

# What's new in Virtual Table for Microsoft Dataverse



# Agenda

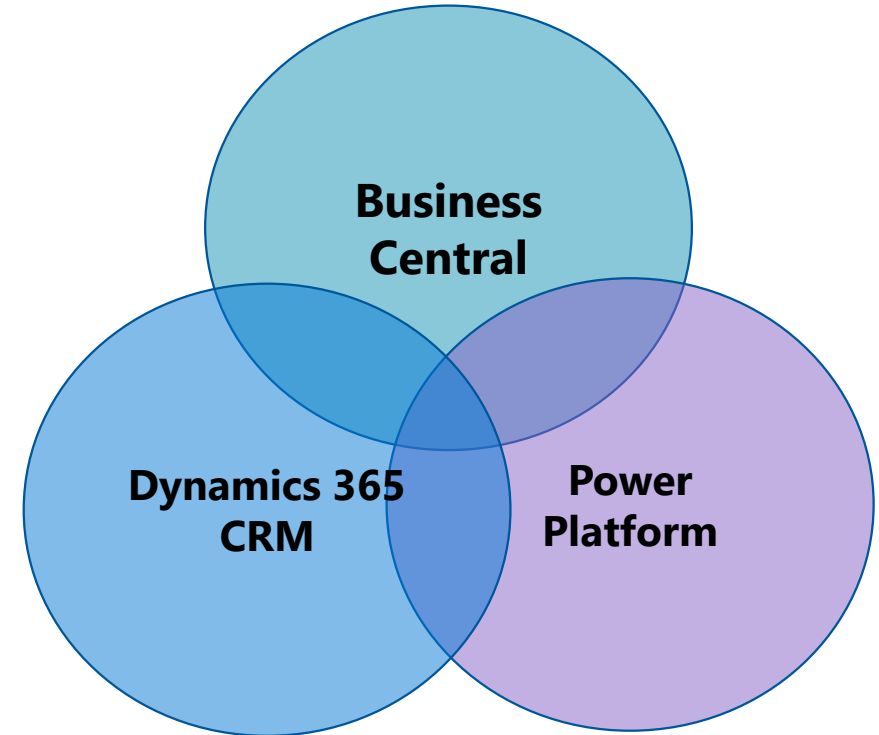
- Review of Dataverse integration
- Virtual Table improvements
- Introducing Business Events
- Demos

# Review of Dataverse integration

The background features a dark blue gradient. On the right side, there is a large, light blue semi-circle. In the lower right, there is a white rounded rectangle. A smaller, light blue rounded rectangle is positioned to the left of the white one, overlapping its left edge.

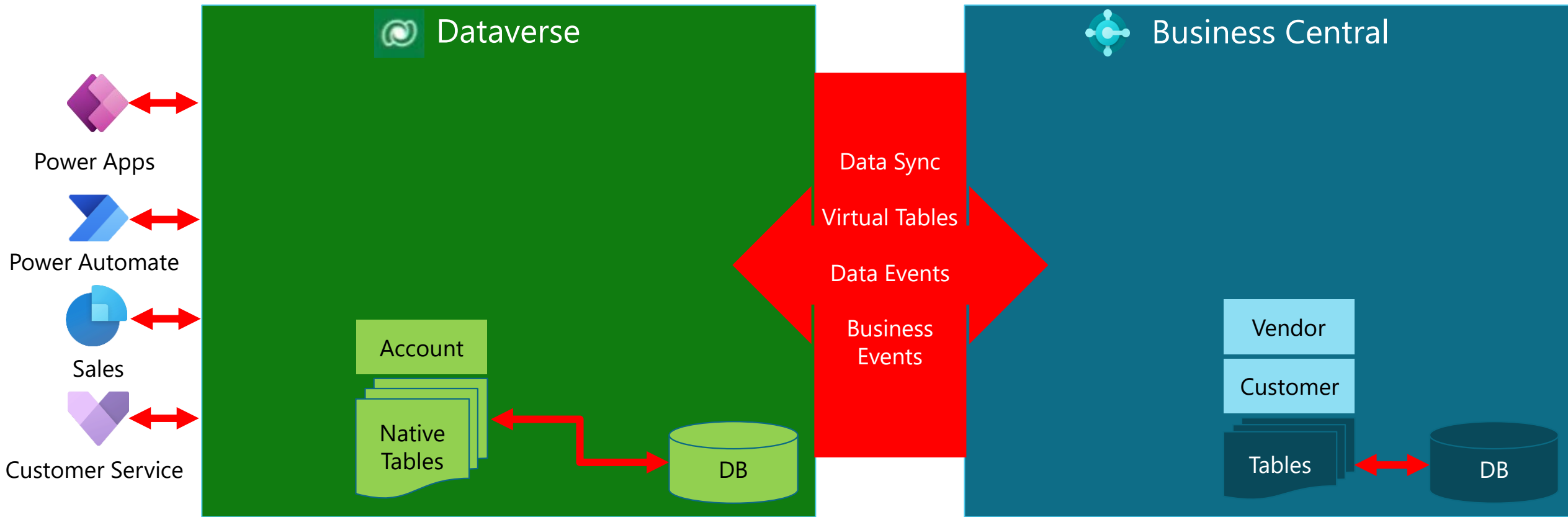
# Review of Dataverse integration

- The **product mix** of Business Central, Dynamics 365 CRM (Sales/Marketing/Field Service/Customer Service), and Power Platform is often used together in complex **multi -app/role** business processes, such as Lead/Prospect/Opportunity -to-Cash
- Both Dynamics 365 CRM and Power Platform run on **Dataverse**, so integrating w/ Dataverse allows Business Central to **interact** w/ apps in its ecosystem
- The wider/deeper their interactions,
  - the stronger/tighter their integration will be,
    - the higher the value of product mix will be ("1+1+1 > 3"),
      - the stickier they will attach to each other,
        - the easier their cross-promotion will be,
          - the more customers will use them together



# Review of Dataverse integration

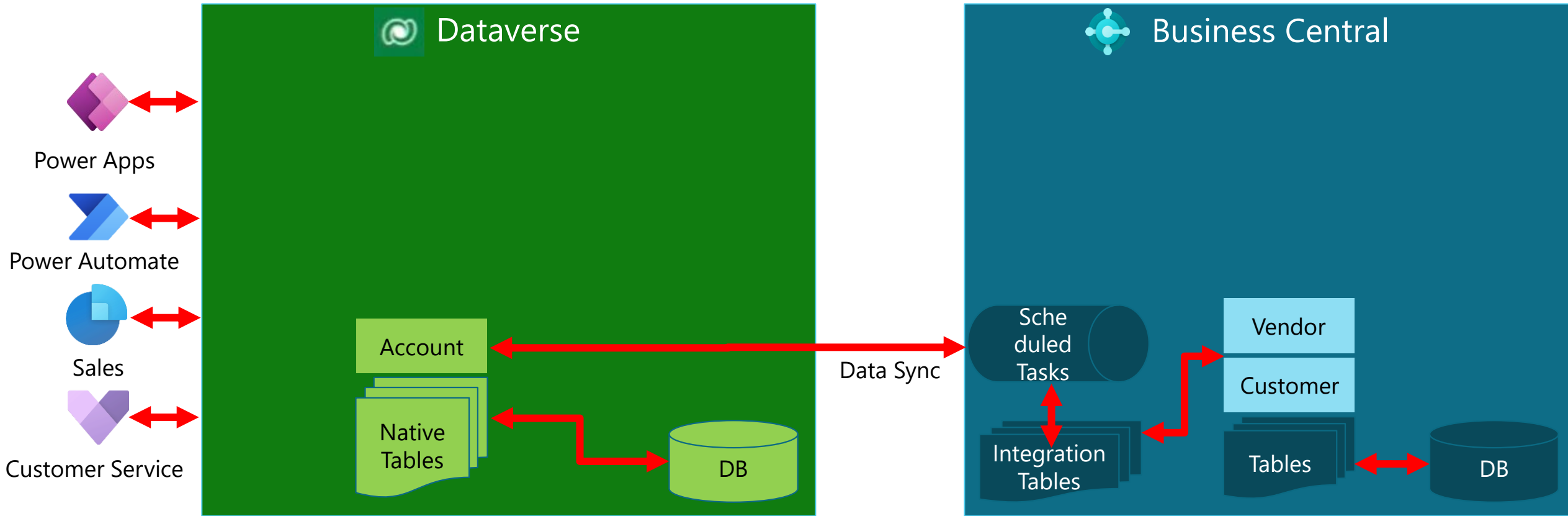
- Dataverse is a **data storage & management layer** for Dynamics 365 CRM and Power Platform
  - Dataverse Integration allows Business Central to **interact** w/ apps in its ecosystem
  - There are four types of **complementary** interactions:



# Review of Dataverse integration

## 1. Data Sync that replicates data changes (CUD) between overlapping tables in Business Central and Dataverse

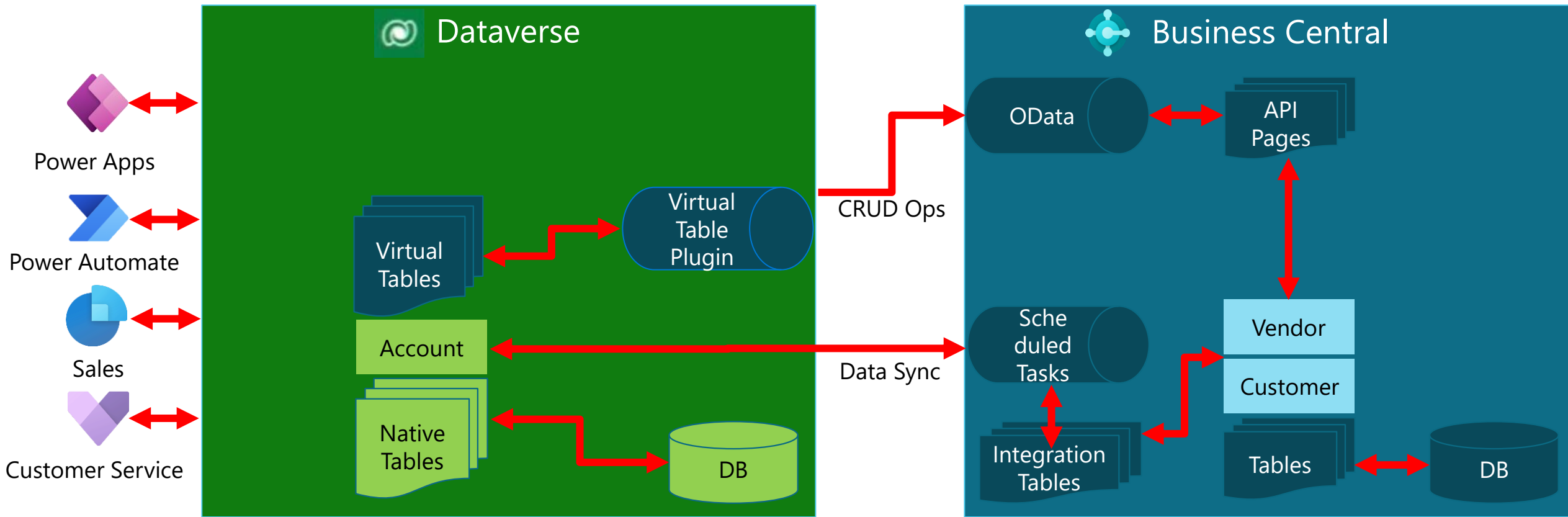
- Replication is uni/bi-directional via **scheduled** Service-to-Service calls **w/o authenticated user** and data is **duplicated** in both Business Central and Dataverse
- Trigger **Power Automate flows** to run scheduled tasks that replicate Dataverse data changes **just-in-time** into Business Central (**21.0**)
- Bidirectionally replicate **sales orders** between Business Central and Dynamics 365 Sales (**21.0**)



# Review of Dataverse integration

## 2. Virtual Tables that enable inbound interactions from Dataverse into Business Central w/o duplicating data

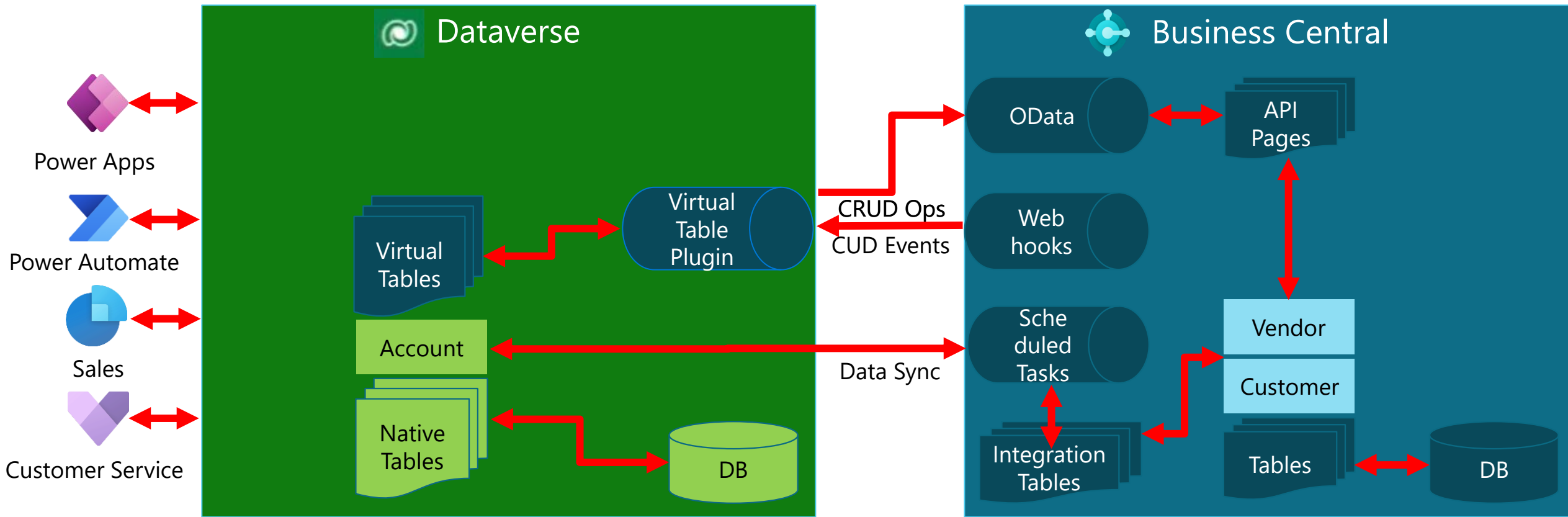
- **Virtual Table plugin** translates Dataverse CRUD API targeting virtual tables into Business Central CRUD API targeting physical tables in **near real-time** via Service-to-Service calls **on behalf of authenticated users**
- **[New] Customize** virtual tables (by changing labels/icons/precisions) on model-driven Power Apps (22.0)
- **[Coming Soon]** Access virtual tables via **Power Pages (Preview in 22.x)**
- **[Coming Soon]** Use virtual tables in **Production (GA in Q2/Q3CY23)**



# Review of Dataverse integration

3. **Data (CUD) Events** that enable **outbound interactions** from Business Central into Dataverse, where they can start **Power Automate flows** via the **“When a row is added, modified, or deleted”** trigger

- [Coming Soon] Enhanced **payloads** (by including ChangedFields/pre-image/post-image) for data (CUD) events (**Preview in 22.x**)
- [Coming Soon] Use data (CUD) events in **Production (GA in Q2/Q3CY23)**

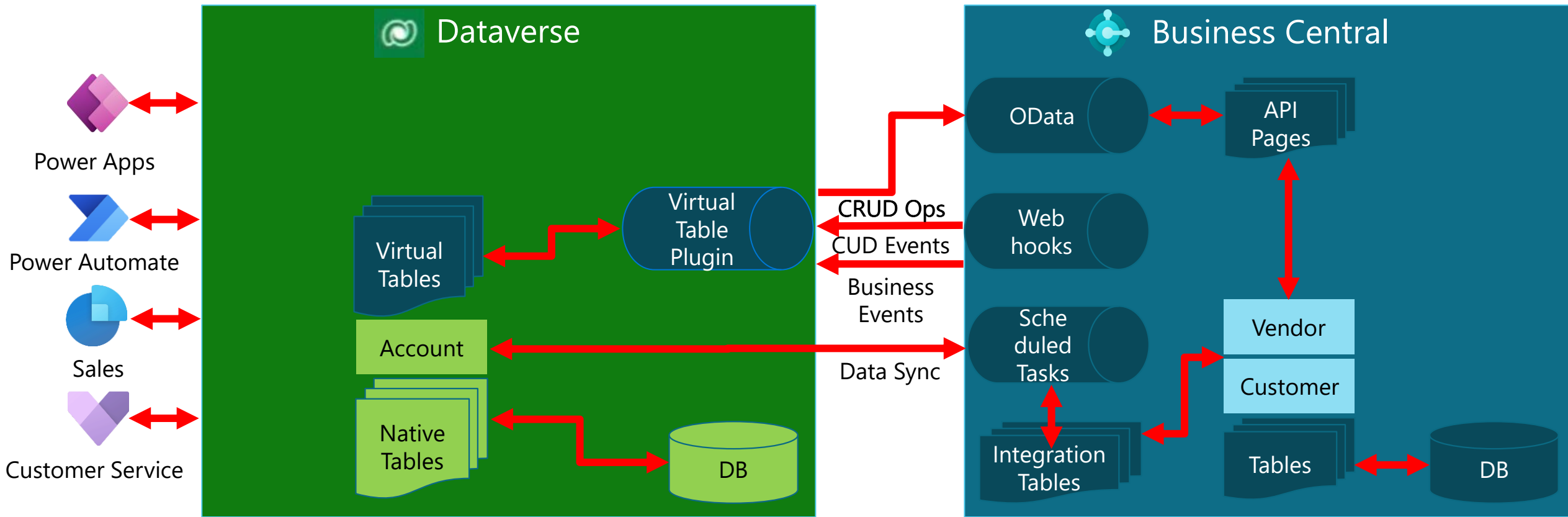




# Review of Dataverse integration

4. **Business Events** that enable **outbound interactions** from Business Central into Dataverse, where they can start **Power Automate flows** via the **“When an action is performed”** trigger

- **[New] Private Preview** of business events (22.0)
- **[Coming Soon] Public Preview** of business events (22.1/22.2)





# Virtual Table improvements

# Virtual Table improvements – customizations

Power Apps

+ New | Edit | Create an app | Using

Tables > Customer

Table properties

Name	Primary column
Customer	Display Name
Type	Last modified
Virtual	27 minutes ago

Schema ⓘ

- Columns
- Relationships
- Keys

Customer columns and data

Display Name * ↑ ↓
--------------------

Schema name \*

dyn365bc\_customer\_v2\_0

Logical name

dyn365bc\_customer\_v2\_0

Type \*

Virtual

Choose data source

Business Central

Record ownership \*

Organization

Choose table image

None

+ New image web resource

Color

Enter color code

Primary row image

Save Cancel

• Change icon

# Virtual Table improvements – customizations

The screenshot displays the Power Apps interface. On the left is a navigation pane with options: Home, Create, Learn, Apps, Tables (selected), Flows, Solutions, More, and Power Platform. The main area shows a virtual table titled 'Customer columns and data' with columns for 'Balance Due' and 'Blocked'. The table contains several rows of numerical data. A configuration panel is open on the right, showing settings for the selected column. The 'Decimal places' field is highlighted with a red box and contains the value '10'. Other settings include Schema name, Logical name, External name, Minimum value, Maximum value, and Input method editor (IME) mode.

Power Apps

+ New | Edit | Create an app | Using

Schema

- Columns
- Relationships
- Keys

Customer columns and data

	0.0 Balance Due	Blocked
	20,196.0800000000	
	5,855.0400000000	
	8,836.8000000000	
	59,378.6900000000	
	5,936.7100000000	
Enter decimal		Select option

Schema name \* ⓘ  
dyn365bc\_balancedue

Logical name  
dyn365bc\_balancedue

External name  
balanceDue

Minimum value \*  
-100,000,000,000

Maximum value \*  
100,000,000,000

**Decimal places \***  
10

Input method editor (IME) mode \*  
Disabled

**General**  
 Enable column security ⓘ

**Dashboard**  
 Appears in dashboard's global

Save Cancel

- Change precision

# Introducing Business Events



# Introducing Business Events – Power Automate trigger

The screenshot displays the Power Apps interface for configuring a flow. The left sidebar contains navigation options: Home, Create, Learn, Apps, Tables, Flows (selected), Solutions, More, and Power Platform. The main workspace shows a flow named 'When an action is performed -> Terminate'. The configuration panel for the 'When an action is performed' trigger is visible, with the following fields:

- \* Catalog: Dynamics 365 Business Central
- \* Category: Accounts Receivable
- \* Table name: (none) (with a 'Show options' tooltip)
- \* Action name: Choose an action. (with a dropdown menu open)

The dropdown menu for 'Action name' lists the following options:

- Customer blocked
- Customer unblocked
- Sales credit limit exceeded
- Sales credit memo posted
- Sales invoice posted
- Sales payment posted
- Enter custom value

Below the configuration panel, the 'Terminate' step is visible, with a 'Status' field. At the bottom of the workspace, there are two buttons: '+ New step' and 'Save'.

# Introducing Business Events – AL code syntax

```
enumextension 50101 MyEnumExtension extends EventCategory
{
    value(0; "Sales")
    {
    }
}
```

```
codeunit 50102 MyCodeunit
{
    trigger OnRun()
    begin
    end;
```

```
    [EventSubscriber(ObjectType::Page, Page::"Sales Order", 'OnPostDocumentBeforeNavigateAfterPosting', '', true, true)]
    local procedure OnPostDocument(var SalesHeader: Record "Sales Header"; var PostingCodeunitID: Integer; var Navigate: Enum "Navigate After Posting"; DocumentIsPosted: Boolean; var IsHandled: Boolean)
    begin
        SalesOrderPosted(SalesHeader.SystemId, SalesHeader."Sell-to Customer Name", SalesHeader."No.");
    end;
```

```
[ExternalBusinessEvent('salesorderposted', 'Sales order posted', 'Triggered when sales order has been posted', EventCategory::"Sales")]
[RequiredPermissions(PermissionObjectType::TableData, Database::"Sales Header", 'R')] // optional
procedure SalesOrderPosted(salesOrderId: Guid; customerName: Text; orderNumber: Text)
begin
end;
```

# Introducing Business Events – get catalog

- GET `api/microsoft/runtime/v1.0/externalbusinesseventdefinitions`

```
"value": [  
  {  
    "appId": "xxxxxxxx-xxxx-xxxx-xxxx-xxxxxxxxxxxx",  
    "name": "salesorderposted",  
    "payload": "[{\"Index\":0,\"Name\":\"salesOrderId\",\"Type\":\"Guid\"},{\"Index\":1,\"Name\":\"customerName\",\"Type\":\"Text\"},{\"Index\":2,\"Name\":\"orderNumber\",\"Type\":\"Text\"}]",  
    "displayName": "Sales order posted",  
    "description": "Triggered when sales order has been posted",  
    "category": "Sales",  
    "appName": "MyApp",  
    "appPublisher": "Default publisher",  
    "appVersion": "1.0.0.0"  
  }  
]
```

- Required permissions
  - Any authenticated D365 BC user



# Introducing Business Events – subscribe

- POST `api/microsoft/runtime/v1.0/externaleventsubscriptions`

```
{  
  "appId": "xxxxxxxx-xxxx-xxxx-xxxx-xxxxxxxxxxxx",  
  "companyName": null, (optional)  
  "eventName": "salesorderposted",  
  "notificationUrl": https://xxxxxxxxxx.crm4.dynamics.com/api/data/V9.0/PostRuntimeIntegrationExternalEvent,  
  "clientState": "" (optional)  
}
```

- Required permissions
  - Read access to ExternalBusinessEventDefinition
  - Optional checks defined by RequiredPermissions attribute

# Introducing Business Events – notify

- POST <https://xxxxxxxxxxx.crm4.dynamics.com/api/data/V9.0/PostRuntimeIntegrationExternalEvent>

```
{  
  "subscriptionId": "xxxxxxxx-xxxx-xxxx-xxxx-xxxxxxxxxxxx", (Dataverse subscription only)  
  "appId": " xxxxxxxx-xxxx-xxxx-xxxx-xxxxxxxxxxxx",  
  "eventName": "salesorderposted",  
  "timestamp": "2023-02-20T10:27:35.8770000Z",  
  "initiatingUserAADObjectId": "xxxxxxxx-xxxx-xxxx-xxxx-xxxxxxxxxxxx",  
  "companyName": "CRONUS International Ltd.",  
  "clientState": "",  
  "payload": {  
    "salesOrderId": "xxxxxxxx-xxxx-xxxx-xxxx-xxxxxxxxxxxx",  
    "customerName": "Acme Insurance Co.",  
    "ordernumber": "101005"  
  }  
}
```

- Verifications before sending notifications
  - Subscriber must have access to ExternalBusinessEventDefinition in the current company
  - Subscriber must have access to all RequiredPermissions in the current company

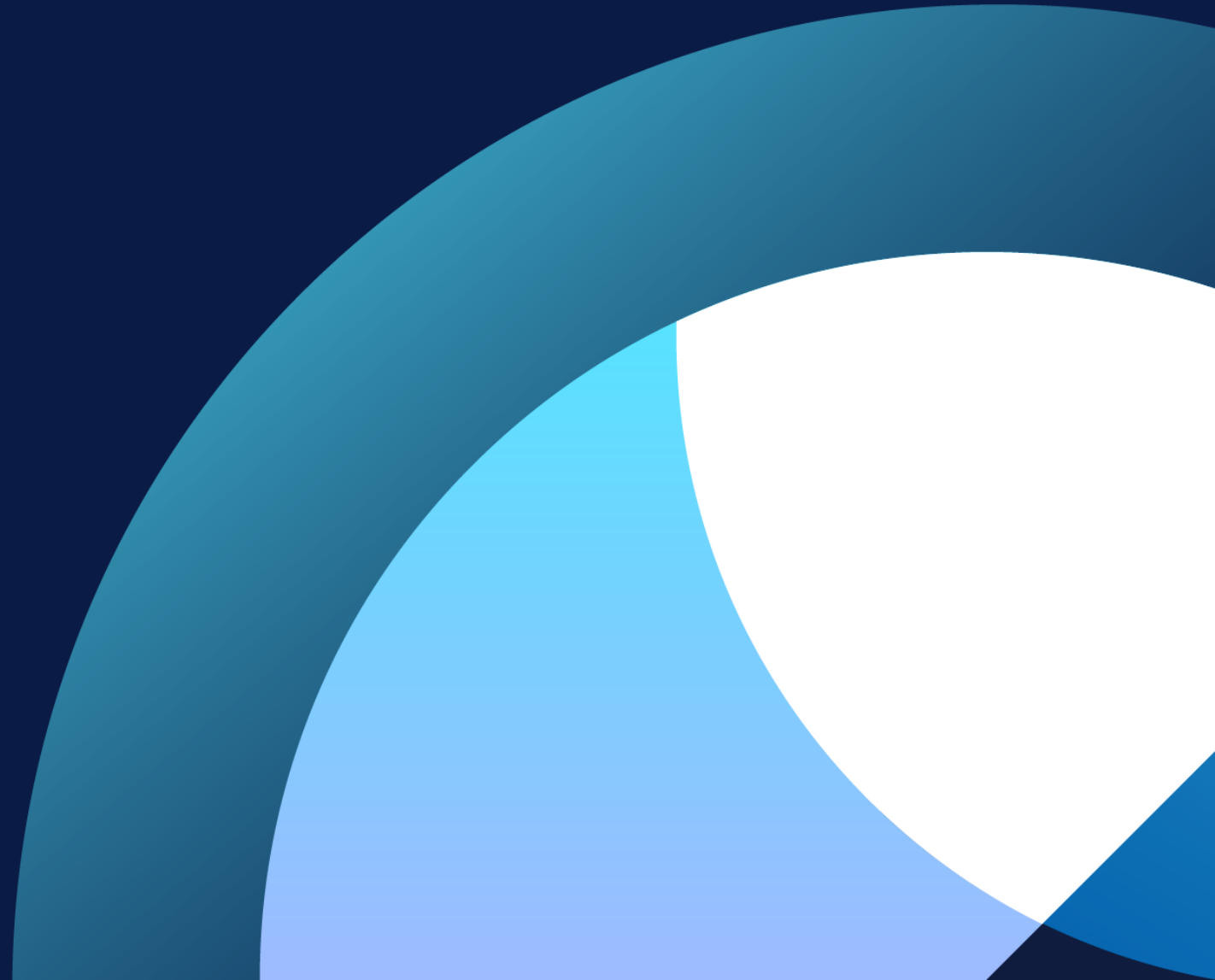
# Introducing Business Events – preview planning

- **Private preview (22.0)**

- Partners will be invited to participate via Yammer
  - Selection will be based on a form that they fill out with their:
    - Scenarios for business events
    - AAD tenant + environment IDs to enable for preview
    - Email contact
- GitHub repo for Dataverse integration (<https://github.com/microsoft/d365bcdv>) will be made public to share
  - Docs and sample code for business events, so selected partners can
    - Create their extension
    - Deploy it in their preview-enabled environment
    - Try out business events
    - Submit their ideas/feedbacks/questions/issues

- **Public Preview (22.1/22.2)**

Demos



Thank you