

DevOps Dreamin'

Architecture Patterns & DevOps with Agentforce and Data Cloud

Sponsored by  **Gearset**





Ryan Cox

Distinguished Technical Architect,
Data & AI

ryan.cox@salesforce.com



Thank you!



Amazon Fireside Panel

Ryan Cox, Nikhil Reddy Aedula, Laurel Jones, Phillip Haack, Kirk Carpenter

⌚ 4:15pm - 5:00pm

📍 Keynote Room



An Architect Story: Building A Donor Management Platform for WeeCycle

Ryan Cox

Ryan Cox (Distinguished Technical Architect for Salesforce) talks through how he's pulled different solutions together (Gearset, Pharos, Elements Cloud, GitHub and Slack) to architect a donor management platform for WeeCycle.

⌚ 11:00am - 11:30am

📍 Workshop Room

Data Cloud DevOps

what does it mean?

what's available

what's coming

May 20, 2024

Forward looking statements

This presentation contains forward-looking statements about, among other things, trend analyses and future events, future financial performance, anticipated growth, industry prospects, environmental, social and governance goals, and the anticipated benefits of acquired companies. The achievement or success of the matters covered by such forward-looking statements involves risks, uncertainties and assumptions. If any such risks or uncertainties materialize or if any of the assumptions prove incorrect, Salesforce's results could differ materially from the results expressed or implied by these forward-looking statements. The risks and uncertainties referred to above include those factors discussed in Salesforce's reports filed from time to time with the Securities and Exchange Commission, including, but not limited to: impact of, and actions we may take in response to, the COVID-19 pandemic, related public health measures and resulting economic downturn and market volatility; our ability to maintain security levels and service performance meeting the expectations of our customers, and the resources and costs required to avoid unanticipated downtime and prevent, detect and remediate performance degradation and security breaches; the expenses associated with our data centers and third-party infrastructure providers; our ability to secure additional data center capacity; our reliance on third-party hardware, software and platform providers; the effect of evolving domestic and foreign government regulations, including those related to the provision of services on the Internet, those related to accessing the Internet, and those addressing data privacy, cross-border data transfers and import and export controls; current and potential litigation involving us or our industry, including litigation involving acquired entities such as Tableau Software, Inc. and Slack Technologies, Inc., and the resolution or settlement thereof; regulatory developments and regulatory investigations involving us or affecting our industry; our ability to successfully introduce new services and product features, including any efforts to expand our services; the success of our strategy of acquiring or making investments in complementary businesses, joint ventures, services, technologies and intellectual property rights; our ability to complete, on a timely basis or at all, announced transactions; our ability to realize the benefits from acquisitions, strategic partnerships, joint ventures and investments, including our July 2021 acquisition of Slack Technologies, Inc., and successfully integrate acquired businesses and technologies; our ability to compete in the markets in which we participate; the success of our business strategy and our plan to build our business, including our strategy to be a leading provider of enterprise cloud computing applications and platforms; our ability to execute our business plans; our ability to continue to grow unearned revenue and remaining performance obligation; the pace of change and innovation in enterprise cloud computing services; the seasonal nature of our sales cycles; our ability to limit customer attrition and costs related to those efforts; the success of our international expansion strategy; the demands on our personnel and infrastructure resulting from significant growth in our customer base and operations, including as a result of acquisitions; our ability to preserve our workplace culture, including as a result of our decisions regarding our current and future office environments or work-from-home policies; our dependency on the development and maintenance of the infrastructure of the Internet; our real estate and office facilities strategy and related costs and uncertainties; fluctuations in, and our ability to predict, our operating results and cash flows; the variability in our results arising from the accounting for term license revenue products; the performance and fair value of our investments in complementary businesses through our strategic investment portfolio; the impact of future gains or losses from our strategic investment portfolio, including gains or losses from overall market conditions that may affect the publicly traded companies within our strategic investment portfolio; our ability to protect our intellectual property rights; our ability to develop our brands; the impact of foreign currency exchange rate and interest rate fluctuations on our results; the valuation of our deferred tax assets and the release of related valuation allowances; the potential availability of additional tax assets in the future; the impact of new accounting pronouncements and tax laws; uncertainties affecting our ability to estimate our tax rate; uncertainties regarding our tax obligations in connection with potential jurisdictional transfers of intellectual property, including the tax rate, the timing of the transfer and the value of such transferred intellectual property; uncertainties regarding the effect of general economic and market conditions; the impact of geopolitical events; uncertainties regarding the impact of expensing stock options and other equity awards; the sufficiency of our capital resources; the ability to execute our Share Repurchase Program; our ability to comply with our debt covenants and lease obligations; the impact of climate change, natural disasters and actual or threatened public health emergencies; and our ability to achieve our aspirations, goals and projections related to our environmental, social and governance initiatives.

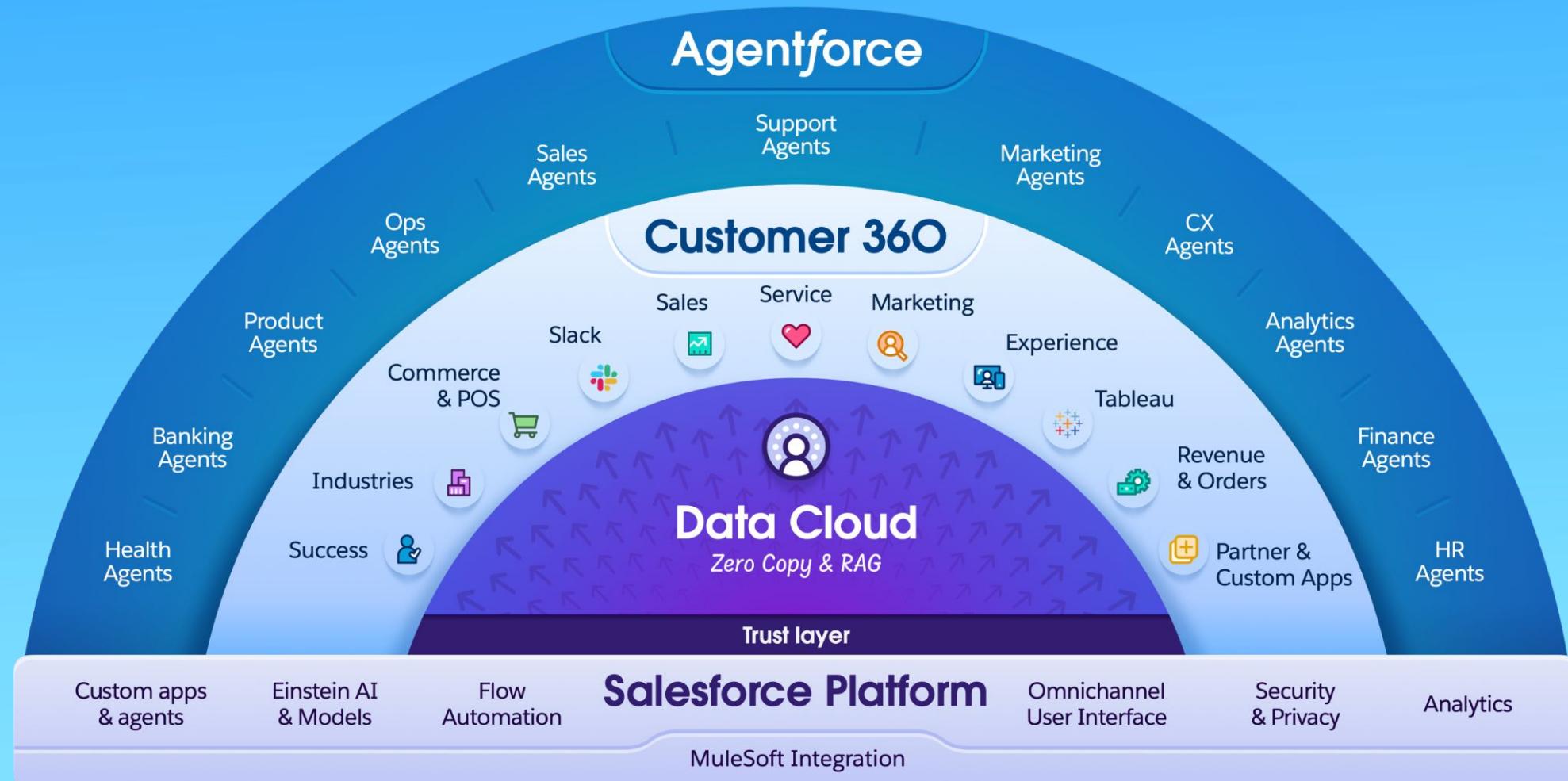
Agentforce + Data Cloud architecture

Salesforce Org Strategy with Data Cloud One

DevOps & Deployment Options



Agentforce Brings Together Humans + Agents + Data + CRM



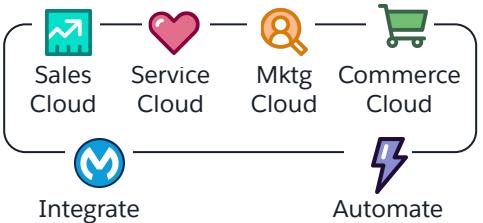
Data Cloud unlocks your Trapped Data



1P & 3P Data Sources



Salesforce C360 Integrations



Zero Copy Integrations

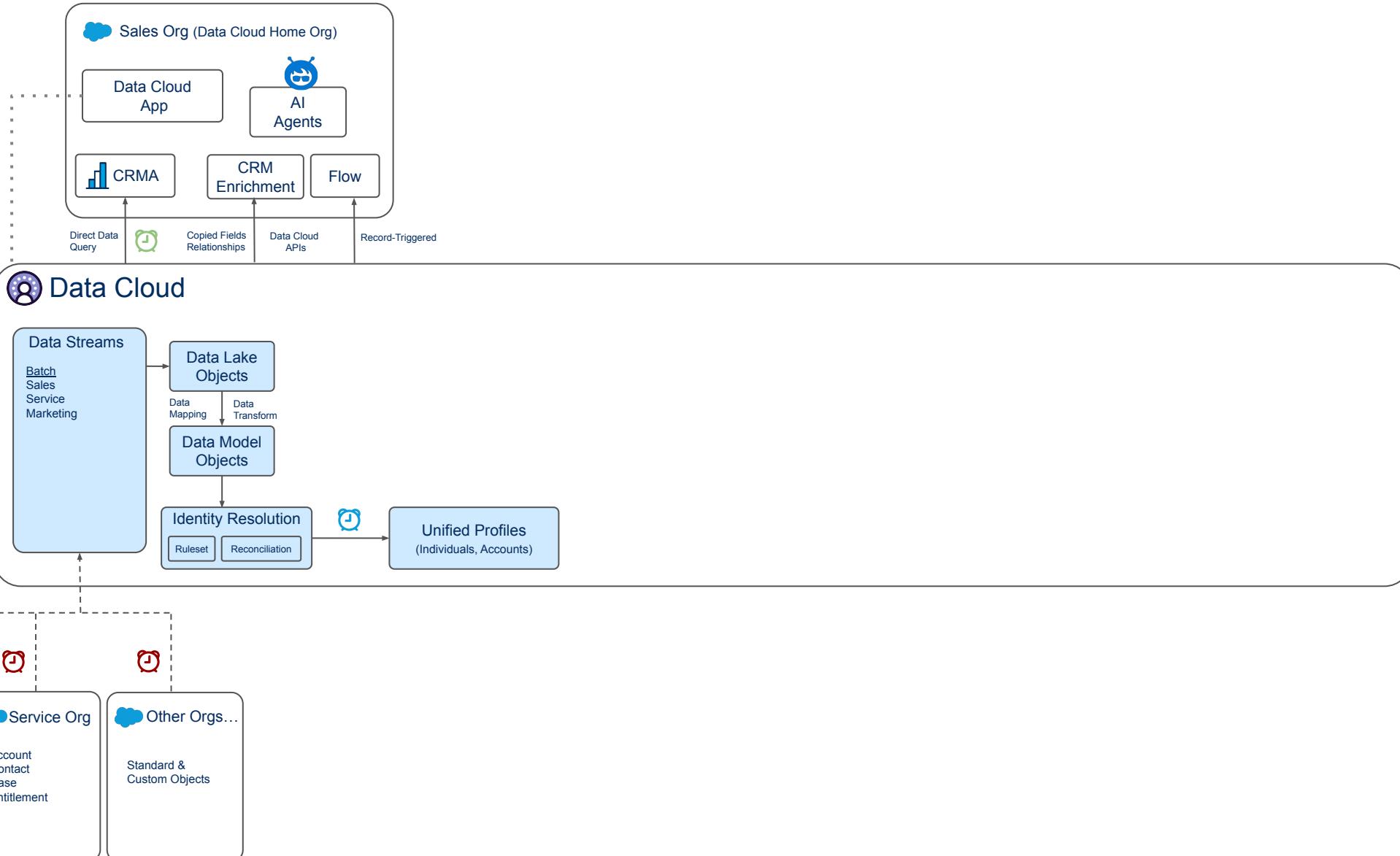
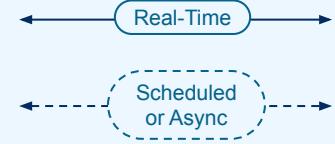


Metadata framework

Agentforce + Data Cloud

Multi-Org Data Sharing

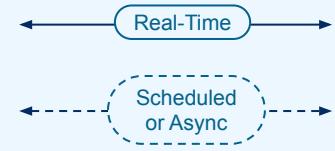
Frequency	⌚ 5 mins	⌚ Hourly
⌚ Real-time	⌚ 10 mins	⌚ Daily
⌚ 2 mins	⌚ 15 mins	⌚ Weekly



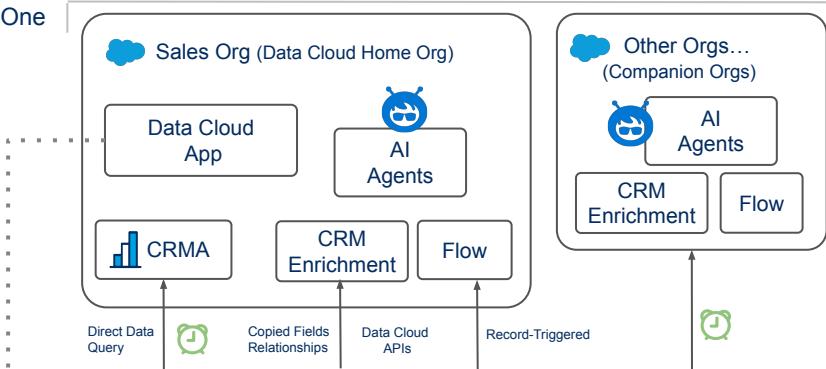
Agentforce + Data Cloud

Data Cloud One and Multi-Org Data Sharing

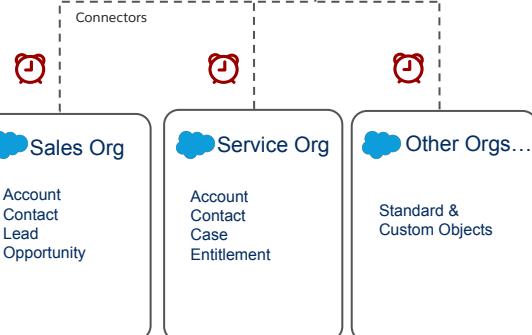
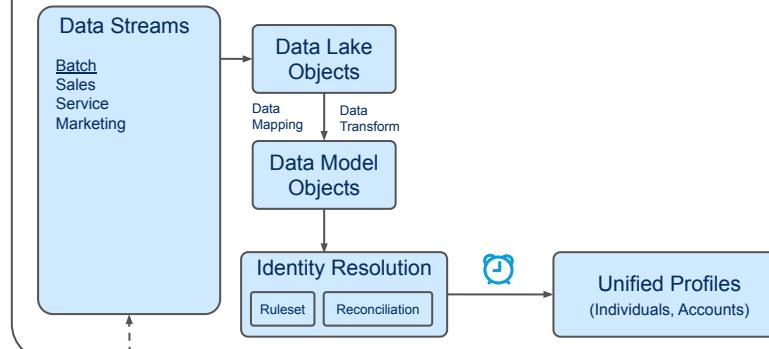
Frequency	⌚ 5 mins	⌚ Hourly
⌚ Real-time	⌚ 10 mins	⌚ Daily
⌚ 2 mins	⌚ 15 mins	⌚ Weekly



Data Cloud One



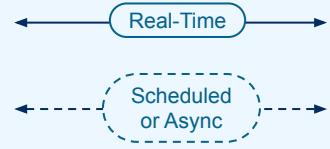
⌚ Data Cloud



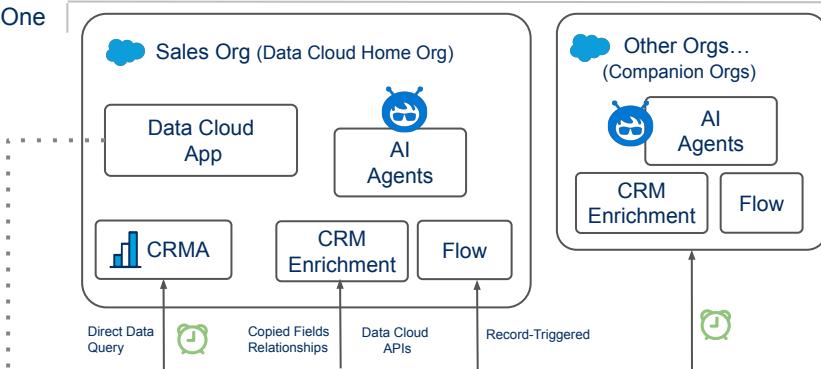
Agentforce + Data Cloud

Data Ingestion and Zero Copy Virtualization

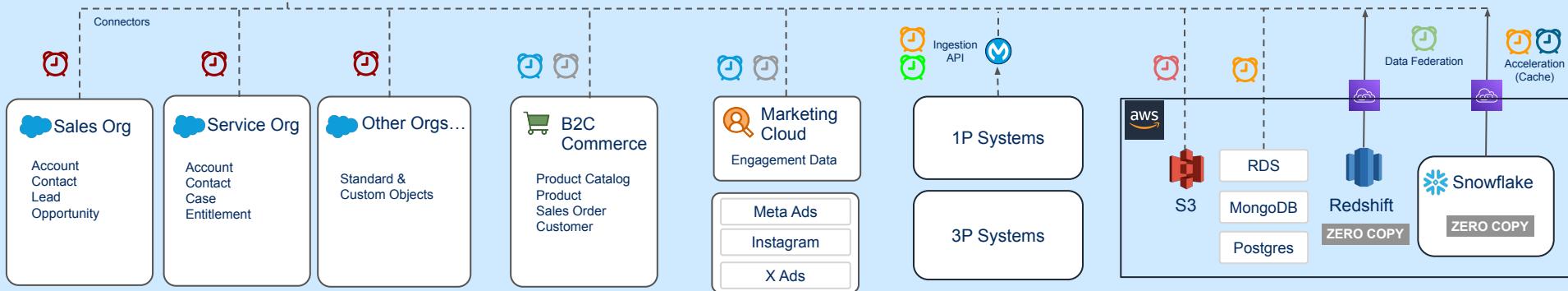
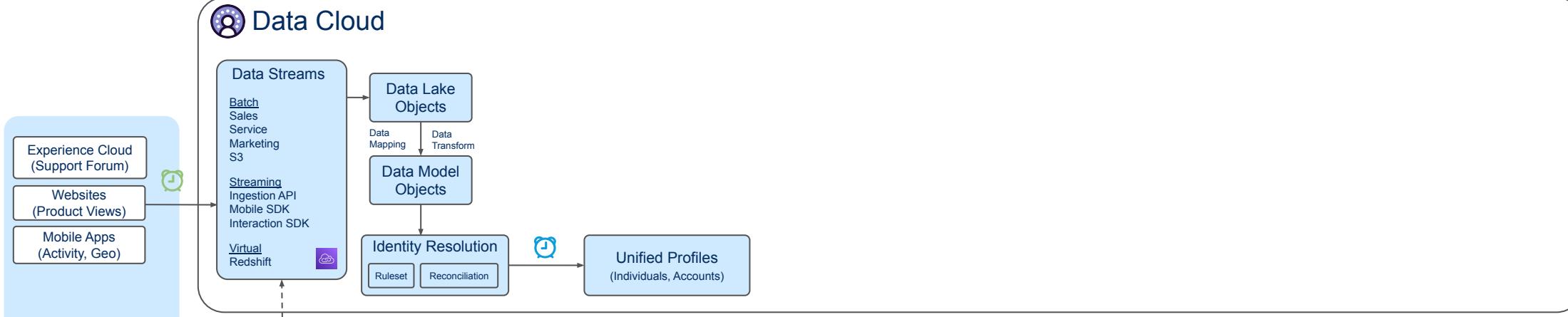
Frequency	⌚ 5 mins	⌚ Hourly
⌚ Real-time	⌚ 10 mins	⌚ Daily
⌚ 2 mins	⌚ 15 mins	⌚ Weekly



Data Cloud One



Data Cloud



Agentforce + Data Cloud

Vision for an enterprise architecture using Agentforce & Data Cloud

Frequency

Real-time

2 mins

5 mins

10 mins

15 mins

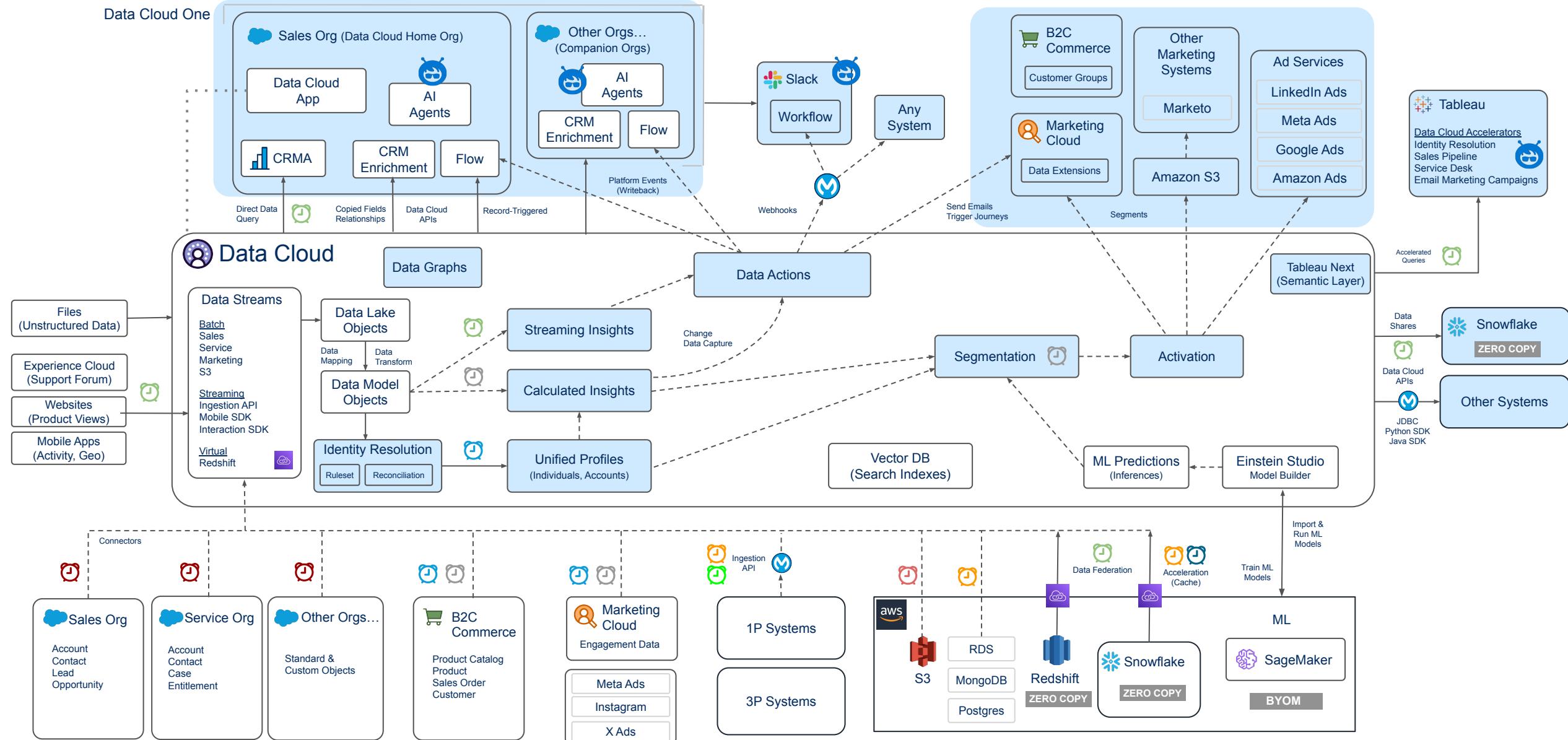
Hourly

Daily

Weekly

Real-Time

Scheduled or Async



Agentforce + Data Cloud

Real-Time data ingestion, insights, and automations

Frequency

Real-time

2 mins

5 mins

10 mins

15 mins

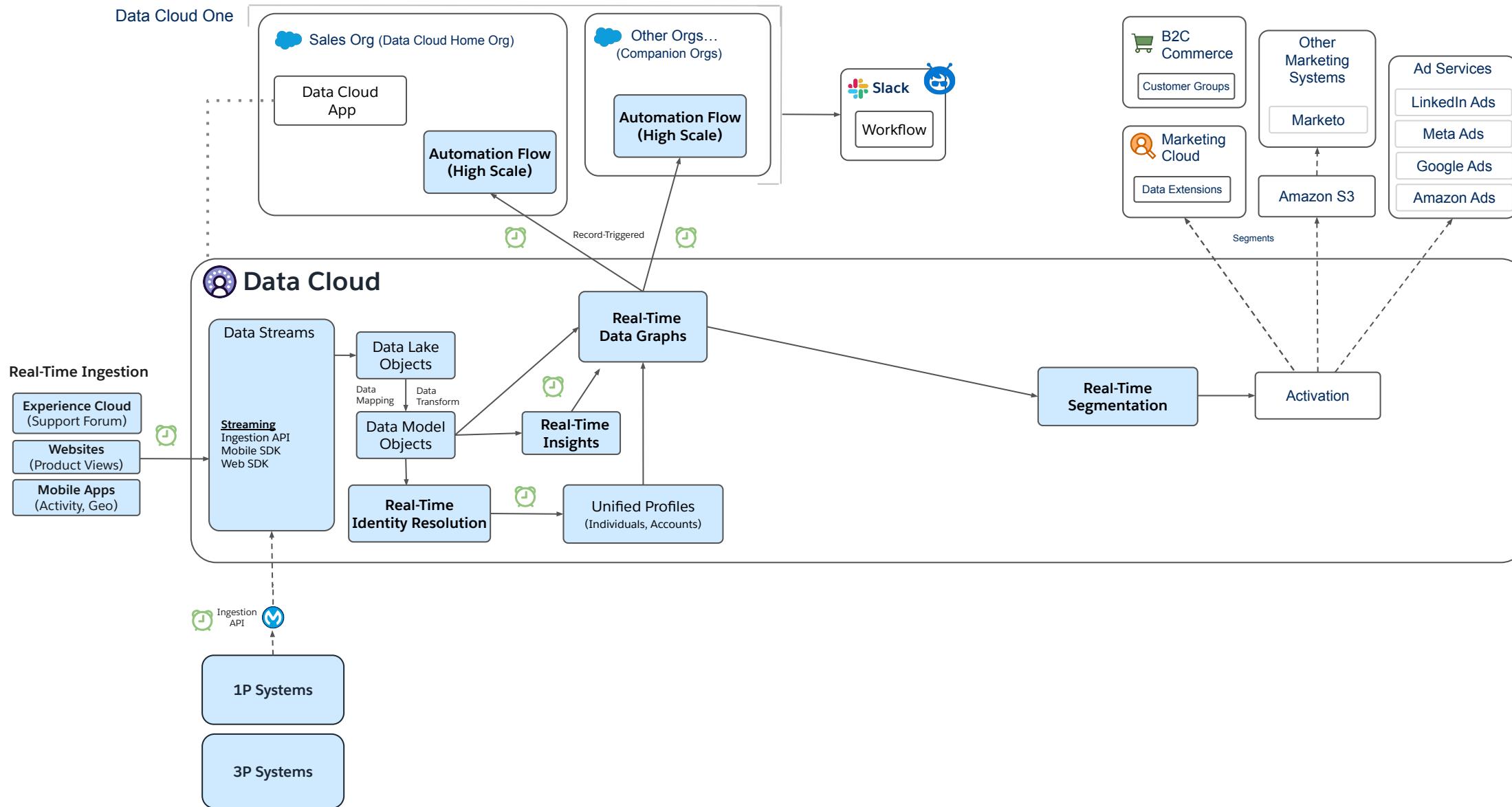
Hourly

Daily

Weekly

Real-Time

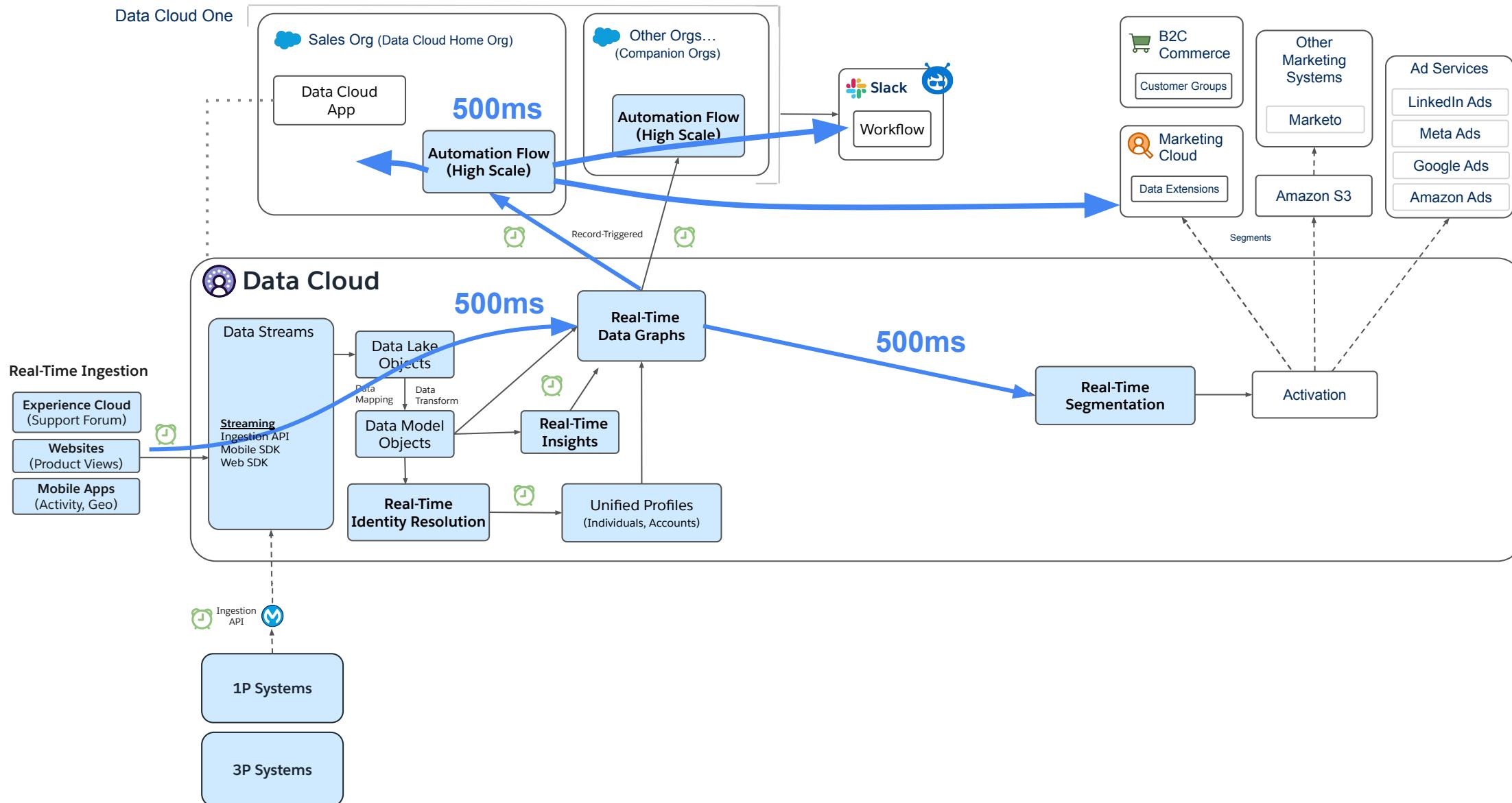
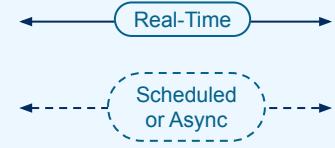
Scheduled or Async



Agentforce + Data Cloud

Real-Time data ingestion, insights, and automations

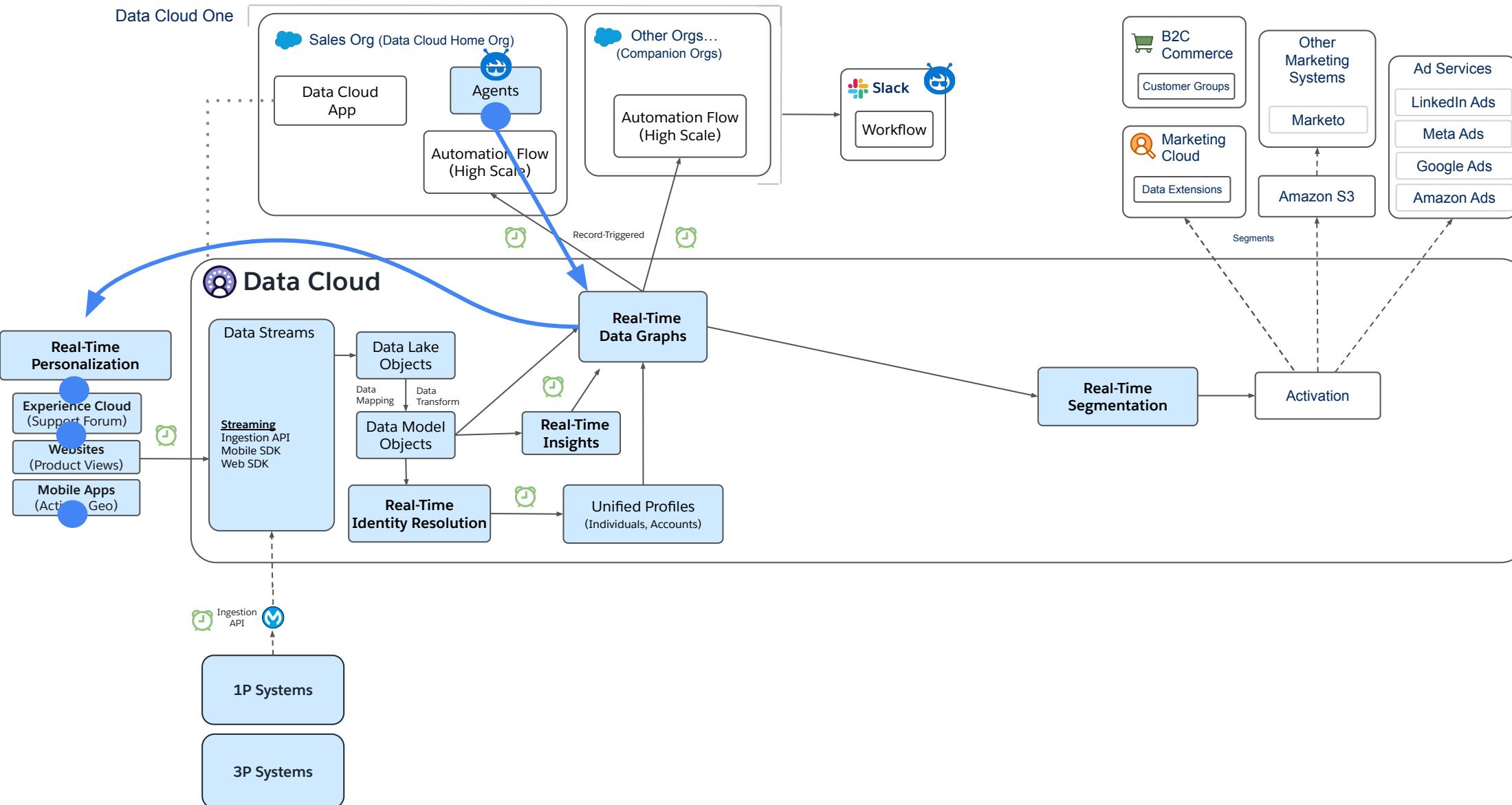
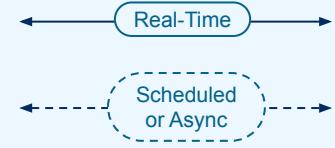
Frequency	⌚ 5 mins	⌚ Hourly
⌚ Real-time	⌚ 10 mins	⌚ Daily
⌚ 2 mins	⌚ 15 mins	⌚ Weekly



Agentforce + Data Cloud

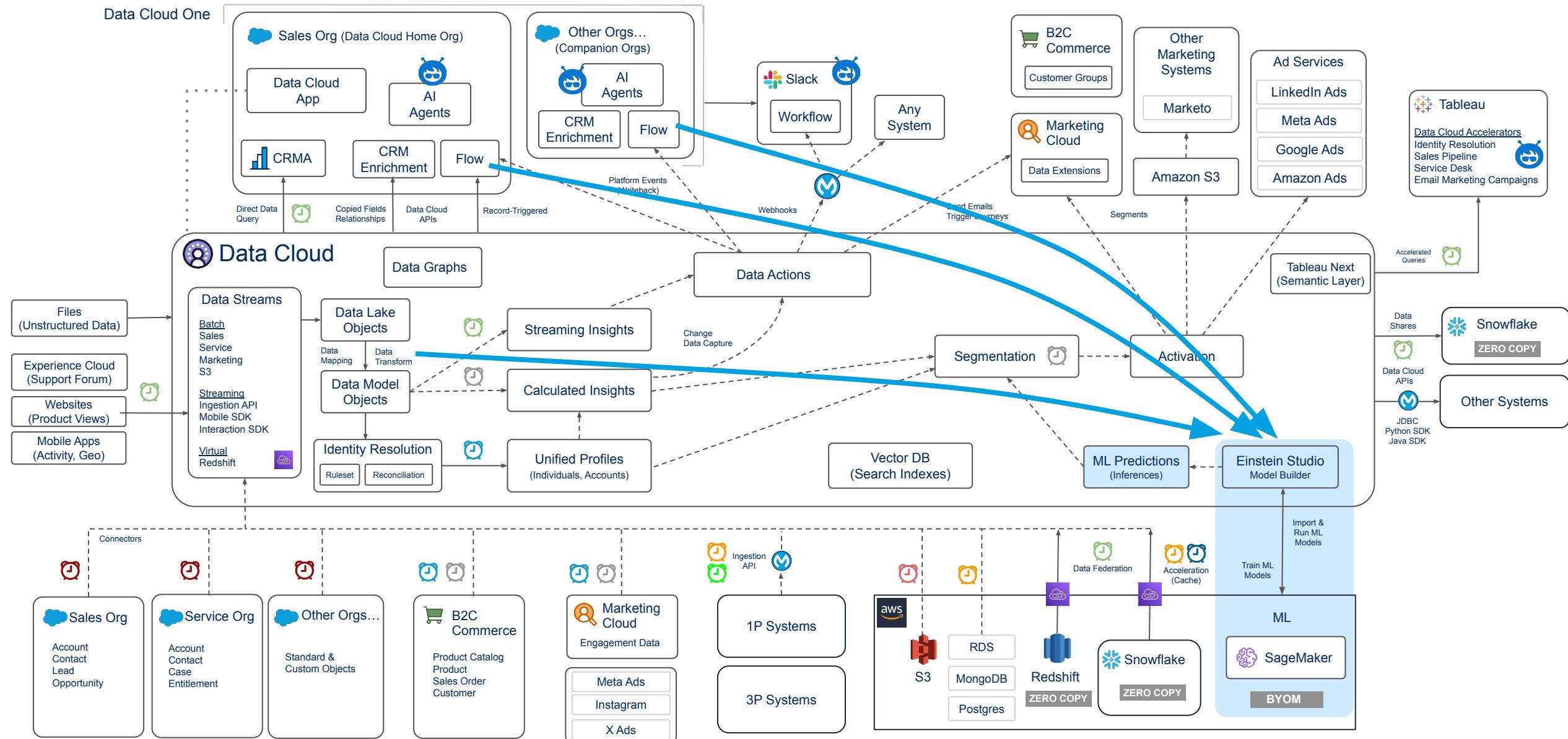
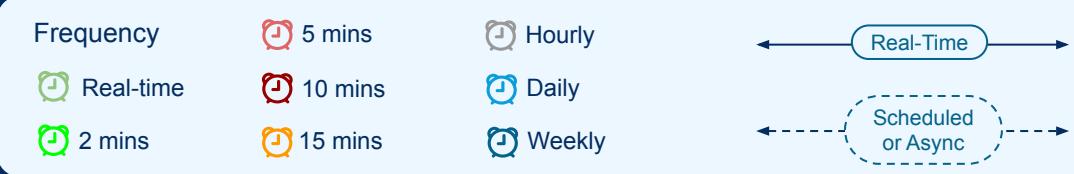
Real-Time data ingestion, insights, and automations

Frequency	5 mins	Hourly
Real-time	Real-time	10 mins
	2 mins	15 mins
		Daily
		Weekly



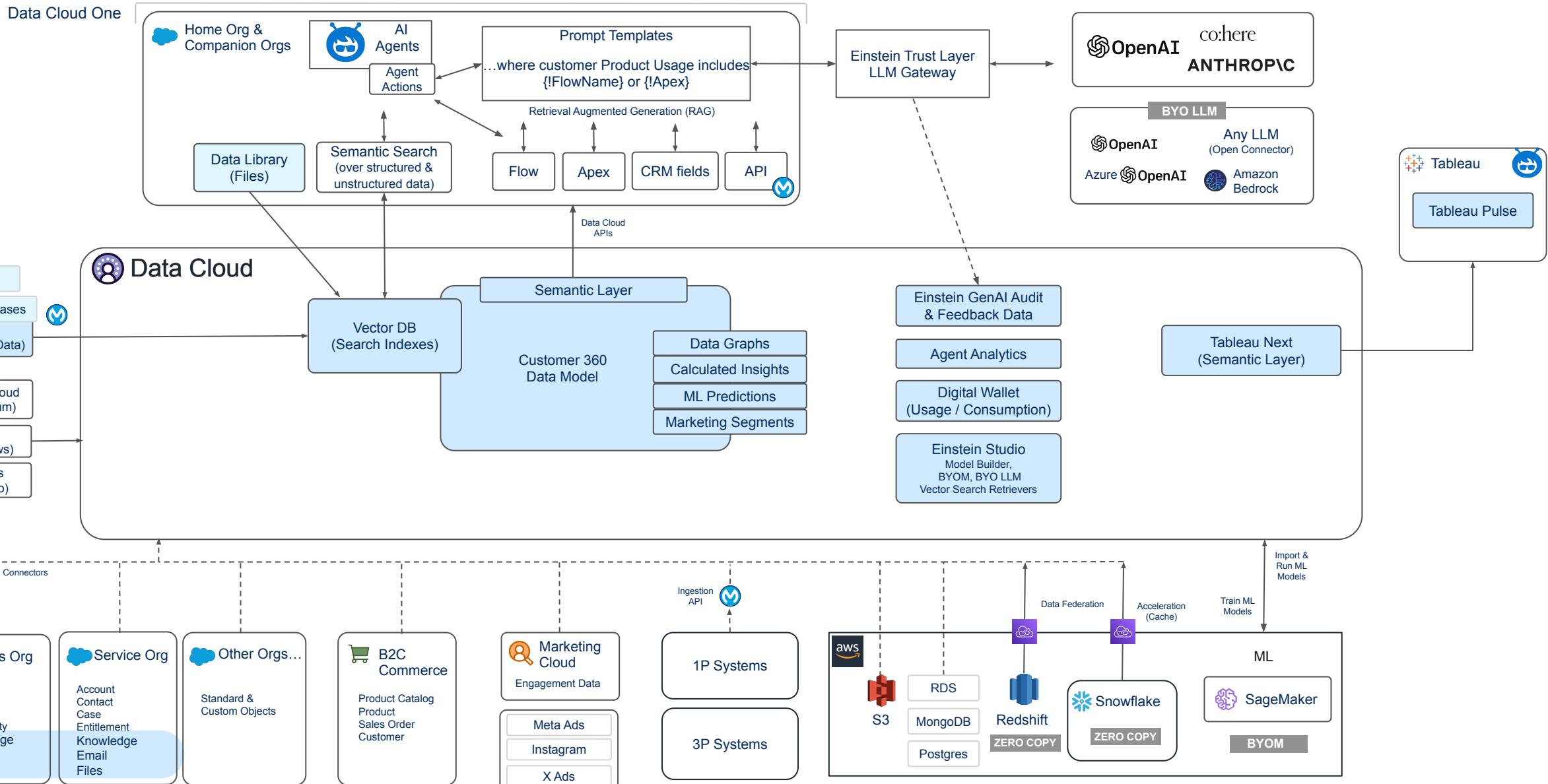
Agentforce + Data Cloud

Train and Run Predictive ML Models



Agentforce + Data Cloud

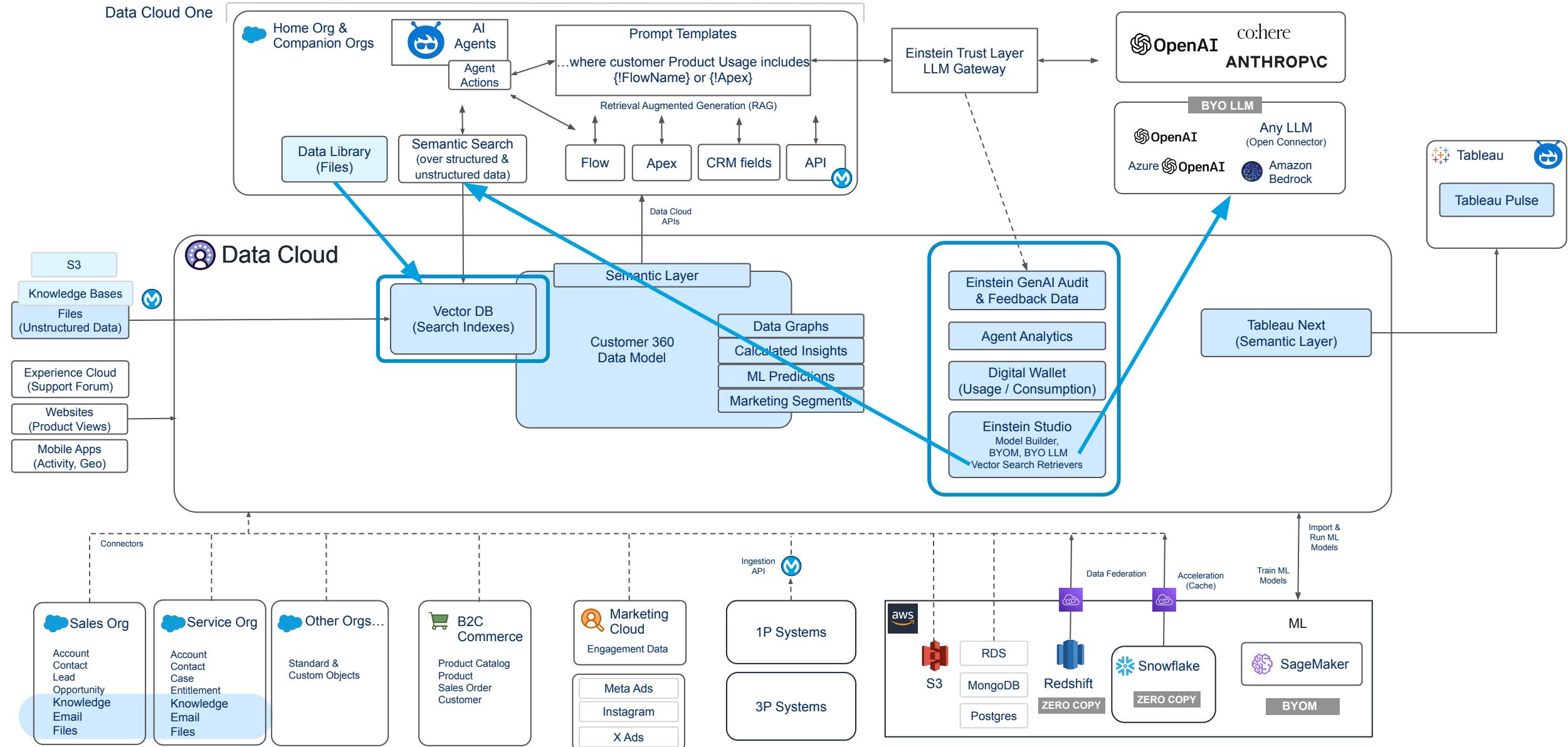
Agents & Generative AI with Data Cloud



Agentforce + Data Cloud

Agents & Generative AI with Data Cloud

Data Cloud components required by Agentforce



Agentforce + Data Cloud architecture

Salesforce Org Strategy with Data Cloud One

DevOps & Deployment Options

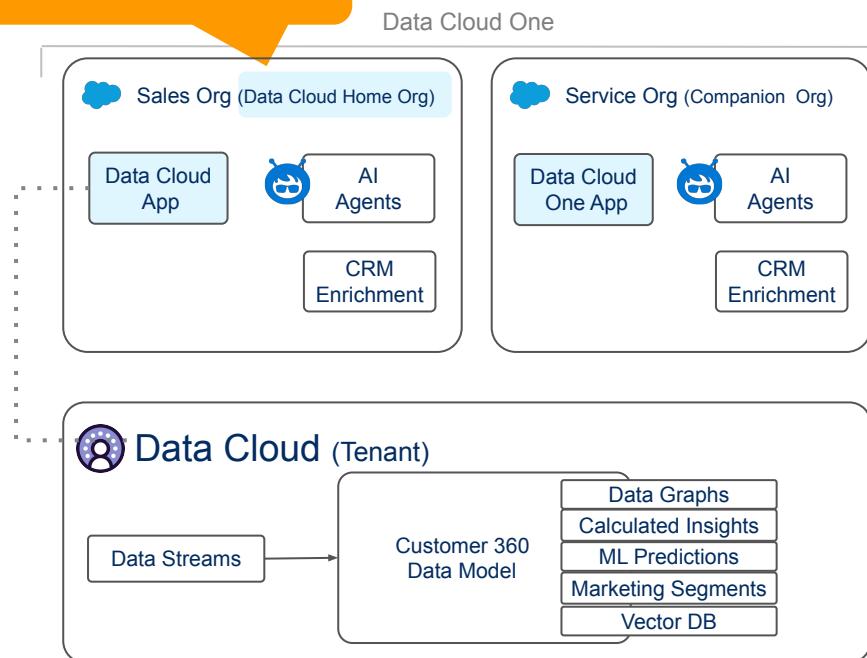


Data Cloud One - Home Org Options



Data Cloud Home in an Existing Org

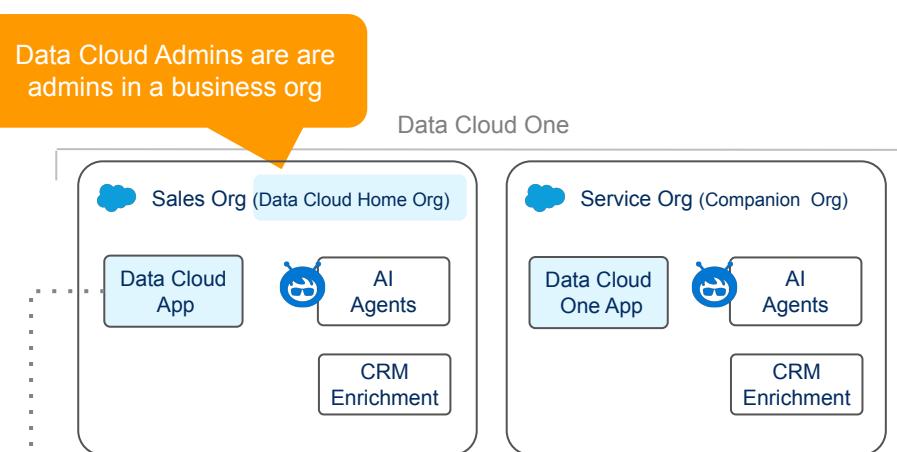
Data Cloud Admins are are
admins in a business org



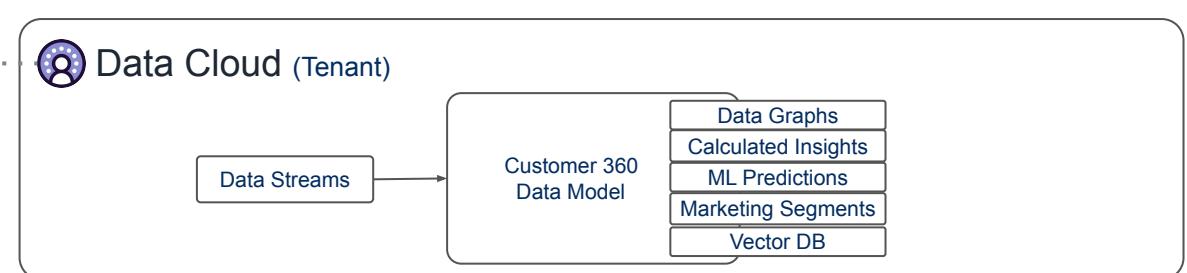
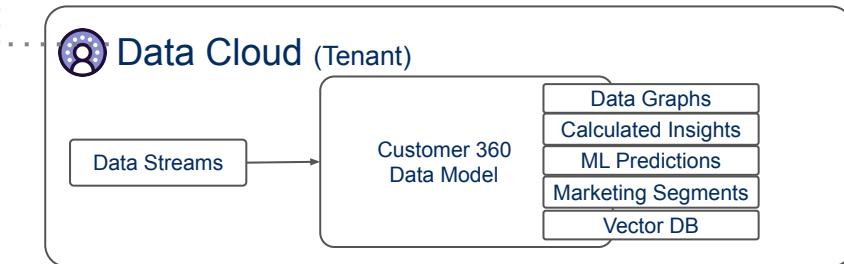
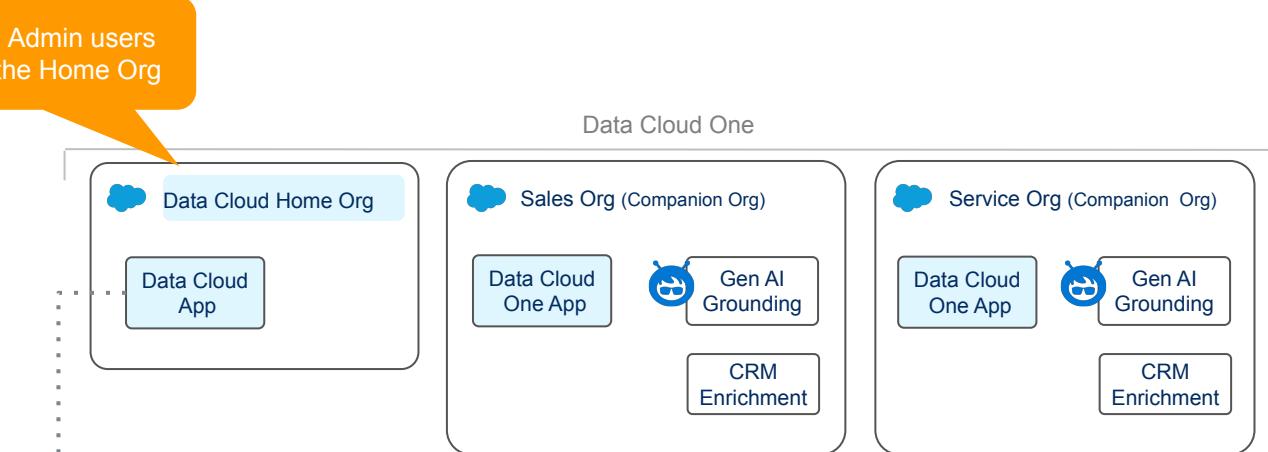
Data Cloud One - Home Org Options



Data Cloud Home in an Existing Org



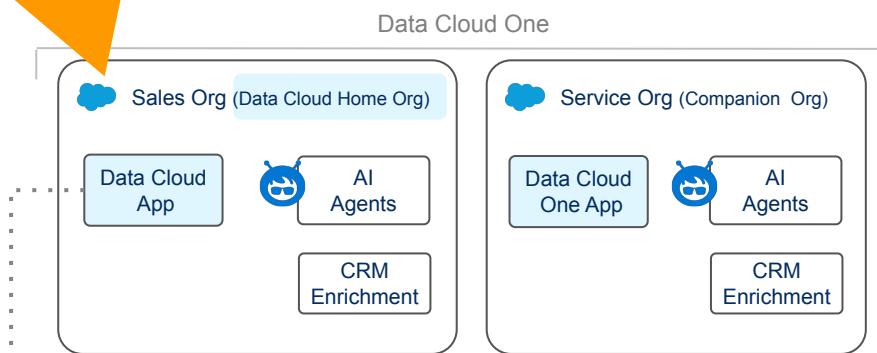
Data Cloud Home in a Dedicated Org



Data Cloud One - Data Model

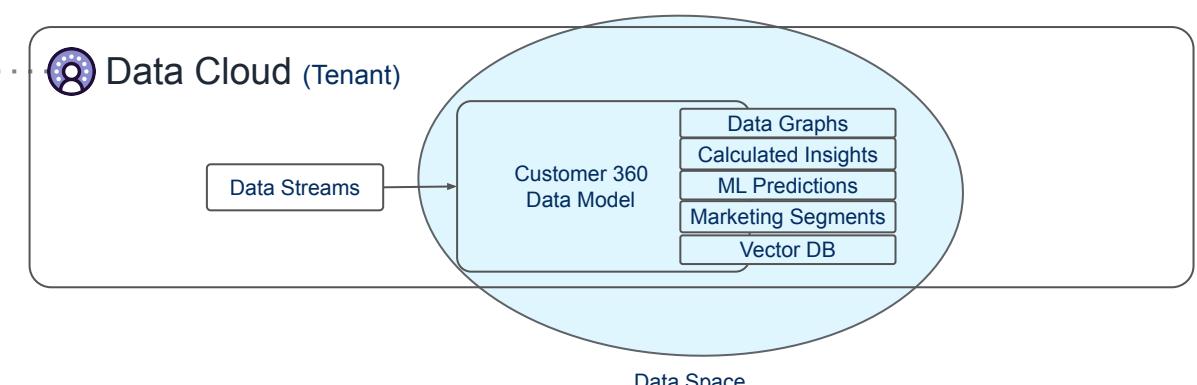
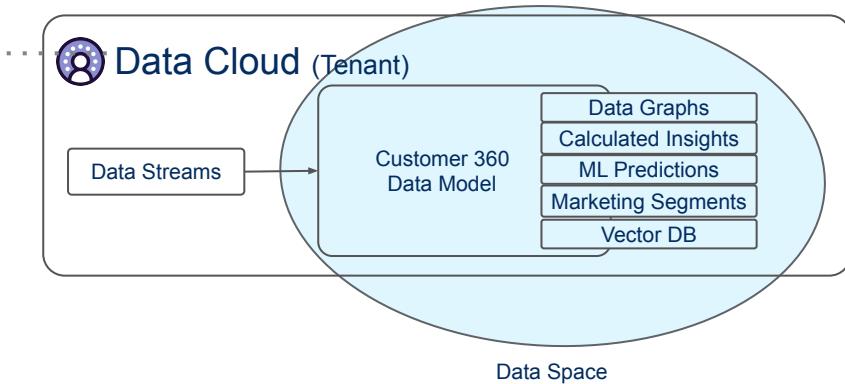
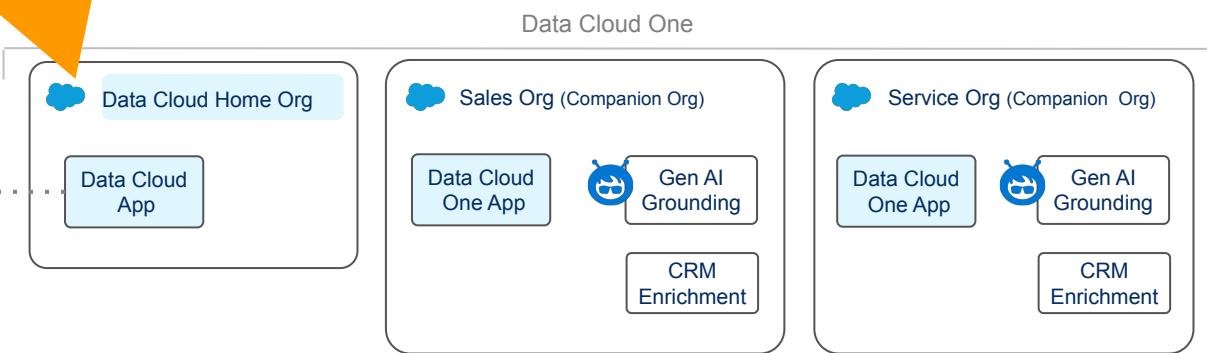
Data Cloud Home in an Existing Org

Data Cloud Admins in the Home Org
own the data model



Data Cloud Home in a Dedicated Org

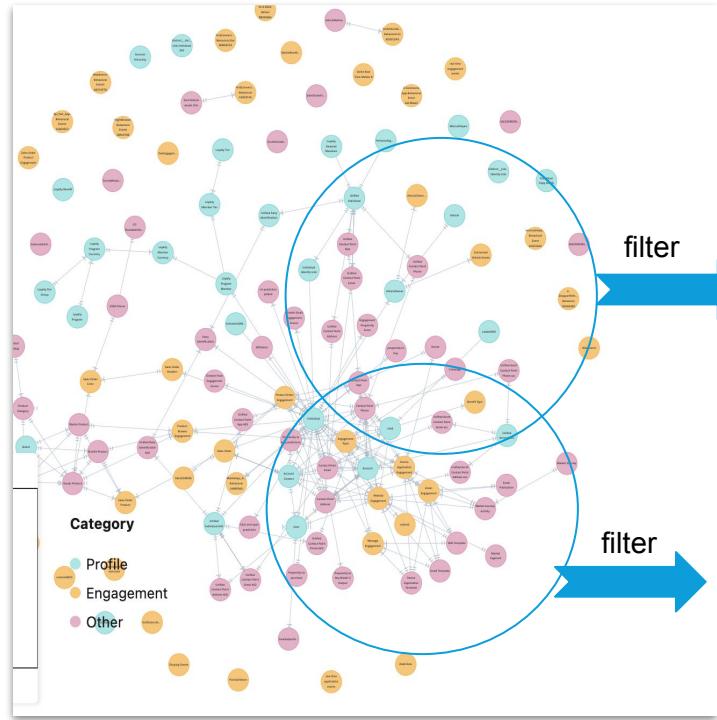
Data Cloud Admins in the Home Org
own the data model



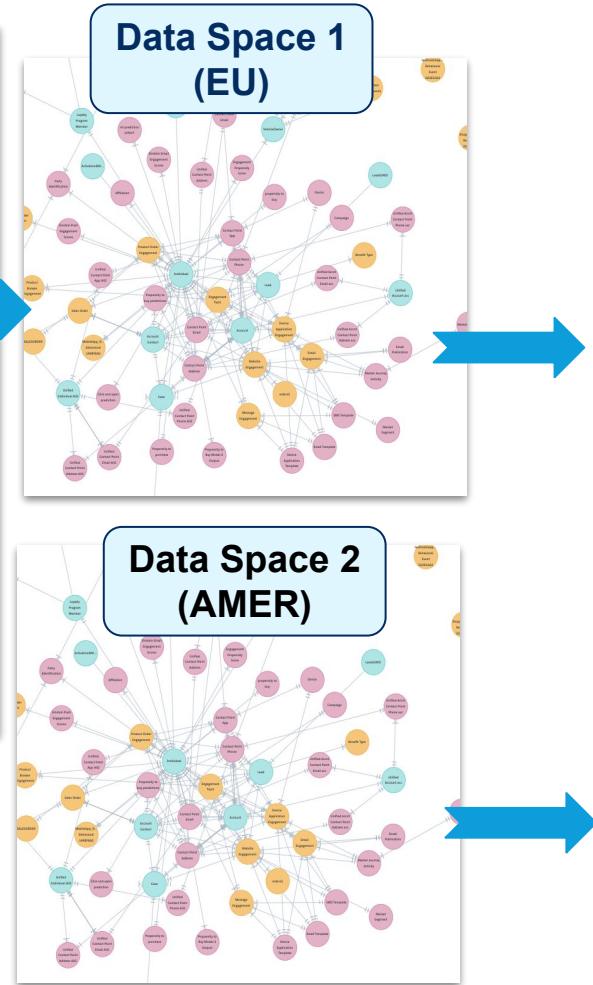
Data Spaces



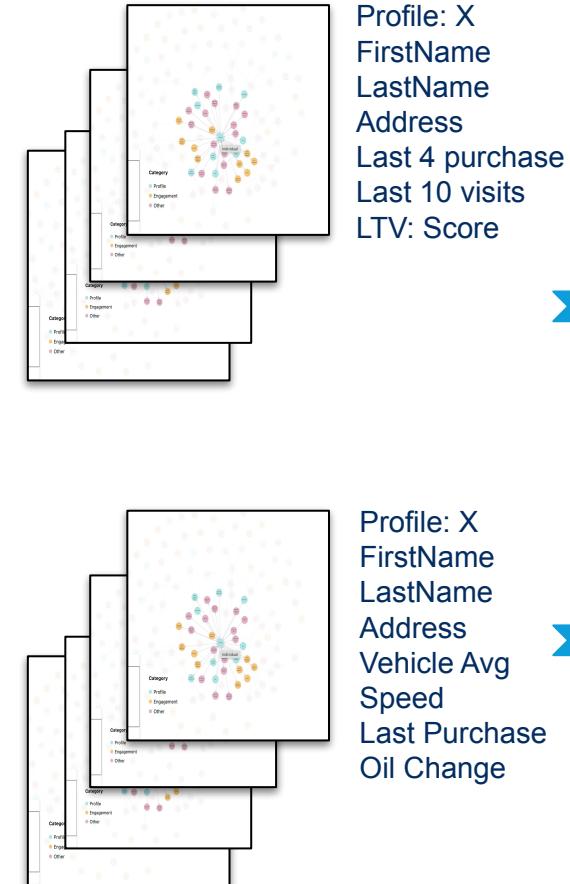
Enterprise Data Model



Organizational Data Models



Unified Profiles / Data Graphs



Apps

Contextual LLM Prompts

Relevant context for applications and agents

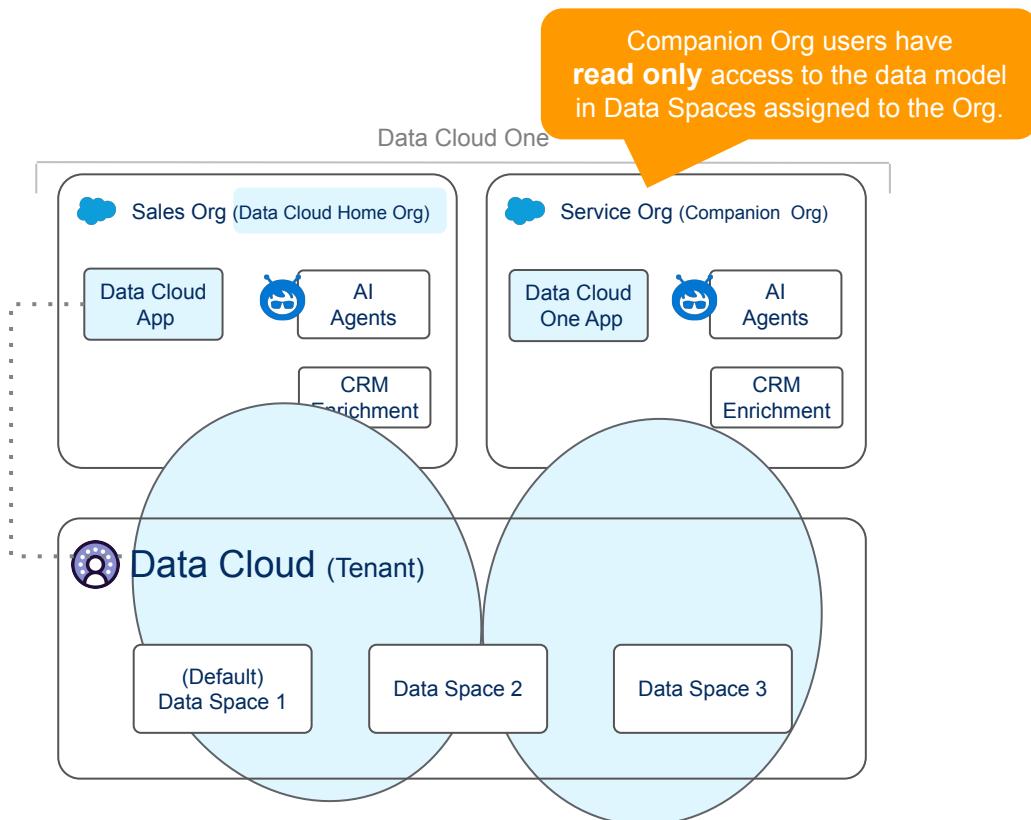


Data Cloud One - Data Spaces

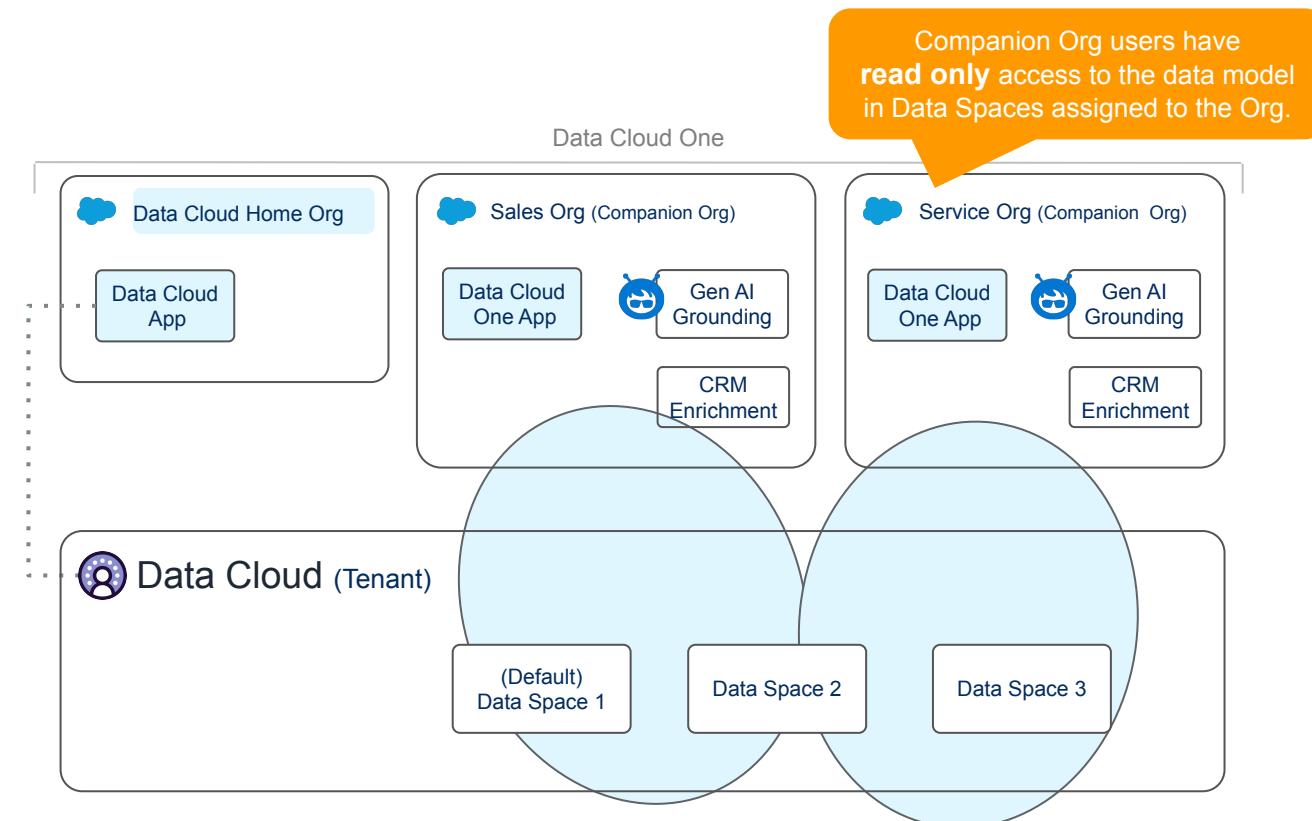


Future releases will allow Companion Org Admins to create some things in Data Spaces
- like Calculated Insights and Segments.

Data Cloud Home in an Existing Org



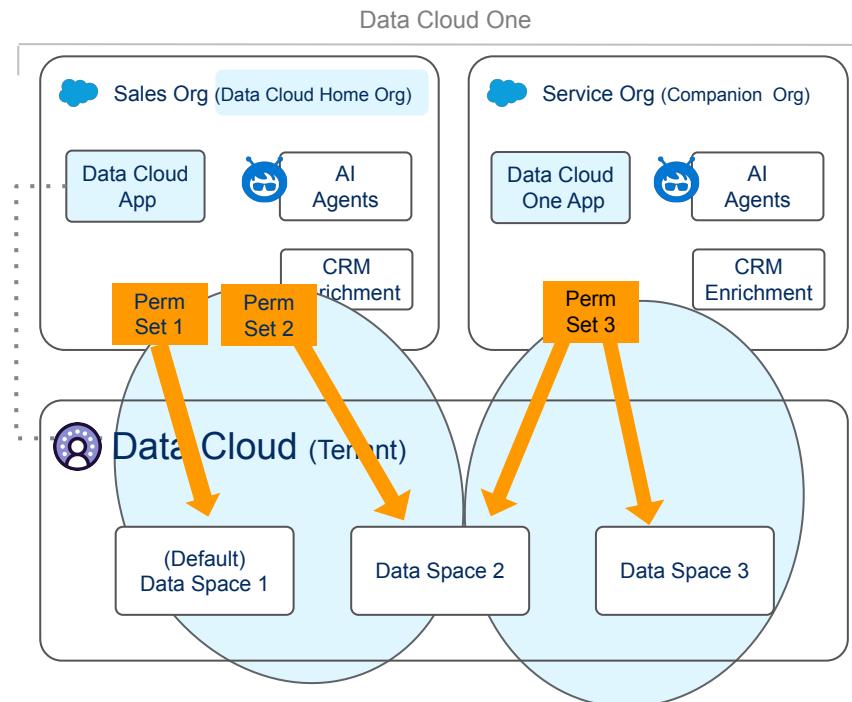
Data Cloud Home in a Dedicated Org



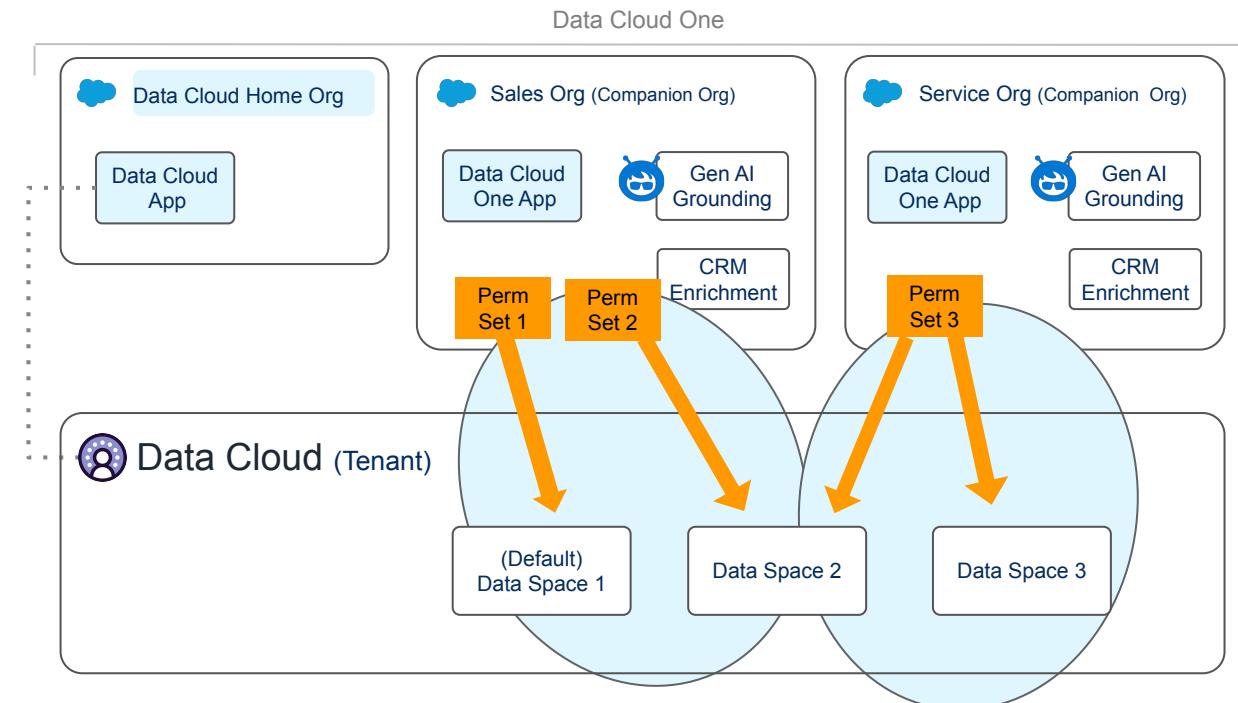
Data Cloud One - User Permissions



Data Cloud Home in an Existing Org

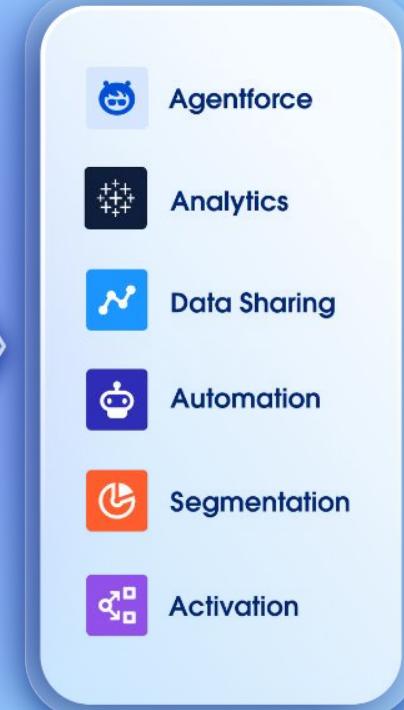


Data Cloud Home in a Dedicated Org

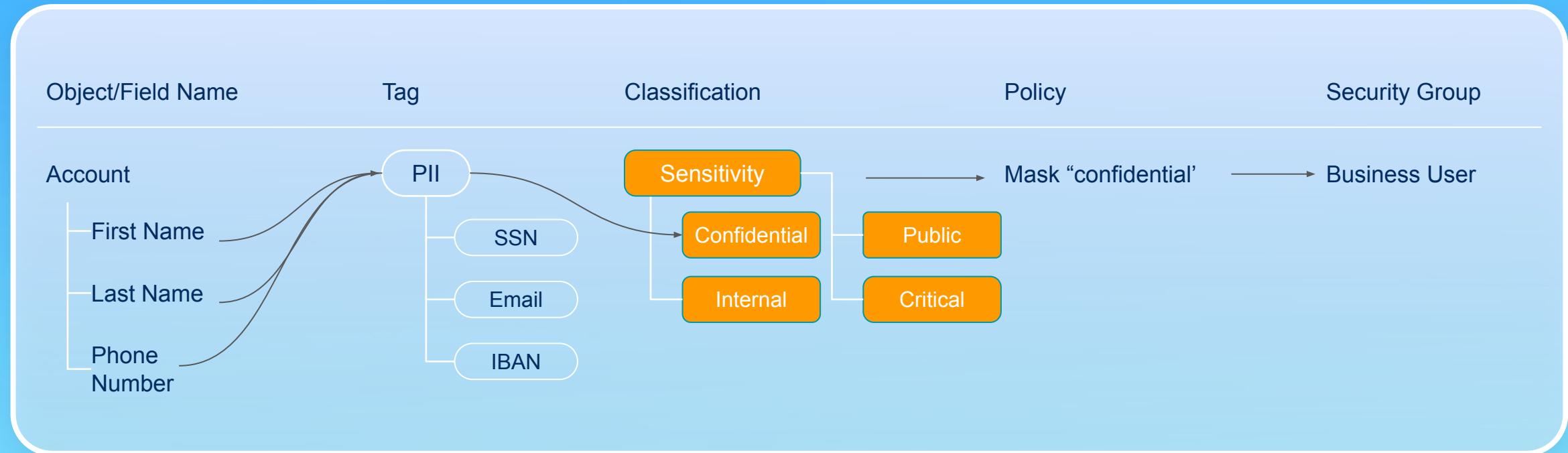


Data Cloud Governance

salesforce



Key Components of AI Tagging and Classification



Security Policy Authoring

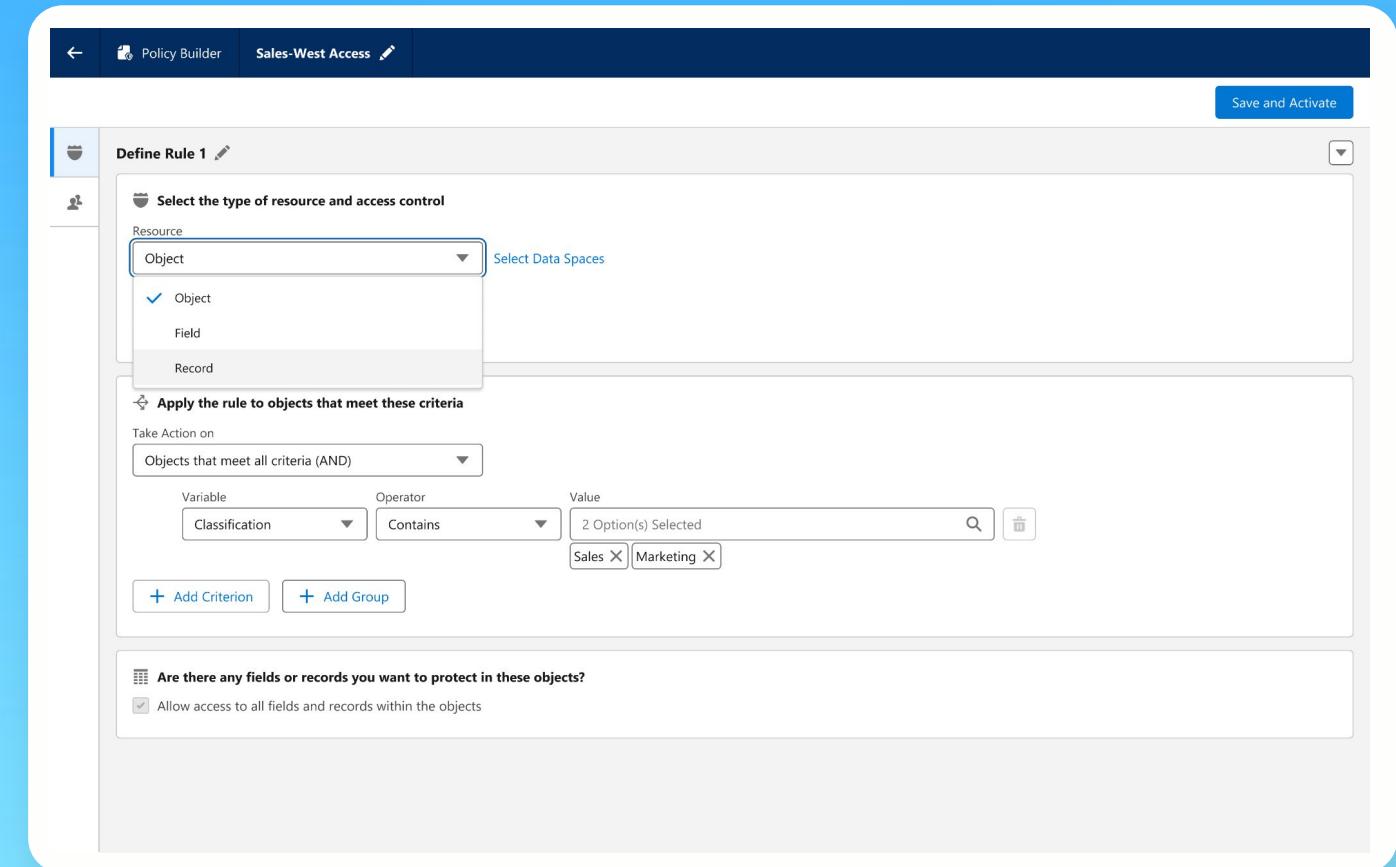
Secure your objects using simple to use and scalable platform

ABAC
(Attribute Based Access Control)

Object Level Policies (OLP)

Field Level Policies (FLS)

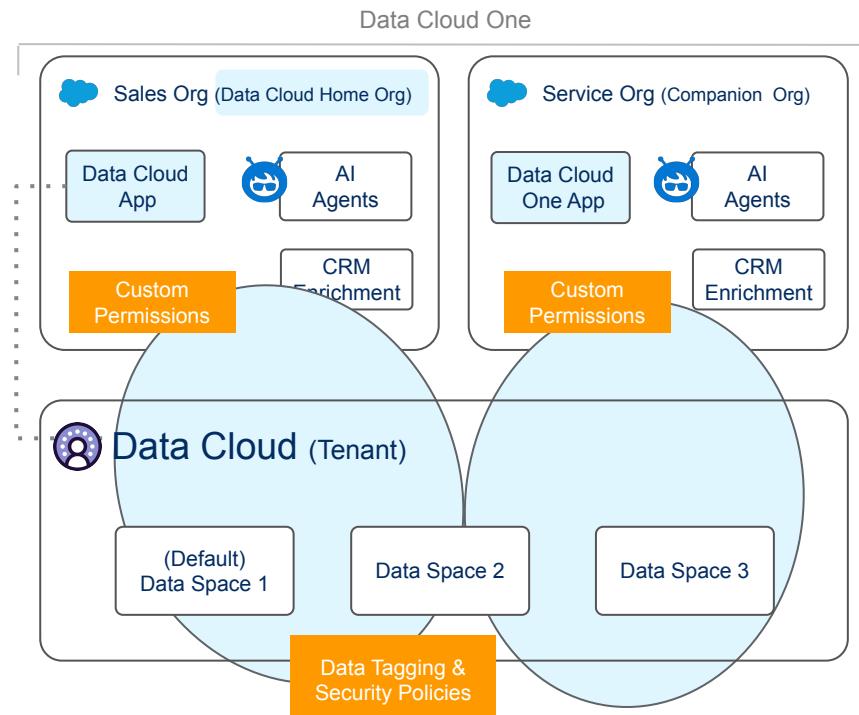
Row Level Policies (RLS)



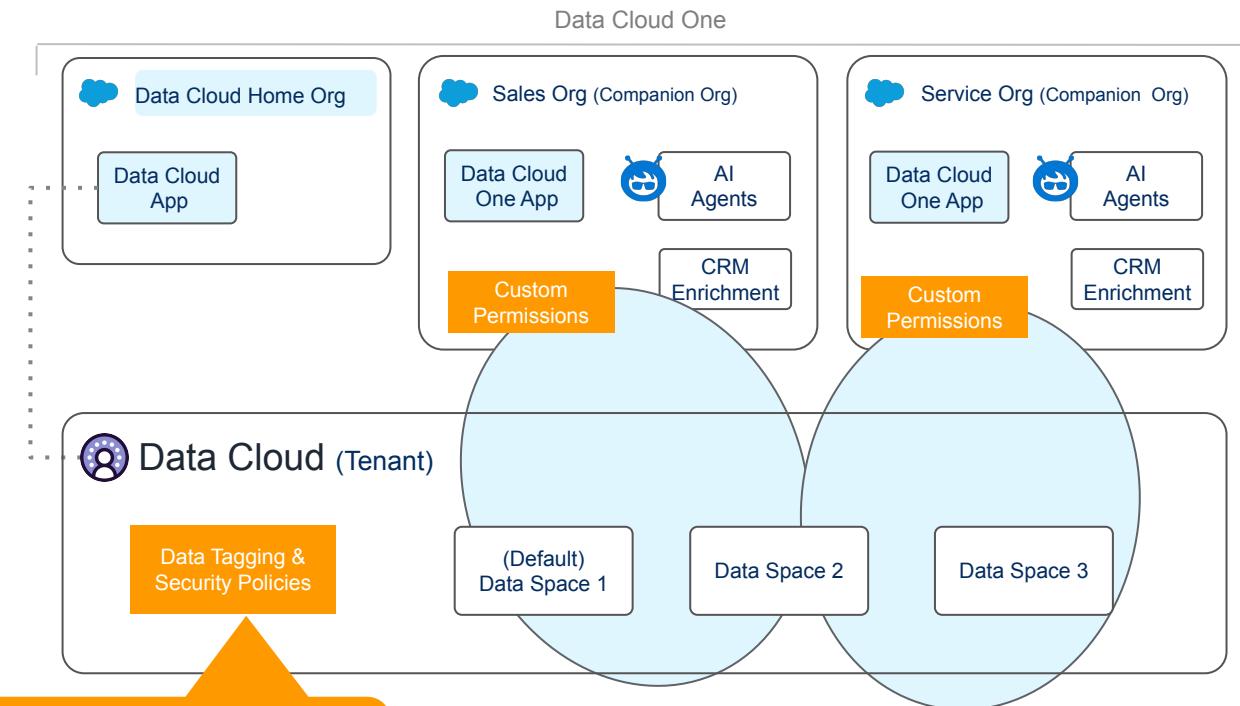
Data Cloud One - Data Tagging & Security Policies



Data Cloud Home in an Existing Org



Data Cloud Home in a Dedicated Org

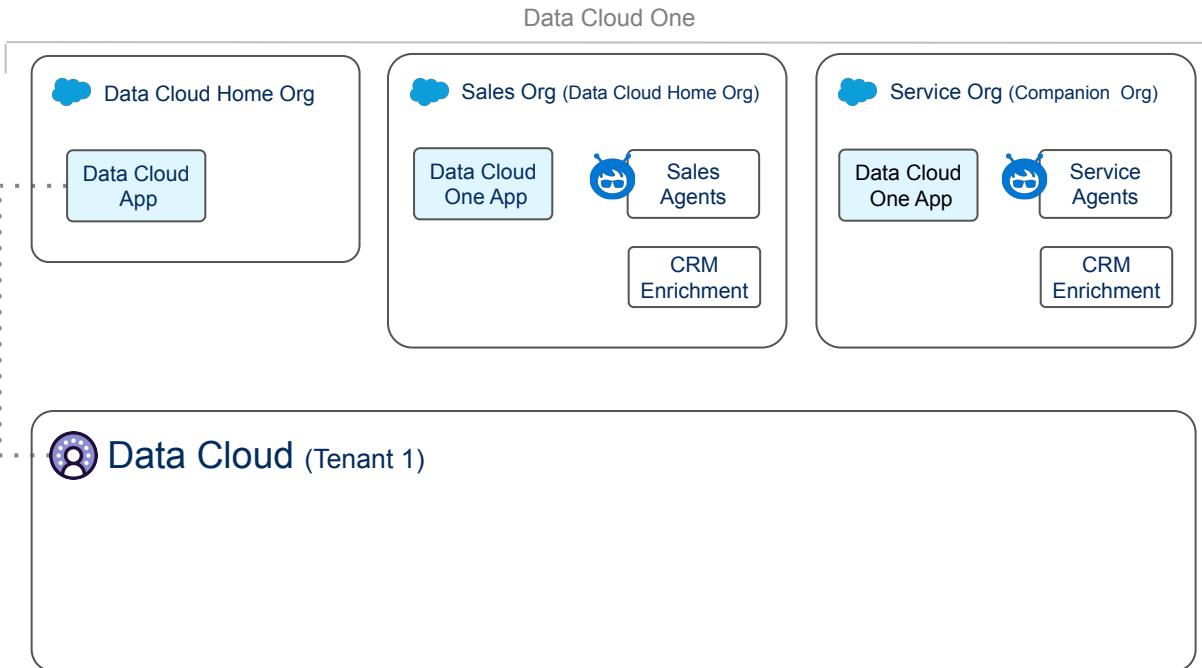


Fine-grained Security Policies
will be authored in the Home Org and
in Companion Orgs

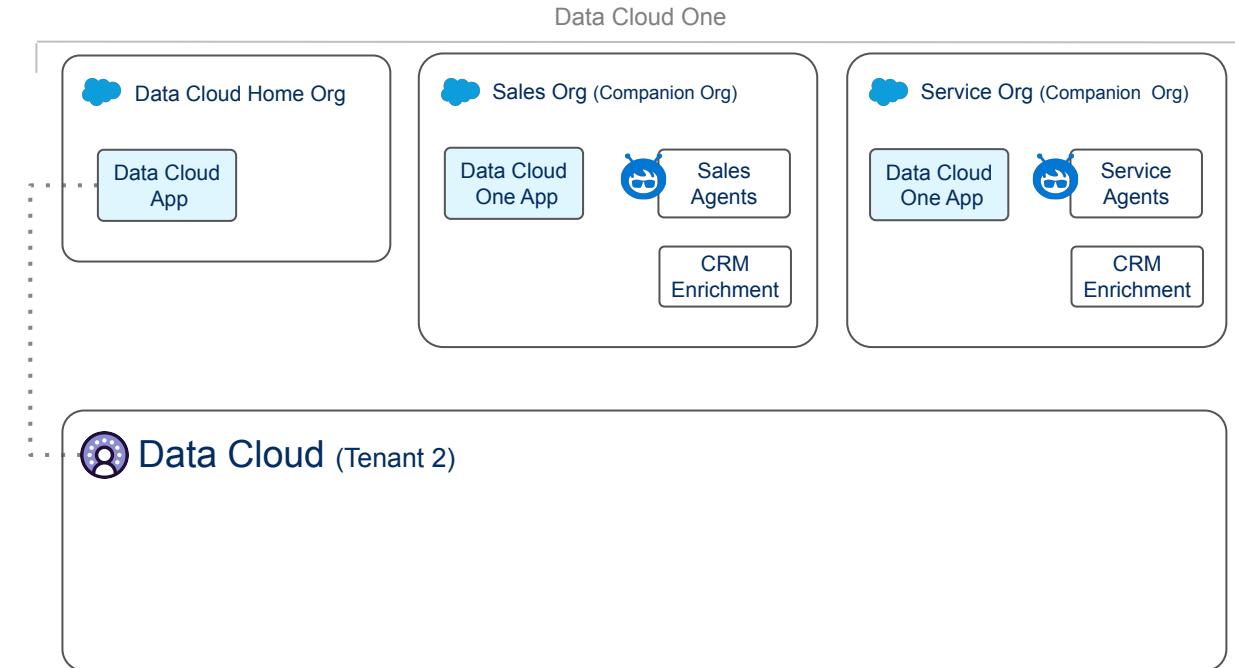
[Customer Example] Separate Data Cloud Environments



Business Unit / Division / Geo 1



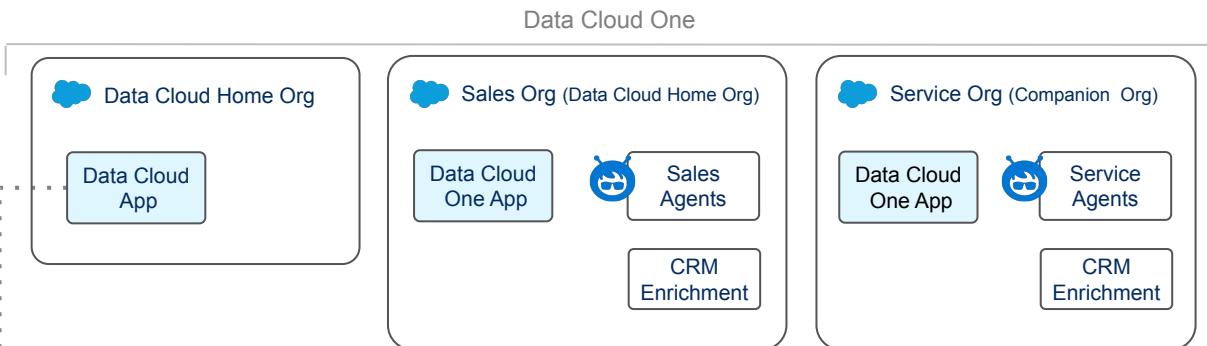
Business Unit / Division / Geo 2



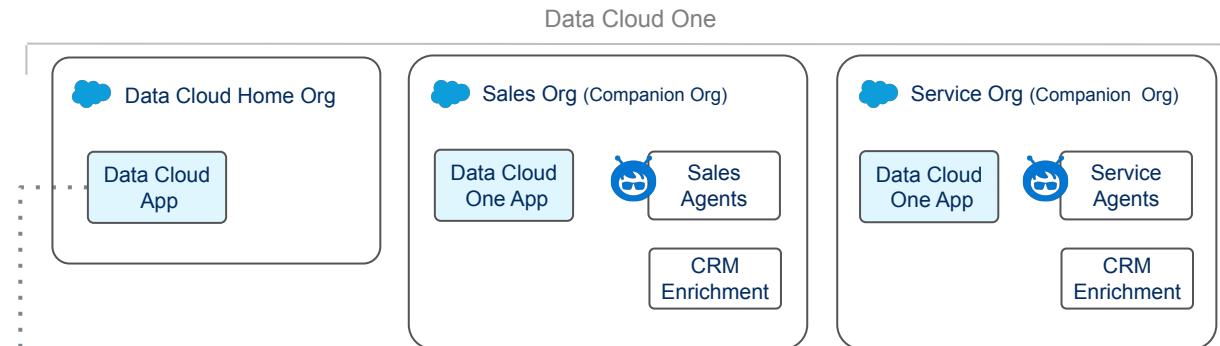
[Customer Example] Separate Data Cloud Environments



Business Unit / Division / Geo 1



Business Unit / Division / Geo 2



Data Cloud (Tenant 1)

us-west-2



Data Cloud (Tenant 2)

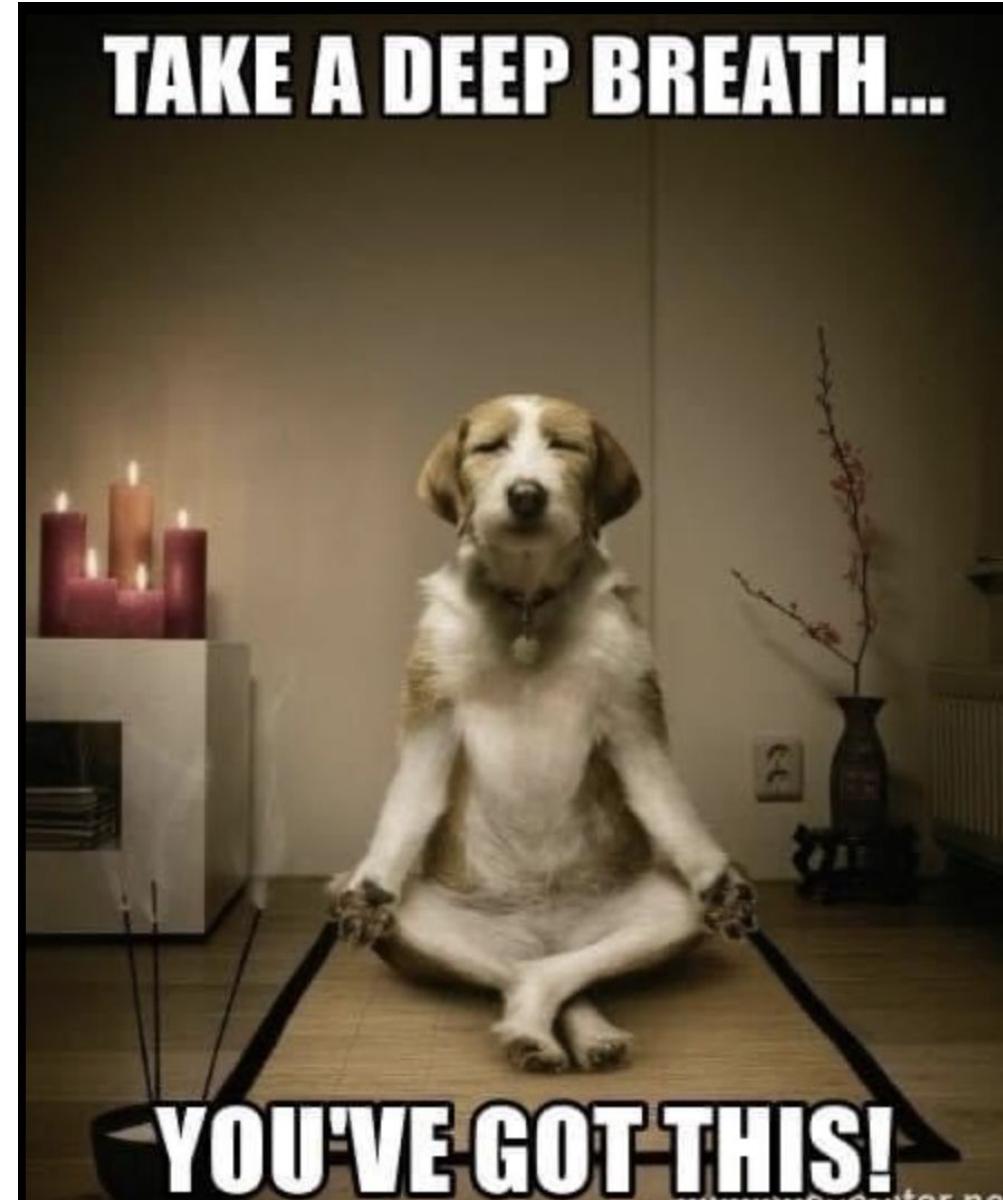
eu-central-1

Data Cloud to Data Cloud Zero Copy Data Sharing

FUTURE

GA: May '25

Data Cloud tenants
can be in different AWS regions
for data residency requirements



Agentforce + Data Cloud architecture

Salesforce Org Strategy with Data Cloud One

DevOps & Deployment Options



Methods for configuring Data Cloud and Agents



Salesforce Admin UI

Salesforce admins use declarative and low-code tools to configure Data Cloud and Agents through the Salesforce UI.

Deploy with Metadata API

```
C360_Data_Cloud_Case_Updated.flow-meta.xml
<?xml version='1.0' encoding='UTF-8'?>
<flow>
    <version>1.0</version>
    <language>en</language>
    <label>Case_Updated</label>
    <location>x176</location>
    <location>x134</location>
    <description>This flow updates Case records when they are created or updated. It uses a loop to update all Case details for each record.</description>
    <assignToReference>
        <operator>Assign</operator>
        <value>
            <string>Record</string>
            <condition>Record created or updated - name = <stringValue></condition>
        </value>
    </assignToReference>
    <assignmentItems>
        <assignmentItem>
            <operator>Assign</operator>
            <value>
                <string>Case</string>
                <targetReference>Case</targetReference>
            </value>
        </assignmentItem>
    </assignmentItems>
    <actions>
        <action>
            <operator>Assign</operator>
            <value>
                <string>Case</string>
                <targetReference>Case</targetReference>
            </value>
        </action>
    </actions>
</flow>
```

Supported Data Cloud Feature Metadata can be retrieved and deployed using the Salesforce Metadata API.

The Metadata API supports Agentforce components.

Deploy with Packaging

Count	Metadata Package ID	Versions	Subscribers
26	B0fPerMan-2G	2GPM Versions	B0fPerMan-2G Subscribers
7	2GPM	2GPM Versions	2GPM Subscribers
1	Old 2GPM	Old 2GPM Versions	Old 2GPM Subscribers

Count	Metadata Package ID	Subscriber Org Status (Active or Inactive)	Subscriber Org Type (Production or Sandbox)
212	B0fPerMan-2G	Demo	Sandbox
48	B0fPerMan-2G	Active	Production
33	B0fPerMan-2G	Free	Production
5	2GPM	Free	Production
1	2GPM	Trial	Production
1	Old 2GPM	Free	Production
1	2GPM	Trial	Sandbox

Supported Data Cloud Features can be deployed using Data Kits within Change Sets or Salesforce Packaging.

Agentforce components are supported in Change Sets and Packaging.

Data Cloud Sandbox

DevOps Pipeline w/ Data Cloud Sandboxes

Single Org, **First** Data Cloud Implementation



2 Salesforce Sandbox Org created

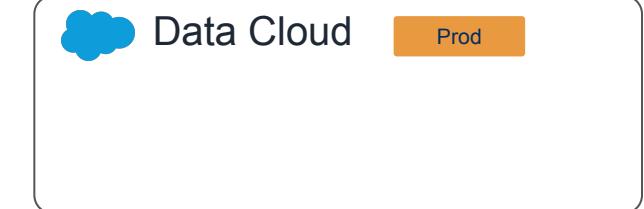
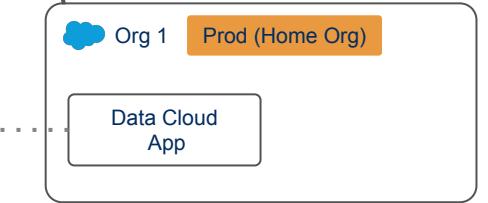
→ all sandbox types supported
(Dev, Dev Pro, Partial Copy, Full Copy)

1 Create Sandbox

Data Cloud “DEV”



Data Cloud “PROD”



Data Cloud Sandbox

DevOps Pipeline w/ Data Cloud Sandboxes

Single Org, **First** Data Cloud Implementation



2 Salesforce Sandbox Org created

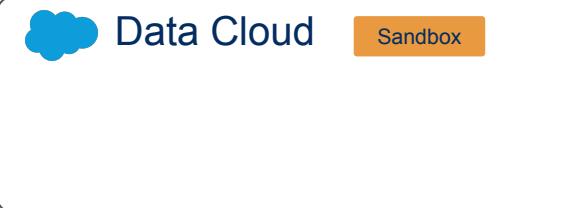
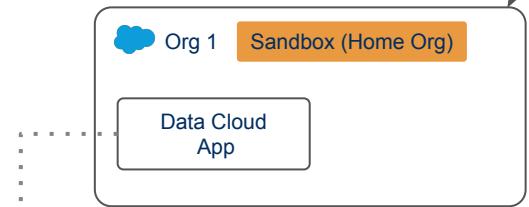
- all sandbox types supported
(Dev, Dev Pro, Partial Copy, Full Copy)

3 Data Cloud Sandbox tenant created

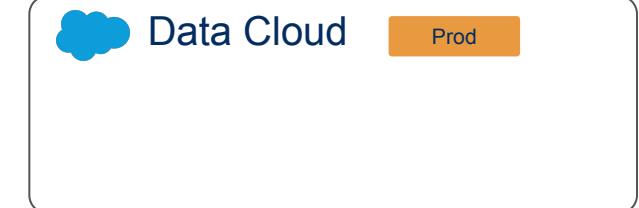
- Data Cloud Sandbox tenant is auto-created with the core sandbox

1 Create Sandbox

Data Cloud “DEV”



Data Cloud “PROD”



Data Cloud Sandbox

DevOps Pipeline w/ Data Cloud Sandboxes

Single Org, **First** Data Cloud Implementation



2 Salesforce Sandbox Org created

- all sandbox types supported
(Dev, Dev Pro, Partial Copy, Full Copy)

3 Data Cloud Sandbox tenant created

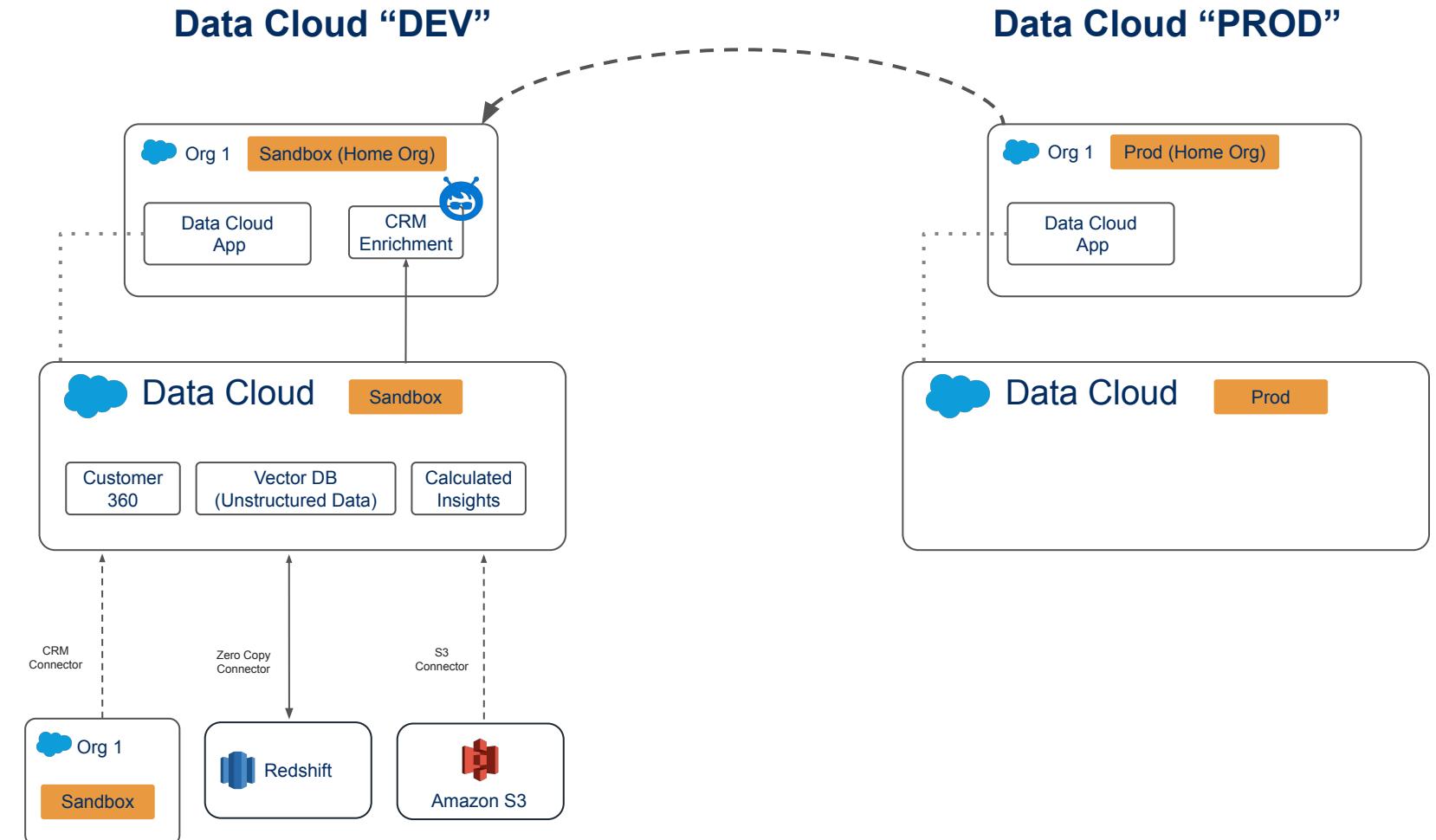
- Data Cloud Sandbox tenant is auto-created with the core sandbox

4 Build

- Data Cloud Config
- Core Org Config



1 Create Sandbox



Data Cloud Sandbox

DevOps Pipeline w/ Data Cloud Sandboxes



Single Org, **First** Data Cloud Implementation

2 Salesforce Sandbox Org created

- all sandbox types supported
(Dev, Dev Pro, Partial Copy, Full Copy)

3 Data Cloud Sandbox tenant created

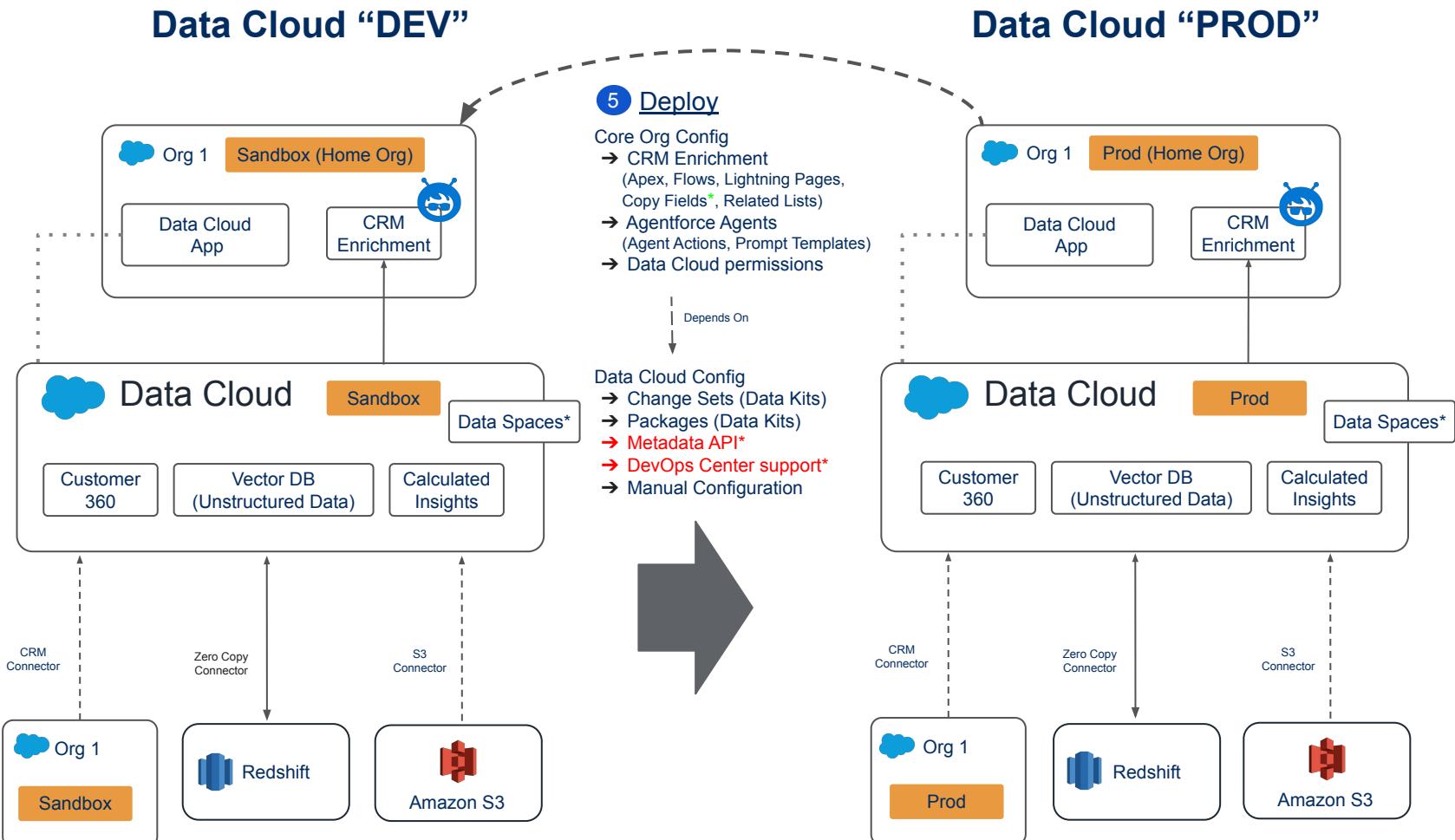
- Data Cloud Sandbox tenant is auto-created with the core sandbox

4 Build

- Data Cloud Config
- Core Org Config

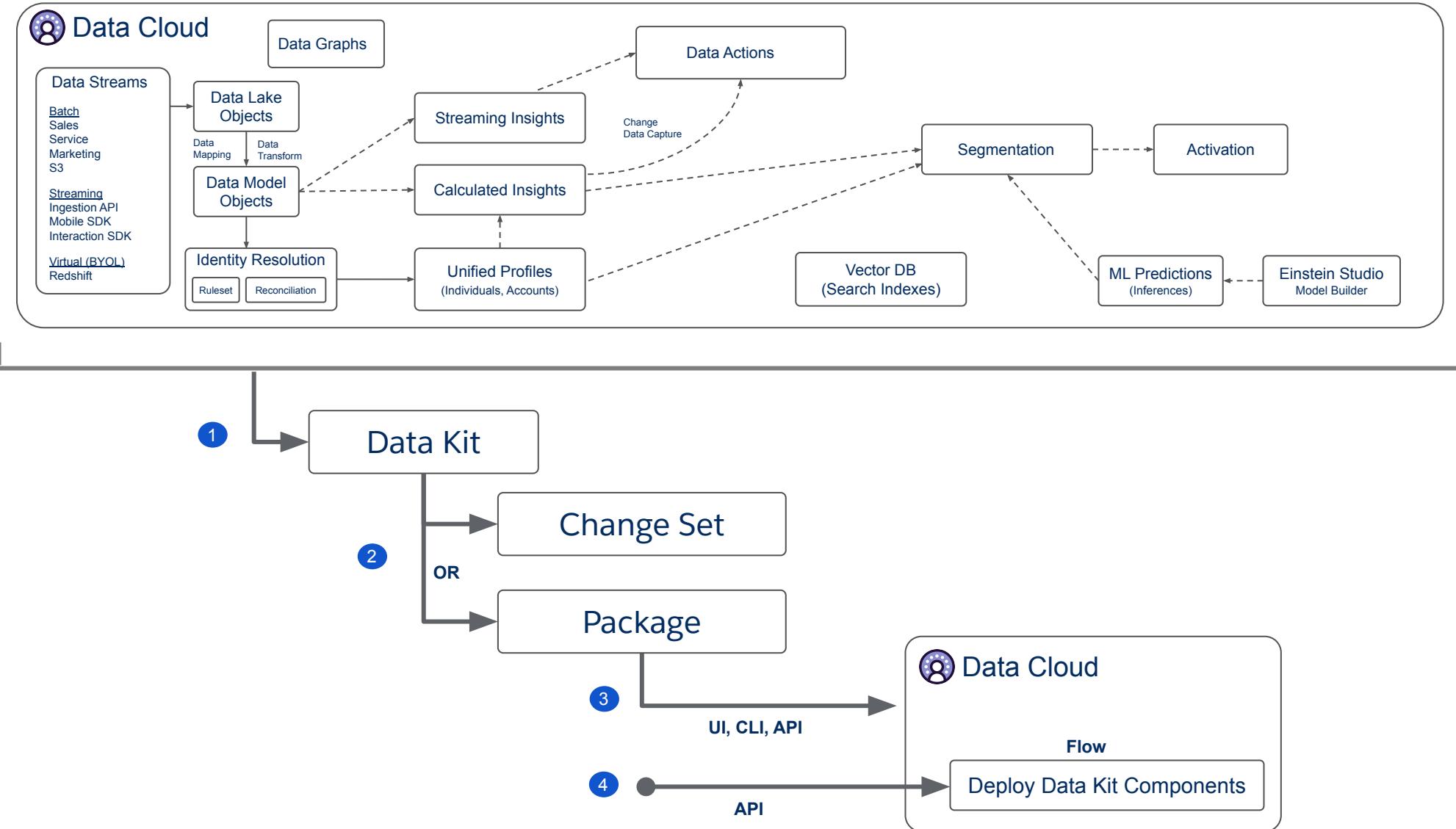


1 Create Sandbox



*Future - more mature API support for Data Cloud config is on the roadmap
*Packaging and Metadata API support for Data Cloud Copy Fields and Related Lists are roadmap items (Safe Harbor)
*Data Spaces have to be configured in Prod before deploying the data model that relies on them into Prod

Data Kit Deployment Process

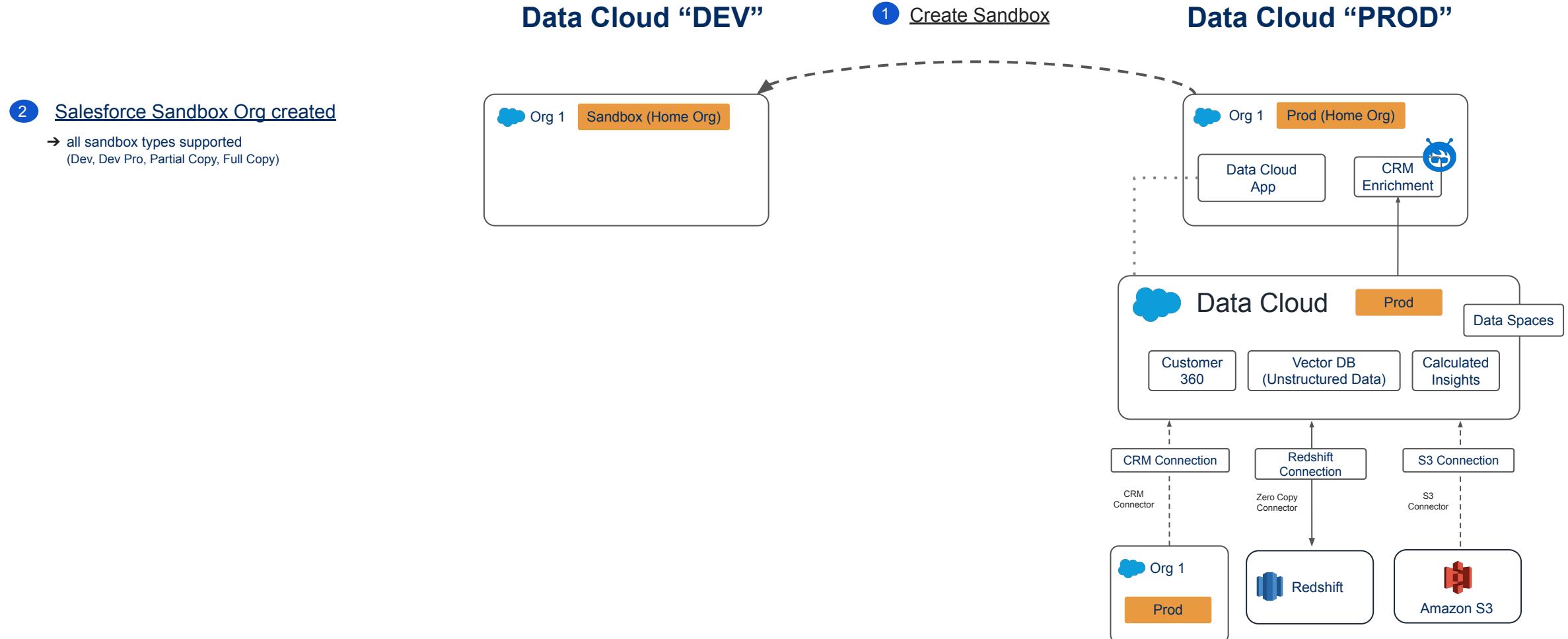


Data Cloud Sandbox

DevOps Pipeline w/ Data Cloud Sandboxes



Single Org, **Existing** Data Cloud Implementation

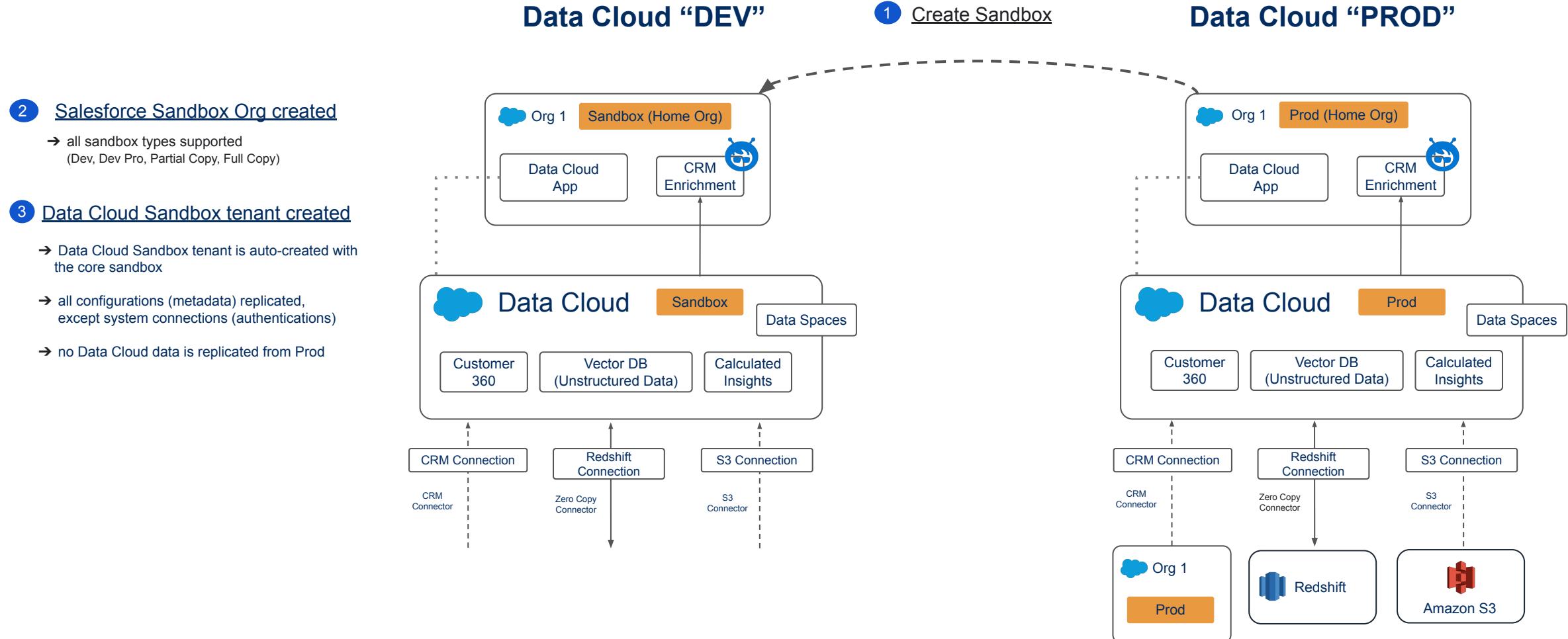


Data Cloud Sandbox

DevOps Pipeline w/ Data Cloud Sandboxes



Single Org, **Existing** Data Cloud Implementation



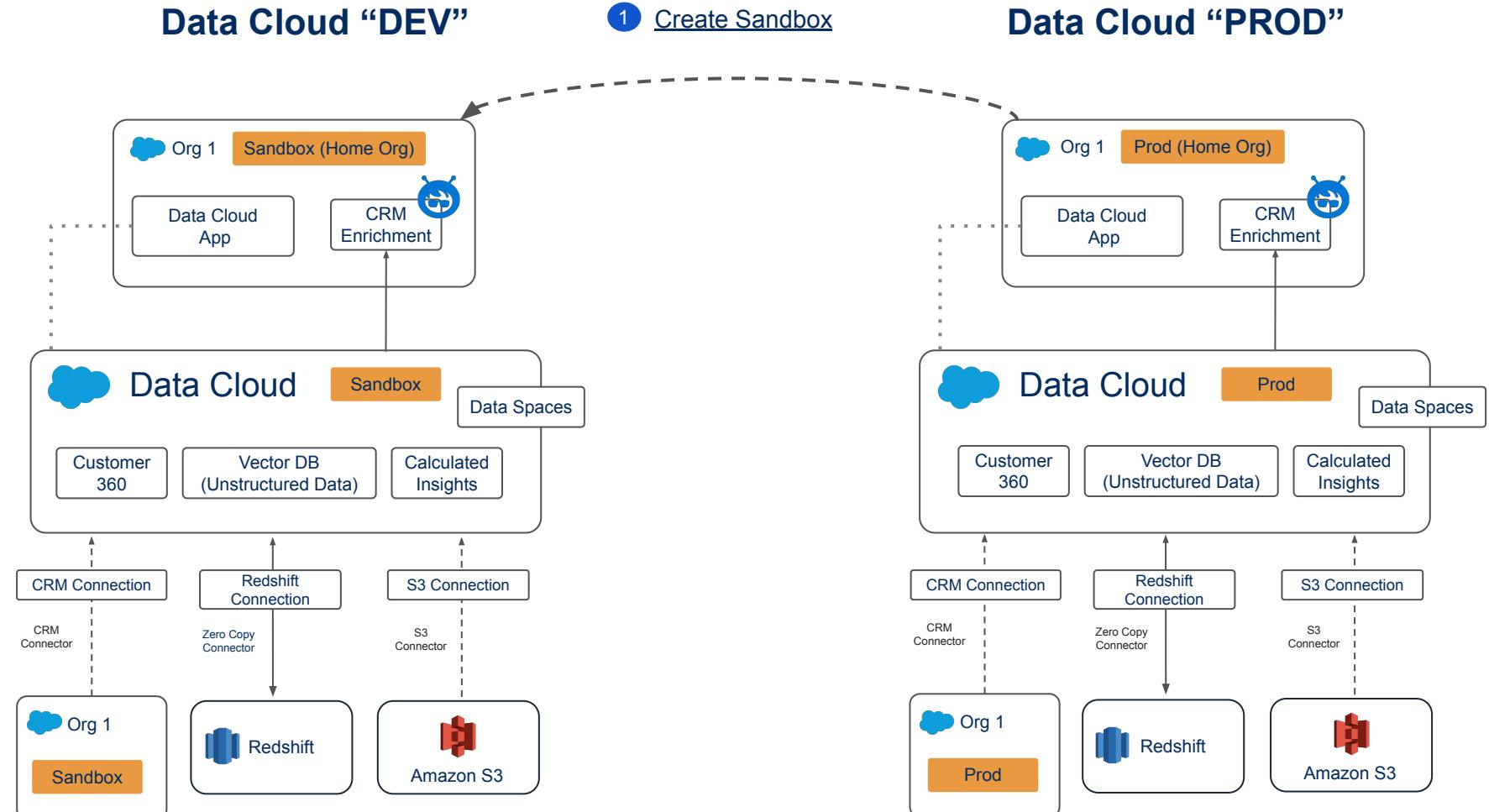
Data Cloud Sandbox

DevOps Pipeline w/ Data Cloud Sandboxes

Single Org, **Existing** Data Cloud Implementation



- 1 [Create Sandbox](#)
- 2 [Salesforce Sandbox Org created](#)
 - all sandbox types supported
(Dev, Dev Pro, Partial Copy, Full Copy)
- 3 [Data Cloud Sandbox tenant created](#)
 - Data Cloud Sandbox tenant is auto-created with the core sandbox
 - all configurations (metadata) replicated, except system connections (authentications)
 - no Data Cloud data is replicated from Prod
- 4 [Reconfigure existing connections →
so Data Streams can ingest data
\(or connect for zero-copy integrations\)](#)



Data Cloud Sandbox

DevOps Pipeline w/ Data Cloud Sandboxes



Single Org, **Existing** Data Cloud Implementation

2 Salesforce Sandbox Org created

- all sandbox types supported
(Dev, Dev Pro, Partial Copy, Full Copy)

3 Data Cloud Sandbox tenant created

- Data Cloud Sandbox tenant is auto-created with the core sandbox
- all configurations (metadata) replicated, except system connections (authentications)
- no Data Cloud data is replicated from Prod

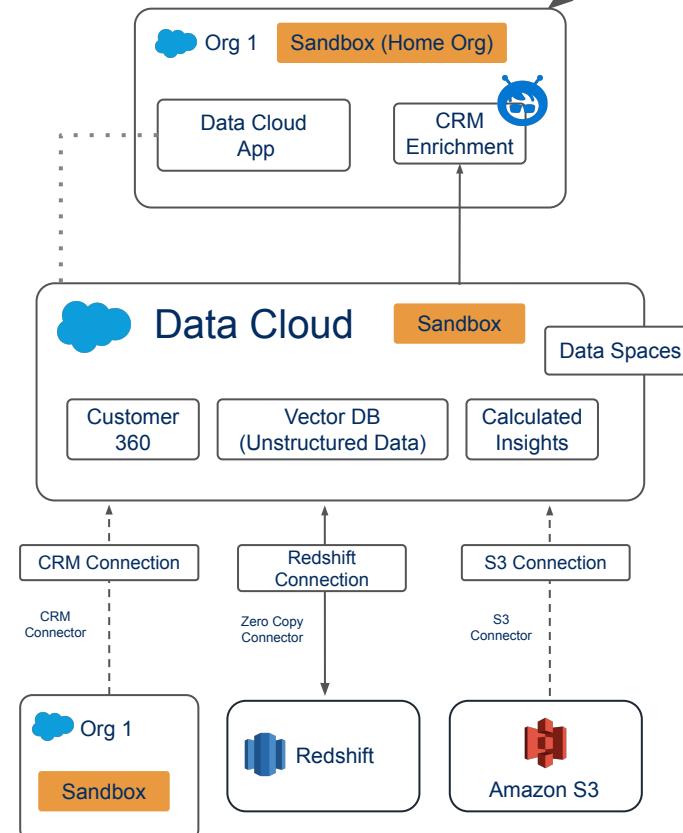
4 Reconfigure existing connections →
so Data Streams can ingest data
(or connect for zero-copy
integrations)

5 Build

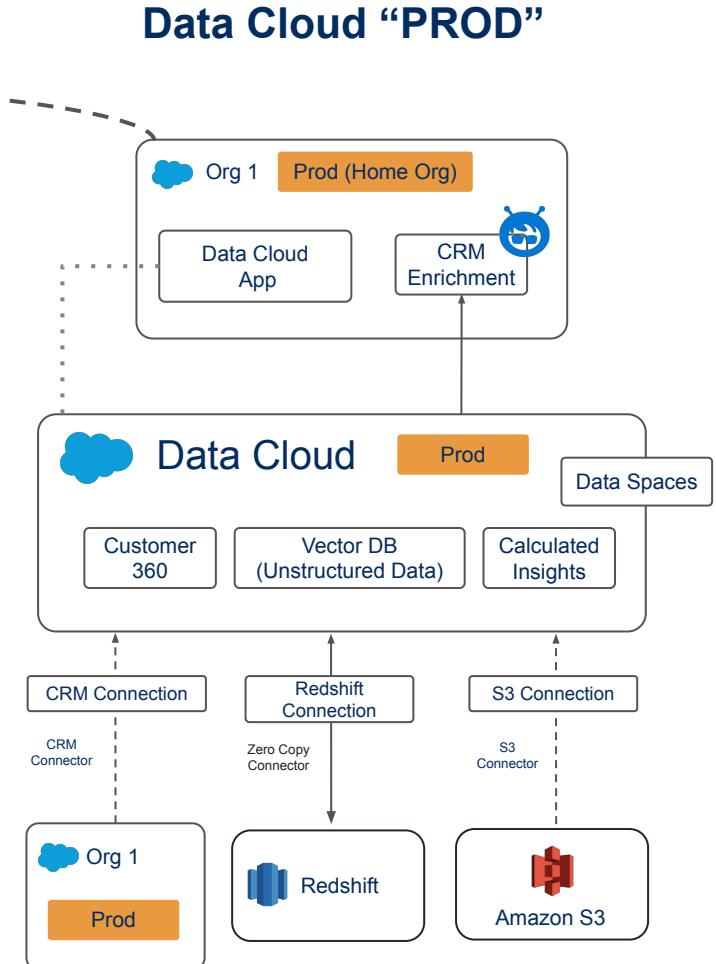
- Data Cloud Config
- Core Org Config

Data Cloud "DEV"

1 Create Sandbox



Data Cloud "PROD"



Data Cloud Sandbox

DevOps Pipeline w/ Data Cloud Sandboxes



Single Org, **Existing** Data Cloud Implementation

2 Salesforce Sandbox Org created

- all sandbox types supported
(Dev, Dev Pro, Partial Copy, Full Copy)

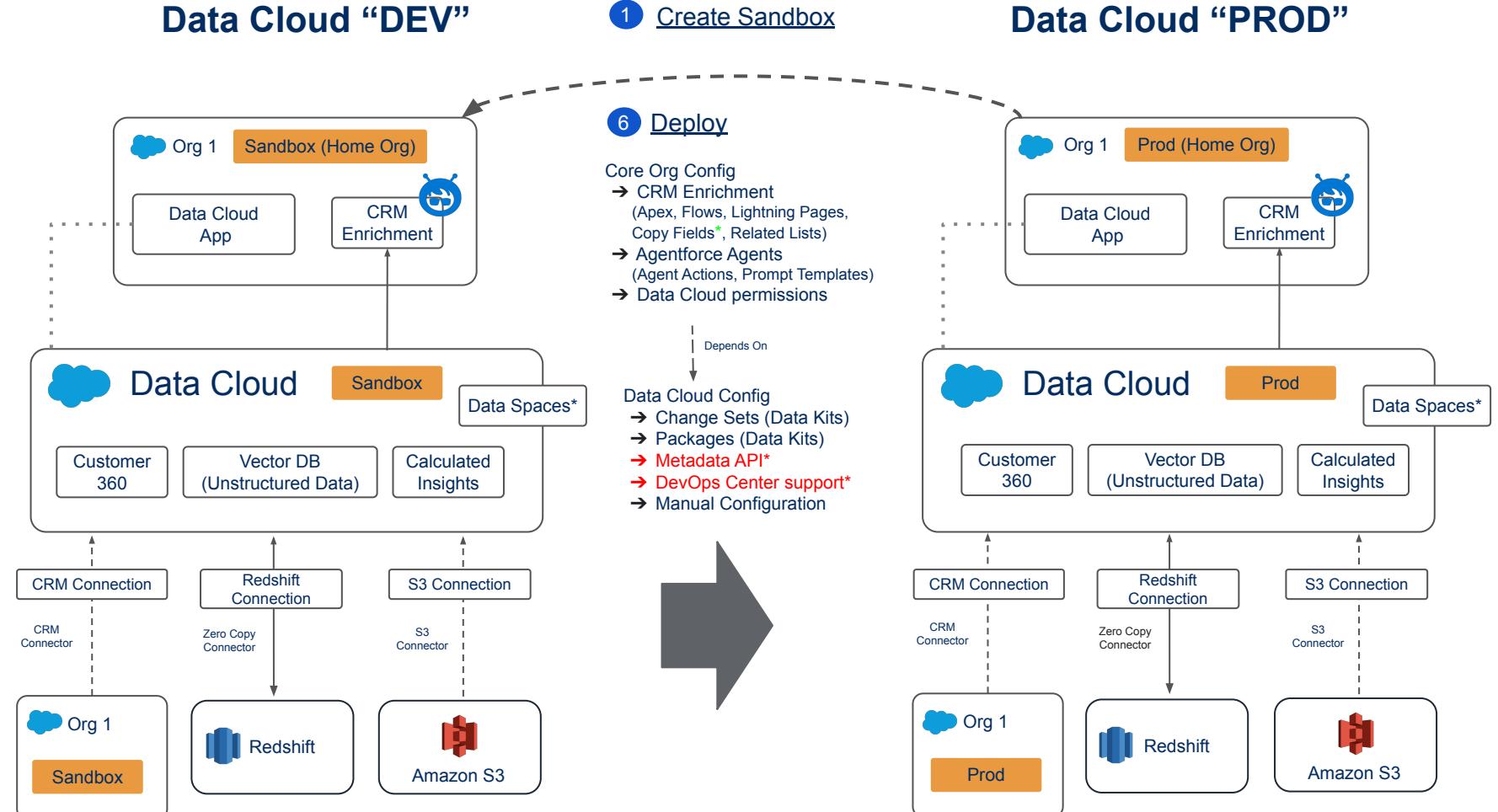
3 Data Cloud Sandbox tenant created

- Data Cloud Sandbox tenant is auto-created with the core sandbox
- all configurations (metadata) replicated, except system connections (authentications)
- no Data Cloud data is replicated from Prod

4 Reconfigure existing connections → so Data Streams can ingest data (or connect for zero-copy integrations)

5 Build

- Data Cloud Config
- Core Org Config



**Future - more mature API support for Data Cloud config is on the roadmap

*Packaging and Metadata API support for Data Cloud Copy Fields and Related Lists are roadmap items (Safe Harbor)

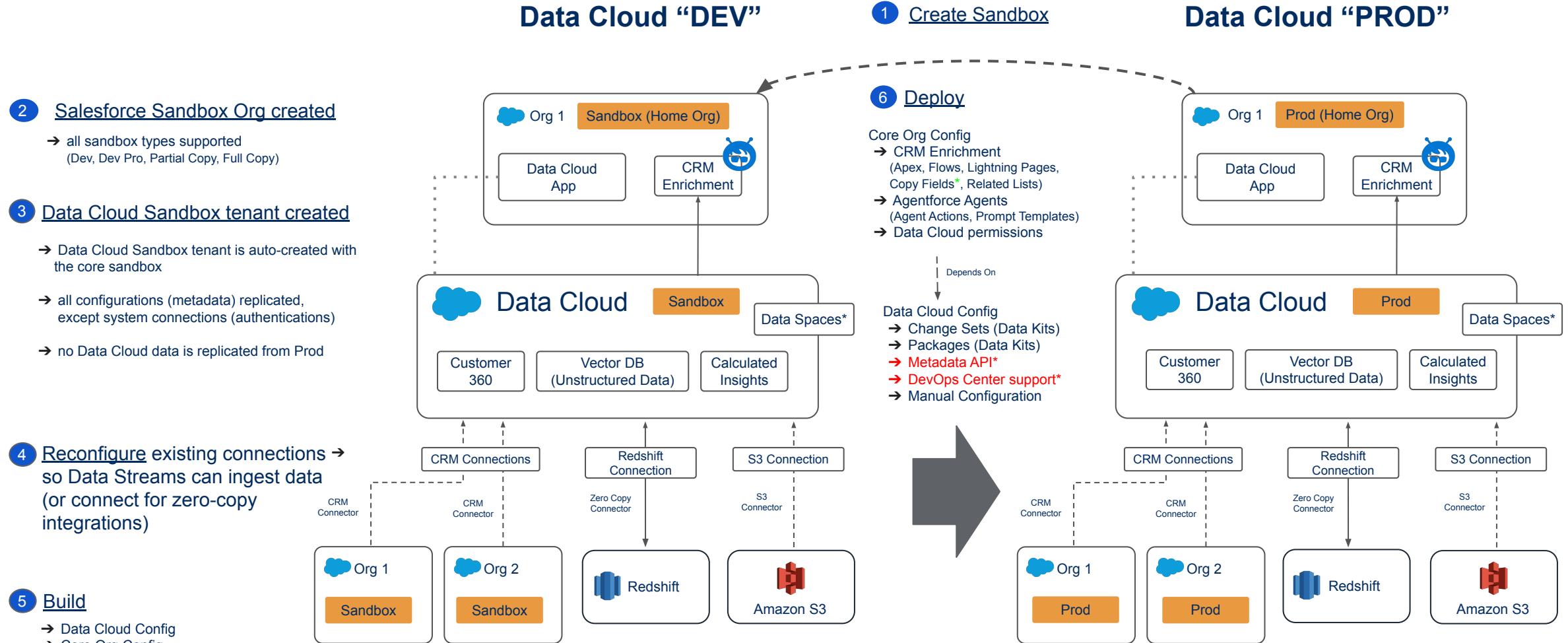
*Data Spaces have to be configured in Prod before deploying the data model that relies on them into Prod

Data Cloud Sandbox

DevOps Pipeline w/ Data Cloud Sandboxes



Multiple Orgs, **Existing** Data Cloud Implementation



*Future - more mature API support for Data Cloud config is on the roadmap

*Packaging and Metadata API support for Data Cloud Copy Fields and Related Lists are roadmap items (Safe Harbor)

*Data Spaces have to be configured in Prod before deploying the data model that relies on them into Prod

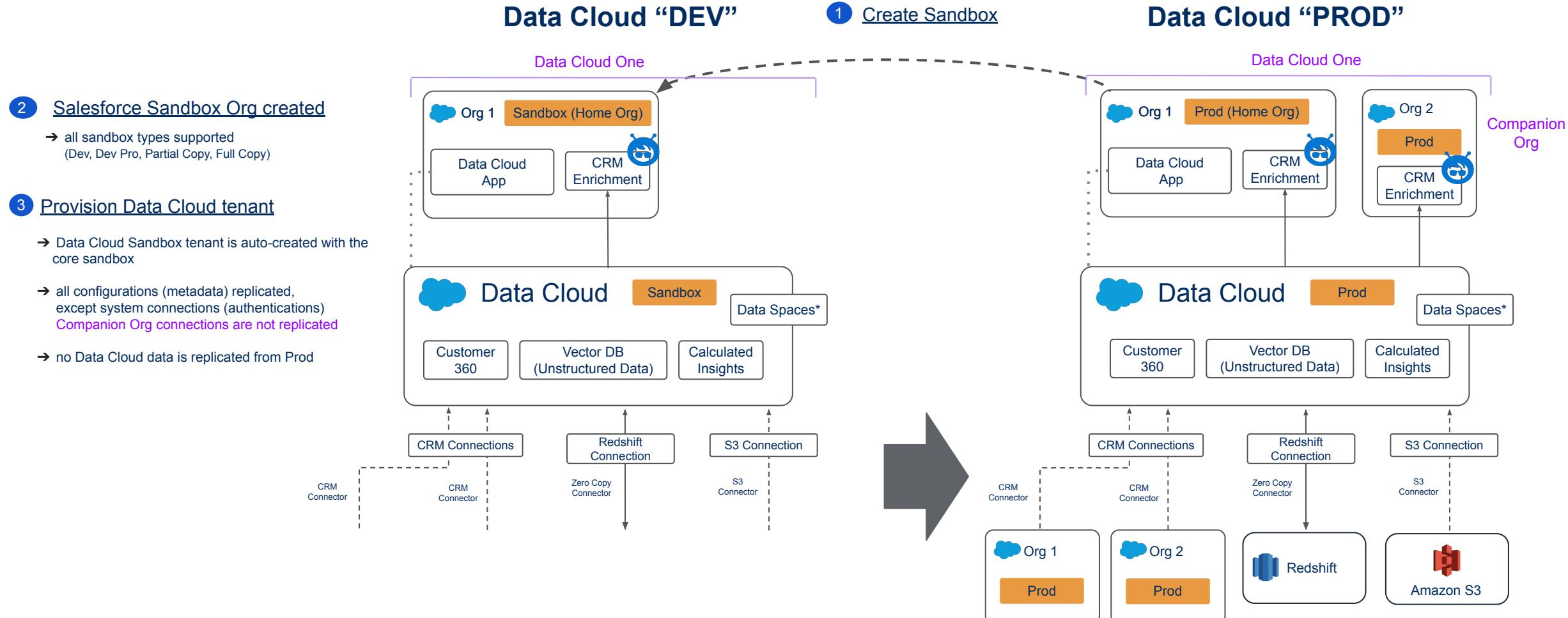
Data Cloud Sandbox

DevOps Pipeline w/ Data Cloud Sandboxes

Multiple Orgs, **Existing** Data Cloud Implementation



How does Data Cloud One work with Sandboxes?



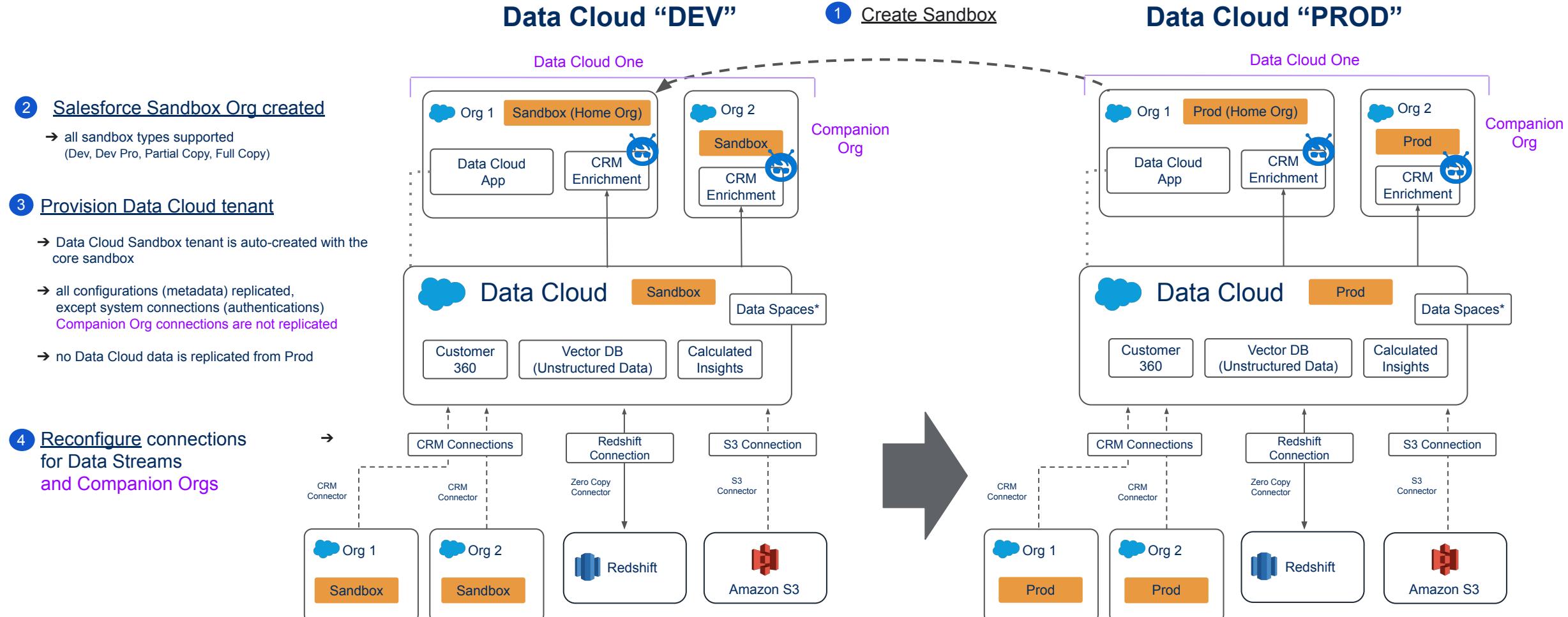
Data Cloud Sandbox

DevOps Pipeline w/ Data Cloud Sandboxes



Multiple Orgs, Existing Data Cloud Implementation

How does Data Cloud One work with Sandboxes?



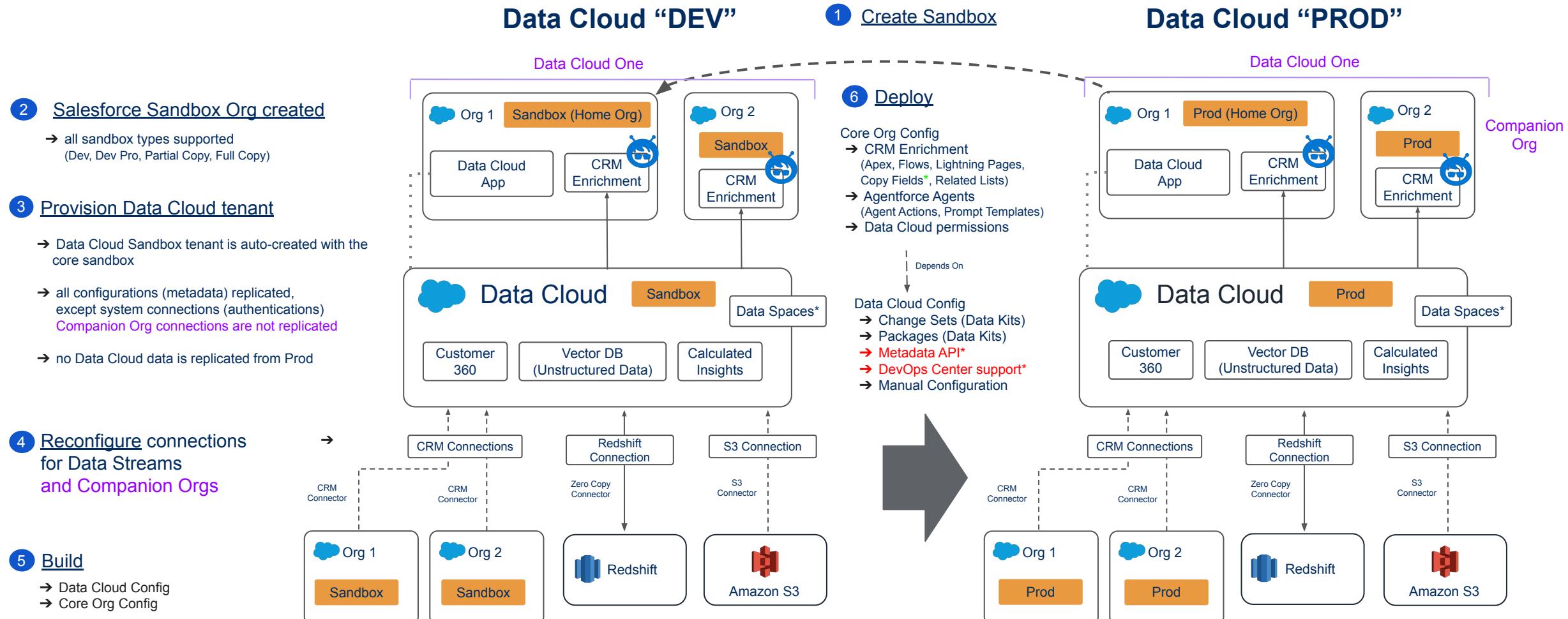
Data Cloud Sandbox

DevOps Pipeline w/ Data Cloud Sandboxes



Multiple Orgs, Existing Data Cloud Implementation

How does Data Cloud One work with Sandboxes?



*Future - more mature API support for Data Cloud config is on the roadmap

*Packaging and Metadata API support for Data Cloud Copy Fields and Related Lists are roadmap items (Safe Harbor)

*Data Spaces have to be configured in Prod before deploying the data model that relies on them into Prod

DevOps Dreamin'

Thank you!

Contact details:

ryan.cox@salesforce.com

Sponsored by  **Gearset**

