

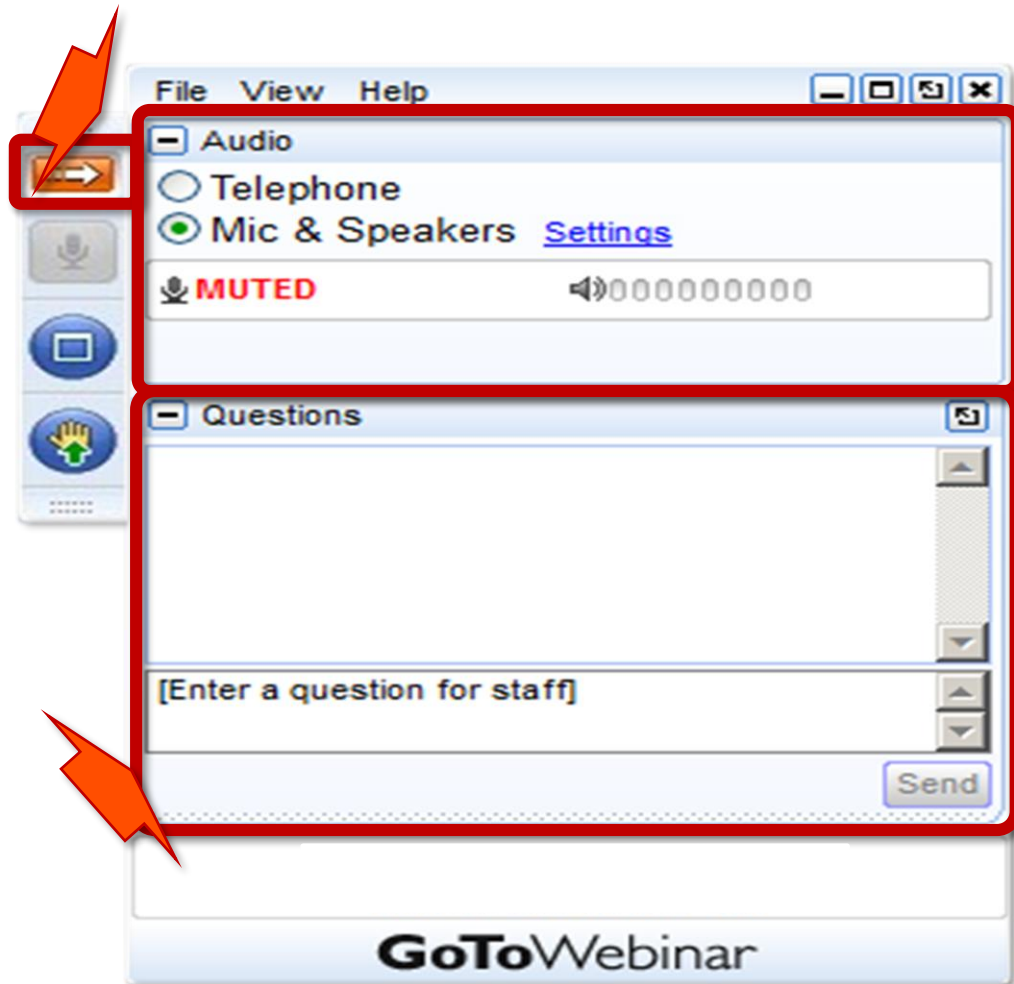


Deliver Secure SQL Access for Enterprise APIs

Dipak Patel, Principal Product Manager and Co-founder of
OpenAccess, Progress

Dennis Bennett, Principal Sales Engineer, Progress

Audio Bridge Options & Question Submission



Deliver Secure SQL Access for Enterprise APIs

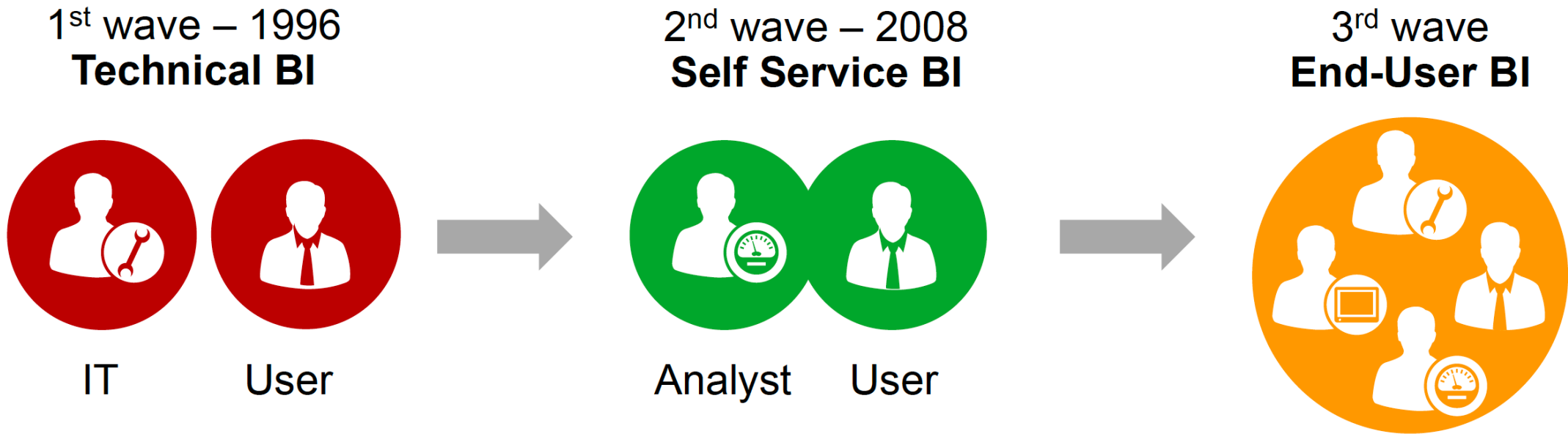
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Agenda

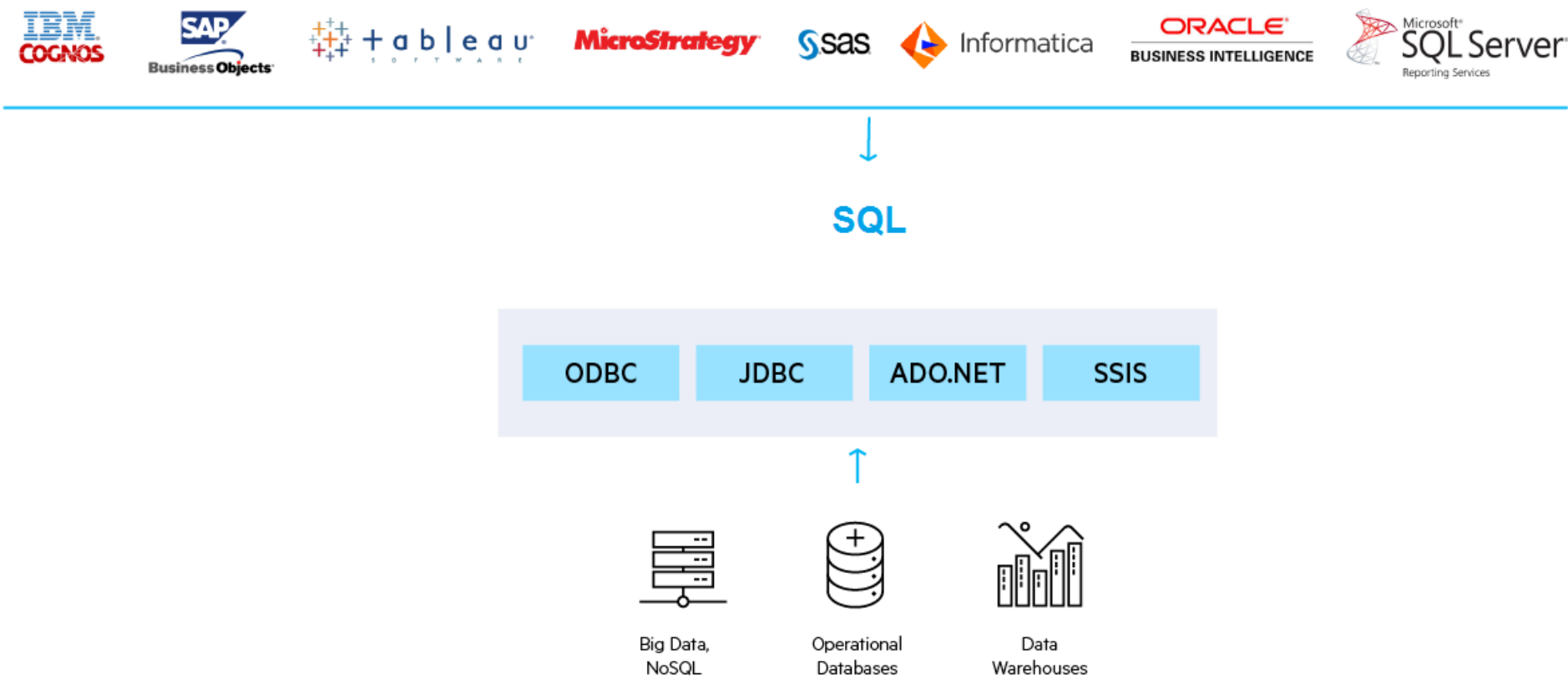
- Background and Use cases for SQL Access
- How to deliver SQL Access for REST APIs?
- Demo
- Best Practices

How Have BI Solutions Evolved?

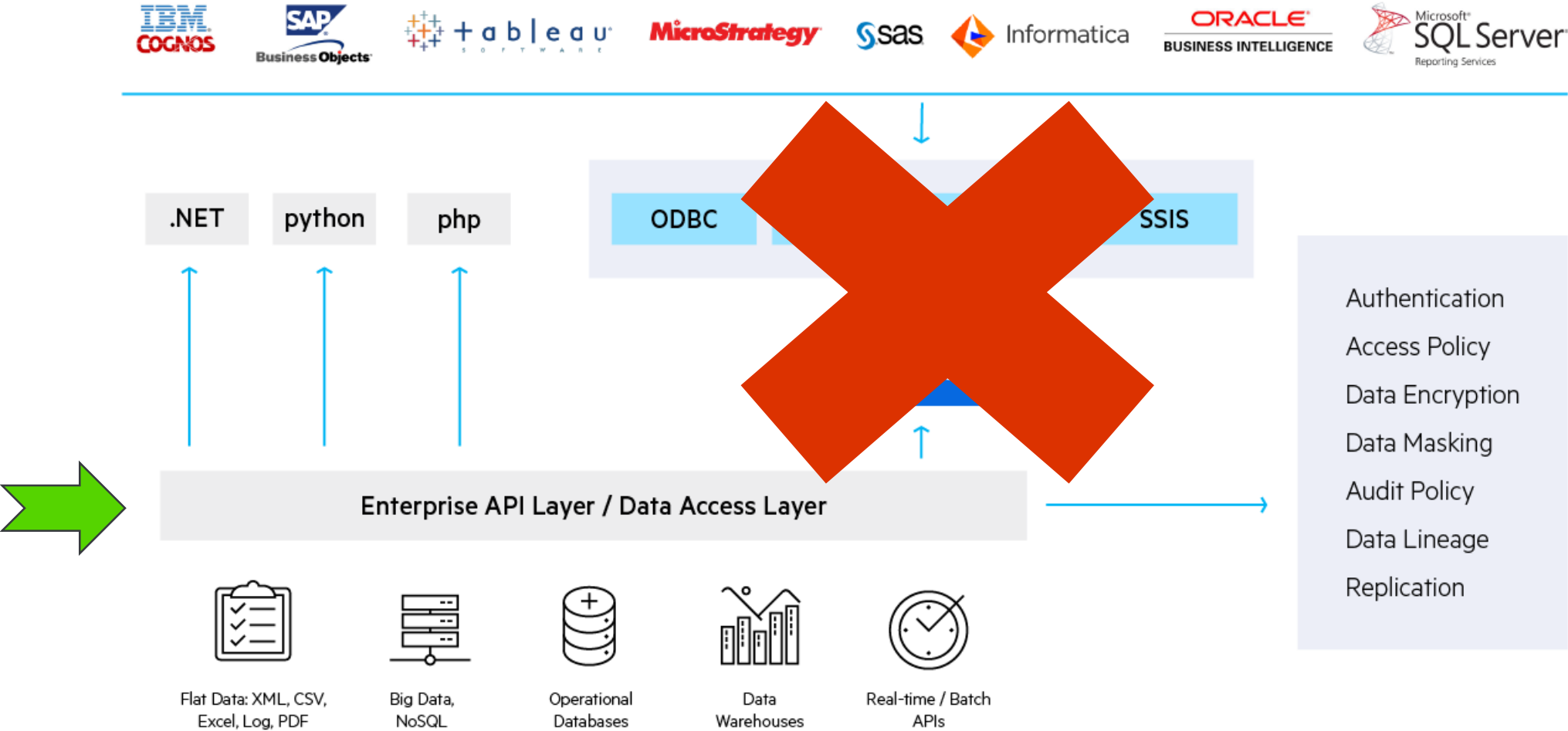


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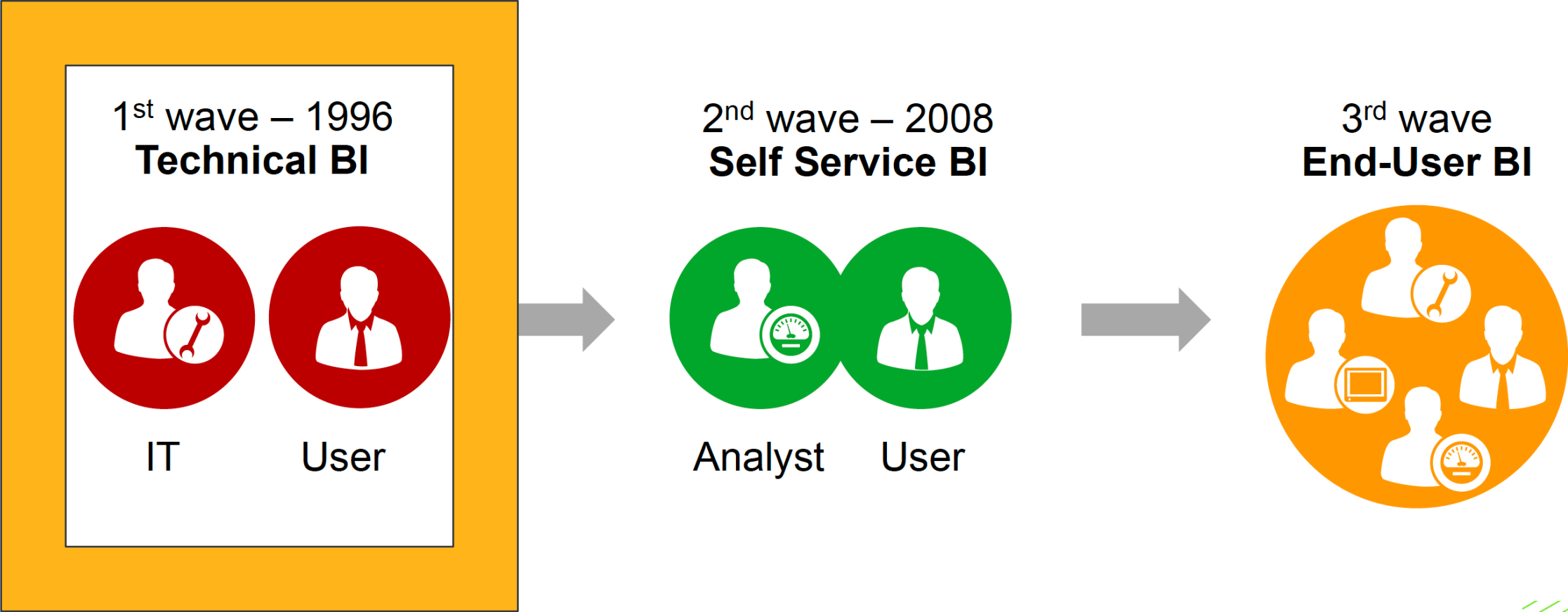
SQL Is a Common Approach



SQL Is a Common Approach

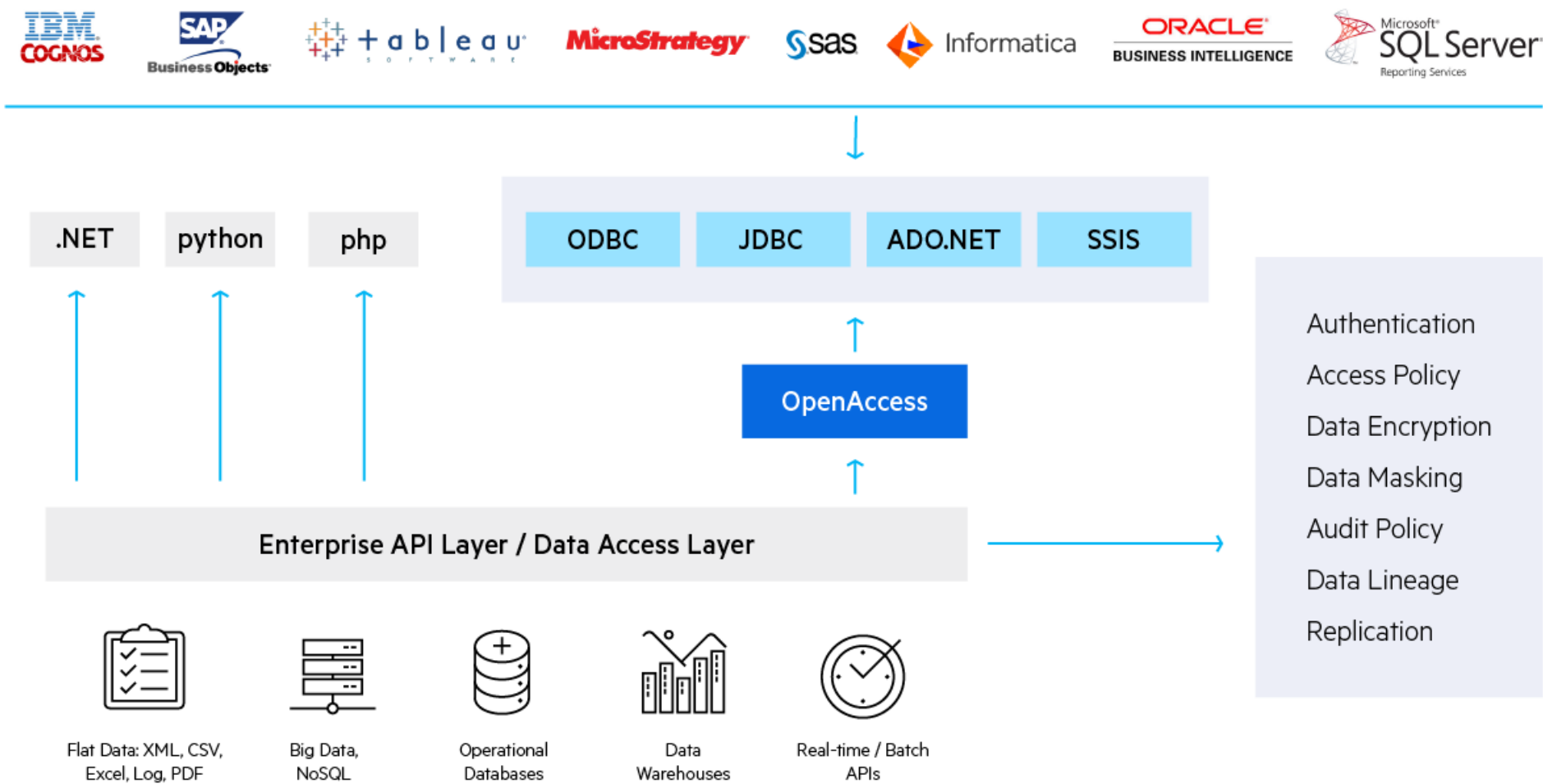


How Do We Get Back to 3rd Wave?



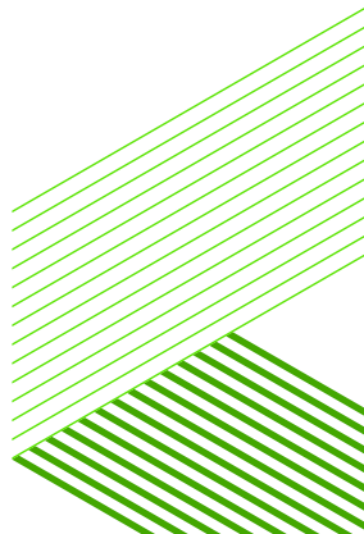
Gartner.

OpenAccess Gets You Back to 3rd Wave



Survey Question 1: Which Enterprise BI tools are you using in your organization today?

- Oracle Business Intelligence (OBIEE)
- Microsoft Business Intelligence (SSIS, SSAS, SSRS)
- SAP Business Objects
- IBM Cognos
- Other (Please share through comments)



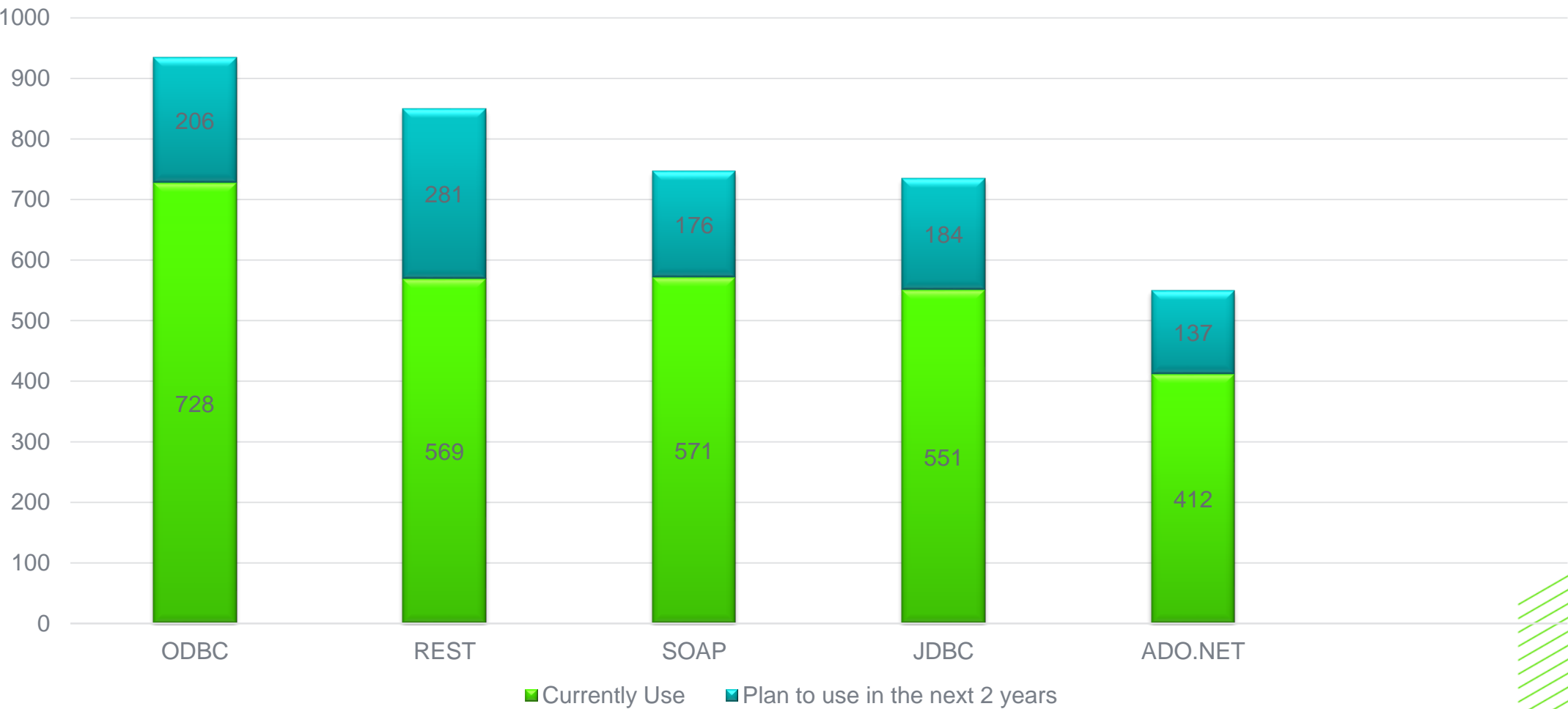
Survey Question 2: What solutions are you leveraging to develop your Enterprise API layer?

- CA API Management
- IBM API Management
- Oracle API Manager
- Mulesoft
- Other (Please share through comments)



SQL Standards remain popular for access data

API Landscape



Source: 2017 Data Connectivity Outlook Survey

Other popular use cases we see need for virtual SQL access

Application / Business Logic

- *Business Logic Layer: CRM, Finance and other applications are integrated*

Abstraction

- *Expose single interface distributed across large objects in NoSQL database vs transactional records stored in SQL database*

Support Multi-Tenancy

- *Enterprises offer multi-tenant architecture*
- *Our customers are using our SDK to enforce tenant level security at the driver level without touching the hosted architecture.*

Survey Question 3: Which of the following do you need SQL Access to?

- Enterprise API Layer / Data Access Layer
- Business Logic Layer
- Single/Multiple Data Stores
- Multi-Tenant Architecture
- Other (Please share through comments)



Agenda

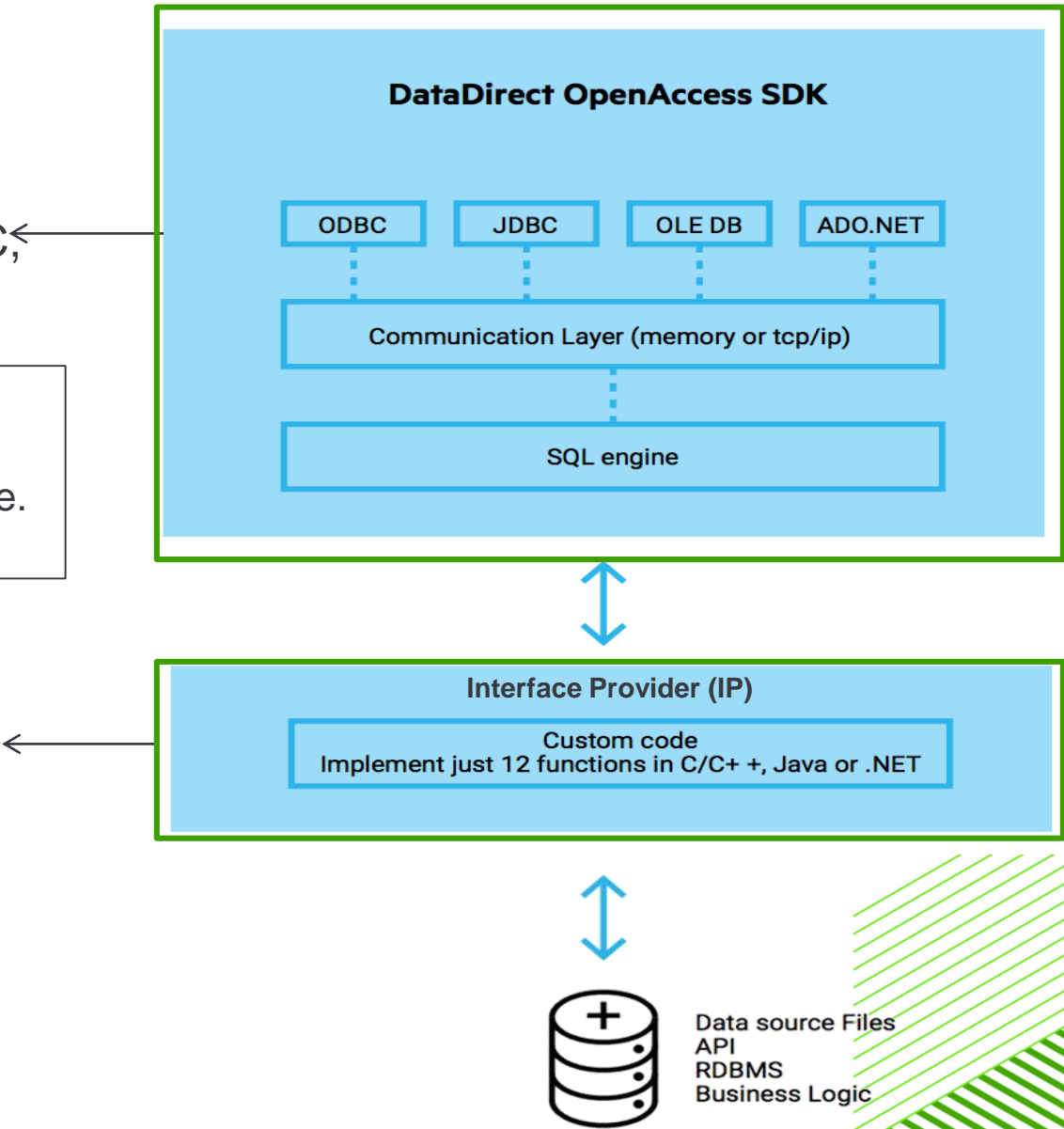
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Customized SQL Connectivity

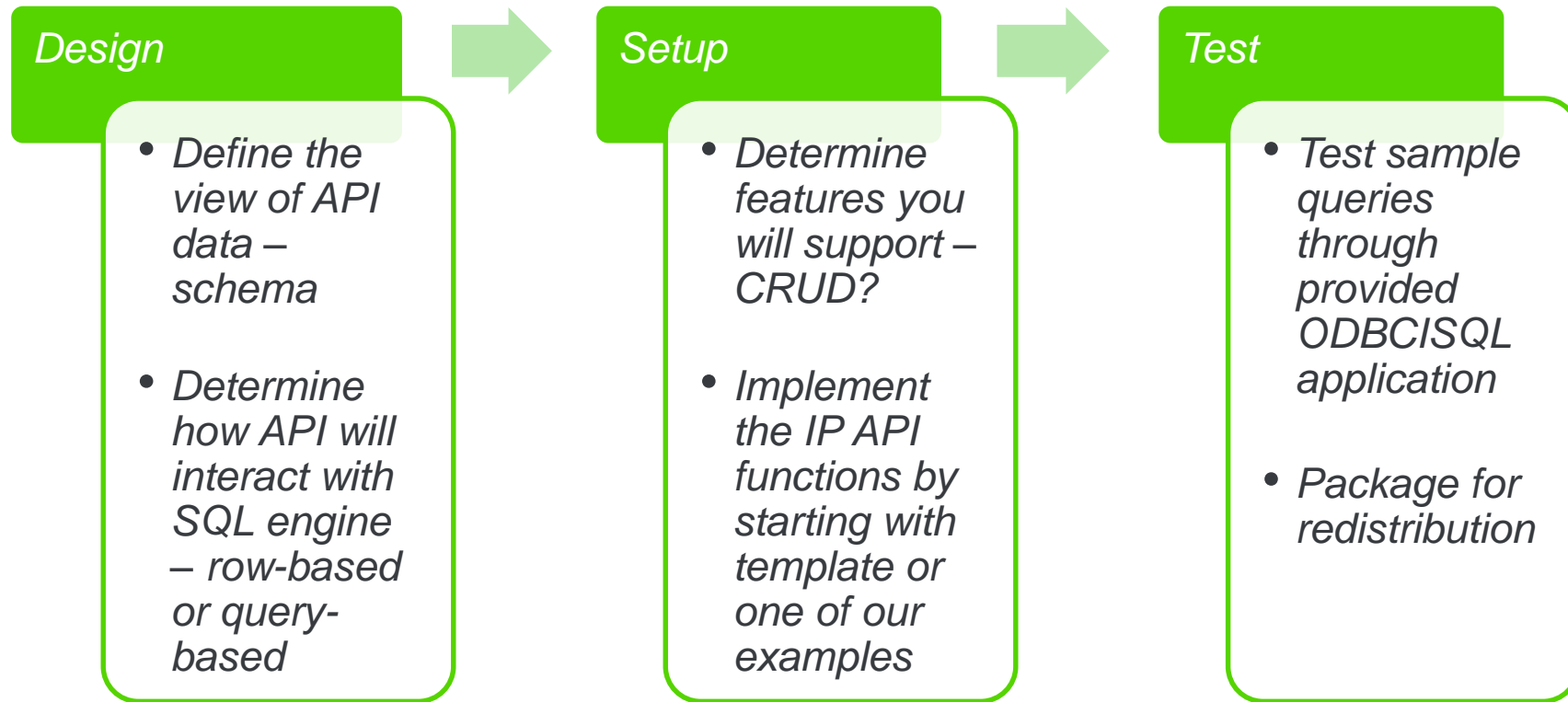
It is the same code whether you are supporting ODBC, OLE DB, JDBC or .NET.

OpenAccess SDK provides the majority of the code needed to SQL enable a data source. You generate the small amount of code (IP) residing between the SQL engine and your data store. This code processes the results generated by the SQL engine.

The IP can be written in C, C++, Java or .NET.



Steps to Implement a Driver



OpenAccess can plug in to your enterprise security

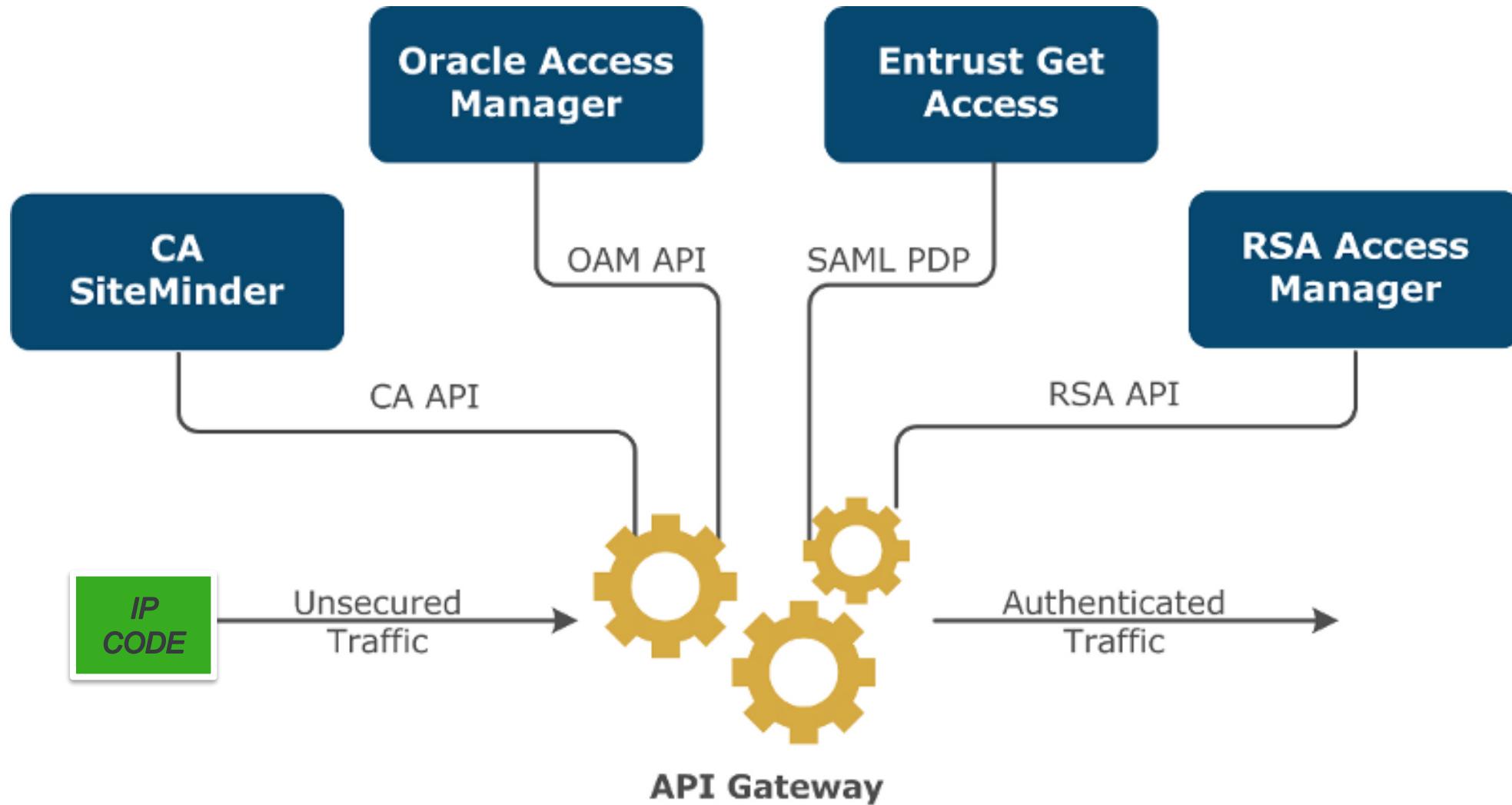


Image source: https://docs.oracle.com/cd/E55956_01/doc.11123/administrator_guide/content/admin_existing.html

Translating between SQL and REST



SQL Support



Broad SQL92 and SQL99 support

- *DDL – Create / Alter / Drop Tables, Views and Indexes*
- *DML – Select, Insert, Update, Delete*
- *Stored procedures – Call*
- *Joins, unions, nested queries*
- *Order By, Group By, Scalar Functions*

Join options

- *Push down to the server*
- *SQL Engine performs Joins*
- *Multiple Join Order options*

A large Financial Company is using OpenAccess for ODBC, JDBC Access

■ Technology Needs:

- BI team needed access to the data access layer from Microstrategy and IBM Cognos.
- New applications need to be authorized by internal authentication and security layer.

■ Challenge:

- They developed an in-house custom JDBC driver that wasn't performing well. The driver had compatibility issues and maintenance was very expensive.
- Now, they also need an ODBC driver to support a new BI tool within a strict timeline.

■ Solution:

- With OpenAccess, they could deploy both an ODBC and JDBC driver in one go.
- OpenAccess worked seamlessly with all of their 3rd party authentication and security tools.
- Their alternative was to find an ODBC expert, develop the ODBC driver from scratch


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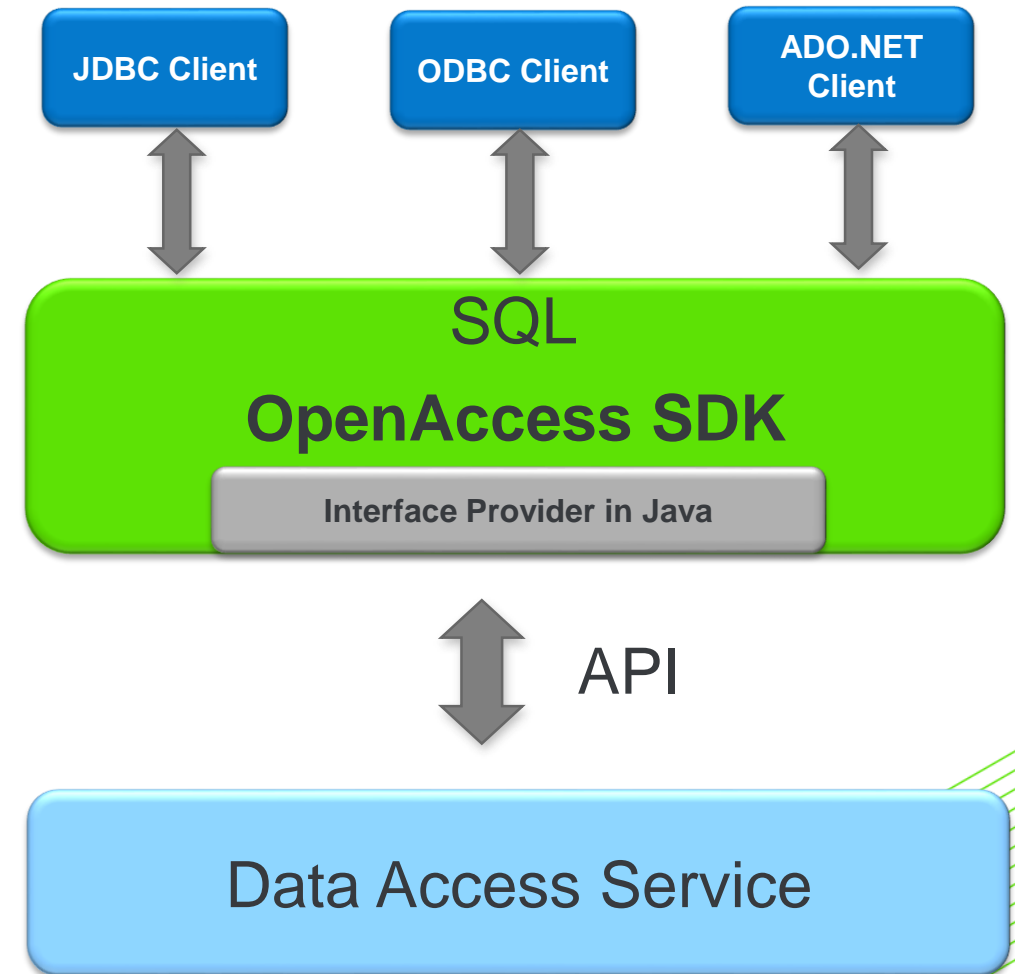
Demo

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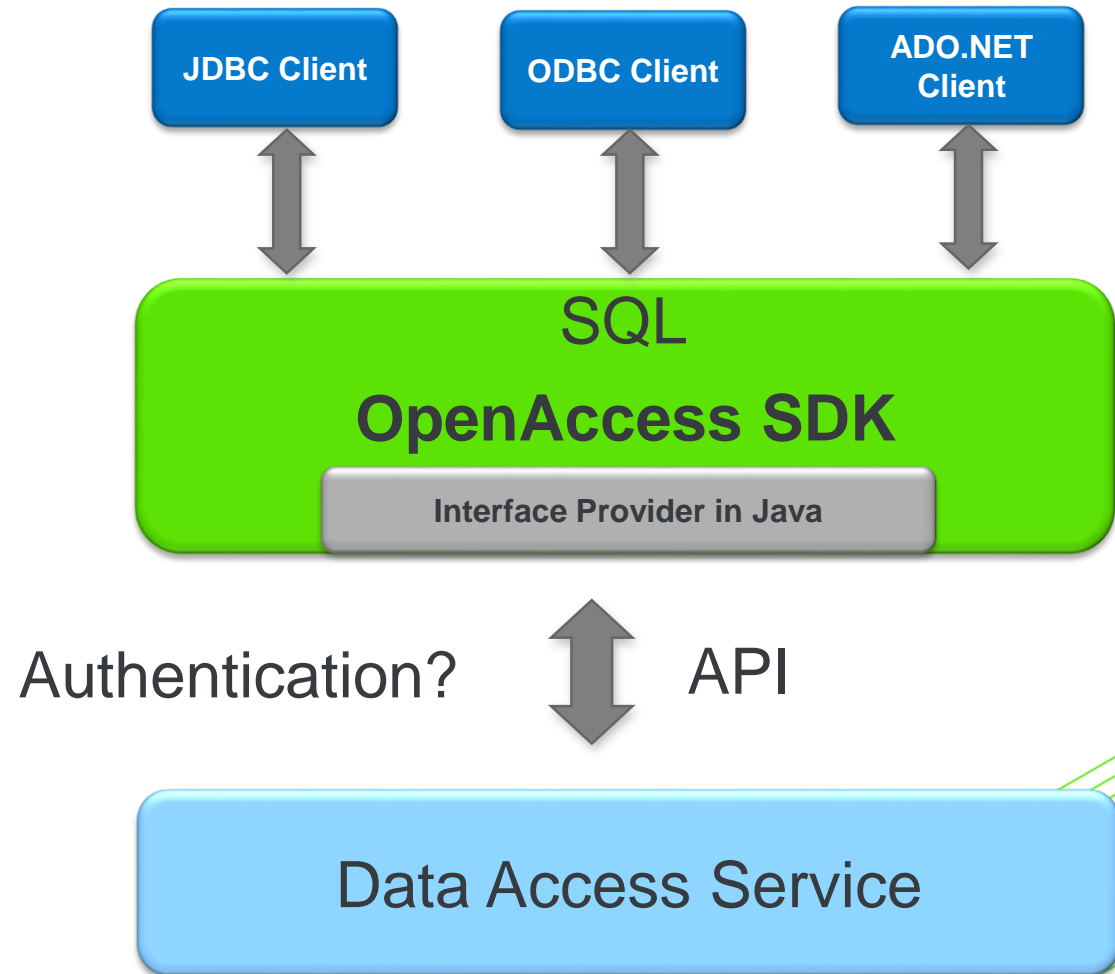
Best Practices: Support Multiple APIs – ODBC, JDBC, ADO.NET

- Some BI/Data Integration tools are Java and use JDBC, others are Native and use ODBC
- Having to implement and test single interface layer saves in cost of ownership
- Compatibility with enterprise BI and Data Integration tools – not all drivers are created equal



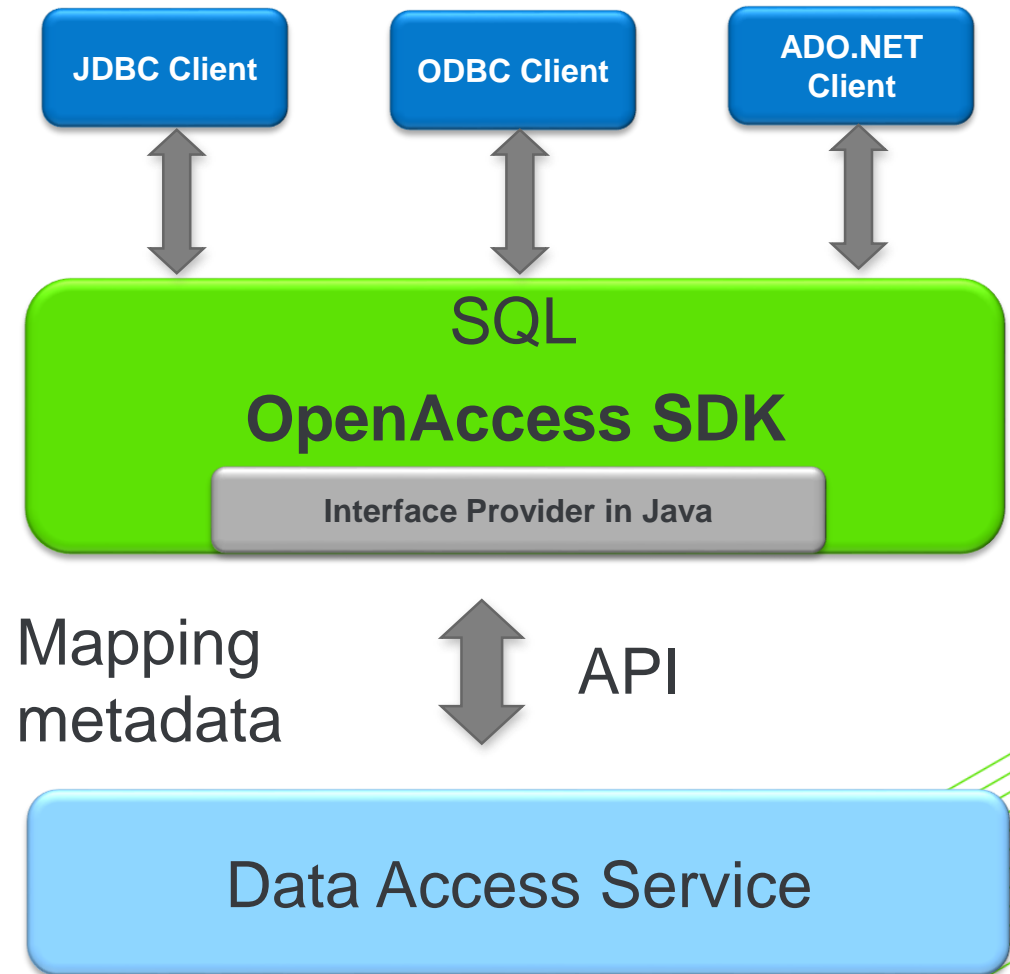
Best Practices: Authentication

- Where to include code to integrate with IAM provider
- How to handle OAuth flows and UI?
- Authentication happens at execution time with REST APIs



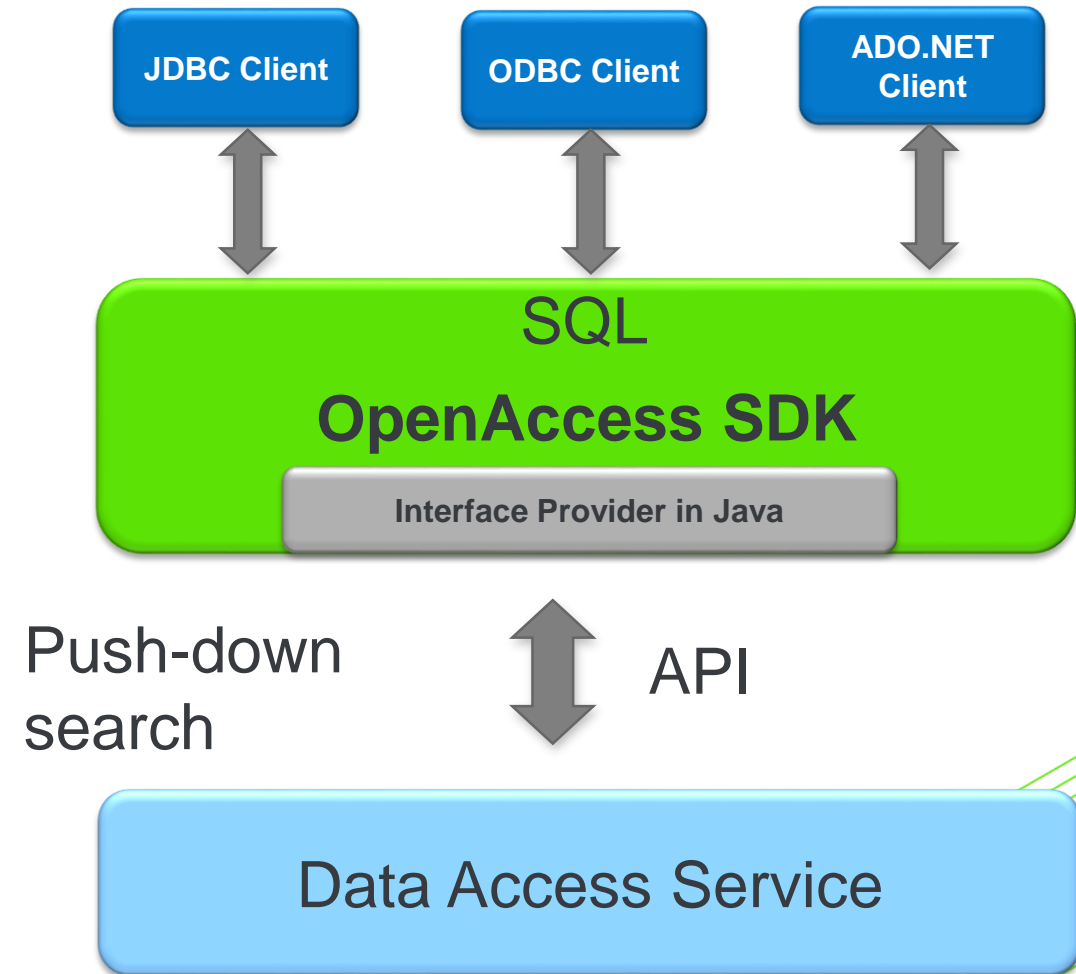
Best Practices: How to create data model from APIs

- How to handle dynamic vs static metadata in API
- Map API and fields to relational schema
- Handling metadata for semi structured JSON responses



Best Practices: Optimize Query Performance

- Design enterprise API to allow search push-down, paging results, meta-data access
- Push down filtering and other operations, possibly joins
- Perform iterative design – simple to more complex
- Implement rich SQL support because BI and ETL tools can generate very complex SQL queries



Next Steps

1. [Schedule a meeting with our Product team](http://www.progress.com/company/contact) [www.progress.com/company/contact]

2. Or Learn More:

- [OpenAccess Overview Guide](#)
- [Download 30-day trial of OpenAccess](#)
- [Tutorial to Build a Custom Driver over a REST API under 2 hours](#)

