

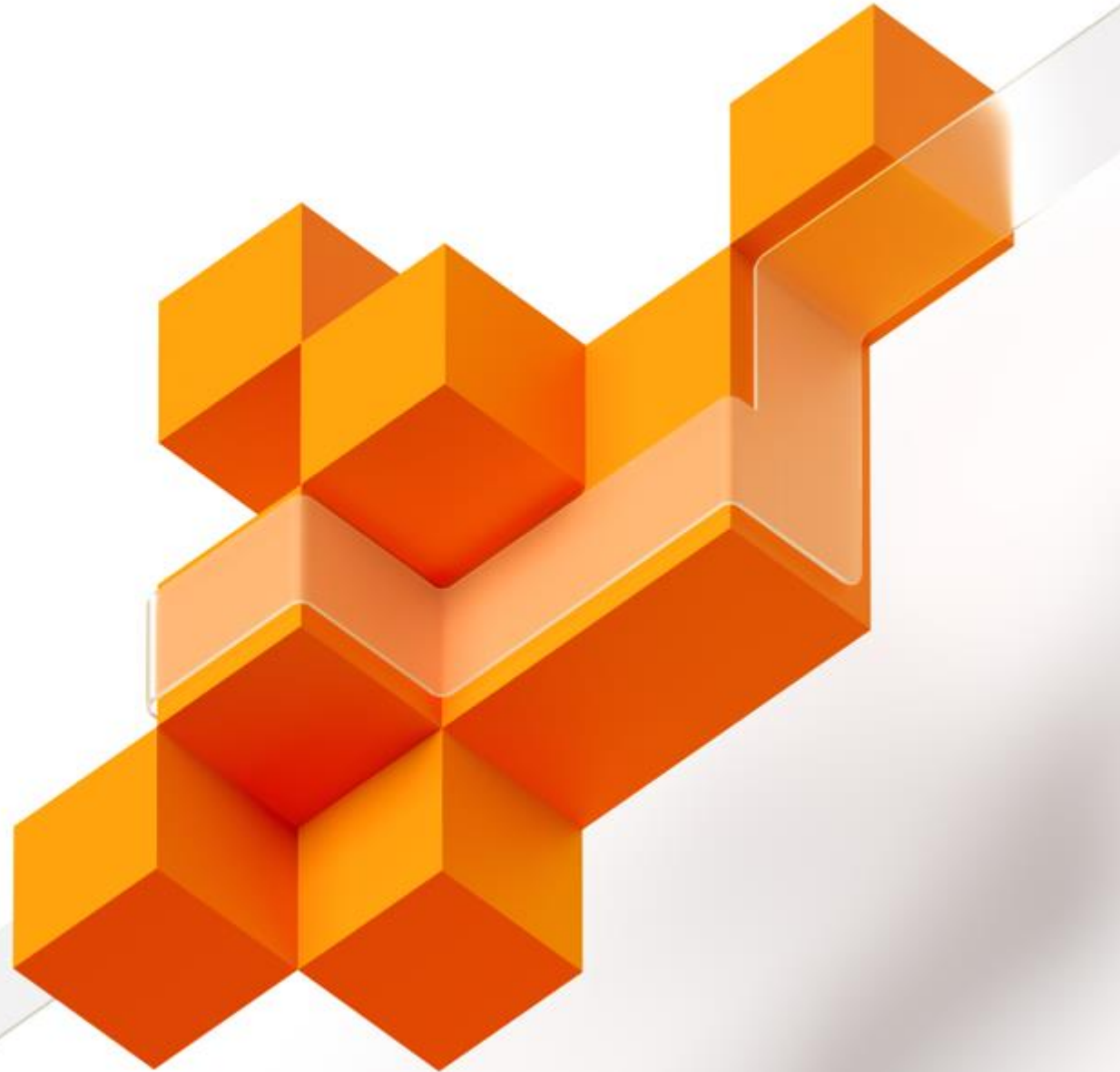


Common Data Service: Data Modelling Tips & Tricks

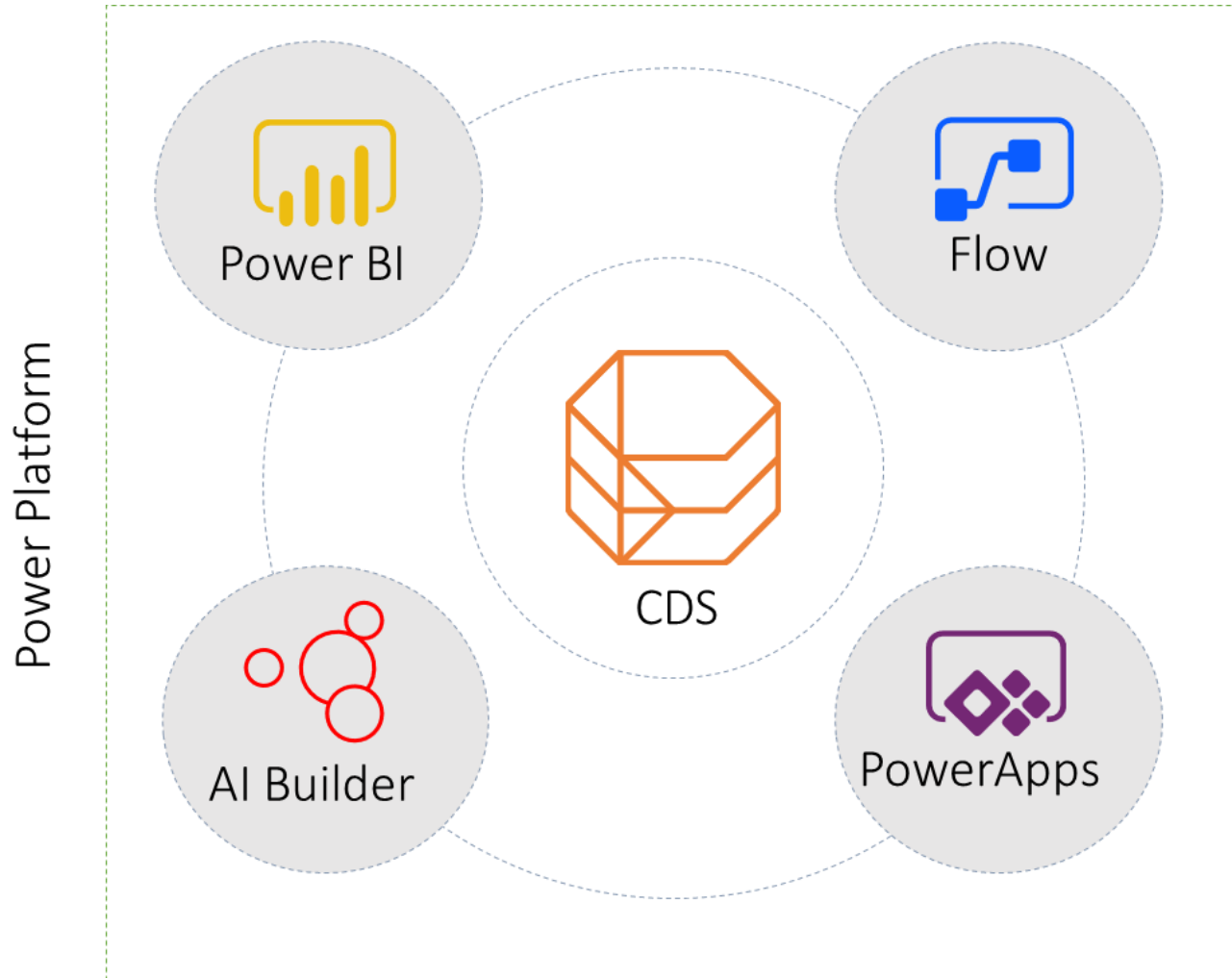
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Microsoft MVP Business Apps
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CTO KPMG Microsoft Business Solutions

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meetup.com/Power-Platform-Vigo

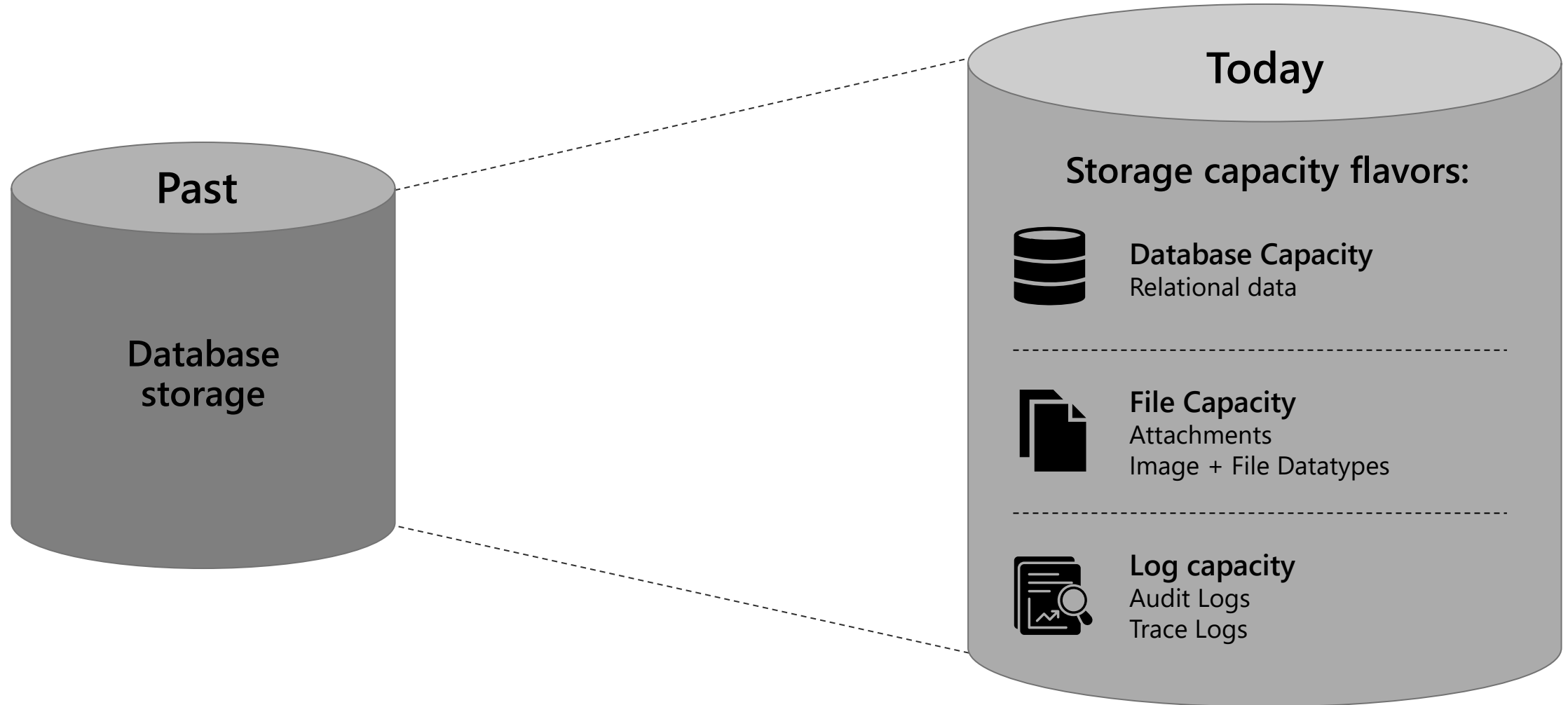


Common Data Service Purpose

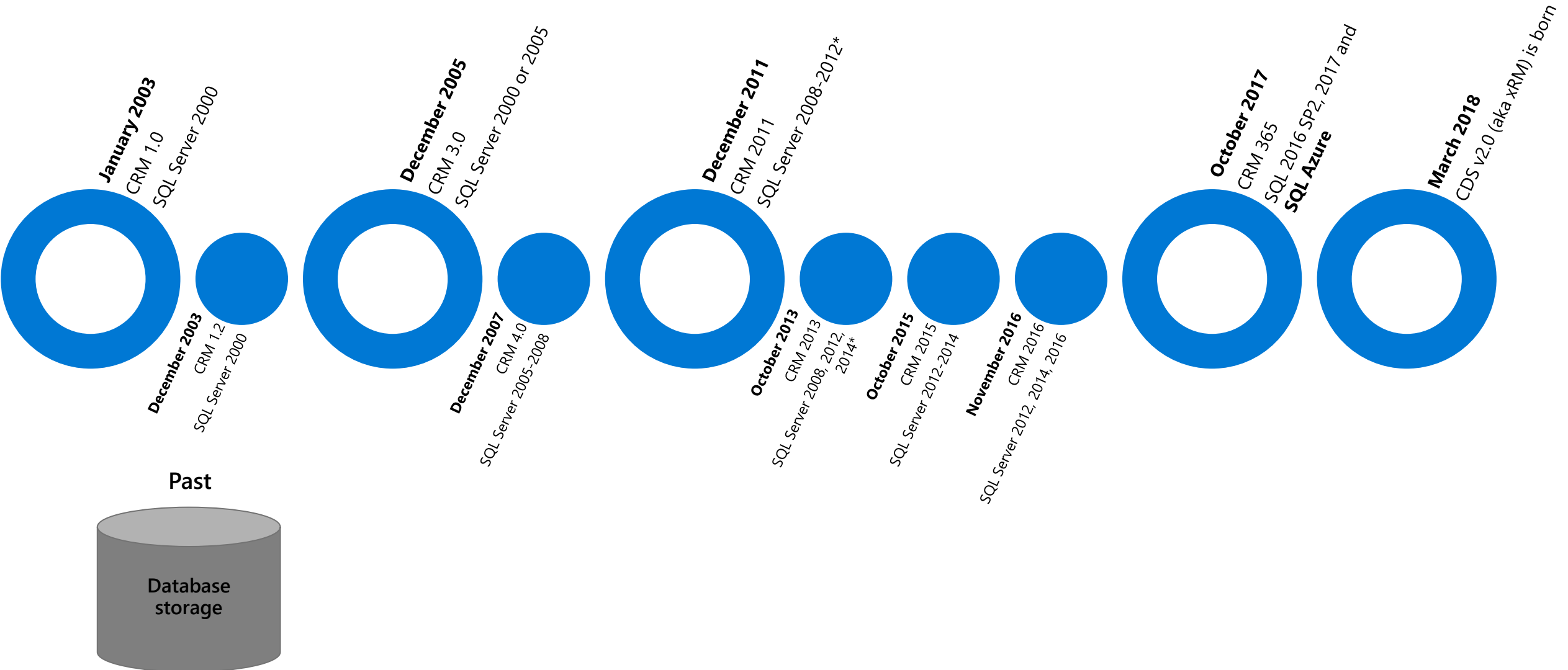


The Common Data Service
easily structures
a **variety** of **business** data
to support **interconnected**
business **applications** and
processes

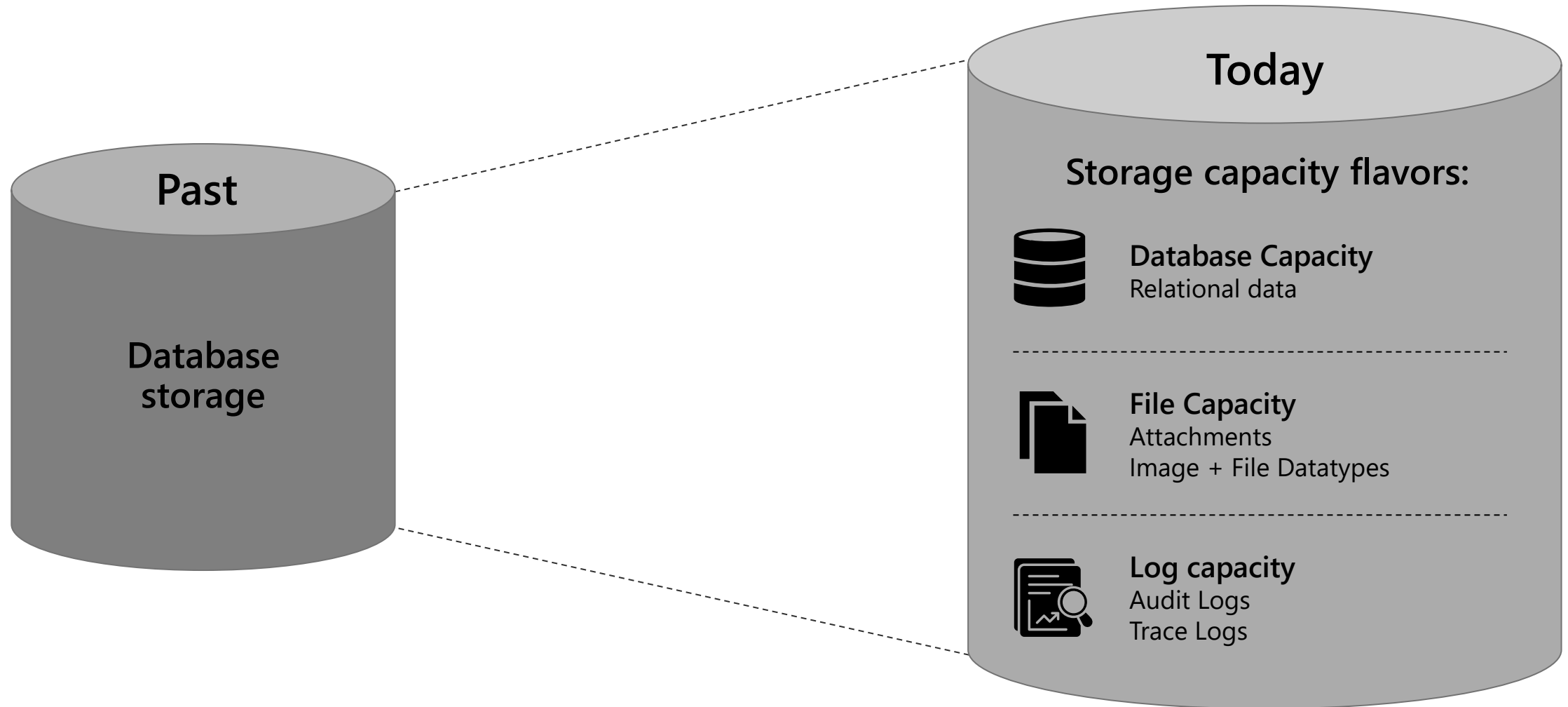
CDS Storage



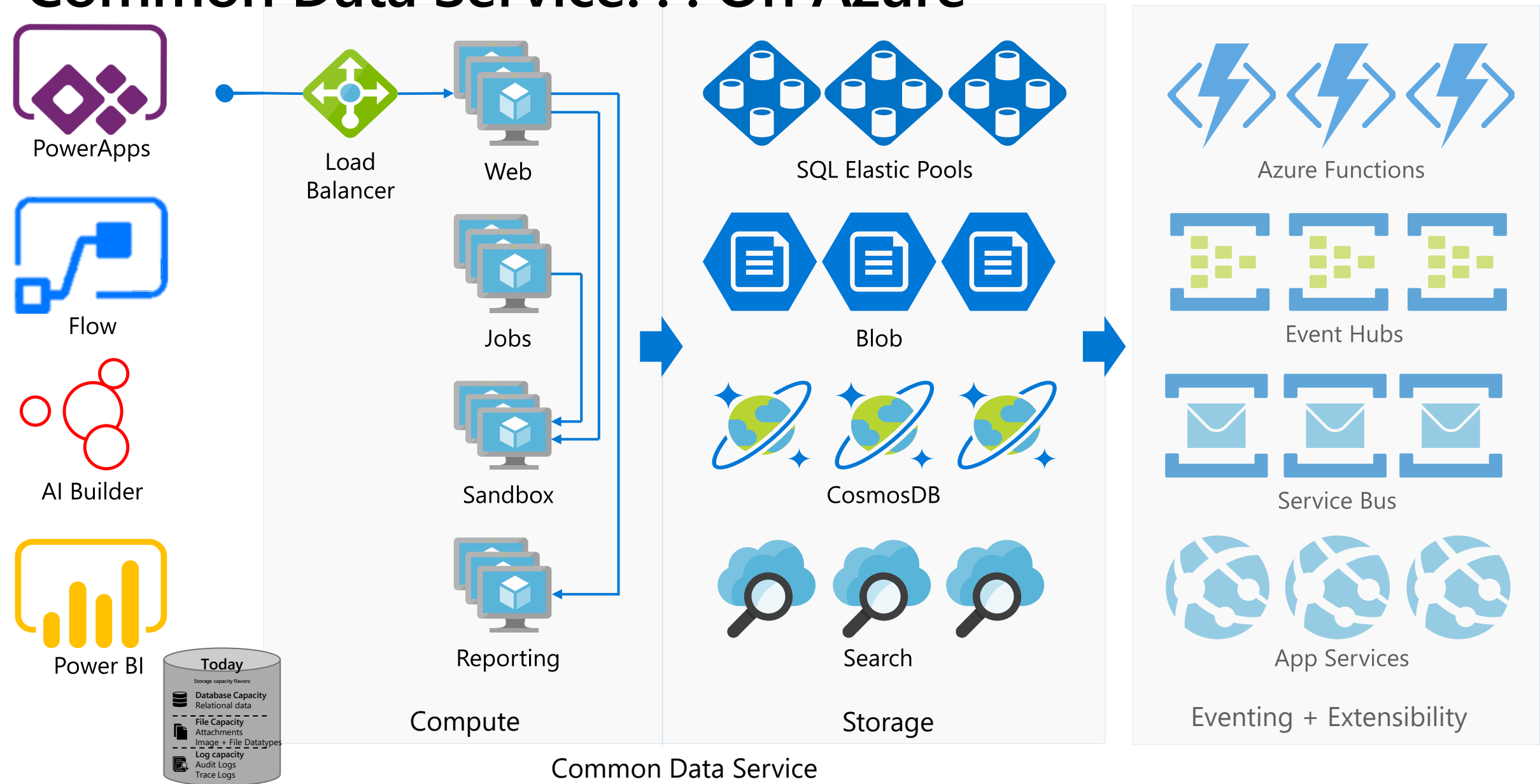
The origins of the CDS



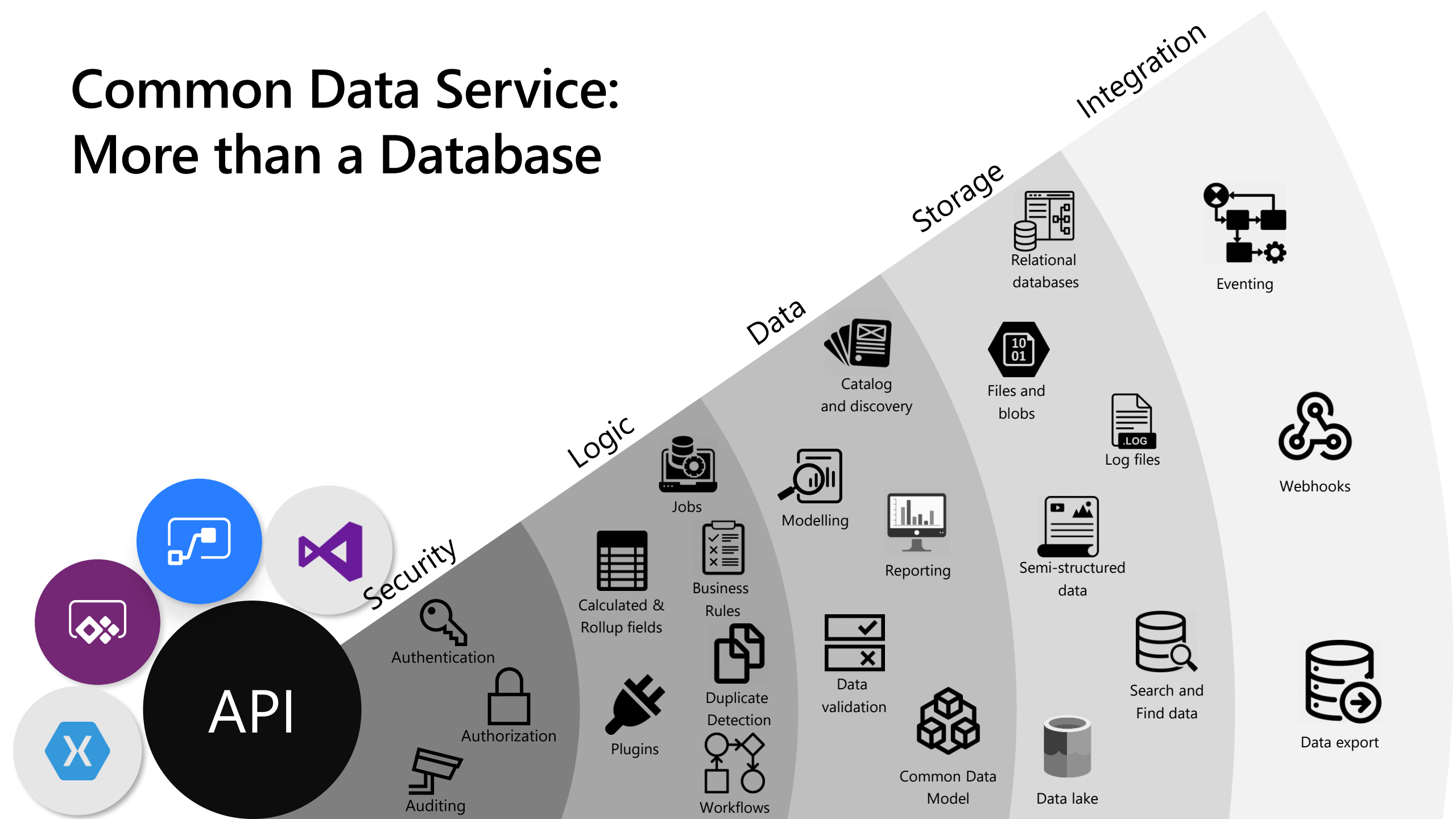
CDS Storage



Common Data Service... On Azure



Common Data Service: More than a Database



Data Modelling in the CDS



Data Constructs

Entities

Fields

Relationships



Limits

300 Custom Entities (can be extended)

> 1024* Fields or 8Kb records*

(*SQL Server limit)

Data Types in the CDS



Single Line of Text

nvarchar(n)
store Unicode characters
(2n+2 bytes)

You can specify
the length n



Multiple Lines of Text

nvarchar(MAX)
to store up to
2GB of data or
~1M chars



Option Set

Int (4bytes)



Two Options

Bit (1bit*)



Image

varbinary
Scaled to
144x144 jpeg
Limited to
attachment
size



Lookup

Foreign Keys
SQL Unique
Identifier



Status & Status Reason

Status (Active |
Inactive) for
most
Status Reason
Option set
customizable



Date and Time



Date and Time

Based on SQL datetime, 8 bytes

No dates before 1st January
1753

Inheritance from before SQL
Server 2008 introduced
datetime2



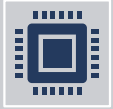
Behaviours

User Local

Time-Zone Independent

Date Only

Numbers



Whole Number

Just an Int (4 bytes)



Float

Up to 5 decimals, SQL float (8bytes)

Not exact, don't use for calculations or =



Decimal

Up to 10 decimals, SQL decimal (13bytes)

Exact, indicated for calculations or =



Currency

Creates extra fields (base, transaction
currency, exchange rate)

4 decimals, SQL money (8 bytes), precise

Demo



Entity Creation Settings



Name and Display Name

Display name can be modified



Primary Field

Always Text field

Lookups and Titles

Can be an Auto-number



Attachments

Creates link with Attachments table



Entity Type

Standard

Activity Entity

Virtual Entity

Environment
Sandbox (amoedom)

New entity

Display name *
DemoCDS

Plural display name *
DemoCDS

Name * ⓘ
crb75_ DemoCDS

Primary Field ⓘ

Display name *
Name

Name * ⓘ
crb75_ Name

☐ Enable attachments (including notes and files)

Fewer settings ^

> Description

> Entity type and ownership

> Collaboration

> Create and update settings

> Dynamics 365 for Outlook

Create Cancel

Entity Ownership

TIP: It can't be changed, so when in doubt leave it on 'User or Team'



User or Team

Automatically adds fields for Owner (User & Team) and Owing BU
Full range of security controls

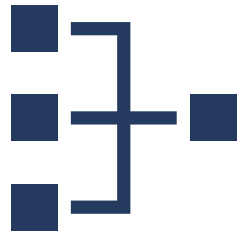


Organisation

No Owner fields
Users either have access to all records or none, slightly better perf.

Owner	...	ownerid	👤 Owner
Owning Business Unit	...	owningbusine...	🔍 Lookup
Owning Team	...	owningteam	🔍 Lookup
Owning User	...	owninguser	🔍 Lookup

Relationship Types



1 to Many

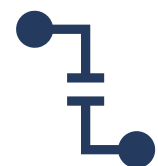
Uses a Lookup Field



Many to Many

Uses a hidden entity with Lookups

Behaviours



Control Propagation

Defines how actions on the 1-side propagate

Assign, Share, Unshare, Reparent, Delete, Merge, Rollup



Behaviour Types

Cascade User-Owned/Active/All/None
Remove Link
Restrict Delete

Entity *

DemoCDS

Lookup field display name *

DemoCDS

Lookup field name *

crb75_ DemoCDS

☒ Hierarchical

General

Relationship name *

crb75_ DemoCDS_crb75_DemoCDS_crb75_DemoCDS

Lookup field description

Advanced options

Type of behavior * ⓘ

Custom

Delete *

Cascade All

Assign *

Cascade All

Share *

Cascade All

Unshare *

Cascade All

Reparent *

Cascade All

Done

Cancel

Demo



5 Critical Design Decisions



#1 New Entity vs. CDM Entity



1 Avoid recreating OOB Entities

Configure labels, forms, and field instead (e.g. Contact)



2 Do not repurpose OOB Entities

You might need them in the future (e.g. Cases)

#2 Custom Activity vs. Custom Entity



Presentation

Custom Activity can show up in Activity Views and Menus

Activity



Security

You can only control Activity, but not types. All or Nothing



Special Relationships

Activity Parties (To, From, Participants and Regarding)

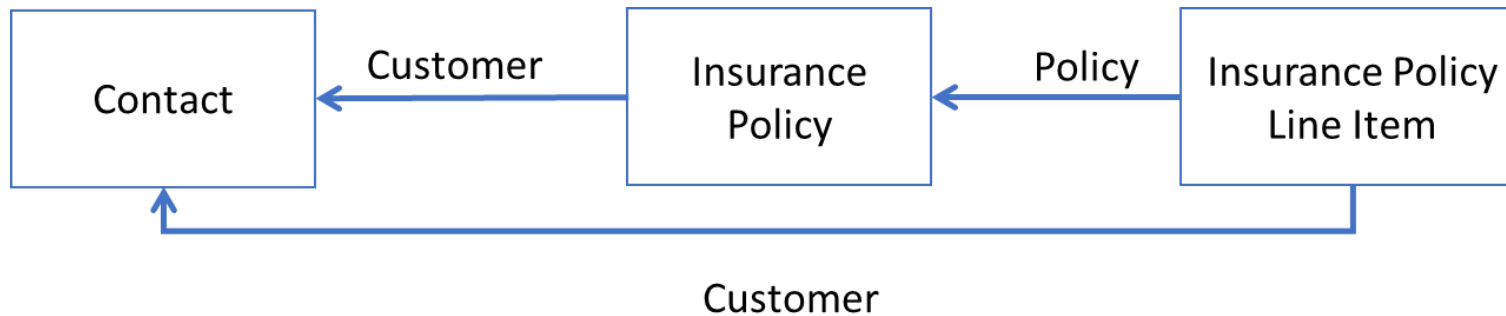


Service Functionality

Time Accounting in Cases, Entitlements, SLAs



#3 Redundant Relationships



They don't add more information

Simplify functionality:
Workflows, Views, etc.

Requires extra maintenance or automation

#4 Many-to-Many Relationships

Connections

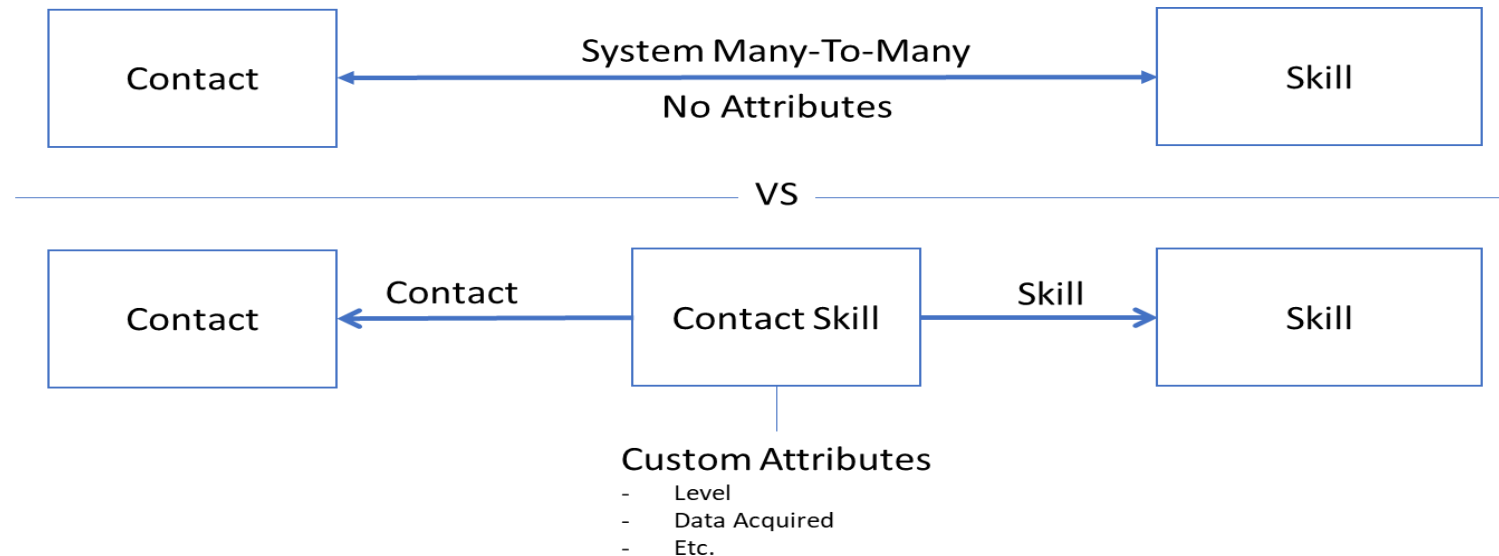
- No relationship needed, we can use roles, description and dates

System Many-To-Many

- No extra information, only the relationship

Custom Many-to-Many

- Can hold attributes on the relationship but less user-friendly UI



#5 Option Set vs Lookup

Option Set

- Transported with Solutions
 - Easy and Simple
 - Not good with many values
 - Changes require publishing
- Option deletion loses data
Better for static and not too long lists

Lookup

- Requires a new Relationship / Entity
- Flexible and easy to modify values
Allows Deactivation
- Need to plan for data migration
Allows for Filtering with Views
Better for long or changing lists

Demo



THANKS!!

Question Time?

