Agentics Day: MCP + Agents
NORTH AMERICA

MCP Without Polling: Building Reactive Agents with Continuous Queries

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Drasi Maintainer | CNCF Ambassador

Azure CTO's Office, Microsoft

Keeping Important Orders Moving

Keeping Important Orders Moving

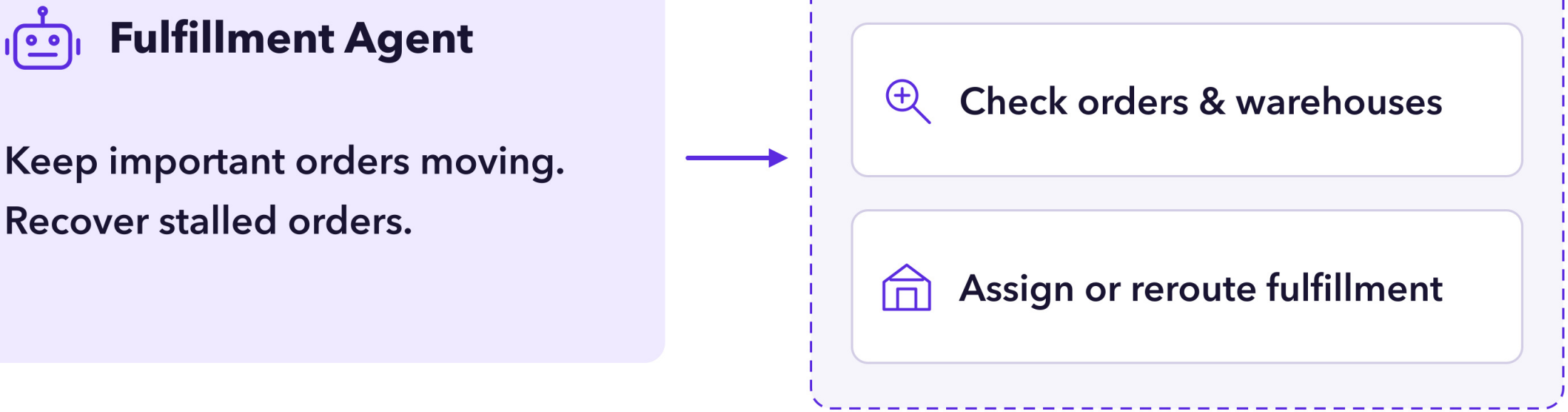


Fulfillment Agent

Keep important orders moving.

Recover stalled orders.

Keeping Important Orders Moving



When Should the Agent Act?

Capabilities

- ✓ Solved with MCP tools

When Should the Agent Act?

Capabilities

✓ Solved with MCP tools

Awareness

New important order arrives?

When Should the Agent Act?

Capabilities

✓ Solved with MCP tools

Awareness

New important order arrives?

Order stays stuck too long?

How Do Agents Watch State Today?

How Do Agents Watch State Today?

Poll current state



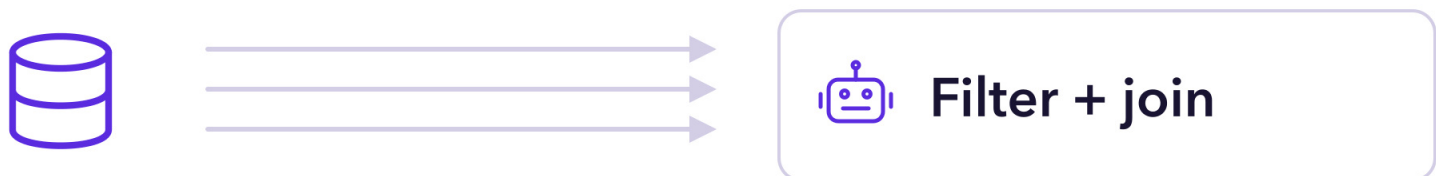
How Do Agents Watch State Today?

Poll current state



Frequent checks or delayed attention

Push every raw change

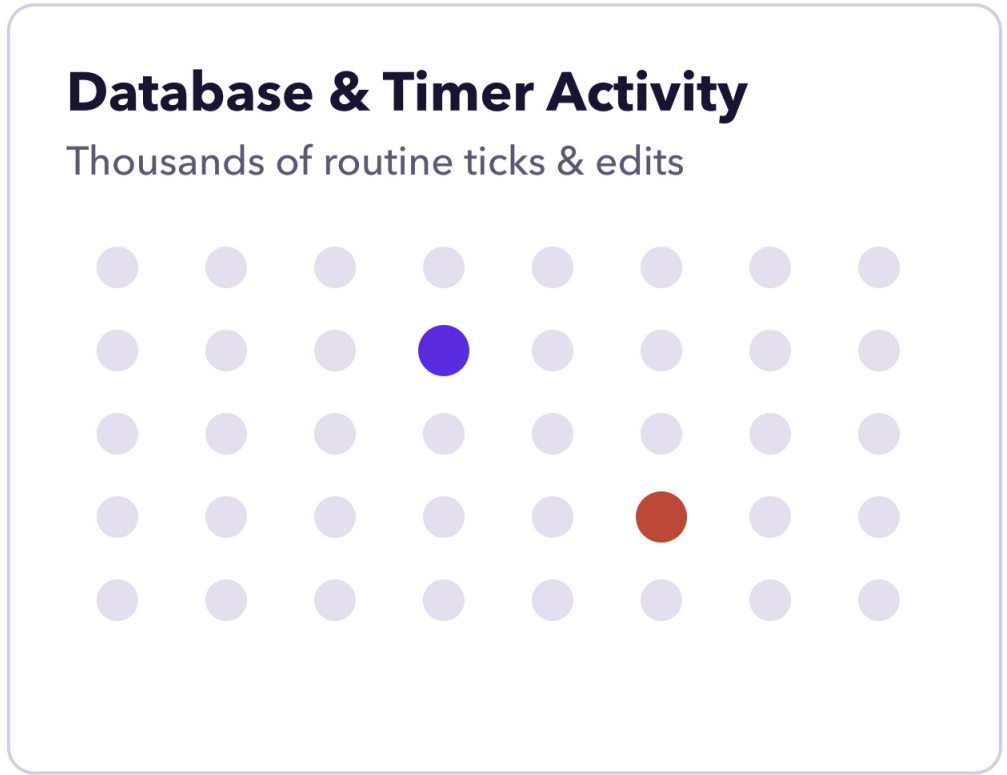


Many raw updates.

No write when an order stalls.

The Cost of Waking the Model on Noise

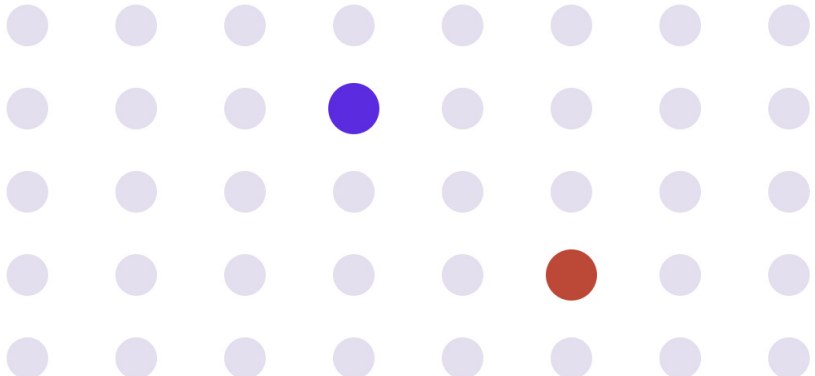
The Cost of Waking the Model on Noise



The Cost of Waking the Model on Noise

Database & Timer Activity

Thousands of routine ticks & edits



Situations Needing Judgment

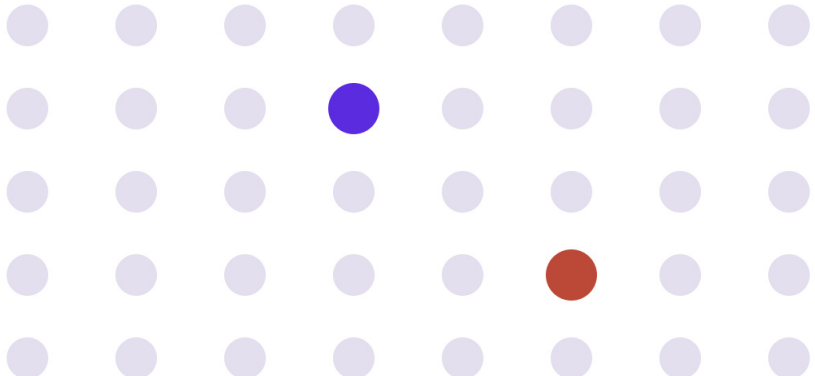
Only the exceptions wake the agent

- **New priority order arrives**

The Cost of Waking the Model on Noise

Database & Timer Activity

Thousands of routine ticks & edits



Situations Needing Judgment

Only the exceptions wake the agent

- **New priority order arrives**
- **Priority order stuck > 15m**

Separate Detection from Reasoning

Separate Detection from Reasoning



Deterministic Detection

Priority customer + high value

Stuck in processing > 15m

Separate Detection from Reasoning



Deterministic Detection

Priority customer + high value

Stuck in processing > 15m

Meaningful event



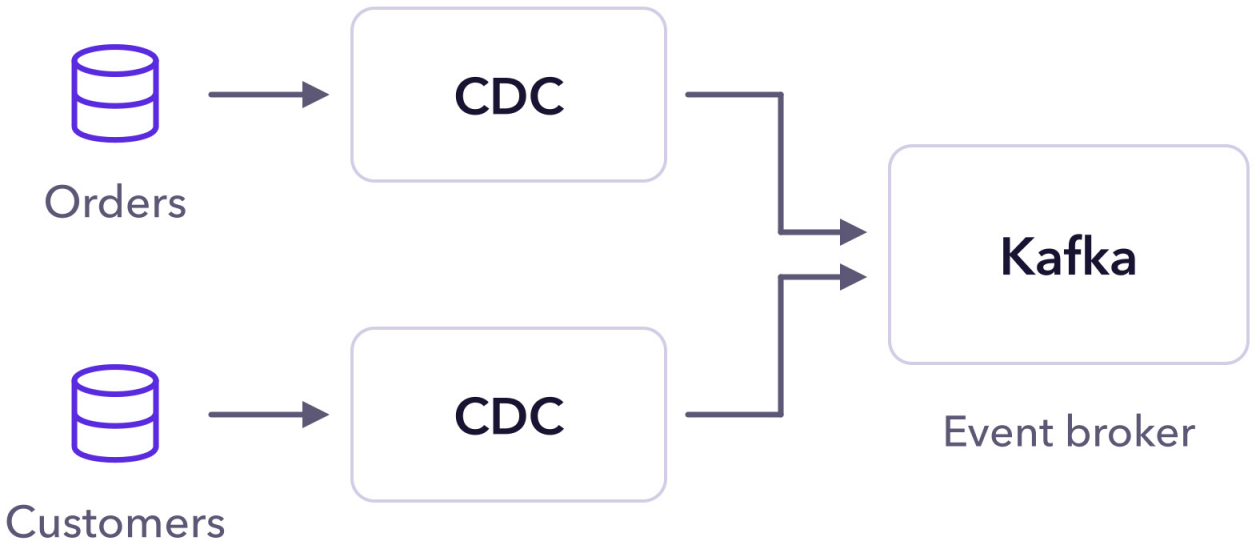
Agent Reasons & Acts

Check orders & warehouses

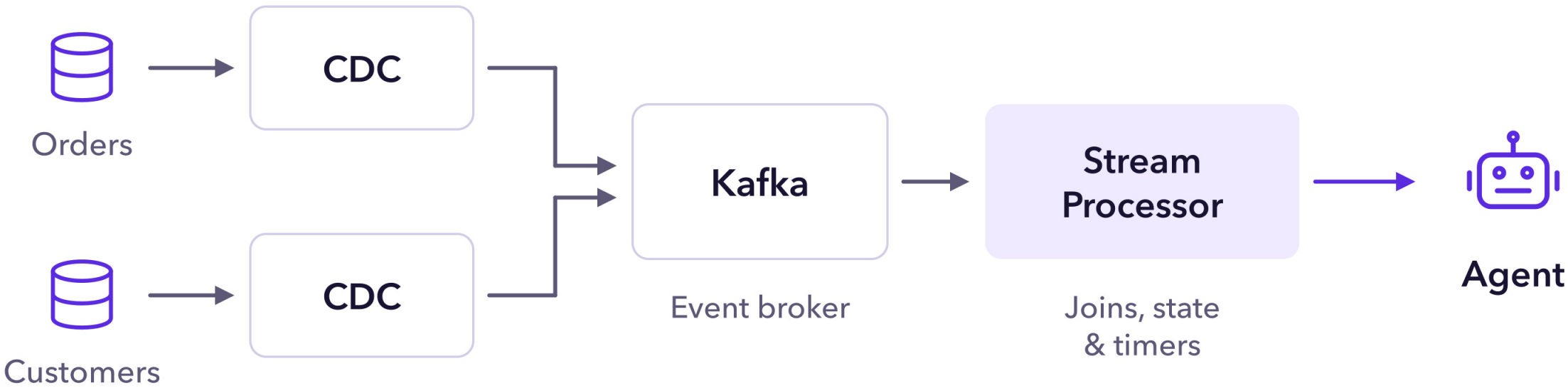
Assign or reroute fulfillment

Building Deterministic Detection Today

Building Deterministic Detection Today



Building Deterministic Detection Today



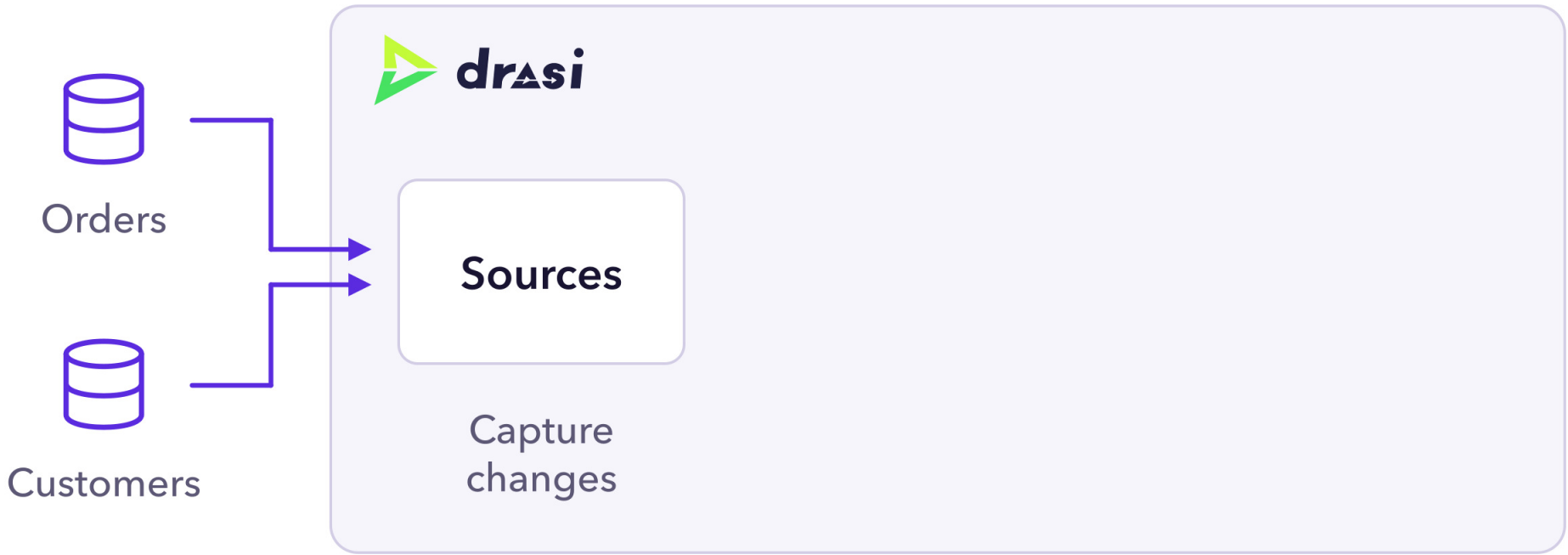
Drasi: A Declarative Approach

CNCF Sandbox Project



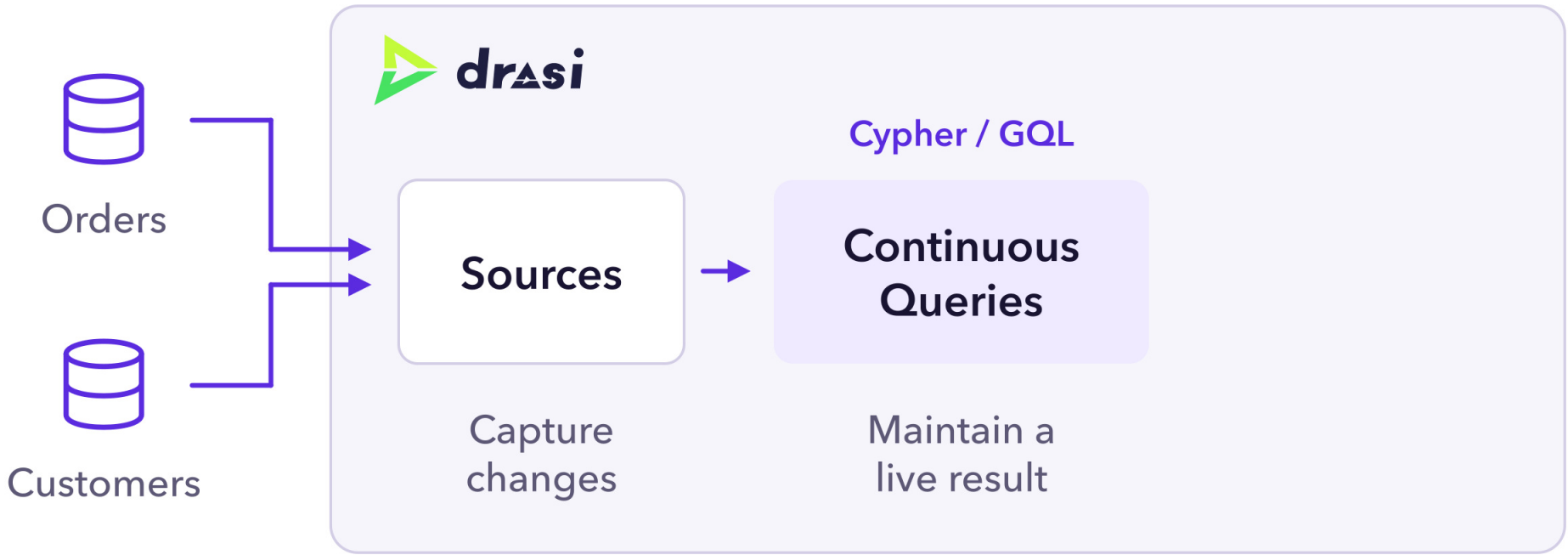
Drasi: A Declarative Approach

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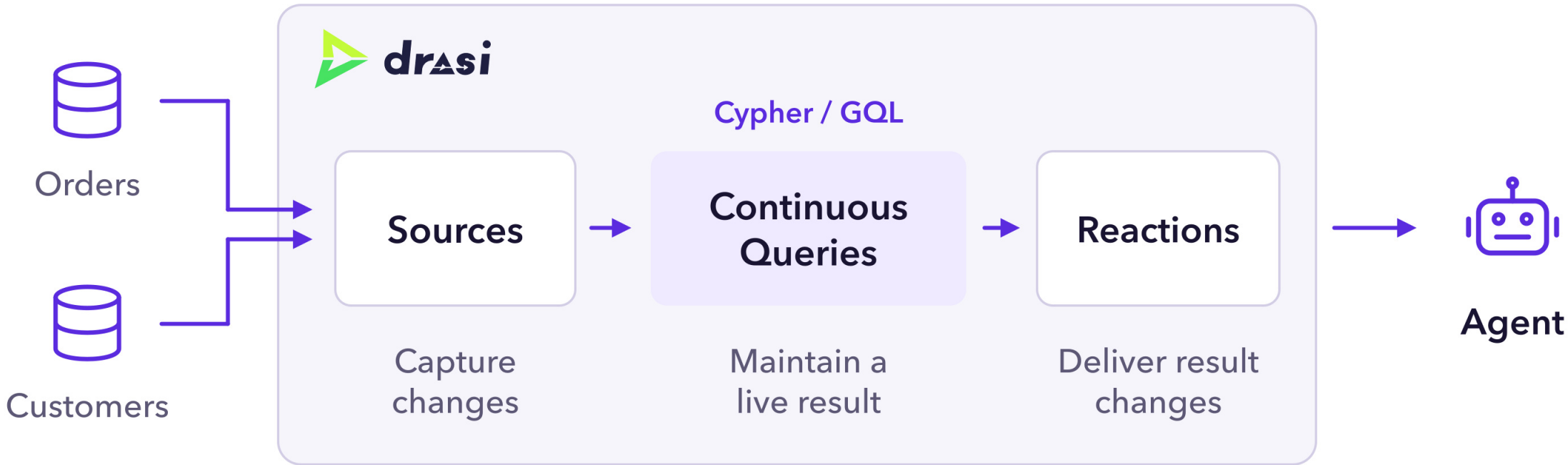
Drasi: A Declarative Approach

CNCF Sandbox Project



Drasi: A Declarative Approach

CNCF Sandbox Project



Defining a Business Signal

Customers source

Acme	GOLD
Beta	STANDARD

Orders source

Defining a Business Signal

Customers source

Acme	GOLD
Beta	STANDARD

Orders source

Continuous query

```
MATCH (o:Order)-[:PLACED_BY]->
(c:Customer)
WHERE c.tier = 'GOLD'
AND o.total > 5000 AND o.status = 'NEW'
RETURN o.id, o.customerId, o.total
```

Defining a Business Signal

Customers source

Acme	GOLD
Beta	STANDARD

Orders source

```
#101 Beta $8,000
```

Continuous query

```
MATCH (o:Order)-[:PLACED_BY]->
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WHERE c.tier = 'GOLD'
AND o.total > 5000 AND o.status = 'NEW'
RETURN o.id, o.customerId, o.total
```

#101: No event

Defining a Business Signal

Customers source

Acme	GOLD
Beta	STANDARD

Orders source

```
#101 Beta $8,000

#102 Acme $12,000
```

Continuous query

```
MATCH (o:Order)-[:PLACED_BY]->
(c:Customer)
WHERE c.tier = 'GOLD'
AND o.total > 5000 AND o.status = 'NEW'
RETURN o.id, o.customerId, o.total
```

#101: No event

ADDED: Order #102 — Entered the live result

How Does the Agent Know What It Can Watch?

How Does the Agent Know What It Can Watch?

What to do

`assign_fulfillment`

When to call it.

What it changes.

How Does the Agent Know What It Can Watch?

What to do

`assign_fulfillment`

When to call it.
What it changes.

What to watch

`new-important-orders`

When to subscribe.
What events arrive.

The Agent Chooses What to Watch

New important orders

Priority customer.
High-value order.

The Agent Chooses What to Watch

New important orders

Priority customer.
High-value order.

Stalled important orders

Important order in Processing.
Allowed duration exceeded.

The Agent Chooses What to Watch

New important orders

Priority customer.
High-value order.

Stalled important orders

Important order in Processing.
Allowed duration exceeded.

Watching

- ✓ New important orders
- ✓ Important orders stuck in processing

Setup Finishes. Monitoring Continues.



Setup completes

Subscriptions confirmed.

The turn ends.

Setup Finishes. Monitoring Continues.



Setup completes

Subscriptions confirmed.

The turn ends.





Monitoring continues

Drasi watches data + time.

Agent free for other work.

Workers can also scale to zero with suitable activation.

Setup Finishes. Monitoring Continues.



Setup completes

Subscriptions confirmed.

The turn ends.



Monitoring continues

Drasi watches data + time.

Agent free for other work.



An event arrives

Investigate.

Act through tools.

Workers can also scale to zero with suitable activation.

Putting It Together: Drasi + Dapr Agents





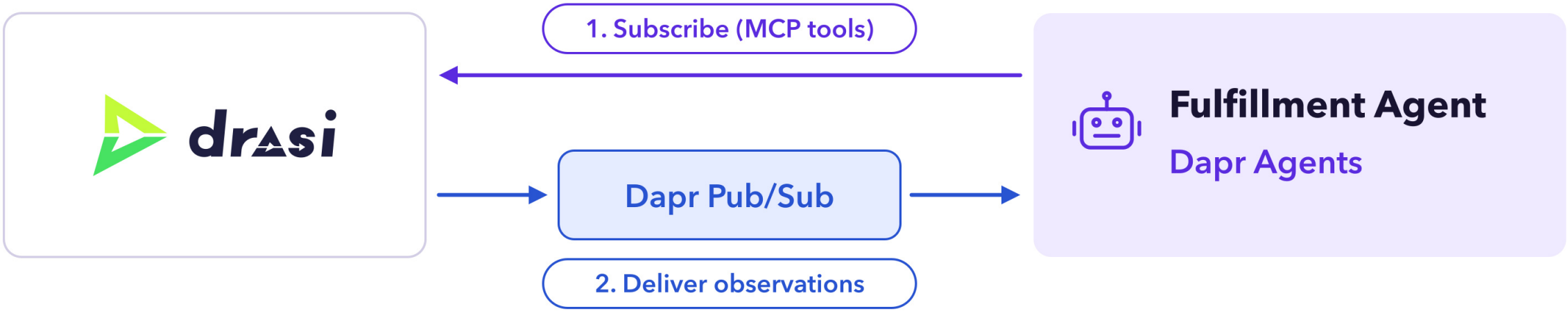
Fulfillment Agent

Dapr Agents

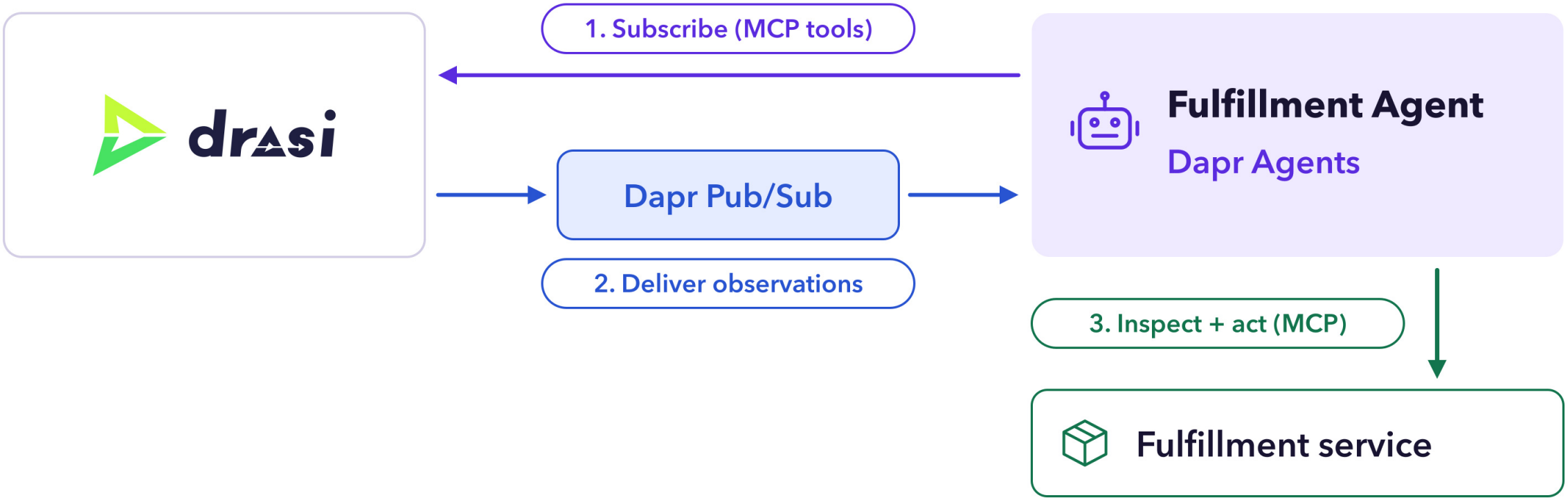
Putting It Together: Drasi + Dapr Agents



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Putting It Together: Drasi + Dapr Agents



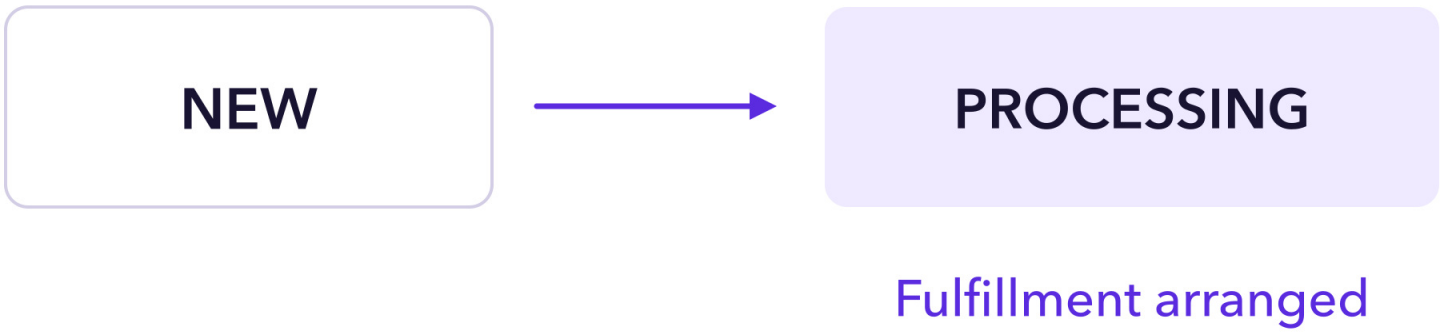
An Important Order Gets Moving



Demo

Order #102 Is Moving.

Acme / Gold



Order #102 Is Moving. What If It Stalls?

Acme / Gold



Detecting When an Order Stays Stuck

```
MATCH (o:Order)-[:PLACED_BY]->(c:Customer)
WHERE c.tier = 'GOLD' AND o.total > 5000
AND drasi.trueFor(o.status = 'PROCESSING', 15m)
RETURN o.id, o.customerId, o.total
```

Detecting When an Order Stays Stuck

```
MATCH (o:Order)-[:PLACED_BY]->(c:Customer)
WHERE c.tier = 'GOLD' AND o.total > 5000
AND drasi.trueFor(o.status = 'PROCESSING', 15m)
RETURN o.id, o.customerId, o.total
```

Order #102 Timeline

t = 0: PROCESSING ------ No DB writes | 0 model calls ------ **t = 15m**

Detecting When an Order Stays Stuck

```
MATCH (o:Order)-[:PLACED_BY]->(c:Customer)
WHERE c.tier = 'GOLD' AND o.total > 5000
AND drasi.trueFor(o.status = 'PROCESSING', 15m)
RETURN o.id, o.customerId, o.total
```

Order #102 Timeline

t = 0: PROCESSING ------ No DB writes | 0 model calls ------ **t = 15m**

↓

+ ADDED: Order #102 -> Wakes Agent

Recovering the Stalled Order



Demo

From Business Signals to Targeted Action



Data change

A new important order

↓

Fulfillment arranged

From Business Signals to Targeted Action



Data change

A new important order

↓

Fulfillment arranged



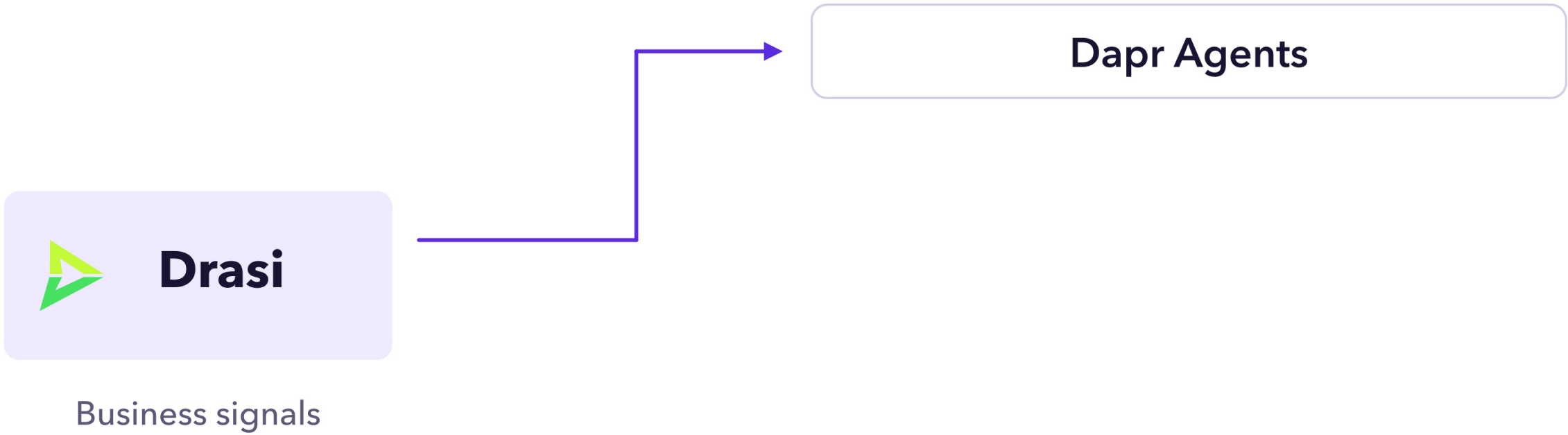
Lack of progress

Processing beyond a deadline

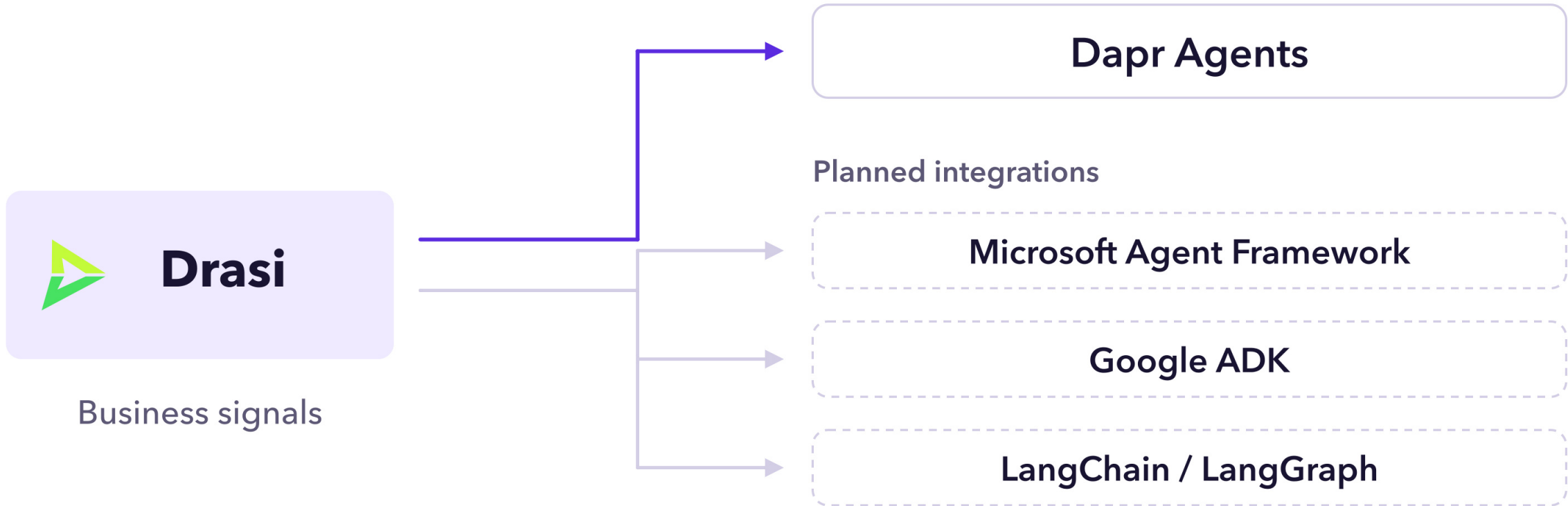
↓

Investigated + rerouted

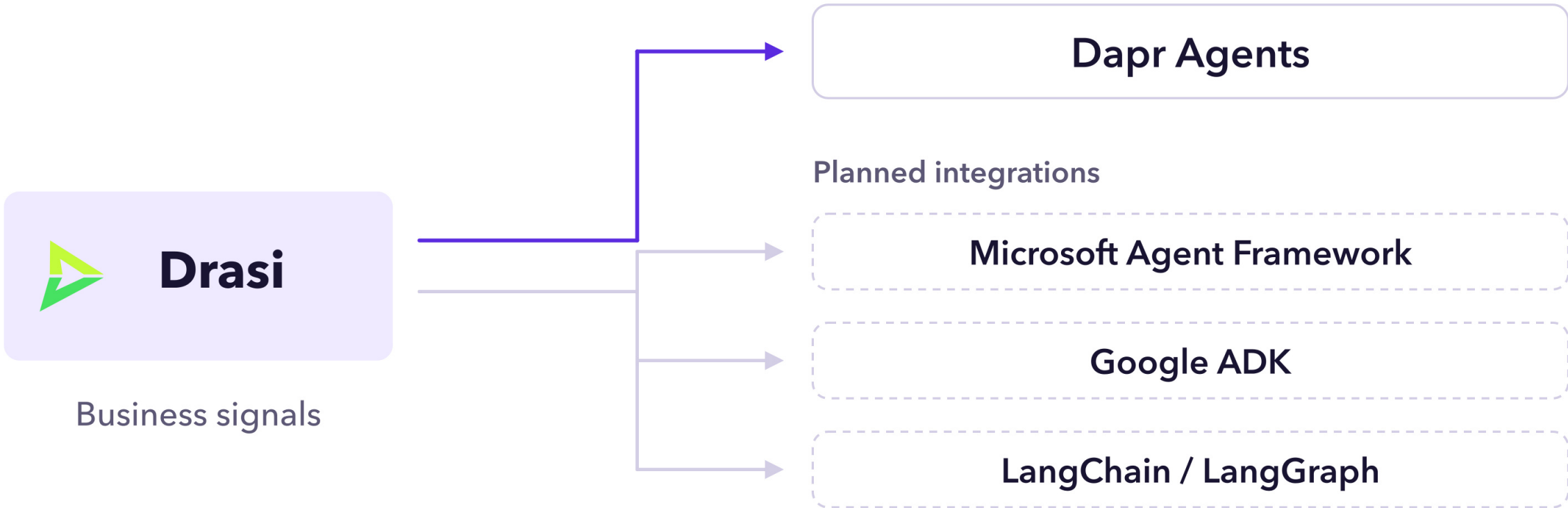
Your Choice of Agent Frameworks



Your Choice of Agent Frameworks



Your Choice of Agent Frameworks



A shared MCP contract for events

Proposed MCP Events Extension (SEP-3415)

Draft SEP

Expected Early 2027

Proposed MCP Events Extension (SEP-3415)

Draft SEP

Expected Early 2027

`tools/list`

Name + description

Input schema

Optional output schema

What the agent can DO

Proposed MCP Events Extension (SEP-3415)

Draft SEP

Expected Early 2027

`tools/list`

Name + description

Input schema

Optional output schema

What the agent can DO

`events/list`

Name + description

Subscription argument schema

Event payload schema

What the agent can WATCH

Three Delivery Modes in MCP Events

Three Delivery Modes in MCP Events

Poll



Repeated requests.
No held connection.

Client requests events

Three Delivery Modes in MCP Events

Poll



Repeated requests.
No held connection.

Client requests events

Streaming Push



Open connection.
Live observations.

Server streams events

Three Delivery Modes in MCP Events

Poll



Repeated requests.
No held connection.

Client requests events

Streaming Push



Open connection.
Live observations.

Server streams events

Webhook



Reachable receiver.
No held MCP connection.

Server posts events

From Raw Data to Reactive Agents



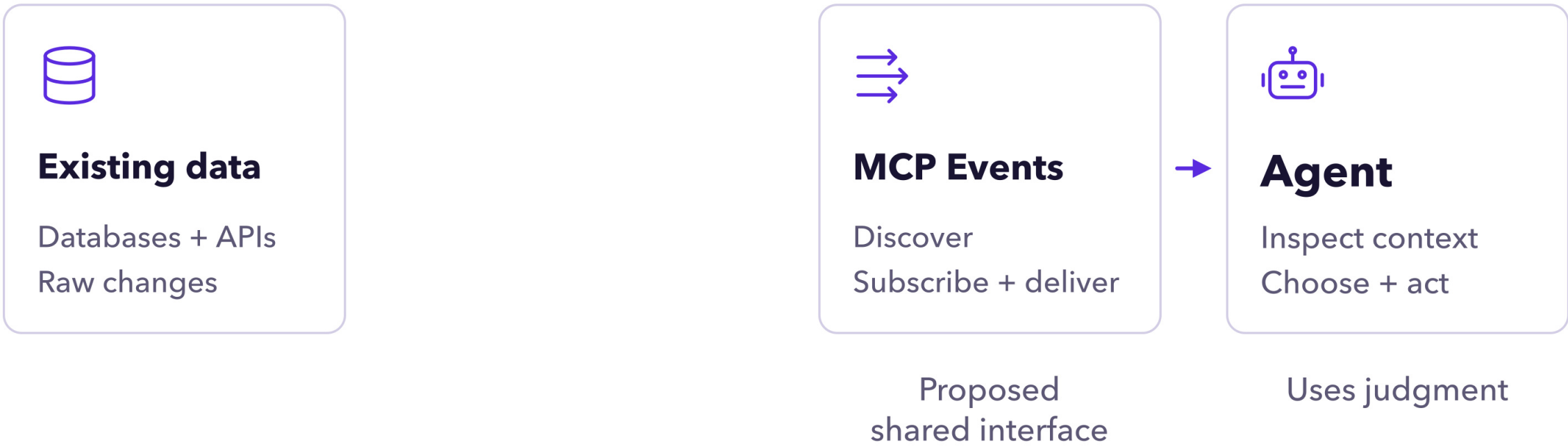
MCP Events

Discover

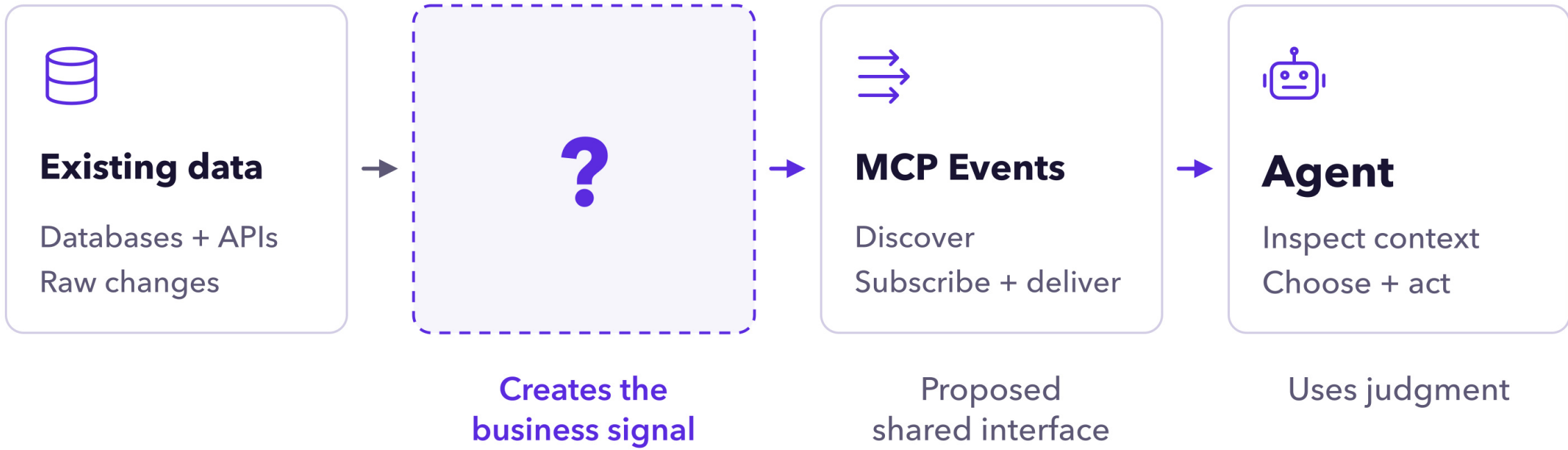
Subscribe + deliver

Proposed
shared interface

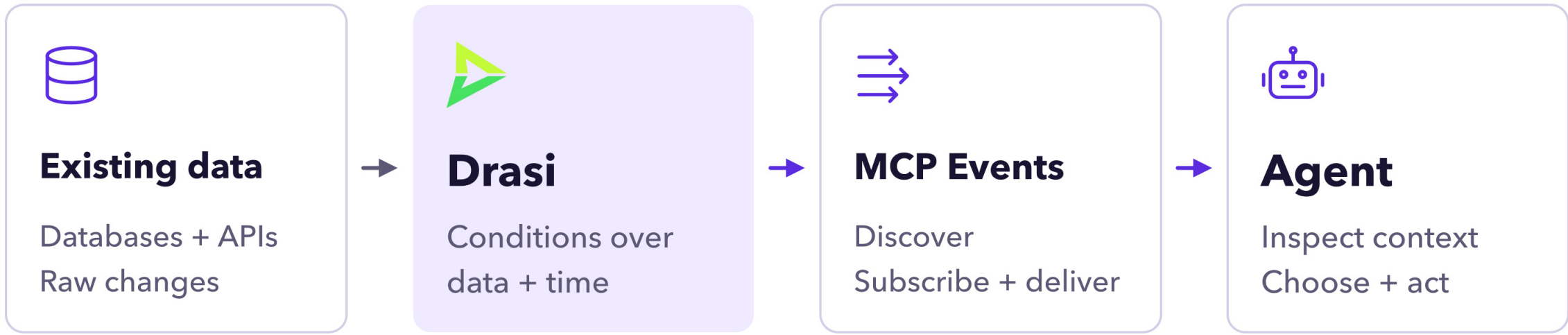
From Raw Data to Reactive Agents



From Raw Data to Reactive Agents



From Raw Data to Reactive Agents



Reactive Agents Without Polling

1. **Separate detection from reasoning**

Reactive Agents Without Polling

1. Separate detection from reasoning
2. Use Drasi to create business signals from your data

Reactive Agents Without Polling

1. Separate detection from reasoning
2. Use Drasi to create business signals from your data
3. Review SEP-3415 for the upcoming MCP Events extension

Get Involved

Have a use case?

Get Involved

Have a use case?

Want to contribute?

Get Involved

aka.ms/drasidiscord

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aka.ms/drasidiscord

Slides, Demos & Links

Session Feedback