Integrate SAP S/4HANA with Microsoft Teams via SAP Business Technology Platform

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T&I Strategic Customer Engagement
Agenda

• Introduction to Teams Integration
• Value of Teams Integration
• Introduction to the Business Scenario
• SAP Discovery Center Mission Walkthrough
• End Result Demo
• Questions
How the Tools We Use for Work Have Changed:

Change in Communication Methods
Post-pandemic, platforms for digital communication at work have become more important and more popular than ever. Becoming an integral part of cross-industries daily communication method.

Usage
More than 80% of professionals report spending between 4-12 hours a week in meetings [link].

Microsoft Teams Users
Microsoft Teams has seen a meteoric rise in usage, from 32 million daily active users pre-pandemic to 280 million in 2023 [link].
Integration centered around SAP BTP

Services and Best Practices

We want integration solutions to:

Fit customer needs and leverage SAP BTP

Teams integration is a highly requested feature

Integration is more important than ever!
Building a Bridge Between SAP & Teams – Primary Solution Outcomes

**Increase productivity**
Simplify complex flows and reduce context-switching to optimize SAP interactions.

**Enhance collaboration**
Facilitate seamless communication, real-time data sharing, and joint problem-solving without the need to cross-reference business documents across apps.

**Leverage Teams data**
Harness valuable insights from Teams: leverage chats, transcripts, and generative AI to enable decision-making.

**Increase visibility**
Gain full transparency of SAP processes in Teams, enabling proactive issue resolution, informed decision-making, and improved overall management.
Business Scenario:

Streamline approval workflows for SAP S/4HANA
Streamline approval workflows for SAP S/4HANA

Overview
Extends S/4HANA approval flows into Teams by providing users with the ability to approve, reject, or discuss Purchase Orders directly in Teams. This use case was validated through a customer project with Siemens that is approaching a productive implementation.

Challenges & Motivation
- Productivity loss to context-switching and ineffective collaboration
- Purchase Order approval processes range from:
  - Simple, one-click approvals
  - Complex back-and-forth conversations with stakeholders
- Collaboration is an opaque process from the SAP perspective

Outcome
- Centralizes S/4HANA purchase order approval workflow
- High velocity collaboration easily referencing relevant SAP data
- Two-way data flow, SAP systems benefit from access to communication platforms and vice-versa
SAP Discovery Center Mission

• **Mission**
  - Integrate SAP S/4HANA with Microsoft Teams via SAP Business Technology Platform

• **GitHub**
  - SAP-samples/btp-bridge-framework

• **Duration**
  - 2-4 days

• **Prerequisites**
  - Basic Familiarity with SAP S/4HANA development
  - Basic Familiarity with SAP BTP
  - Basic Familiarity with Microsoft Azure
Project Board — Discover

Mission Story

Goal
Integrate SAP S/4HANA with Microsoft Teams by building a custom Teams app using the Bridge Framework deployed on SAP BTP.

Outcome
A custom Microsoft Teams app generated by the Bridge Framework on SAP BTP. The app can be used to view SAP data and take actions directly from Microsoft Teams.

Business Scenario
SAP S/4HANA Purchase Order Approval workflow.
SAP S/4HANA
On premise SAP S/4HANA system. Provides communication arrangement for fetching and acting on Purchase Orders (or other documents). ABAP job initiates workflow notifications.

SAP BTP
Provides the communication services, event handling services, and an application runtime to enable custom app development and operation.

Microsoft Teams and Azure
Target system for notifications and source system for user interactions.
Project Board — Discover

Bridge Framework on SAP BTP
The Bridge Framework is an integration framework on SAP BTP that accelerates and simplifies the development experience for extension apps on communication platforms that integrate with SAP products.

Advantages
- Leverage SAP BTP
- Ready to Deploy w/ Easy Configurations
- Secure Connections
- Curated UI Components
- Automated Set Up

Learn the basics of Bridge Framework deployed on SAP BTP
Project Board — Discover

Learn the basics of SAP BTP

Learn the basics of SAP S/4HANA

Info

General familiarity with SAP BTP will help here. This includes the cockpit, subaccounts, entitlements, services, subscriptions, etc.

Basic familiarity with SAP S/4HANA, especially a basic understanding of ABAP development and OData APIs, will also help.
Project Board — Discover

**Event sources**
- SAP S/4HANA
- SAP S/4HANA Cloud
- SAP ERP
- SAP SuccessFactors solutions
- SAP Marketing Cloud
- SAP Fieldglass solutions
- SAP Data Intelligence
- SAP CPQ
- Other SAP solutions
- 3rd party

**Eventing infrastructure**

**SAP Integration Suite**
- SAP Event Mesh
- Advanced Event Mesh
- Event Bridging
- Event catalogs

**Event consumers**
- SAP Integration Suite
- SAP Extension Suite
- SAP BTP Services & Apps
- SAP back ends
  - (SAP S/4HANA Cloud and SAP S/4HANA, SAP ECC and SAP S/4HANA using add-on)
  - Project “Kyma”
- SAP Data Intelligence
- SAP AppGyver
- Azure Event Grid
- (Beta Program)
- 3rd party

**Know-How**

Guidance (ISA-M …) and Learning Materials (DC Missions …)
Project Board — Prepare

Prepare SAP S/4HANA on premise

Info

For SAP employees, use the SAP Cloud Appliance Library (SAP CAL) to get access to a development system if you do not already have access to such a system.
Project Board — Prepare

Set up your subaccount for SAP Business Technology Platform

Info

Note that trial accounts, as of today, do not have access to SAP Event Mesh. Using a trial account will limit your ability to deliver Microsoft Teams notifications.

In your BTP subaccount, you will use the following services / resources:

• Cloud Foundry Runtime
• Cloud Identity Services – Identity Authentication
• Destination Service
• Cloud Connector & Connectivity Service
• Event Mesh (for notifications)
SAP BTP Detailed Breakdown

**SAP BTP – Cloud Foundry Runtime**
- Lightweight and scalable runtime for all components of the deployed application
  - Client, server, and configuration server

**SAP Connectivity Service**
- Platform for integrating with various SAP systems and applications
  - Proxy between SAP BTP and Cloud Connector

**Cloud Connector**
- Provides secure communication channel between cloud applications and on-premise systems
  - Connects SAP BTP (cloud) to SAP S/4HANA (on-premise)
SAP BTP Detailed Breakdown Cont.

**SAP Cloud Identity Services – Identity Authentication**
- Manage users and access to applications:
  - Enables principal propagation (~SSO) to occur between Teams and SAP S/4HANA

**Destination Service**
- Define and manage connections to external and SAP applications
  - Configure relevant OData APIs for accessing Purchase Orders from SAP S/4HANA

**SAP Event Mesh**
- Allows applications to communicate through events
  - Provides ability to listen for Purchase Order creation in SAP S/4HANA and propagate the event to our custom Teams app
Project Board — Prepare

**Info**

If you do not already have an account, an Azure free account will give you access to the services and resources you need to get started with Bridge Framework.

To test in Microsoft Teams you may also want to use a development tenant for which you can get access by joining the Microsoft 365 Developer Program.

**Build in the cloud with an Azure free account**

Create, deploy, and manage applications across multiple clouds, on-premises, and at the edge

- [Start free](#)
- [Pay as you go](#)
Azure Detailed Breakdown

**Application Registration**
- Serves as the app-level foundation for defining:
  - Authentication, Authorization, and API access

**Enterprise Application Registration**
- SAP Cloud Platform Enterprise Application
  - Enables principal propagation (~SSO) to SAP BTP

**Azure Active Directory**
- Identity and access management, SSO, application integration, etc.
Azure Detailed Breakdown Cont.

**Azure Bot Service**
- Handles almost all interactions between custom apps and Teams
  - Sends messages and adaptive cards
  - Acts based on app logic and user interactions

**Microsoft Graph**
- Covers app interaction scenarios not handled by the Bot Service
  - Notifications, accessing user profiles, fetching meeting transcripts, etc.

**Azure Blob Storage**
- We use it to store conversation references and metadata to enable proper notifications
Use Case & System Architecture Review

Review

- The buyer creates a new Purchase Order in the SAP S/4HANA (on premise) system.
- The purchase manager receives a notification in Microsoft Teams in the form of an adaptive card.
- The purchase manager views the details of the Purchase Order in Teams.
- The purchase manager can
  - Approve the purchase order in Microsoft Teams.
  - Reject the purchase order in Microsoft Teams.
  - Forward the purchase order data as an adaptive card to the buyer and request more information.
Principal Propagation between SAP BTP and SAP S/4HANA on premise

Info
Principal propagation is “ability to forward the user context of a message unchanged from the sender to the receiver. It enables authentication of a message in the receiver system with the same user that issued the message in the corresponding sender system.” [link]
Project Board — Deploy

Create Customized Extension Application by using Bridge Framework

Info
Customize the UI of the extension application in Microsoft Teams by modifying JSON configuration files.

Find more information about the syntax of Bridge Framework JSON configuration file in the mission cards.
Project Board — Deploy

The Bridge Framework Automation Pipeline is a pre-built docker image. It will help you:

- Create the service instances on SAP BTP and MS Azure.
- Deploy Bridge Framework’s components on your SAP BTP subaccount.
- Configure the Principal Propagation between MS Azure and SAP BTP Subaccount.
**Info**

The flexible workflow is a general function that allows you to define condition-based workflows for approval processes. For purchase orders, you can set up automatic, one-step, or multi-step approval workflows.

You can assign one or more approvers to each step. You can define approvers by role, or you can assign individual users or teams as approvers.

### Configure the SAP S/4HANA purchase order approval workflow

Configure the SAP S/4HANA purchase order approval workflow.

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### Workflow for Purchase Order / Purchase Order Approval Workflow - Adarsh /

#### Adarsh Approval Step
Release of Purchase Order

<table>
<thead>
<tr>
<th>Recipients</th>
<th>Stop Conditions</th>
<th>Deadlines</th>
<th>Exception Handling</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assignment: Adarsh Hedge (One of the recipients)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### STEP CONDITIONS

Only start the step if all of the following preconditions are met:
- Total net amount of purchase order is greater than 100.00 USD

#### DEADLINES

<table>
<thead>
<tr>
<th>Time Constraints</th>
<th>Time</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>The below timeline after start of the approval workflow</td>
<td>+2 Hour(s)</td>
<td>Mark step as overdue</td>
</tr>
</tbody>
</table>

#### EXCEPTION HANDLING

<table>
<thead>
<tr>
<th>Name</th>
<th>Required Action</th>
<th>Action Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purchase Order Rejected</td>
<td>Do nothing</td>
<td>Cancel workflow</td>
</tr>
</tbody>
</table>
Info
Create a custom ABAP Job running in the SAP S/4HANA On-Premise system. The functionalities of this ABAP job are:

- Fetch purchase order and workflow data from the DB in the S/4HANA
- Blend purchase order and workflow data into together
- Send constructed data to the MQ in Event Mesh on SAP BTP
Install the SAP S/4HANA Extension Application in Microsoft Teams

Info

Once all previous steps have been completed, installing your custom app is as simple as uploading the zip file created by the automation pipeline to Microsoft Teams.

Please follow the mission instructions to complete this step.
End-to-end testing

You have now completed the mission and can test your scenario by simply utilizing the custom Microsoft Teams app.
Let's get the conversation started

Try mentioning people you want to collaborate with, or add tabs to customize your space.

Adarsh Hegde via BridgeFramework 12/9, 12:07 PM
Ticket

ID: 261
Category: Created By:
Creation Date: Kyungbok Hyun
Mar 21 2022
Priority: Customer:
Normal: AB Infill
Escalation:
Not Escalated

Start a new conversation. Type @ to mention someone.
Example Use Cases

**Approval Flows**
- S/4HANA: Approve Purchase Order, Sales Orders, etc.
- SuccessFactors: Approve Leave Request

**Information/Collaboration**
- Teams Notifications for Actions Taken in SAP Products
- Share and Collaborate with Visual Summaries of Business Documents

**Leverage Teams data**
- Export Teams chats to Service Cloud
- Attach Summarized Meeting Transcripts Using ChatGPT-like Models
Define High-Value Business Challenges

Key Activities:
- Meet with customer executives to understand technology & business challenges
- 1-2 Meetings

Stakeholders:
- Customer Executive Sponsor(s)
- SAP Account Team
- SCE Team

Deliverables:
- High level potential business scenarios & requirements
- Contacts to customer domain expert
- (Contacts to customer customer(s))

Scope & Timeline

Key Activities:
- Conduct virtual workshop/discussion with customer Business and IT to refine high value use case into prototypes
- 2-3 Days

Stakeholders:
- Customer Executive Sponsor(s)
- Customer Domain experts
- SAP Account Team
- SCE Team

Deliverables:
- Broad consensus on use case and POC success criteria from IT & Business
- Fast sketched, rough, paper based prototypes
- Customer signs-off on PoC scope, timeline, resources and success criteria

Agile Prototyping (POC)

Key Activities:
- Prepare infrastructure
- Extract, transport & load data
- Understand & model data
- Iterate in rapid cycles with customer domain experts
- Weekly validation based on customer feedback
- ~2-4 weeks

Stakeholders:
- Customer Executive Sponsor(s)
- Customer Domain experts
- SAP Account Team
- SCE Team

Deliverables:
- Customer data collected and analyzed
- HW, SW provisioned
- Fully functional POC delivered on time, validated with customer

POC Final presentation

Key Activities:
- Present POC result to customer executives and key stakeholders
- 1 Day

Stakeholders:
- Customer Executive Sponsor(s)
- Customer Domain experts
- SAP Account Team
- SCE Team

Deliverables:
- Project documentation
- Recommendations for next phase (pilot/implementation)

Scale

Key Activities:
- Handover the PoC to SAP services who will make it production ready
- 1 Day

Stakeholders:
- Customer Executive Sponsor(s)
- Customer Domain experts
- SAP Account Team
- SAP Services
Thank You

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