camel-activemq
 camel-ahc-ws
 camel-ahc
 camel-amqp
 camel-any23
 camel-apns
 camel-arangodb
 camel-as2
 camel-asn1
 camel-asterisk
 camel-atlasmap
 camel-atmos
 camel-atmosphere-websocket
 camel-atom

Building a custom adapter using the adapter development kit

Adapter development process

1. Create OSGi Bundle / Develop Adapters
2. Component Metadata
3. Blueprint Metadata
4. Enable Endpoint Visualization
5. Enable Inbound Authentication
6. Enable Tracing
7. Enable Secure Store Access
8. Enable Key Store Access
9. Enable Cloud Connector Access

The screenshot shows a web application interface for SAP Cloud Integration. At the top, there is a navigation bar with a logo and the text "Development". Below the navigation bar, a sub-header reads "Learn how to develop integration content and custom adapters in your SAP Cloud integration tenant." A section titled "Developer's Guide for Cloud Integration Web Application" is visible. On the right side of the page, a blue rectangular box contains the text "Developing Custom Adapters", which is highlighted with a yellow border. The main content area is titled "Adapter Development Process" and includes a sidebar with a table of contents. The sidebar lists the following items:

- of Contents
- Adapter Development Process
- Create OSGi Bundle
- Develop Adapters
- Component Metadata
- Blueprint Metadata
- Enabling Endpoint Visualization for Custom Adapter
- Enabling Authentication for Servlet Based Adapters
- Enabling Tracing for Custom Adapter

Below the sidebar, there is a user profile picture of a man named Marco Koch, with the text "Marco Koch SAP" and "June 5, 2018 14 minute read". There are also "Follow", "RSS feed", and "Like" buttons. The main content area also features a section titled "Cloud Integration – New Adapter API for Adapter Development" with a summary and social sharing metrics: "12 Likes 3,735 Views 2 Comments". At the bottom, there is an "Introduction" section with a paragraph of text.

Building a custom adapter using the adapter development kit

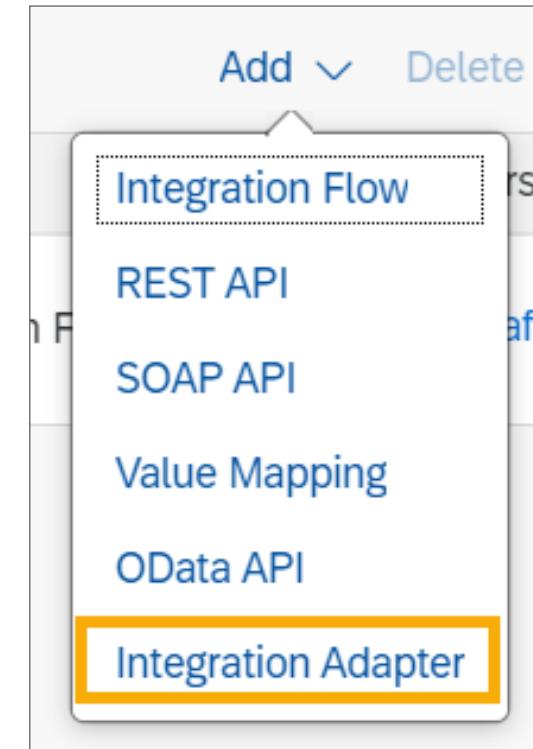
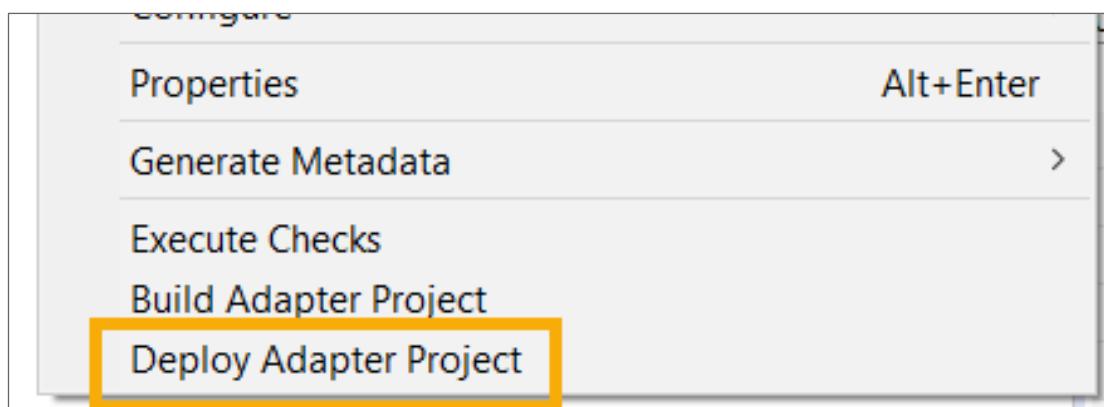
How to import it?

Cloud Foundry

- Build the adapter in Eclipse
- Upload .esa file into a package as Integration Adapter
- Deploy the adapter from the package

Neo

- Build and deploy the adapter via Eclipse



Building a custom adapter using the adapter development kit

Community adapters

In our Integration Github space you will find some integration adapters that are waiting to be consumed by your ADK.

Integration Adapters

Recipe	Description	Topic
Build custom Azure Blob Storage integration adapter	Azure Blob Storage is a massively scalable and secure object storage for cloud-native workloads, archives, data lakes, high-performance computing and machine learning. The camel-Azure Blob Storage component stores and retrieves blobs from Azure Storage Blob Service using Azure APIs v12. This integration adapter enables an integration flow to connect to Azure Blob Storage collection.	Integration Adapters
Build custom MongoDB integration adapter	MongoDB is a very popular NoSQL solution and the camel-mongodb component integrates Camel with MongoDB allowing you to interact with MongoDB collections both as a producer (performing operations on the collection) and as a consumer (consuming documents from a MongoDB collection). This integration adapter enables an integration flow to connect to MongoDB collection.	Integration Adapters
Build custom Rabbit MQ integration adapter	The rabbitmq: component allows you produce and consume messages from RabbitMQ instances. Using the RabbitMQ AMQP client, this component offers a pure RabbitMQ approach over the generic AMQP component. This integration adapter enables an integration flow to persist or read messages in a RabbitMQ queue.	Integration Adapters
Build custom Redis integration adapter	Redis is advanced key-value store where keys can contain strings, hashes, lists, sets and sorted sets. In addition it provides pub/sub functionality for inter-app communications. This integration adapter allows an integration flow to access Redis.	Integration Adapters



Technical Articles

Mayur Belur Mohan

July 16, 2020 2 minute read

Apache Camel Community adapters usage in SAP Cloud Integration

4 Likes 1,587 View 3 Comments

SAP Cloud Integration uses Apache Camel which is an open source framework provides message-oriented middleware with a rule-based routing and mediation engine. Apache Camel community provides larger no of standard apache camel components which provides uniform endpoint interfaces, to which Camel can send messages or receive messages from them. Basically, these Apache camel components acts as connector to any 3rd party systems, implementing enterprise integration patterns (EIP).

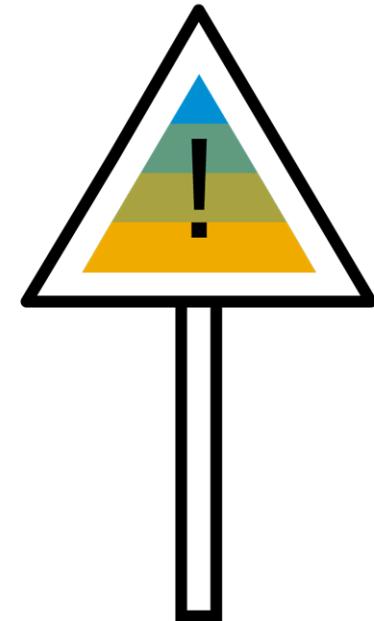
<https://github.com/SAP/apibusinesshub-integration-recipes>

A photograph showing a close-up of a person's hands typing on a laptop keyboard. The scene is bathed in warm, golden sunlight streaming through a window, creating a strong lens flare effect. The laptop screen is visible in the background, and the overall atmosphere is bright and focused.

Demo

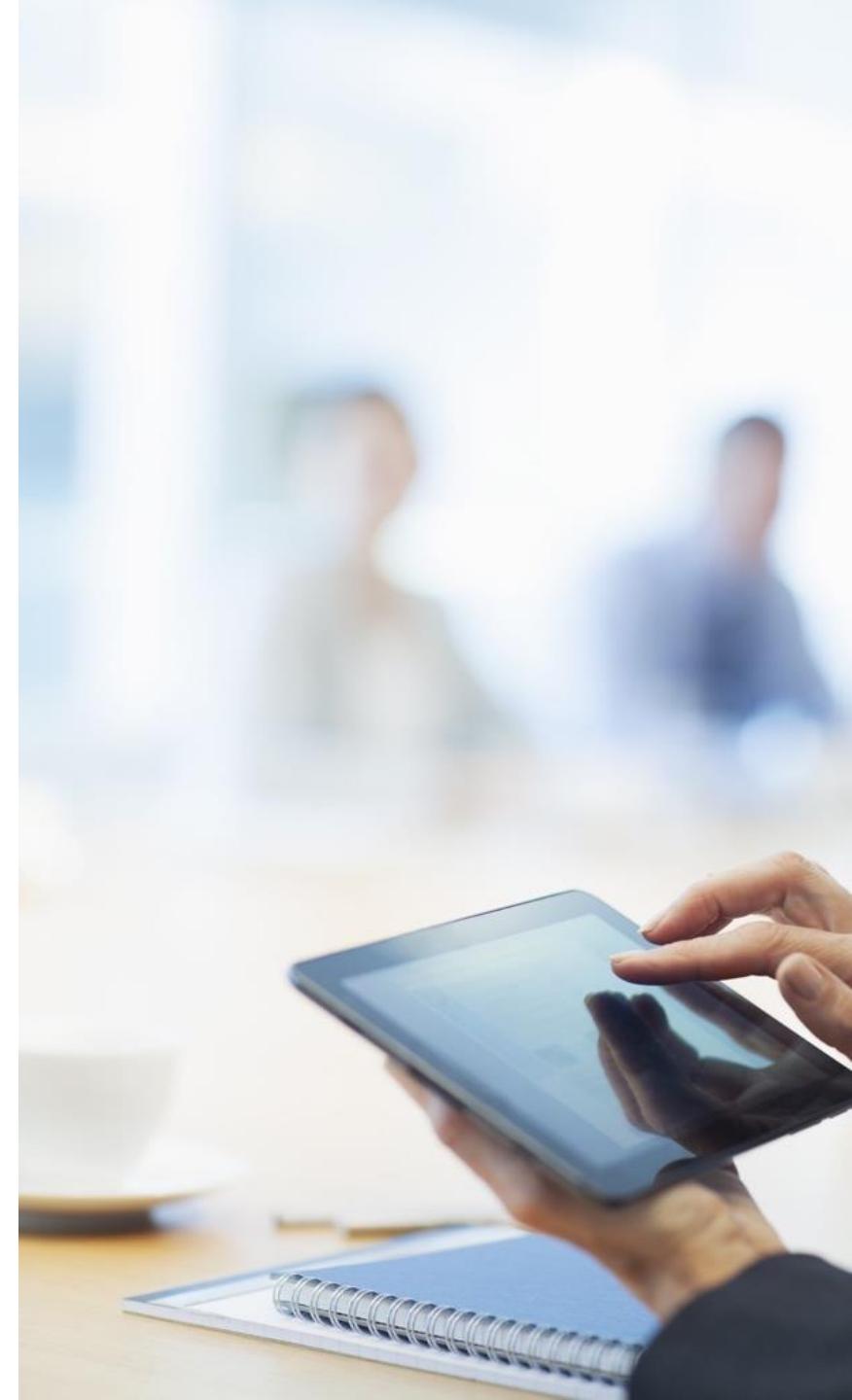
Points to consider

- The adapter developers need to:
 - Perform code scans
 - Scan for viruses before uploading
 - Test the adapter
- The end user needs to:
 - Test the adapter on a test tenant before applying it in a production tenant
 - Test it with other flows to see if the adapter impacts other scenarios



Summary

- Enhance the existing list of adapters with custom-built adapters.
- Use existing Camel components or build your own components.
- 360° testing is important.



Thank you.

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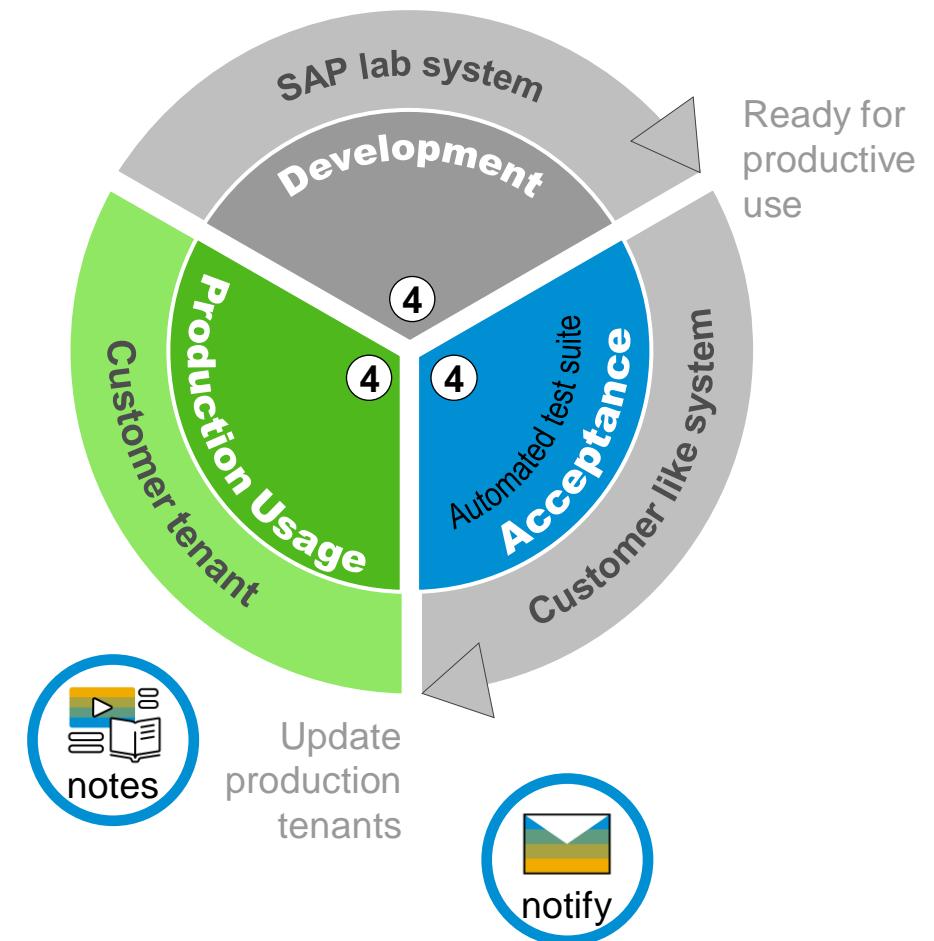
Week 3: Dive Deeper

Unit 6: Safeguarding with Customer Test Service and Preview Tenant

Lean software development process

Significant investments and efforts in quality assurance

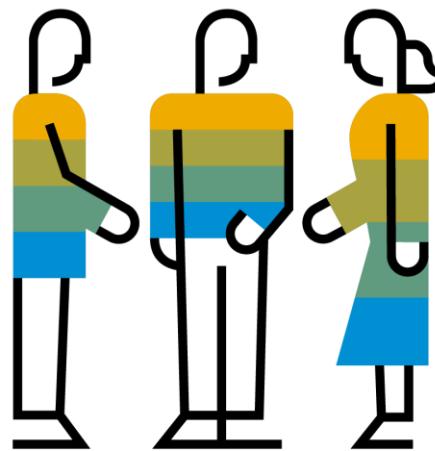
- **Automatic regression and new feature tests** during development: on several levels, environments, with functional and non-functional aspects
- Acceptance test on dedicated landscape
- **Automated scenario regression tests** during acceptance cycle: end-to-end scenarios covering all integration flows published by SAP in SAP API Business Hub
- Upfront mail notification to customers before updates on tenants
- Transparency through release notes, documentation, and community blogs



Business challenges and needs in an integrated environment

SAP's challenges

- Increasing number of custom integration flows with huge variety of flow step combinations
- Use of open source components in the stack
- ~ 50% of standard flows **customized by customers**



Customers' needs

- Customize standard integration flows based on business needs
- Adequately mitigate risk of monthly pushes of software increments for integrated business processes
- Use SAP's expertise to perform regression tests before any update is applied to avoid disruption to business-critical processes

Efficient and continuous safeguarding of customers' critical business processes

Safeguarding with customer test service and preview tenant

Customer test service for risk mitigation caused by custom-built integration flows

- Optional and complementary offering to customers with a subscription to both
 - SAP Integration Suite, customer test service available in SAP Store
 - SAP Cloud Integration
- Mitigates efficiently the risk of business disruption caused by regression risk for **custom-built integration flows**:



1. Automated tests as part of a **customer-specific regression test suite** for every incremental software update performed by SAP



2. Chargeable, non-production “**preview**” tenant receiving increments with one week lead time

Currently only in Neo environment but planned for CF environment in 2022

SAP STORE Browse Search by Solution, Publisher, Keyword SAP Integration Suite customer test service Key Features Resources Plans and Pricing Prerequisites Reviews

Welcome to SAP Store, the simplest and most sustainable way to find, try, and buy SAP solutions. Here, each purchase will make a testing impact – in your business and beyond – as we celebrate each transaction by planting a tree. Search our products.

SAP Integration Suite, customer test service

Customer specific regression testing for SAP Integration Suite

This service mitigates the risk of business disruption caused by regression risk for custom built integration flows. It offers a preview tenant and testing of the integration flows as part of a customer specific regression test suite for every incremental software update.

From EUR 800.00 block of 10 integration flow / month taxes calculated during checkout

Log On / Register to Buy

SAP Cloud Platform Integration Customer Regression Test Service

Integration Flow Test Status

Integration Flow	Test Status
I-Flow 1	Passed
I-Flow 2	Passed
I-Flow 3	Passed
I-Flow 4	Passed

Benefits and Features

Access a preview tenant for testing in a safe environment

Use preview tenants to access incremental software flows, provide problem resolution and monthly test reports prior to SAP Integration Suite software updates.

Ensure business continuity

Rely on SAP to test your business-critical integration flows, provide problem resolution and monthly test reports prior to SAP Integration Suite software updates.

Enhance integration content with reduced risk

Customize the standard integration content to suit your business needs, mitigating the risk of business disruption through regression testing.

Test early and ensure business continuity

Deploy software increments on the preview tenant, prior to all other tenants, to test and report issues from the preview tenant as support tickets to SAP. Resolving possible integration issues prior to going live prevents business disruptions, incidents and guarantees business continuity.

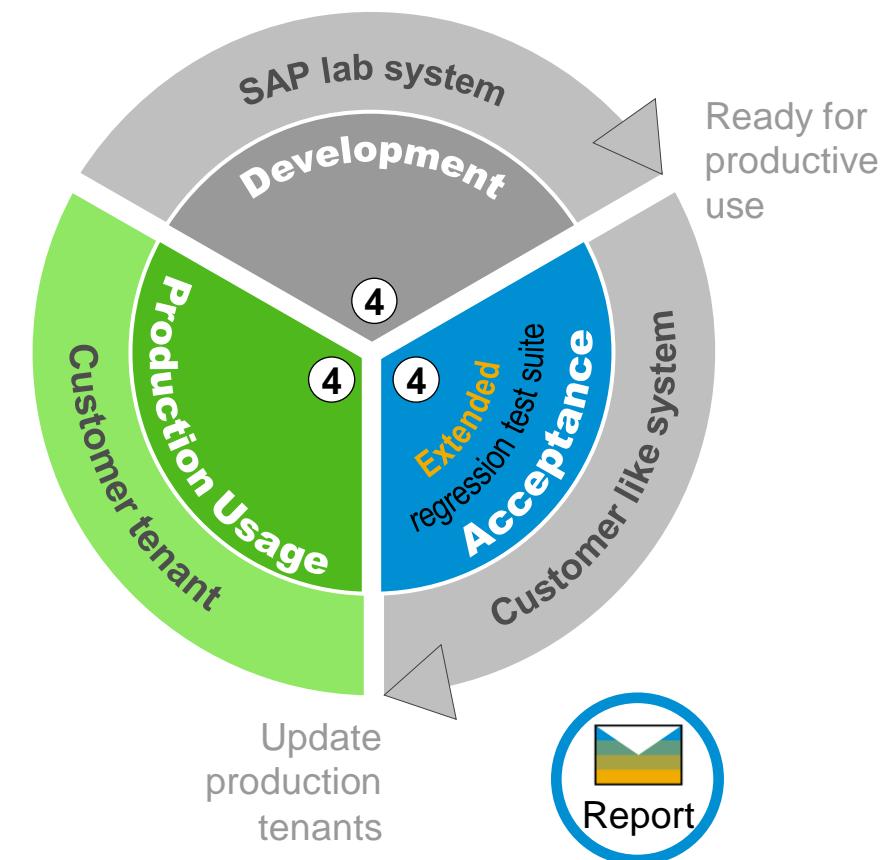
Automated regression tests of custom-built integration flows by SAP



Extended **automated regression test suite** as part of the customer test service focusing specifically on customer's non-standard integration flows, executed by SAP on SAP internal systems

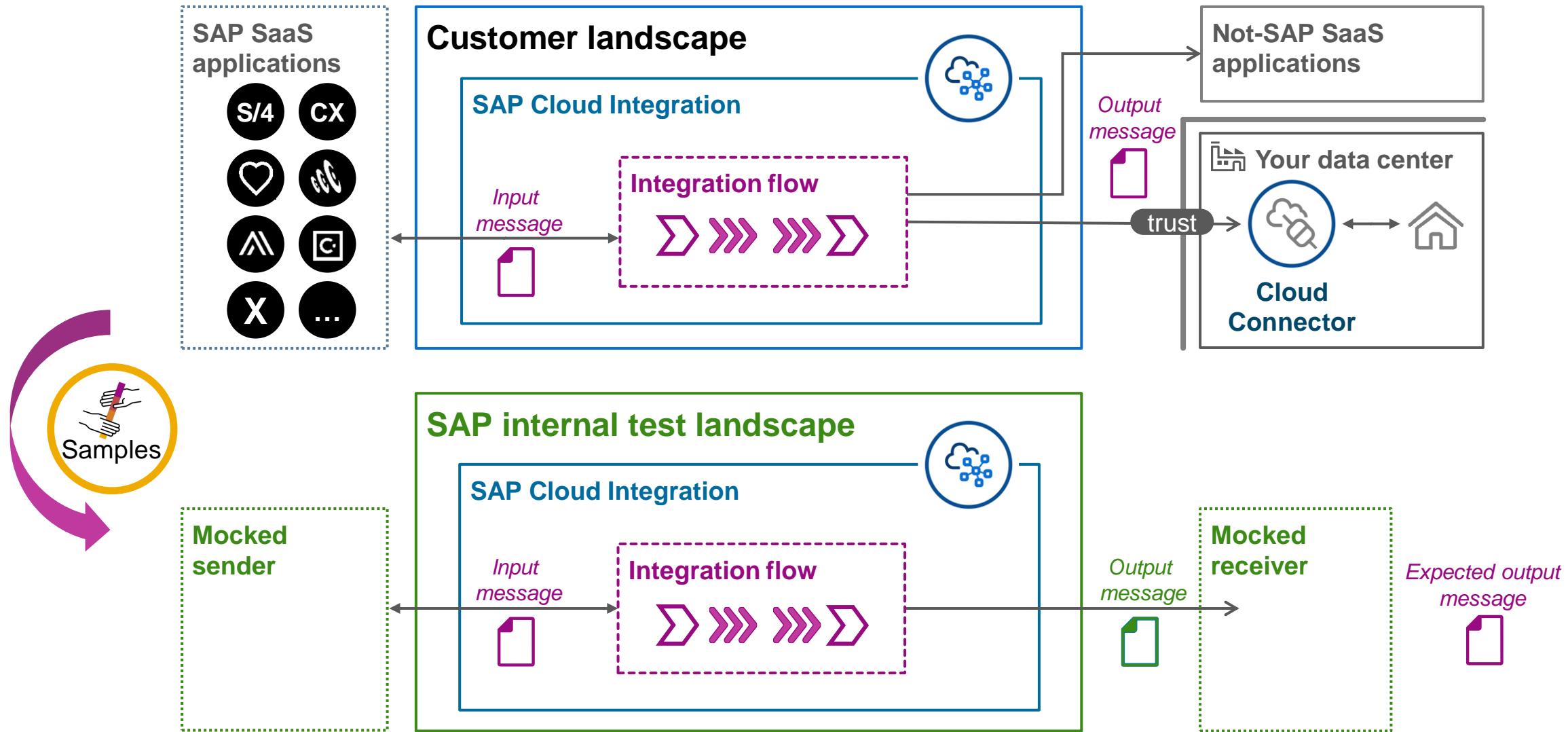
- Custom-built integration flows, sample input and output handed over to SAP
- Customer-specific tests parallel to tests of all standard integration flow test that SAP is executing
- Test success of customer's scenarios is added to SAP's mandatory release criteria
- Software updates only if tests pass successfully
- Test report before the system update, including recommendations for solving arising issues

→ **Risk mitigation of business disruption**

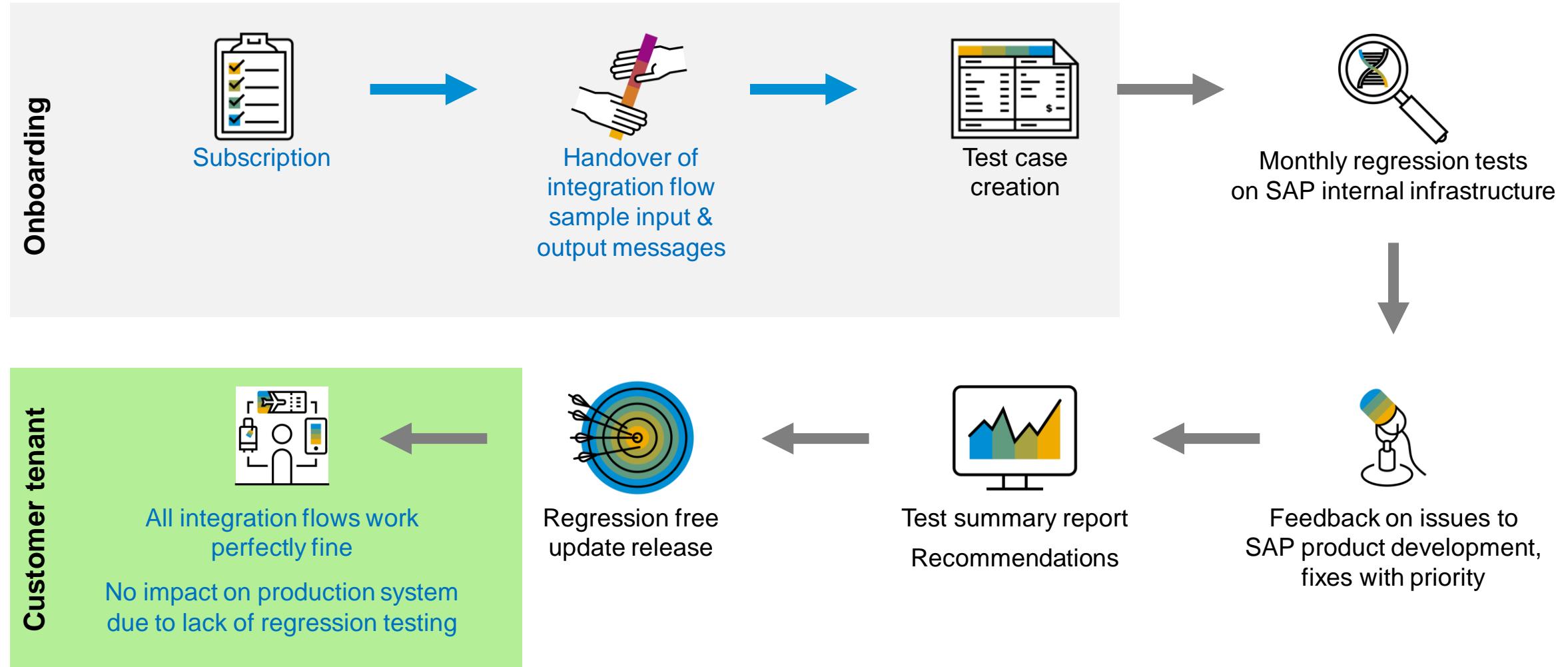


Safeguarding with customer test service and preview tenant

Sample input and output messages to build test cases for automated test suite



Customer on-boarding and service lifecycle of the customer test service

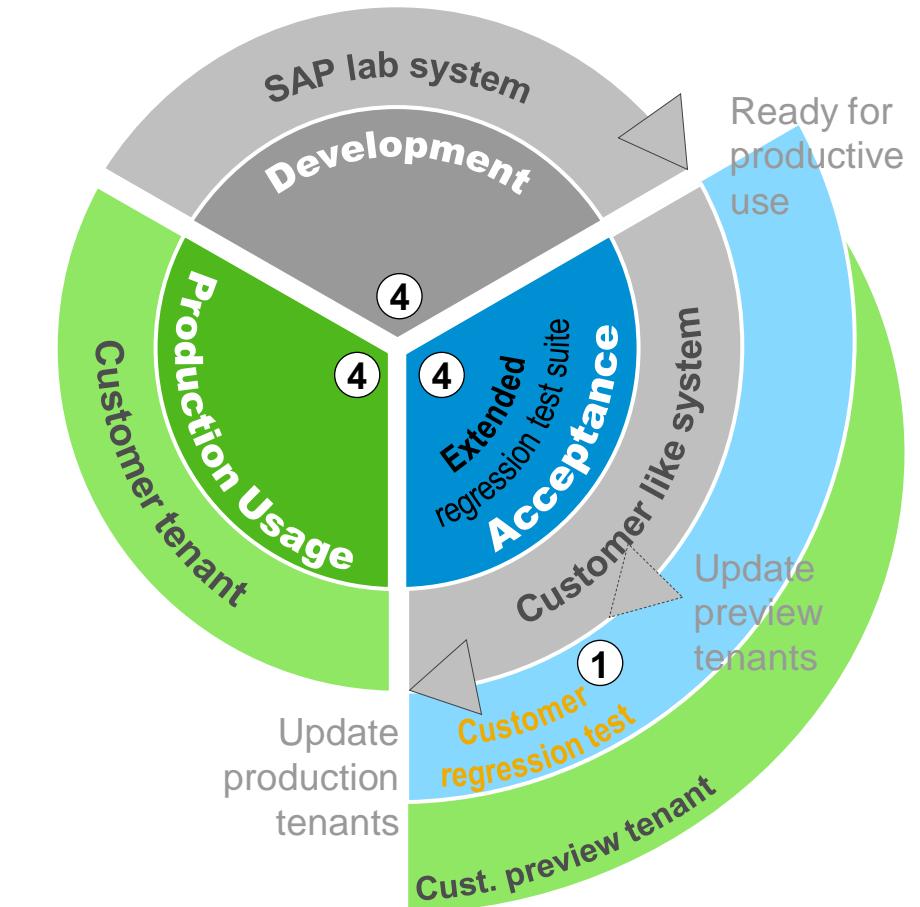


Safeguarding with customer test service and preview tenant

Chargeable, non-production preview tenant receives updates with one week lead time



- A **preview tenant** is a chargeable, non-production tenant which receives the monthly increments with one week lead time to all other tenants.
- It is necessary to mark one of the non-production tenants as a preview tenant (this cannot be reverted)
- Customers can access and test new or enhanced functionality a week prior to actual release timelines on their own tenant.
- All other criteria of the preview tenant remain like a non-production tenant.



* Currently only for SAP Cloud Integration subscription in Neo environment but planned for CF in 2022

A photograph showing a close-up of a person's hands typing on a laptop keyboard. The scene is bathed in warm, golden sunlight streaming through a window, creating a strong lens flare effect. The laptop screen is visible in the background, and the overall atmosphere is bright and focused.

Demo

Self-provisioning of a Cloud Integration preview tenant for custom regression tests



- Once entitled to SAP Cloud Integration tenant & Customer Test Service on a global account, mark one of the existing tenants as a preview tenant
- Navigate to Subaccount → Services
- Choose Process Integration → Configure Process Integration
- Choose Edit → Preview tenant
- Saving the configuration marks your tenant as preview tenant*
- [Note 2784487](#)

The screenshot shows the SAP Cloud Integration tenant details page for 'Tenant s483'. The 'TENANT DETAILS' tab is selected. Key information displayed includes:

- Account: demo-neo-preview-tenant (ev83o8wjct)
- License Type: Cloud Platform Enterprise Agreement
- Environment: Non-Production
- Preview Tenant:
- Tenant URL: <https://s483-tmn.hci.int.sap.eu2.hana.ondemand.com/itspaces>
- Provisioned By: D023215
- Provisioned On: Thu, 25 Mar 2021 08:56:15 GMT
- Metering
- Deployed Connections: [Generate Report](#)

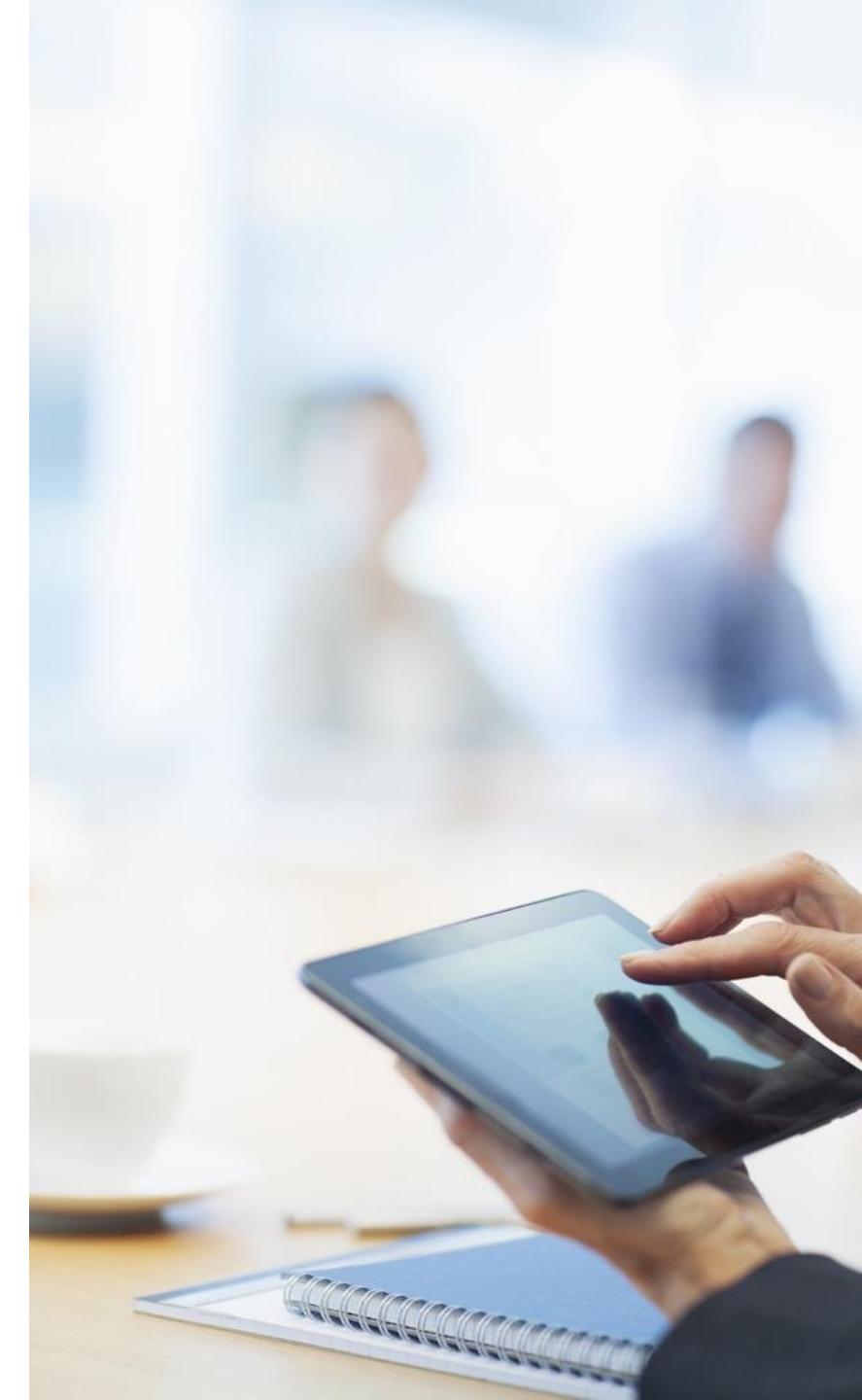
* After saving a tenant as a preview tenant you cannot revert!

Safeguarding with customer test service and preview tenant **Summary**

- SAP Integration Suite, customer test service mitigates the risk of business disruption caused by custom-built integration flows
- Customer-specific regression tests of integration scenarios for every incremental software update, tested by SAP on SAP tenants
- Roll out software updates to customer-owned preview tenants prior to global rollouts, with further opportunity to test latest increments



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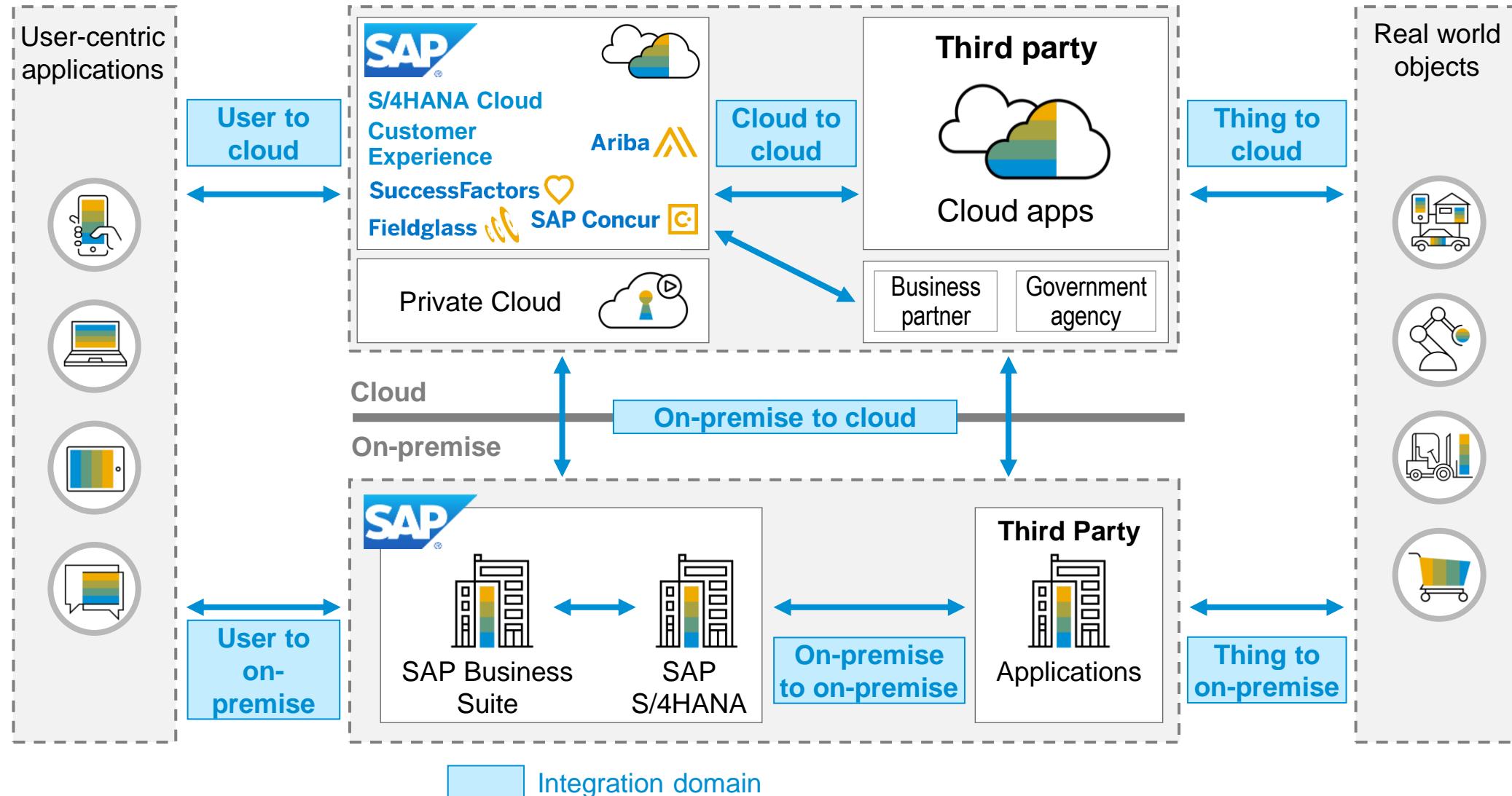


Week 3: Dive Deeper

Unit 7: Process Integration in Hybrid System Landscapes

Process integration in hybrid system landscapes

Integration challenges and domains



SAP hybrid integration strategy

SAP continues to support SAP Process Orchestration to protect investments and to support a seamless and safe transition to SAP Integration Suite.

SAP Integration Suite with **hybrid deployment option** is the future for SAP's hybrid integration platform.

Recommended actions for customers:

1. Move to SAP Process Orchestration 7.5
2. Compliment it with SAP Integration Suite for agile integrations, also leveraging the SAP Integration Suite runtime within SAP Process Orchestration
3. Start moving existing integration scenarios to SAP Integration Suite, and completely migrate to SAP Integration Suite once on-premise runtime and migration tools are available



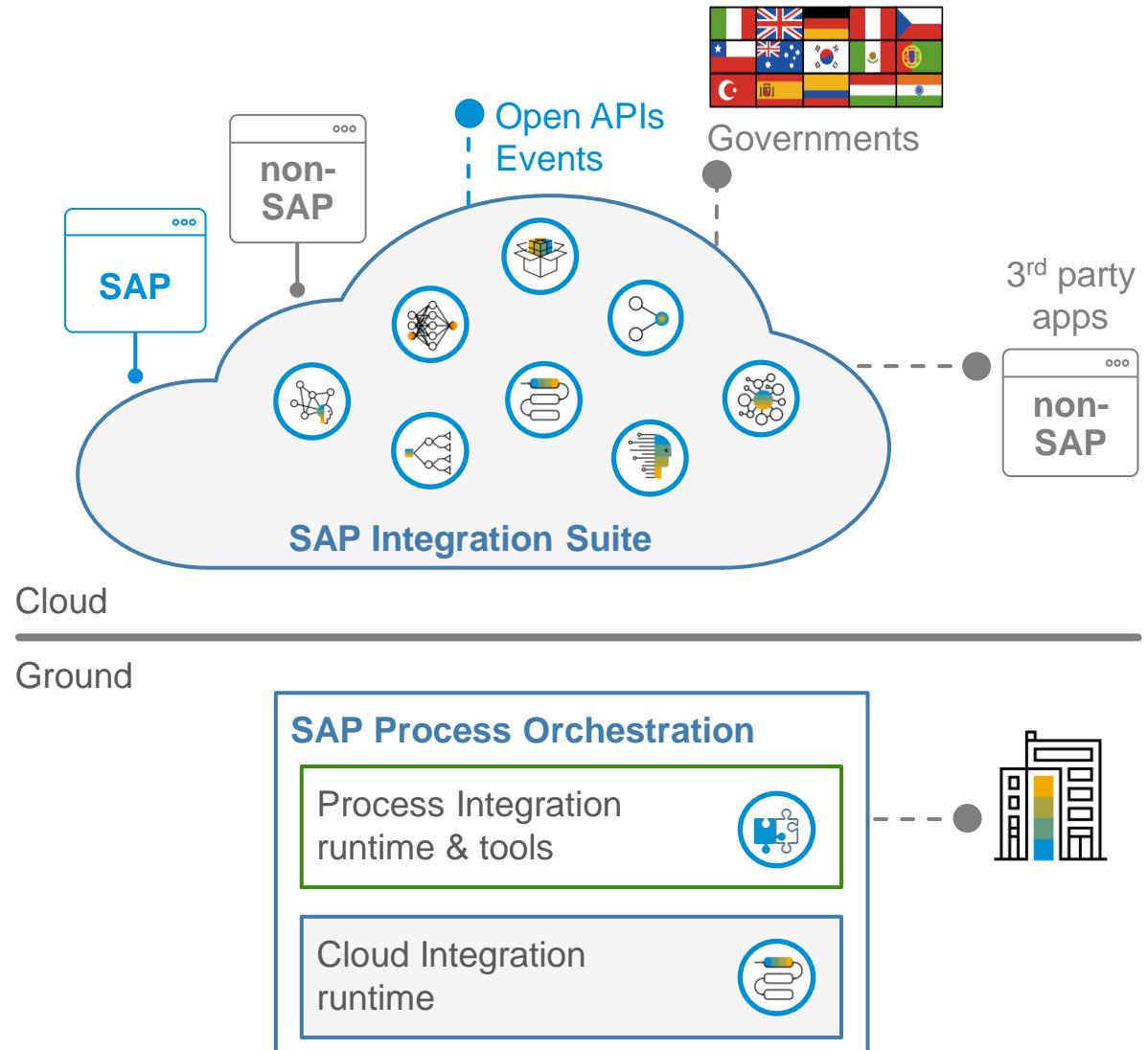
Application integration in hybrid environments

Build agile integrations using SAP Integration Suite and accelerate;

- Cloud and hybrid process integration
- Data integration
- API-based integrations
- Event-driven, extensible integrations
- Non-SAP integrations

Accelerate your integration projects via pre-built integration packs at [SAP API Business Hub](#)

Build new ground-to-ground integration on [cloud integration runtime](#) inside SAP Process Orchestration



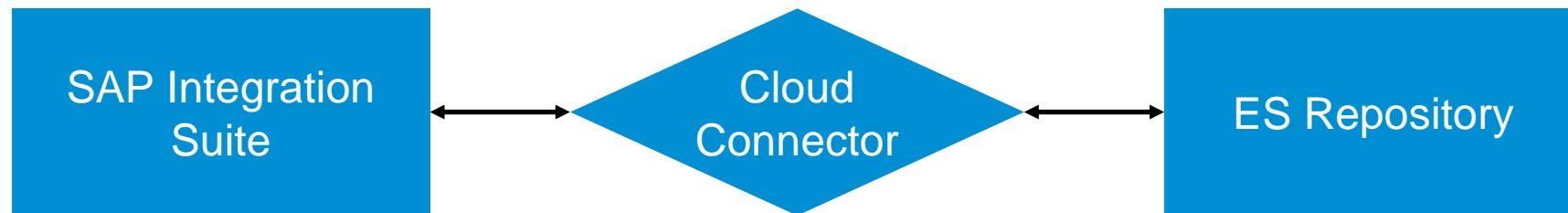
Importing content from Enterprise Services Repository

You can import the integration content that you already have in your Enterprise Services Repository of PI/PO and reuse it in SAP Integration Suite, thereby reducing efforts and avoiding the overhead of creating it again.

Import of the following content types is supported:

- Message mapping
- Operation mapping
- WSDL

Since the ES Repository is on-premise, you need to connect via the cloud connector.



Process integration in hybrid system landscapes

Importing content from Enterprise Services Repository

The diagram illustrates the process of importing content from the Enterprise Services Repository (ESR) into an Integration Flow and then adding a message mapping.

Step 1: Configuration in ES Repository

The top window shows the configuration of the ES Repository:

- Name: ES Repository System Name
- Address: Ex: Proxy(http://cloudconnector_virtualhost/vm123...)
- Credential Name: Credential name deployed
- Location ID: Location ID in cloud connector

Step 2: Import into Integration Flow

A large orange arrow points from the ES Repository configuration to the Integration Flow screen. The Integration Flow screen shows the imported resources:

- General tab
- Runtime Configuration tab
- Error Configuration tab
- Resources tab (selected)**: Shows 2 scripts: script1 and script2, both of type Groovy Script.
- Externalized Parameters tab
- Problems tab

Step 3: Adding a Message Mapping

A second large orange arrow points from the Integration Flow screen to the "Add Message Mapping" dialog. The dialog fields are:

- Source: ES Repository
- Name: myESR
- Address: <http://myVirtualHost:8443>
- Location ID: myLocationID

Buttons:

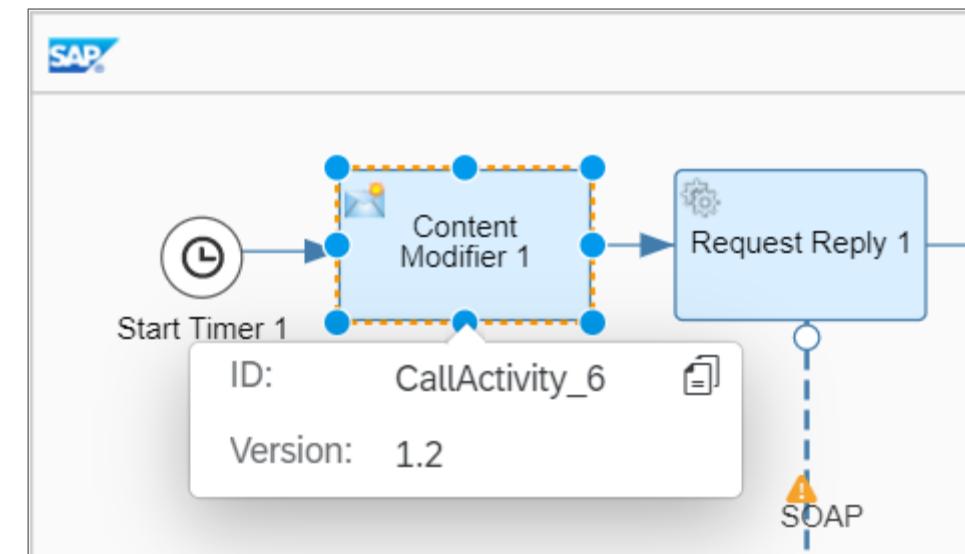
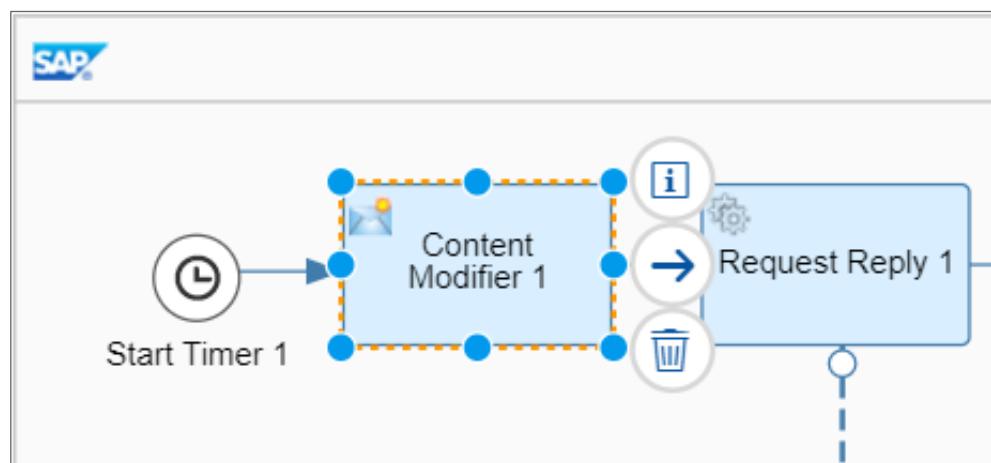
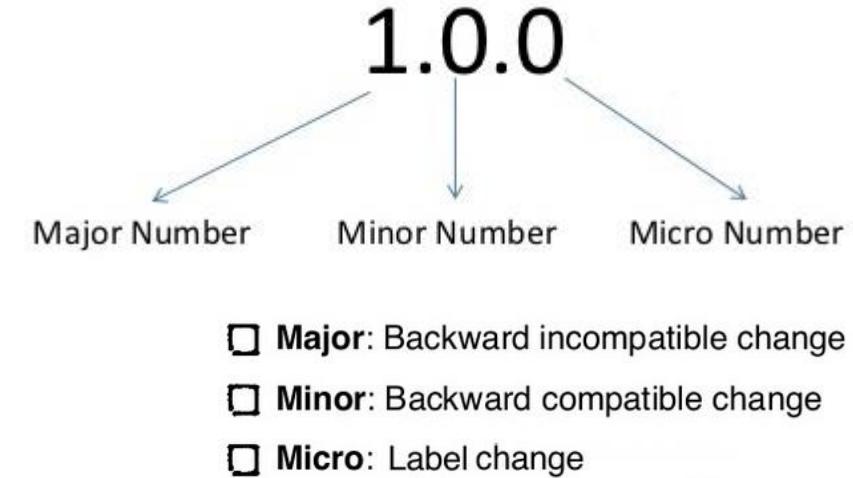
- Connect (blue button)

Process integration in hybrid system landscapes

Versioning of integration flow components

Every new feature that is introduced to existing components (like flow steps, adapters, or pools) is always released by creating a new version, to ensure backward compatibility.

Each component in Cloud Integration has a version, and this version is defined using the paradigm:
`<major>.<minor>.<micro>`



Process integration in hybrid system landscapes

Product profiles

A product profile defines a set of capabilities for Cloud Integration content design supported by a specific target integration platform.

It allows you to model an integration flow using only those component versions that are supported in that particular profile.

Available product profiles:

- SAP Cloud Integration
- SAP Process Orchestration 7.50

Product Profiles	Transport	ES Repository	Custom Tags
Manage Product Profiles			
Name			
SAP Cloud Integration			
SAP Process Orchestration 7.50, SP05			
SAP Process Orchestration 7.50, SP06			
SAP Process Orchestration 7.50, SP07			
SAP Process Orchestration 7.50, SP08			
SAP Process Orchestration 7.50, SP09			
SAP Process Orchestration 7.50, SP10			

Add Integration Flow

Create Upload

Name: *

ID: *

Product Profile:

Description:

Sender:

Receiver:

OK Cancel

Integration Flow

General Runtime Configuration Error Configuration Resources Externalized Parameters Problems

Product Profile: *

Namespace Mapping:

Allowed Header(s):

HTTP Session Reuse:

Migration across versions in product profiles

Migration enables you to move a component to the latest version available in the selected product profile. Migration is currently supported for Integration Flow Configuration, Integration Process, and Local Integration Process.

To consume the minor version changes:

- Click the *Migrate* button from the property sheet (wherever available) or
- Remodel the component by deleting it and adding it again from the palette, which will bring in the latest version of the component

The screenshot shows the SAP Studio interface for configuring an Integration Flow. The title bar says "Integration Flow". The top navigation bar includes "Externalize", "Migrate", a help icon, and a close/minimize/maximize button. Below the title bar is a tabs menu with "General" (which is selected), "Runtime Configuration", "Error Configuration", "Resources", "Externalized Parameters", and "Problems". The main content area contains fields for "Name" (Integration Flow: SAP EPM Integration with SFSF), "ID" (com.sap.refapps.epm_to_sfsf), and "Description". In the top right corner of the content area, there is a small "Migrate" button. The overall layout is clean and modern, typical of SAP's design guidelines.

Process integration in hybrid system landscapes

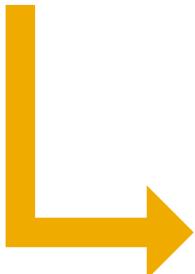
Migration across versions in product profiles

Integration Process

Migrate | ? |

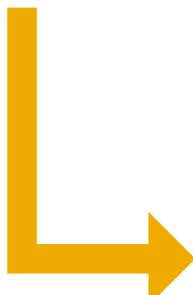
General

Name: Integration Process



② Confirmation

Are you sure you want to migrate Integration Process from version 1.0 to version 1.1 ?



Integration Process

General Processing

TRANSACTION MANAGEMENT

Transaction Handling:

Timeout (in min):* 30

Reuse of Cloud Integration content in SAP Process Orchestration

Deploy, run, and monitor Cloud Integration content on SAP Process Orchestration

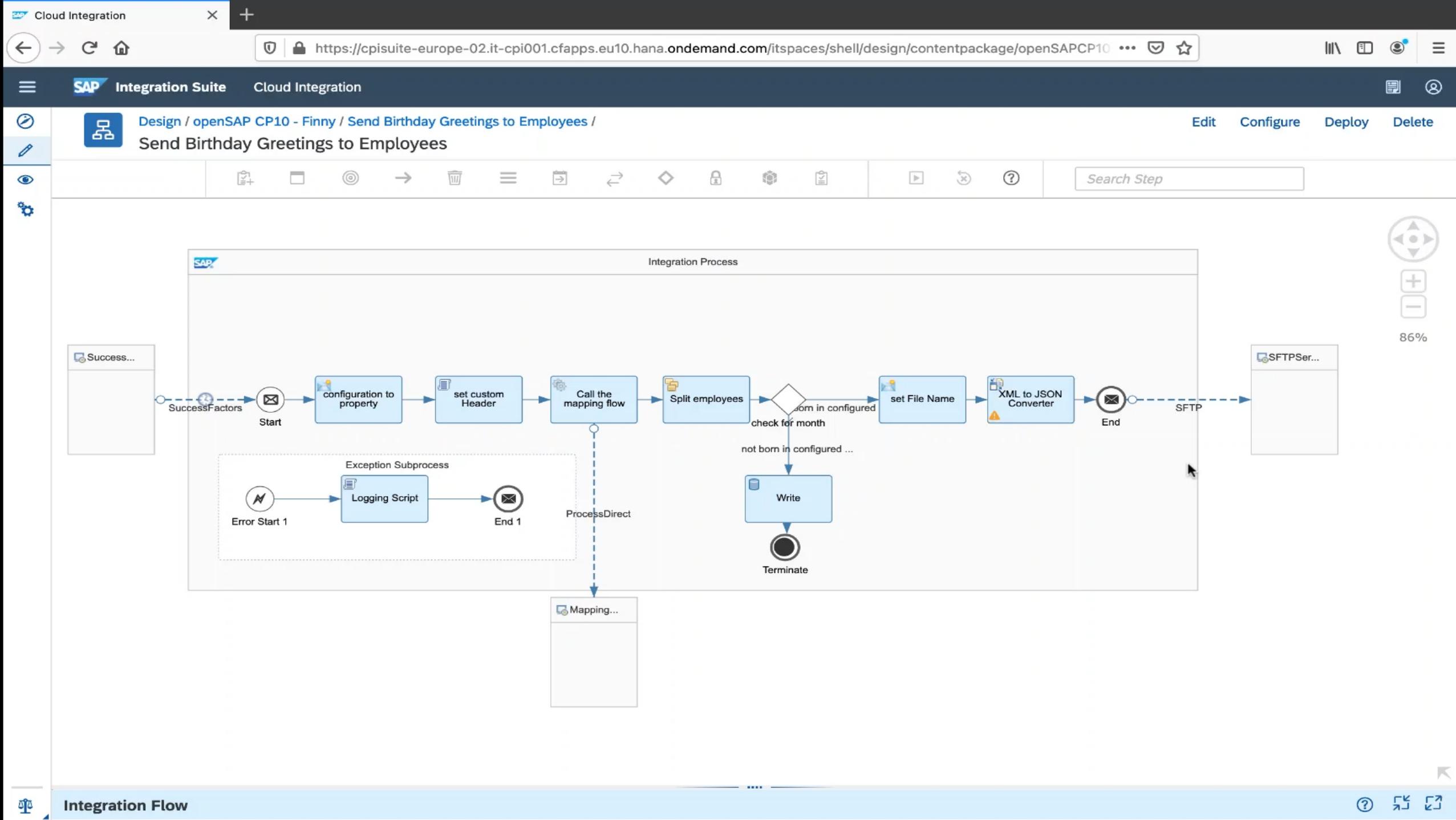
- Cloud Integration capabilities are documented [here](#)
- Deployment either via file export/import or directly accessing the Cloud Integration tenant
- Mass deployment supported
- Show Cloud Integration content messages in message overview monitor
- Supports changing of Log levels and Configure
- See FAQ Note [2428801](#)

The screenshot shows the SAP Cloud Integration Content Management Cockpit interface. The top navigation bar includes tabs for INTEGRATION CONTENT, SECURITY MATERIAL, END POINTS, LOCKS, NUMBER RANGES, and JDBC DATA SOURCES. Below the tabs is a toolbar with buttons for Deploy, Undeploy, Start, Stop, Restart, Download, and Refresh. A dropdown menu labeled "Select L" is visible on the right. The main area is titled "Manage Integration Content" and displays a table with columns for Name, Status, Type, and Version. The table lists several integration flows, all of which are currently started. The first item in the list is expanded, showing its sub-components.

Name	Status	Type	Version
SAP Commerce Cloud Integration with ERP	Started	Integration Flow	1.0.3
Replicate-B2C-Customer-From-SAP-Commerce-Cloud-To-ERP	Started	Integration Flow	2.1.2
Replicate Material From ERP To SAP Commerce Cloud	Started	Integration Flow	1.0.1
Replicate Classification From ERP To SAP Commerce Cloud	Started	Integration Flow	1.0.4
Replicate B2B Customer From ERP To SAP Commerce Cloud	Started	Integration Flow	1.0.1
Access Classification DataStore for ERP	Started	Integration Flow	1.3.2
Route Idocs From ERP To SAP Commerce Cloud	Started	Integration Flow	1.0.1
Replicate Invoice From ERP To SAP Commerce Cloud	Started	Integration Flow	1.0.1

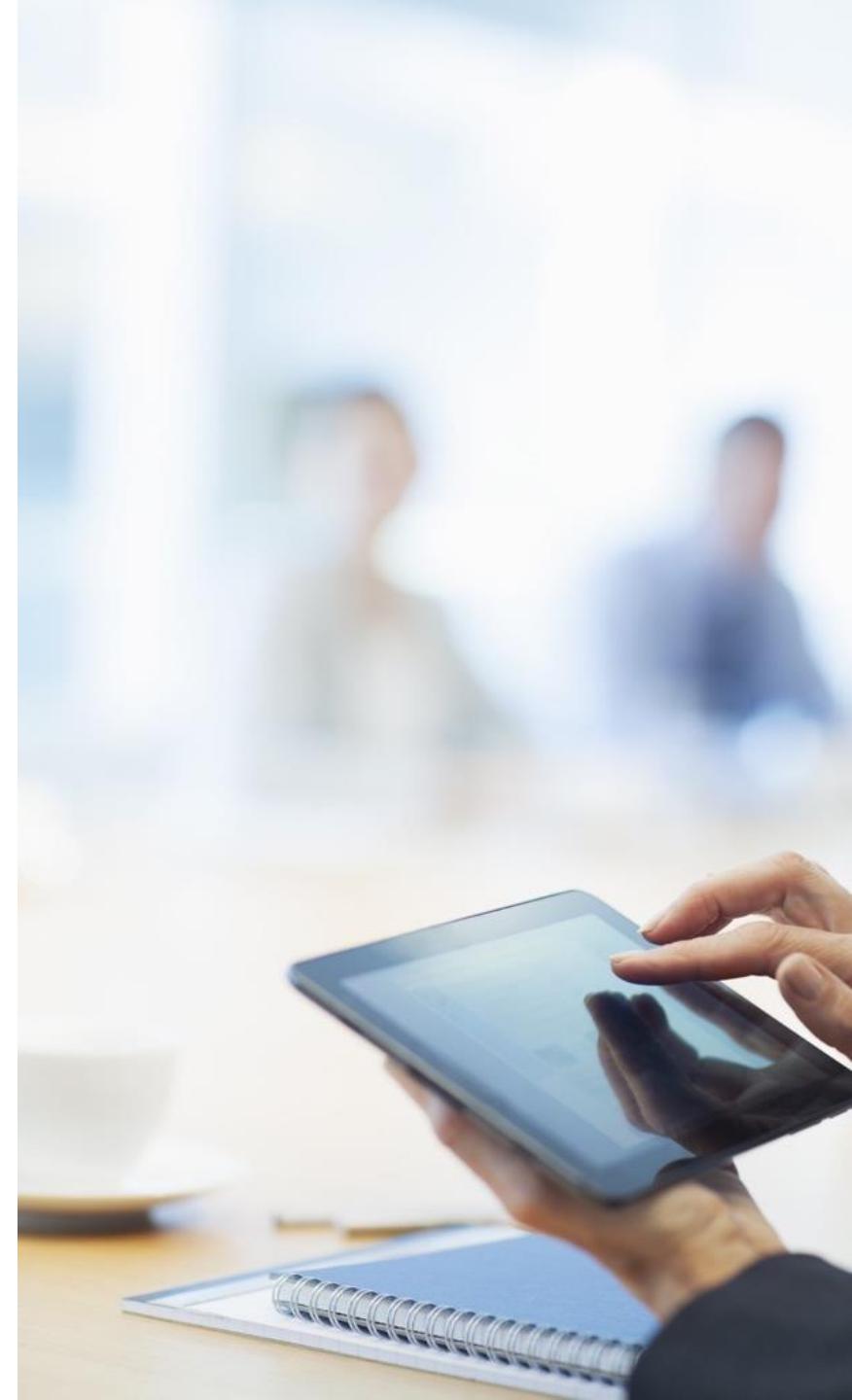
A photograph showing a close-up of a person's hands typing on a laptop keyboard. The scene is bathed in warm, golden sunlight streaming through a window, creating a strong lens flare effect. The laptop screen is visible in the background, and the overall atmosphere is bright and focused.

Demo



Summary

- New features added to existing components are always released by creating a new **version**, to ensure backward compatibility.
- **Product profile** defines a set of capabilities for Cloud Integration content design supported by a specific target integration platform.
- **Migration** enables you to move a component to the latest version available in the selected product profile.
- Supports reuse of **mappings** from SAP Process Orchestration to Cloud Integration.
- Deploy, run, and monitor Cloud Integration **content** on SAP Process Orchestration.



Thank you.

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