

SQL Server 2016

New innovations

Markus Raatz

Partner Technical Solution Professional

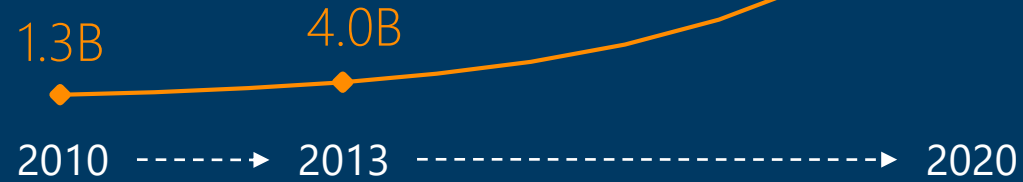
Ceteris AG



CETERIS AG
business intelligence

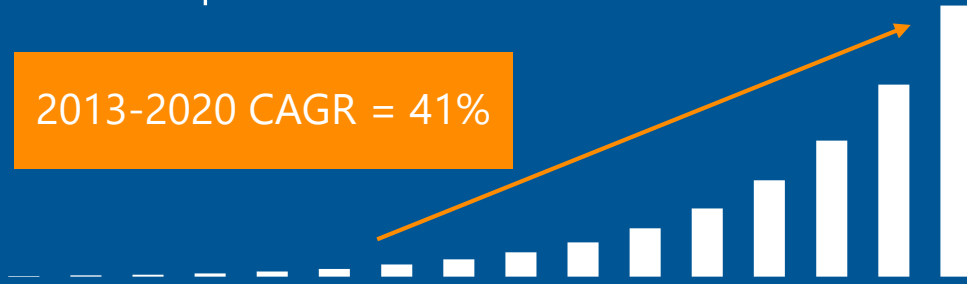


The explosion of data sources...



...drives an explosion of data

2013-2020 CAGR = 41%



...which drives businesses to learn more

There's an opportunity to drive smarter decisions with data

Data differentiates today's leading companies

Diverse
data



New
analytics



More
people



Speed

\$ 1.6T
Data dividend

- ➔ Employee productivity
- ➔ Operations improvement
- ➔ Product innovations
- ➔ Higher sales

Do more. Achieve more.

Mission critical
performance



Deeper insights
across data



Hyperscale
cloud



Do more. Achieve more.

Mission critical performance



Performance

Real-time insights on operational data and in-memory performance for more of your applications

Security

Data security from on-premises to cloud with encryption at rest and in motion and greater compliance with row level security

High availability

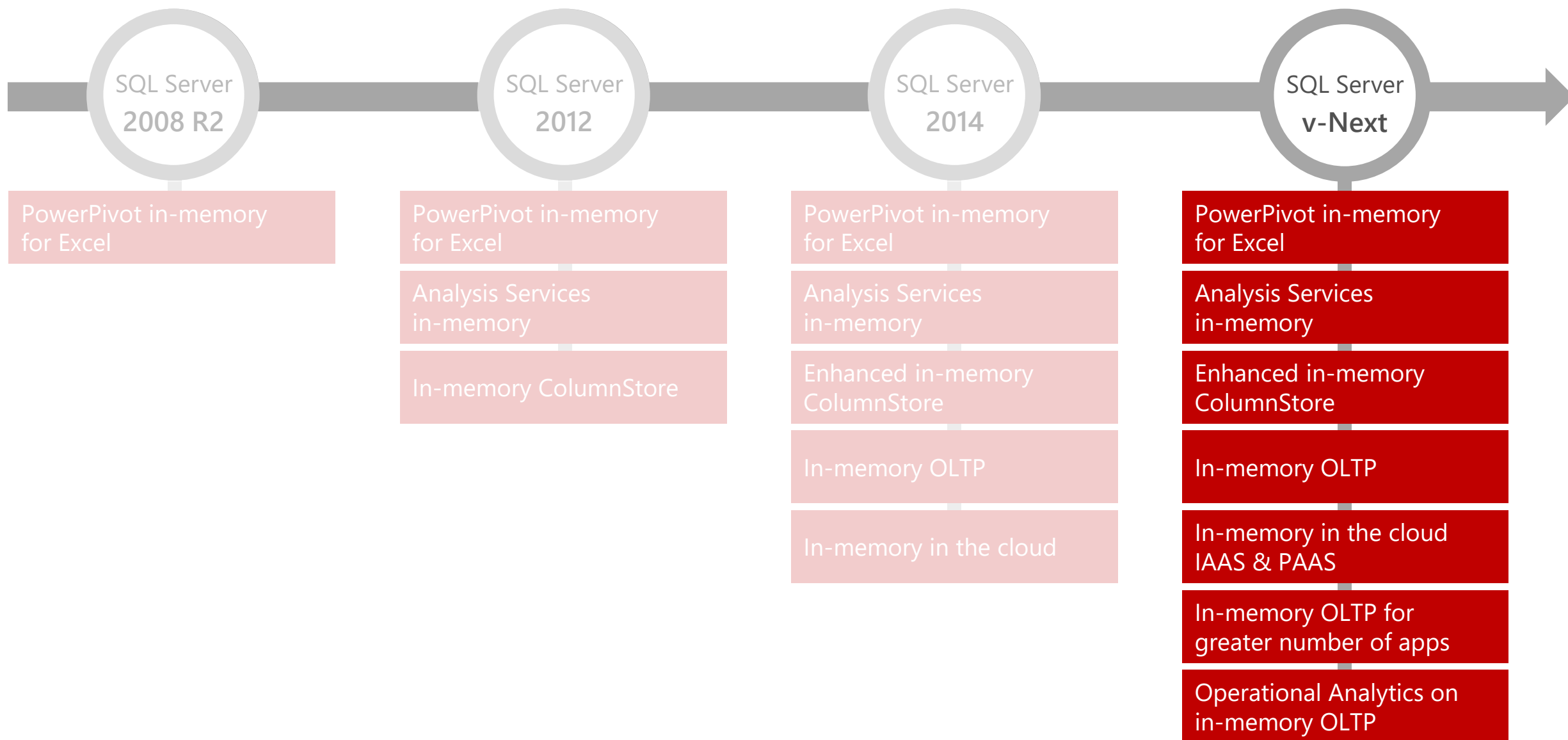
Even higher availability with AlwaysOn with greater number replicas, load balancing and automation

Scalability

Enhanced database caching across multiple cores & Windows Server v-next support

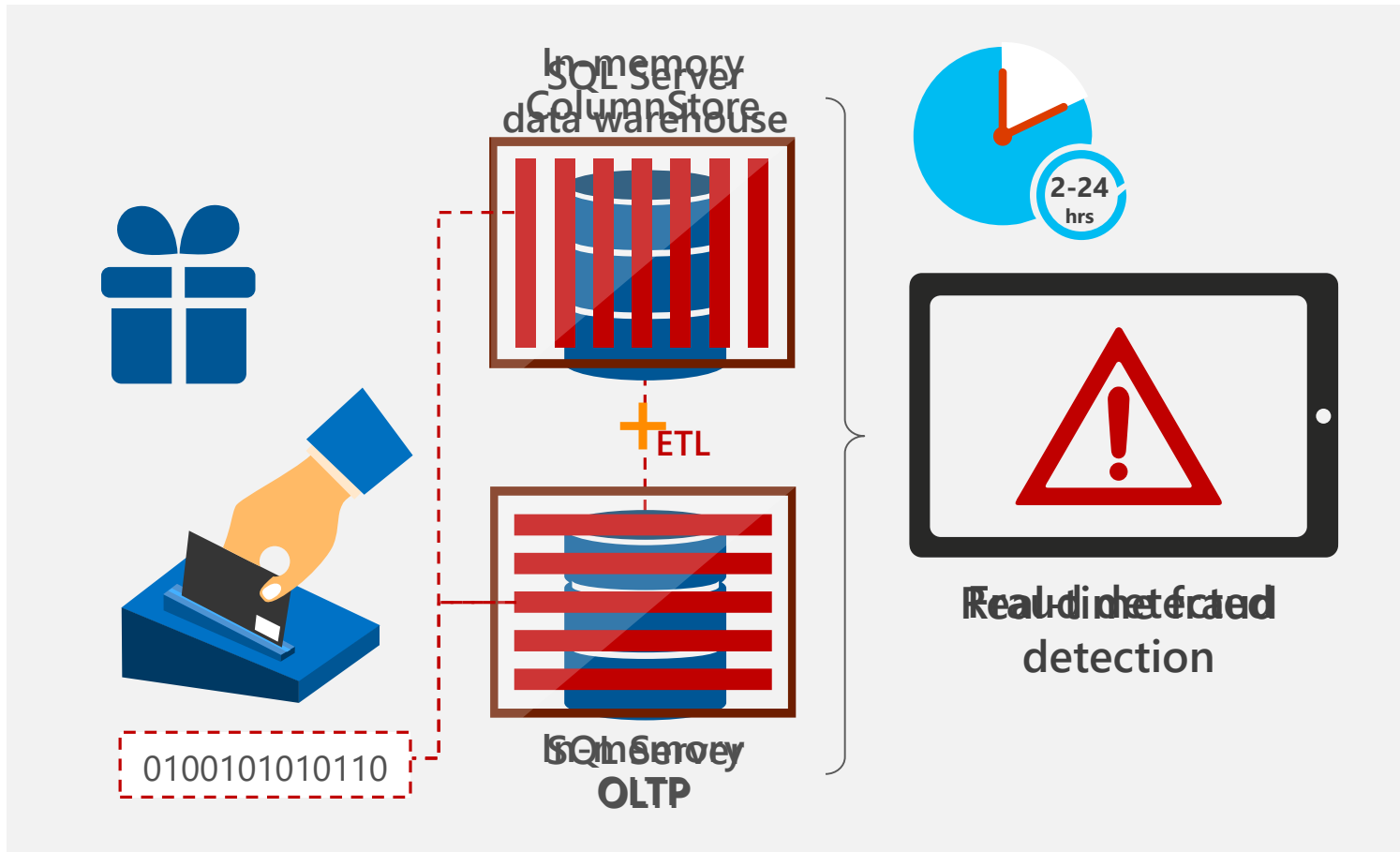
} 1 1 1 } 1 1 1 0 0 # 0 1 0 0 { # 0 1

The in-memory journey



In-memory enhancements

Operational analytics & enhanced performance



Capability

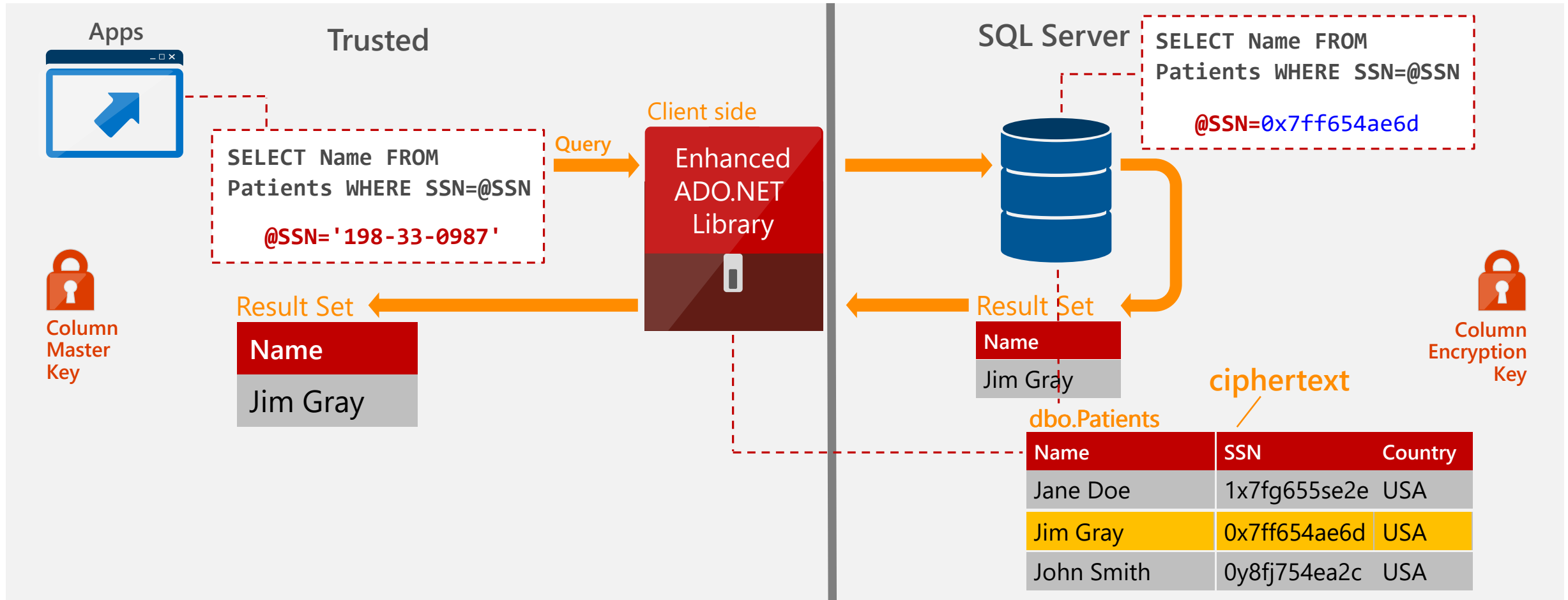
In-memory Columnar index over in-memory/disk based OLTP tables
Enhanced OLTP T-SQL surface area
Scale to higher compute and memory

Benefits

- ➔ Unlike competition, you gain operational analytics & 30x faster transactions & 100x queries
- ➔ In-memory for more of your applications

Always Encrypted

Help protect data at rest and in motion, on-premises & cloud



Mission critical performance

Mission critical performance

Performance

Operational analytics

- Insights on operational data
- Works with in-memory OLTP and disk-based OLTP

In-memory OLTP for more applications

Query data store

Monitor and optimize query plans

Native JSON

Expanded support for un-structured JSON data

Temporal database support

Security

Always Encrypted

Sensitive data remains encrypted at all times with ability to query

Row level security

Apply fine-grained access control to table rows

Dynamic Data Masking

Return masked data to non-privileged users (e.g. credit card numbers)

Other enhancements

- Audit success/failure of database operations
- TDE support for storage of In-memory OLTP Tables
- Enhanced auditing for OLTP with ability to track history of record changes

Availability

Enhanced AlwaysOn

- 3 synchronous replicas for auto failover across domains
- Round robin load balancing of replicas
- Automatic failover based on DB health
- DTC for transactional integrity across database instances with AlwaysOn
- Support for SSIS with AlwaysOn

Enhanced online operations

Scalability

Enhanced database caching

Cache data with automatic, multiple TempDB files per instance in multi-core environments

Support for Windows Server 2016

12 TB of memory supported

Do more. Achieve more.

Deeper insights
across data



Access any data

Query relational and non-relational Hadoop data with simplicity of T-SQL

Scale and manage

Enhanced performance, scalability and usability across EIM and Analysis Services

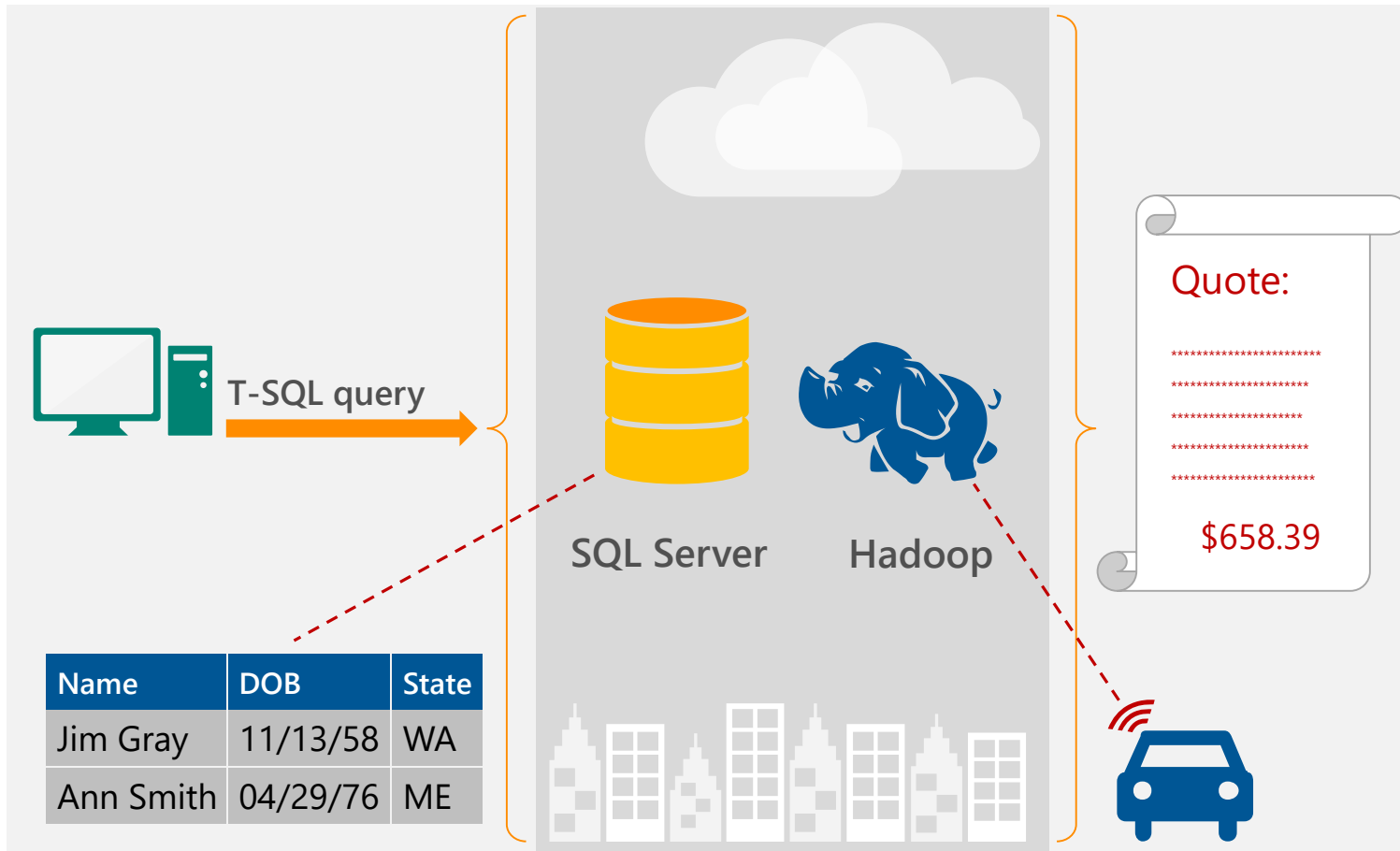
Powerful insights

Built-in predictive analytics technology and enable insights on mobile devices



PolyBase

Query relational and non-relational data with T-SQL



Capability

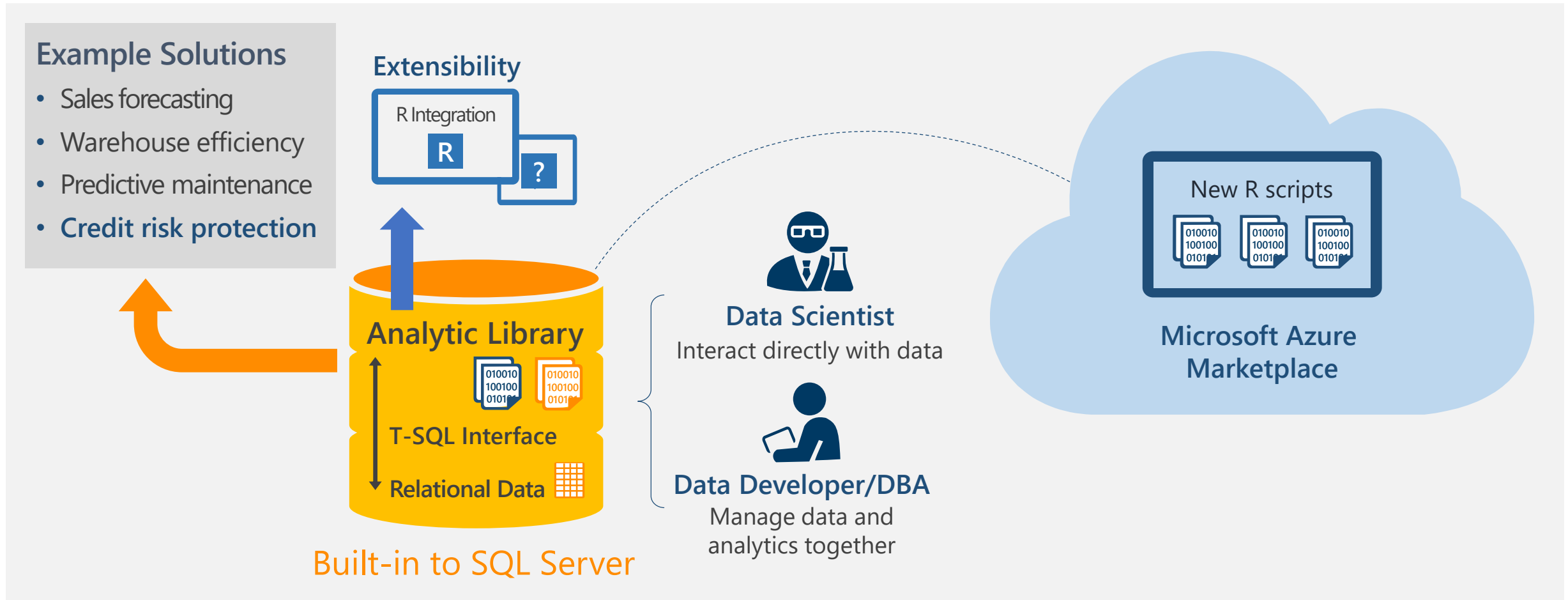
T-SQL for querying relational and non-relational data across SQL Server and Hadoop

Benefits

- ➔ New business insights across your data lake
- ➔ Leverage existing skillsets and BI tools
- ➔ Faster time to insights and simplified ETL process

Built-in advanced analytics

In-database analytics at massive scale



Rich visualizations on mobile devices



Capabilities

Business insights through rich visualizations on any device. Native apps for Windows, iOS and Android

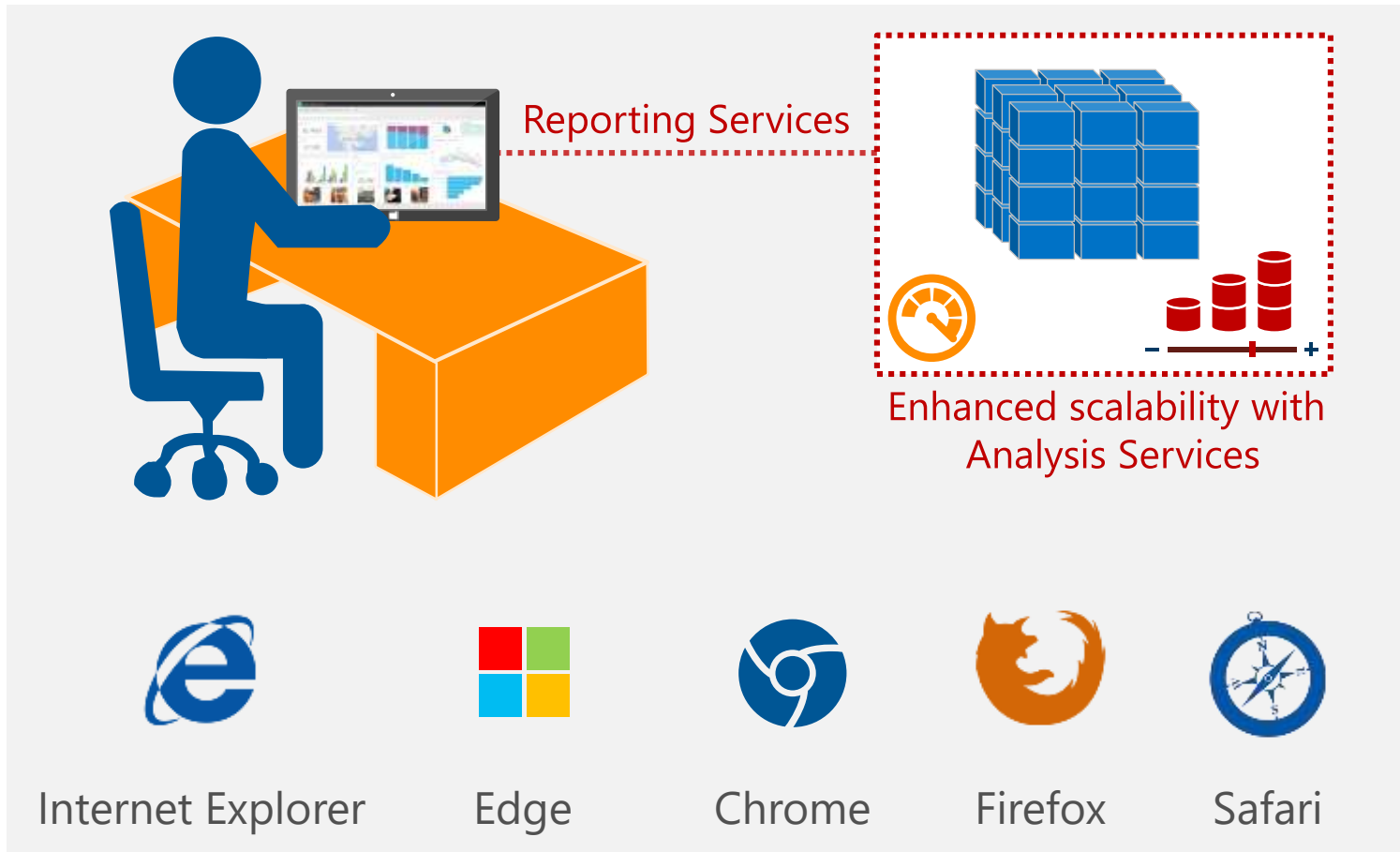
Benefits

- ➔ Access your data from anywhere
- ➔ Touch optimized data exploration and perfect scaling to any screen form-factor
- ➔ Collaborate with colleagues on the go



Enhanced Analysis & Reporting Services

Scalable on-premises BI solutions & new modern reports



Capability

Direct query performance improvements and greater scalability in SSAS

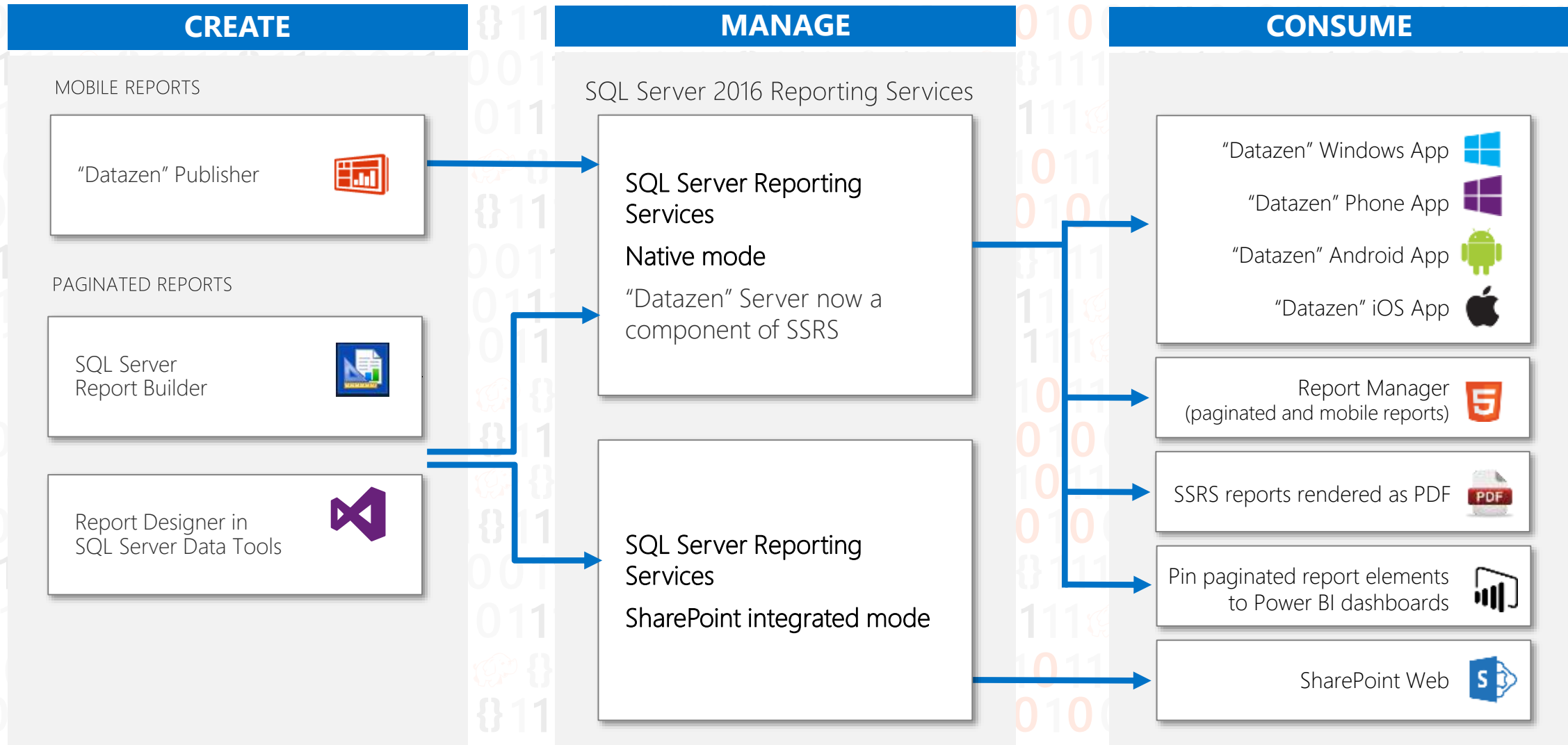
Rich visualizations with reporting services and ability to view in PowerBI

Benefits

- ➔ Better performance and higher scale
- ➔ Rich visualizations on-premises & cloud
- ➔ No application changes

SQL Server 2016 BI

Roadmap for SQL Server Reporting Services and mobile reporting



Mobile reports - insights from your data

Whether you are in the office or on the go



Gain insights through rich, interactive data visualizations and KPIs

Access reports with online/offline support

View on any major mobile platform

Implement on-premises

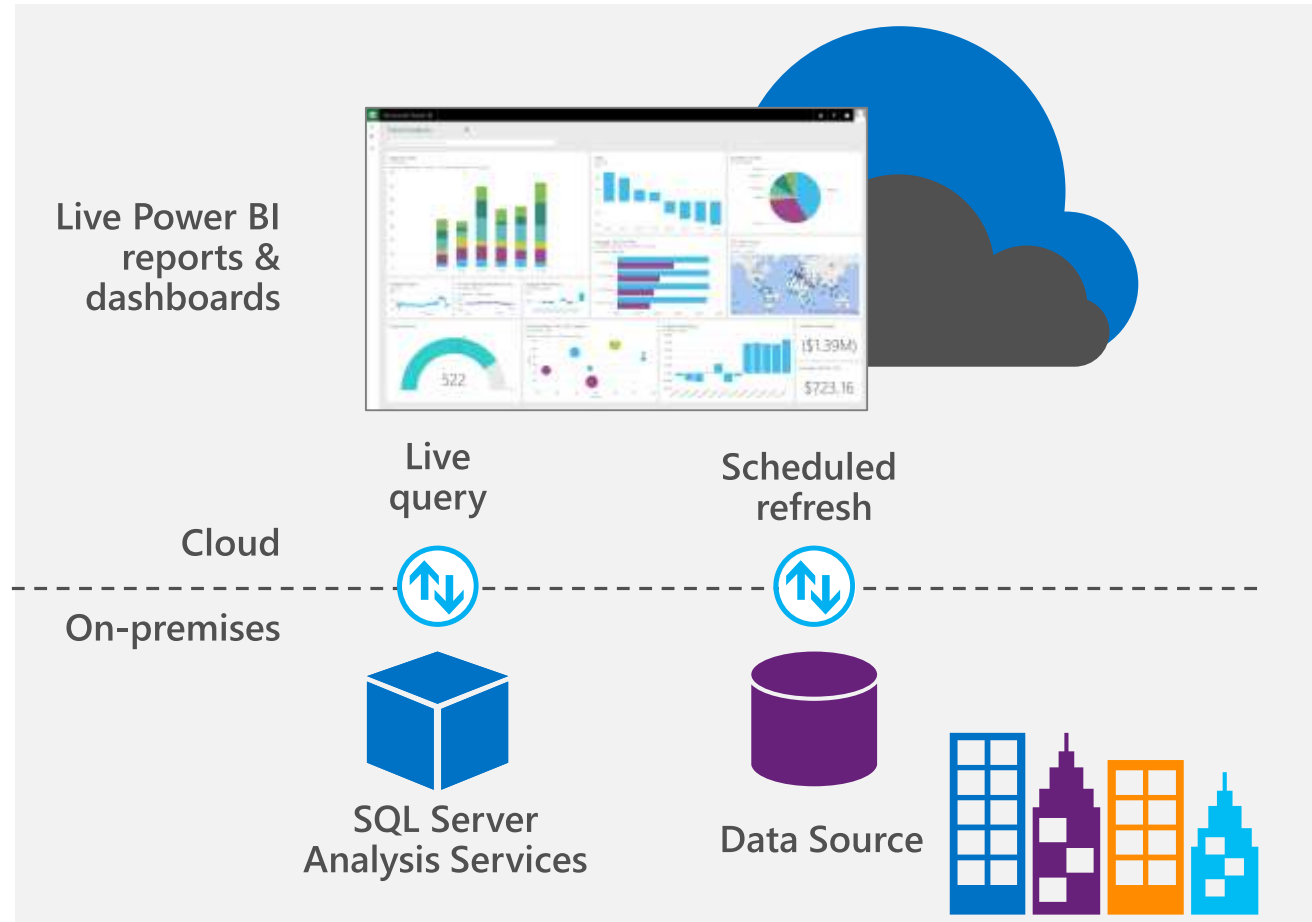


Hybrid BI



Connect to on-premises data from the cloud

Utilize existing investments in Power BI



Build upon the analytical work of others

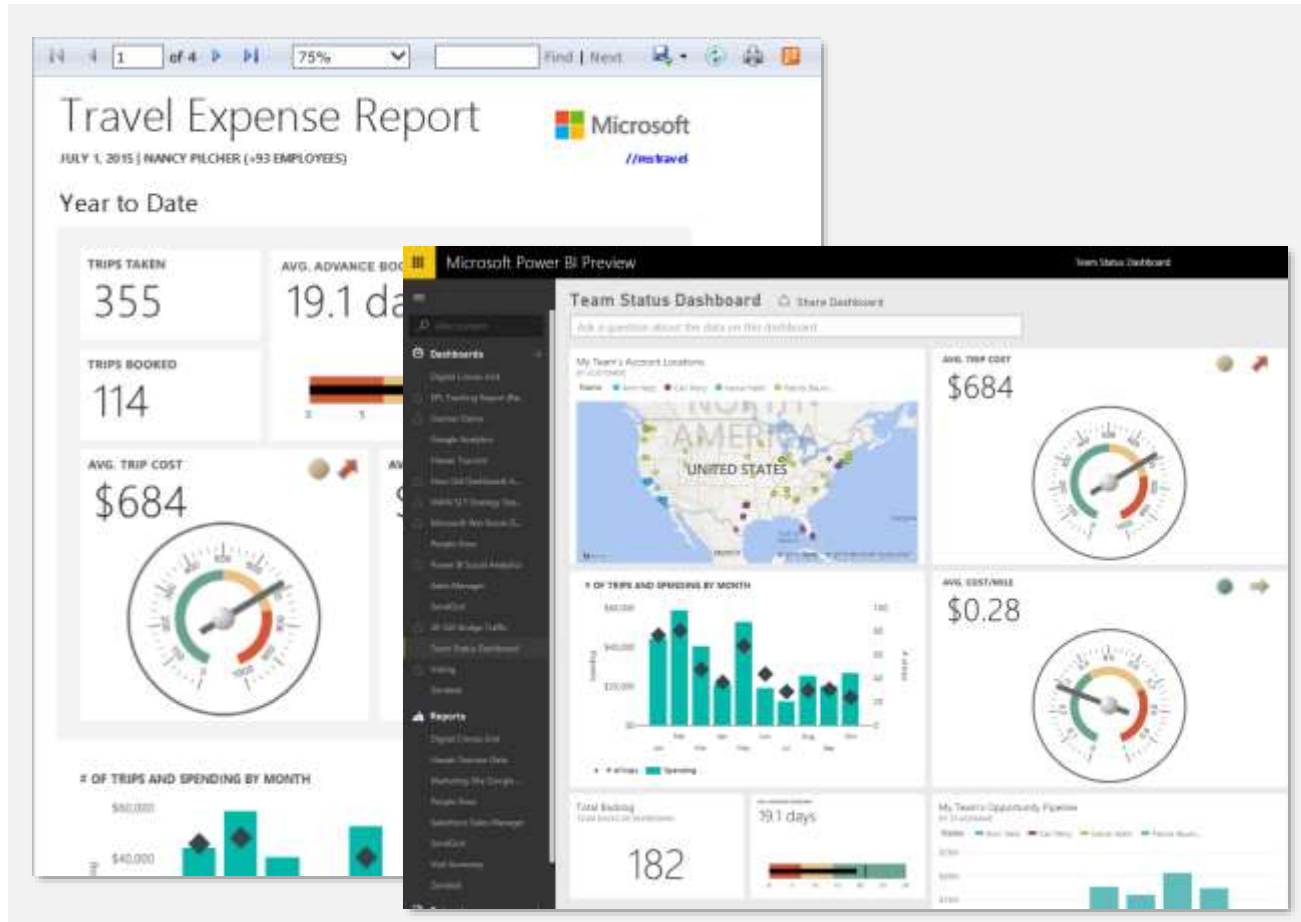
Connect directly to on-premises SQL Server Analysis Services

Tabular and multi-dimensional models

Keep your reports in sync with on-premises data

Extend on-premises reporting to the cloud

Get more from existing Reporting Services investments



Monitor the most important metrics and trends in one place

Pin on-premises SQL Server Reporting Services report elements to Power BI dashboards

Deeper insights across data

Access any data

PolyBase

Insights from data across SQL Server and Hadoop with simplicity of T-SQL

Power Query for analytics and reporting

Pull data from countless sources into data models and reports

Enhanced SSIS

- Designer support for previous SSIS versions
- Support for Power Query

Scale and manage

Enterprise-grade Analysis Services

Enhanced performance and scalability for analysis services

Single SSDT in Visual Studio 2015

Build richer analytics solutions as part of your development projects in Visual Studio through a single tool.

Enhanced MDS

- Excel add-in 15x faster
- More granular security roles
- Archival options for transaction logs
- Reuse entities across models

Powerful insights

Built-in Advanced Analytics

Bringing predictive analytic capabilities to your relational database

Rich visualizations on mobile devices

Business insights through rich visualizations on any device. Native apps for Windows, iOS and Android

Enhanced Reporting Services

On-premises reporting services and rich visualizations on top browsers

Do more. Achieve more.

Hyperscale cloud



Hybrid cloud solutions

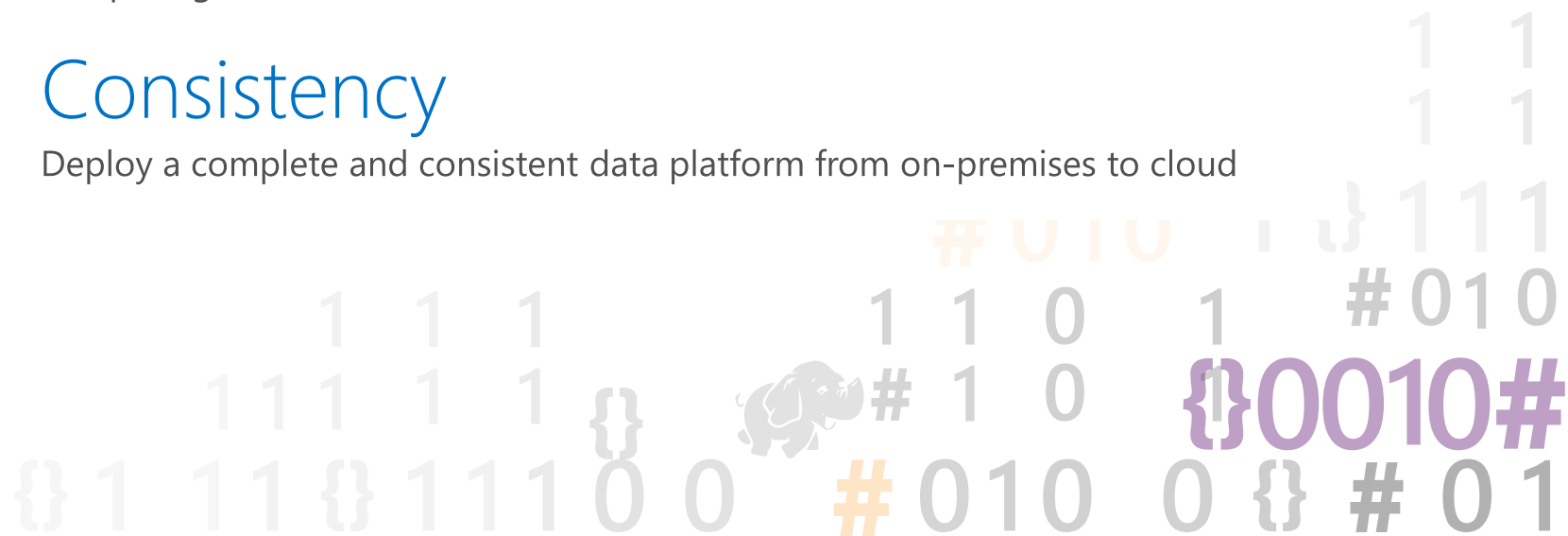
Unlock new hybrid scenarios that can scale your OLTP databases and provide deeper insights on your on-premises data

Simplicity

Easily migrate and run SQL Server in the cloud to gain benefits of cloud computing

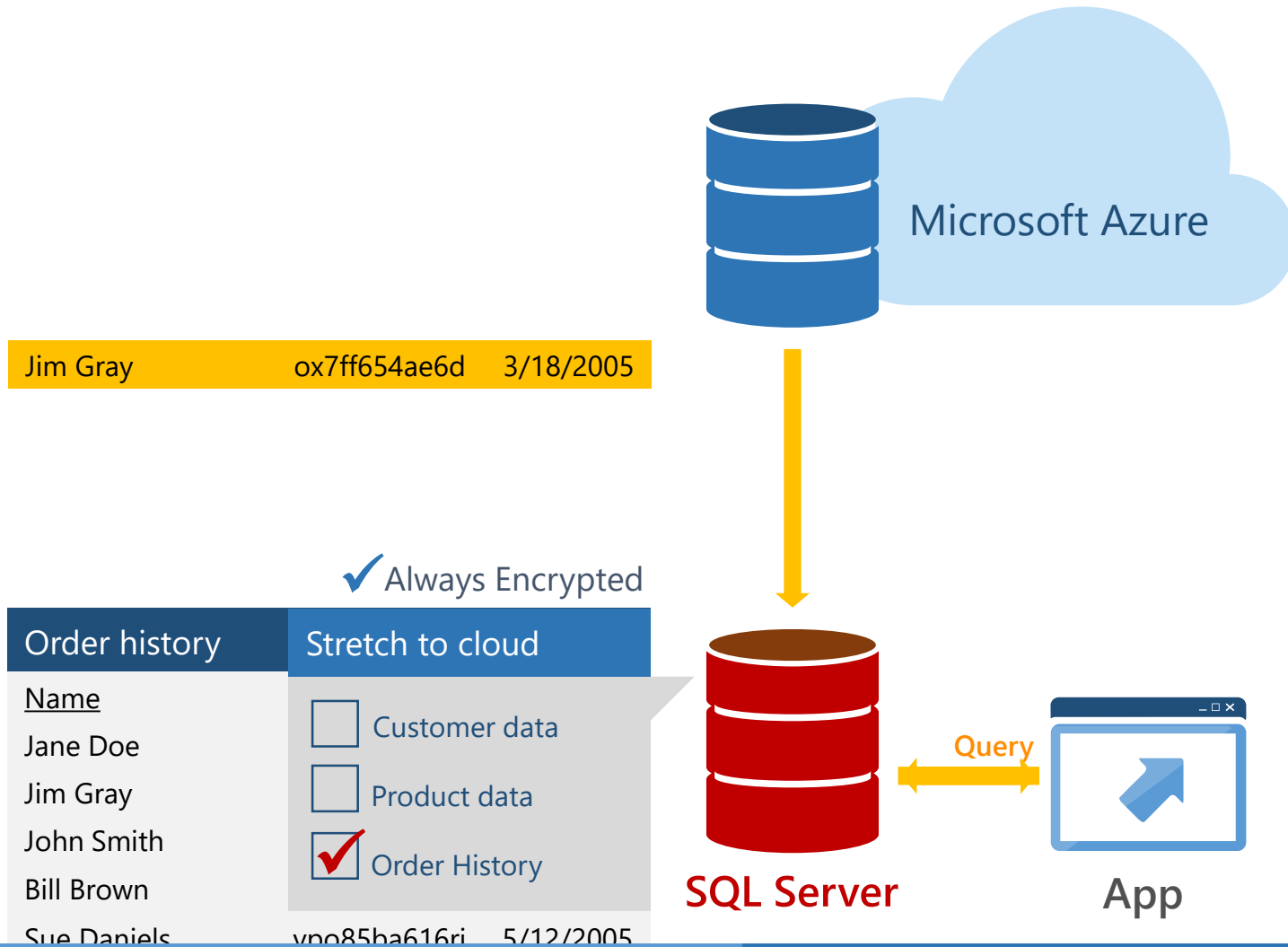
Consistency

Deploy a complete and consistent data platform from on-premises to cloud



Stretch SQL Server into Azure

Stretch warm and cold tables to Azure with remote query processing



Capability

Stretch cold database tables from on-premises SQL Server Databases to Azure with remote query processing

Benefits

- ➔ Cost effective historical data
- ➔ Entire table is online and remains queryable from on-premises apps
- ➔ Transparent to applications
- ➔ Supports Always Encrypted & Row Level Security

Hyperscale cloud

Hybrid solutions

Stretch Database

Stretch operational tables into Azure for cost effective historic data availability

Power BI with on-premises data

Faster insights to more people while keeping data on-premises in Analysis Services

Hybrid scenarios with SSIS

- Azure Data Factory integration with SSIS
- Package Lineage and impact analysis
- Connect SSIS to cloud data sources

Enhanced backup to Azure

- X faster restore and 50% reduction in storage
- Support larger DBs with Block blobs
- Custom backup schedule with local staging

Simplicity

Easy migration of on-premises SQL Server

Simple single-click migration to Azure IAAS & PAAS

Simplified Add Azure Replica Wizard

Automatic listener configuration for AlwaysOn in Azure VMs

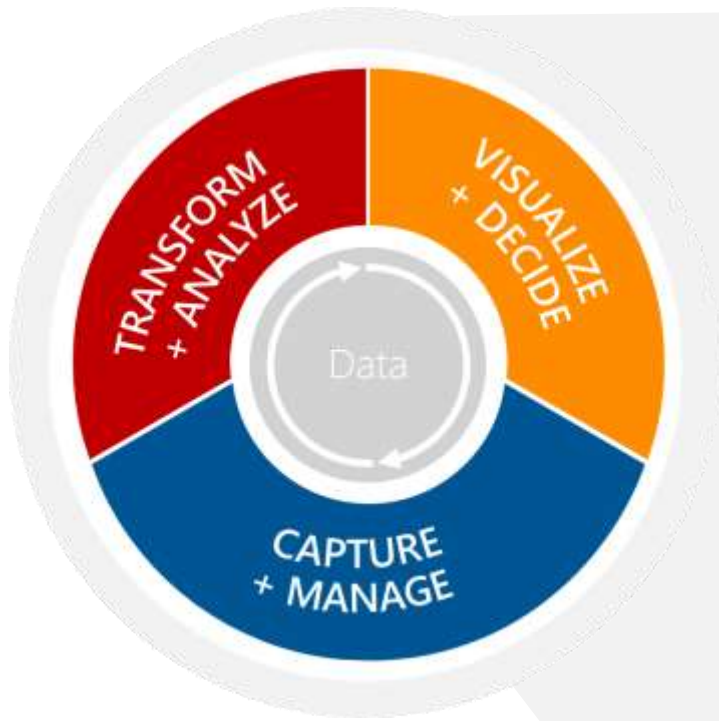
Consistency

Common development, management and identity tools

- Active Directory
- Visual Studio
- Hyper-V
- System Center

Consistent experience from on-premises to Microsoft Azure

Full SQL Server compatibility from on-premises to Microsoft Azure



The Microsoft data platform

Microsoft SQL Server

Microsoft Azure

Office

VISUALIZE + DECIDE



Applications



Reports



Dashboards



Natural
language
query

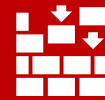


Mobile

TRANSFORM + ANALYZE



Orchestration



Information
management



Complex event
processing



Modeling



Machine
learning

CAPTURE + MANAGE



Relational



Non-relational



NoSQL



Streaming



Internal &
external