Power BI Workshop

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Session Objectives & Takeaways

- Power BI platform capabilities
  - Tools
  - Working with Data
  - Platform Capabilities

- Power BI Embedded

Power BI at glance

- Power BI is a suite of cloud-based business analytics **tools** to analyze data and share insights. Monitor your business and get answers quickly with rich dashboards available on **every device**.

- Why Power BI?
  - All your data, whatever it is
  - Be informed: always real time
  - Ask questions, get answers
  - End chaos: everyone on the same page
  - Make data –driven decisions, from anywhere
  - Share insights on websites or blogs

Power BI Tools

- Tools:
  - Power BI on the web (powerbi.microsoft.com)
  - Power BI Desktop (Free)
  - Power BI Mobile apps (iOS, Android, Win10) -- Free
  - Pin Reporting Services 2016 report into a PBI Dashboards
  - Power BI Gateway: connect to **on premise** data
  - Package Power BI components for re-usability through **content packs**

Working with Data

- You can connect Power BI Reports to:
  - Content Packs created by your organization.
  - Online Services such as: Google Analytics, Salesforce, VSTS, CRM Online, Zuora, Stripe, SendGrid...etc.
  - Files: CSV, Excel, Power BI Desktop, workbooks.
  - Databases: DBs such as Azure SQL.

↗ Get Data

Platform Capabilities

- Schedule Data Refresh:
- Ad hoc: by clicking on Refresh Now
- Set up schedule: by clicking on Schedule Refresh
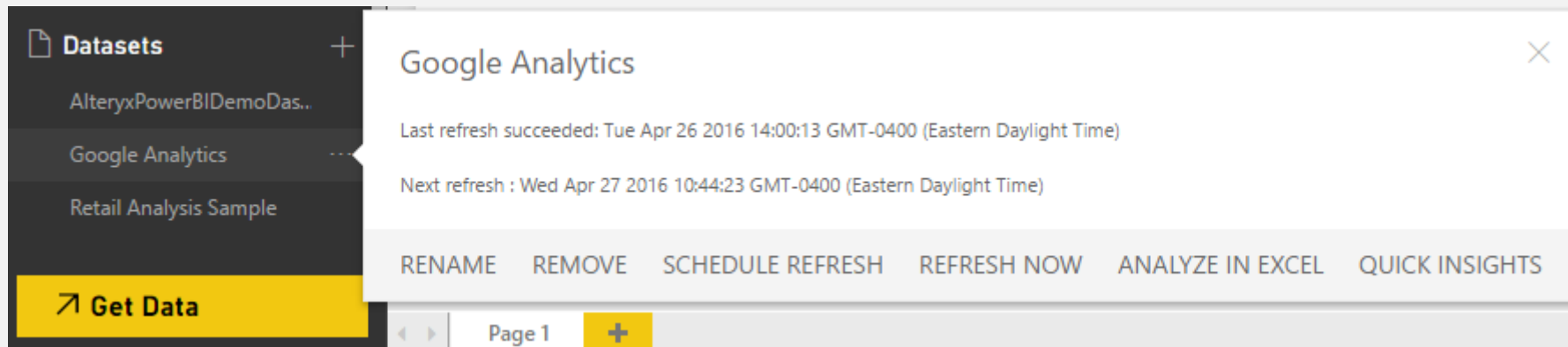
Platform Capabilities –Scheduling

Platform Capabilities - Sharing

- Publish Reports:
  - Publish to web:
  creates embed code to external users/customers
    - Link
    - iframe
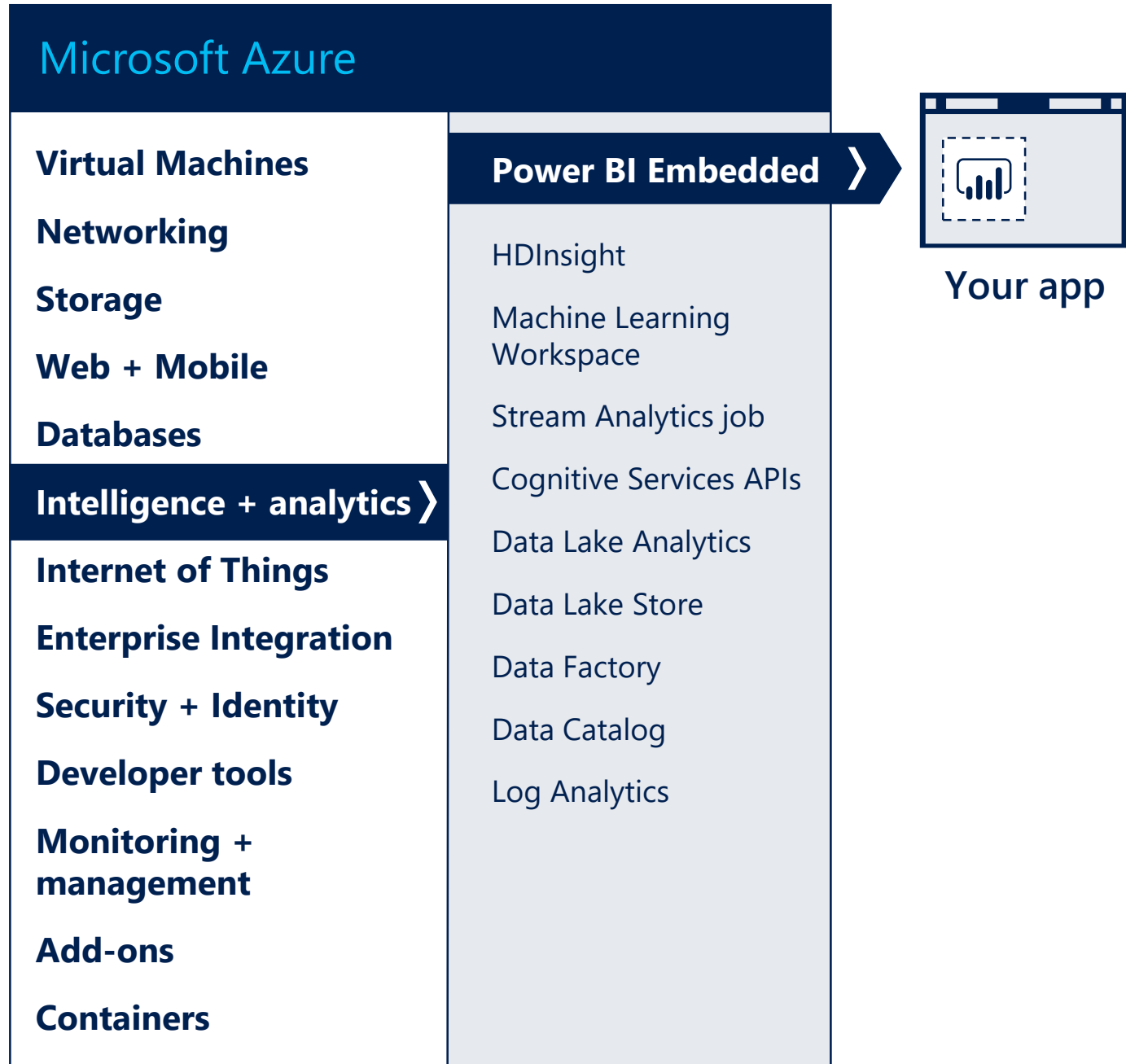- Sharing dashboard to other
colleagues
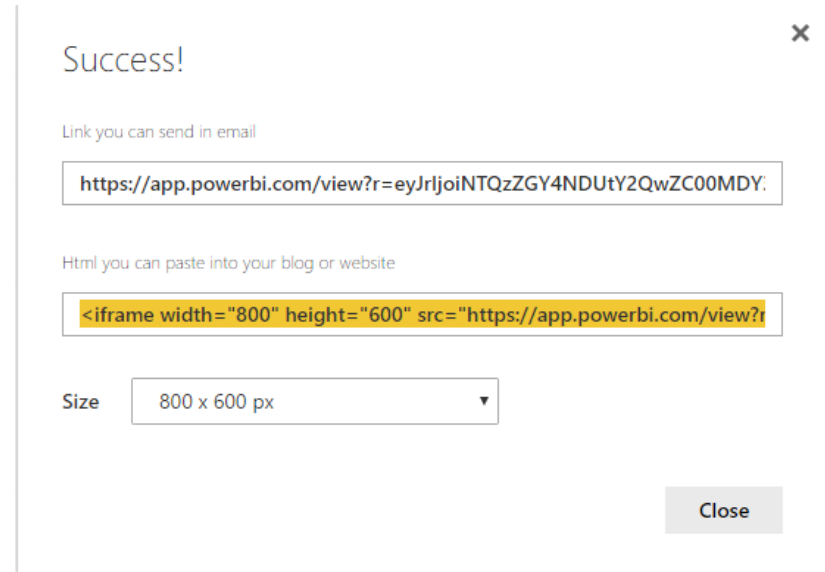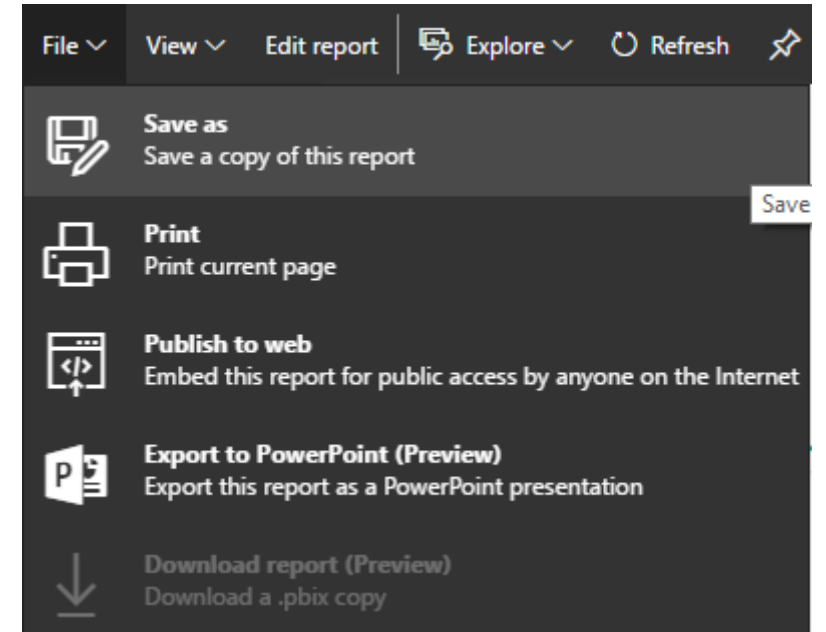
DEMO

Creating Power BI dashboard from Google Analytics

Power BI Embedded

A core component for Azure analytics services

Microsoft Azure

- Virtual Machines
- Networking
- Storage
- Web + Mobile
- Databases
- **Intelligence + analytics** ❯
  - **Power BI Embedded** ❯ → Your app
  - HDInsight
  - Machine Learning Workspace
  - Stream Analytics job
  - Cognitive Services APIs
  - Data Lake Analytics
  - Data Lake Store
  - Data Factory
  - Data Catalog
  - Log Analytics
- Internet of Things
- Enterprise Integration
- Security + Identity
- Developer tools
- Monitoring + management
- Add-ons
- Containers

Manage in a familiar environment—**Azure**

- ✓ Manually or programmatically provision workspaces
- ✓ Create datasets and reports
- ✓ Embed reports in your app
- ✓ Control refresh behavior and credentials

Azure Portal

SQL

Azure SQL Database

SQL

Azure SQL Data Warehouse

Power BI Workspace
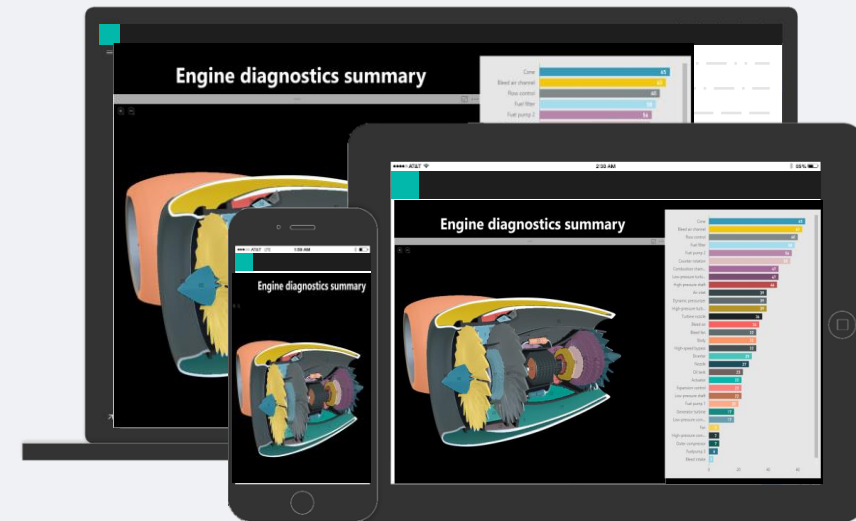
Power BI Desktop

Power BI report
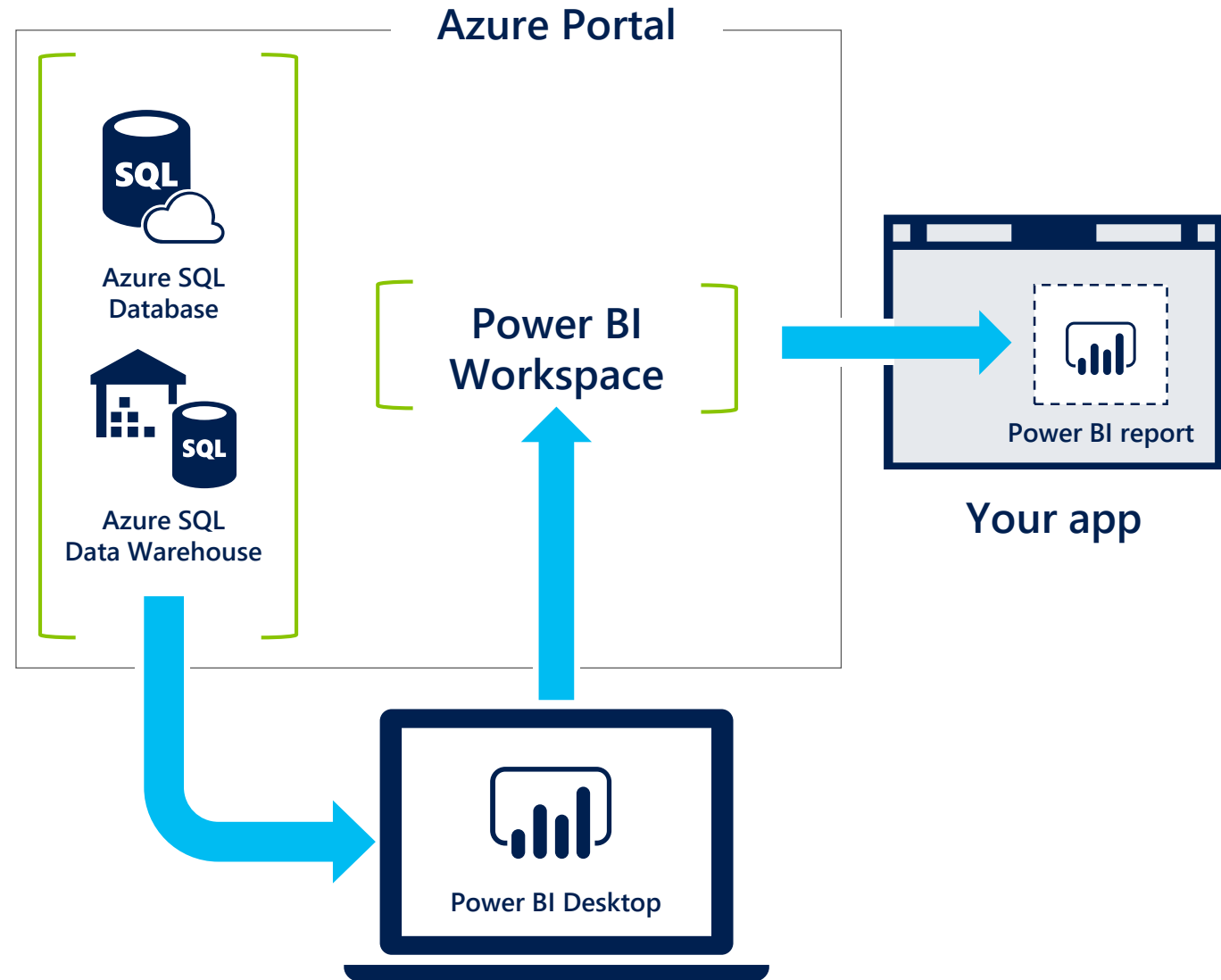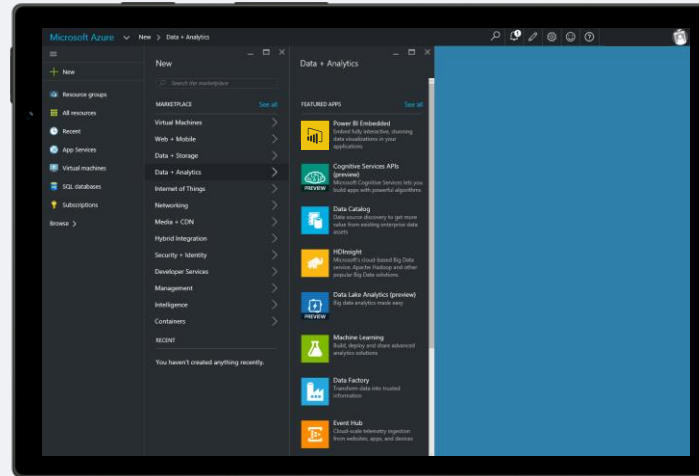
Your app

Bring data to life inside your app

Create compelling interactive reports

Deploy quickly and manage with ease

Embed easily for faster time to value
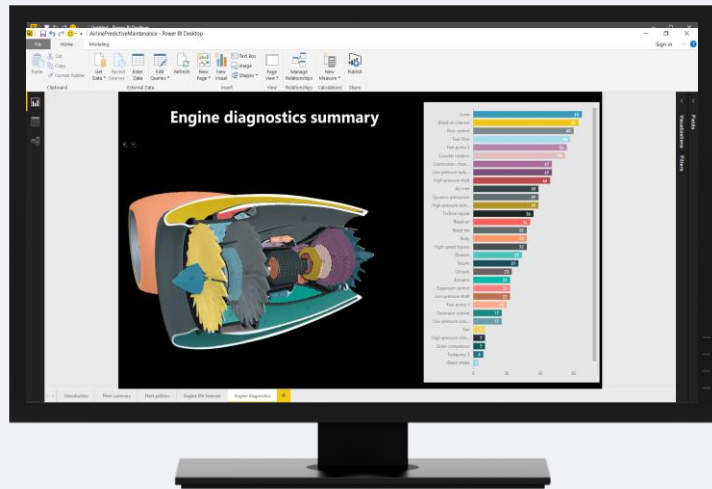
Easily author interactive reports for free in **Power BI Desktop**

✔ Shape data into the format and structure you need

✔ Produce rich data models using formulas and relationships

✔ Explore data through a freeform, drag-and-drop canvas

✔ Publish interactive data visualizations to your app
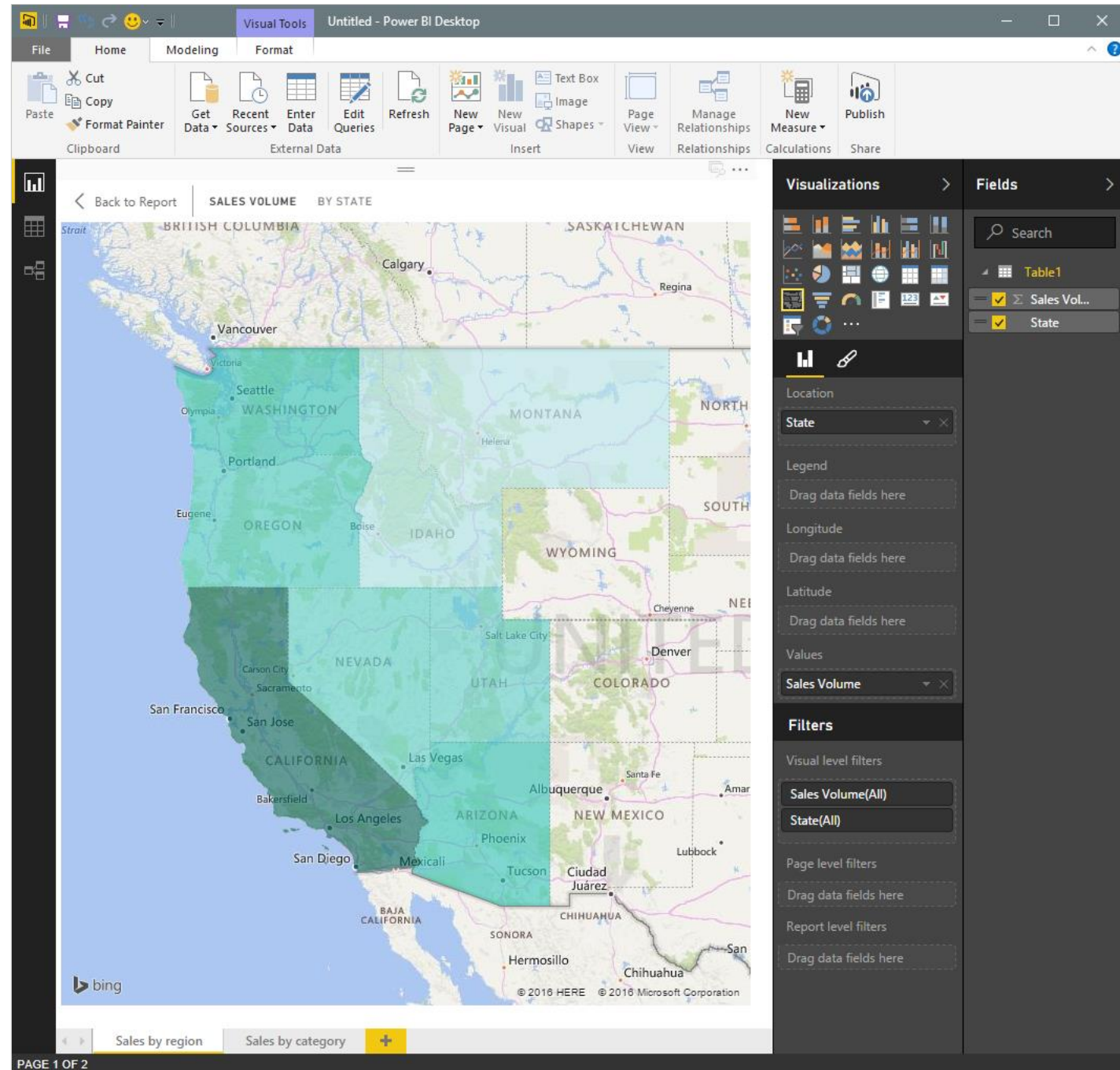
Get started quickly with Microsoft's **open-sourced, production-quality** visualization code

✔ Leverage the visualization framework, test suite and tooling to build the right custom visuals for your app

R Visuals
now in Power BI Embedded

Keep visuals up to date without refreshing data using **DirectQuery**
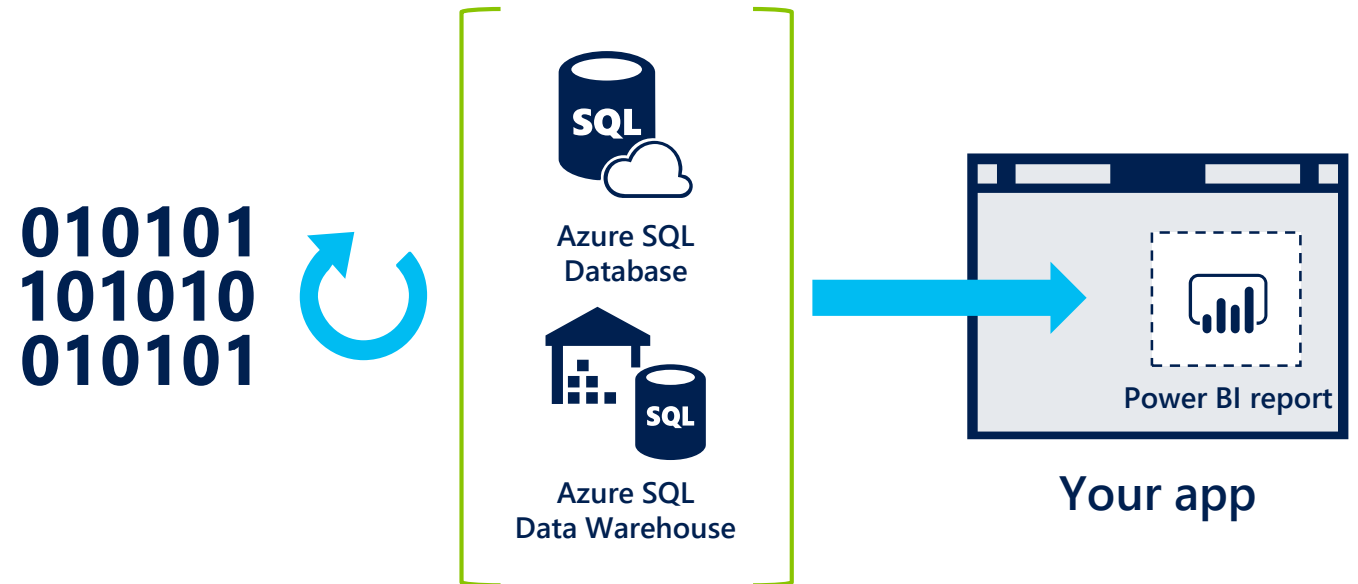
✔ Connect directly to the source without moving your data

✔ Build visualizations over very large datasets

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Azure SQL Database

Azure SQL Data Warehouse

Power BI report

Your app

Create   Embed   Deploy

How Power BI Embedded is different

- This feature is different than integrating Power BI in apps because of the following:
  - Integrating Power BI: requires the following
    - AAD app registration
    - requires users to login with o365 credentials
    - Blog post: http://www.mostafaelzoghbi.com/2016/04/integrate-power-bi-report-into-app.html
  - Power BI Embedded:
    - No login is needed for Users
    - No AAD app registration

Power BI Embedded basic concepts

- You need to have an Azure subscription
- You need to provision "Power BI Workspace Collection" to provision from Azure portal.
- You need to create a workspace into Power BI workspace collection.
- You need to import a (.pbix) report file into a workspace.
- Embed a report with one html tag into your application.

The Power BI Embedded API surface

Your app

Power BI APIs

Discovery: Enumerate datasets and reports
Content Creation: Provision datasets and reports
Embed: Embed reports
Utility: Set connection strings and credentials

Azure APIs for automation

Provision workspace collections
De-provision workspace collections
Manage API keys

REST APIs	Azure Resource Manager API	**Programmatic**
Microsoft Azure	Power BI Embedded	**Platform**
Azure SQL Database	Azure SQL Data Warehouse	**Data**
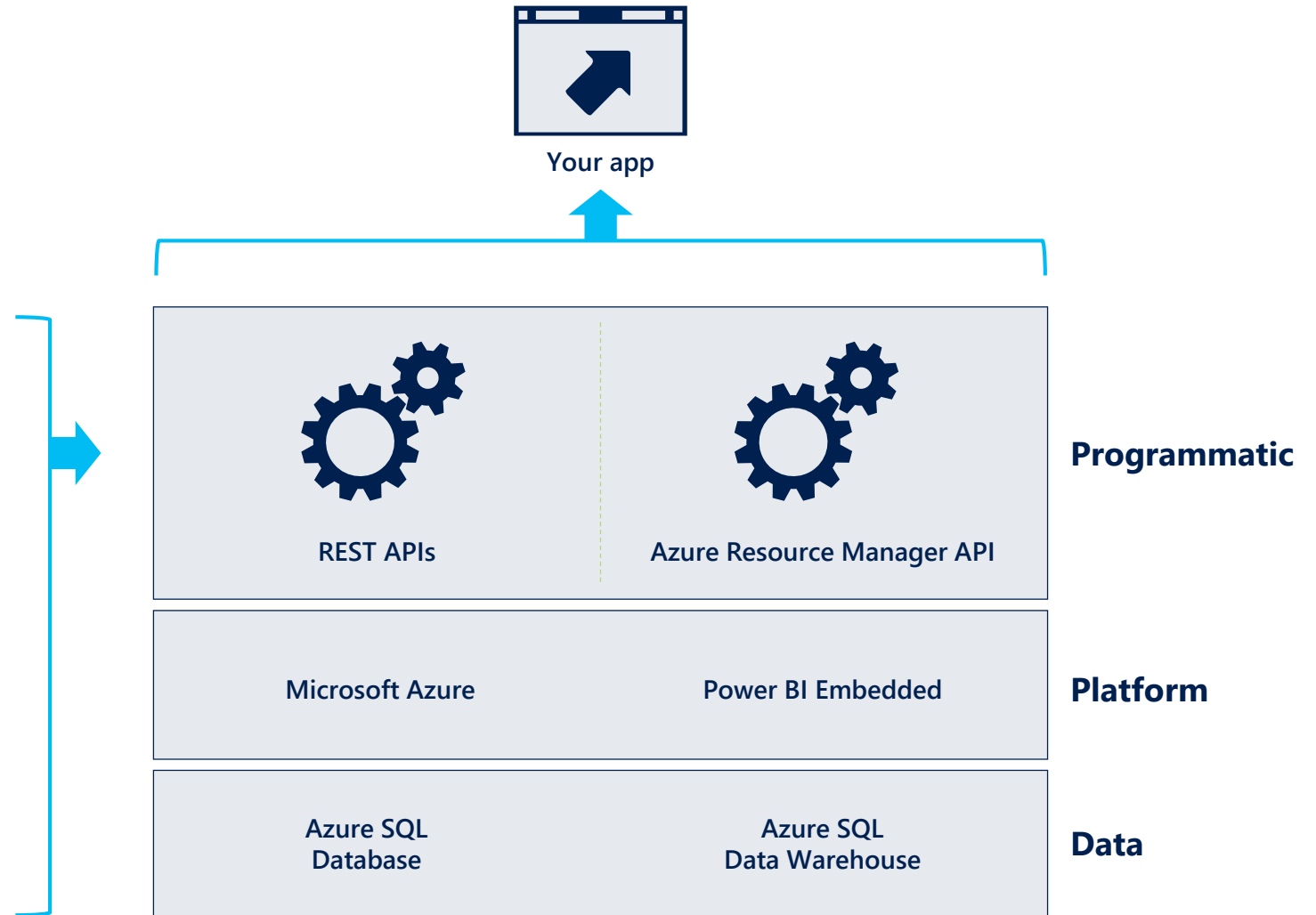
Ensure consistent, high-fidelity data visualization experiences across **any device**

✓ Built-in, responsive design adjusts content for different devices and orientations

✓ Visualizations are built on open technologies like D3 and WebGL

✓ Rendered in HTML5
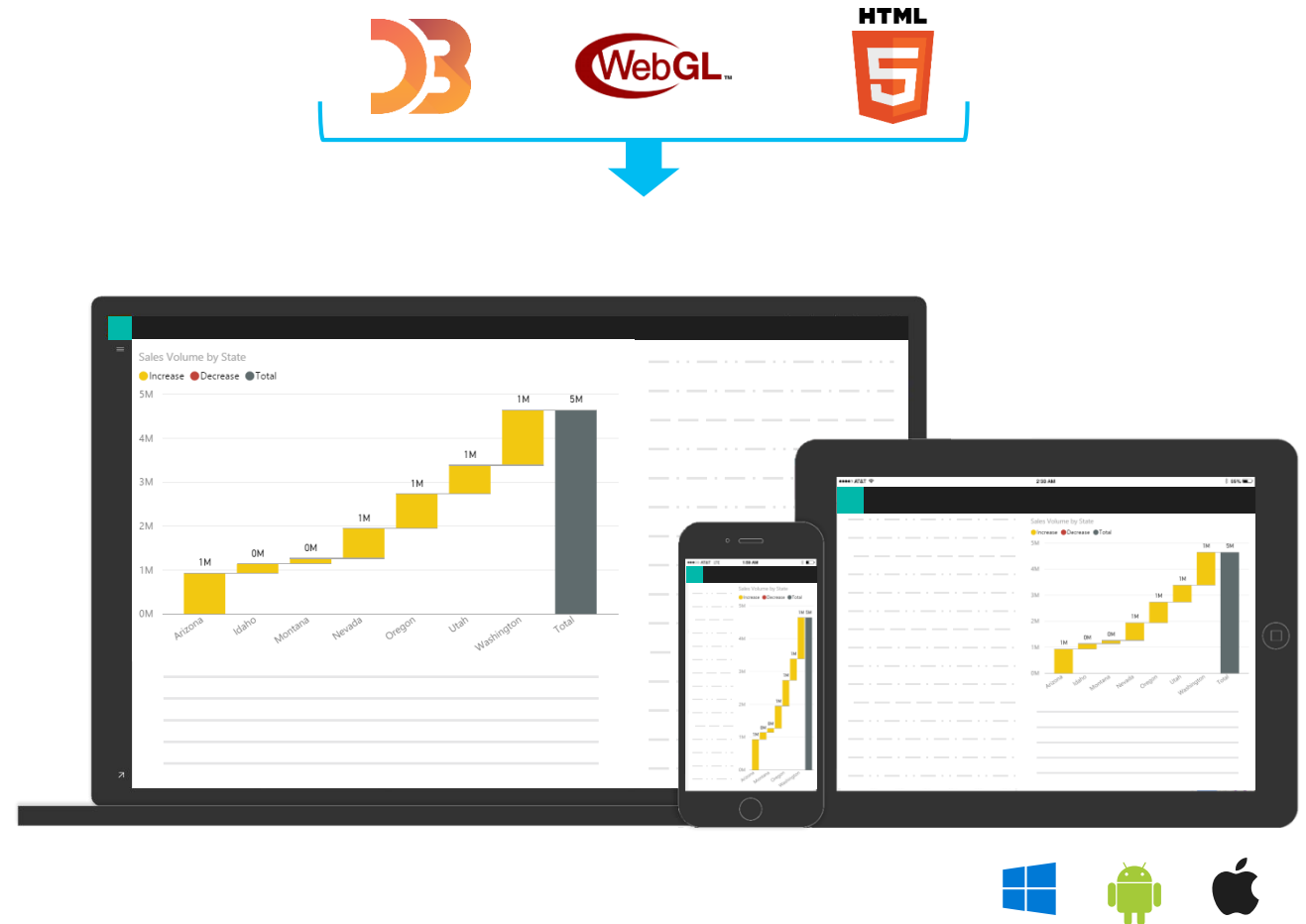
Provide seamless authentication experiences

Application

- Users
- Auth. providers
- Permissions
- API keys

Token
+ Claim: Can view Report 1
+ Expiration: 5 minutes

Sign token

Copy API keys to your application

Power BI

- Workspace
- Report 1
- Report 2
- API keys

Provide seamless authentication experiences

Application

Users

Auth. providers

Permissions

API keys

User requests to view Report 1

Token
+ Claim: Can view Report 1
+ Expiration: 5 minutes

Validate token

Power BI

Workspace

Report 1

Report 2

API keys

Provide seamless authentication experiences

Application

Users

Auth. providers

Permissions

API keys

Report 1

Power BI

Workspace

Report 1

Report 2

API keys

Put the right data in front of the right users every time, with **row-level security**

✔ Reduce your app complexity—access and enforcement logic resides with Power BI, not the app

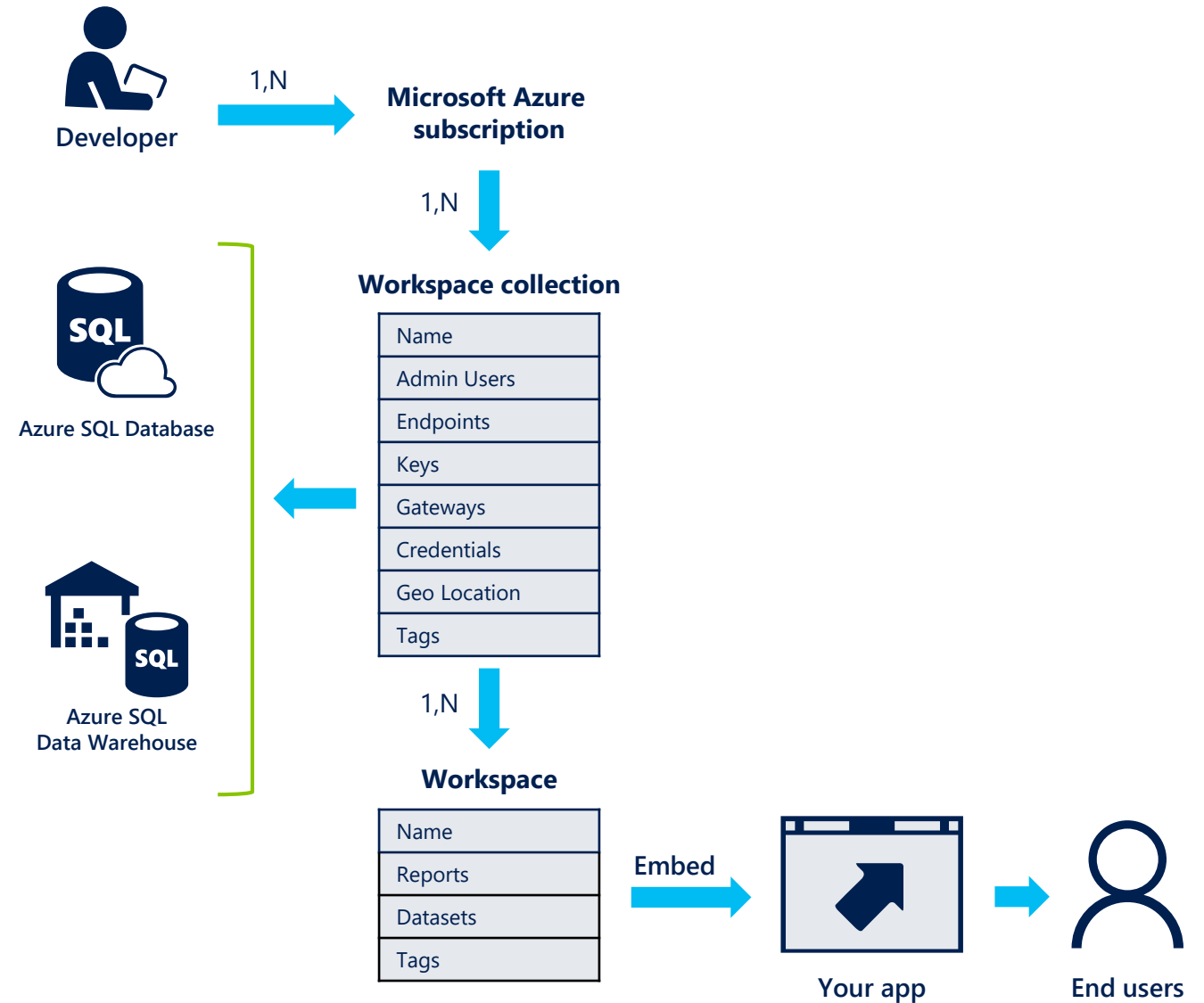✔ Effortlessly reach scale by authoring secure master reports, filterable by user, roles or rules

User 1

Report

User 2

Restrict data access by **user**, **roles** or **rules**

Report data
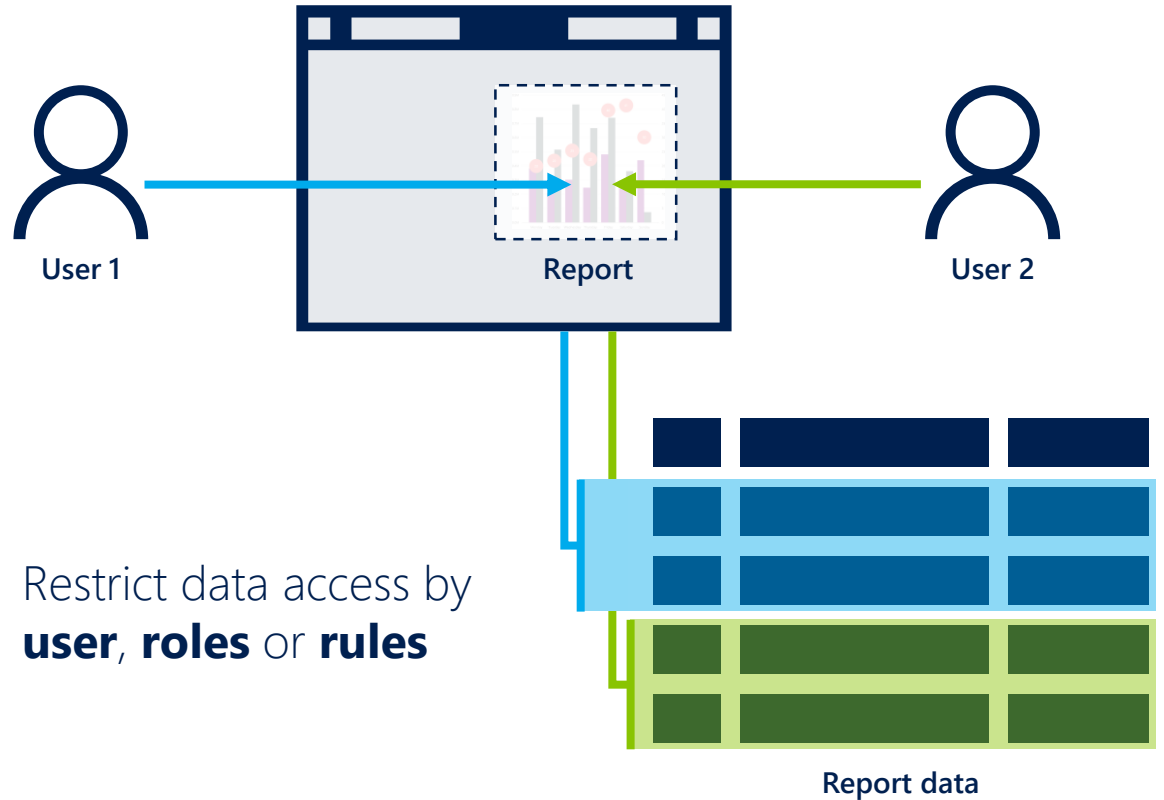
Demo
PBIE in Azure

Manage in a familiar environment—**Azure**

- ✓ Manually or programmatically provision workspaces

- ✓ Create datasets and reports

- ✓ Embed reports in your app

- ✓ Control refresh behavior and credentials

Developer

1,N

Microsoft Azure subscription

1,N

Workspace collection

Name
Admin Users
Endpoints
Keys
Gateways
Credentials
Geo Location
Tags

1,N

Azure SQL Database

Azure SQL Data Warehouse

Workspace

| Name |
| --- |
| Reports |
| Datasets |
| Tags |

Embed

Your app

End users

Control costs with **pay-as-you-go** consumption-based pricing

✔ Author interactive reports in Power BI Desktop for free

✔ Priced per report session

✔ Single report can have multiple pages and multiple charts

✔ ISV applications and Enterprise external facing apps only

Price per report session, per month	
0-100 sessions	Free
100+ sessions	$0.05/report session

What is one report session?

Every time a Power BI report is loaded inside your app.
A session is valid for 60 minutes .

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Your data

Query

Cache

Your users
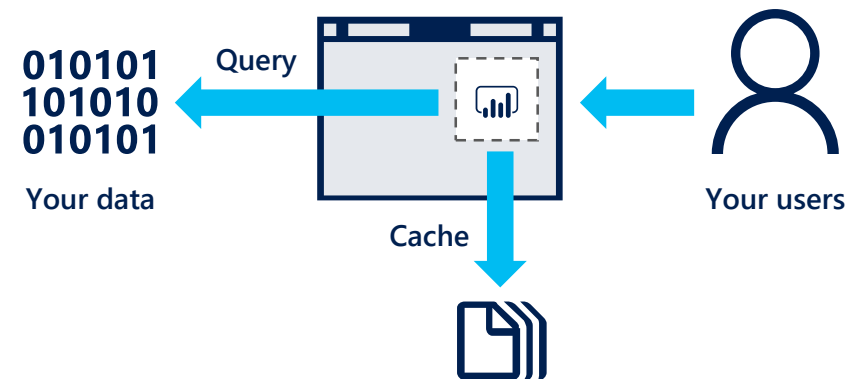
Developer resources

Home page	http://azure.com/powerbiembedded
Developer center	http://dev.powerbi.com
Developer blog	http://blogs.msdn.com/powerbidev
Samples	http://github.com/PowerBI
Open source visuals	http://github.com/Microsoft/PowerBI-visuals
Visuals gallery	http://visuals.powerbi.com
Ask us questions	http://stackoverflow.com/questions/tagged/powerbi

Workshop labs:

https://github.com/melzoghbi/PowerBIWorkshop