



SQL Server Konferenz 2016

powered by PASS Deutschland e.V.

Customizing in Power BI

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About Me

Gerhard Brueckl

From Austria



Working with Microsoft BI since 2006

Mainly focused on Analytics and Reporting

Analysis Services

Power BI / Azure

Advanced Analytics and Machine Learning



SSAS
MAESTRO
by Microsoft



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SQL Server Konferenz 2016



Agenda

- **What is Power BI?**
 - **General Architecture**

- **APIs**
- **R-Integration**
- **Custom Visuals**
- **Content Packs**



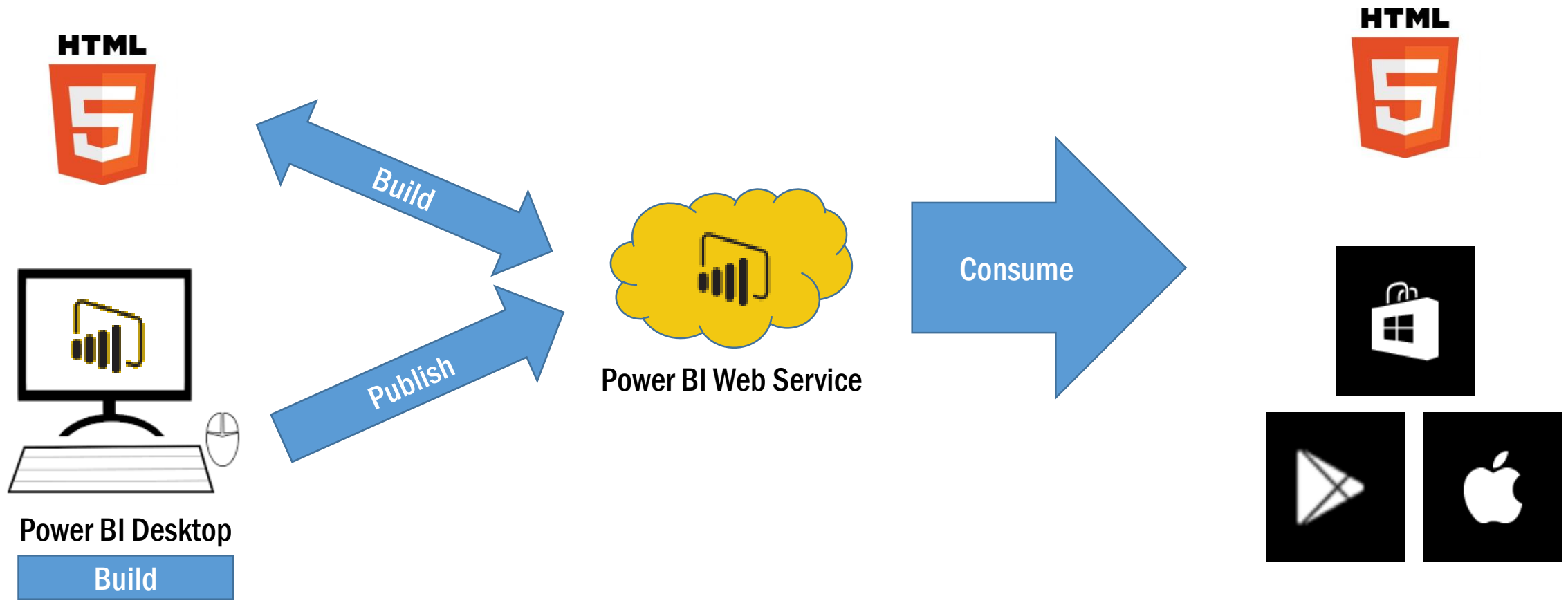
What is Power BI

- **Suite of Business Analytics Tools**
 - Analyze/Explore Data
 - Build Reports
 - Share Insights

- **Web Service**
 - Based on Windows Azure

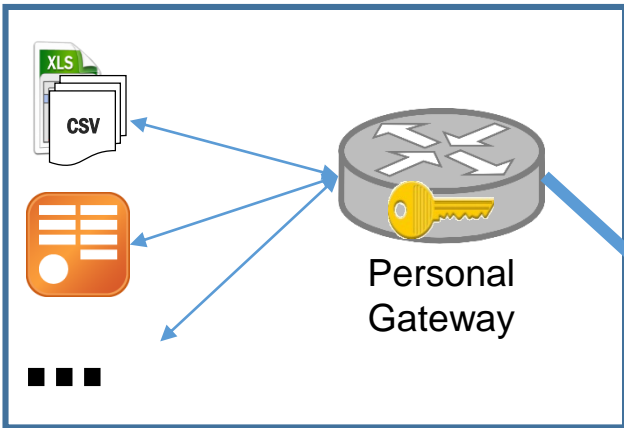


Collaboration Architecture

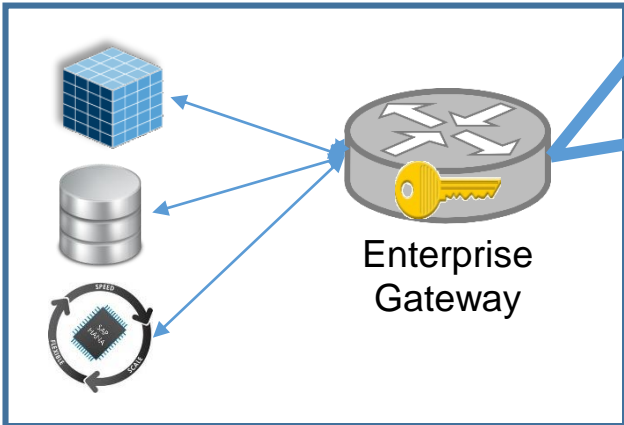


Data Architecture

Personal Computer



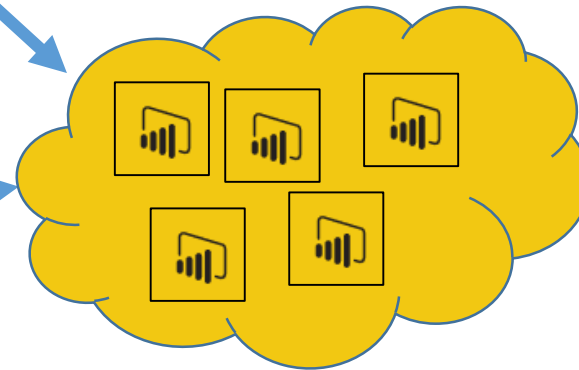
On-Prem Infrastructure



Live Data



Power BI Visualization



Power BI Models

Web Services

- OData Feed
- Dynamics CRM Online
- Facebook
- Google Analytics
- Salesforce Objects
- Salesforce Reports
- appFigures (Beta)
- GitHub (Beta)
- MailChimp (Beta)
- Marketo (Beta)
- QuickBooks Online (Beta)
- Smartsheet (Beta)
- Stripe (Beta)
- SweetIQ (Beta)
- Twilio (Beta)
- Zendesk (Beta)



Office 365

- **User Administration**
 - Maintain Users
 - Maintain Groups
- **Licensing**
 - Assign Pro Licenses
- **Azure Active Directory**
 - Organizational Accounts



Azure Active Directory

- **Users/Groups**
- **Sync On-Prem AD**
 - **SSAS Connectivity**
- **Applications**
 - **Access to PowerBI APIs**



APIs

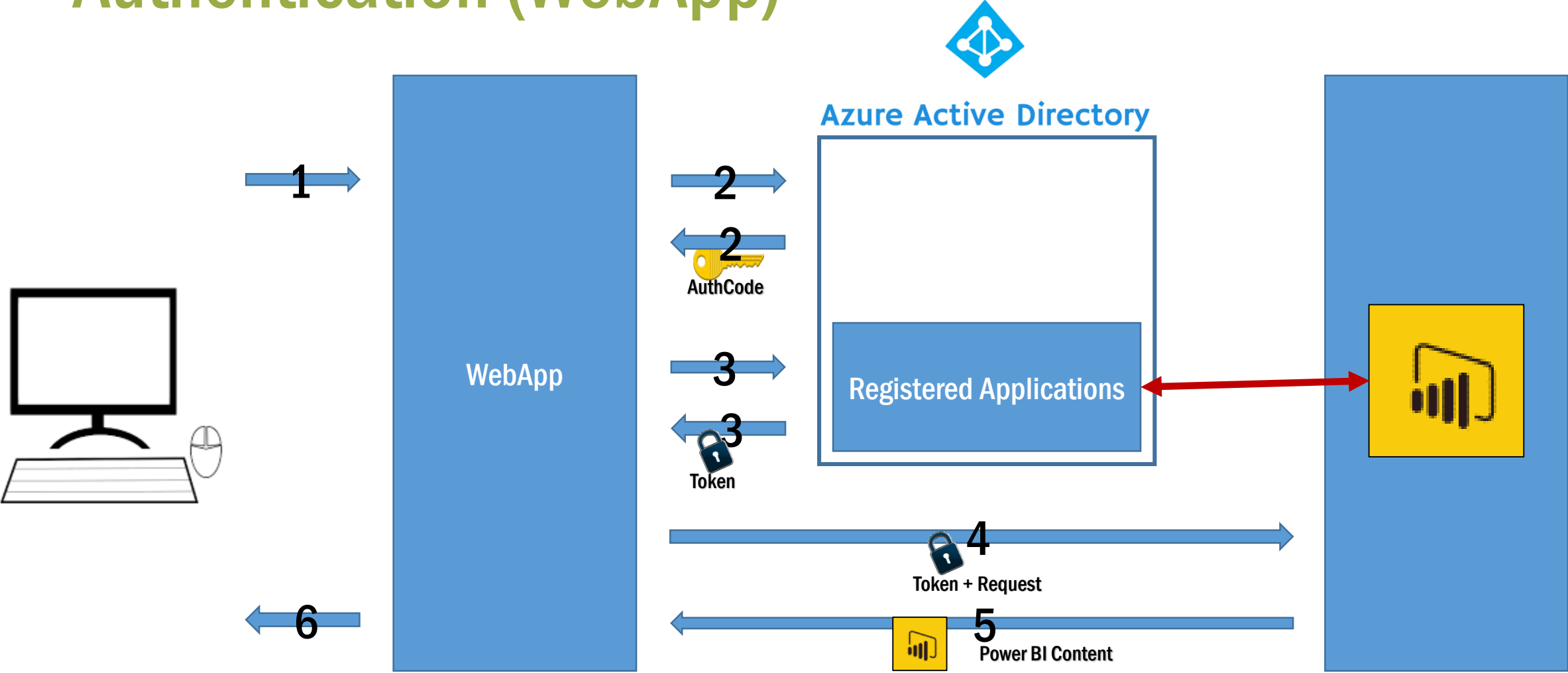


APIs

- REST
- Any Language
- OAuth2 / Azure AD



Authentication (WebApp)



<http://docs.powerbi.apiary.io/#>

<https://msdn.microsoft.com/en-us/library/mt147898.aspx>

APIs

- Datasets
 - Tables
 - Rows
- Groups
- Dashboards (Preview)
 - Tiles
- Reports (Preview)
- Imports (Preview)



API Scenarios

- **Streaming**
 - Add Rows
 - Clear Rows
- **Integrate with external App**
 - Reports
 - Tiles
 - (Dashboards not yet)
- **Automated Imports/Uploads**



Power BI Client

- APIARY – interactive online client
 - <http://docs.powerbi.apiary.io/#>

- C# Wrapper for Power BI



R-Integration



R-Integration

- **Preview/Beta**
- **As Datasource**
 - **Online Refresh with Personal Gateway**
- **For Visualization**



R-Integration - DataSources

- R-DataFrames are exposed
 - Multiple ResultSets per Script
 - Script is duplicated!
 - Hard to maintain
- Use “Base”-ResultSet and reference it
- DataFrames must be “regular”



R-Integration - Visualization

- Transforms input to a DataFrame
- Visualizes the LAST plot
- Automatically Refreshed
 - Slicers
 - Highlighting
- No Filter itself!



Custom Visuals



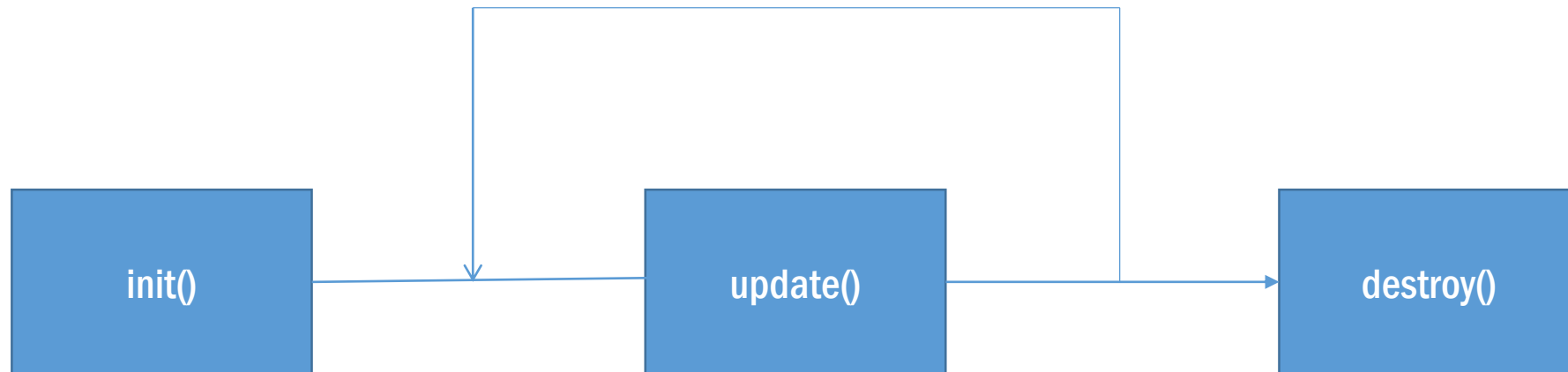


Custom Visuals

- TypeScript / JavaScript
- Gallery
- Power BI Service & Desktop
- No Pro-Plan required!
- IVisuals Interface



Custom Visuals - Lifecycle



TypeScript

- Microsoft
- Superset of JavaScript
- Following ECMAScript Standards

- Integration with Visual Studio

- Support for [D3.js](#), jQuery, ...



Content Packs



What are Content Packs

Set of Power BI Objects

Data Integration	Static
Data Model	Static
Business Logic	Static
Reports	Customizable
Dashboards	Customizable

Microsoft Partner
Content Packs

Organizational Content
Packs



Content Packs

	Microsoft Partner Content Packs	Organizational Content Packs
Gallery	Public, Read-Only	Private
Sharing	Free for Everyone	<ul style="list-style-type: none">• People• Groups• Organization
Required Plan	Free	Pro
Security	Fixed/Creator	Fixed/Creator EXCEPTION: SSAS on-prem Models



