

Power BI, DataWarehouse & Analysis Services

Case Study:

Finding Low Margin Clients
& Looking for Opportunities to Increase:

- 1) Customer Margins &
- 2) Product-Mix Margins

By **Carlos Lameiro, MBA, MCSE-DMA, CMC**, Founder and Director, BIAPRO®
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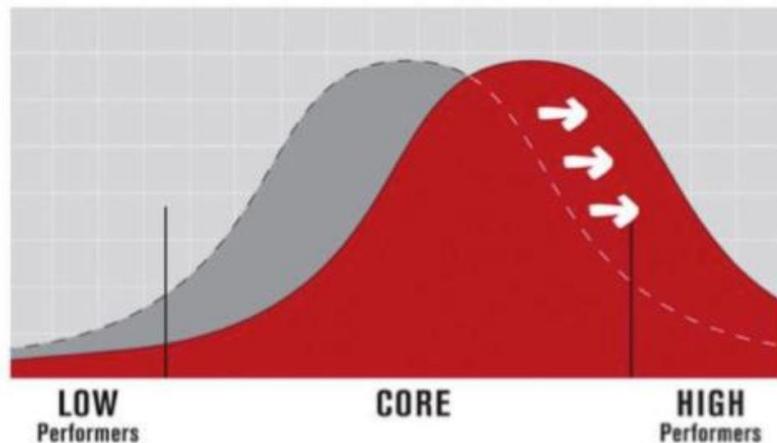
Agenda

- Brief Introduction to the Case Study and some important concepts to look out for during the Demo
- Demo
- More detailed information about
 - Publishing Power BI with SSAS as a data source
 - Power BI LifeCycle
 - BI360DW Trees
- Reading List and Q&A

Power BI & BI360DW

- 1) Identify Average Performance Product Lines
- 2) Understand Underlying Cost Structure and Opportunities for Efficiency
- 3) Understand Opportunities for Growth via CRM Initiatives
- 4) Implement and Enable Plans

Building a Power BI model using a Private Host DW



- Objective: Find customers with
- lower Relative Margin % and
 - Net Margin > \$2M
-
- ...In about 2 minutes

Demo

BI360DW, SSAS & Power BI



Downloading the Hierarchy Slicer from the PowerBI marketplace that recognizes the structure of the Hierarchies built for Customer and Products

Power BI Visuals

MARKETPLACE | MY ORGANIZATION

Add-ins may access personal and document information. By using an add-in, you agree to its Permissions, License Terms and Privacy Policy.

hierarchy

Suggested for you

Category

All

Advanced Analytics

Data Visualizations

Editor's Picks

Filters

Gauges

Infographics

KPIs

Maps

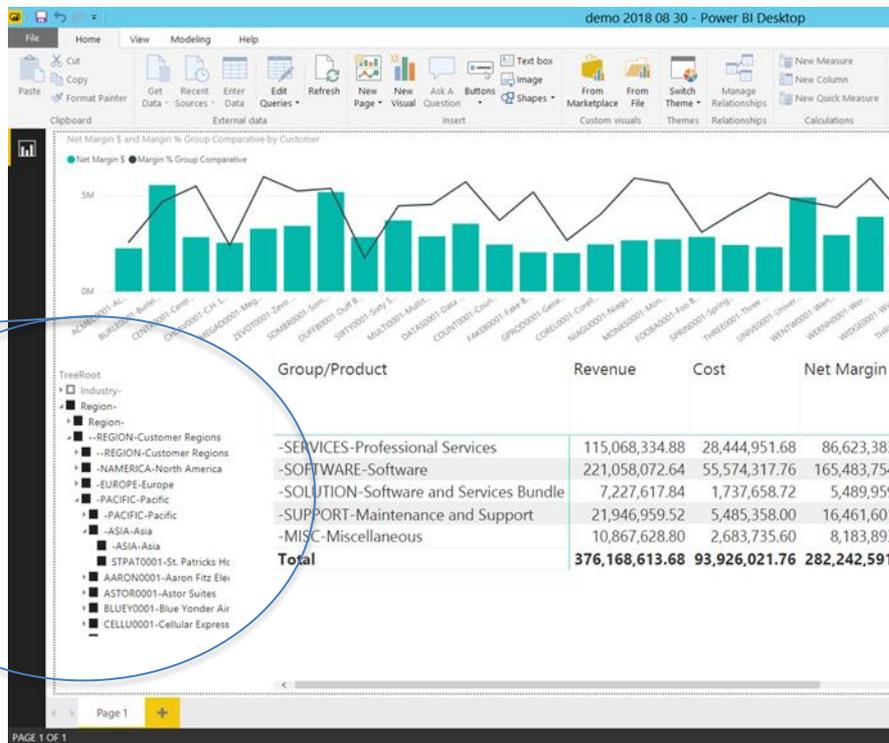
Power BI Certified

Time

HierarchySlicer

Create a hierarchy of different fields and use it as a slicer with Power BI.

Add



Report filtering clients with less than 100% relative Margin % and less than Net Revenue of \$2M:

- Visualization showing bars for Net Revenue & line with Relative Margin %
- Table with Product Mix figures for all Low Margin clients shown

demo 2018 08 30 - Power BI Desktop Carlos Lameiro - BI365

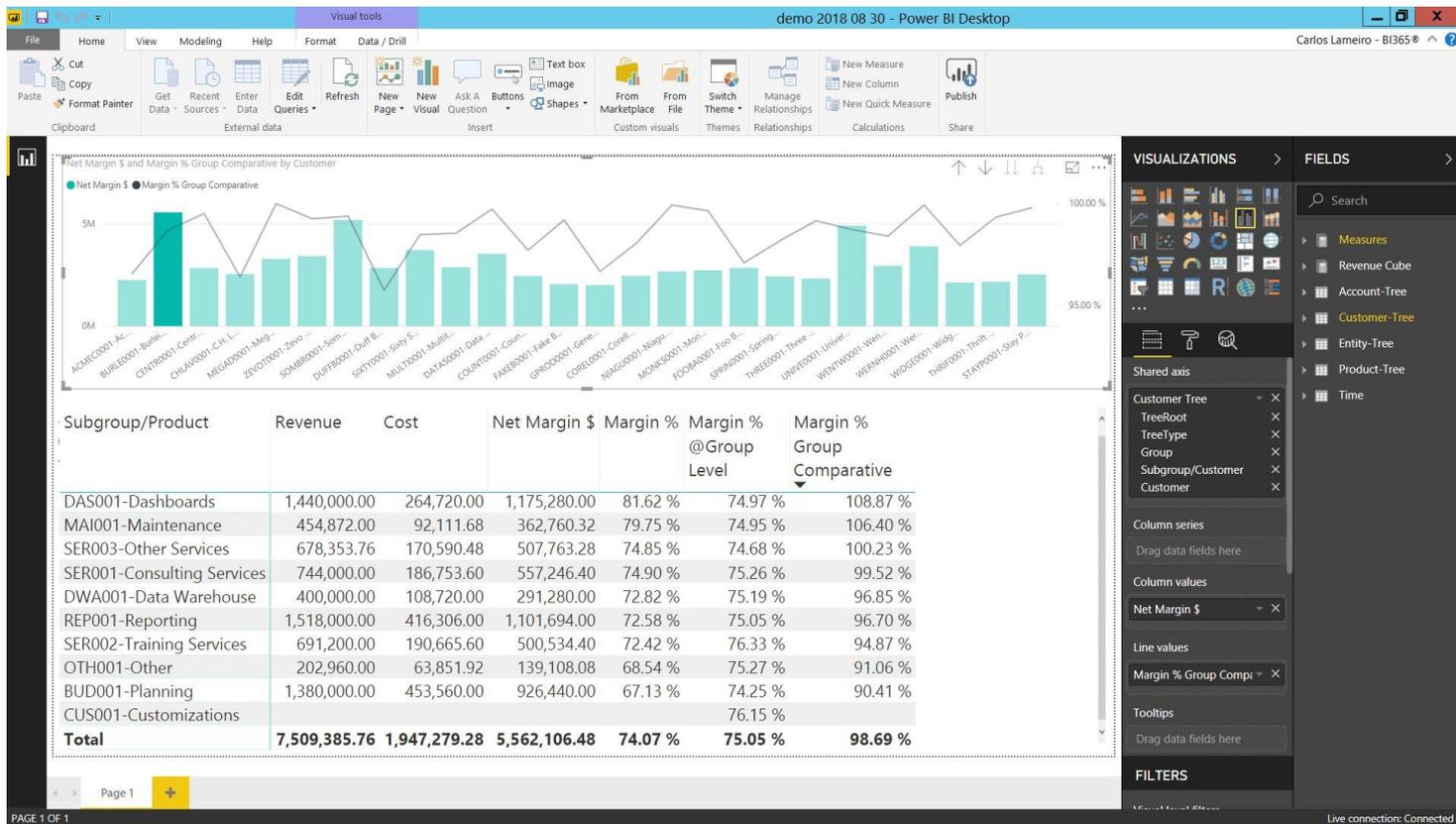
Subgroup/Product	Revenue	Cost	Net Margin \$	Margin %	Margin % @Group Level	Margin % Group Comparative
SER001-Consulting Services	46,961,978.08	11,704,455.76	35,257,522.32	75.08 %		
SER003-Other Services	32,490,356.80	8,216,942.32	24,273,414.48	74.71 %		
SER002-Training Services	35,616,000.00	8,523,553.60	27,092,446.40	76.07 %		
REP001-Reporting	73,084,000.00	18,126,526.00	54,957,474.00	75.20 %		
BUD001-Planning	63,040,000.00	16,190,940.00	46,849,060.00	74.32 %		
DWA001-Data Warehouse	22,673,510.72	5,642,513.28	17,030,997.44	75.11 %		
DAS001-Dashboards	62,260,561.92	15,614,338.48	46,646,223.44	74.92 %		
CUS001-Customizations	7,227,617.84	1,737,658.72	5,489,959.12	75.96 %		
MAI001-Maintenance	21,946,959.52	5,485,358.00	16,461,601.52	75.01 %		
OTH001-Other	10,867,628.80	2,683,735.60	8,183,893.20	75.31 %		
Total	376,168,613.68	93,926,021.76	282,242,591.92	75.03 %		

Page 1

Live connection: Connected

By clicking on a specific client (dark green, second from left), we can see:

- Net Revenue of \$5.5M & Relative Margin of 74.07% or 98.69% of Group's Margin of 75.05%
- Product Mix figures for specific this specific client, showing lower Margins for specific products



By clicking on a specific Product “Reporting” (dark grey row) we can see:

- Overall net revenue of \$54.96M, and the visual product-mix component for each of the clients above (dark green)
- We can also see the individual Margin % for this specific Product across all clients above

The screenshot displays the Power BI Desktop interface. The main view shows a combination chart titled "Net Margin \$ and Margin % Group Comparative by Customer". The chart has two Y-axes: the left axis represents Revenue in millions of dollars (0M to 5M), and the right axis represents Margin percentage (80.00% to 120.00%). The X-axis lists various subgroups/products. The chart uses teal bars for revenue and a black line for margin percentage.

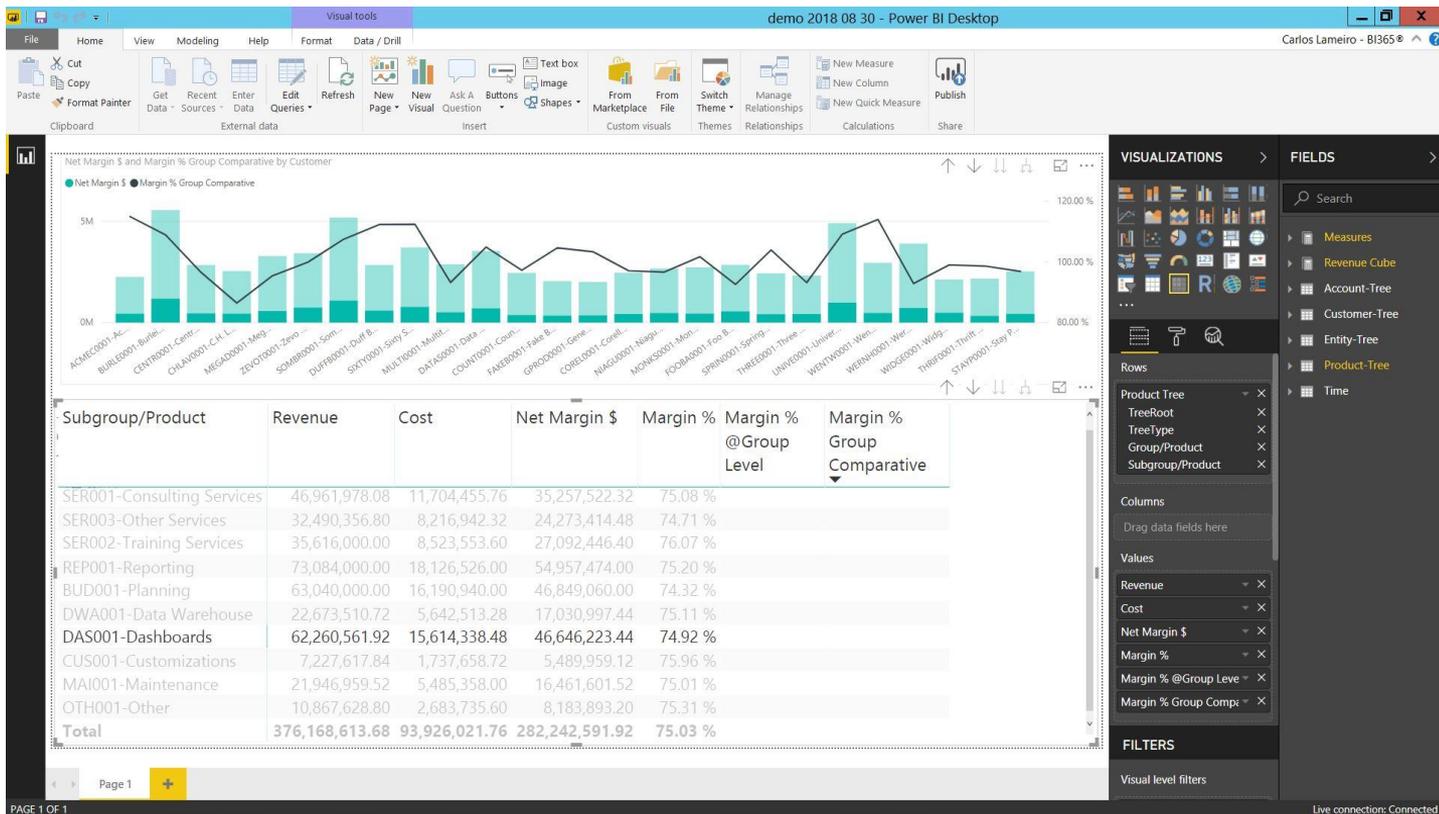
Below the chart is a data table with the following columns: Subgroup/Product, Revenue, Cost, Net Margin \$, Margin %, Margin % @Group Level, and Margin % Group Comparative. The row for "REP001-Reporting" is highlighted in dark grey.

Subgroup/Product	Revenue	Cost	Net Margin \$	Margin %	Margin % @Group Level	Margin % Group Comparative
SER001-Consulting Services	46,961,978.08	11,704,455.76	35,257,522.32	75.08 %		
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Total	376,168,613.68	93,926,021.76	282,242,591.92	75.03 %		

The interface also shows a ribbon with various toolbars (Clipboard, External data, Insert, Custom visuals, Themes, Relationships, Calculations, Share) and a right-hand pane with "VISUALIZATIONS" and "FIELDS" sections. The "FIELDS" section shows a search bar and a list of fields including Measures, Revenue Cube, Account-Tree, Customer-Tree, Entity-Tree, Product-Tree, and Time. The "VALUES" section shows a list of fields including Revenue, Cost, Net Margin \$, Margin %, Margin % @Group Level, and Margin % Group Comparative. The "FILTERS" section shows a list of fields including Visual level filters. The bottom status bar indicates "Page 1" and "Live connection: Connected".

By clicking on a specific Product “Dashboards” (dark grey row) we can see:

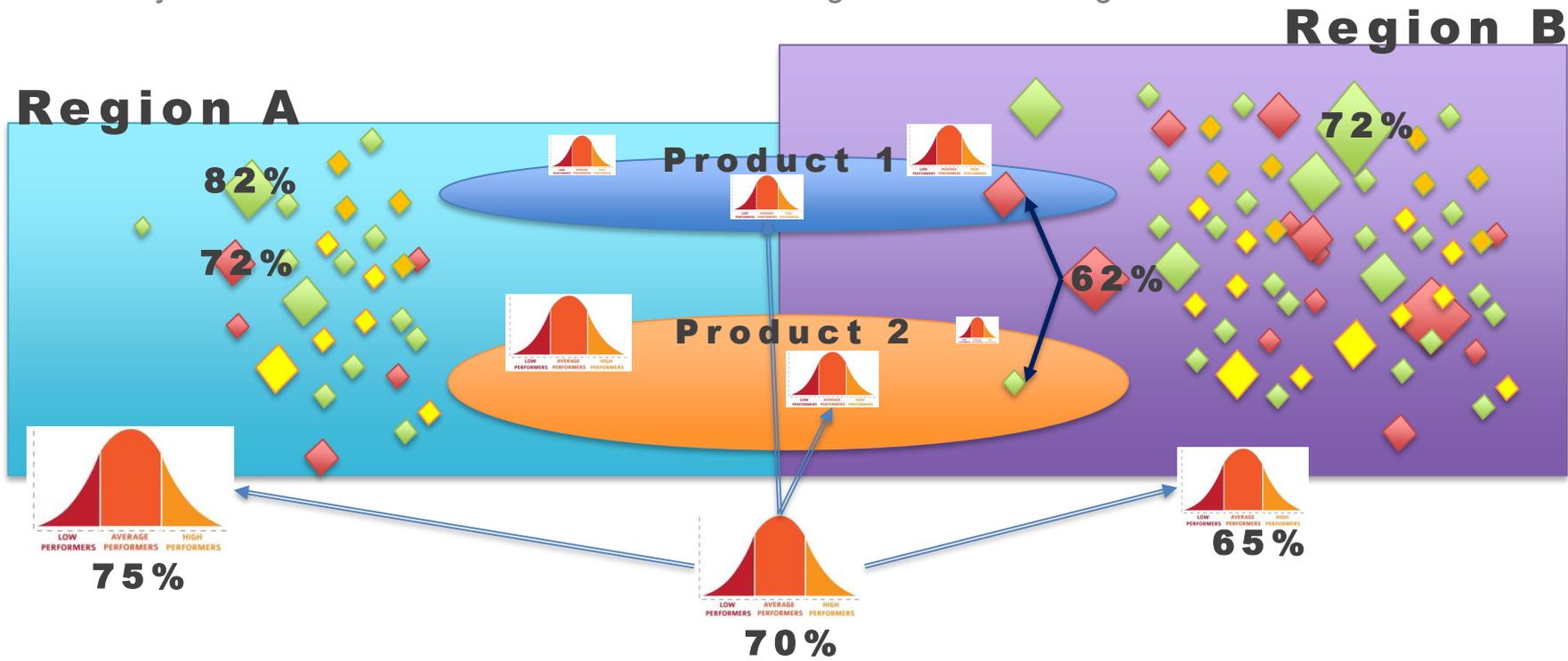
- Overall net revenue of \$46.65M, and the visual product-mix component for each of the clients above (dark green)
- We can also see the individual Margin % for this specific Product across all clients above



Methodology to determine Relative Performance

Building a Power BI model using a Private Host DW

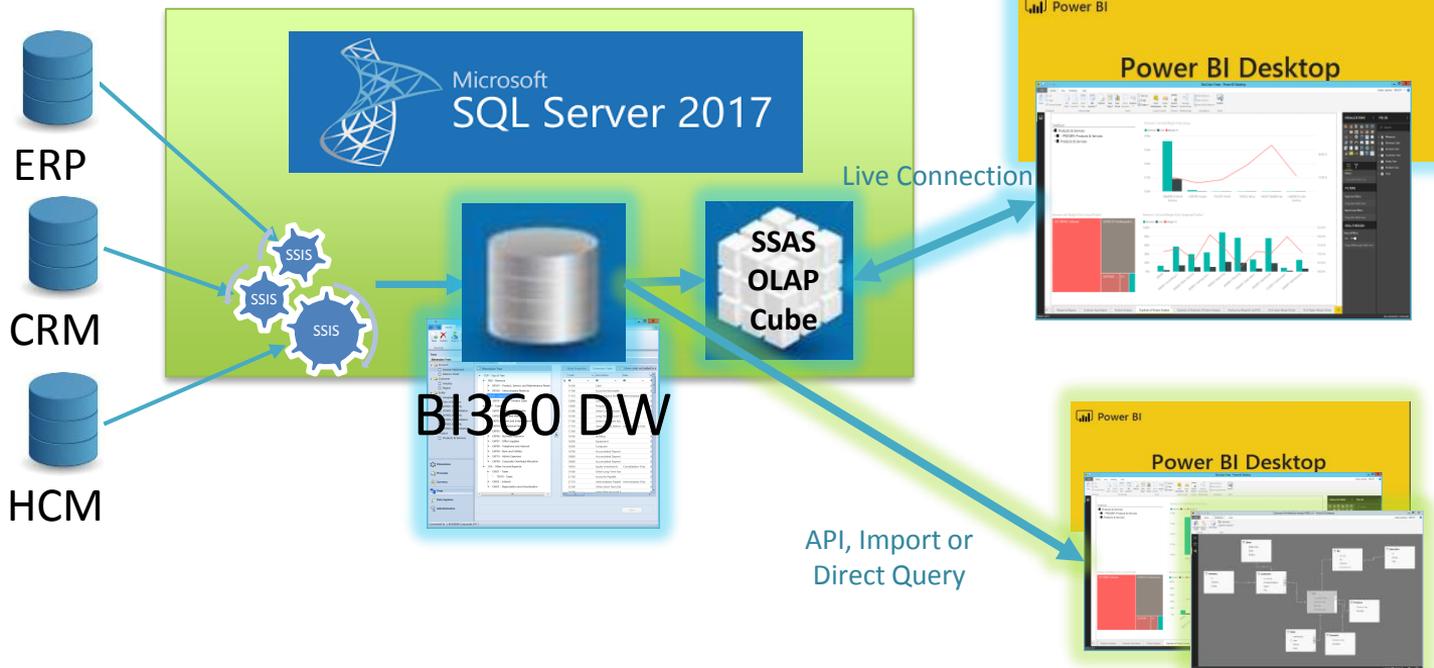
- Margin %
- Relative Net Margin \$ Contribution
- Objective: Find customers with lower Relative margin % and Net Margin > \$2M



Ingredients for Private Hosting BI360DW & Power BI:

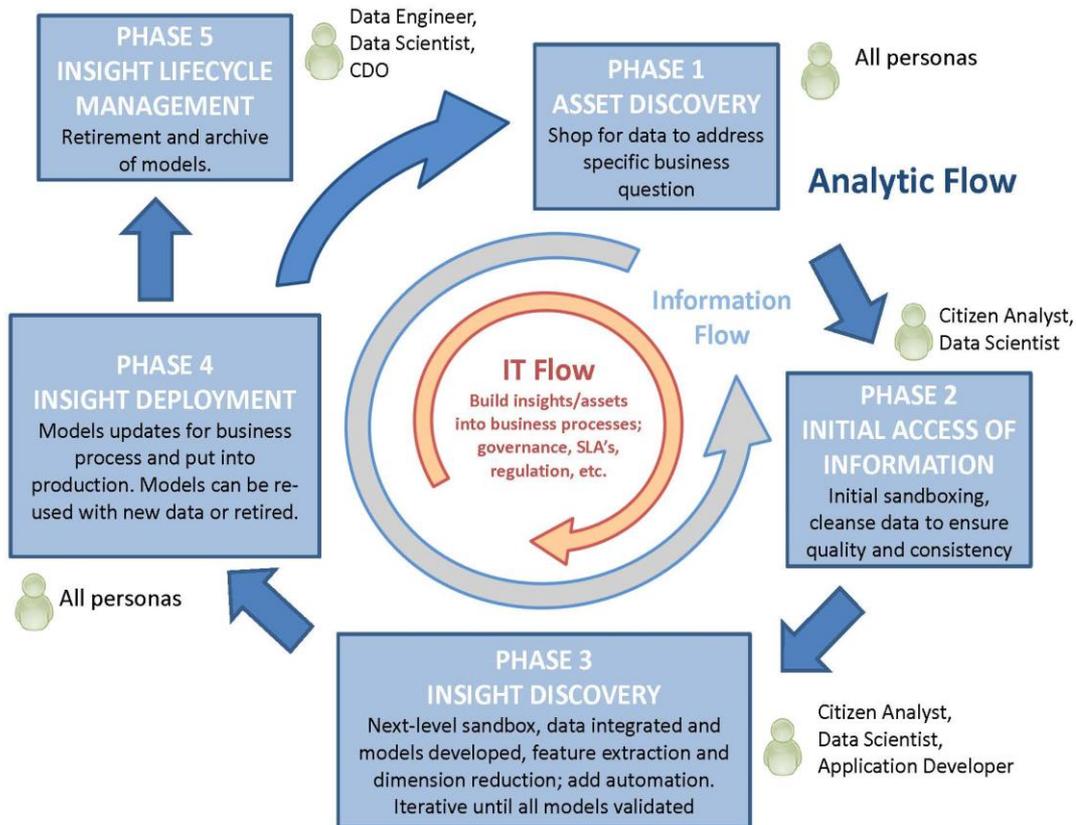
Building a Power BI model using a Private Host DW

What strengths does each component bring to the overall solution?



Life Cycle of BI

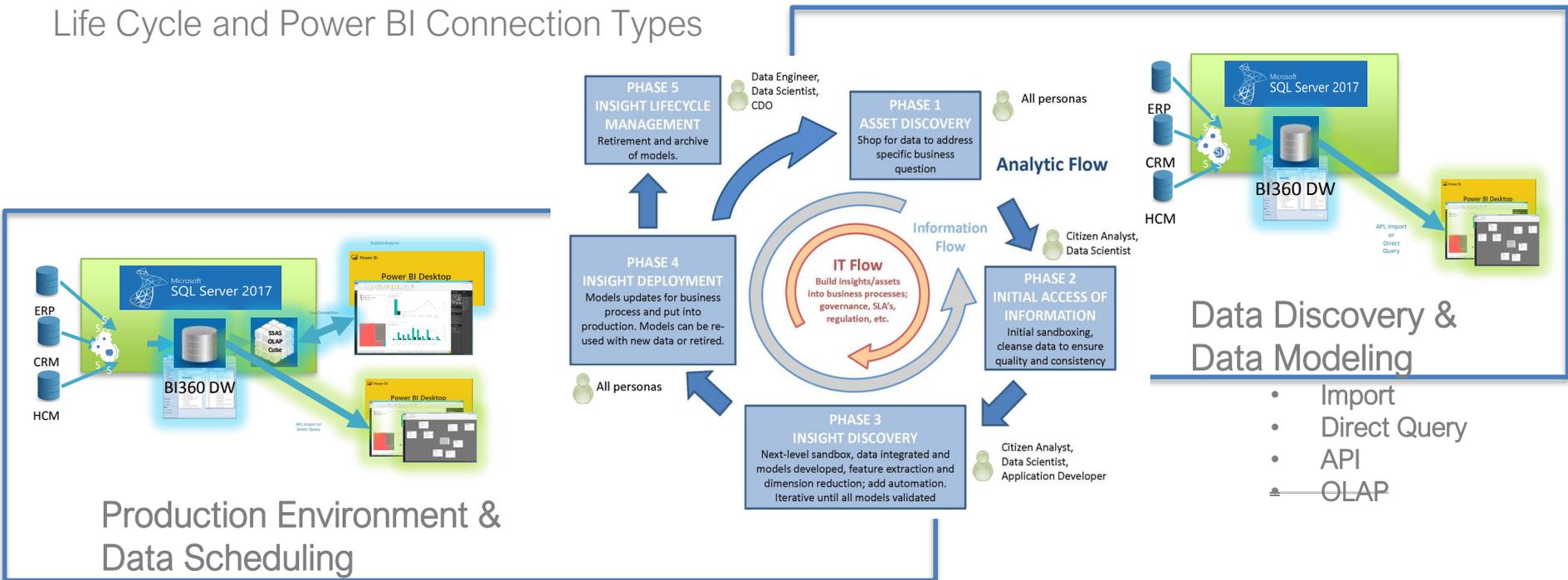
Building a Power BI model using a Private Host DW



BI360 DataWarehouse & Power BI

Building a Power BI model using a Private Host DW

Life Cycle and Power BI Connection Types



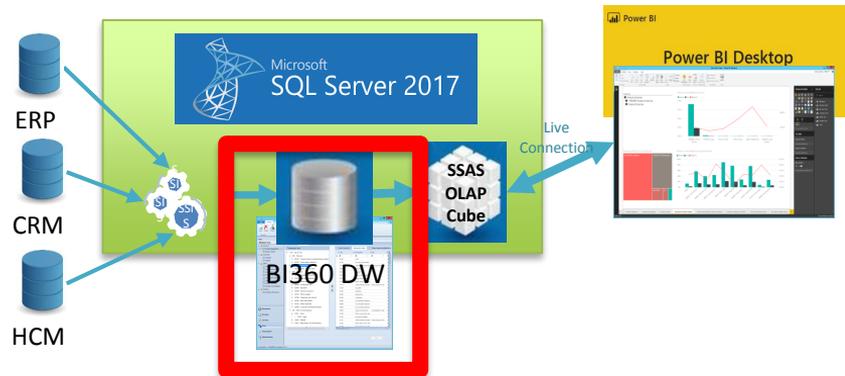
- Import
- Direct Query
- API
- OLAP Cube

Power BI & BI360DW

Building a Power BI model using a Private Host DW

BI360 DataWarehouse (both Private Host and Azure Cloud)

- Robust User-Friendly GUI
- Advanced Tree Functionality
 - Parent-Child Hierarchies
 - Flat Hierarchies
 - Multiple/Dimension
 - Multiple Associations
 - Ordering
 - Percentages
 - User Friendly
 - Visual
 - Drag & Drop
- Integration for multiple processes
 - Systems: SSIS to consolidate Data
 - Manual: Budget/Forecast data Entry
 - Multiple Module/Transaction Capability
 - Leverage Excel Data Entry Programmability





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Power BI & BI360DW

Building a Power BI model using a Private Host DW



BI360 DataWarehouse

Transaction with Maximum Flexibility and Robust Dimensional Matrix

Customer	Department	Source System	Employee	Entity	Product	Scenario
AARON0001	300		1250	SAS	REP001	ACT
AARON0001	300		1250	SAS	DAS001	ACT
AARON0001	300		1250	SAS	CUS001	ACT
ALTON0001	300		1252	SAS	BUD001	ACT
ALTON0001	300		1252	SAS	DWA001	ACT
ALTON0001	300		1252	SAS	CUS001	ACT

group by area (Drag a field here to group by that field)

TransactionID	Description	Account	Category	Currency	Customer	Department	Source System	Employee	Entity	Product	Scenario	Time/Period	Total price	Qty	UPrice	RowComment	Source	RuleID	CreatedOn	Credibility	UpdatedOn	UpdatedBy	Start Date	End Date	Unit Cost	Extended Cost	Net Unit Margin	Quantity	Unit Price	Extend Price
10050	40010	MAIN	HKD	AARON0001	300	1250	SAS	REP001	ACT	20210903		8250.0000	3.0000	2750.0000				6/8/2016 11:42 AM	Administrator	6/8/2016 11:42 AM	Administrator			429.0000	1287.0000	0.1560	3.0000	429.0000	8250.0000	
10050	40010	MAIN	HKD	AARON0001	300	1250	SAS	DAS001	ACT	20210903		9000.0000	3.0000	3000.0000				6/8/2016 11:42 AM	Administrator	6/8/2016 11:42 AM	Administrator			1026.0000	3078.0000	0.3420	3.0000	1026.0000	9000.0000	
10050	40010	MAIN	HKD	AARON0001	300	1250	SAS	CUS001	ACT	20210903		6310.0000	1.0000	6310.0000				6/8/2016 11:42 AM	Administrator	6/8/2016 11:42 AM	Administrator			2972.0100	2972.0100	0.4710	1.0000	2972.0100	6310.0000	
11030	40010	MAIN	HKD	ALTON0001	300	1252	SAS	BUD001	ACT	20210907		10000.0000	4.0000	2500.0000				6/8/2016 11:42 AM	Administrator	6/8/2016 11:42 AM	Administrator			712.5000	2850.0000	0.2850	4.0000	712.5000	10000.0000	
11030	40010	MAIN	HKD	ALTON0001	300	1252	SAS	DWA001	ACT	20210907		10000.0000	2.0000	5000.0000				6/8/2016 11:42 AM	Administrator	6/8/2016 11:42 AM	Administrator			495.0000	990.0000	0.0990	2.0000	495.0000	10000.0000	
11030	40010	MAIN	HKD	ALTON0001	300	1252	SAS	CUS001	ACT	20210907		3313.7700	1.0000	3313.7700				6/8/2016 11:40 AM	Administrator	6/8/2016 11:40 AM	Administrator			291.6100	291.6100	0.0880	1.0000	291.6100	3313.7700	

Unit Cost	Extended Cost	Net Unit Margin	Quantity	Unit Price	Extend Price
429.0000	1287.0000	0.1560	3.0000	2750.0000	8250.0000
1026.0000	3078.0000	0.3420	3.0000	3000.0000	9000.0000
2972.0100	2972.0100	0.4710	1.0000	6310.0000	6310.0000
712.5000	2850.0000	0.2850	4.0000	2500.0000	10000.0000
495.0000	990.0000	0.0990	2.0000	5000.0000	10000.0000
291.6100	291.6100	0.0880	1.0000	3313.7700	3313.7700



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BI360 DataWarehouse Key Feature – Multiple Hierarchies for the same Dimension

Power BI & BI360DW

Building a Power BI model using a Private Host DW

The screenshot displays the BI360 Data Warehouse application interface. The main window shows a 'Geography Tree' with a hierarchical structure:

- CONSOL - Consolidated Tree Node
 - GTWH - Western Hemisphere
 - SCA - Corporate Canada
 - SUS - Corporate US
 - GTAS - Asian Region
 - SAS - Corporate Asia
 - SEM - Corporate EMEA

The interface also shows a 'Line of Business Tree' with a similar structure:

- CONSOL - Consolidated Tree Node
 - LBMN - Manufacturing
 - SAS - Corporate Asia
 - SUS - Corporate US
 - LBDT - Distribution
 - SCA - Corporate Canada
 - SEM - Corporate EMEA

At the bottom right, a 'Dimension Table' is visible with the following data:

Code	Description	Alias
=(Custom)	=(Custom)	=(Custom)
CORP	Corporate Assumption	Tree Rollup
GTAS	Asian Region	Tree Rollup
GTWH	Western Hemisphere	Tree Rollup

The diagram in the top right corner illustrates the data flow: ERP, CRM, and HCM data feeds into Microsoft SQL Server 2017, which is connected to BI360 DW. BI360 DW is then connected to Power BI Desktop.

Sample Client Regional Hierarchies in BI360 DW

Building a Power BI model using a Private Host DW

The screenshot shows the BI360 Data Warehouse application interface. The main window displays a 'Region Tree' with a 'Dimension Tree' view. The tree structure is as follows:

- REGION - Customer Regions
 - NAMERICA - North America
 - CANADA - Canada
 - USA - United States of America
 - EUROPE - Europe
 - PACIFIC - Pacific
 - AFRICA - Africa
 - MEAST - Middle East
 - LAMERICA - Latin America
 - VISTA0001 - Vista Travel
 - VANDE0001 - Vandelay Industries

The 'Node Properties' table is also visible:

Code	Description	Alias
(Custom)		
-FINANCIAL	Financial Services Indi	
--INDUSTRY	Customer Industries	
-MANUFACTURING	Manufacturing Industry	
-SERVICES	Service Industry	

At the bottom of the window, it says 'Connected to : { BI360DW_Corporate_471 }'.



Sample Product Hierarchy in BI360 DW

Building a Power BI model using a Private Host DW

The screenshot shows the BI360 Data Warehouse application interface. The main window displays a 'Products & Services Tree' with a 'Dimension Tree' view. The tree structure is as follows:

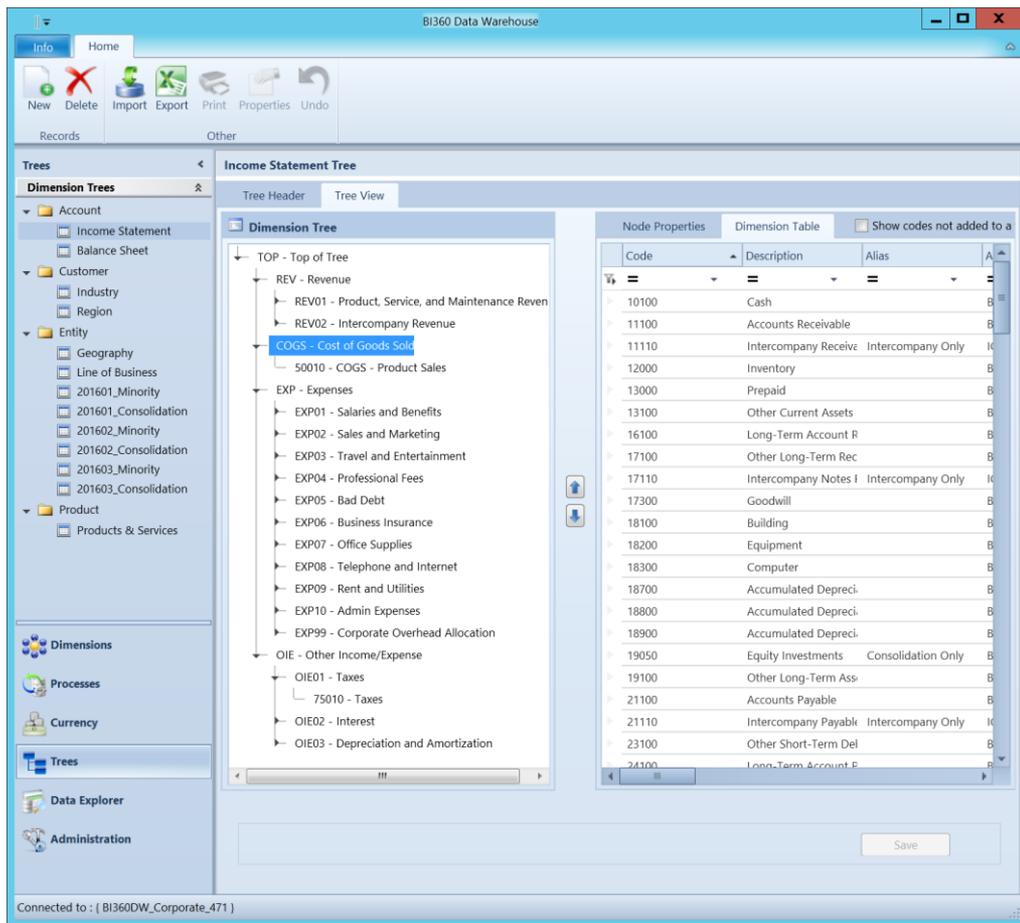
- PRDSERV - Products & Services
 - SERVICES - Professional Services
 - SER001 - Consulting Services
 - SER003 - Other Services
 - SER002 - Training Services
 - SOFTWARE - Software
 - REP001 - Reporting
 - BUD001 - Planning
 - DWA001 - Data Warehouse
 - DAS001 - Dashboards
 - SOLUTION - Software and Services Bundle
 - CUS001 - Customizations
 - SUPPORT - Maintenance and Support
 - MAI001 - Maintenance
 - OTH001 - Other

The interface includes a 'Node Properties' pane on the right with a table for 'Dimension Table' and a 'Save' button at the bottom. The status bar at the bottom indicates 'Connected to : { BI360DW_Corporate_471 }'.



Power BI & BI360DW

Building a Power BI model using a Private Host DW



Sample Account Hierarchies

- Create custom account grouping
- Easily present F/S in other Account Structures

BI360 Cloud Key Feature – Multiple Hierarchies for the same Dimension

Power BI & BI360DW

Building a Power BI model using a Private Host DW

The screenshot displays the BI360 Warehouse Manager web application. The interface includes a top navigation bar with 'Data Warehouse - BI360' and a URL 'https://demo.bi360.com/warehouse-manager'. A left sidebar contains navigation options: Home, Archive, Assignments, Live Reporting, Budgeting, Workflow, Data Warehouse, and Administration. The main content area is titled 'Data Warehouse' and shows an 'OVERVIEW: Entity' page with tabs for 'Members' and 'Trees'. Two overlapping windows illustrate different dimension hierarchies:

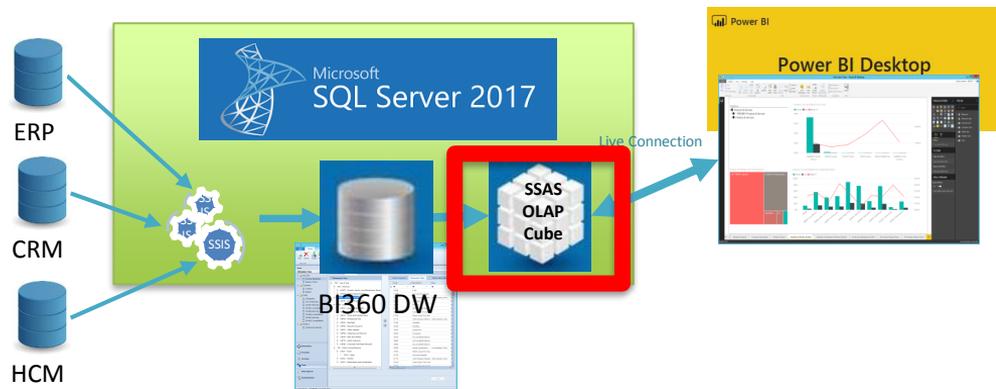
- Left Window (Entity: LOB):** Shows a tree structure for 'LOB' with nodes: CONSOL - Consolidated Tree Node (selected), LBDT - Distribution, LBMN - Manufacturing, and SEM - Corporate EMEA. The 'SEM - Corporate EMEA' node is expanded to show sub-nodes: SCA - Corporate Canada and SAS - Corporate Asia.
- Right Window (Entity: GEO):** Shows a tree structure for 'GEO' with nodes: GTAS - Asian Region, SAS - Corporate Asia, SEM - Corporate EMEA, and GTWH - Western Hemisphere. The 'GTAS - Asian Region' node is expanded to show sub-nodes: SEM - Corporate EMEA and SCA - Corporate Canada.

In the top right corner, a diagram shows data sources (FRP, CRM, HCM) feeding into a 'BI360 DW' (highlighted in a red box), which is connected to 'Microsoft SQL Server 2017' and 'Power BI Desktop'.

What strengths does each component bring to the overall solution?

OLAP vs Relational Power BI connection

- Data Model Pre-configured
 - Vs Linking Tables
- Data Cleaning and Validation
- Live Connection vs Import (static)
- Domain Level Security Authentication
- Role Based Security
- MDX vs DAX
 - Hierarchies are an inherent part of MDX, not of DAX
 - Calculations: more complex calculations are possible and easier using MDX
- Maintenance & Adjustments



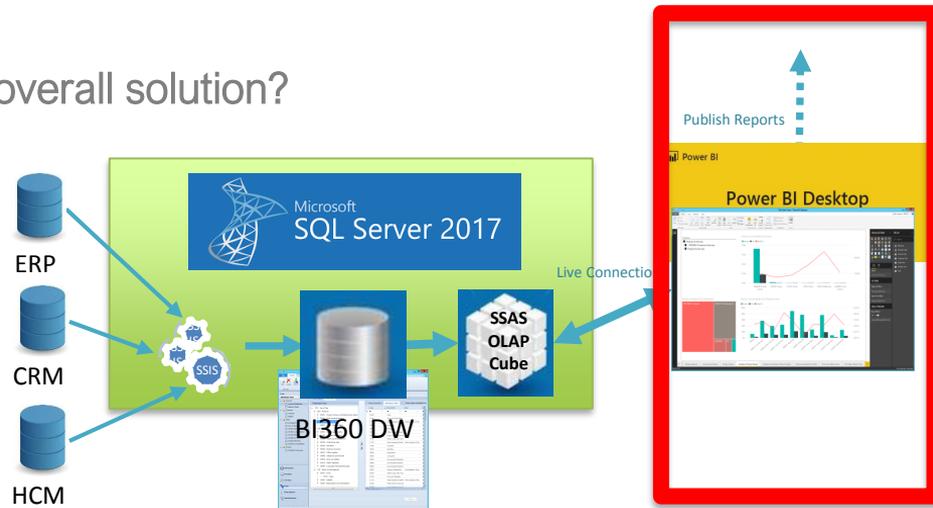
Power BI & BI360DW

Building a Power BI model using a Private Host DW

What strengths does each component bring to the overall solution?

Power BI vs Excel Publishing/Consumption

- Layout
 - Desktop: Pages, Reports
 - Web Service: Workspaces, Dashboards
- Multiple Visuals
- Filtering
- Version Control
- Ease of Use

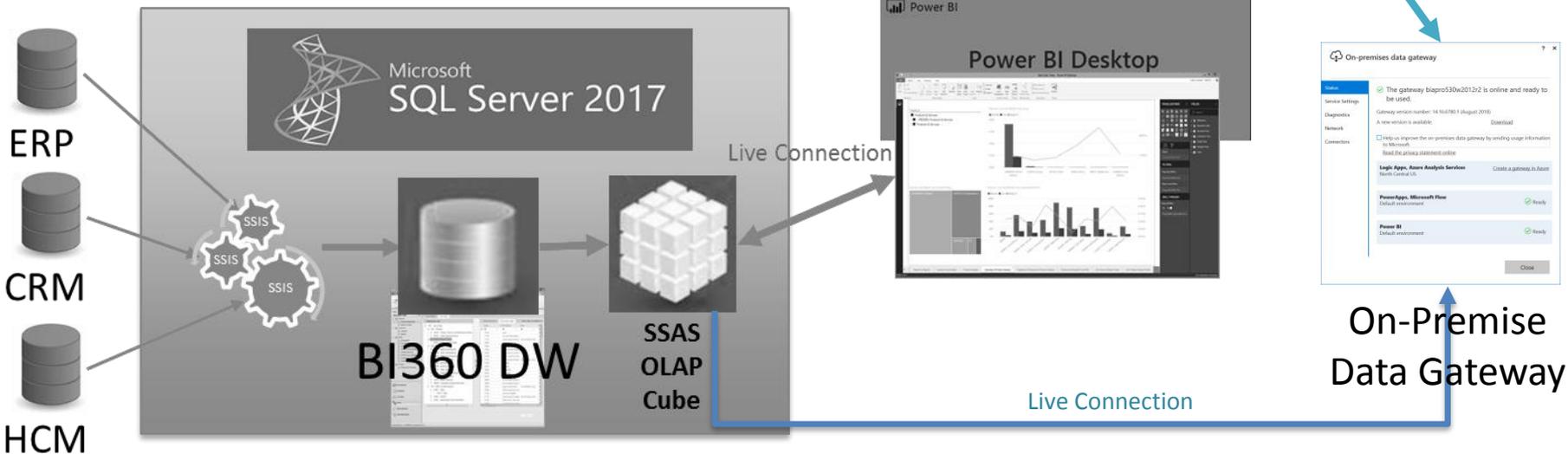


BI360 Private Hosting Deployment & Power BI Service with SSAS OLAP (Live Connection)



Publish Reports

Live Connection

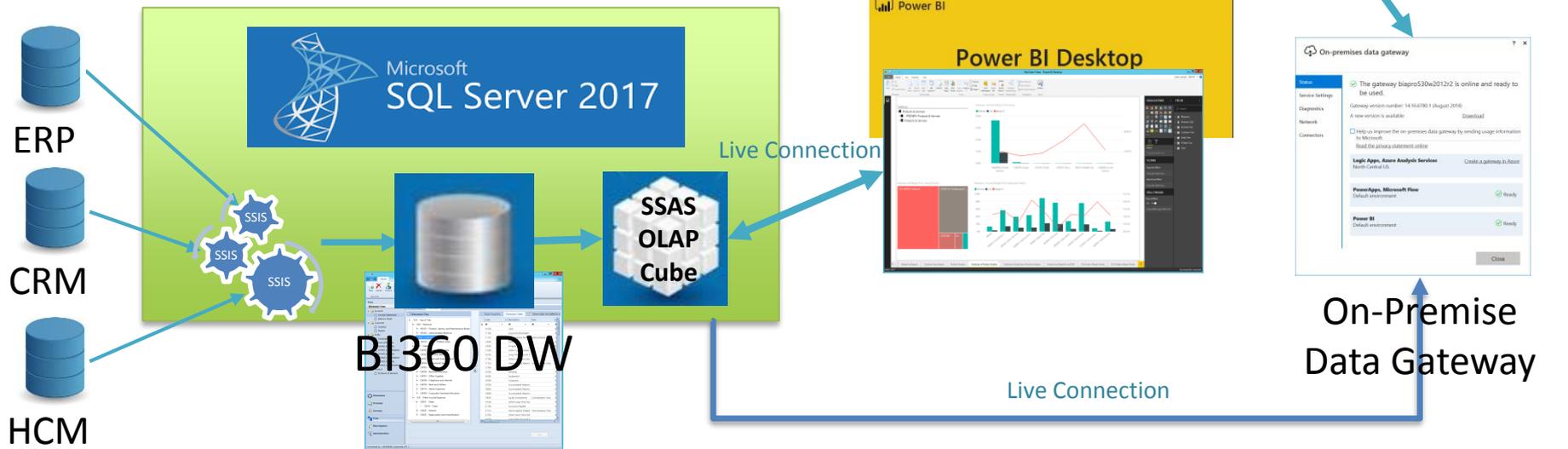


Live Connection

Live Connection

On-Premise Data Gateway

BI360 Private Hosting Deployment & Power BI Service with SSAS OLAP (Live Connection)





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Power BI, DataWarehouse & Analysis Services

Q&A:

Finding Low Margin Clients
& Looking for Opportunities to Increase:

- 1) Customer Margins &
- 2) Product-Mix Margins



THANK
YOU!

By **Carlos Lameiro**, MBA, MCSE-DMA, CMC, Founder and Director, BIAPRO®
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