



Introduction to Salesforce and Approach to a Transformation Design

Danilo Pedè

Director, Technology Consulting





salesforce

THANK

You

Trail blazer

Trail blazer

Trail blazer

blazer

Trail blazer

Trail blazer

Trail blazer

Trail blazer

Today's goals



Get to know Salesforce

What do we do? Why?
Technology advantage



Professional opportunity

One of the most in demand
skills in the IT industry



Transformation Architecture

A sneak peek into Salesforce
approach to Technical Architecture

Agenda

What is Salesforce?

The Salesforce Customer 360 Platform

How do we Design a Transformation Project?

Actors, Devices, Locations

Org Strategy

System Landscape

Data Model & Data Architecture

Integration

Identity Management

Development Lifecycle

Governance

Wrap it up - Be a Trailblazer



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Data Model & Data Architecture

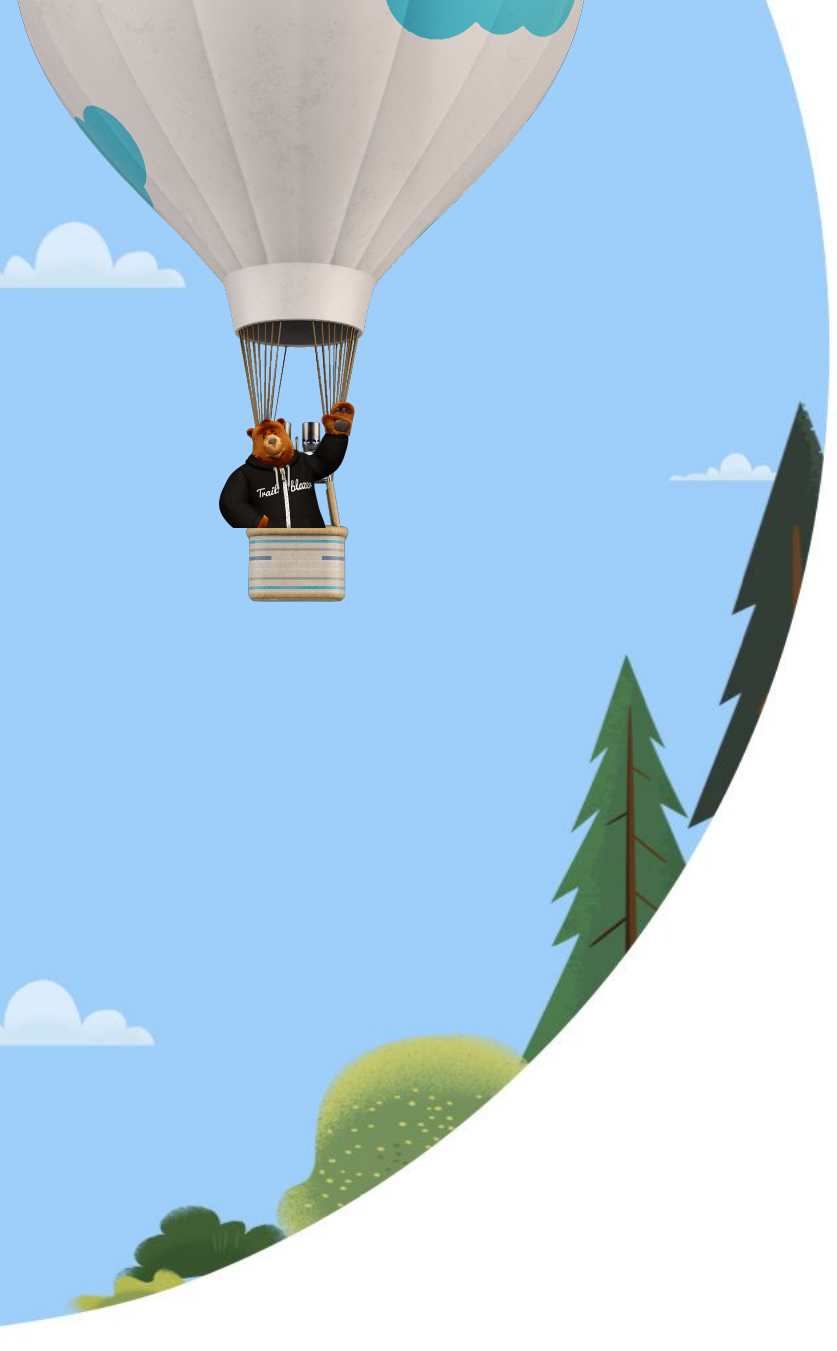
Integration

Identity Management

Development Lifecycle

Governance

Wrap it up - Be a Trailblazer



Today's Speaker

Danilo Pede

Director, Technology Consulting

[linkedin.com/in/danilopede/](https://www.linkedin.com/in/danilopede/)



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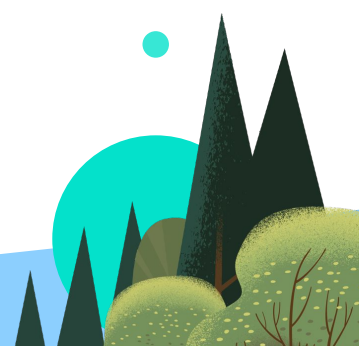
**Alessandro
Lombardi**



**Enza
Paternicò**



**Dario
Teti**





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: the 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; our ability to comply with our debt covenants and lease obligations; and the impact of climate change, natural disasters and actual or threatened public health emergencies, including the ongoing COVID-19 pandemic.



Everything starts in San Francisco, year 1999...



1999



2021



Challenging the Status Quo



A new Technology Model



A new Business Model



Google!

Search 1,326,920,000 web pages

amazon.com

Enterprise Cloud Computing Pioneer

The power of the Salesforce Platform: Multitenancy



Guided by Our Values



A central wooden sign with a dark brown border and a lighter brown wood grain. At the top of the sign is a small blue cloud with the word "salesforce" in white. Below this, the text "CORE VALUES" is written in white. The four core values are listed in large, bold, yellow capital letters: "TRUST", "CUSTOMER SUCCESS", "INNOVATION", and "EQUALITY". To the left of the sign, a small character in a brown bear costume peeks over a green hill. To the right, a larger brown bear character wearing a black hoodie with "Blazer" written on it stands behind another green hill. The entire scene is set against a white background with various blue and yellow decorative elements, including circles and butterflies.



Business is the Greatest Platform for Change



\$475M+
grants



6.2M
volunteer hours



51K
nonprofits, education,
and philanthropic orgs



\$400M
Salesforce Foundation
endowment*
*including \$54M from Slack for Good



Pledge
1%

\$19M
investment in US &
European schools

\$100M to Bay Area Schools

Doing Well & Doing Good



Leader In Philanthropy



TOP 100 COMPANIES THAT CARE 5 YEARS IN A ROW

People, 2021

Leader In Culture



ONE OF THE FORTUNE 100 BEST COMPANIES TO WORK FOR

Fortune, 2021

Leader In Innovation



ONE OF THE BEST WORKPLACES IN TECHNOLOGY 5 YEARS IN A ROW

Fortune, 2021



MOST SUSTAINABLE COMPANY

Barron's



WORLD'S BEST WORKPLACE

Great Place To Work



WORLD'S MOST ADMIRER

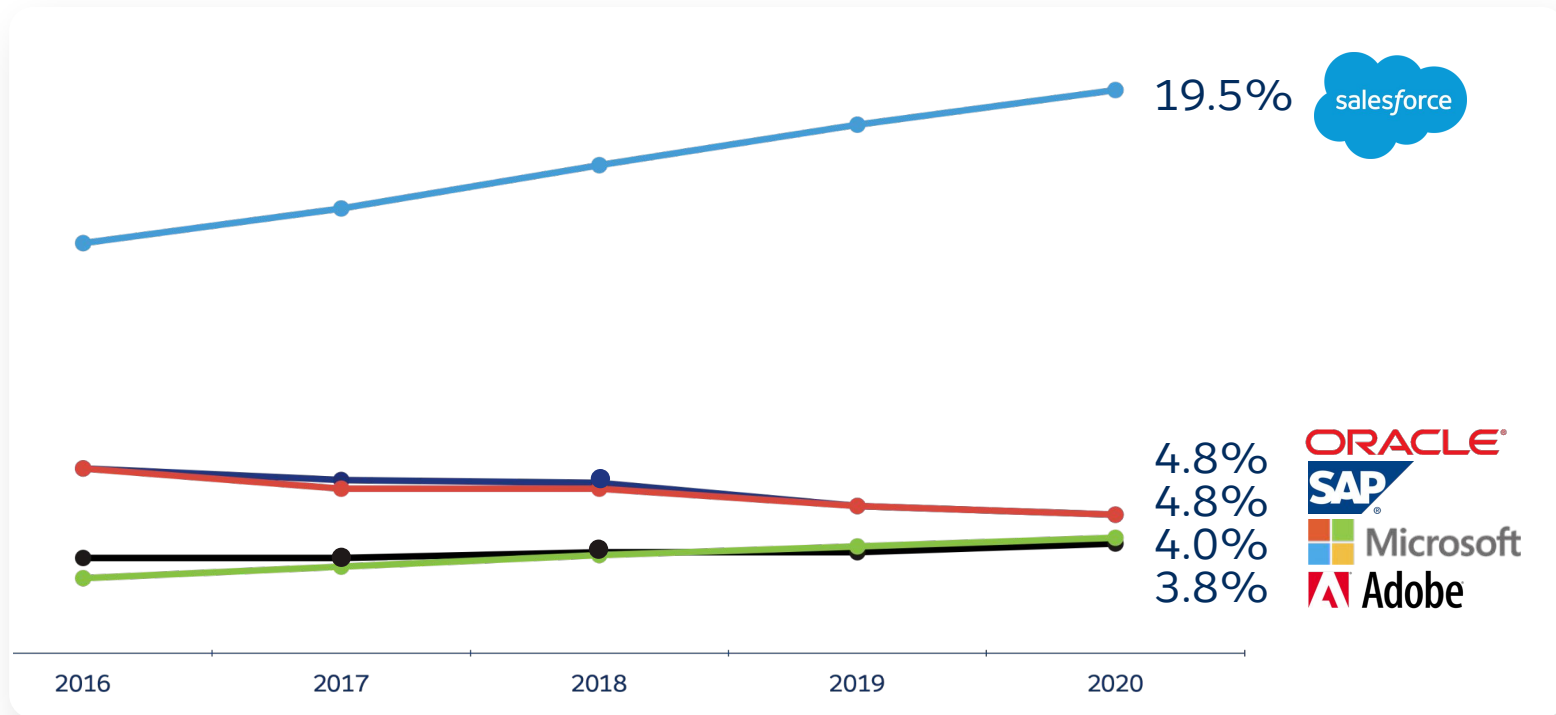
Fortune





Salesforce: #1 CRM

Worldwide CRM applications 2020 revenue market share by IDC



Source: IDC, Worldwide Semiannual Software Tracker, April 2021. CRM market includes the following IDC-defined functional markets: Sales Force Productivity and Management, Marketing Campaign Management, Customer Service, Contact Center, Advertising, and Digital Commerce Applications.



Some of the Italian Customers

JACOBACCI
PARTNERS



Super Solar



L'espresso



Rai Pubblicità



FONTANA GRUPPO
SPECIAL FASTENERS

sky



Openjobmetis



MediaWorld



FREEDA

eudaimon

parah

PINKO

enel

TIM

pixartprinting

CheBanca!

GRUPPO 24 ORE
La cultura dei fatti

GESSI

INTESA



SANPAOLO

istitutomarangoni
the school of fashion, art & design



MEDIASET
PREMIUM

e.on

OCTO

CANDY



ENGIE

Cerved Group

talentia
Software

YOUGO

Bambino Gesù
OSPEDALE PEDIATRICO

A in
Abitare In



Alitalia

BRUNELLO
CUCINELLI



THE DEDICA ANTHOLOGY

CREDIMI

Prysmian
Group

ptb
advertising

moneyfarm

Teads

IG
Italgas

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Carli
- DAL 1911 -

Azienda Provinciale
per i Servizi Sanitari
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MATERASSI - LETTI - POLTRONE

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PROGETTO

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ETRO

LECHLER

FEDEGARI
GROUP

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FCA
FIAT CHRYSLER AUTOMOBILES

Allini
GROUP
WWW.ALBINIGROUP.COM

RINASCENTE

AON

SALESFORCE ECONOMY

Da un'indagine di IDC*

4,2 milioni

di posti di lavoro
entro il 2024

1.200 miliardi

di dollari di fatturato
generato entro il 2024

10,1 miliardi

di dollari di fatturato
generato entro il 2024

21.360

nuovi posti di lavoro
diretti entro il 2024

43.000

nuovi posti di lavoro
indiretti entro il 2024

Ogni dollaro prodotto da
Salesforce ne
vengono guadagnati

6,43

dall'ecosistema
che vi ruota
attorno

MONDO

ITALIA



*The Salesforce Economic Impact: 4.2 Million New Jobs, \$1.2 Trillion of New Business Revenues from 2019 to 2024 (IDC white paper #US45537919)

Many companies are disconnected



Company

Disparate Systems

Siloed Data

Disconnected Customer Experiences

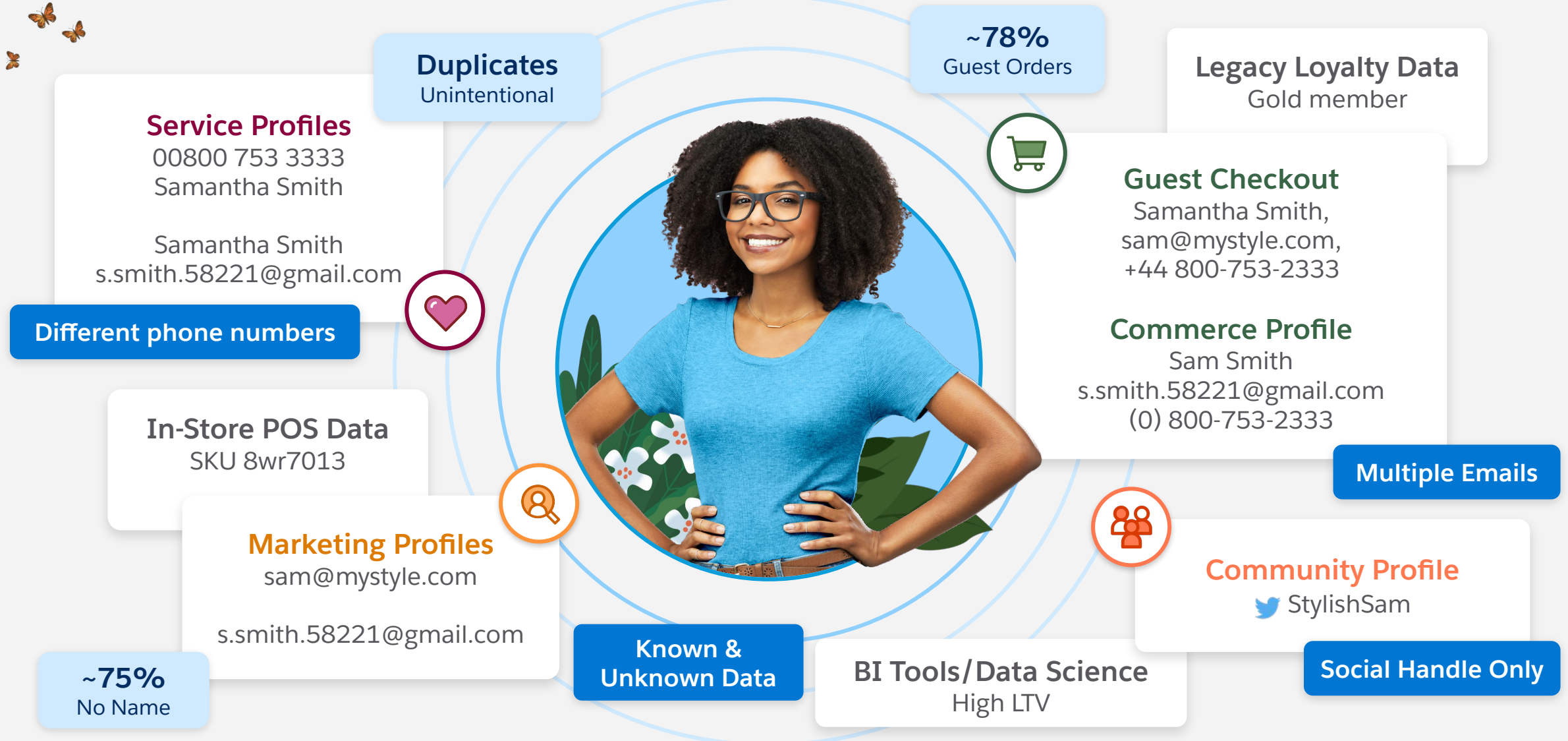
Inaccurate Data

Compliance GDPR & CCPA

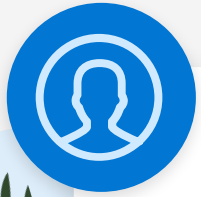


Customer

Most Brands Struggle to Create a Single Source of Truth



With Today's Digital-First Customer, Every Moment Counts



84% of customers say that being treated like a person, not a number, is very important to winning their business



Digital-First Customer



Digital Leader

34% of companies treat customers as unique individuals



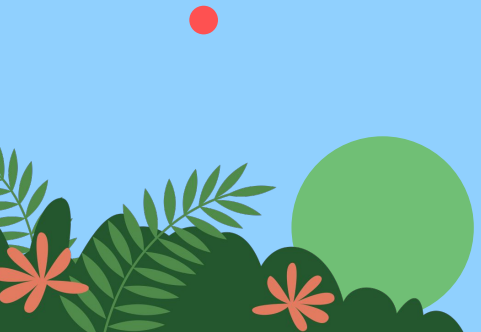
Salesforce Marketing Cloud Overview



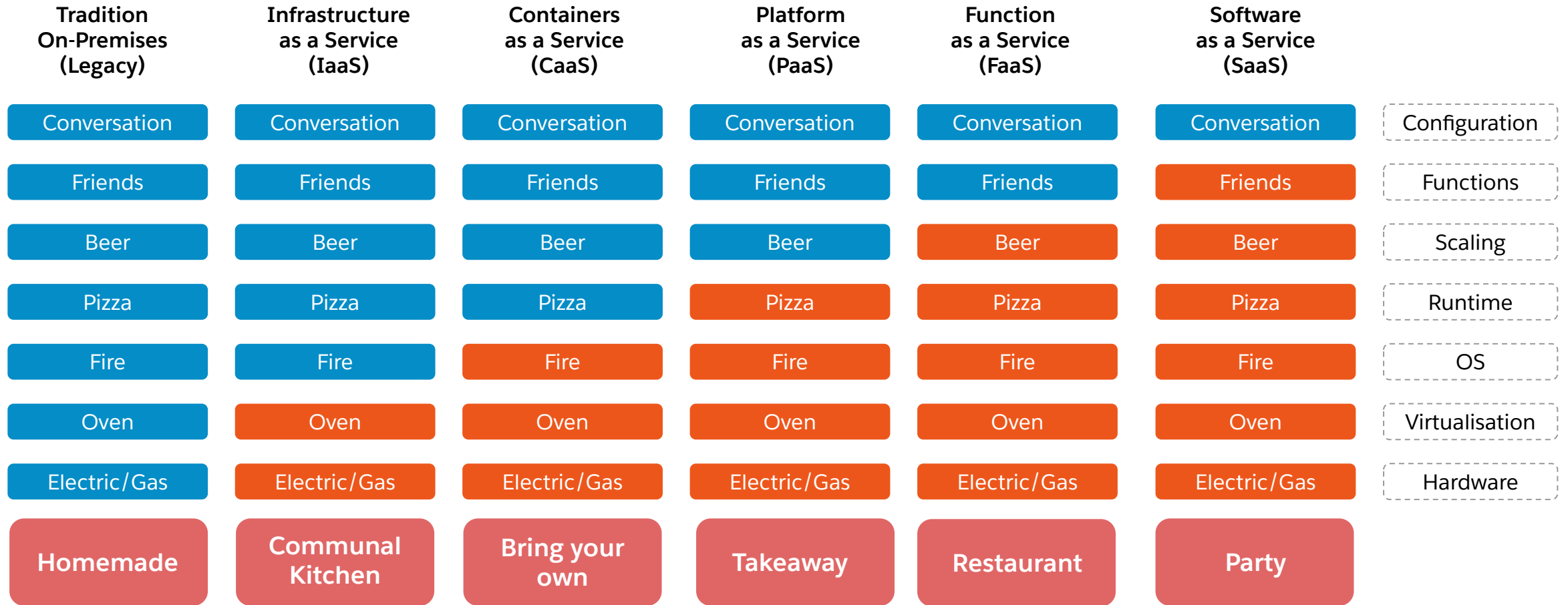


DANILO

The Salesforce Customer 360 Platform

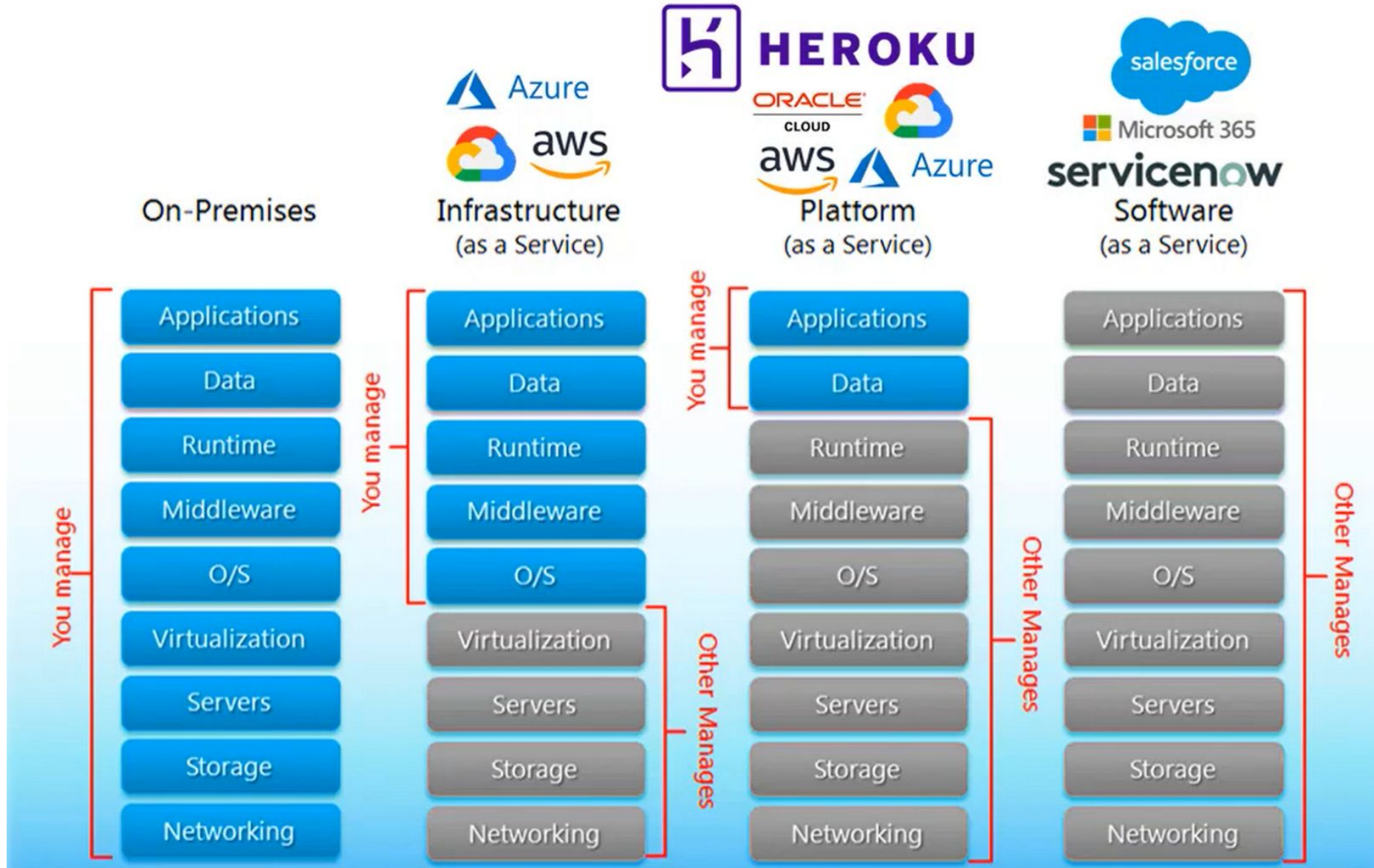


Pizza as a Service

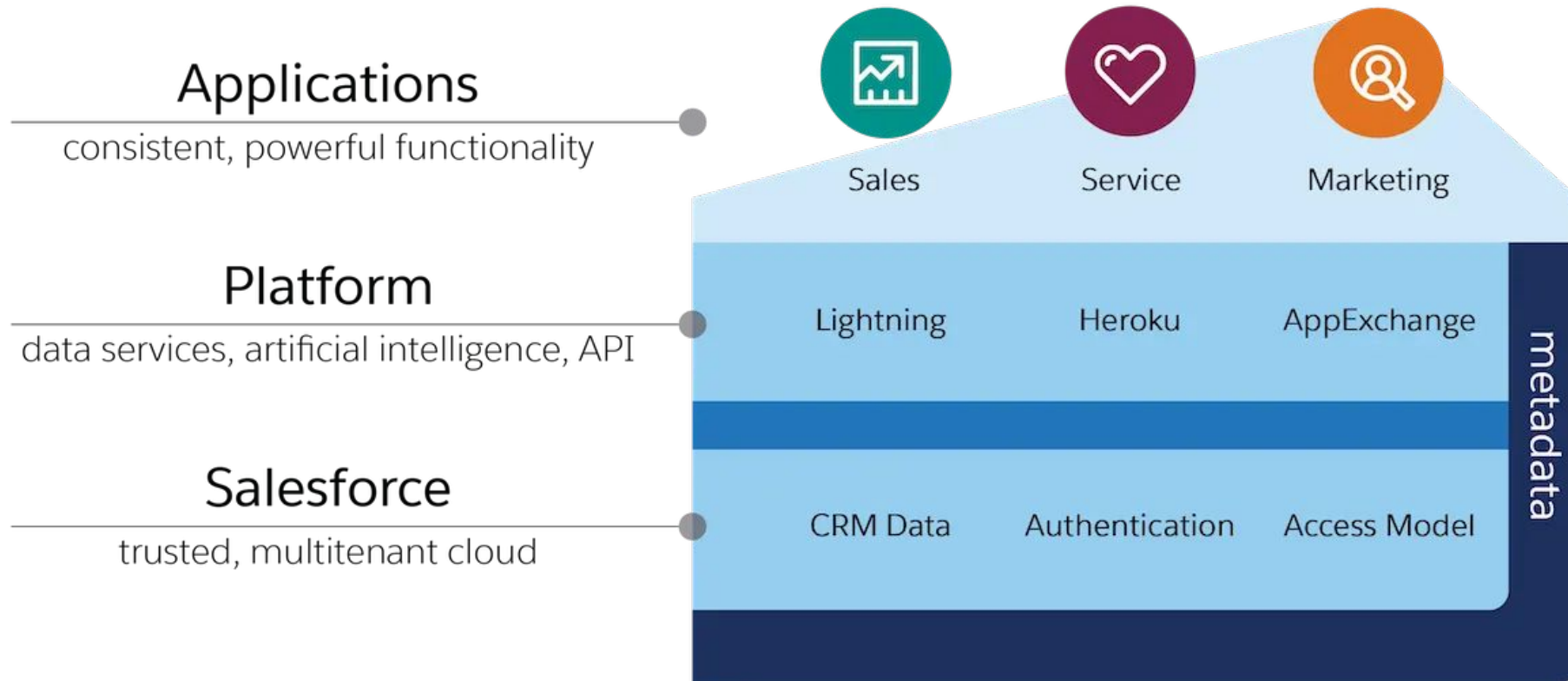


■ You Manage
 ■ Vendor Manages

Cloud Models: What Do You Manage?



Salesforce Architecture



Customer 360 Platform



Customers



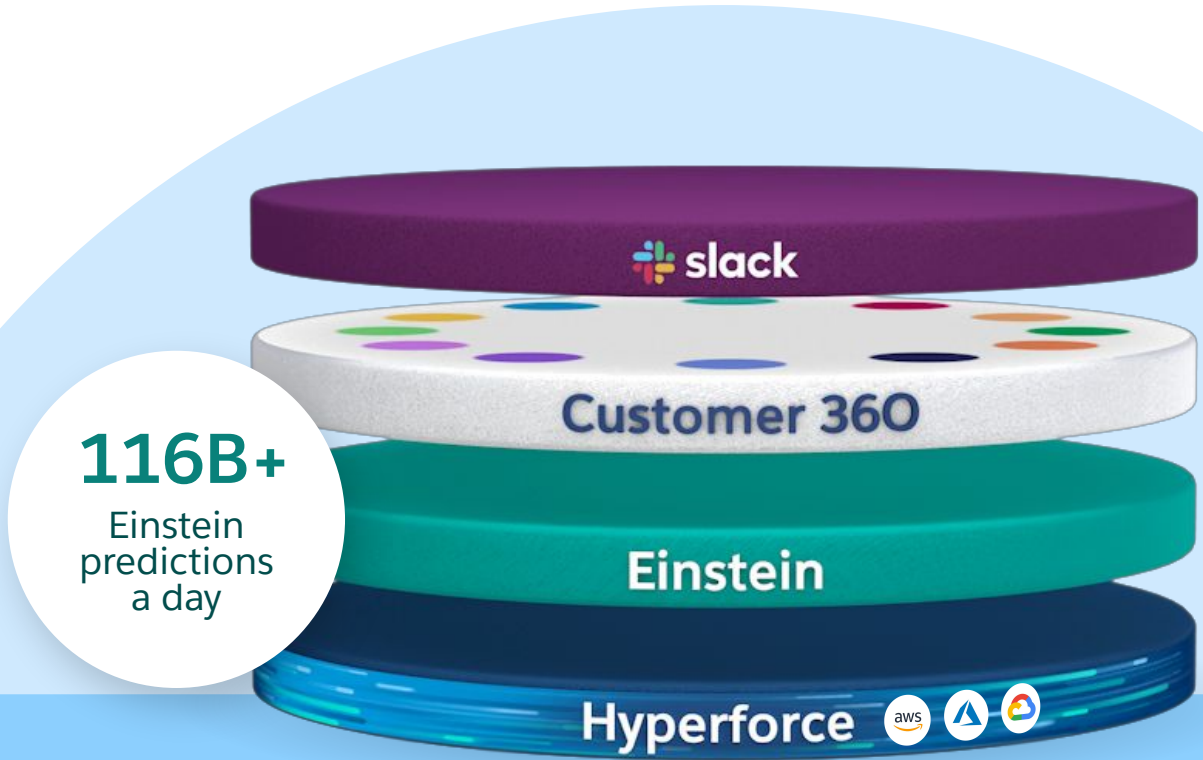
Employees



Partners



Bots



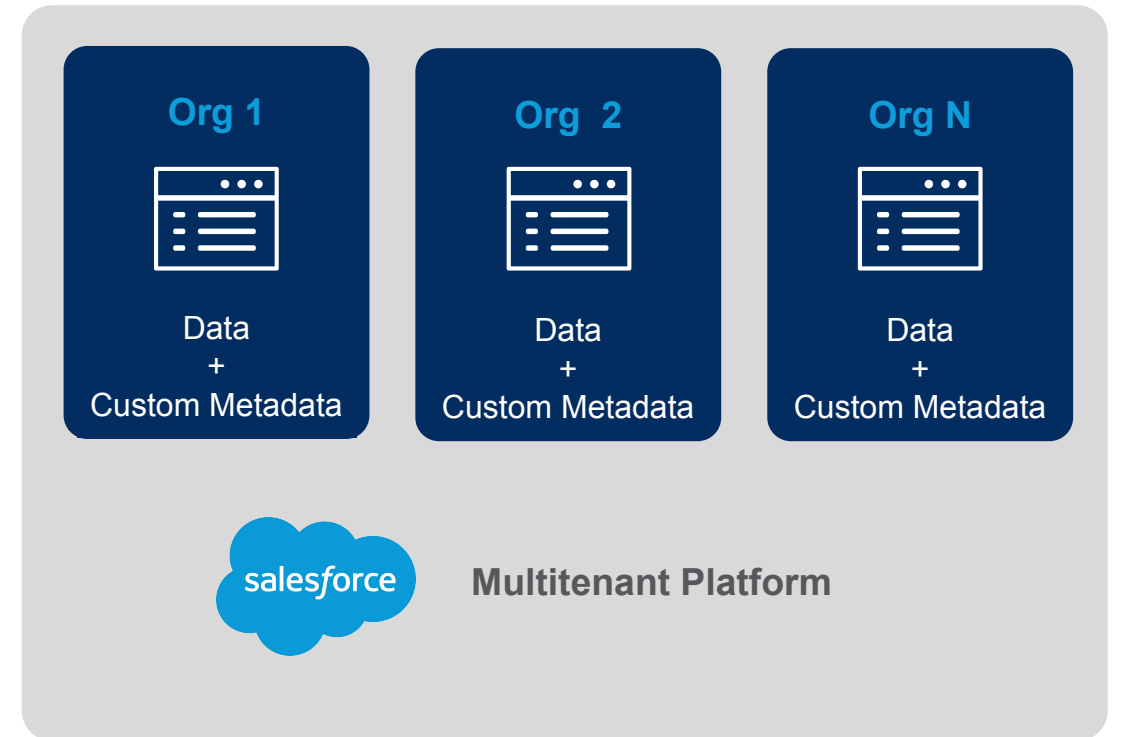
What is an Org?



Each Org is

- A provisioned set of resources that **contain data and metadata** supporting one or more applications
- A **distinct entity** (tenant) hosted on a common (multitenant) platform with data and metadata insulated from other tenants

Customers can own one or more Orgs depending on their needs





Salesforce Customer 360



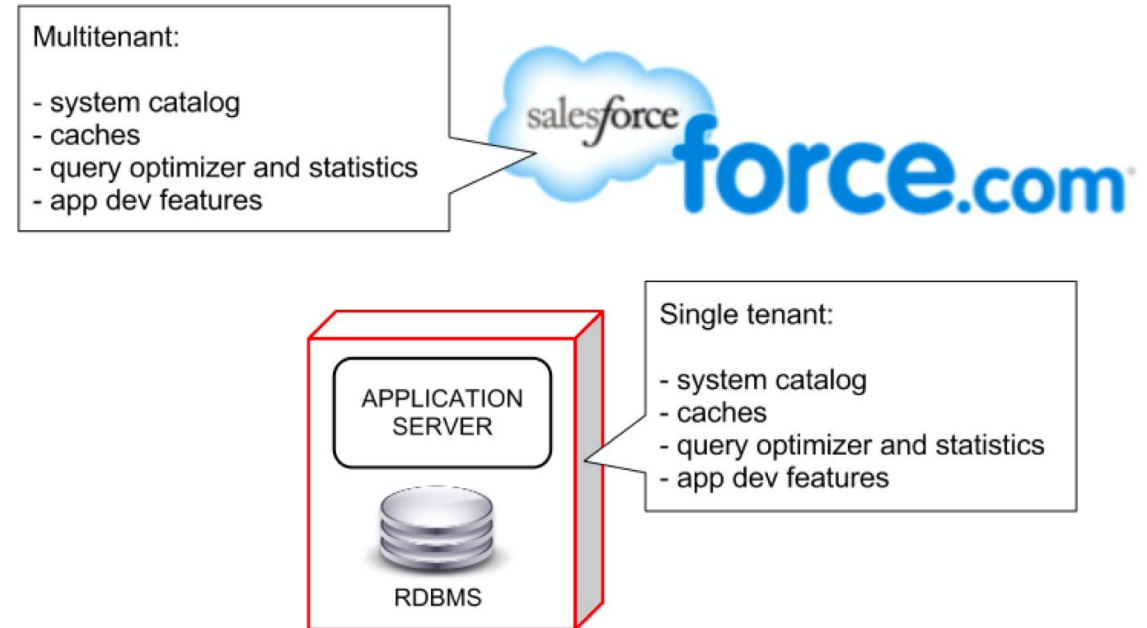
Multitenant Architecture



RDBMS: most of which designed in the '70s and '80s to support individual organizations' on-premises deployments.

All the core mechanisms in an RDBMS (as its system catalog, caching mechanisms, query optimizer, and application development features) are **built to support single-tenant applications** and be run directly on top of a specifically tuned host operating system and raw hardware.

Multitenant cloud database services built with a standard RDBMS are only possible with the help of virtualization, which typically hurts the performance of an RDBMS.



Salesforce Multitenant Approach

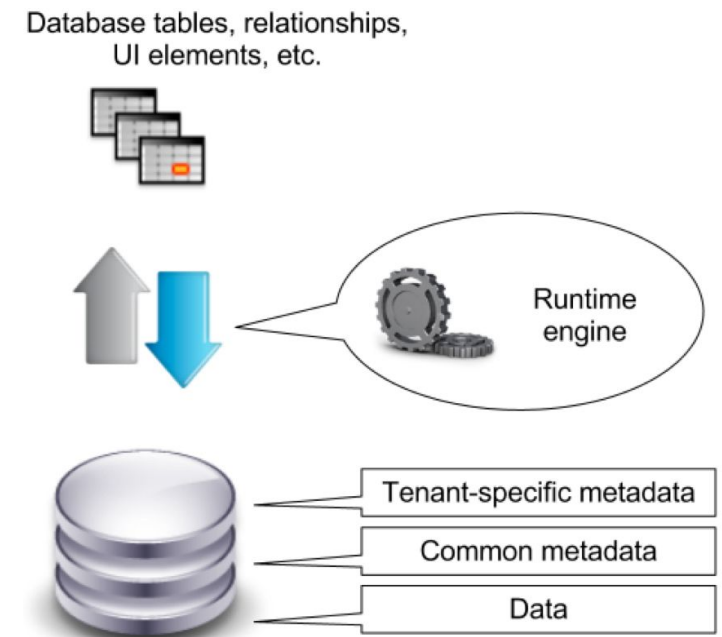


In contrast, Salesforce Platform combines **several different persistence technologies**, including a **custom-designed relational database schema**, which are innately designed for clouds and multitenancy—**no virtualization required**.

For these reasons, Salesforce Platform’s core technology uses a **runtime engine that materializes all application data from metadata**—data about the data itself.

In Salesforce Platform’s well-defined metadata-driven architecture, there is a **clear separation of the compiled runtime database engine (kernel), tenant data, and the metadata that describes each application**.

These distinct boundaries make it possible to **independently update the system kernel and tenant-specific applications and schemas**, with virtually no risk of one affecting the others.



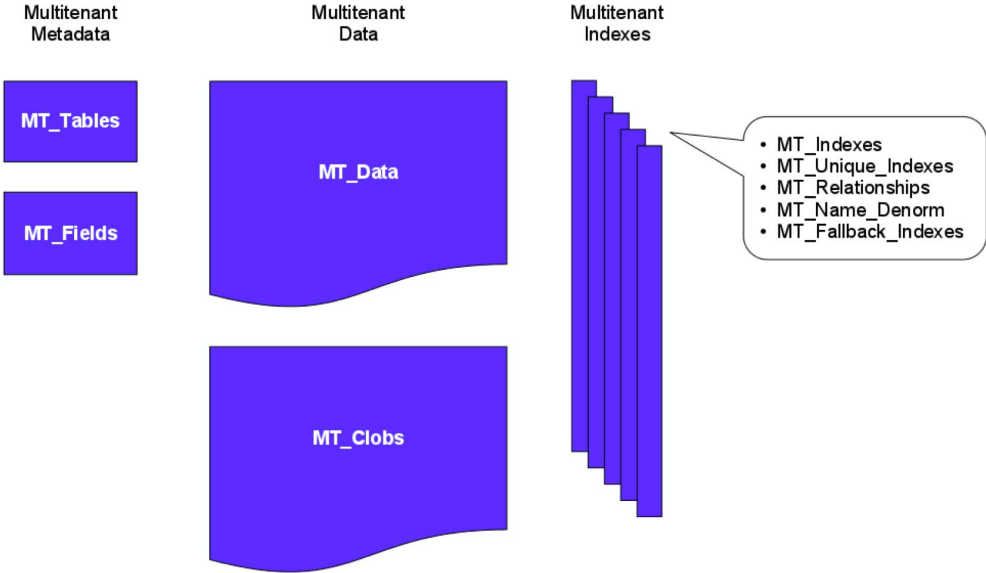
Multitenant Data Model

The Salesforce Platform storage model manages **virtual database structures** using a set of metadata, data, and pivot tables.

When you create application schemas, the *Universal Data Dictionary (UDD)* keeps track of metadata concerning the objects, their fields, their relationships, and other object attributes.

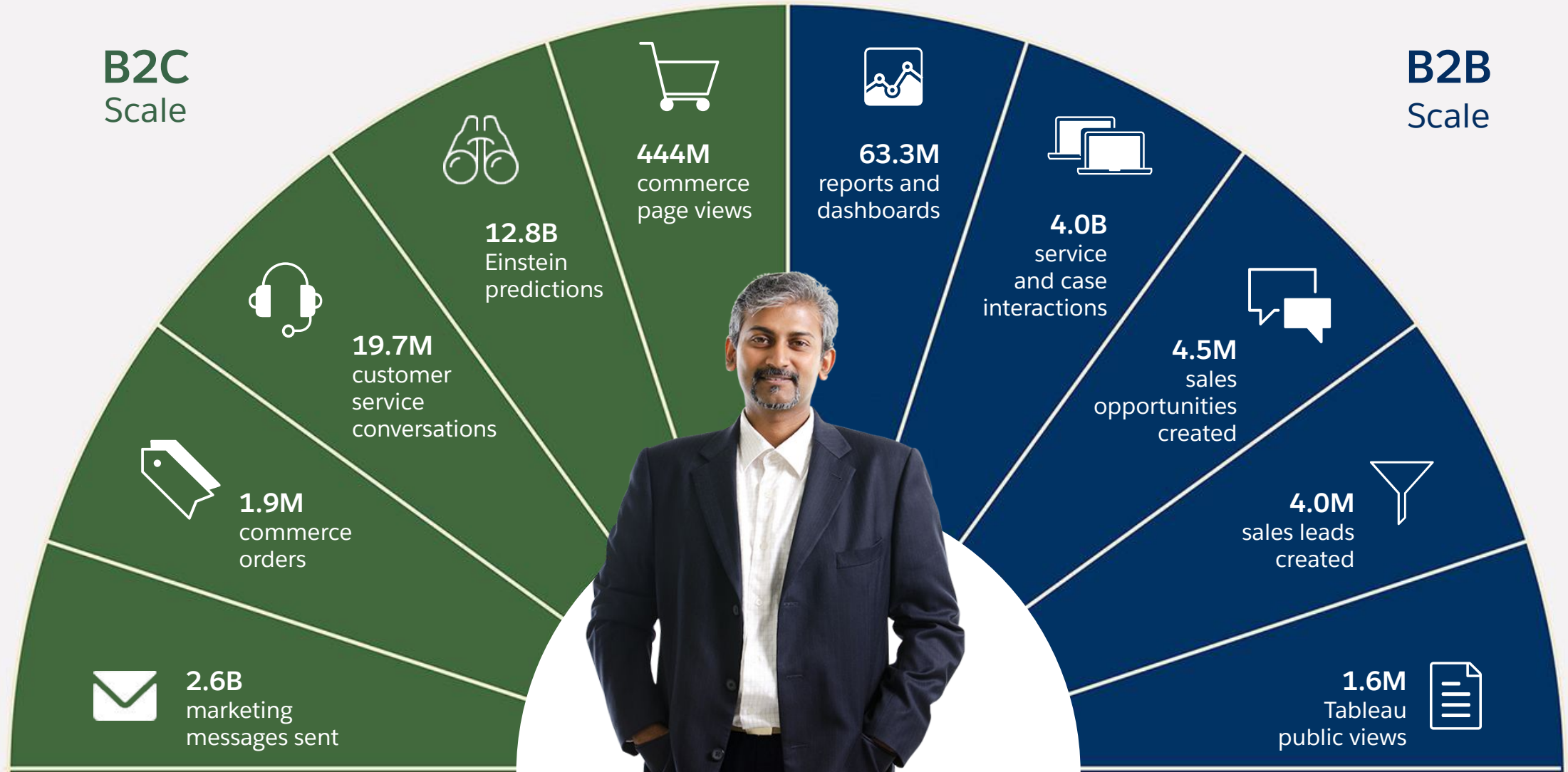
Meanwhile, a few large database tables store the structured and unstructured data for all virtual tables.

A set of related multitenant indexes, implemented as simple pivot tables with denormalized data, make the combined data set extremely functional.



GUID	OrgID	ObjID	...	Value0	...
a01...1	org1	a01	...	Up	...
a01...2	org1	a01	...	Flat	...
a02...1	org1	a02	...	20110129	...
a02...2	org1	a02	...	20110214	...
a03...1	org1	a03	...	41.23	...
a03...2	org1	a03	...	-10.3	...

24 Hours in the Life of Salesforce



Source: Salesforce November 2020.

Demo



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How do we Design a Transformation Project?

Actors, Devices, Locations

Org Strategy

System Landscape

Data Model & Data Architecture

Integration

Identity Management

Development Lifecycle

Governance

Wrap it up - Be a Trailblazer



Goals, Actors, Devices, Location



Which KPIs do customers want to improve in Sales?

Revenue Drivers

1. Lead conversion rate
2. Opportunity win rate
3. Lead volume
4. Cross-sell / upsell

Efficiency / Data Accuracy

5. Sales productivity
6. Sales support productivity
7. Reduce uncontacted leads
8. Forecast accuracy*

Which KPIs do customers want to improve in Service?

Efficiency

1. Service rep productivity
2. Case deflection
3. First contact resolution
4. New agent ramp time*

Revenue Drivers

5. Cross-sell / upsell
6. Customer retention
7. Purchase frequency

Which KPIs do customers want to improve in Field Service?

Efficiency / Data Accuracy

1. Field tech capacity
2. Internal productivity
3. Reduce job cost / margin improvement
4. First time fix rate*

Revenue Drivers

5. Cross-sell / upsell
6. CSAT / customer retention
7. Warranty attachment rate
8. Revenue / cost leakage*

Who will use the platform? Internal Users...



... and External Users



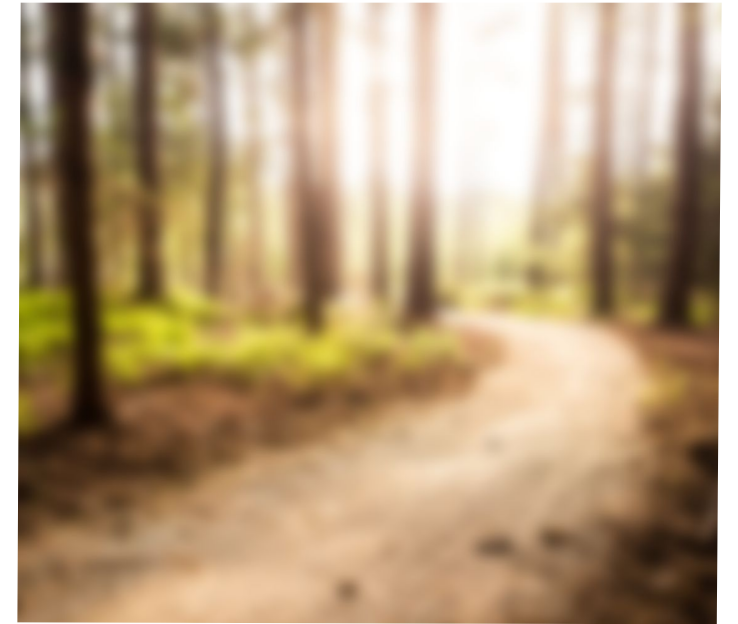
Where will they connect from?



Office

Home

Mobility



What devices will they use?

Desktops, laptops, tablets, mobile phones, but also...



Just One Org? Multiple Orgs?... Org Strategy!



What to consider for an Org Strategy?



Culture

Collaboration
Level of Autonomy
Governance Model

Business

Sharing Processes & Data
Flexibility & Adaptability
Internal Organization
Time to Value

Technical

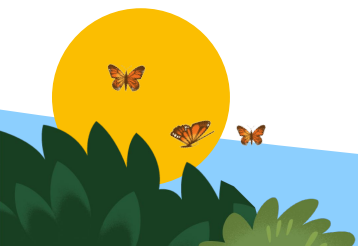
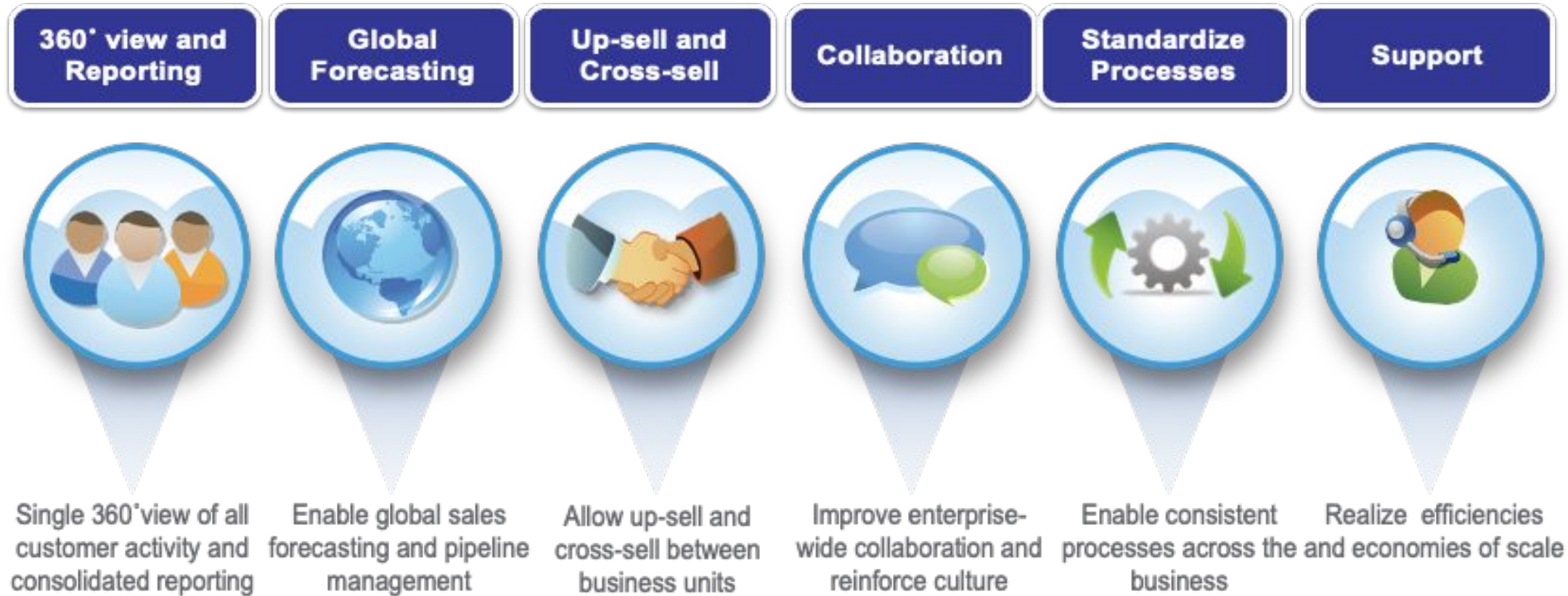
Security
Governor Limits
Architecture

Support

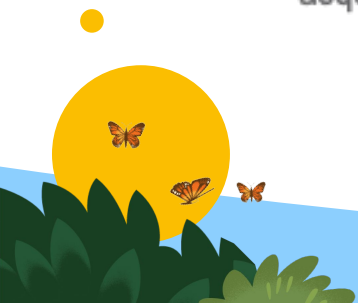
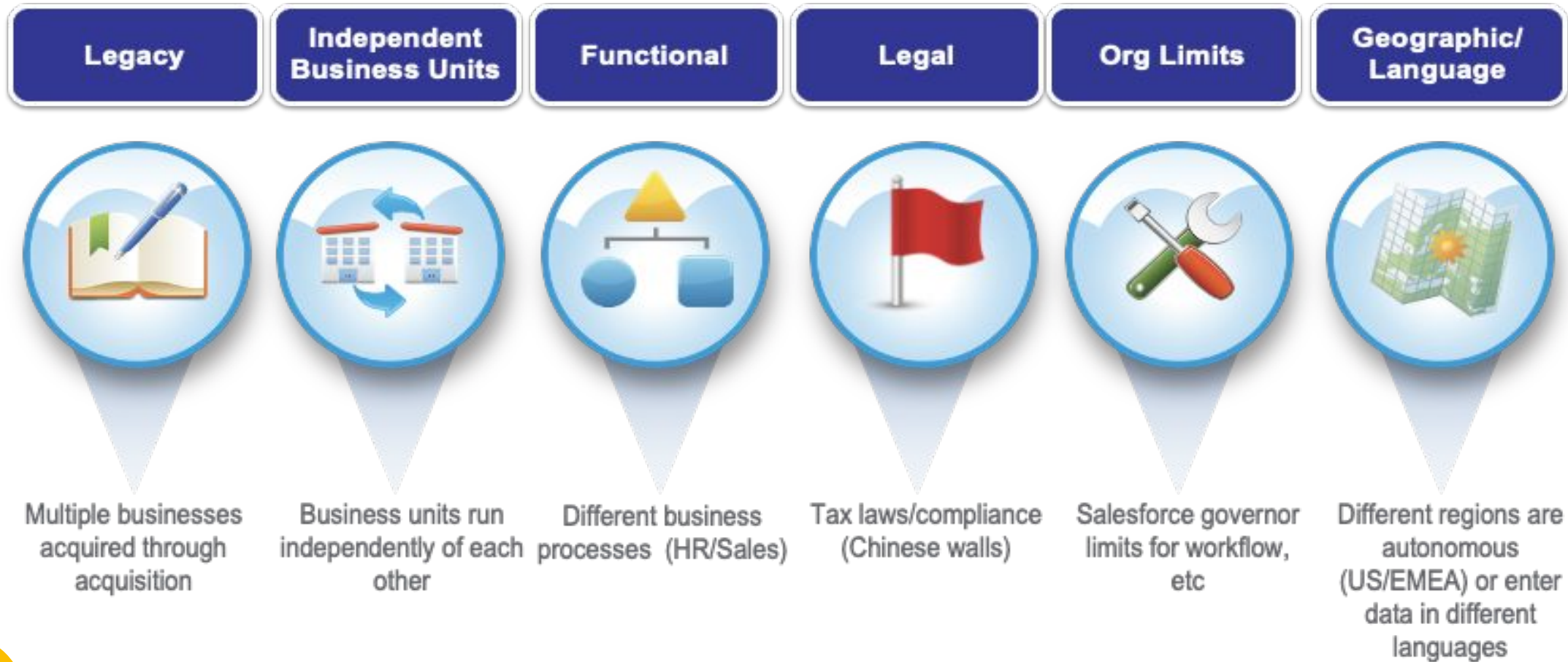
End-users Training
Support Model
Environments



Top Drivers to choose a Single Org...

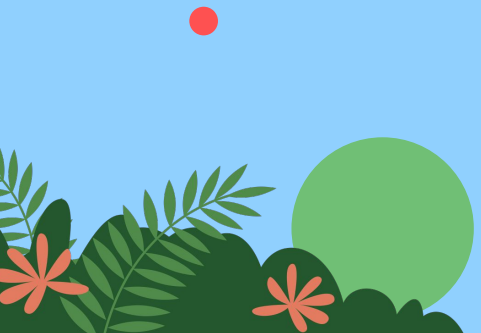


... and Top Drivers to choose Multiple Orgs



System Landscape

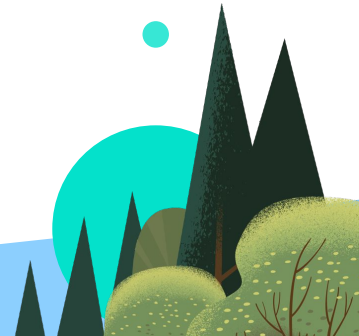
As Is, Through the journey, To Be



Which systems does a CRM usually interact with?










-  Enterprise Resource Planning (ERP)
-  e-Commerce
-  Data Warehouse (DWH)
-  Identity Providers, SSO
-  Provisioning & Delivery
-  External Platforms (e.g. Payment Gateways, Credit Check...)
-  Billing
-  Integration Platforms (ESB, ETL)
-  Marketing

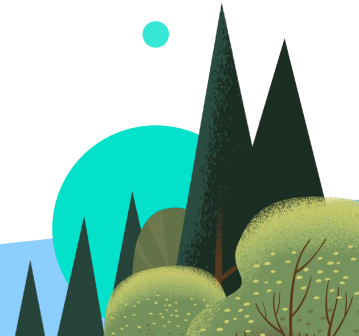


Constraints? Decisions to take?



-  What happens to platforms planned to be replaced?
-  Is a data migration necessary?
What happens to in-flight data?
-  Will there be a “Big Bang” or a “Phased” roll-out?
-  Will new and old systems coexist for a specific time interval?

-  Are there rigid target dates? E.g. imposed by Regulatory Agencies.
-  Are there still developer competences on the oldest systems to be integrated?
-  Is the customer willing to invest on evolution of old systems?



How do we design an Architectural Diagram?

Documentation & Implementation Diagram Style

Purpose:

Help viewers understand an implementation or product-related technical detail.

Audience:

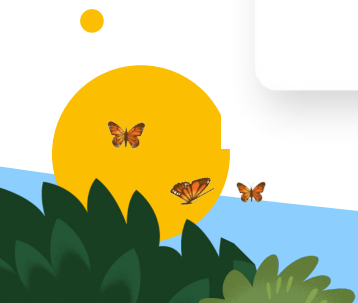
Delivery Teams, Technical Stakeholders

What this style **can** show:

- How do we build [x] capability or solution?
- How does [y] product work with [x] products?
- What are the details of [y] product or implementation?
- What work was done to build [x]?

What this style **cannot** show:

- A business capability focused view
- Business value / ROI of products or solutions



How do we design an Architectural Diagram?

Marketing, Strategy & Sales Diagram Style

Purpose:

Help viewers understand concepts or processes, or a vision for a solution.

Audience:

Business & Executive Stakeholders, Technical Influencers

What this style **can** show:

- What is the big picture?
- Why are we doing this?
- Why would we do this?
- What is the business value of products or solutions?

What this style **cannot** show:

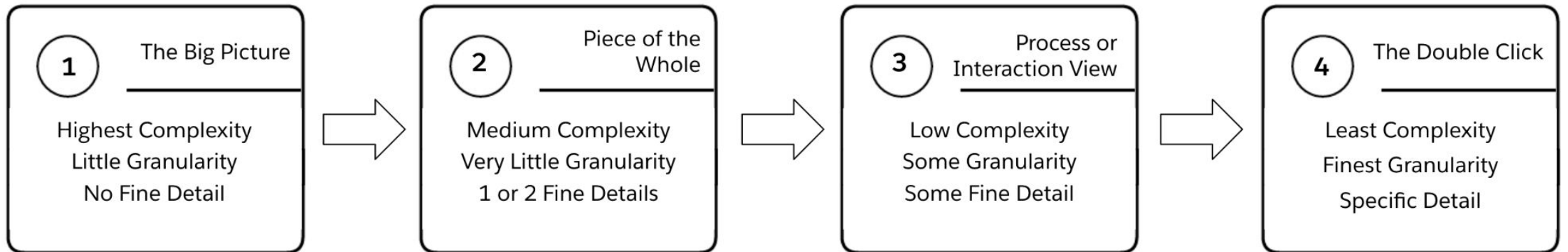
- An implementation ready view
- Technical specifications
- Product documentation



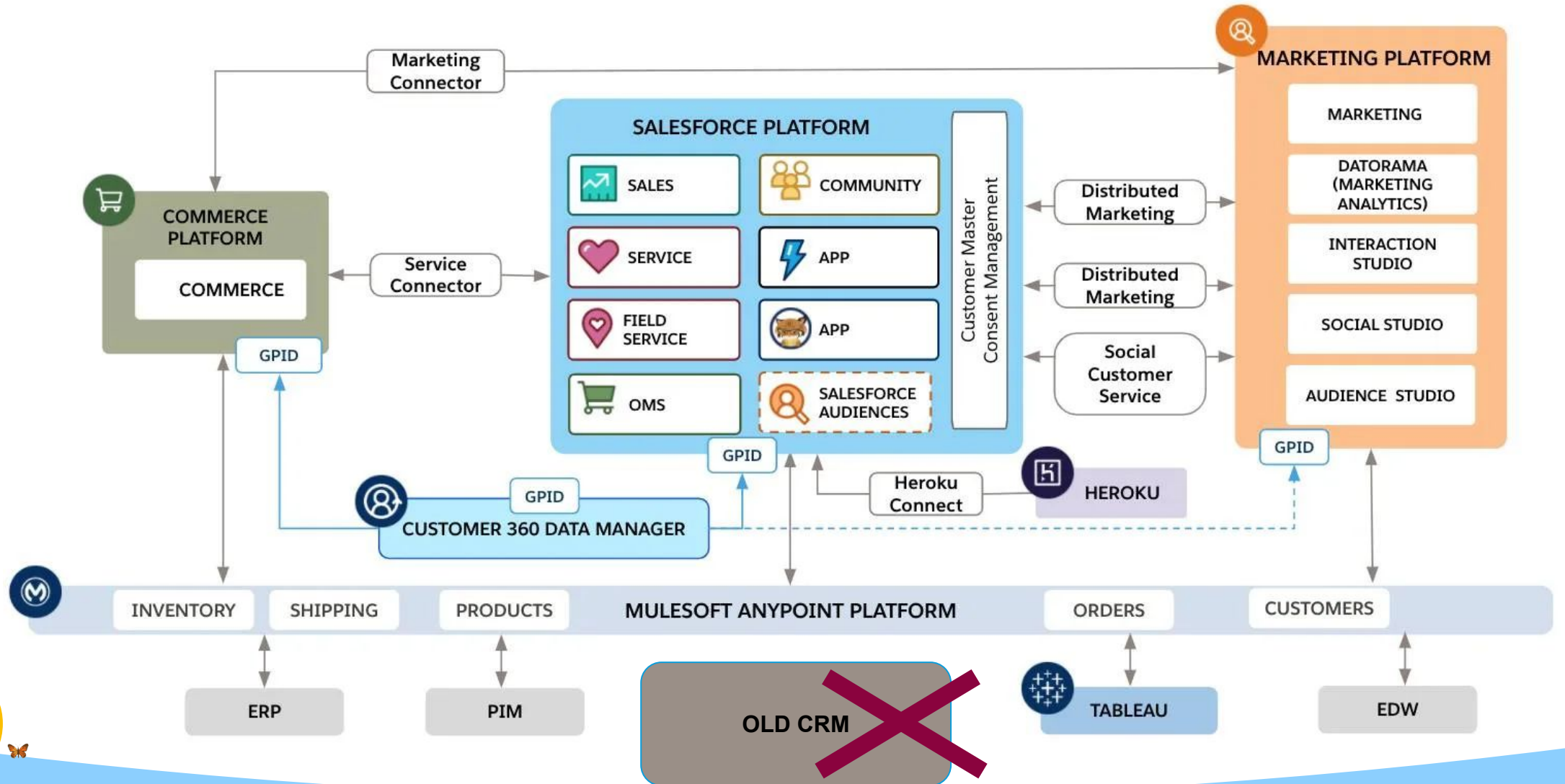
How much should I detail the diagram?



Diagram Levels



Level 1: The Big Picture



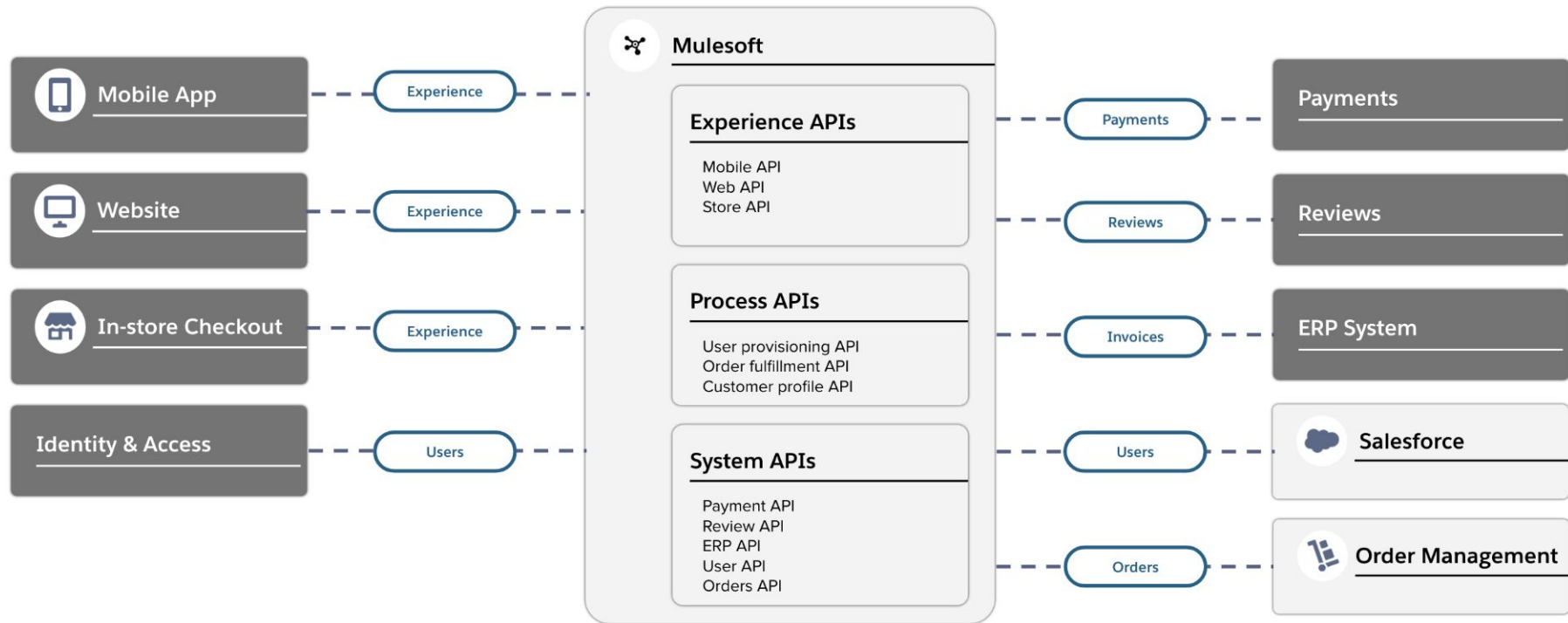
Level 2: Piece of the Whole



Your Logo Here

Integration Layer Diagram

This Level 2 diagram example shows the integration layer with the products and technologies directly involved in this layer. We also see more details about integration behavior and key functionality.



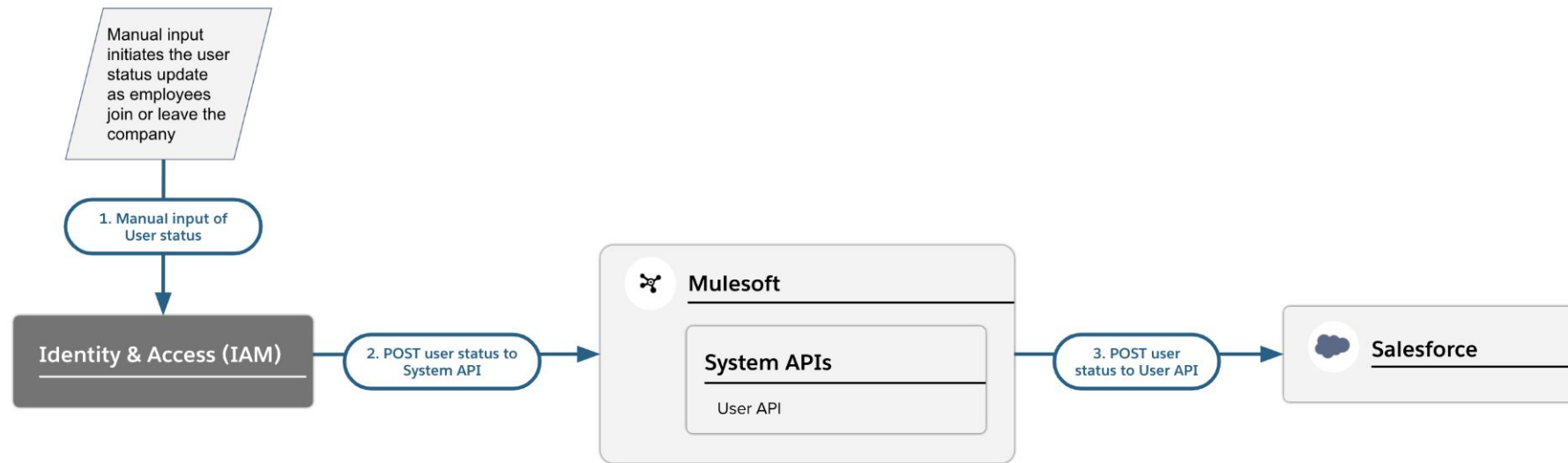
Level 3: Process or Interaction View



Your Logo Here

User Provisioning & Deprovisioning Flow

This Level 3 diagram shows a user provisioning and deprovisioning flow. Only products or technology directly involved in the process appear, along with greater detail about the order of the steps and behavior of the flow.



Level 4: The Double Click

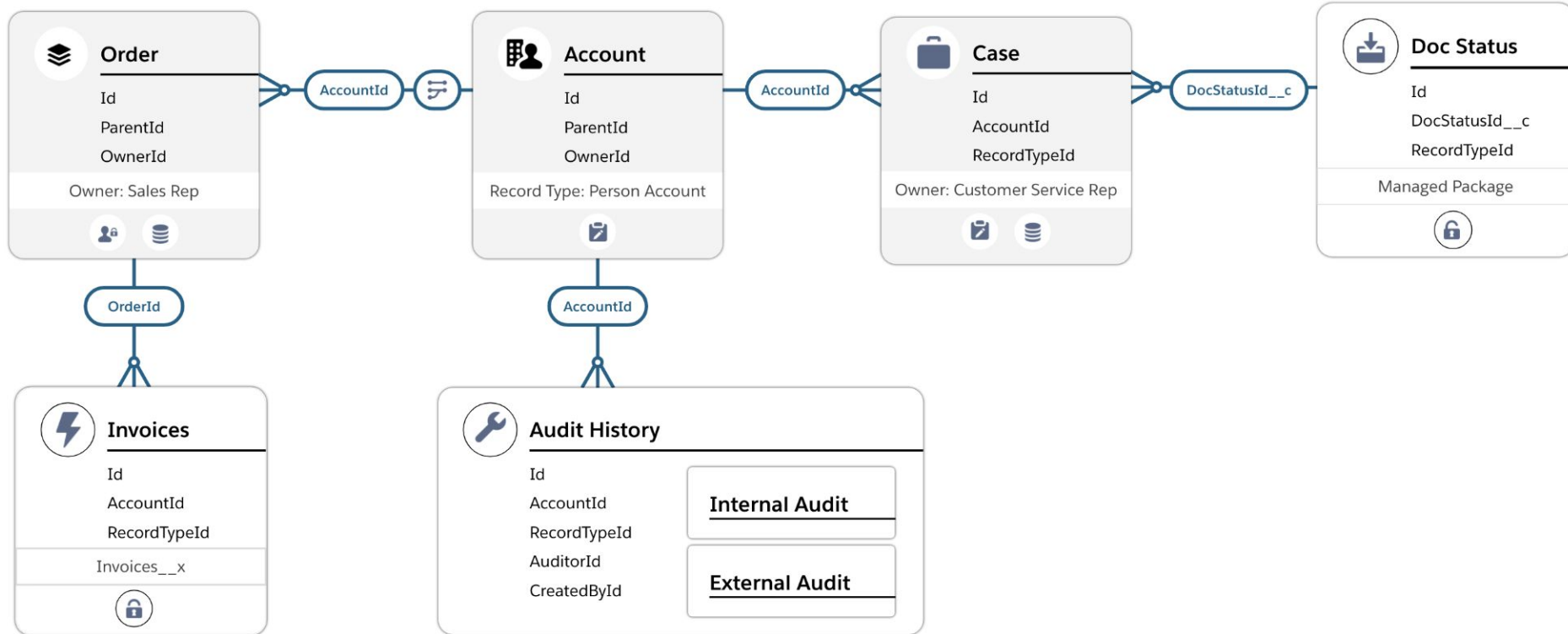


Your Logo Here

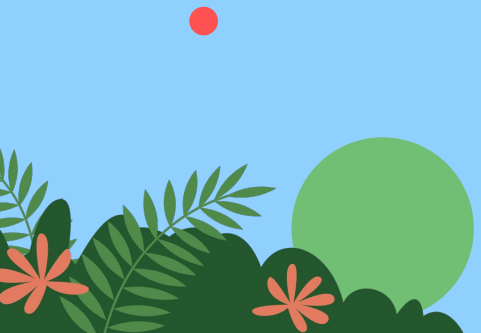
Data Model

This Level 4 diagram shows part of the data model involved in the solution. Only information that is important for understanding a data model is presented: Salesforce provided defaults, notable limits, relationship details, etc.

- External Object
- Custom Object
- Private
- Public Read/Write
- Large Data Volume
- Standard Object
- Package Object
- Public Read Only
- Controlled by Parent
- Data Skew



Data Model & Data Architecture





Data Model: What is it?

What is an object in Salesforce?

In Salesforce, when we talk about the data model, we're talking about the **collection of objects and fields in an app.**

We think about database **tables as objects**, we think about columns as fields, and rows as records. So instead of an account spreadsheet or table, we have an **Account object** with fields and a bunch of identically structured records.

The screenshot shows a Salesforce Account record for Maya Parker. The account name is United Oil & Gas Corp. and the annual revenue is USD 5,600,000,000.00. The record is displayed in a table format with two columns. The left column contains fields such as Account Owner (Maya Parker), Account Name (United Oil & Gas Corp.), Parent Account, Account Number (CD355118), Account Site, Type (Customer - Direct), Industry (Energy), Annual Revenue (USD 5,600,000,000.00), and Potential Value (USD 3,440,000.00). The right column contains fields such as Prospect Rating (Hot), Phone ((212) 842-5500), Fax ((212) 842-5501), Website (http://www.uos.com), Ticker Symbol (UOS), Ownership (Public), Employees (145,000), and SIC Code (4437).

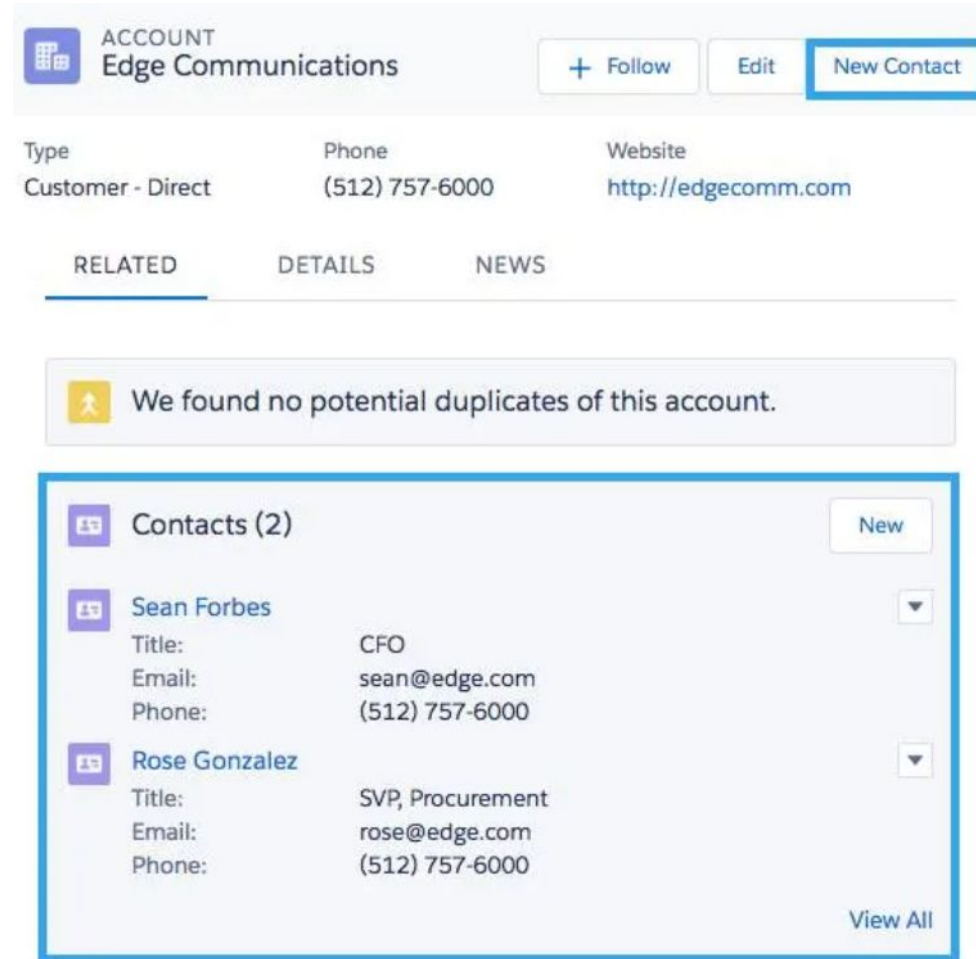
Account	
Maya Parker	
Account Name	Annual Revenue
United Oil & Gas Corp.	USD 5.600.000.000,00
Related <u>Details</u> News	
Account Owner	Prospect Rating ⓘ
Maya Parker	Hot
Account Name	Phone
United Oil & Gas Corp.	(212) 842-5500
Parent Account	Fax
	(212) 842-5501
Account Number	Website
CD355118	http://www.uos.com
Account Site	Ticker Symbol
	UOS
Type	Ownership
Customer - Direct	Public
Industry	Employees
Energy	145.000
Annual Revenue	SIC Code
USD 5.600.000.000,00	4437
Potential Value	
USD 3.440.000,00	

Data Model: What is it?

How can relationships change user experience?

When you look at an account record in Salesforce, you can see that there's a section for contacts on the **Related** tab.

You can also see that there's a button that lets you quickly add a contact to an account.



The screenshot shows a Salesforce Account record for 'Edge Communications'. At the top, there are buttons for '+ Follow', 'Edit', and 'New Contact'. Below this, the account details are displayed: Type: Customer - Direct, Phone: (512) 757-6000, and Website: http://edgecomm.com. The 'RELATED' tab is selected, showing a message: 'We found no potential duplicates of this account.' Below this, a list of contacts is shown, including Sean Forbes (CFO) and Rose Gonzalez (SVP, Procurement). A 'New' button is visible in the top right of the contacts list, and a 'View All' link is at the bottom right.

Type	Phone	Website
Customer - Direct	(512) 757-6000	http://edgecomm.com

RELATED | DETAILS | NEWS

We found no potential duplicates of this account.

Contacts (2) New

Sean Forbes	Title: CFO	Email: sean@edge.com	Phone: (512) 757-6000
Rose Gonzalez	Title: SVP, Procurement	Email: rose@edge.com	Phone: (512) 757-6000

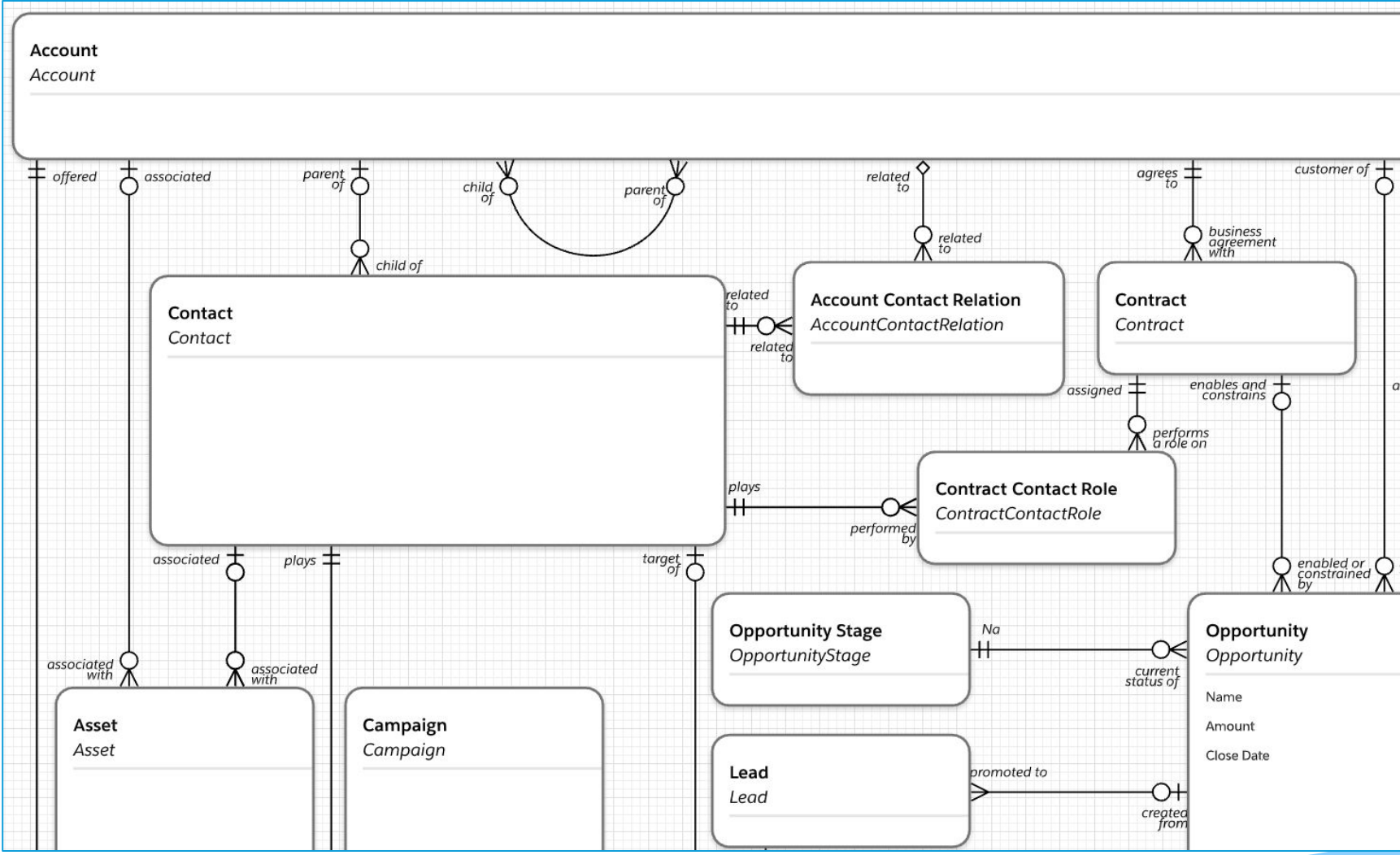
[View All](#)

Data Model: What is it?

A data model is more or less what it sounds like. It's a way to model what database tables look like in a way that makes sense to humans.

A data model typically includes:

- Standard Objects
- Custom Objects
- Relationships among objects
- Custom Fields



Data Model: How do we design it?



What does customer need to do?

- Collect and analyze business requirements to design the business process that represents customer use case.

Analyze

Can I use out-of-the-box business processes supported by Salesforce?

- Map customer business process as closely to the out-of-the-box business process supported by Salesforce.

Map

Do I need to store more data?

- Create custom fields & custom objects.
- Add relationships between objects following business requirements.

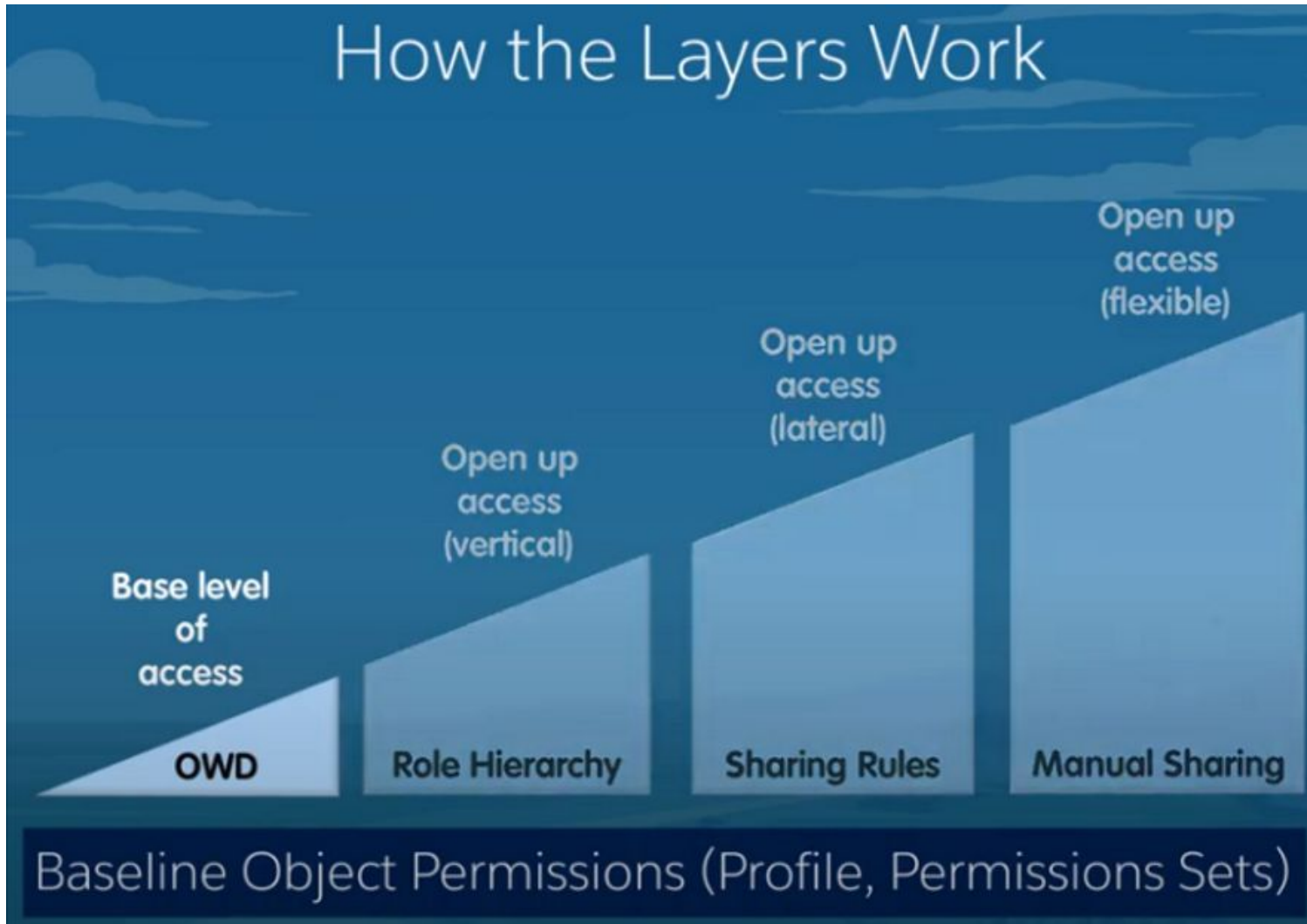
Customize



Data Visibility & Security: Who sees what?



Data Visibility & Security: Records Sharing



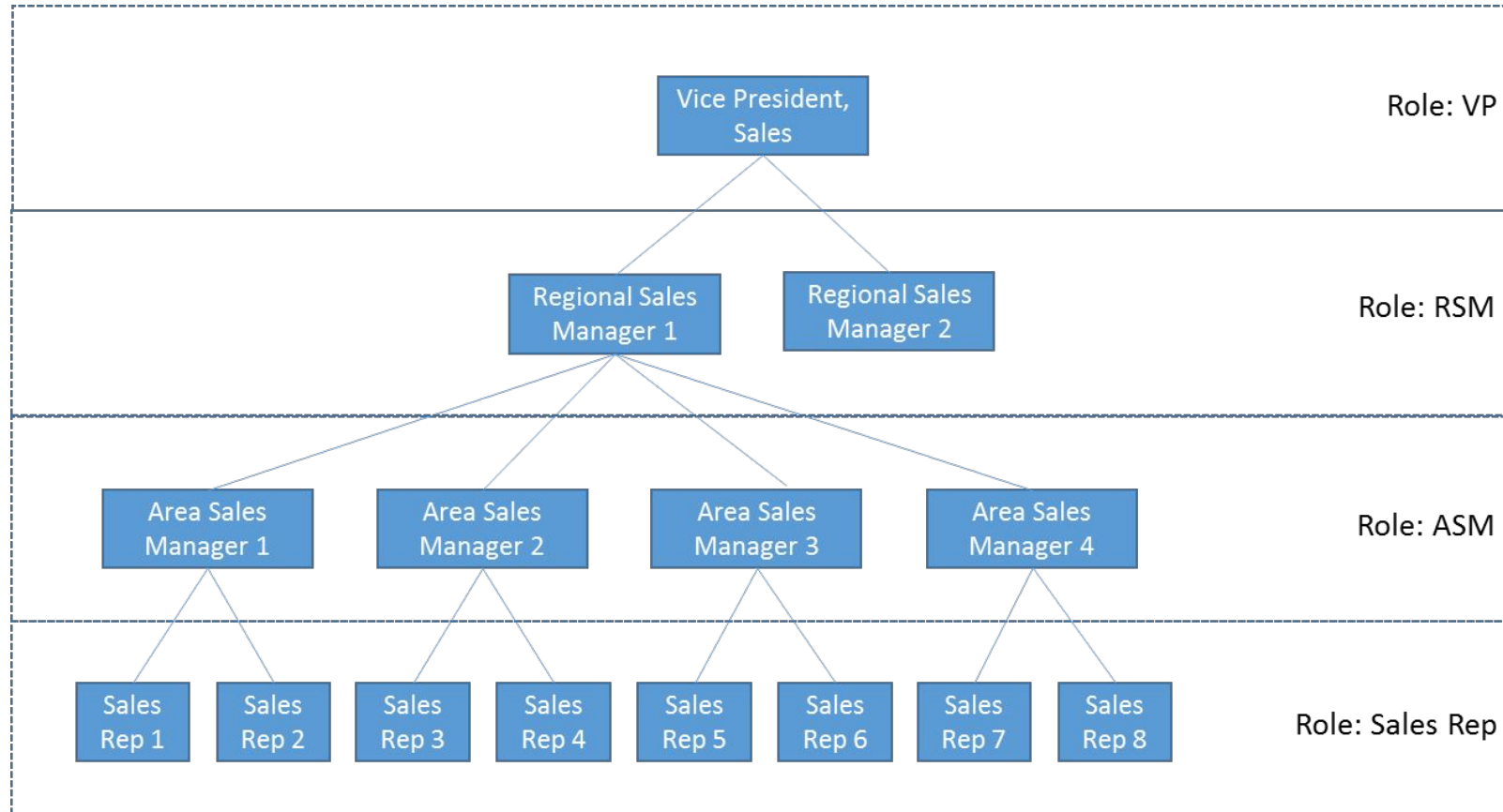
You can allow particular users to view an object, but then restrict the individual object records they're allowed to see.

You can manage record-level access in different ways

Data Visibility & Security: Records Sharing



Role Hierarchy



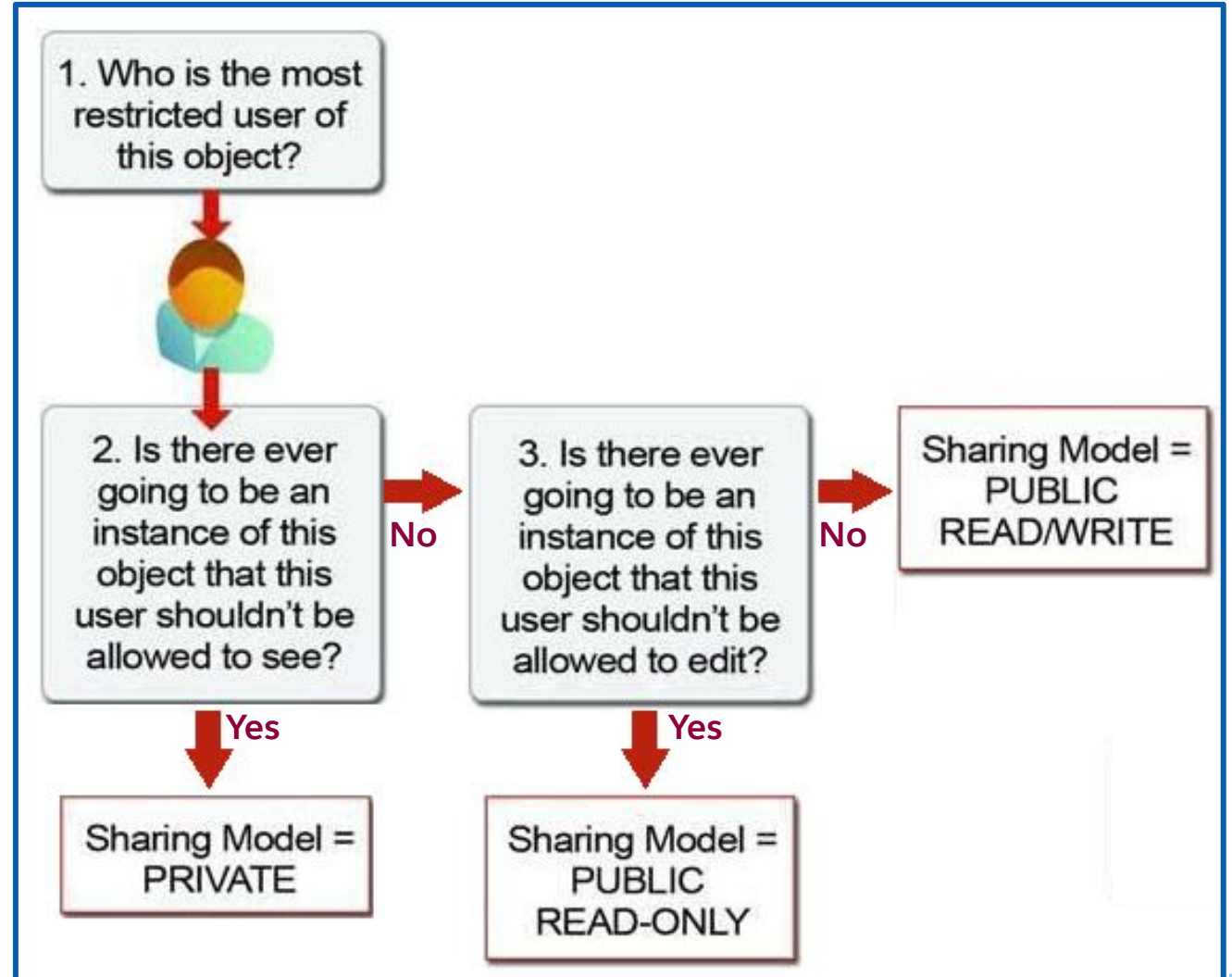
The role hierarchy **automatically grants** record-level permissions.

Data Visibility & Security: How To



How I can determine the org-wide defaults customer needs?

Ask yourself these questions about each object.

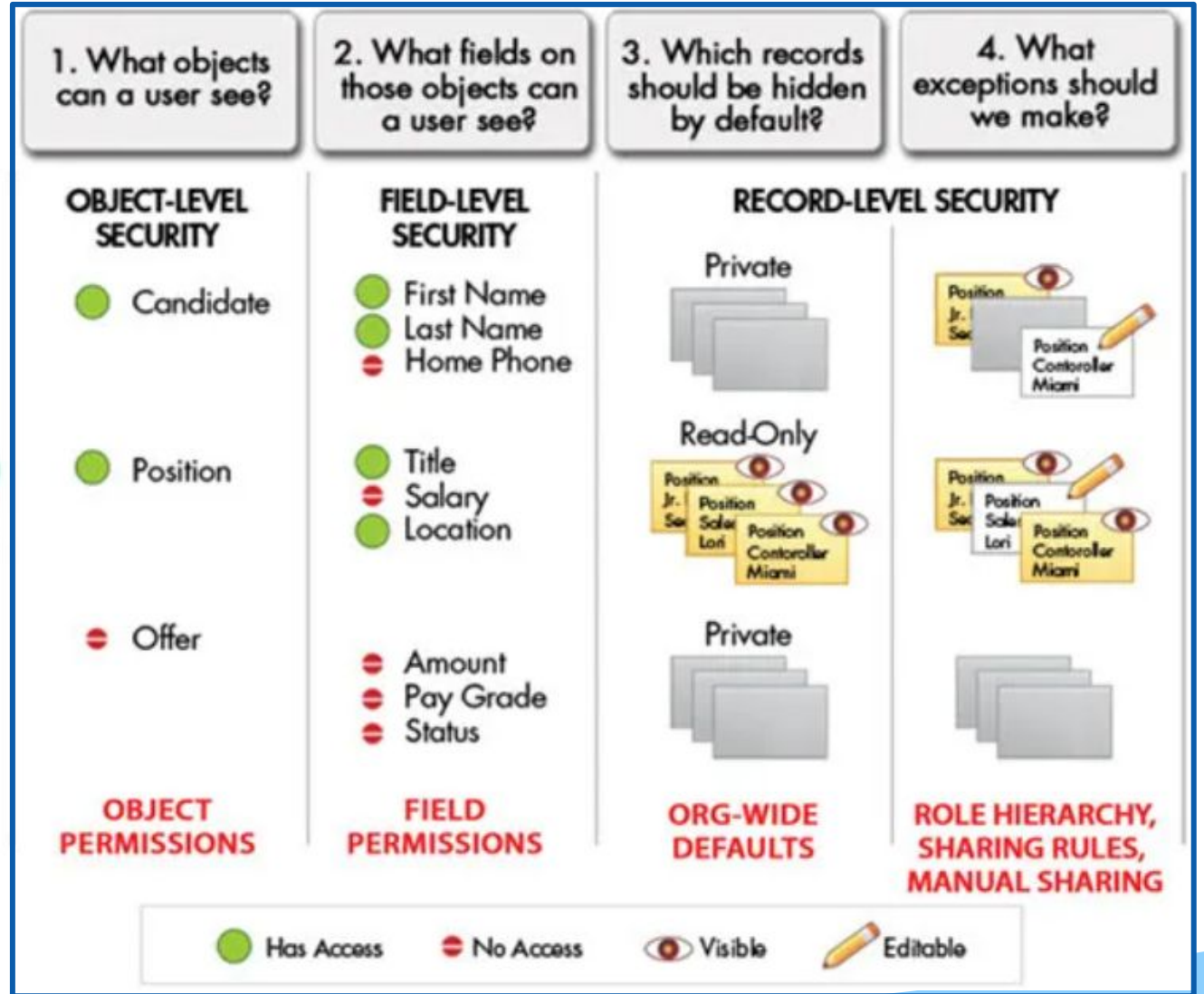


Data Visibility & Security: How To



How I can set up my users security model?

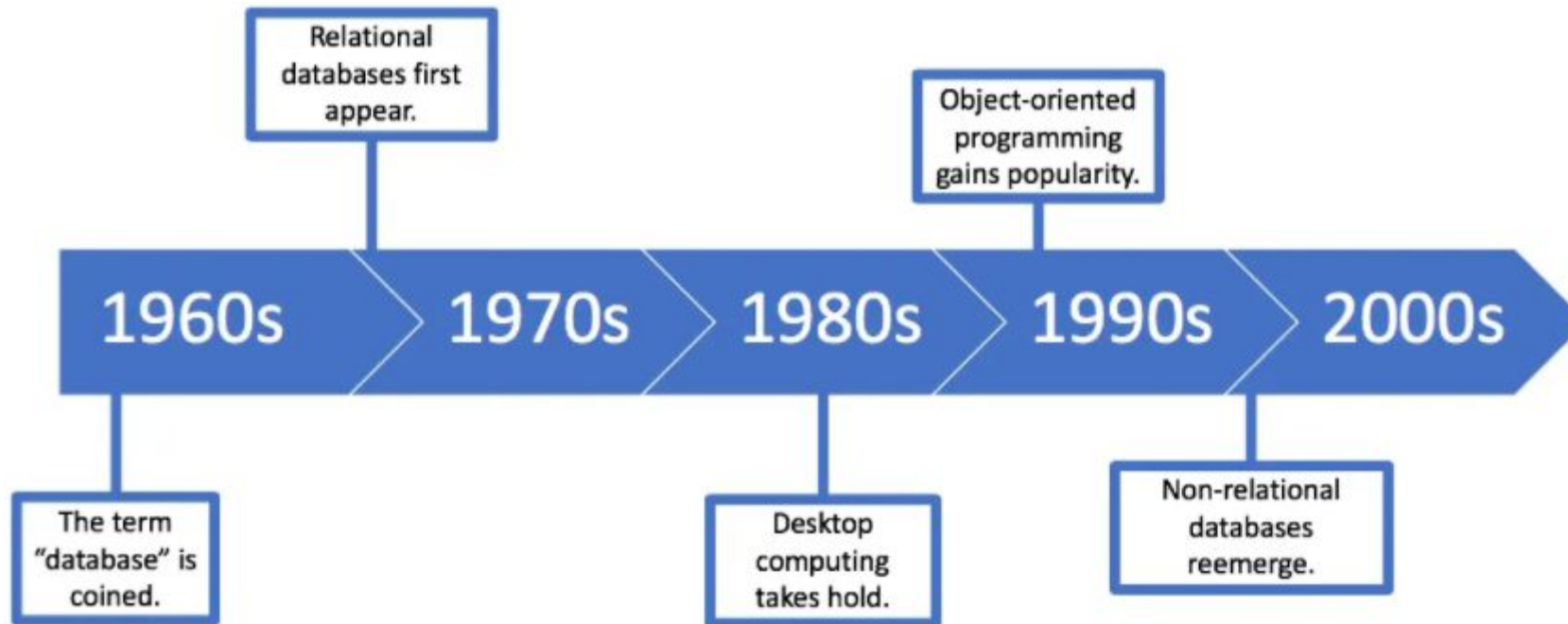
Make a table of the various types of users in your organization.



Strategies for Big Data Architecture

How is all this data organized and accessed?

“It’s in the cloud.” This is something we hear all the time. Of course any images it conjures of vapor and foggy mist are misleading because **the cloud is just a physical data center full of servers**. Salesforce has many of them, all over the world. But how is all this data organized and accessed? Well, **it all depends on the database**.



The term “database” emerged in the early **1960s**

Strategies for Big Data Architecture



Relational DB

Table A	
Primary Key	
a06U000000KvbWc	
a06U000000KxDiK	
a06U000000Kvm7L	

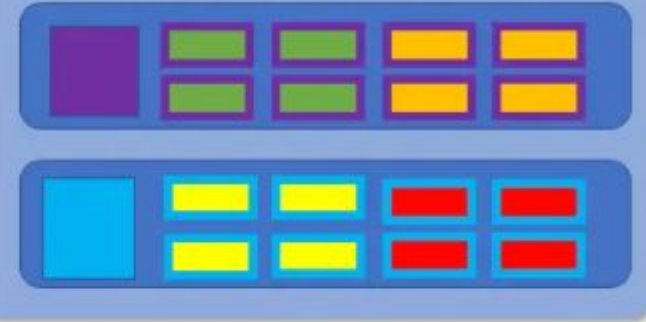
Table B	
Primary Key	Foreign Key
b01X000000WnbVc	a06U000000KvbWc
b01X000000WnBwE	a06U000000KxDiK
b01X000000WqIFy	a06U000000KxDiK
b01X000000WqvNd	a06U000000KxDiK
b01X000000WjhYO	a06U000000Kvm7L
b01X000000WkyUI	a06U000000Kvm7L

Non-relational Databases

Key-Value Pairs

Name Vijay
Street 1 Main St.
City New York

Column Oriented Store



Document

```
{  
  Username: "alanders"  
  Phone: {  
    Home: "555-456-1234"  
    Cell: "555-343-4312"  
  }  
}
```

Graph

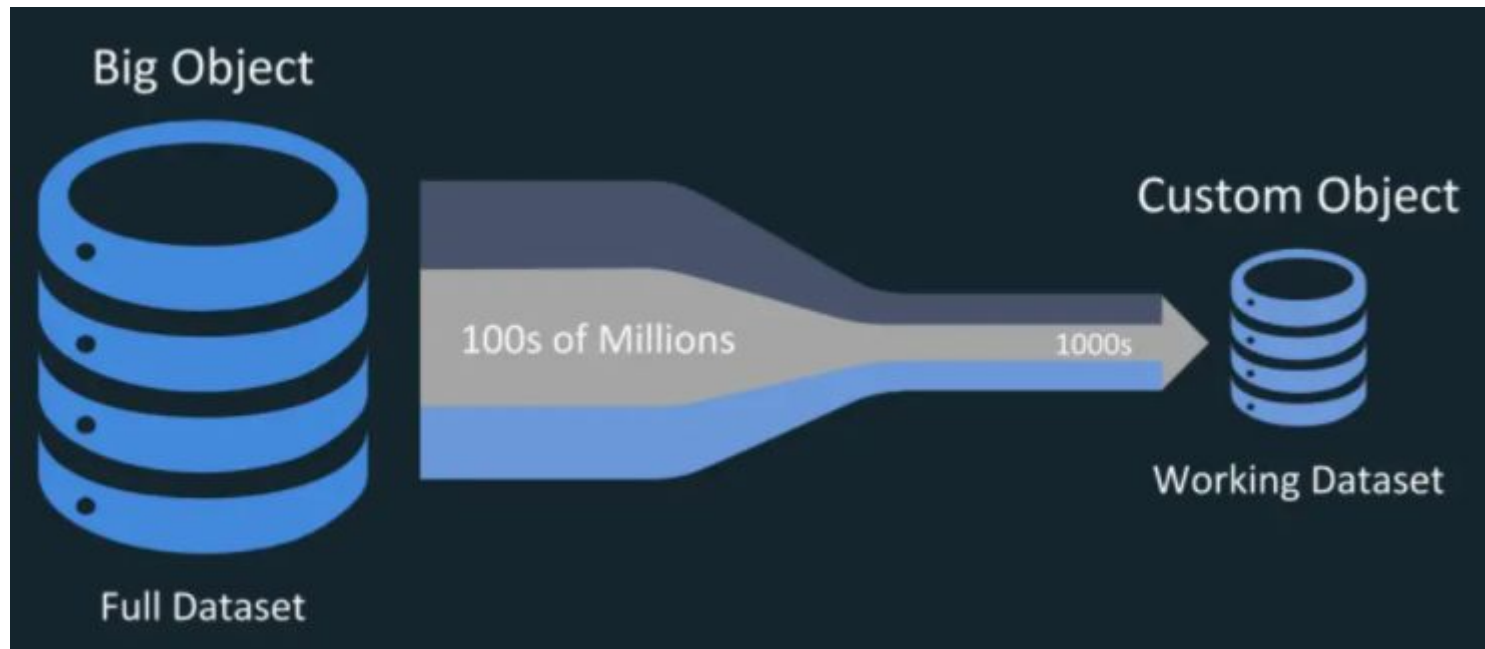


Each type of database suits different business requirements. When it comes to **huge volumes** of information, **non-relational** is the way to go

Strategies for Big Data Architecture

Hello, Salesforce Big Objects

As the name suggests, **Big Objects** store and manage a massive amount of data on the Salesforce platform. Salesforce recommends it for **anything over 20 million rows, into the billions**. Big Objects utilize a non-relational database to store data.



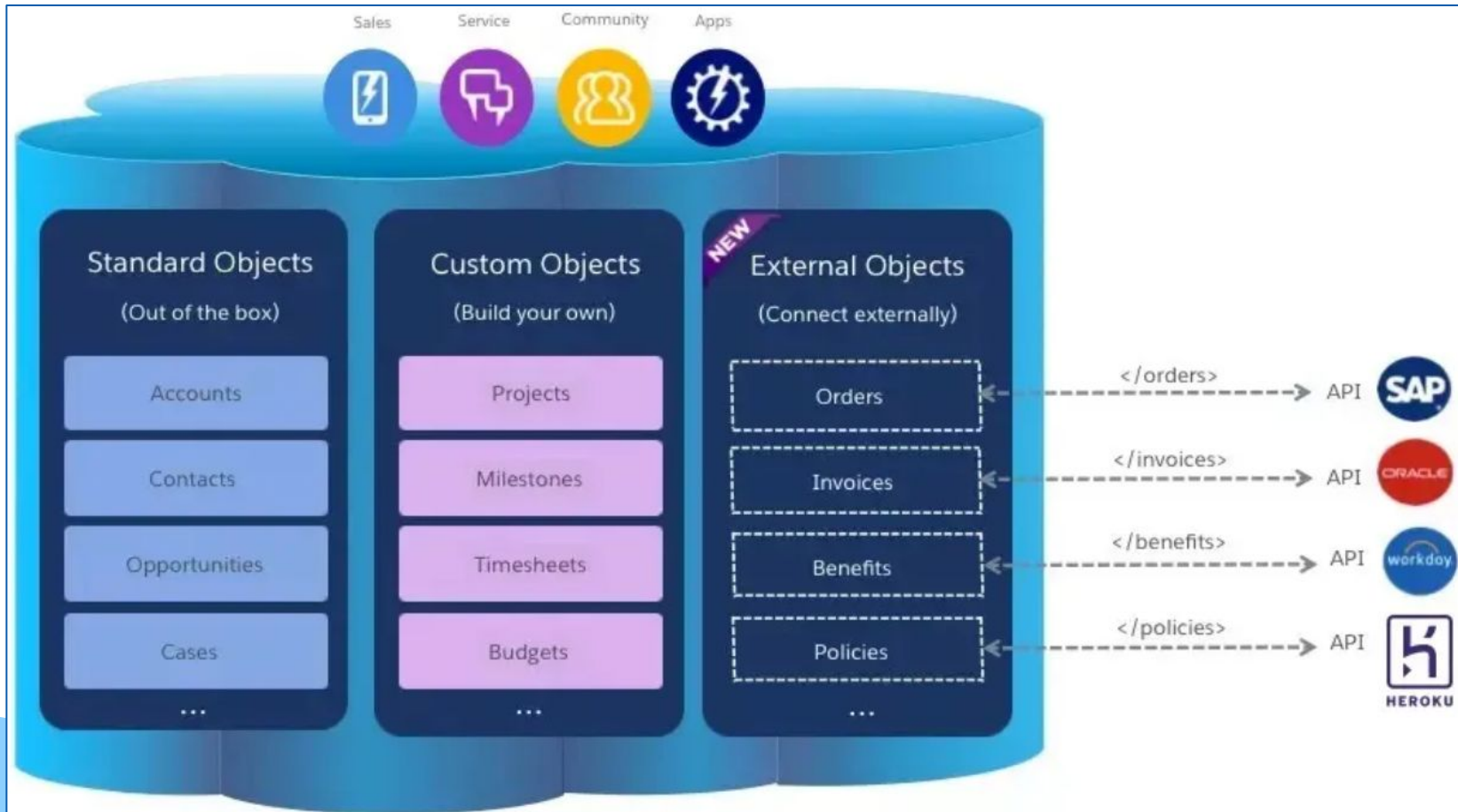
Analyze big data with declarative **Tableau CRM UI** instead of writing code to perform aggregate functions. Big Objects can be the source object in a dataflow.

Strategies for Big Data Architecture



Where the data lives? Which system is the master of data? Hello, External Objects

External objects are similar to custom objects, except that they **map to data that's stored outside your Salesforce org.**



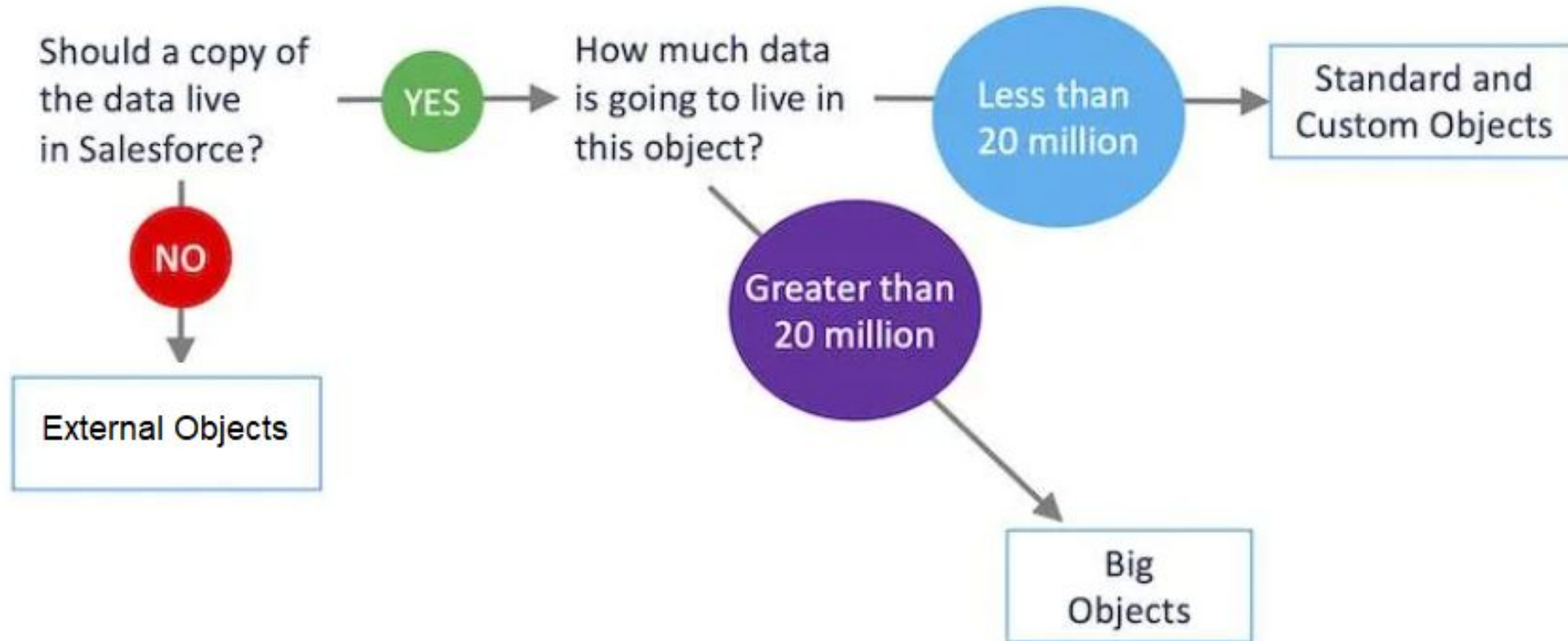
Data are stored in an external data source.

Salesforce Connect uses external data sources to access these external data.

Strategies for Big Data Architecture



Begin by asking a few questions: Should a copy of the data live in Salesforce? How much data are we talking about—over 20 million records? Once you know these things you can start to weed out solutions that don't fit.



Heroku: Platform as a Service

- What is this Heroku Platform thing?
- What can I do with it?

Heroku is a cloud **platform as a service (PaaS)**

Heroku is used to **build, deliver, monitor, and scale** applications

Heroku supports multiple **programming languages**



Node.js



Ruby



Java



PHP



Python



Go

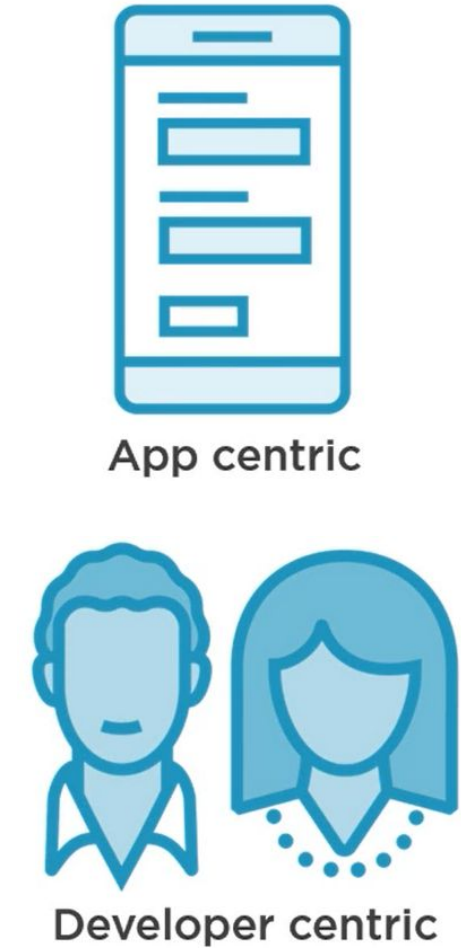
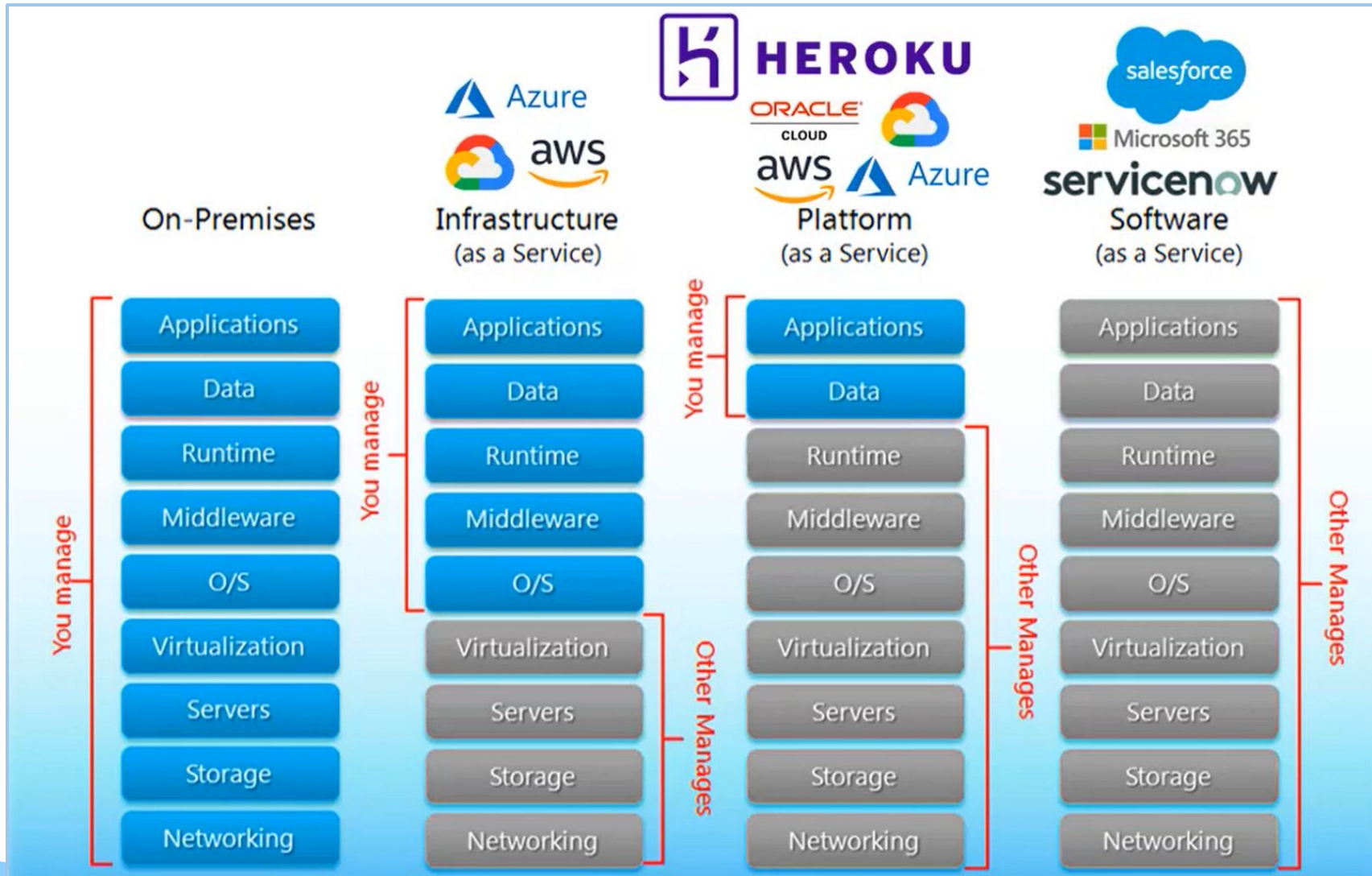


Scala

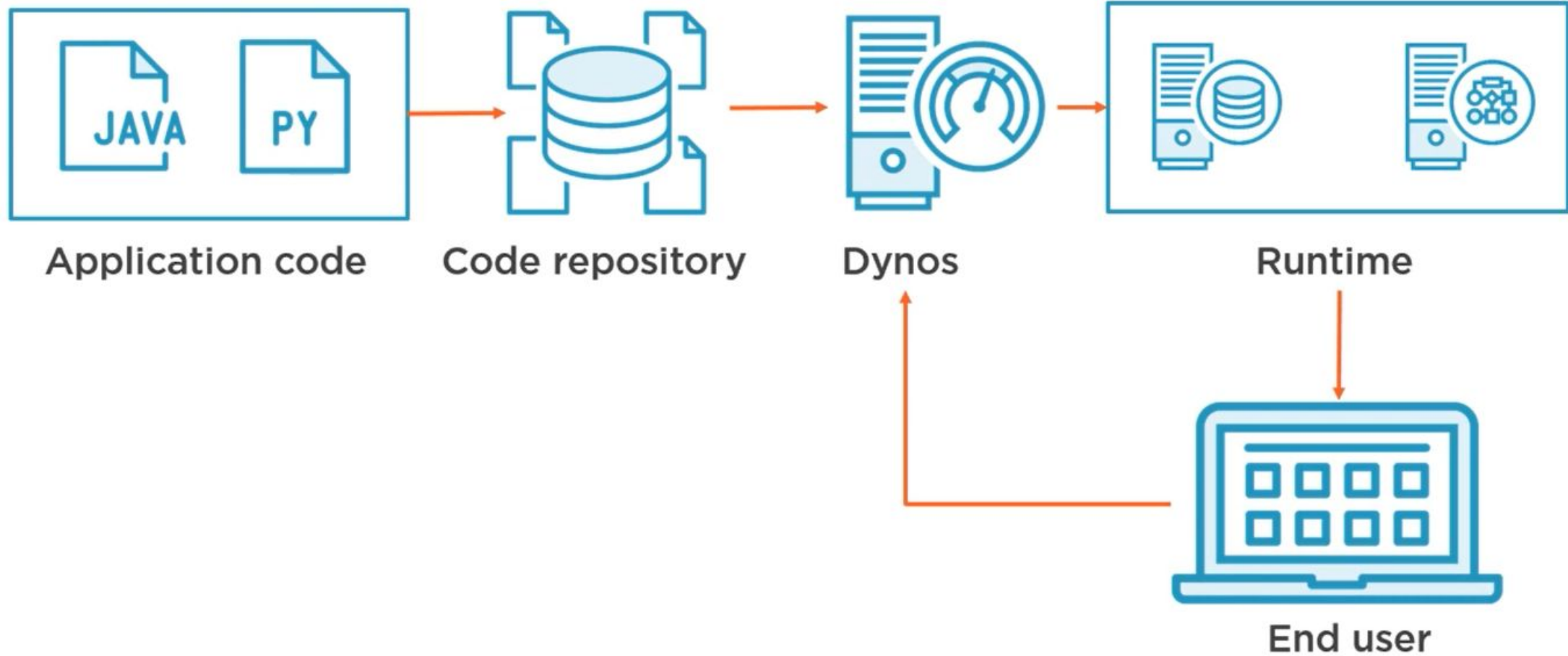


Clojure

Heroku: Where does it fit in Cloud?



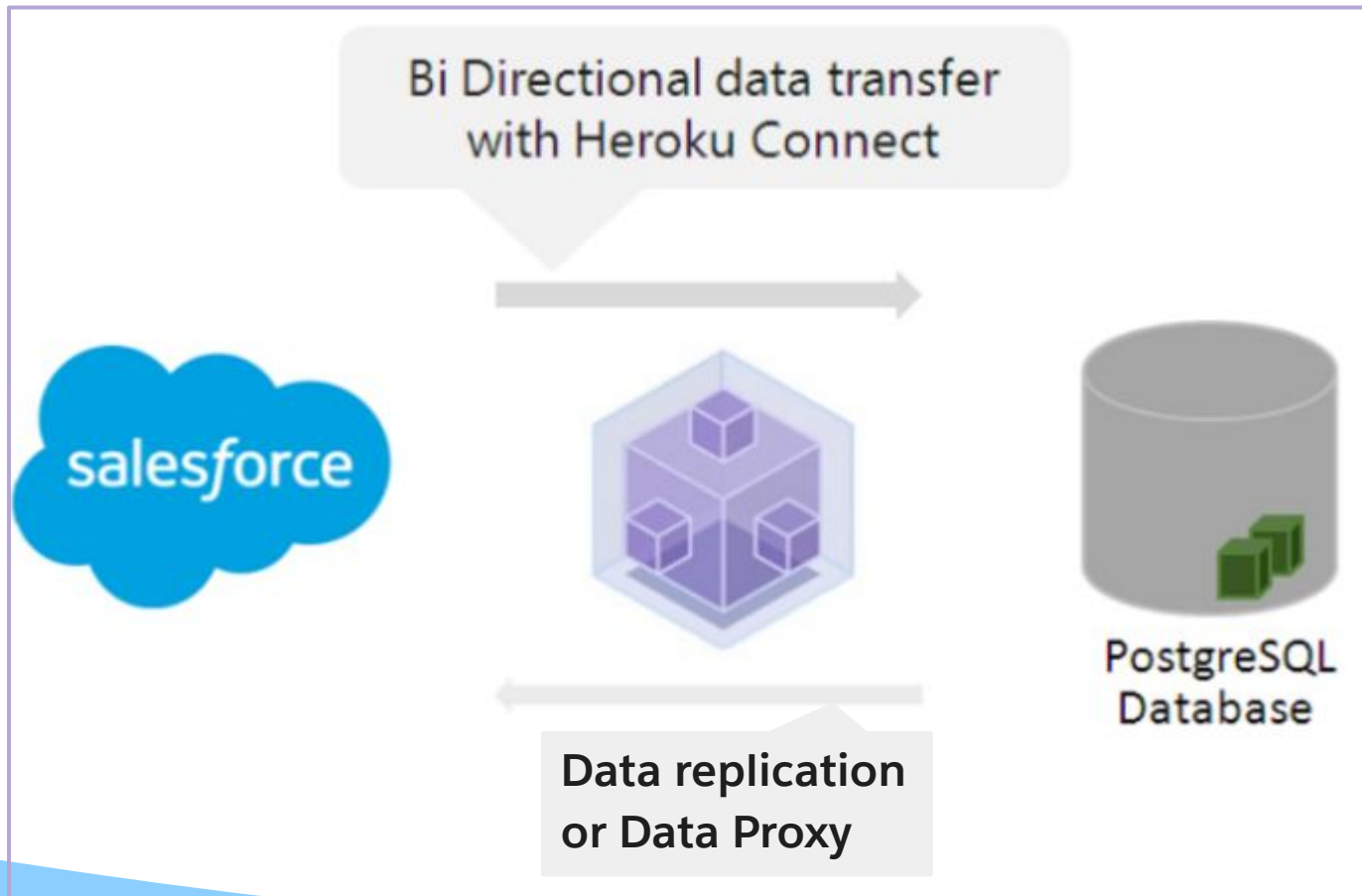
Heroku: Web Application Architecture



Heroku: Integration with Salesforce



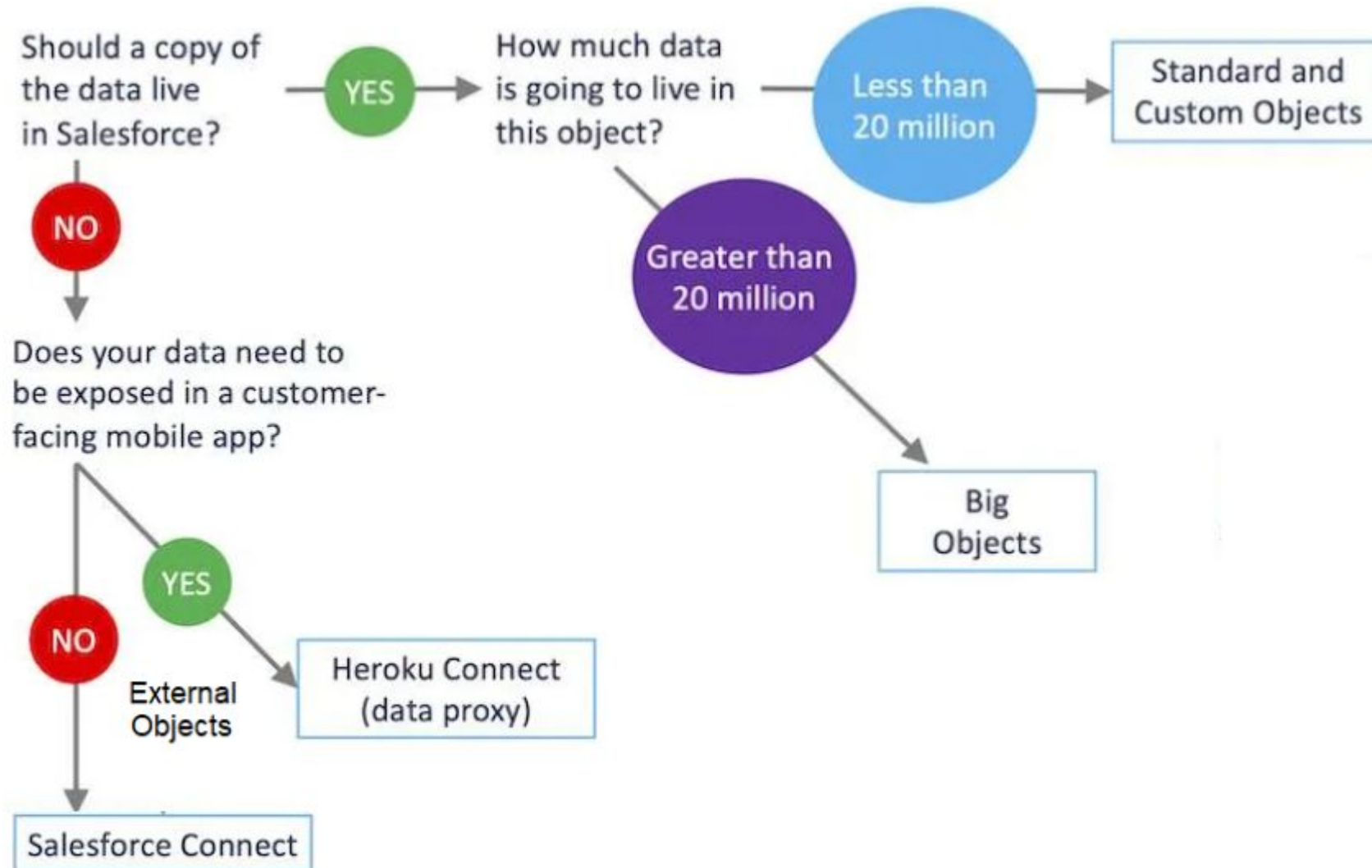
Heroku Connect is a service (add-on) that provide bi-directional data sync between SF and Heroku PostgreSQL DB.



Use Cases:

- Consolidate **multiple data sources** into **PostgreSQL**. And make all this data available in SF
- PostgreSQL as **DWH**
- Build **customer facing apps** on Heroku, with read/update data in PostgreSQL
- **Empowering Mobile** and IoT via API Services

Heroku: Another Choice for Big Data Architecture



CRM Data Strategy

An effective **CRM data management strategy** is founded on a solid understanding of customer business processes, users behavior and technology.

Consider these 5 steps when building your Salesforce Data Management Strategy:

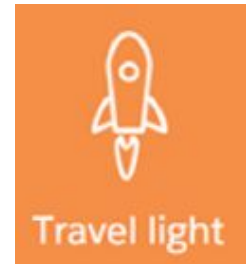


CRM Data Strategy - Archiving



Why do I need to move my data from Salesforce?

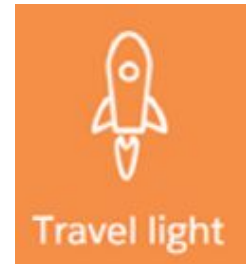
- Optimize data storage usage
- Reduce costs
- Consistent application performance
- Regulatory compliance



CRM Data Strategy - Archiving Solutions

How can I move my data from Salesforce?

- Data Extracts via Bulk API
- Big Object
- Heroku Based Solutions
- AppExchange Archiving Solutions
- Custom Solutions e.g. Data Lakes, DWH

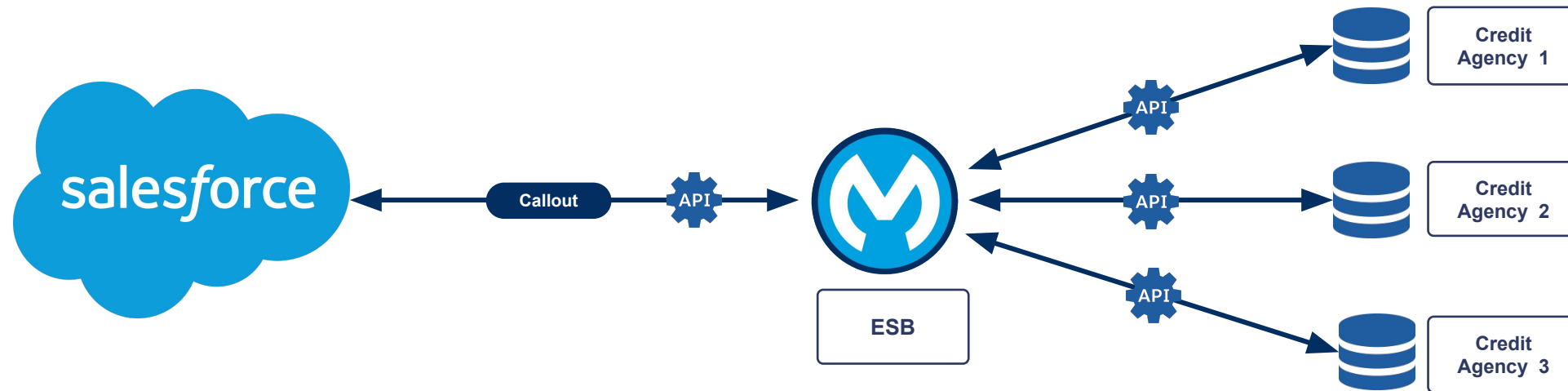


Integration



Synchronous Interaction

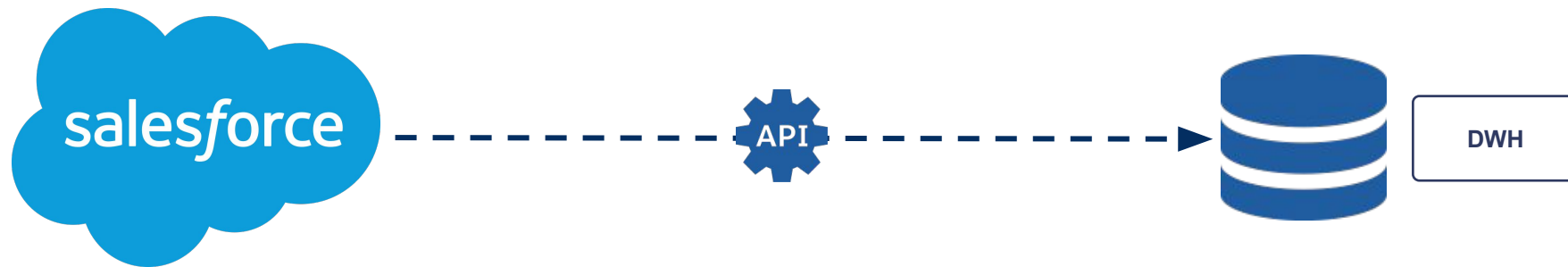
Example: credit check with external agencies/providers



Remote Process Invocation
Request and Reply

Asynchronous Interaction

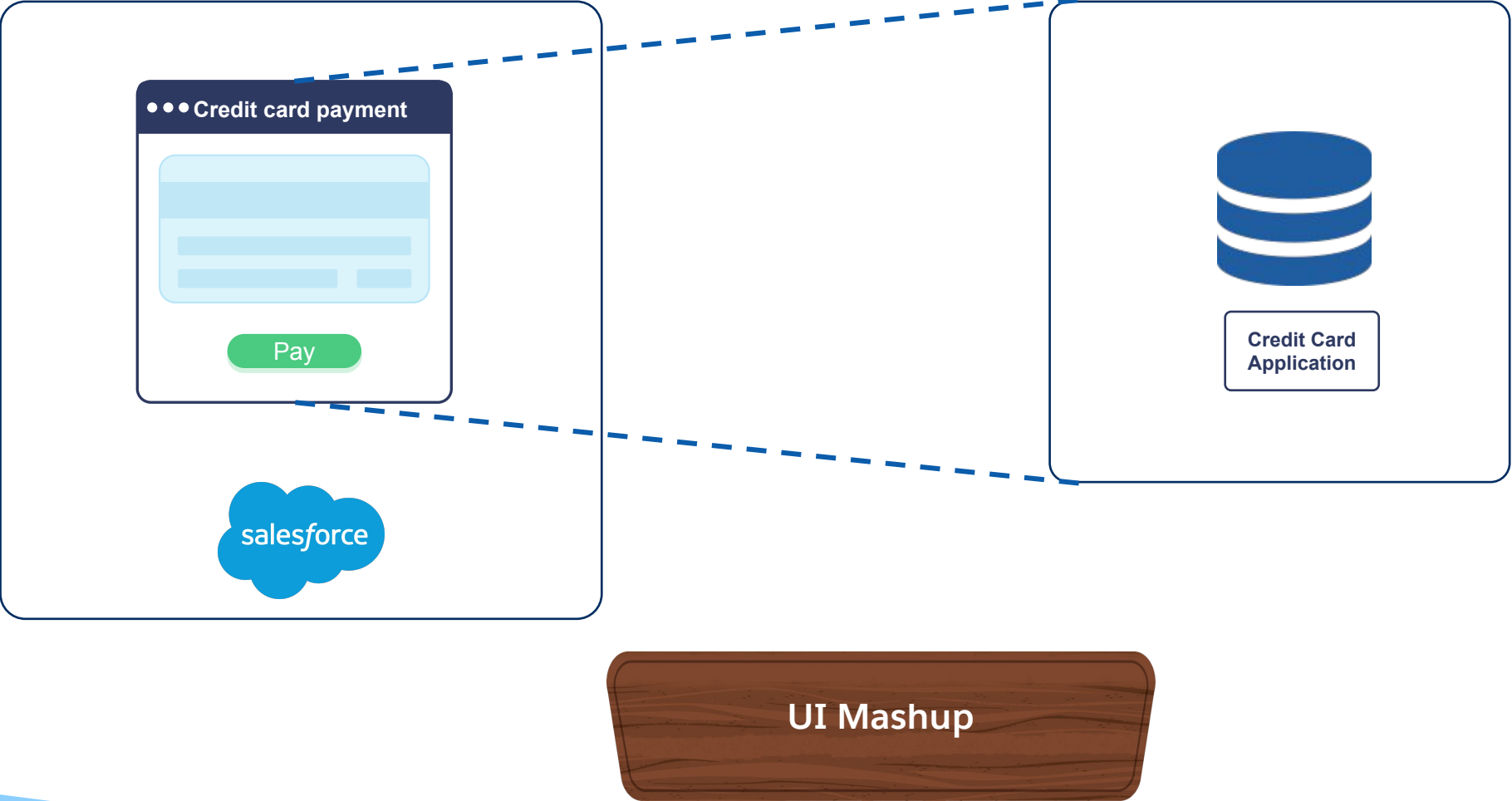
Example: align other systems (for example, ERP, DWH)



Remote Process Invocation
Fire & Forget

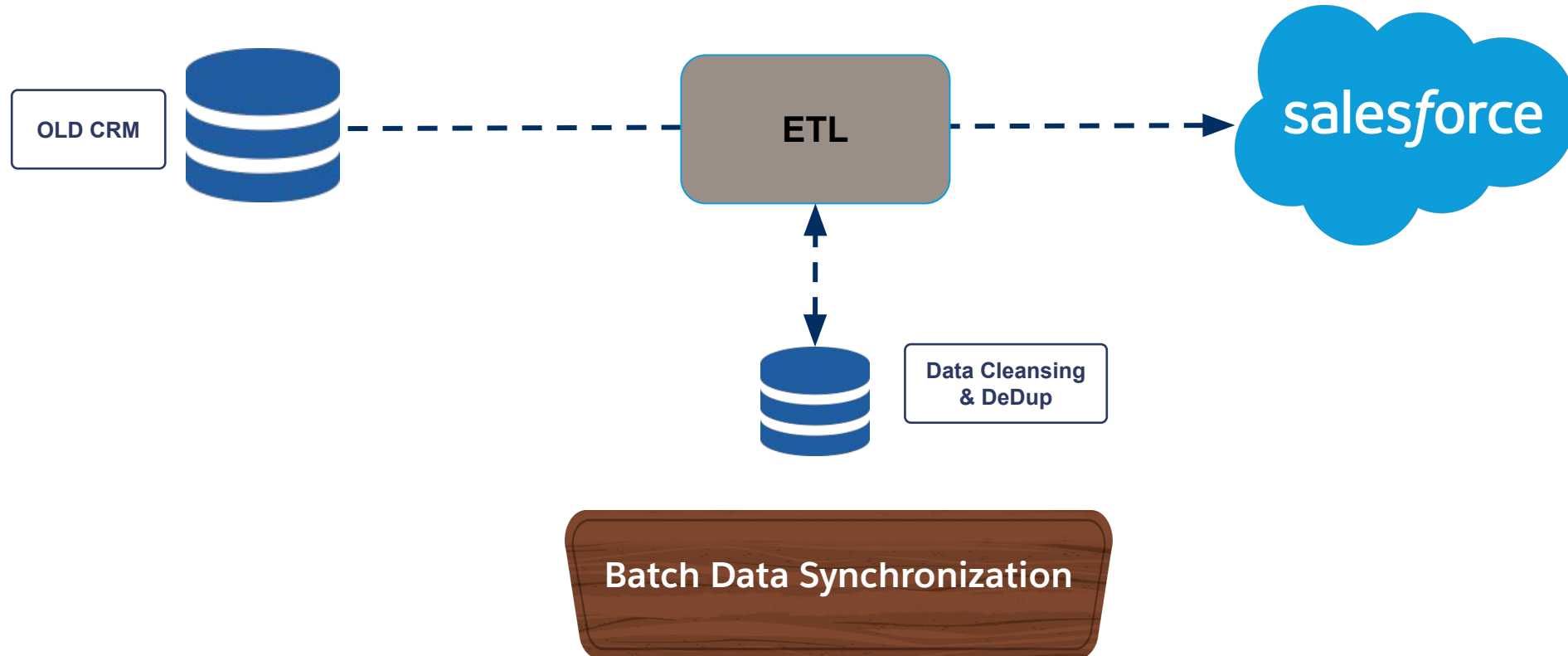
Embedded GUI Interaction

Example: Maps, Credit Card Mgmt Applications



Batch Alignment

Example: Massive data alignment, Data migration



What are the integration patterns?



Remote Process Invocation Request Reply

Salesforce invokes a process on a remote system, waits for completion of that process, and then tracks state based on the response from the remote system.



Remote Process Invocation Fire and Forget

Salesforce invokes a process in a remote system but doesn't wait for completion of the process. Instead, the remote process receives and acknowledges the request and then hands off control back to Salesforce.

Batch data Synchronization

Data stored in Lightning Platform is created or refreshed to reflect updates from an external system, and when changes from Lightning Platform are sent to an external system. Updates in either direction are done in a batch manner.



Remote call in

Data stored in Lightning Platform is created, retrieved, updated, or deleted by a remote system.



UI Update Based on Data Changes

The Salesforce user interface must be automatically updated as a result of changes to Salesforce data.

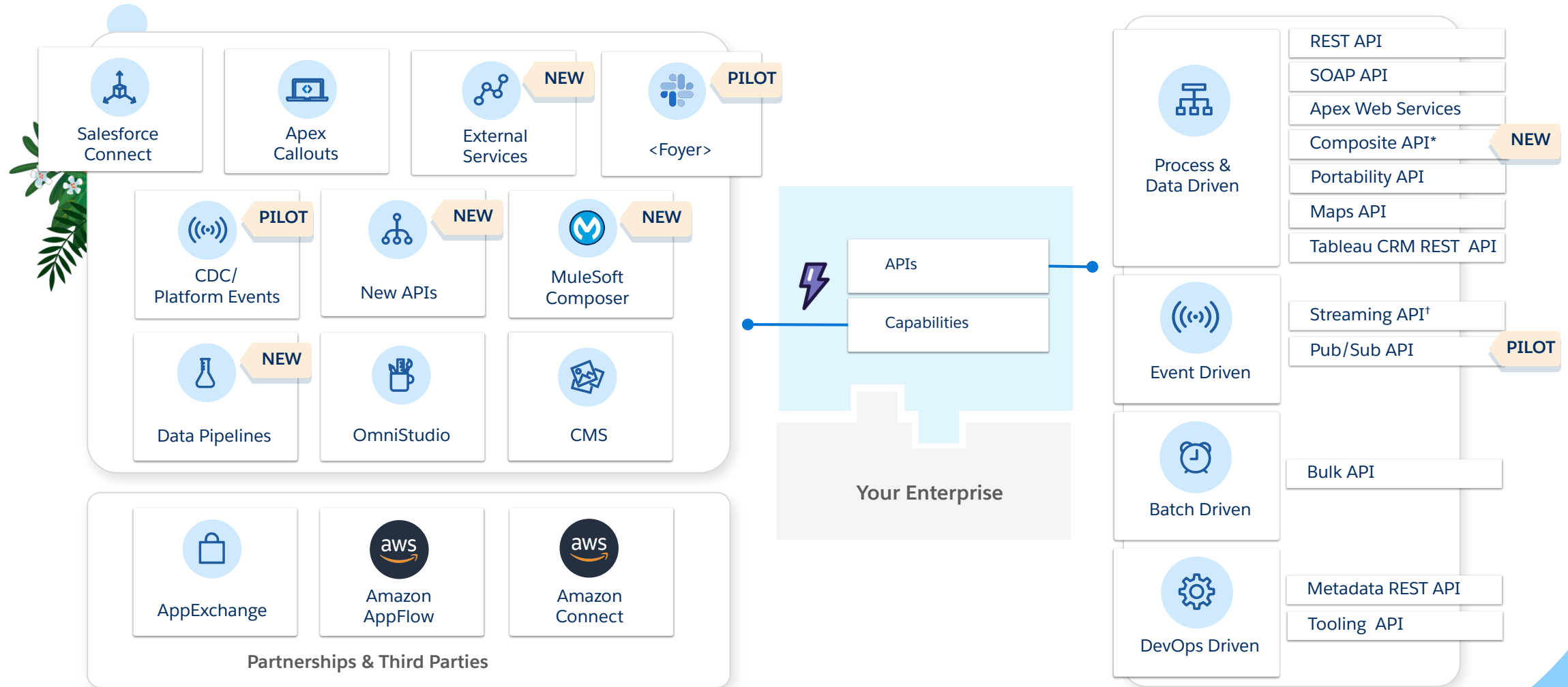


Data Virtualization

Salesforce accesses external data in real time. This removes the need to persist data in Salesforce and then reconcile the data between Salesforce and the external system.



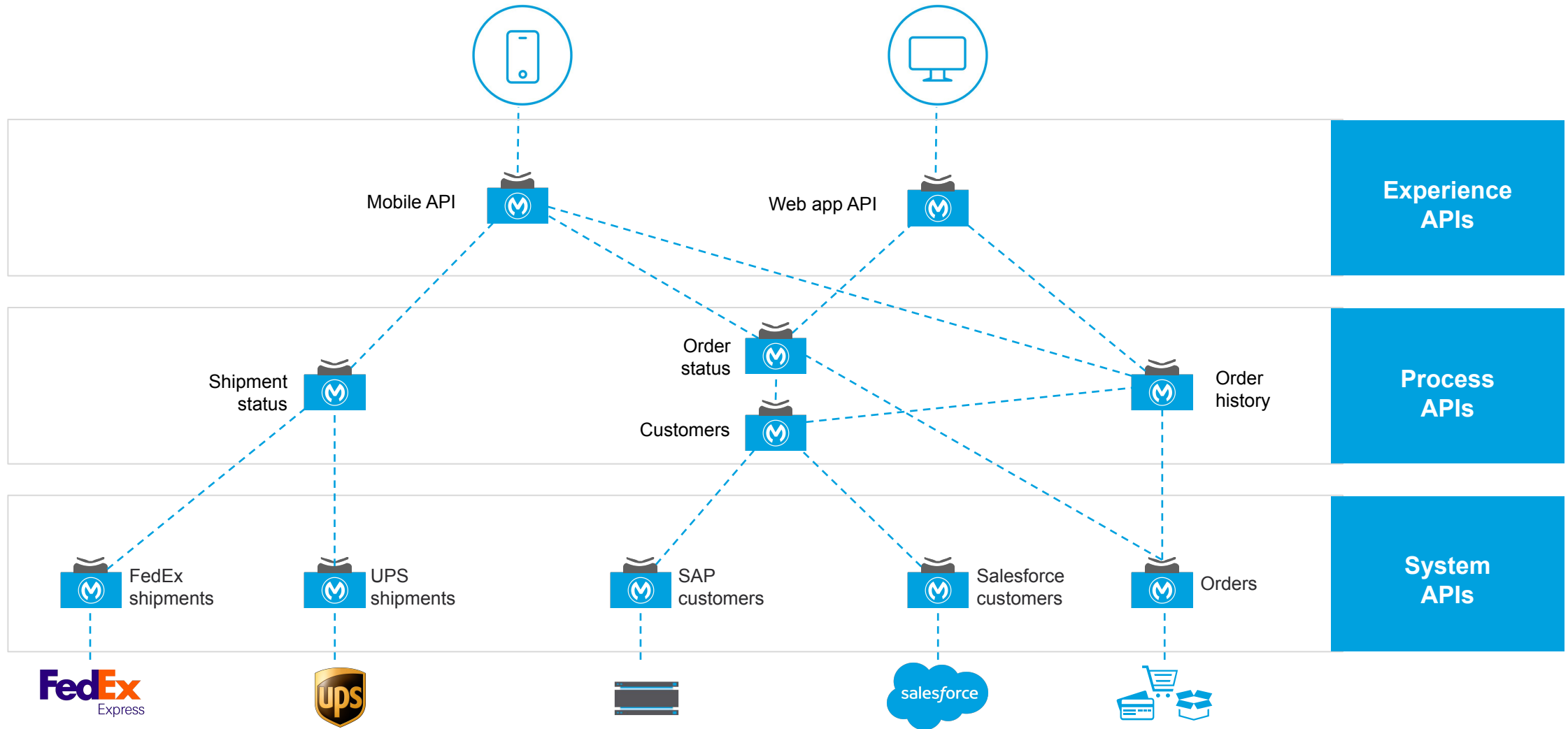
Salesforce Core Integration Options



*Composite resources include composite, batch, SObject tree, collections, graph (new - GA) and mass operations (new - Pilot)

†The Streaming API subscription mechanism supports multiple types of events, including PushTopic events, generic events, platform events, and Change Data Capture (CDC) events

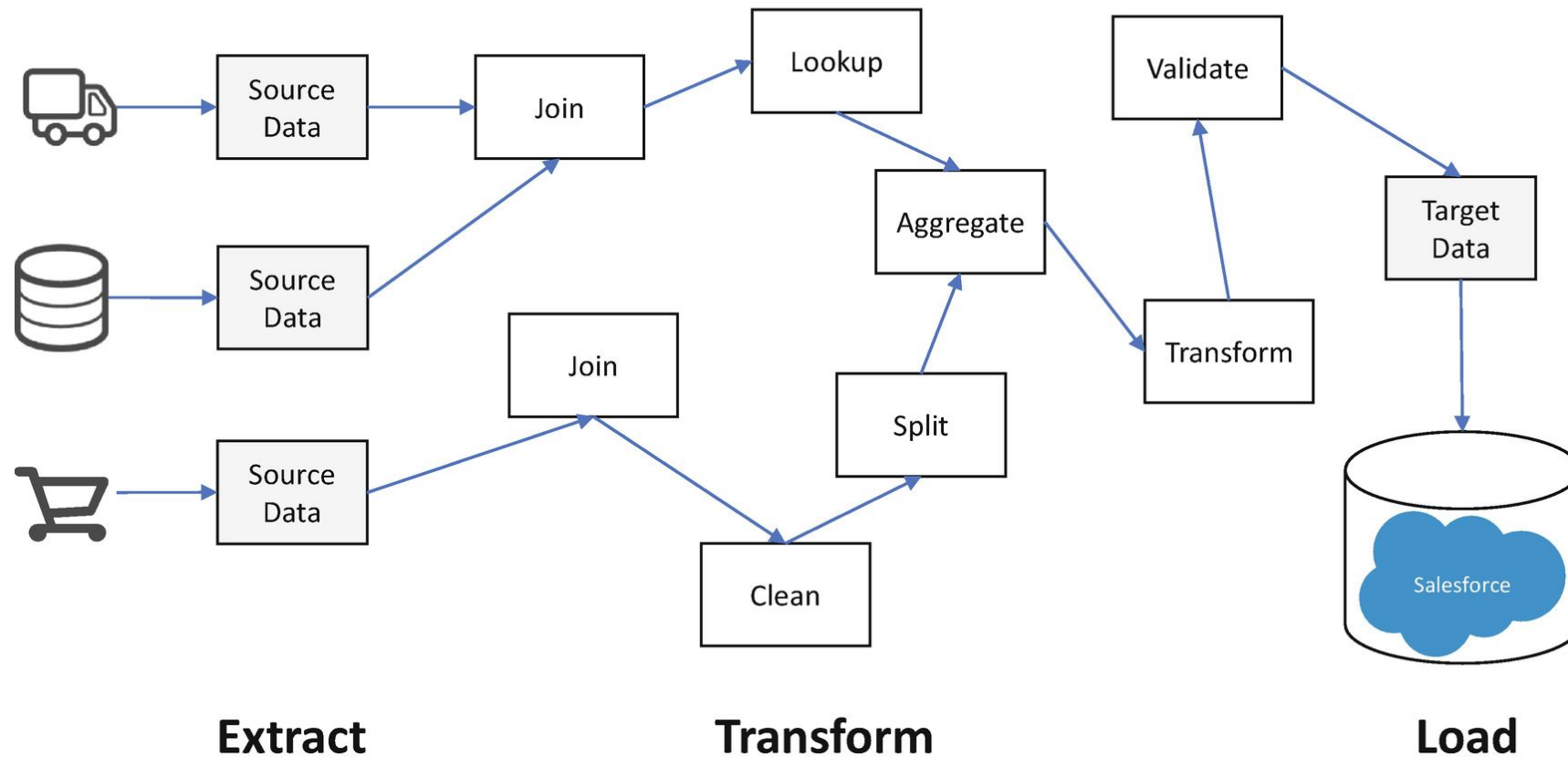
Mulesoft ESB Api-led approach



ETL process approach



ETL Process from Source data to Target data



Identity Management



Authentication - Authorization - Accounting



The key concepts of the “Identity Management”

Identification

A User presents his/her access **Credentials**

In a **Real Life** similar to presenting your plane ticket at the airport

In **Digital Life** typing your Username/Pwd into a system

Authentication

The process of confirming/verifying those **Credentials** are true and valid

In **Real Life** when the airport staff verify your ticket and make sure is valid (sometimes asking for second factor)

In **Digital Life** usually we don't see but in the back-end either a username/pwd verification occurs (or a SAML request to **Identity Provider**)

Authorization

The process of determining what can an **authenticated** user access and do in the system

In **Real Life** is similar in going to security check where they make sure you can access restricted areas

In **Digital Life** is still behind the scene, but once the user is authenticated the system (usually the **Service Provider**) enforces what **resources** has access to and what can the user do with those resources

Accounting

The recollection of user activities throughout the live of his/her session in the system

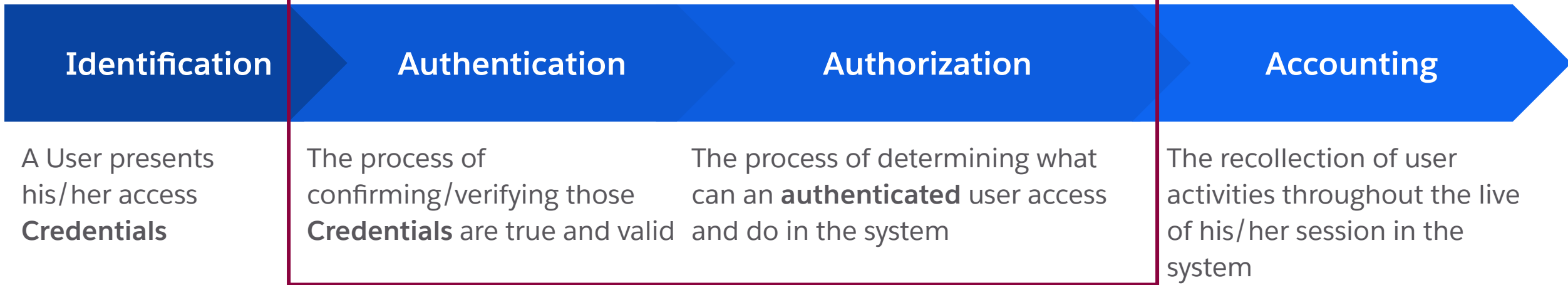
In **Real Life**, boarding the plane, when the ticket gets scan again

In **Digital Life** all the reports that summarize what the user where doing (Login History, Audit Log, etc.)



Authentication - Authorization - Accounting

The key concepts of the “Identity Management”



Identity

Identity of a digital user is the collection of digital information that truthfully allow you to know **WHO** the user is and **WHAT** he/she can access in the system

What is Single Sign On (SSO)?



Single sign-on (SSO) is an **authentication** scheme that allows a user to log in with a single ID and password to any of several related, yet independent, software systems.

Benefits

Reduce admin costs (password maintenance, forgot pwd on many system)

Leverage existing investment (many companies use LDAP to manage user identities)

Increase user adoption and productivity (user provisioning and just one login credentials)

Increase security (centrally managed user deprovisioning)

SSO & Salesforce

Federated Authentication (using SAML)

Delegated Authentication

Authentication providers

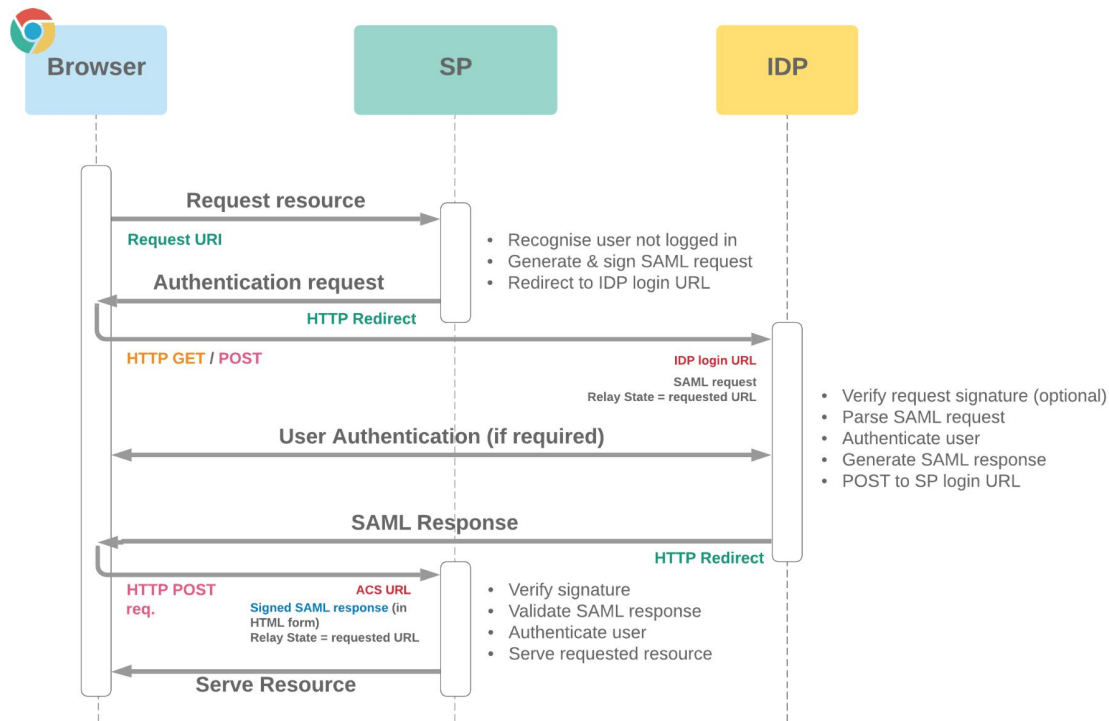


Authentication is done by an external Identity Provider (IdP) system and Salesforce is the Service Provider (SP)

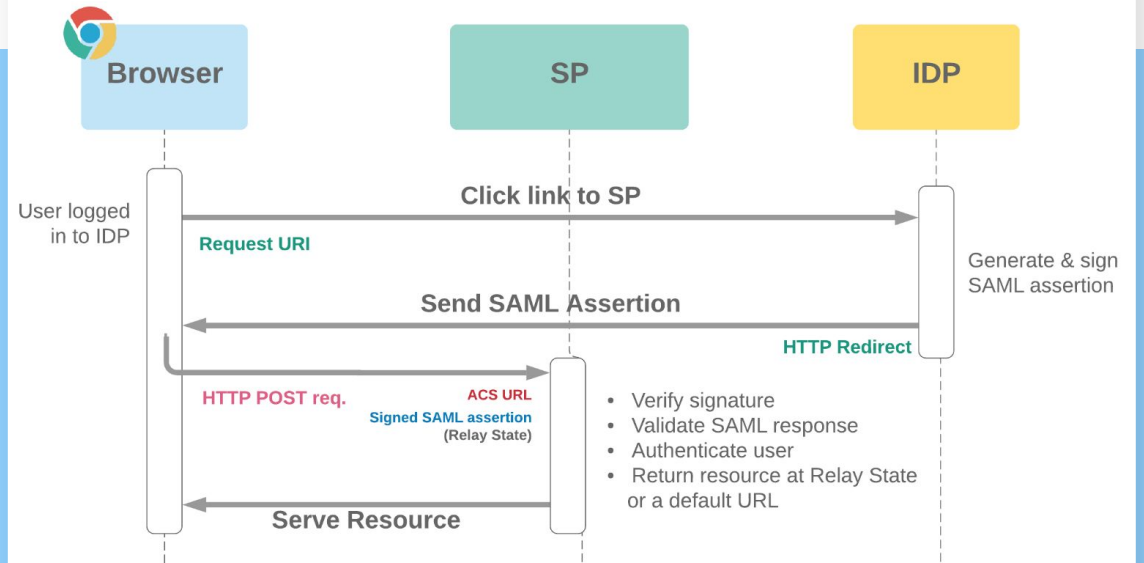
SSO SAML Flow - SP & IdP Initiated



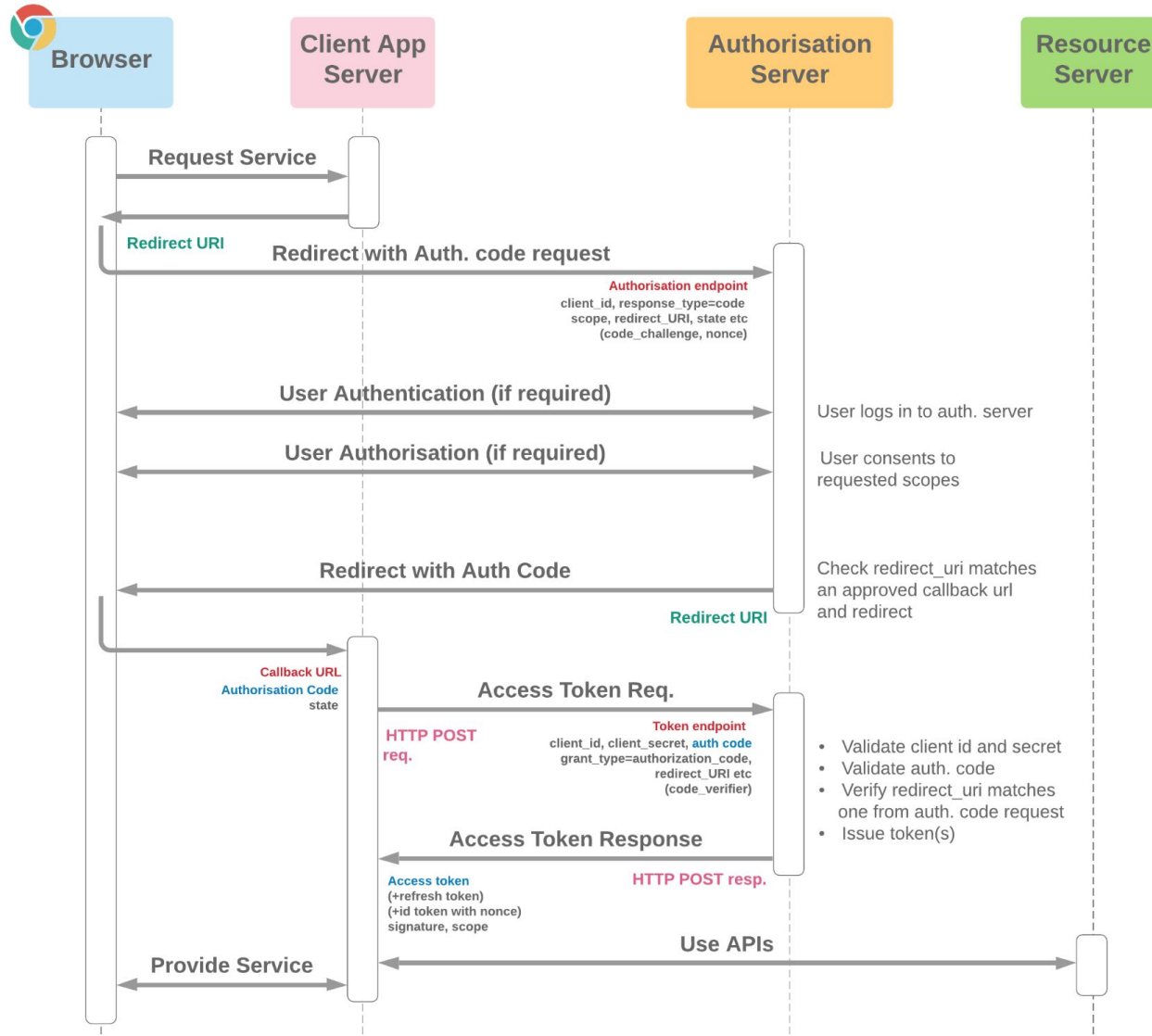
SSO - SP Initiated



SSO - IdP Initiated



Authorization Flows - OAuth 2.0





OAuth 2.0 Flows

There are several OAuth flow depending on the use case and device in place. These are just some of them:

OAuth 2.0 **Web Server Flow** for **Web App Integration** (Authorization Code Grant): used for Web Application Servers able to protect the connected app's identity

OAuth 2.0 **User-Agent** Flow for **Desktop or Mobile App Integration** (Implicit Grant): used for Mobile App or Web App that doesn't have a backend

OAuth 2.0 **JWT Bearer Flow** for **Server-to-Server Integration**: where instead there are no Web App on Browser

OAuth 2.0 **Device Flow** for **IoT Integration**: pps that run on devices with limited input or display capabilities, such as Smart TVs, appliances, and other IoT devices

OAuth 2.0 **Refresh Token Flow** for **Renewed Sessions**; renews access tokens issued by the OAuth 2.0 web server flow or the OAuth 2.0 user-agent flow.

OAuth 2.0 **SAML Bearer Assertion Flow** for Previously Authorized Apps: leverage a SAML Assertion to get an Access_Token

Cybersecurity

“Cybercriminals are developing and boosting their attacks at an alarming pace, exploiting the fear and uncertainty caused by the unstable social and economic situation created by COVID-19.”

Jürgen Stock, INTERPOL Secretary General



Distribution of the key COVID-19 inflicted cyberthreats based on member countries' feedback



Figure 2. What tactics are utilized? (Actions)

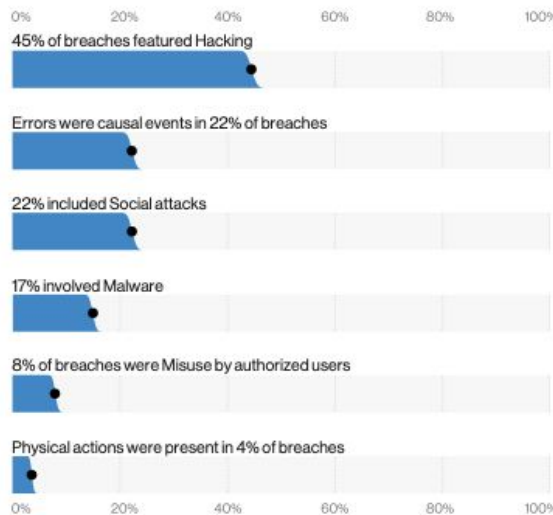


Figure 3. Who's behind the breaches?

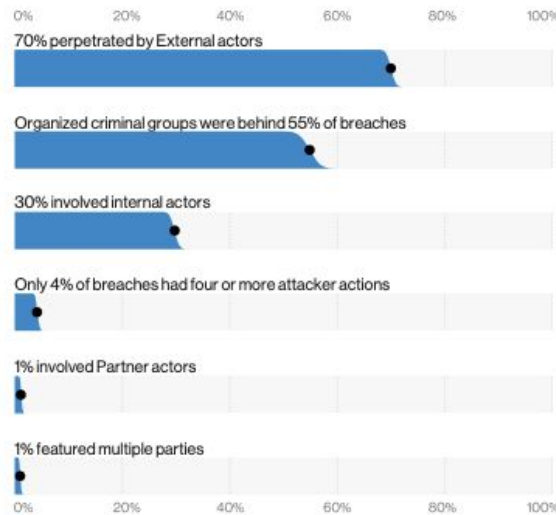


Figure 6. Select action varieties in breaches over time



Sources:

<https://www.interpol.int/en/News-and-Events/News/2020/INTERPOL-report-shows-alarming-rate-of-cyberattacks-during-COVID-19>

<https://enterprise.verizon.com/content/verizonenterprise/us/en/index/resources/reports/2020-data-breach-investigations-report.pdf>

Multi Factor Authentication (MFA)

MFA is an effective way to increase protection for user accounts against common threats like phishing attacks, credential stuffing, and account takeovers



Something you know

Such as a username and password, or pin number



Something you have

Such as a one-time passcode from a hardware device or mobile app



Something you are

Such as fingerprint or face scanning technology



Because MFA requires you to submit multiple forms of authentication to prove your identity, your account is less likely to be compromised or breached

Salesforce is enforcing this additional layer of security on all his products by February 2022

Development Lifecycle



How do we develop in Salesforce?

From No-Code to Code



LOW-CODE

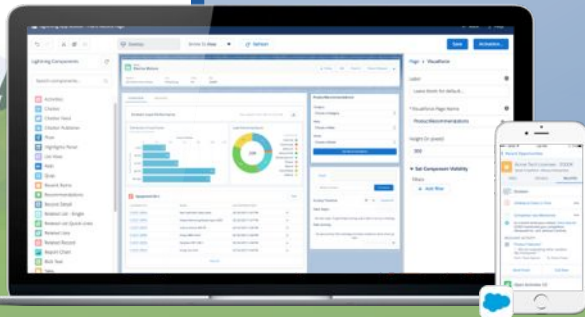
NO-CODE

CODE

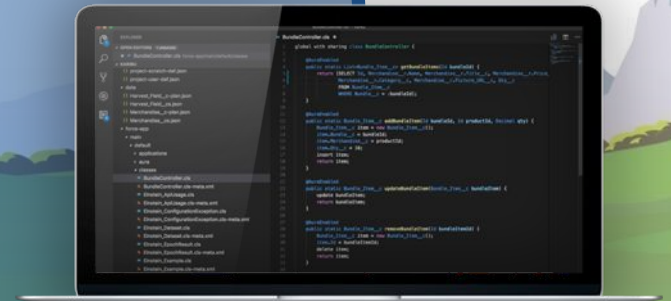


Toya Gatewood
Consultant

Jordan McDaniel
Developer & Architect



BUSINESS USERS

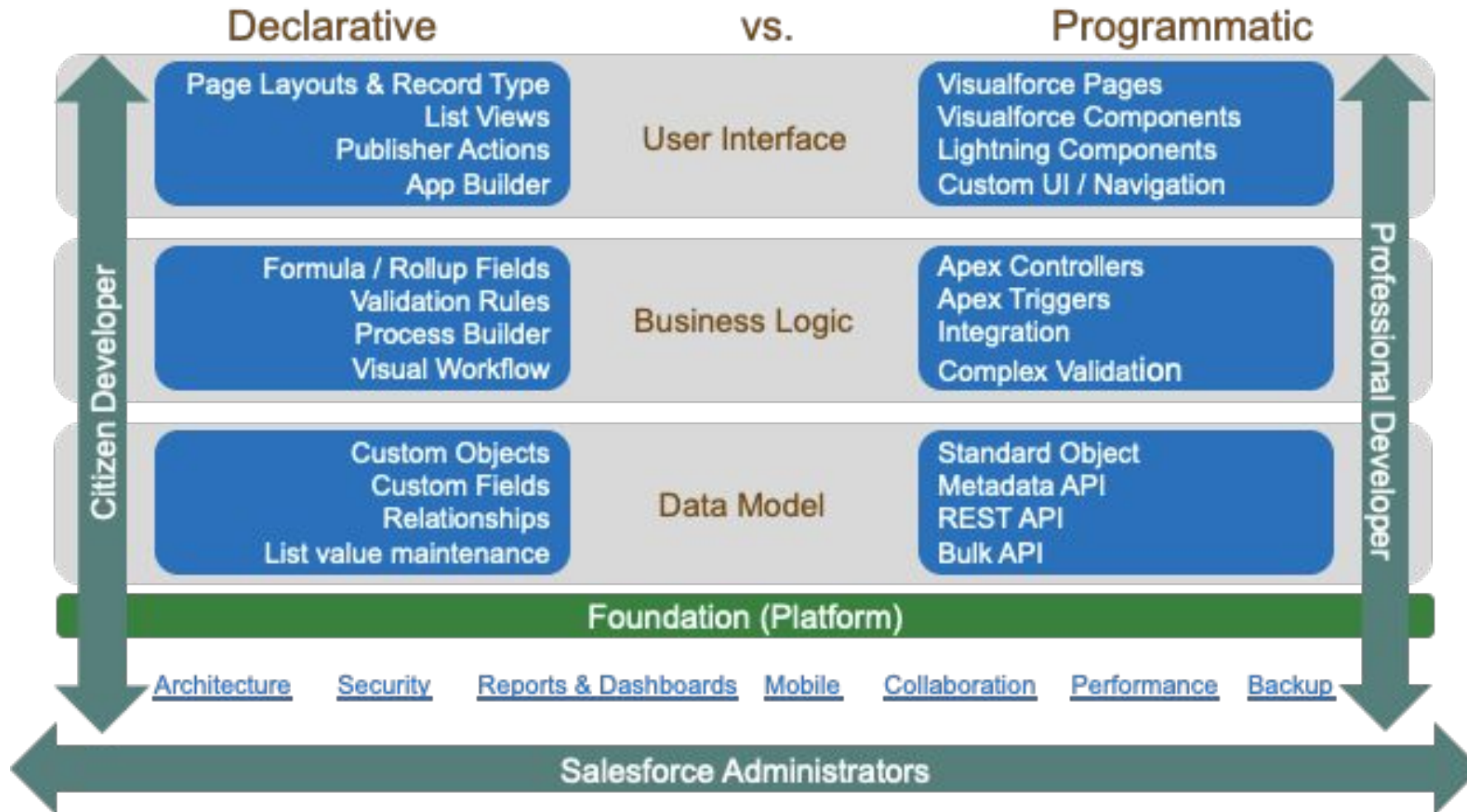


DEVELOPERS

Slide su no code, low code, code



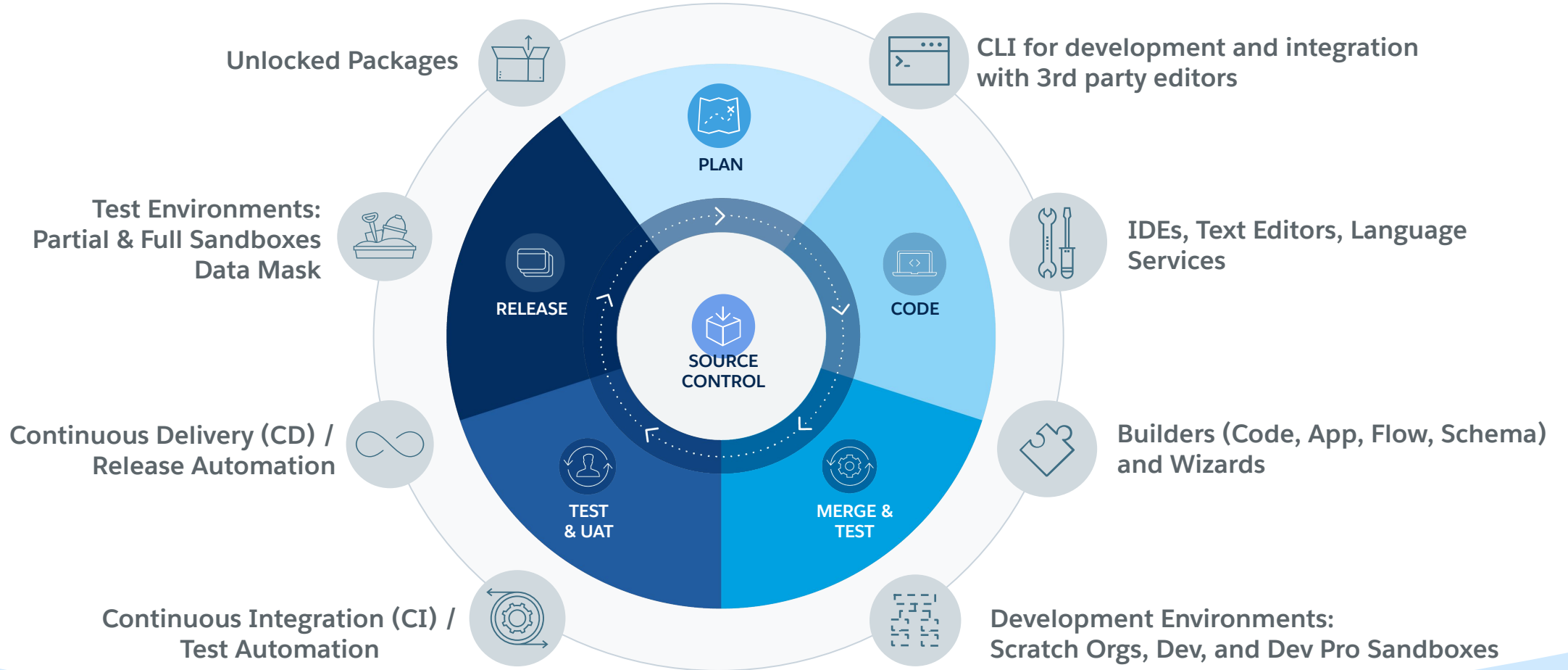
Several options for all types of users and application layers





Modern Application Lifecycle Management (ALM)

The fast, efficient, and trusted path to build on Salesforce



Development Models



Customizing Core Applications:
Sales, Service, etc



Org (Unpackaged) Development

- Declarative (UI)
- Programmatic (CLI)

Creating Custom Platform
Applications for your Org(s)



Package Development

- Programmatic (CLI)



Environments? Sandboxes!



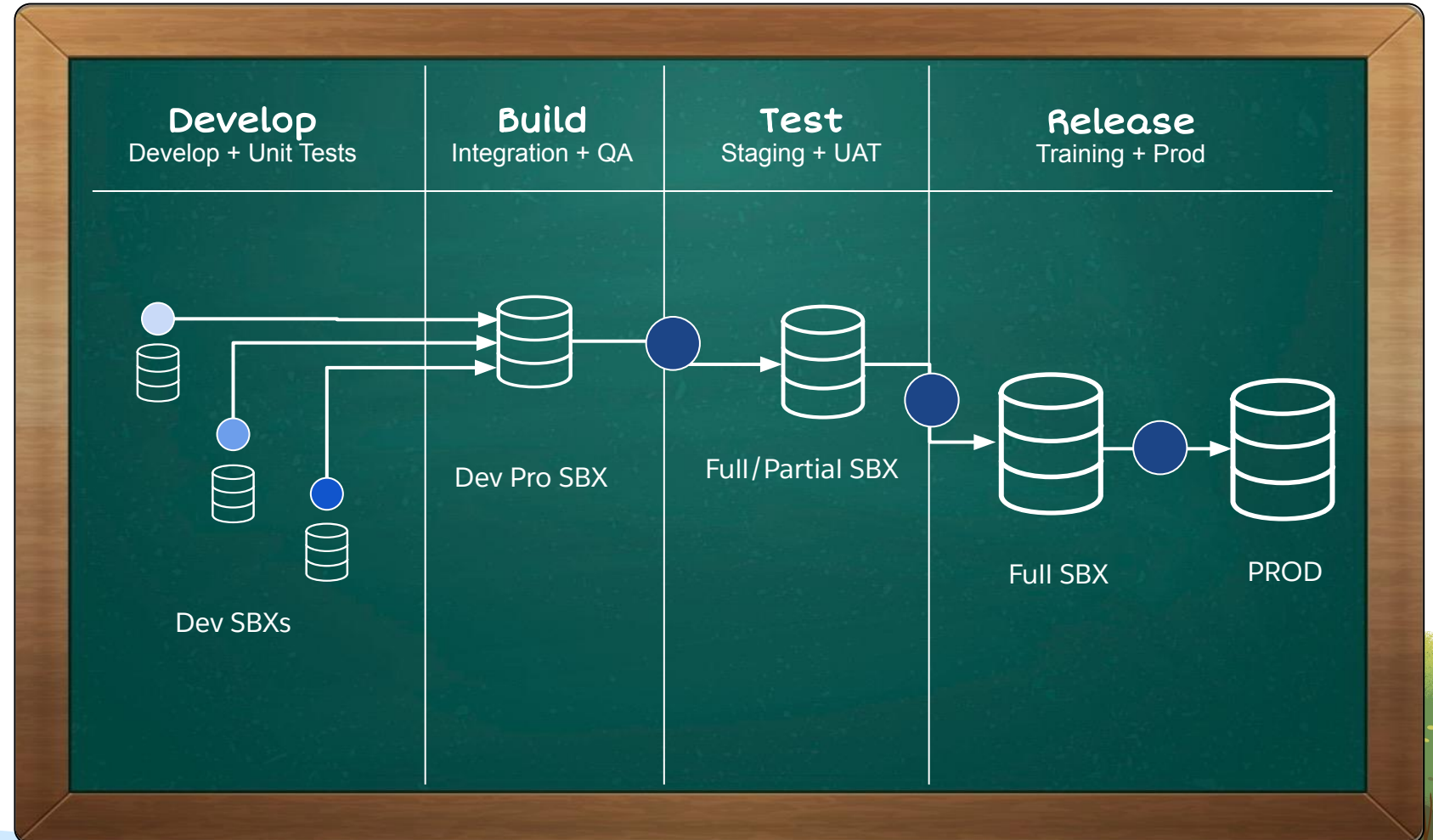
SANDBOX TYPE	REFRESH INTERVAL	STORAGE LIMIT	WHAT'S COPIED	TEMPLATES
Developer	1 day	Data storage: 200 MB File storage: 200 MB	Metadata only	Not available
Developer Pro	1 day	Data storage: 1 GB File storage: 1 GB	Metadata only	Not available
Partial Copy	5 days	Data storage: 5 GB File storage: Same as your production org	Metadata and sample data	Required
Full	29 days	Same as your production org	Metadata and all data	Available

Declarative Org (Unpackaged) Development Model



Promote org changes in Setup using Change Sets

Code is promoted through **Outbound and Inbound Change Sets**



Change Sets Limits

Convenient for small orgs, but poorly suited to the needs of larger implementations

Collaboration is hard

No conflict detection

No ability to merge changes in the same metadata

Lack of traceability

Why was this change performed? By Who? When?

Time consuming

Components have to be added manually

Does not play well with Continuous Integration



- An architect trying to scale with change sets -

What is Source Control & Git?

An open-source distributed source code management system for the practice of tracking and managing changes to code

Source control (or version control) is the practice of tracking and managing changes to code. Source control management (SCM) systems provide a running history of code development and help to resolve conflicts when merging contributions from multiple sources.

Git is a distributed, open-source version control system (VCS) that enables you to store code, track revision history, merge code changes, and revert to earlier code version when needed. Git allows you to create a copy of your repository known as a **branch**.

Using this branch, you can then work on your code independently from the stable version of your codebase. Once you are ready with your changes, you can store them as a set of differences, known as a commit. You can pull in commits from other contributors to your repository, push your commits to others, and merge your commits back into the main version of the repository.

To learn more about Git, [go here](#).



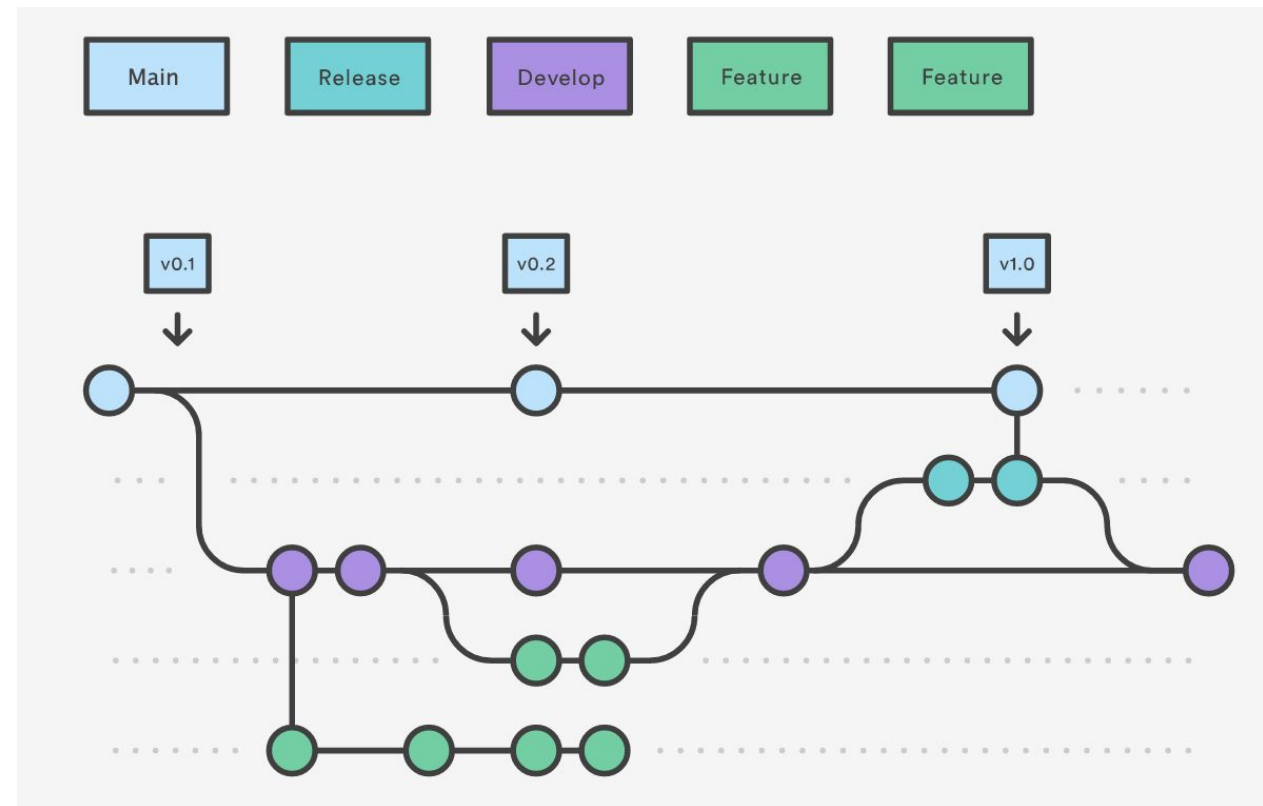
Gitflow Workflow

A robust framework for managing small and large projects

Gitflow Workflow is a Git workflow design that was first published and made popular by [Vincent Driessen at nvie](#). The Gitflow Workflow defines a strict branching model designed around the project release. This provides a robust framework for managing larger projects.

Gitflow is ideally suited for projects that have a **scheduled release cycle**. This workflow doesn't add any new concepts or commands beyond what's required for the [Feature Branch Workflow](#). Instead, it **assigns very specific roles to different branches** and defines how and when they should interact. In addition to feature branches, it uses individual branches for preparing, maintaining, and recording releases.

Of course, you also get to leverage all the benefits of the [Feature Branch Workflow](#): pull requests, isolated experiments, and more efficient collaboration



Programmatic Org-Based Development Model



Promote org changes utilizing IDE Extensions, CLI, and Source Control

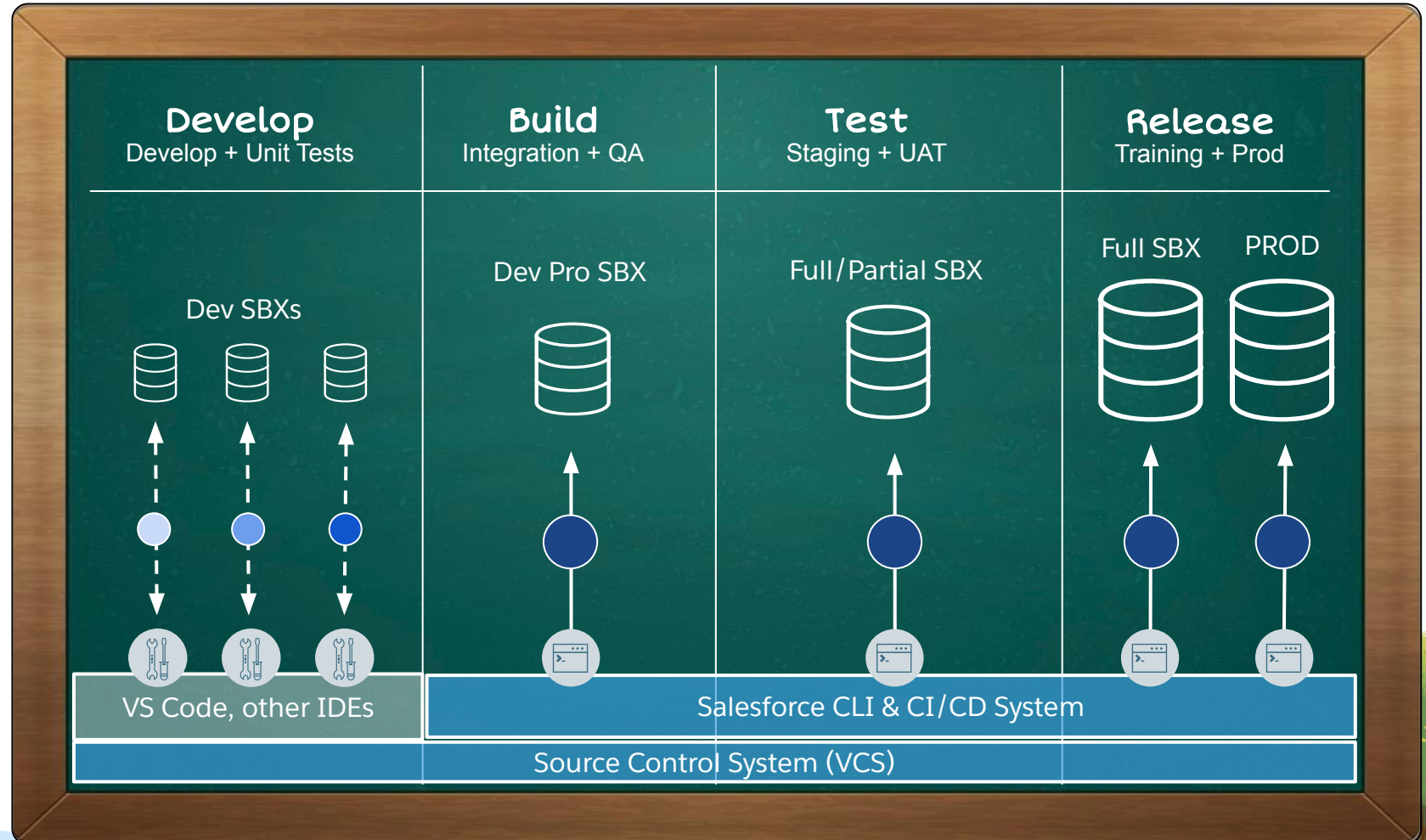
Unpackaged changes are tracked in each dev org. All changes are aggregated in source control and released via CLI

←-----→
source:deploy | source:retrieve
mdapi:deploy | mdapi:retrieve
source:push | source:pull (pilot)

→
source:deploy | mdapi:deploy

● ● ● track changes from dev orgs

● aggregate changes to release

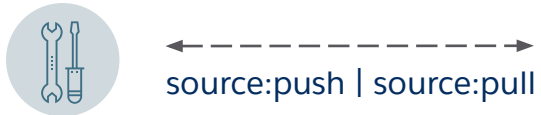





Package Development Model

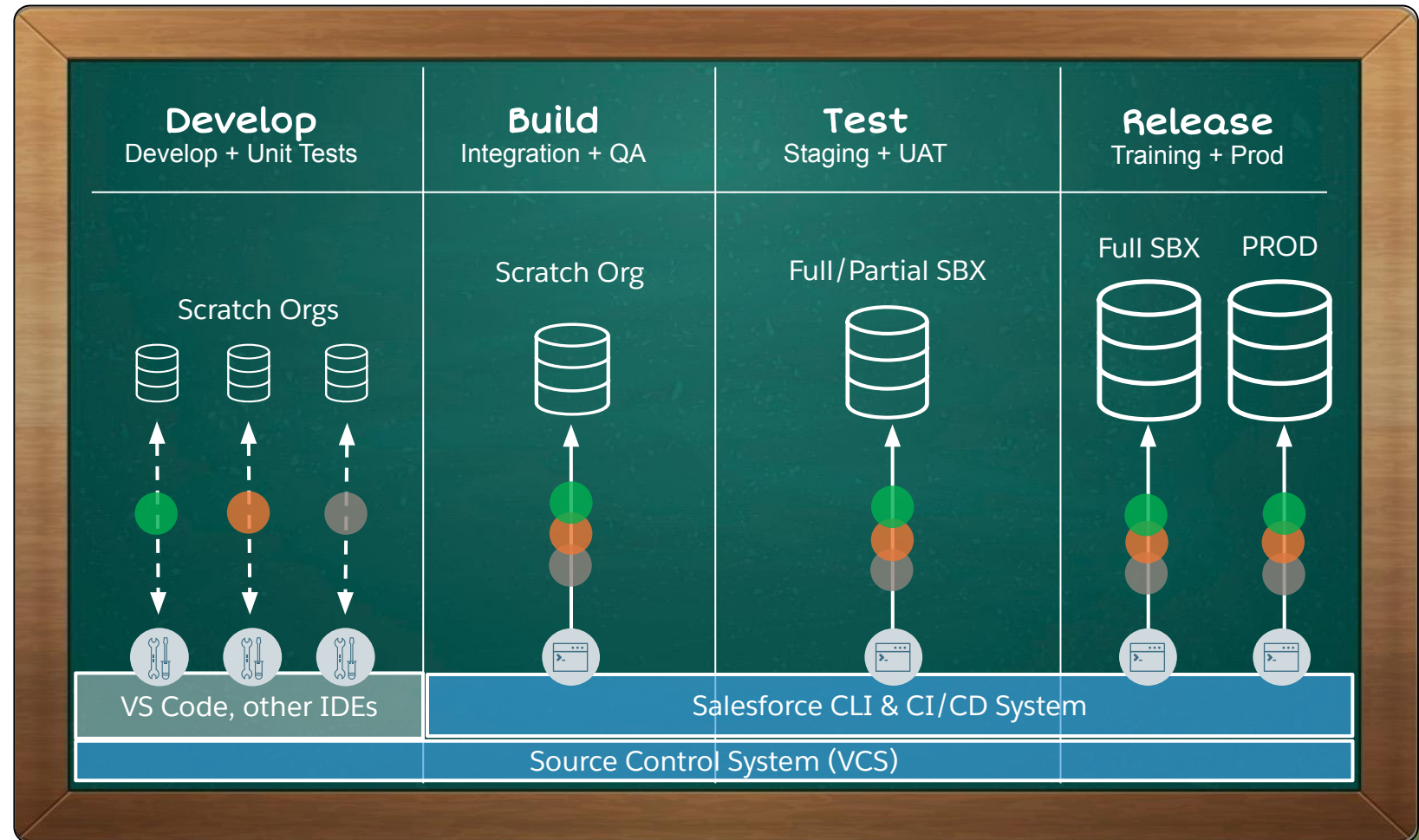


Create complete modules utilizing our IDE, CLI, and Source Control

Changes are tracked in source control. Updates are released with new package versions



   each circle represents separate packages



Key Takeaways

Bringing modern ALM to your org

Source-driven, API-first

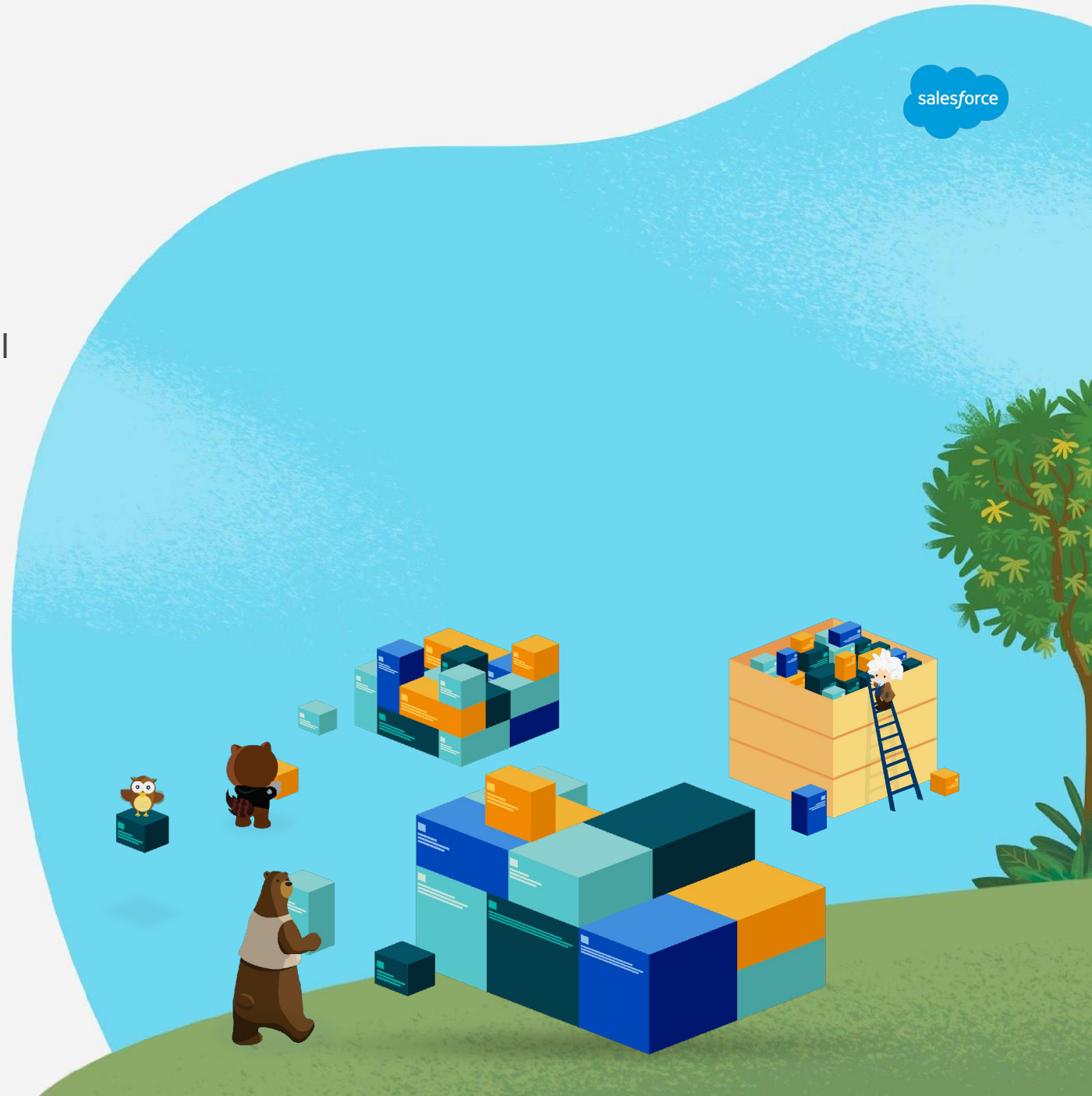
Source-driven modern ALM; CLI commands for all operations; easy to setup CI / CD

Dependency Management

Rich versioning and dependency management capabilities

Organize Metadata in your Org

Modularize Metadata in your prod orgs with a set of well-defined packages

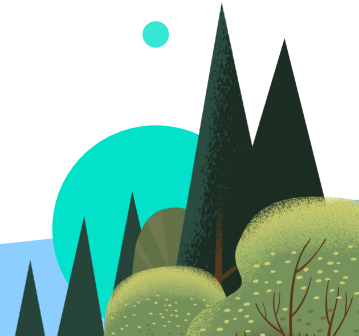


Which process fits my needs?

Decision drivers

Drivers for packaging and DX based development process:

- Multiple production Orgs
- Multiple teams developing to a single production Org
 - If there is isolation of dev process for each group, the product of each team could be a package
 - If many teams work on the same thing, a package based approach may not necessarily provide improvements
- Many applications running on a single Org
- Parallel projects and need for flexible release schedules



Governance



Governance

What is IT Governance

Ensure that the **project meets its objectives, success criteria, and success metrics** by controlling and **managing changes to scope, schedule, and budget** throughout the project lifecycle

Enable all stakeholders to influence the project's direction in order to **maximize its ultimate value**



Establish a **clear and agreed structure to monitor and manage** the fundamental elements of the project

Helps avoid customer escalations, scope creep, delivery of a solution that does not meet the expected business outcomes, and warranty work

Think of Governance like the sheriff ensuring things don't go astray like the wild, wild West of your business processes.



Governance



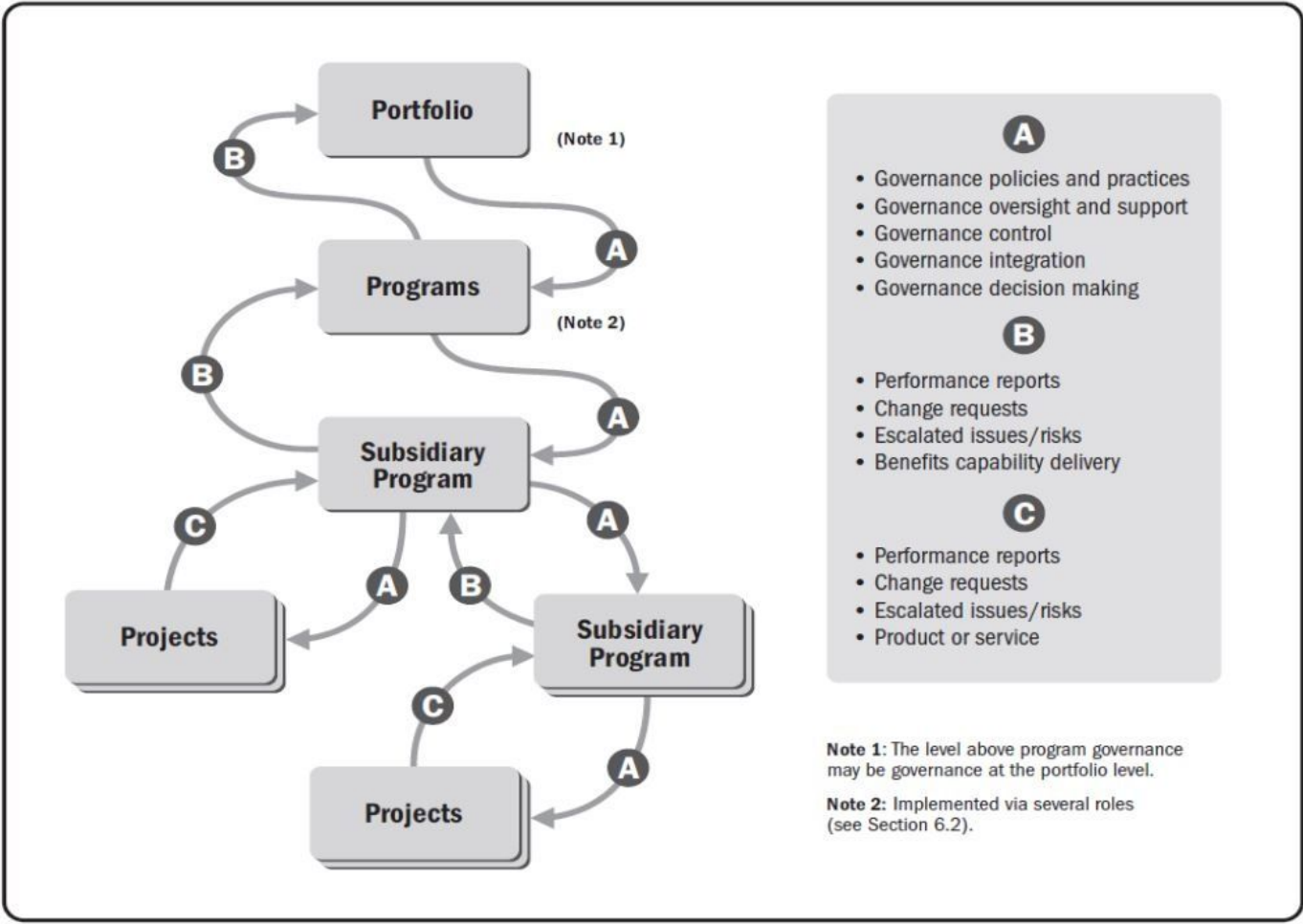
What are the Overall Benefits of Governance?

*Governance helps company's **create optimal value from IT** by maintaining a balance between realising benefits and optimising risk levels and resource use.*



Governance

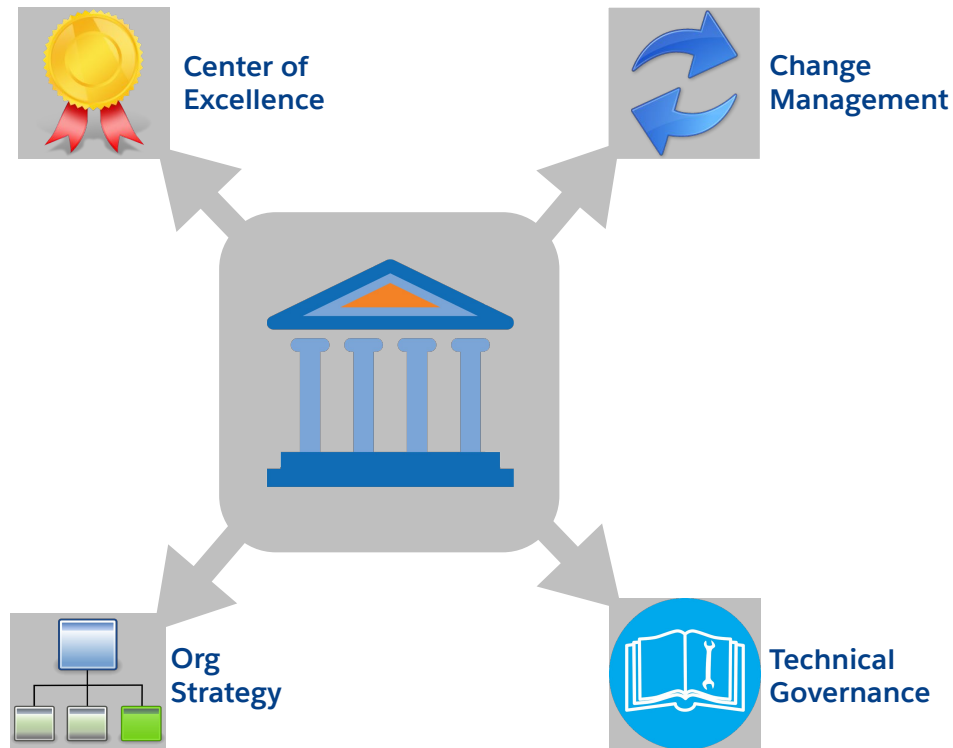
Program Governance relationships with portfolio and program components (sub-programs, projects)



- A**
 - Governance policies and practices
 - Governance oversight and support
 - Governance control
 - Governance integration
 - Governance decision making
- B**
 - Performance reports
 - Change requests
 - Escalated issues/risks
 - Benefits capability delivery
- C**
 - Performance reports
 - Change requests
 - Escalated issues/risks
 - Product or service

Governance

Key Elements of a Salesforce Governance Framework¹



Within the Salesforce context, the components that comprise a governance program fall into four major categories:

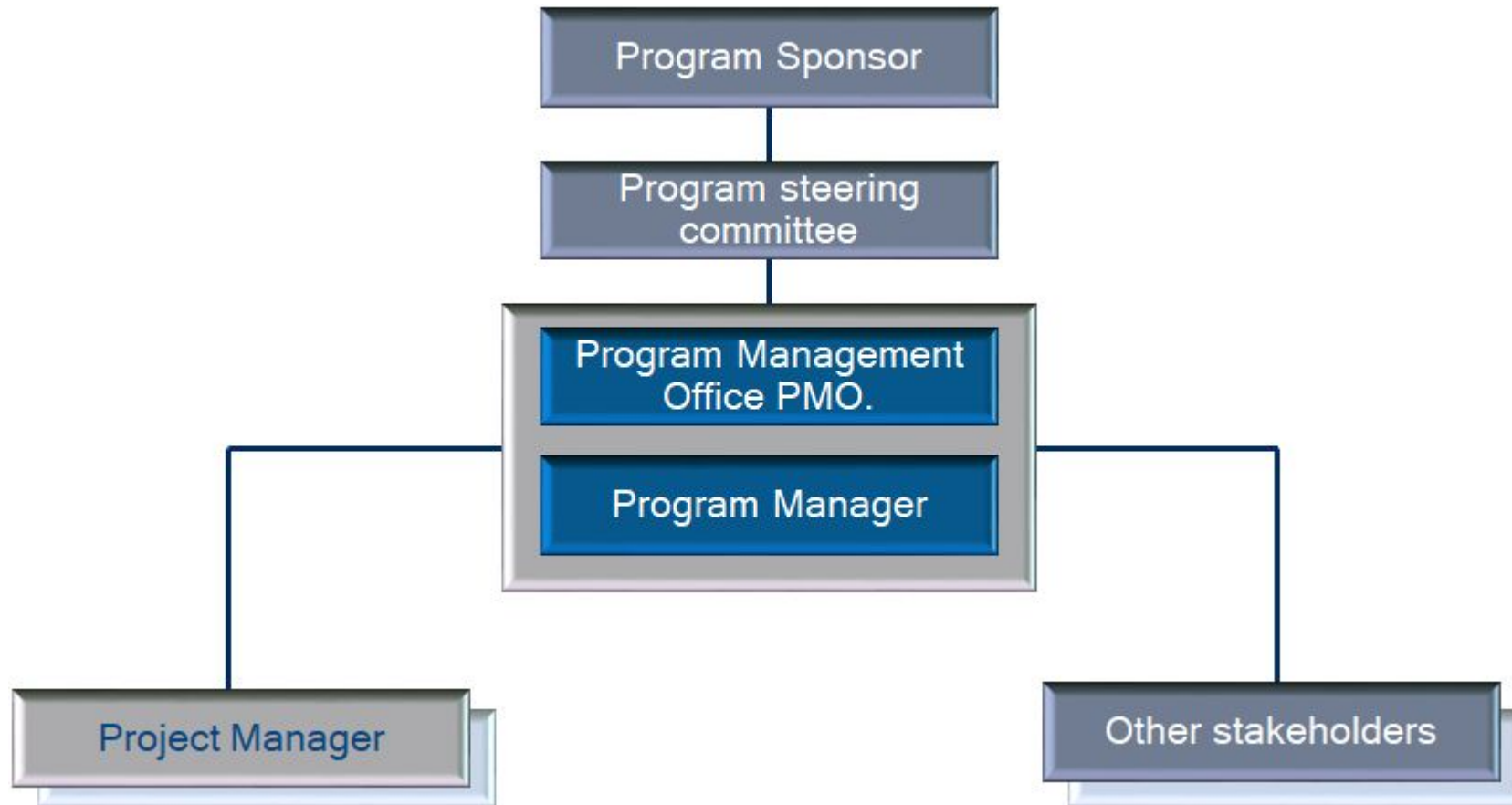
- **Center of Excellence (CoE)²**
The process of managing governance.
- **Change Management**
The process of managing change within the overall program or project lifecycle – from collecting Business requirements through go-live in production.
- **Org Strategy**
The design and structure of the foundational “orgs” or areas where the customer’s Salesforce applications will reside and run.
- **Technical Governance**
The guiding principles for effectively developing the technical aspects of Salesforce.

¹ The Salesforce Governance framework embraces the core principles of key industry frameworks such as COBIT5 and ITIL .

² Many Salesforce customers rebrand their CoE using terms including "Network of Excellence", "Center of Innovation, etc.

Governance

Main program governance roles



Governance

Create RASIC (Responsibility Matrix)

When establishing roles and responsibilities on a project or business activity, developing a **RASIC matrix** is a useful way to ensure that roles and responsibilities related to key activities and deliverables are understood and agreed upon.

A RASIC matrix is a grid showing **key activities and deliverables mapped against roles assigned to work on the project.**

RASIC is an acronym, which stands for "**Responsible**", "**Accountable**", "**Supporting**", "**Informed**" and "**Consulted**." These designations are defined as follows:

Responsible

- The “doer”
- The chokable throat
- Only one “R” per row



Accountable

- Buck stops here
- Veto power
- Only one “A” per row



Supports

- Helps the “R”
- A secondary “doer”
- Can have 0,1, or many “S” per row



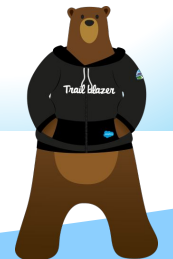
Informed

- Needs to know of important decisions made or tasks completed
- One way communication
- Can have 0,1, or many “I” per row



Consulted

- Provides input and considerations into key decisions before they are made
- Two way communication
- Kept in the loop
- Can have 0,1, or many “C” per row



Governance



What does a RASIC look like?

	SDM	EM	PM	SBA	BA	TA	Dev	Data	UX	UI	Creative Director	QA Lead	QA Tester	Change Mgmt / Training	Client - Project Sponsor	Client - Product Owner
Planning																
Logistics for Week 1	C	A	R													
Project Initiation Document (Kickoff Deck)	C	A	R													
Facilitate Kickoff Meeting	C	A	R													
Pre-BPR Questionnaire	C	A	S	R		S			S							
Methodology Primer		A	R													S
RACI/RASIC		A	R	S		S					S					S
Work Breakdown Structure		A	R	S		S					S				I	S
Comprehensive Project Plan		A	R	C		C					C				I	C
Sprint Plan (Themes and loaded stories)			A	R		S										
Scrum Release Plan			R	S		S										
Org Procurement			C	C		C										A
Comprehensive QA Plan			A	C		C			C			R				

Committees

Meeting Attendees and Purpose



- **Executive Steering Committee:** Involve your key vendors and review and update the vision and strategy where necessary; address any showstoppers.
- **Stakeholders:** Ensure that you've aligned everyone's goals.
- **Day-to-day Project Management:** They are responsible for the day to day management of the project(s).
- **Change Control Board:** Agree on major enhancements that are based on business goals. Discuss end-user feedback. They own the backlog for each release.
- **Release Management Board:** Verify that the current release is on schedule and meets quality standards.
- **Architecture Review Board:** Define the project architectural and design standards and offer project team advice on solving complex architectural issues.

Architecture Review Board

Definition



The **Architecture Review Board (ARB)** serves as a governance body ensuring IT initiatives align with Ecosystem Architecture and ultimately align with organizational goals, strategies, and objectives.



The ARB's purpose is to **improve the quality of IT products.**

Architecture Review Board



Key roles and responsibilities

Domain	Role/Responsibility
Decision Making	<ul style="list-style-type: none">• Establish architecture roadmaps• Establish architectural and design principles and best practices• Evaluate solution designs per best practices; if design is rejected provide recommendations for improvement• Solicit and consider input from other governing bodies during decision making process• Document rationale for decision in meeting minutes or other documentation• Provide input to decisions made by other governing bodies
Escalation	<ul style="list-style-type: none">• Escalate decisions beyond their authority to CIO or Executive Team (ET)• Recommend a course of action and provide supporting analyses (when decision is escalated to another body)
Communication	<ul style="list-style-type: none">• Communicate decisions to CIO and other key stakeholders in accordance with communications plan• Keep CIO informed of major IT architecture decisions
Ongoing Activities	<ul style="list-style-type: none">• Create architecture strategy and roadmap• Define architecture principles and best practices• Identification of innovation in IT that can help the business (e.g., new technologies)
Ad-Hoc Activities	<ul style="list-style-type: none">• Create temporary teams to address specific tasks



Wrap it Up

Be a Trailblazer



Agenda

What is Salesforce?

The Salesforce Customer 360 Platform

How do we Design a Transformation Project?

Actors, Devices, Locations

Org Strategy

System Landscape

Data Model & Data Architecture

Integration

Identity Management

Development Lifecycle

Governance

Wrap it up - Be a Trailblazer



Trailblazers, Together

/treyl-bley-zer/ noun

- (1) a pioneer; an innovator; a lifelong learner; a mover and shaker.
- (2) a leader who leaves a path for others to follow.
- (3) most importantly, a person who builds a better world for others.

15M

Trailblazers

1300

Community Groups

90

Countries





Blaze your Trail with Trailhead

The Fun Way To Learn from Anywhere for free



Learn

in-demand skills

Business, tech & soft skills
On-demand & in classroom



Earn

resume-worthy credentials

1000+ badges
48 credentials



Connect

to opportunity

Mentorship to employment
Trailblazer Community

LEARN

EARN

CONNECT



Trailhead Skills Span the Salesforce Ecosystem

Learn your way to your next opportunity



Technology



Artificial Intelligence
Process Automation
App Development
Cybersecurity
AWS
Slack

Business



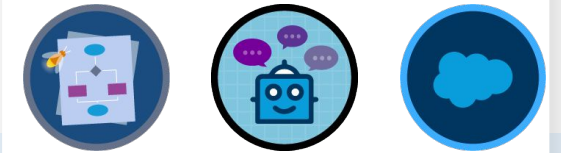
Data Analytics
Digital Transformation
Ethics
Change Management
Equality & Inclusion

Soft



Virtual Collaboration
Presentation Skills
Fearless Teaming
Communication
Empathetic Leadership

Salesforce



Salesforce Platform
Salesforce CRM
Tableau
Industries
Flow & Bots

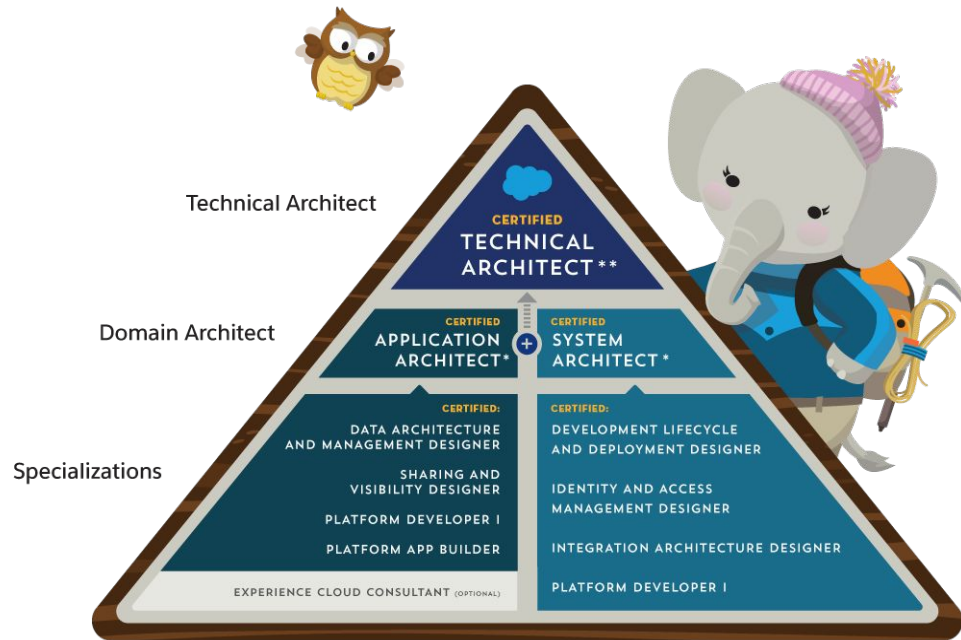


Blaze your Trail in your Career

Salesforce Certified Architect Journeys



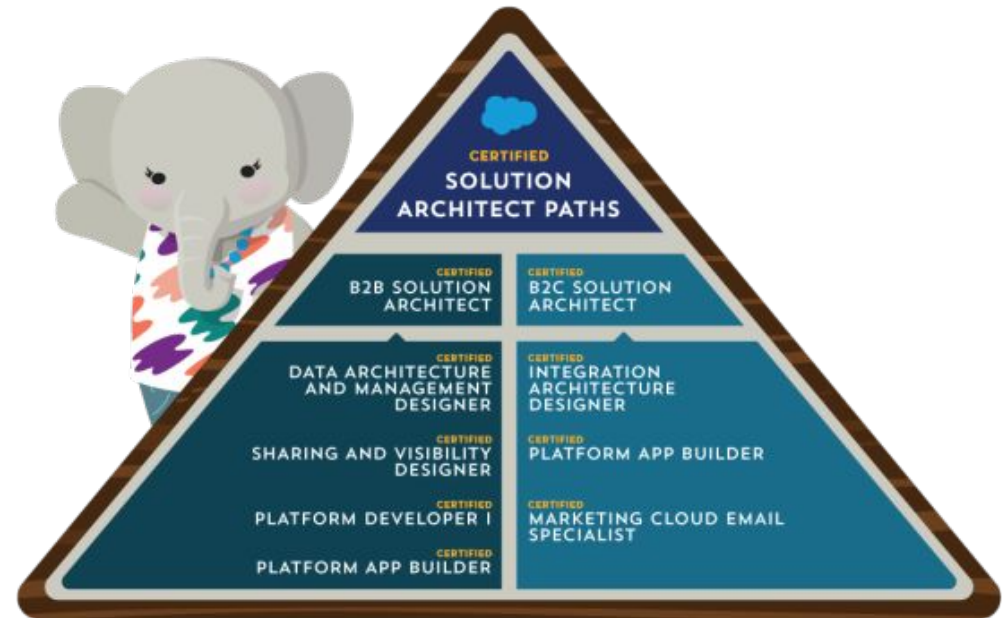
Technical Architect



Related Certification: Certified Administrator (optional)

* Credential earned upon completion of exams within the specializations tier, no additional exam requirements.
 ** Credential earned upon successful completion of the Domain Architect tier and Review Board.

Solution Architect



*Prerequisite certifications can be earned in any order

Get Hands-on!

Resources



[Get Started With Trailhead](#) for Individual Learner Onboarding



[Salesforce Administrator Credential](#) Prepare for Your Salesforce Administrator Certification



[Trailblazer-Ranks](#) from Scout to Ranger - Motivate yourself to go even further with Trailblazer Rank

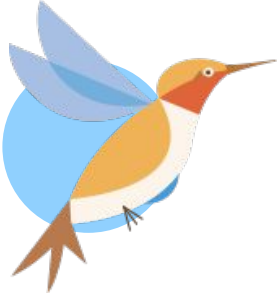


[Salesforce Career Path](#) - Discover your career path in the Cloud!



[Salesforce Architect Overview](#) - Get all you want to know about Salesforce Architect Certification path





Q&A



Thank You