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Track Historical Changes Using SCD2 in Dataflows Gen2

Cristian Angyal, MVP

Whova

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Event Invitation Code: FABCON2025

About me

Cristian Angyal

- Electrical Engineering
- Project Manager (PMP, PMI-ACP)
- Microsoft Certified Professional

  (DP-600, DP-700, PL-300, MCT, MCSA, MCSE, MOS Master)
- Romania PBI and Modern Excel UG Founder

  https://www.meetup.com/**romaniapug**
- Microsoft MVP M365 (**Excel**) & Data Platform (**Power BI**)

in/cristian-angyal

https://linktr.ee/cristiangyal

Agenda

01 Overview

02 Types of *Slowly Changing Dimensions* (SCD)

03 SCD2 technique in DFG2

04 Demo

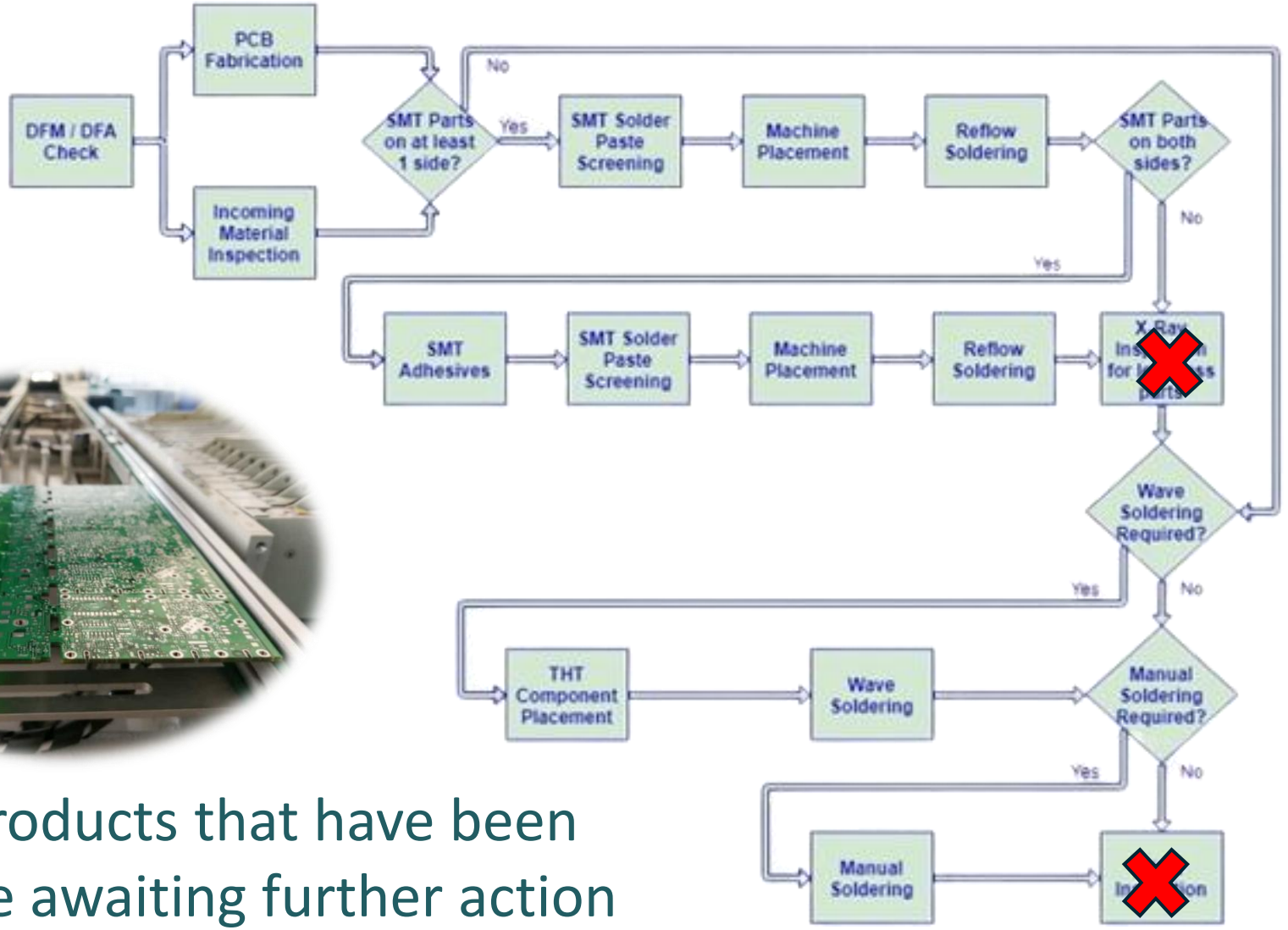
05 Summary

06 Q&A

Electronic Manufacturing Services (EMS) Company

Image source: https://www.raypcb.com/ems-electronics-manufacturing-companies

EMS Product Flow



Bone Pile = products that have been rejected or are awaiting further action

Image source: https://www.tempoautomation.com/blog/the-automated-pcb-assembly-process-flow-chart-tpo/

Tracking Bone Pile → History

- Daily manual exports
- Excel using Power Query and Power Pivot
- Dynamic Reports in Power BI
- Power BI within ***Fabric***

Customer Requests over time:

New Supplier for specific part:

Ignore the change

Part Name Change:

Overwrite the value

Part Family Split for Marketing reasons:

Add New Record

Slowly Changing Dimensions (SCD)

SCD Type 0:

Ignore the change

SCD Type 1:

Overwrite the value

SCD **Type 2**:

Add New Record

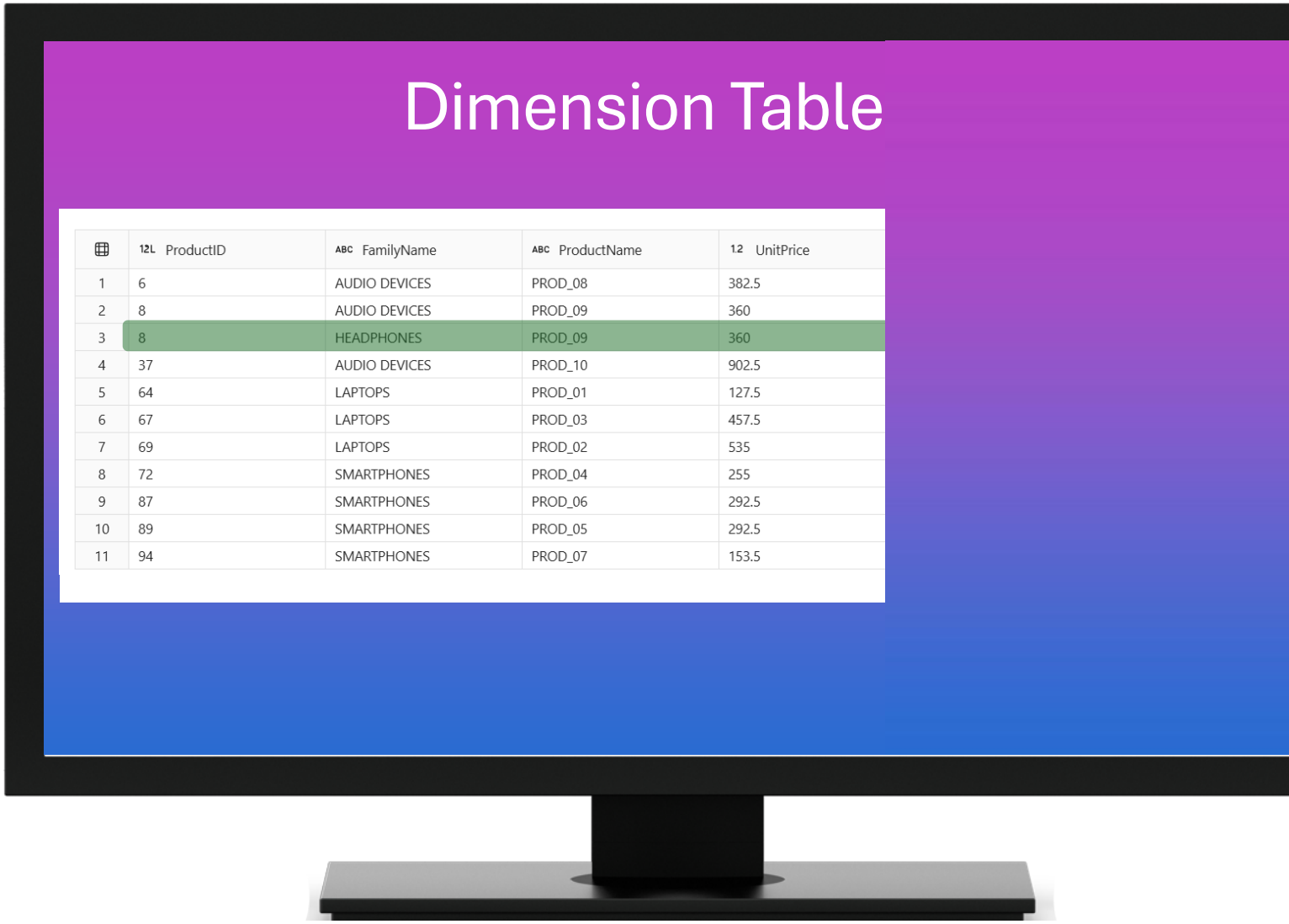
Slowly Changing Dimensions

SCD **Type 2:**

1 New **Record**

https://learn.microsoft.com/en-us/fabric/data-factory/slowly-changing-dimension-type-two

2



	ProductID	FamilyName	ProductName	UnitPrice
1	6	AUDIO DEVICES	PROD_08	382.5
2	8	AUDIO DEVICES	PROD_09	360
3	8	HEADPHONES	PROD_09	360
4	37	AUDIO DEVICES	PROD_10	902.5
5	64	LAPTOPS	PROD_01	127.5
6	67	LAPTOPS	PROD_03	457.5
7	69	LAPTOPS	PROD_02	535
8	72	SMARTPHONES	PROD_04	255
9	87	SMARTPHONES	PROD_06	292.5
10	89	SMARTPHONES	PROD_05	292.5
11	94	SMARTPHONES	PROD_07	153.5

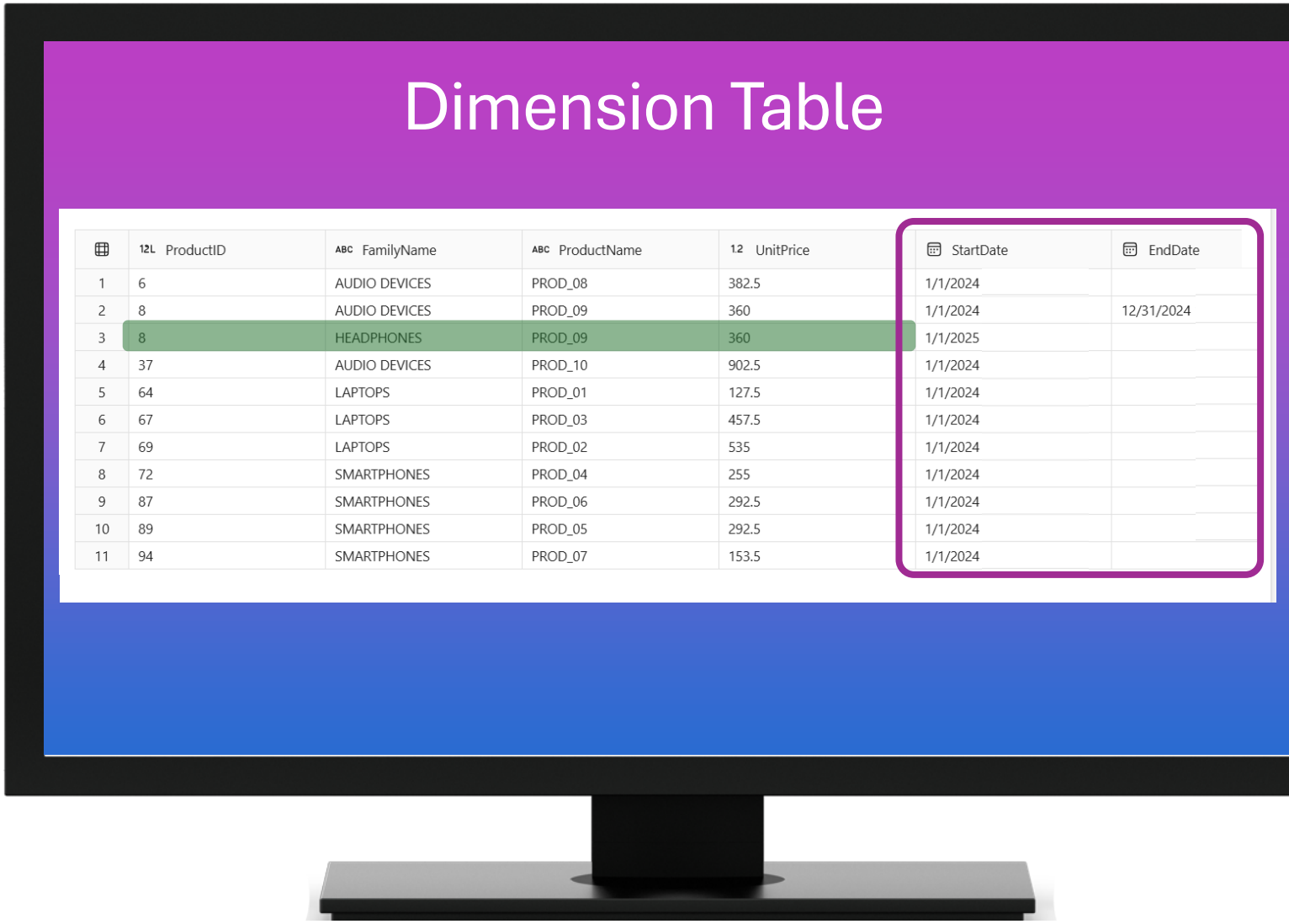
Slowly Changing Dimensions

SCD **Type 2:**

1 New **Record**

https://learn.microsoft.com/en-us/fabric/data-factory/slowly-changing-dimension-type-two

2 New **Start** and **End** columns



	ProductID	FamilyName	ProductName	UnitPrice	StartDate	EndDate
1	6	AUDIO DEVICES	PROD_08	382.5	1/1/2024	
2	8	AUDIO DEVICES	PROD_09	360	1/1/2024	12/31/2024
3	8	HEADPHONES	PROD_09	360	1/1/2025	
4	37	AUDIO DEVICES	PROD_10	902.5	1/1/2024	
5	64	LAPTOPS	PROD_01	127.5	1/1/2024	
6	67	LAPTOPS	PROD_03	457.5	1/1/2024	
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9	87	SMARTPHONES	PROD_06	292.5	1/1/2024	
10	89	SMARTPHONES	PROD_05	292.5	1/1/2024	
11	94	SMARTPHONES	PROD_07	153.5	1/1/2024	

DFG2 Steps for SCD2

1) Add ***StartDate*** and ***EndDate*** to Dimension Table

2) Add Surrogate Key to the Dimension

- Keys WITHOUT Meaning
- Keys WITH Meaning

3) Create a Bridge Query

4) Merge the Surrogate Key to the Fact table

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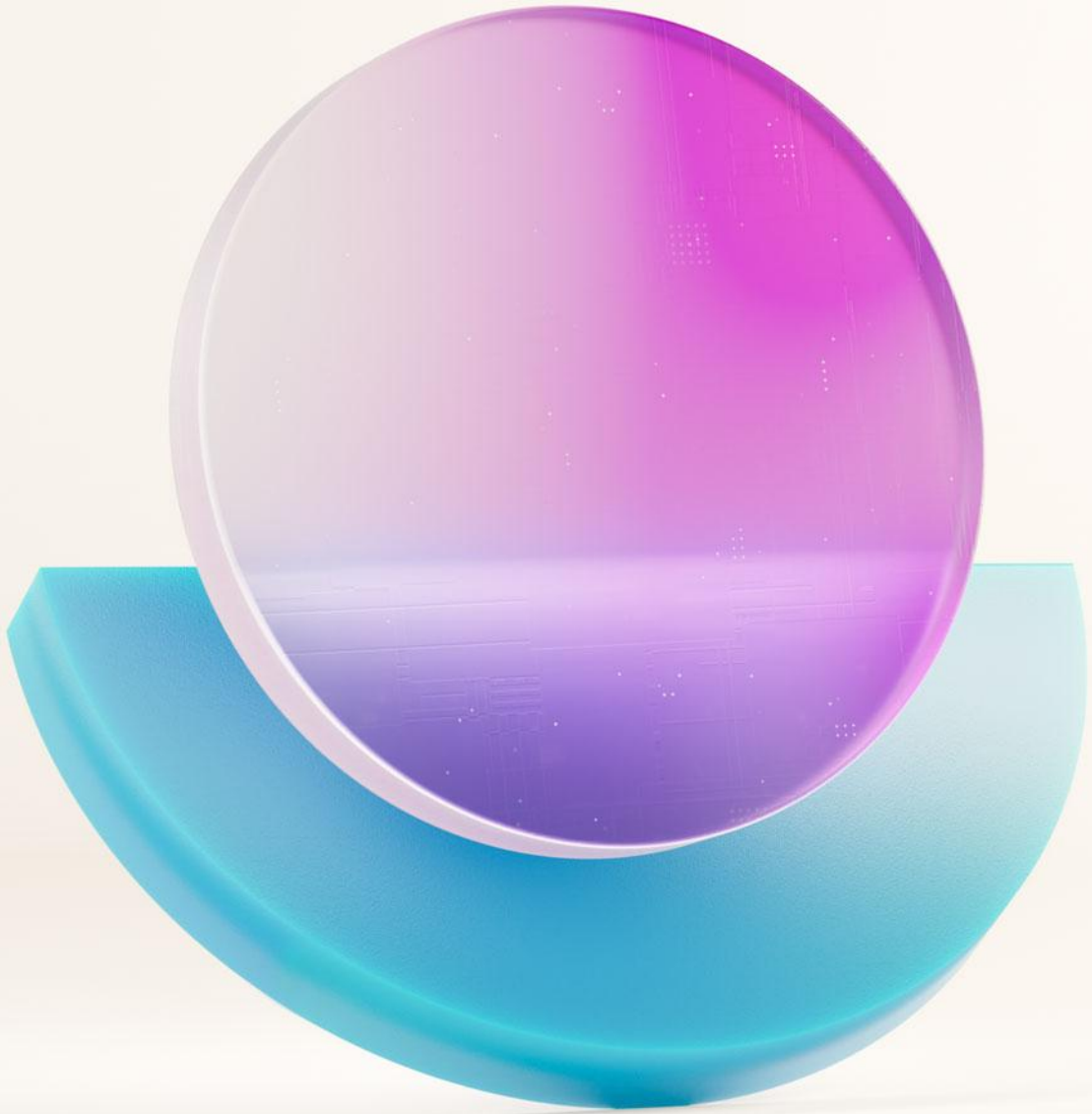

Demo

Demo overview

- Daily Data snapshots stored in Azure SQL DB copy to Bronze LH
- “Data Massage” with DFG2 and load to Silver LH
- Prep data (including new SKs) for Gold Layer LH
- Merge the Surrogate Key to the Fact table
- Create PBI Report based on Gold Layer LH

What to Remember when implementing SCD2

1) Delete relationship between Fact and Dimension

2) Add **Start** and **End** Column

3) Create surrogate keys

4) Create bridge query for ***every date***

5) Replace FK in Fact table with surrogate keys

6) (re)Create the relationship between the Fact table and Dimension table using the new keys

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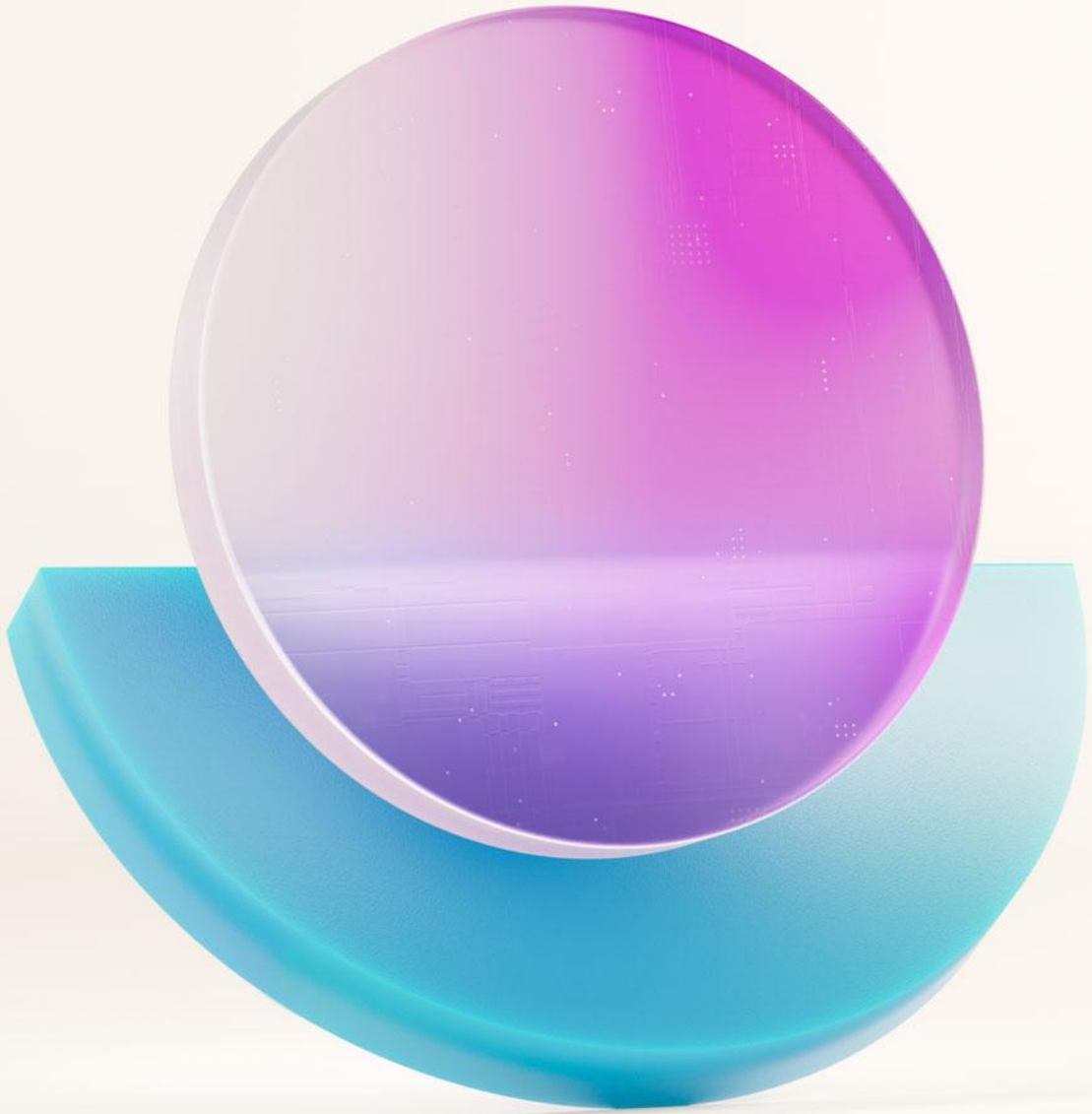
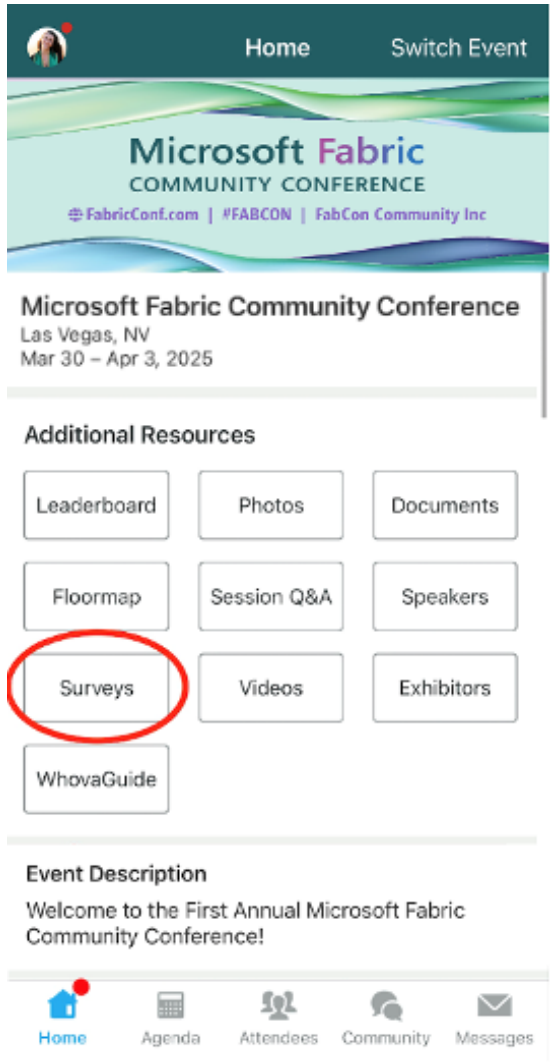


Thank You!

Session Feedback Surveys



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