Connecting AI agents to the ABAP RESTful application programming model

SAP TechEd 2026 | CT1091

27 October 2026 | Community Theater, Hall 1.2

Joule Studio, classic edition · SAP Build Actions · Call-Off App

Leon Karlau | ADventas



Context: adding a conversational channel to an existing RAP application

The starting point is an existing business application, not a new AI-specific backend.

1 Existing application

RAP already exposes business objects, validations, authorizations and operations through an OData service.

2 Additional channel

An AI assistant can provide another way to find information and trigger selected business operations.

3 Question for this talk

How can the existing RAP service be reused without moving the business logic out of ABAP?

Approach shown: RAP OData → SAP Build Actions → Joule skills → Joule agent

ADventas Consulting

What you should take away from this talk

The goal is to understand the integration pattern, the responsibilities of each layer and the practical limitations.

Understand the architecture

See how RAP, SAP Build Actions, Joule skills and a Joule agent fit together, including connectivity through a BTP destination.

Distinguish the building blocks

Understand the difference between an API action, a deterministic skill flow and the agent that selects and combines skills.

Assess an existing RAP application

Identify which functions are suitable for analytical or transactional interaction and where backend validation may need strengthening.

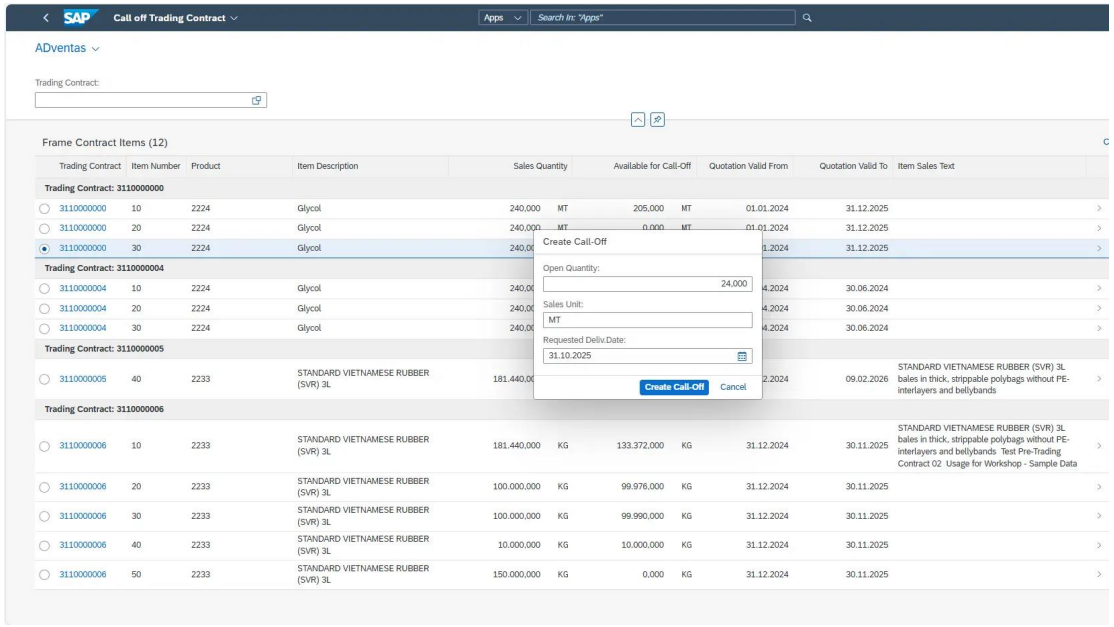
Know what to test

Recognize the need to test prompts, tool selection, parameter mappings, authorizations, backend errors and unexpected input values.

Call-Off application and agent interaction

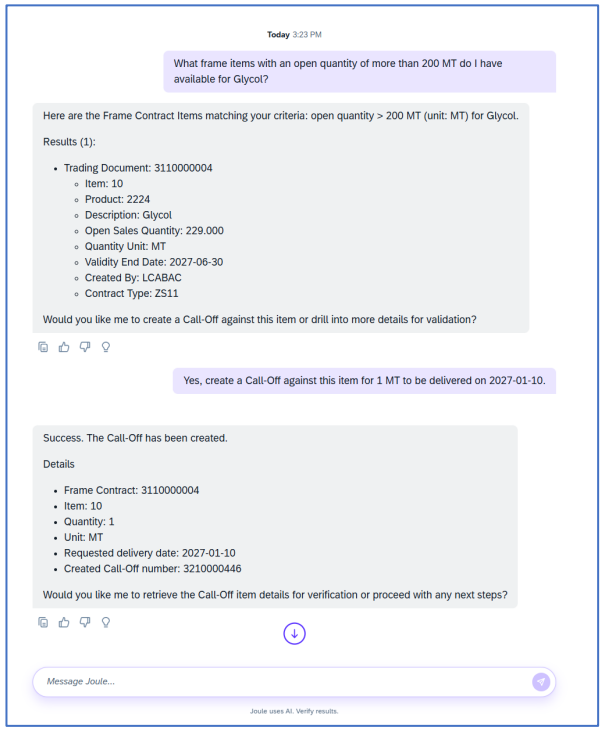
The existing application remains available, while the agent provides an additional conversational interaction channel.

Call-Off application



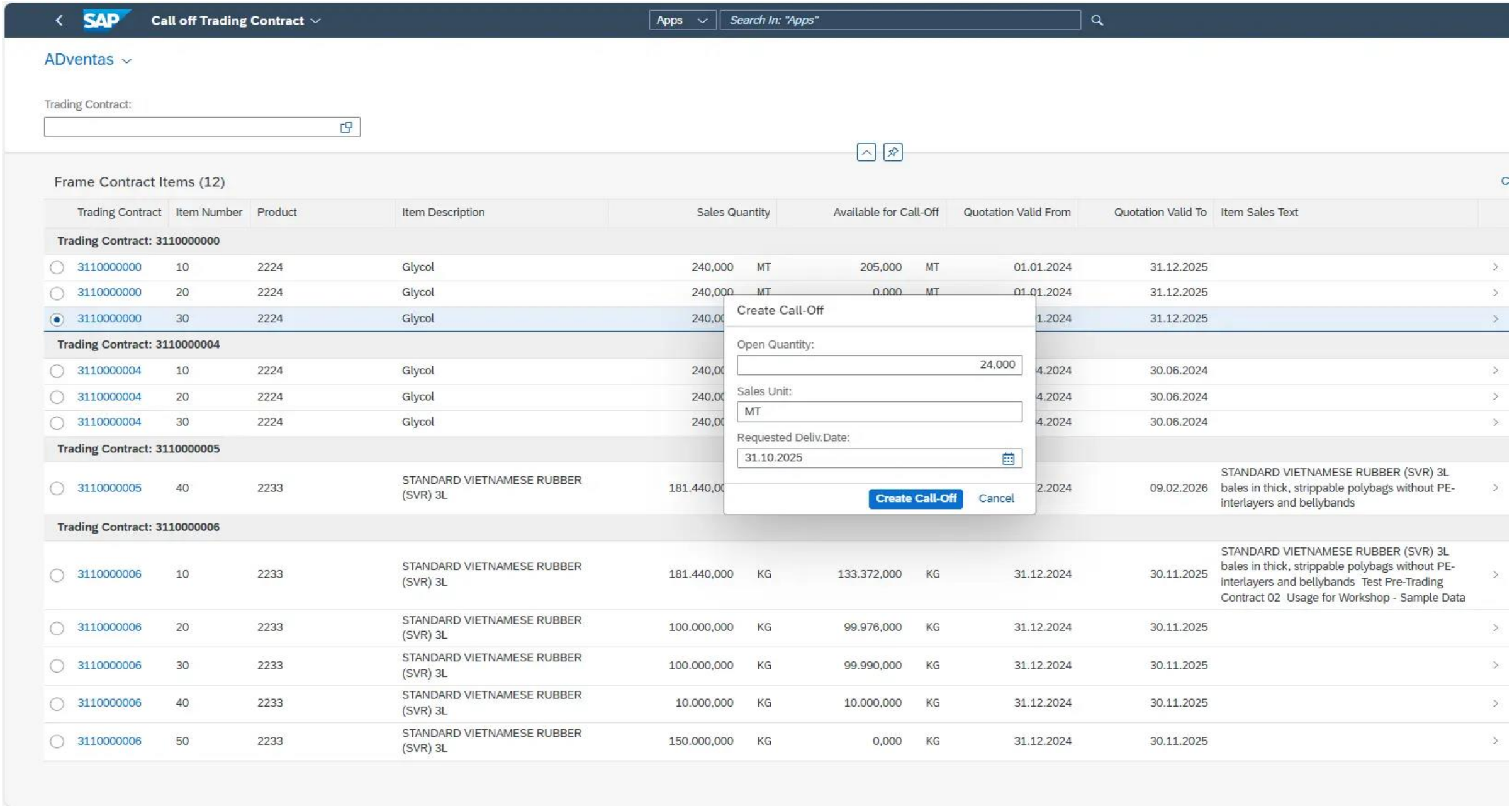
SAP certified

Example agent dialogue



Where to find the app: https://www.sap.com/products/erp/partners/adventas-consulting-gmbh-calloff-app-for-sap-s4hana.html

ADventas Consulting


Call off Trading Contract
Apps
Search In: "Apps"
ADventas
Trading Contract:
Frame Contract Items (12)
Trading Contract
Item Number
Product
Item Description
Sales Quantity
Available for Call-Off
Quotation Valid From
Quotation Valid To
Item Sales Text
Trading Contract: 3110000000
3110000000 10 2224 Glycol 240,000 MT 205,000 MT 01.01.2024 31.12.2025
3110000000 20 2224 Glycol 240,000 MT 0,000 MT 01.01.2024 31.12.2025
3110000000 30 2224 Glycol 240,00 1.2024 31.12.2025
Trading Contract: 3110000004
3110000004 10 2224 Glycol 240,00 4.2024 30.06.2024
3110000004 20 2224 Glycol 240,00 4.2024 30.06.2024
3110000004 30 2224 Glycol 240,00 4.2024 30.06.2024
Trading Contract: 3110000005
3110000005 40 2233 STANDARD VIETNAMESE RUBBER (SVR) 3L 181.440,00 2.2024 09.02.2026 STANDARD VIETNAMESE RUBBER (SVR) 3L bales in thick, strippable polybags without PE-interlayers and bellybands
Trading Contract: 3110000006
3110000006 10 2233 STANDARD VIETNAMESE RUBBER (SVR) 3L 181.440,000 KG 133.372,000 KG 31.12.2024 30.11.2025 STANDARD VIETNAMESE RUBBER (SVR) 3L bales in thick, strippable polybags without PE-interlayers and bellybands Test Pre-Trading Contract 02 Usage for Workshop - Sample Data
3110000006 20 2233 STANDARD VIETNAMESE RUBBER (SVR) 3L 100.000,000 KG 99.976,000 KG 31.12.2024 30.11.2025
3110000006 30 2233 STANDARD VIETNAMESE RUBBER (SVR) 3L 100.000,000 KG 99.990,000 KG 31.12.2024 30.11.2025
3110000006 40 2233 STANDARD VIETNAMESE RUBBER (SVR) 3L 10.000,000 KG 10.000,000 KG 31.12.2024 30.11.2025
3110000006 50 2233 STANDARD VIETNAMESE RUBBER (SVR) 3L 150.000,000 KG 0,000 KG 31.12.2024 30.11.2025
Create Call-Off
Open Quantity:
24,000
Sales Unit:
MT
Requested Deliv.Date:
31.10.2025
Create Call-Off
Cancel

Today 3:23 PM

What frame items with an open quantity of more than 200 MT do I have available for Glycol?

Here are the Frame Contract Items matching your criteria: open quantity > 200 MT (unit: MT) for Glycol.

Results (1):

- Trading Document: 3110000004
  - Item: 10
  - Product: 2224
  - Description: Glycol
  - Open Sales Quantity: 229.000
  - Quantity Unit: MT
  - Validity End Date: 2027-06-30
  - Created By: LCABAC
  - Contract Type: ZS11

Would you like me to create a Call-Off against this item or drill into more details for validation?

Yes, create a Call-Off against this item for 1 MT to be delivered on 2027-01-10.

Success. The Call-Off has been created.

Details

- Frame Contract: 3110000004
- Item: 10
- Quantity: 1
- Unit: MT
- Requested delivery date: 2027-01-10
- Created Call-Off number: 3210000446

Would you like me to retrieve the Call-Off item details for verification or proceed with any next steps?

Message Joule...

Joule uses AI. Verify results.

Architecture overview

The RAP service is the business API for both the UI and the agent.



One backend contract. Two interaction models.

SAP Build Actions

The action project provides the integration layer between OData and Joule.

Import	Create actions from the service metadata.
Configure	Map parameters and limit outputs.
Test	Run requests against the destination.
Release	Create a stable action version.
Publish	Make actions available to Joule Studio.

Result

Reusable

Testable

Versioned

Governed

ADventas Consulting

Joule skills: deterministic task flows

A skill defines a specific task and connects the conversation to one or more actions.

1 Define the contract

Specify the skill description and the input and output parameters. The description helps Joule decide when the skill is relevant.

2 Build the flow

Add actions, map parameters, set variables and conditions, and handle the action outputs.

3 Return a response

Send a structured message or allow Joule to generate the final response from the mapped outputs.

Call-Off example

Inputs: contract, quantity, delivery date
Flow: validate inputs → call RAP action → map result
Output: confirmation or a clear error message

Joule agent: instructions and tool selection

The agent combines skills with instructions that define its scope and conversational behavior.

Agent instructions

Describe the role, supported requests, terminology, required information and boundaries. Precise instructions reduce ambiguous behavior.

Tools and resources

Assign the relevant Joule skills to the agent. Each skill becomes a tool the agent may select for a user request.

Orchestration

The agent interprets the request, chooses a suitable skill, asks for missing values and returns the result to the conversation.



Testing the agent

Testing should cover both the conversational behavior and the underlying backend calls.

Private environment

Use a private environment to test and refine the agent without affecting a shared or productive environment.

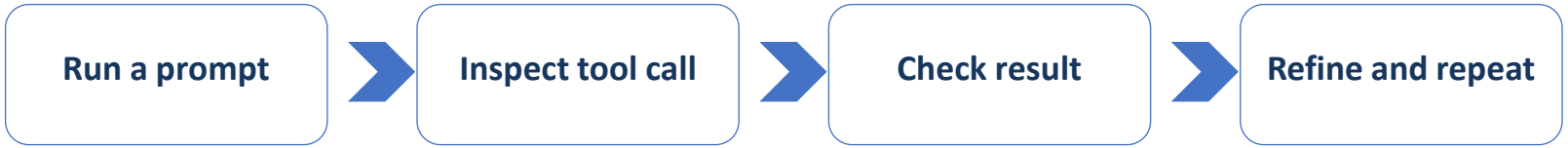
Conversation tests

Try expected requests, incomplete requests, alternative wording and requests that should be rejected or redirected.

Backend and error tests

Verify parameter mappings, authorization failures, backend validations, unexpected values and action error messages.

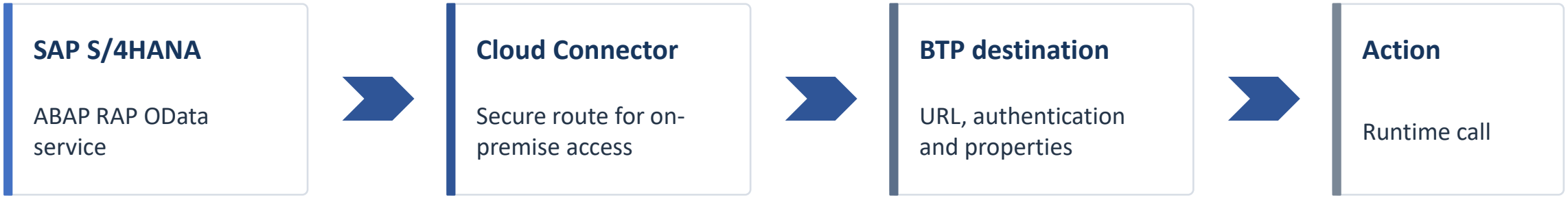
Practical test cycle



Important for this use case: include values that the Fiori UI would normally prevent, because direct OData calls can bypass UI-level restrictions.

Connectivity

The action calls the RAP service through a destination in the BTP subaccount.



For on-premise access, SAP Cloud Connector is required in the request path.

Call-Off Agent

Supported functions include analytical and transactional interactions; navigational interaction is not currently supported.

Find	List available frame-contract items and remaining quantities.	ANALYTICAL
Review	Read contract data and existing call-offs.	ANALYTICAL
Create	Collect quantity and delivery date, then create the trading contract.	TRANSACTIONAL
Delete	Remove eligible call-offs that have not been released.	TRANSACTIONAL

Interaction types

Analytical
Find and review existing data.

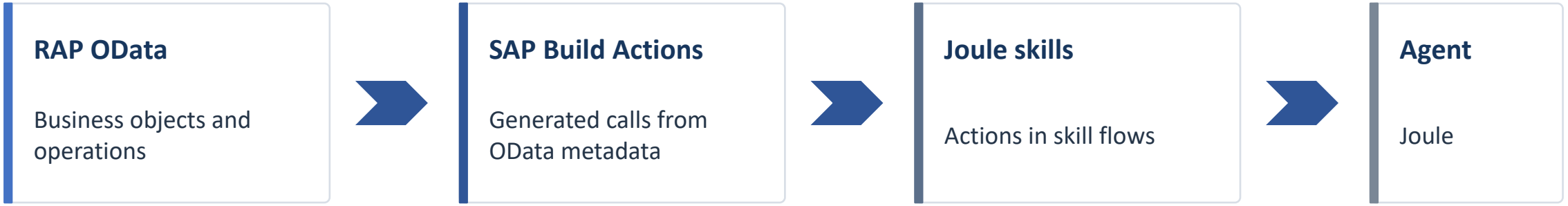
Transactional
Create or delete eligible call-offs.

Navigational
Not currently supported.

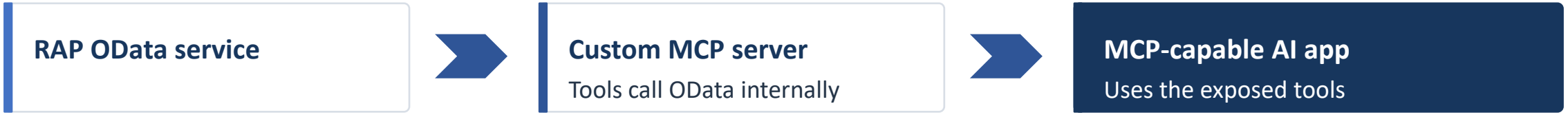
Alternative access pattern

SAP Build Actions are the primary pattern. MCP is another way to make the OData service available to AI applications.

Primary pattern



Additional pattern: MCP server



Useful when the consuming AI application is outside Joule Studio or should use an MCP tool interface.

ADventas Consulting

What we learned in practice

Detailed instructions are essential

Even a relatively simple use case needs a precise agent description: scope, terminology, decision rules, required inputs and expected behavior.

Expect noticeable latency

The agent responds relatively slowly, both during testing in Joule Studio and after deployment to an environment.

Treat the agent as a new API consumer

A RAP app designed for a Fiori UI may rely on UI constraints. Direct OData calls can submit values the UI would never allow, so keep that in mind

Key takeaways

RAP remains the system of record

Business logic, validation and authorization stay in ABAP.

SAP Build accelerates integration

OData metadata becomes reusable and published actions.

Joule Studio provides the agent layer

Skills use actions; multiple skills form an agent.

MCP is an additional access pattern

A custom MCP server can expose OData-backed tools to other AI applications.

Questions or follow-up?

Feel free to get in touch after the session.

Leon Karlau | Technical Consultant | ADventas

Email

leon.karlau@adventas.de

Questions about the implementation

In person

SAP TechEd 2026

Speak to me after the session

LinkedIn

linkedin.com/in/leon-karlau

Professional follow-up

Thank you

ADventas Consulting