Top 7 Data API Headaches (and How to Handle Them)

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Agenda

- Data Variety (Cloud and Enterprise)
  - ABL ODBC Bridge Using Progress DataDirect Cloud
- Data Access in Enterprise Mobility
  - OData, Progress DataDirect Cloud, and Progress Rollbase Mobile
- Data On-Premise (Enterprise)
  - Accessing On-Premise Progress OpenEdge Data
- Data Volumes (Big Data)
  - Accessing Data From Progress Rollbase
- Data Access in Transactions
  - Progress Corticon Enterprise Data Connector
- Data Access in Applications
  - Progress DataDirect OpenAccess for OpenEdge
- Data Report Automation
  - ABL ODBC Bridge Using Progress Easyl

1. Variety of Data APIs in the Cloud

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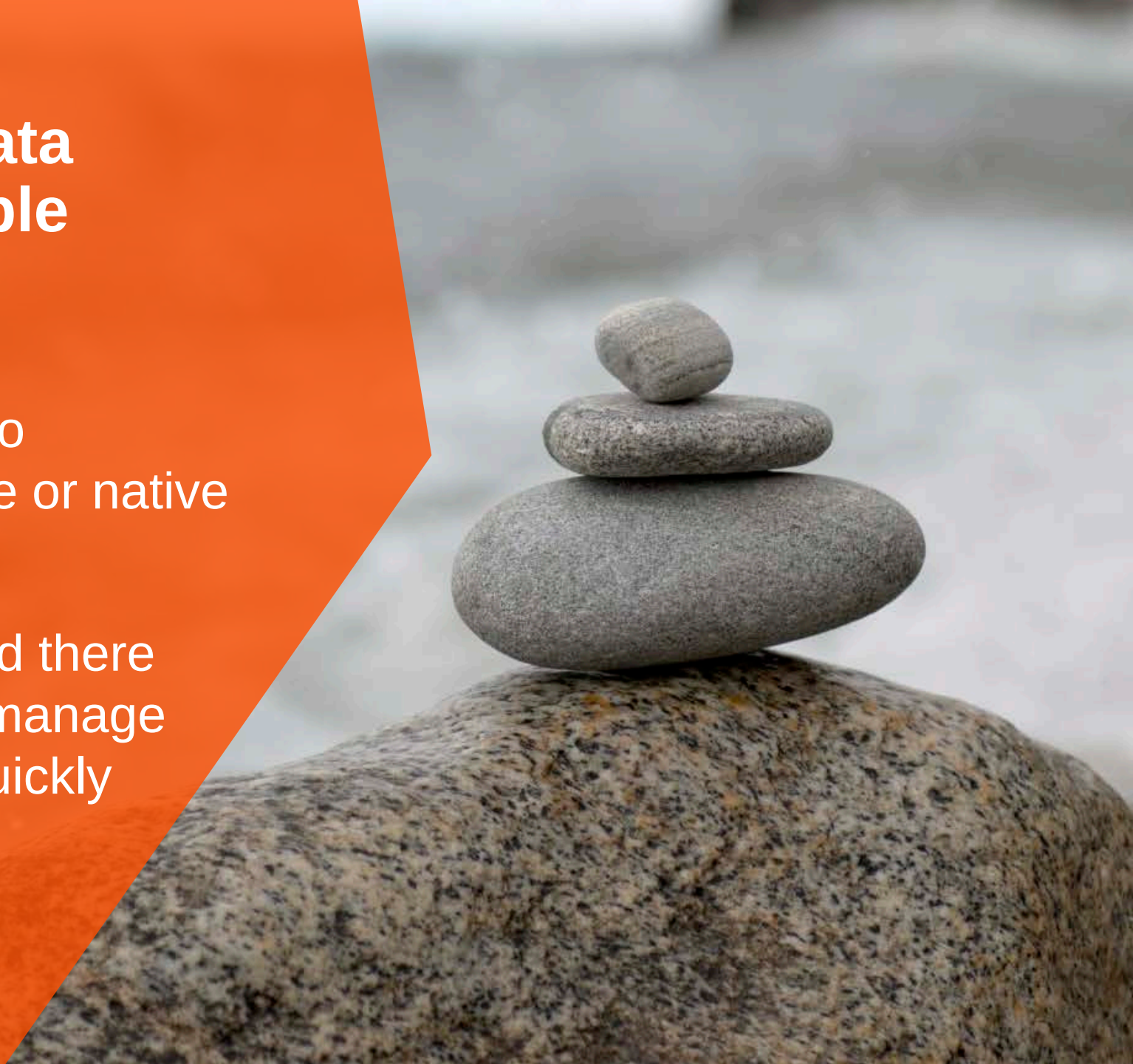
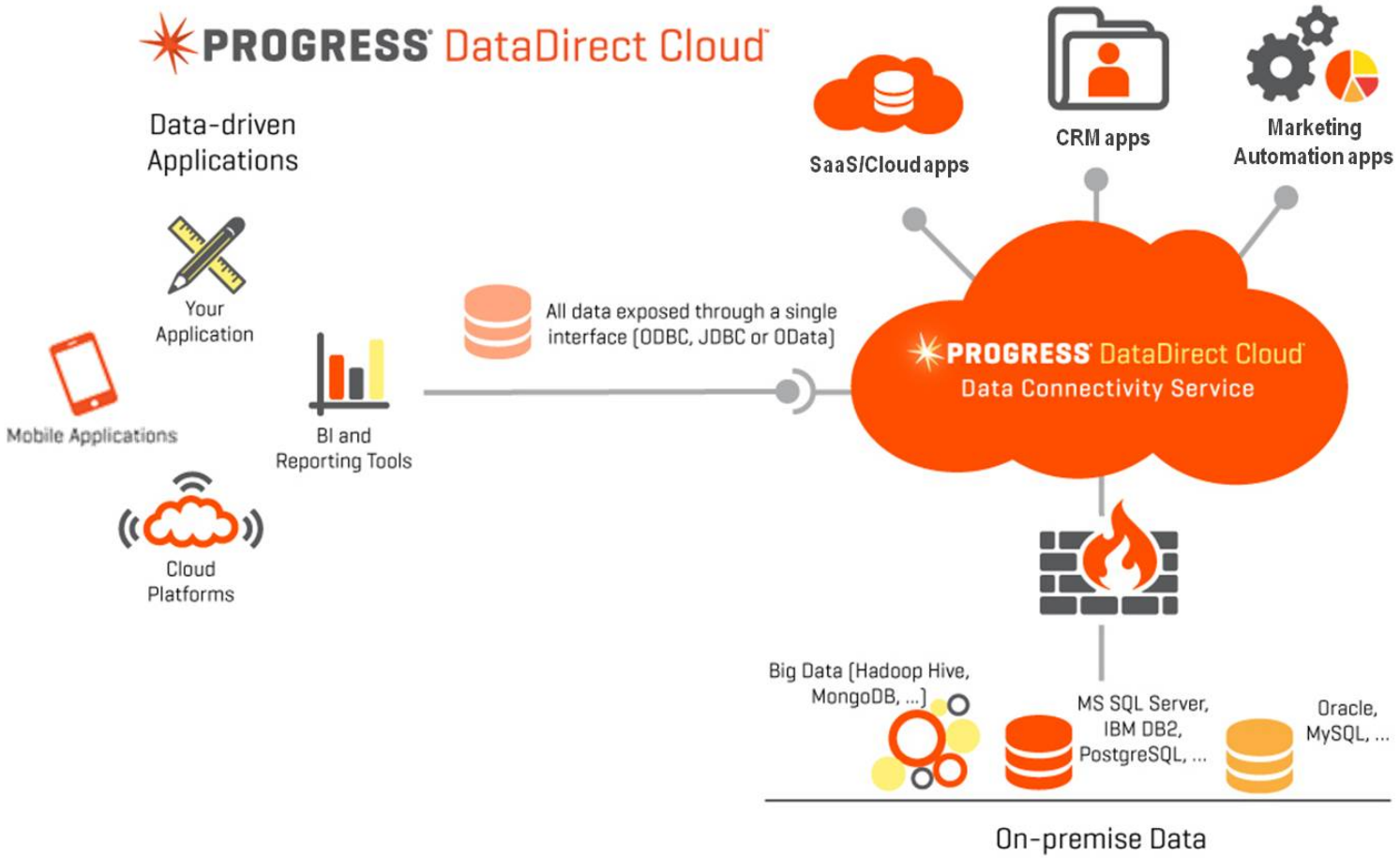
How Can I Simplify Data Management to Multiple Data Sources?

- Point-to-point too difficult to manage, with many unique or native APIs
- APIs change too often, and there are too many versions to manage Maintenance of all APIs quickly becomes too costly

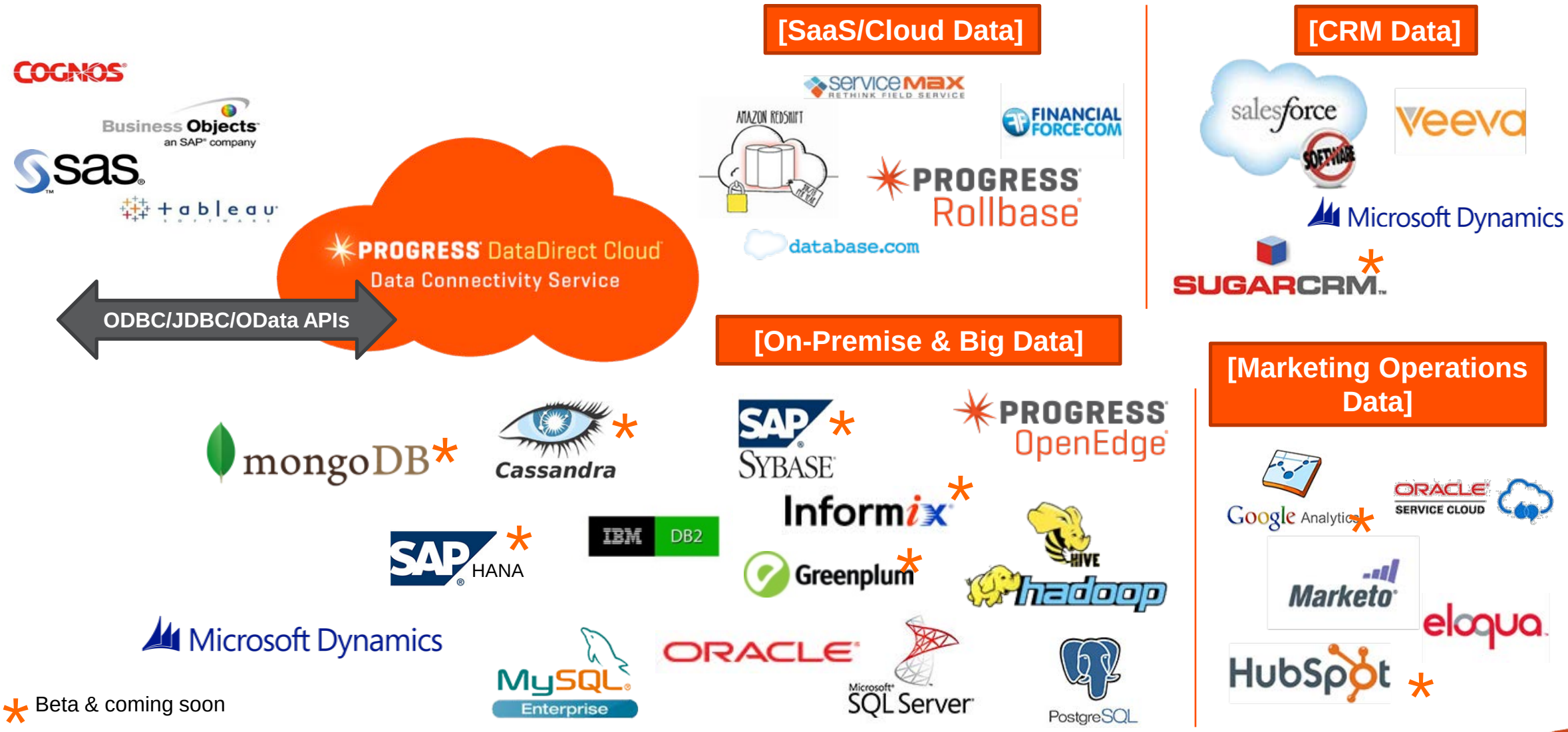


Data Connectivity Through the Cloud



- Unified SQL and OData access to SaaS/Cloud data sources
- Unified SQL and OData access to enterprise/on-premise data sources

Data Sources Supported Through the Cloud Service



Integrating DataDirect Cloud Into OpenEdge Applications

- Progress OpenEdge applications often need to integrate with other data systems
- An **ABL ODBC bridge** to Progress DataDirect Cloud facilitates OpenEdge application integration with SaaS applications like Salesforce, Microsoft Dynamics CRM, and Oracle Service Cloud
- Interact with DataDirect Cloud using a set of OOABL classes which simplify SQL execution and gathering data results
- **Sample code** allows you to connect to any DataDirect Cloud data source, with flexible querying

2. Data Access in Enterprise Mobility

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How Can We Share the Data and Make It Easily Accessible?

- Businesses have valuable data that they want to make available to other parties

  However, this data is often locked away in proprietary databases and applications

- From enterprise applications, SQL drivers (ODBC, JDBC) can be used to access the data

- From most mobile/Web applications, the data can be made available via a Web service

So How Do I Unlock the Data for Mobile/Web Apps?

- The Open Data (or OData) Protocol is a Web protocol for querying and updating data
- OData makes it simple to interact with data from a variety of applications and programming languages, and is built on HTTP for broad reach
- **OData unlocks data and makes it easier to consume by both information workers and developers**

Wait – So What Is OData?

- The value OData puts on standardization and query-ability makes it an ideal solution for exposing data
- OData was created to provide a simple, standardized way to **interact with data on the web from any platform or device**
- OData is a standardized protocol for creating and consuming data APIs, building on core protocols like HTTP and commonly accepted methodologies like REST

The result is a uniform way to expose full-featured data APIs

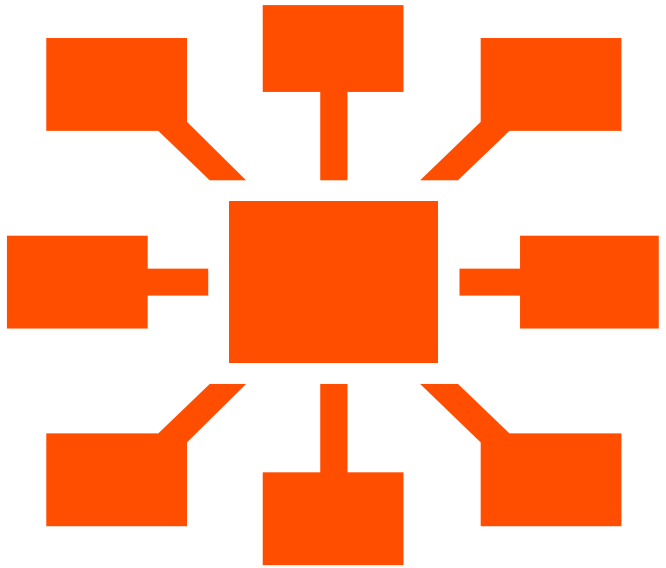
http://www.odata.org/

But Why Is Supporting OData APIs So Important When Connecting to Data?

- Well, sometimes it is just not practical to include SQL data drivers like ODBC and JDBC that are typically used in enterprise applications

  DataDirect Cloud already supports SQL protocols like ODBC and JDBC, but now supporting OData APIs from the application **enables mobile and Web applications to query data sources much more easily**

- And if you are going through a OData connectivity service provided by DataDirect Cloud, then all of that data can be made available using a standardized REST API



The dual benefit is the value of OData for simpler data connectivity from Web/mobile applications plus the value of SQL in accessing cloud and enterprise data through an easy to use connectivity service.

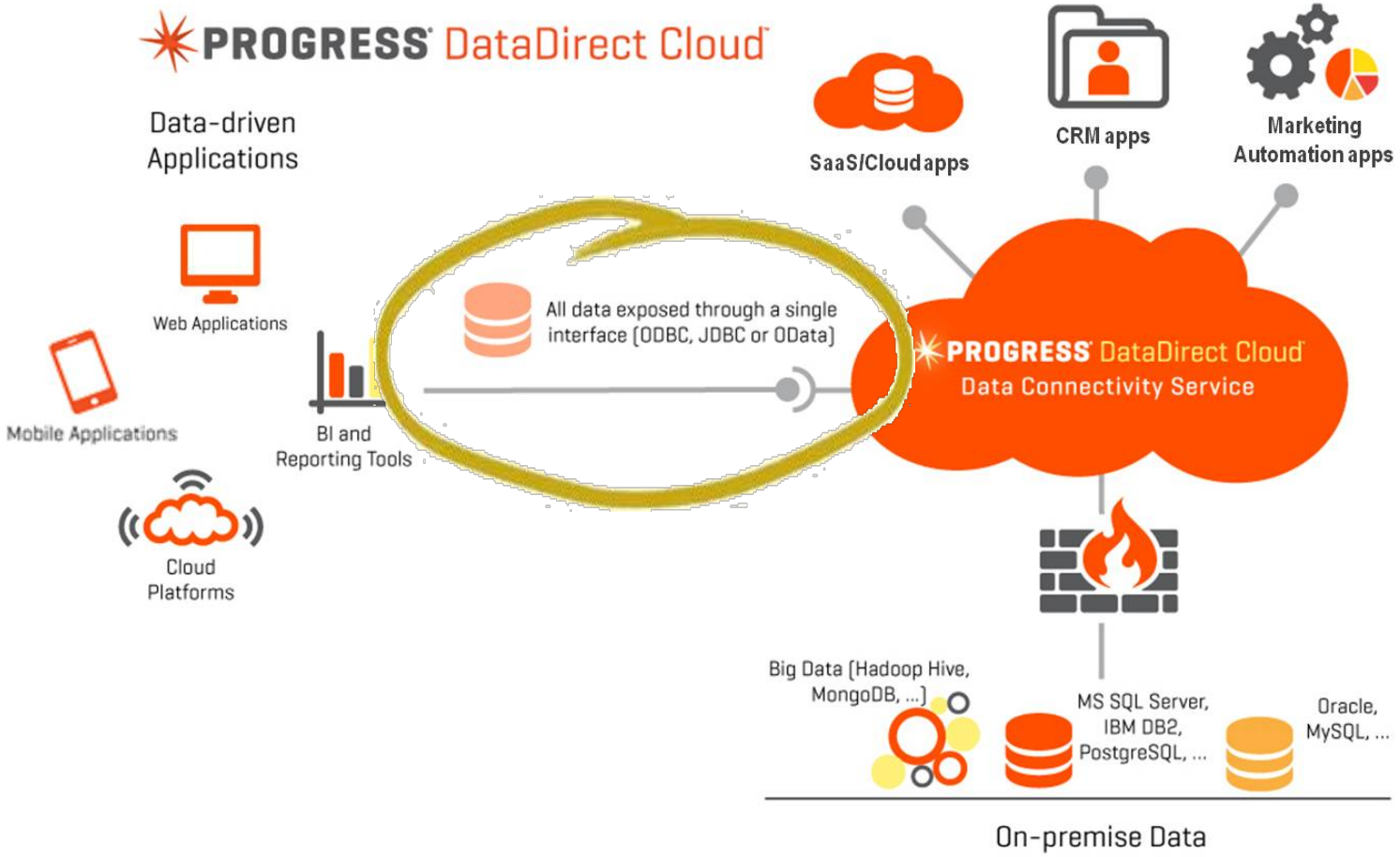
OK, What Do I Have To Do?

- You can use the OData standardized APIs from your mobile or Web application and access the broad spectrum of cloud and enterprise data sources already supported by DataDirect Cloud – a cloud-based connectivity service
- While we still use SQL under the covers, all you have to worry about are the simple, standardized OData queries to which ever databases you need to unlock

Where Do REST and JSON Fit?

- Remember, the OData service has a REST-based (Representational State Transfer) model that allows you to perform SQL query-like operations on a URL – **it's like ODBC for the Web!**
- You might have heard of JSON (JavaScript Object Notation), which is a data model used for smaller data sets in document-based NoSQL databases
- **Well, OData supports JSON as well, making it very easy to query JSON data from mobile/Web applications**

Unified Data Connectivity Through a Cloud Service



- All data exposed through OData service, enabling mobile and Web applications to interface with data sources through Web services APIs
- Because OData is a REST-based service, the OData API makes it easy for mobile, enterprise mobile, Web, non-C/C++, and non-Java applications to access the data sources

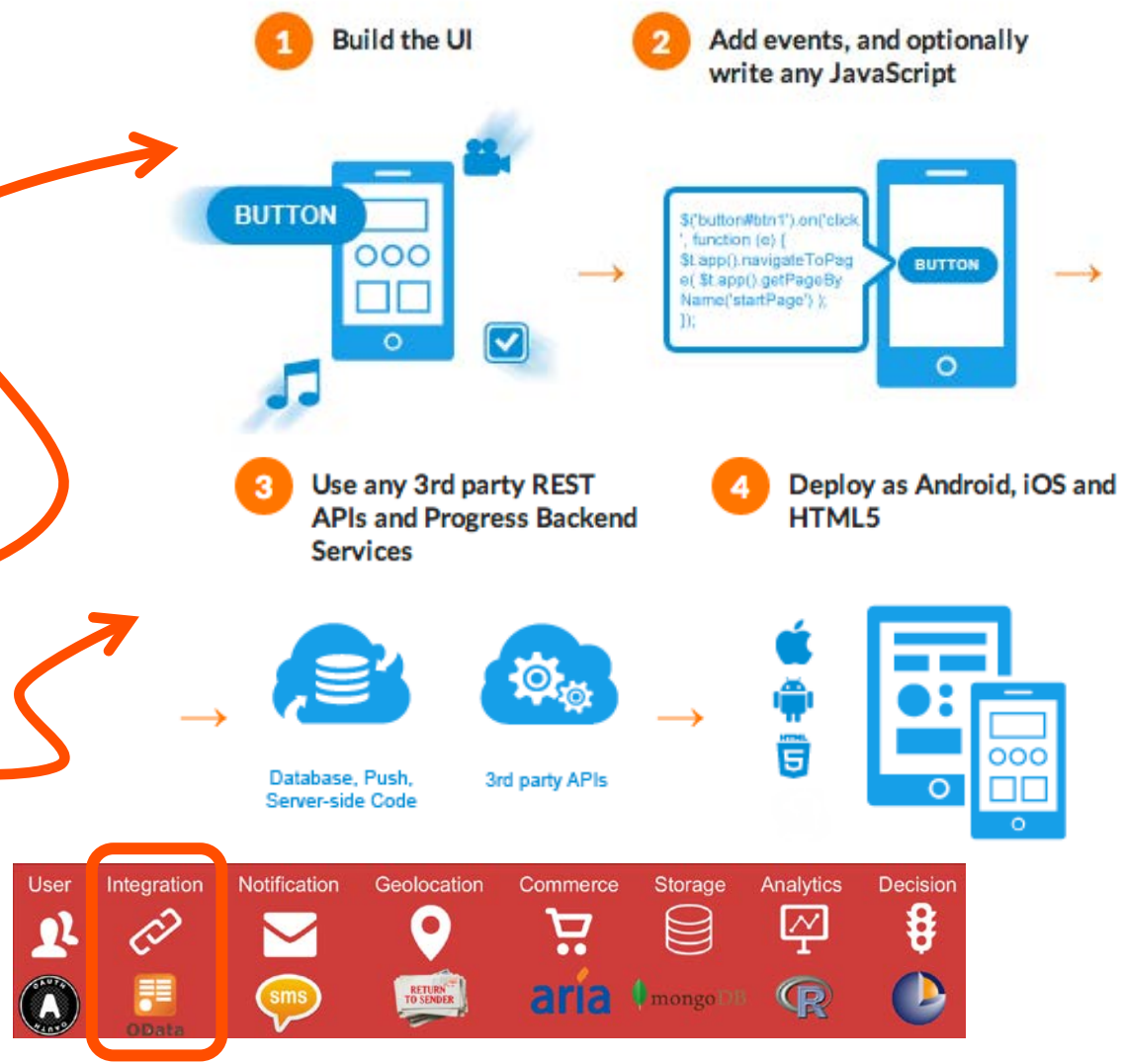
Note: Today, DataDirect Cloud supports OData version 2 and read-only operations such as fetching data and metadata

OData Service Currently Supports These Data Stores

- Apache Hadoop Hive
- IBM DB2
- Greenplum
- HubSpot
- IBM Informix
- Marketo
- Microsoft Dynamics CRM
- Microsoft SQL Server
- MySQL Enterprise
- Oracle
- Oracle Eloqua
- Oracle Service Cloud
- Progress OpenEdge
- Progress Rollbase
- Salesforce (and other Force.com data stores)
- SugarCRM
- SAP Sybase

Rollbase Mobile and DataDirect Cloud

- Single, unified entry point via the Pacific console
- Build Web applications in Rollbase
- Leverage Application Data Model to automatically generate service catalog (JSDO) and mobilize complete application or data objects
- Develop Mobile App UI and bind to Rollbase services via JSDO
- Leverage Pacific Backend Services
- Leverage Build Farm for platform-specific packaging (iOS/Android)



3. Data On-Premise

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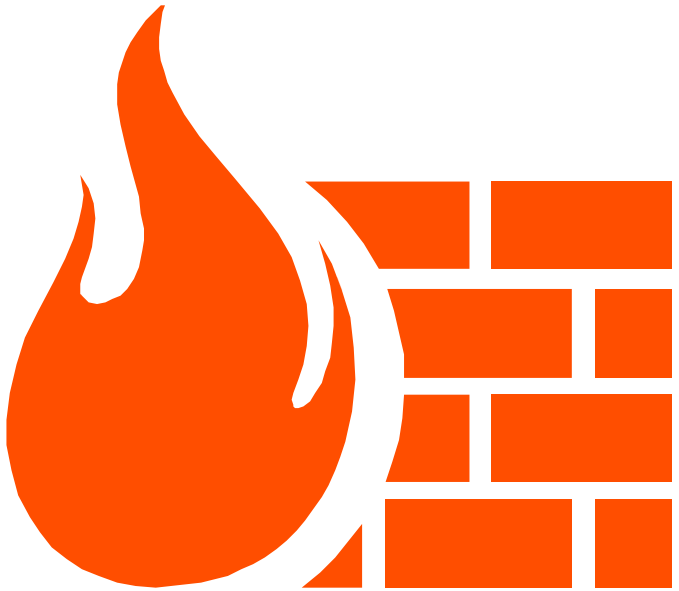
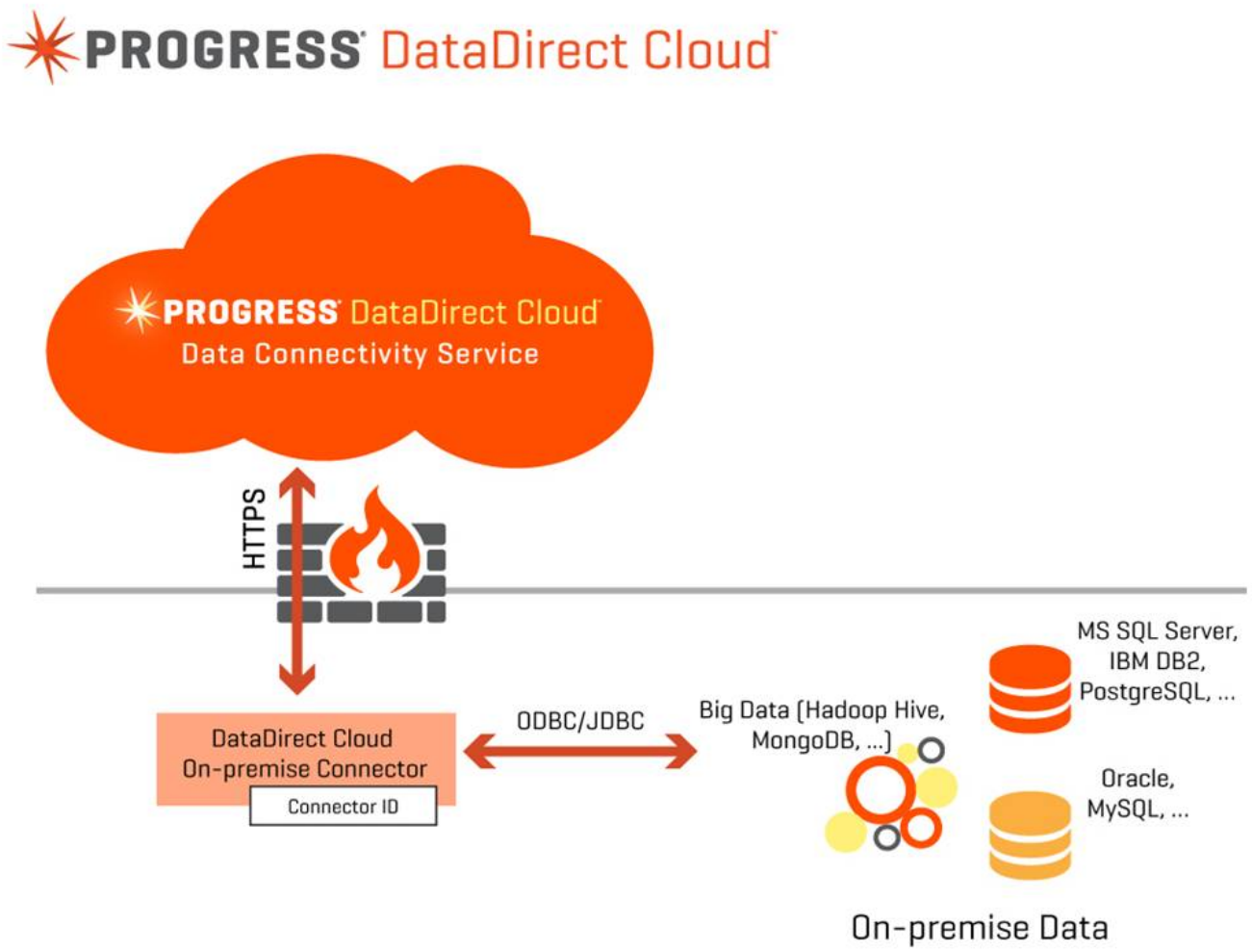
Accessing Secure Enterprise Data From the Cloud

- Too hard to reconfigure firewalls, networks, and data ports
- Need to establish separate authorizations if data sources not on same network
- SQL skills required and need to build SQL into your apps



3. How Can I Access On-Premise Data From the Cloud?



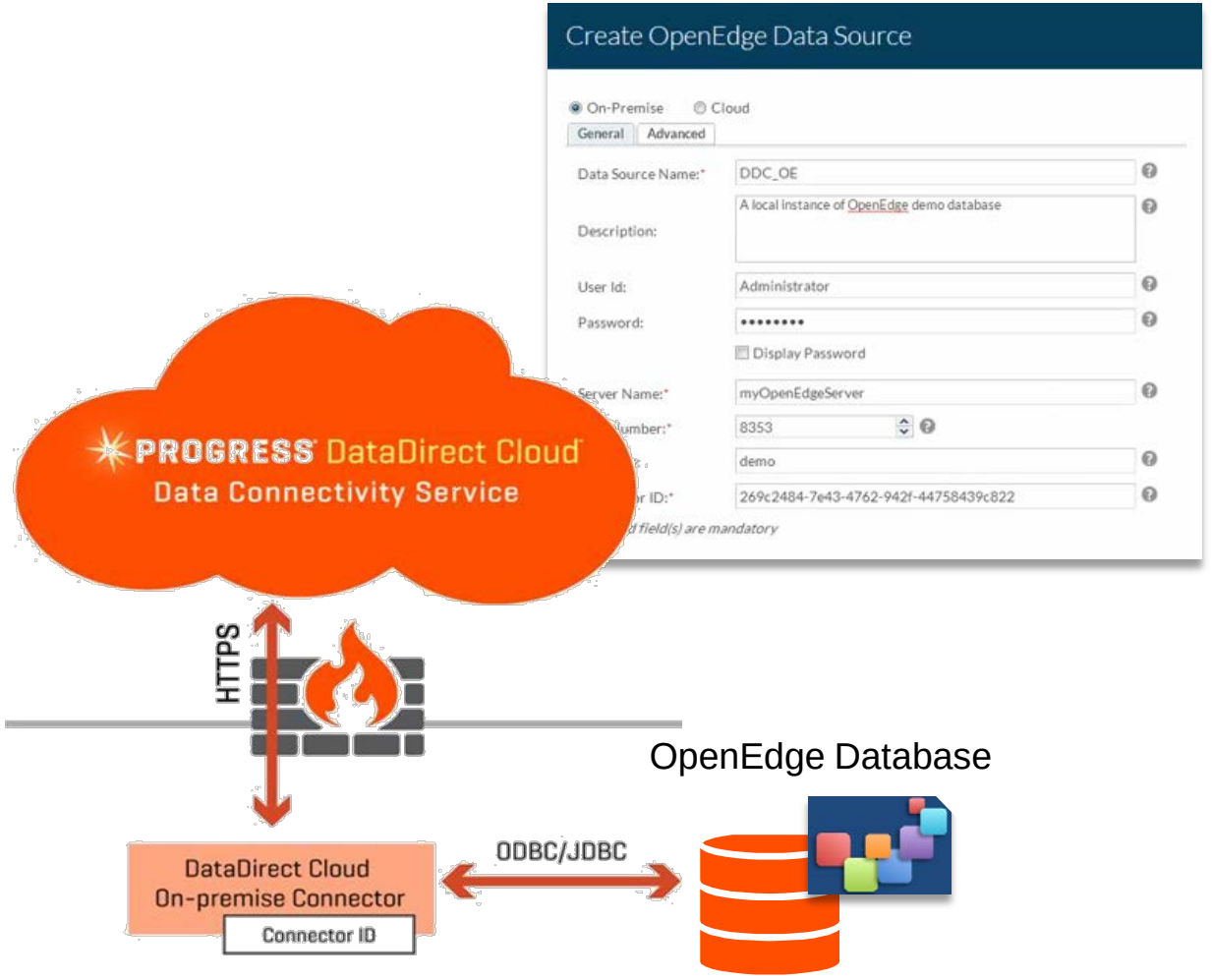
1. Download and install the on-premise connector (on the machine that has network access to the on-premise data store)

2. Obtain the unique Connector ID established when installed, and use it when configuring the on-premise data source in DataDirect Cloud (plus the connection details for the on-premise data store)

3. DataDirect Cloud uses JDBC/ODBC over HTTPS, so there is no need to open a database port, establish a VPN, or use SSH tunneling

Accessing OpenEdge On-Premise Data

- Configure the OpenEdge on-premise data source (credentials, server name)
- Use ODBC bridge to DataDirect Cloud service
- SQL queries through DataDirect for real-time data access



4. Data Volumes (Big Data)

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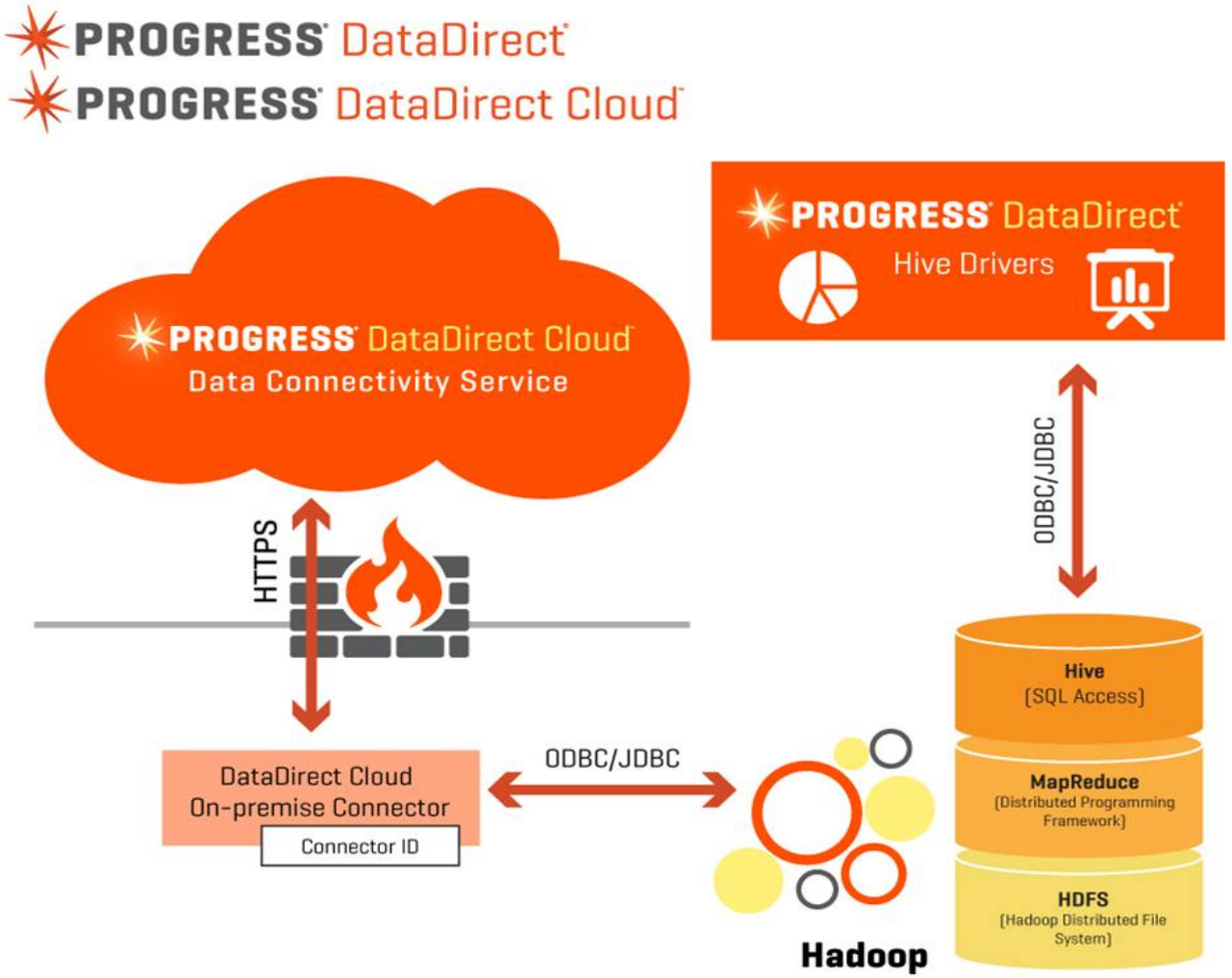
Large Volumes of Data

- Dark data, making it hard to find the right data and getting the data into/from Hive
- Not scalable, with need for load balancing
- Not high-performance, with need for a solution that can handle bulk load

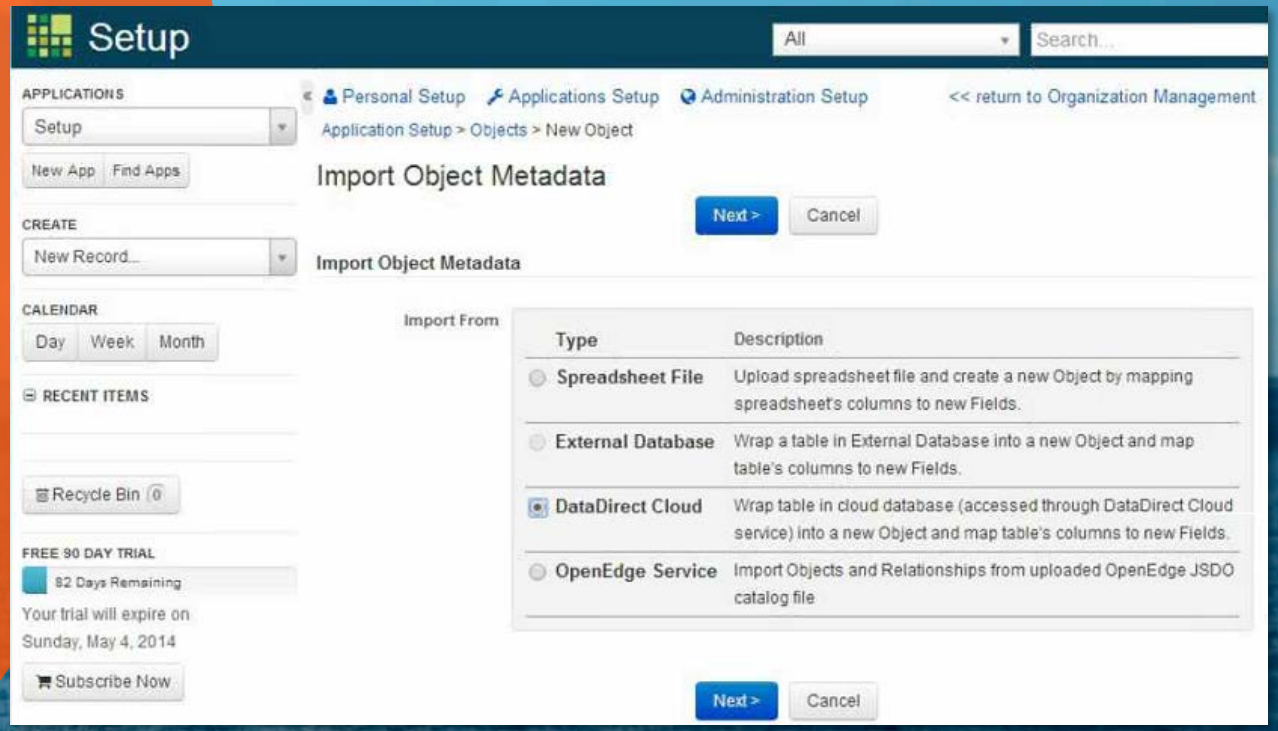
4. How Do I Simplify Access to Volumes of Big Data?



- Two data connectivity options: through the DataDirect Cloud service or directly with DataDirect Connect
- Single data driver that works on all platforms and connects to all flavors of Hadoop
- Designed for bulk load, high performance and throughput, scalability, and reliability
- Easy to implement and deploy
- Bypasses need for additional services libraries which could slow performance

Leveraging Data Connectivity in Progress Pacific

- Import object metadata using DataDirect Cloud service
- Enables SQL access to a wide variety of cloud and enterprise data sources, including Big Data sources like Apache Hadoop Hive



5. Data Access in Transactional Environments

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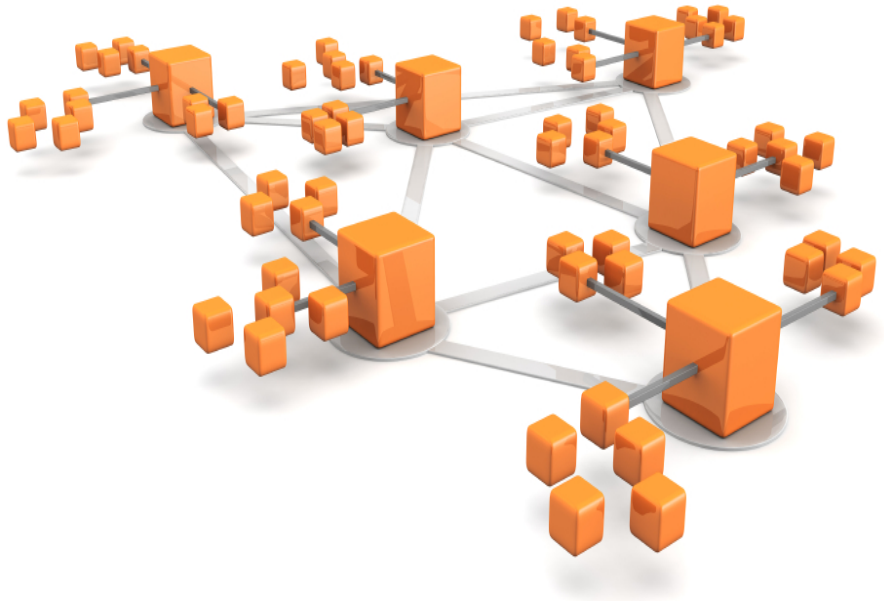
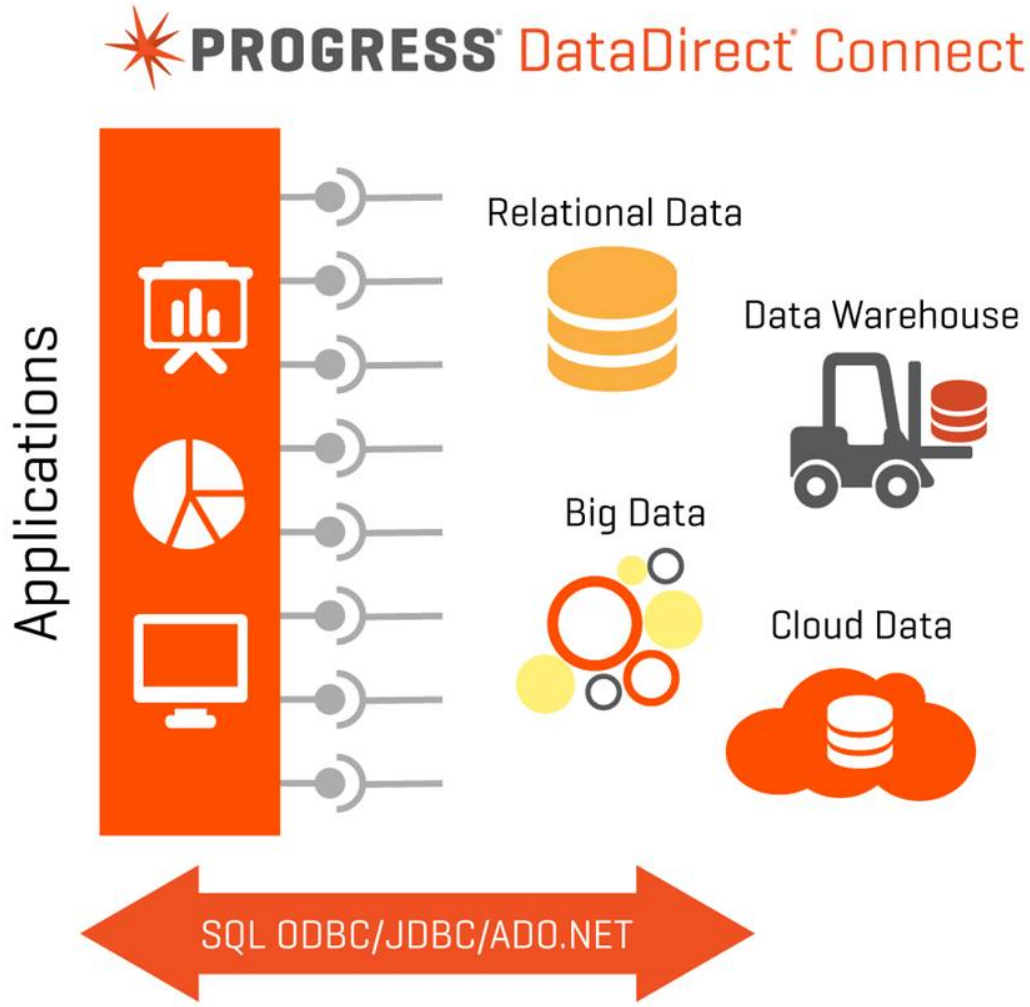
High-Transaction Environments Require High Performance

- Not scalable and requiring application failover
- Slow access with the goal of near real-time access with no bottleneck
- High resource usage, with need for efficient use of resources

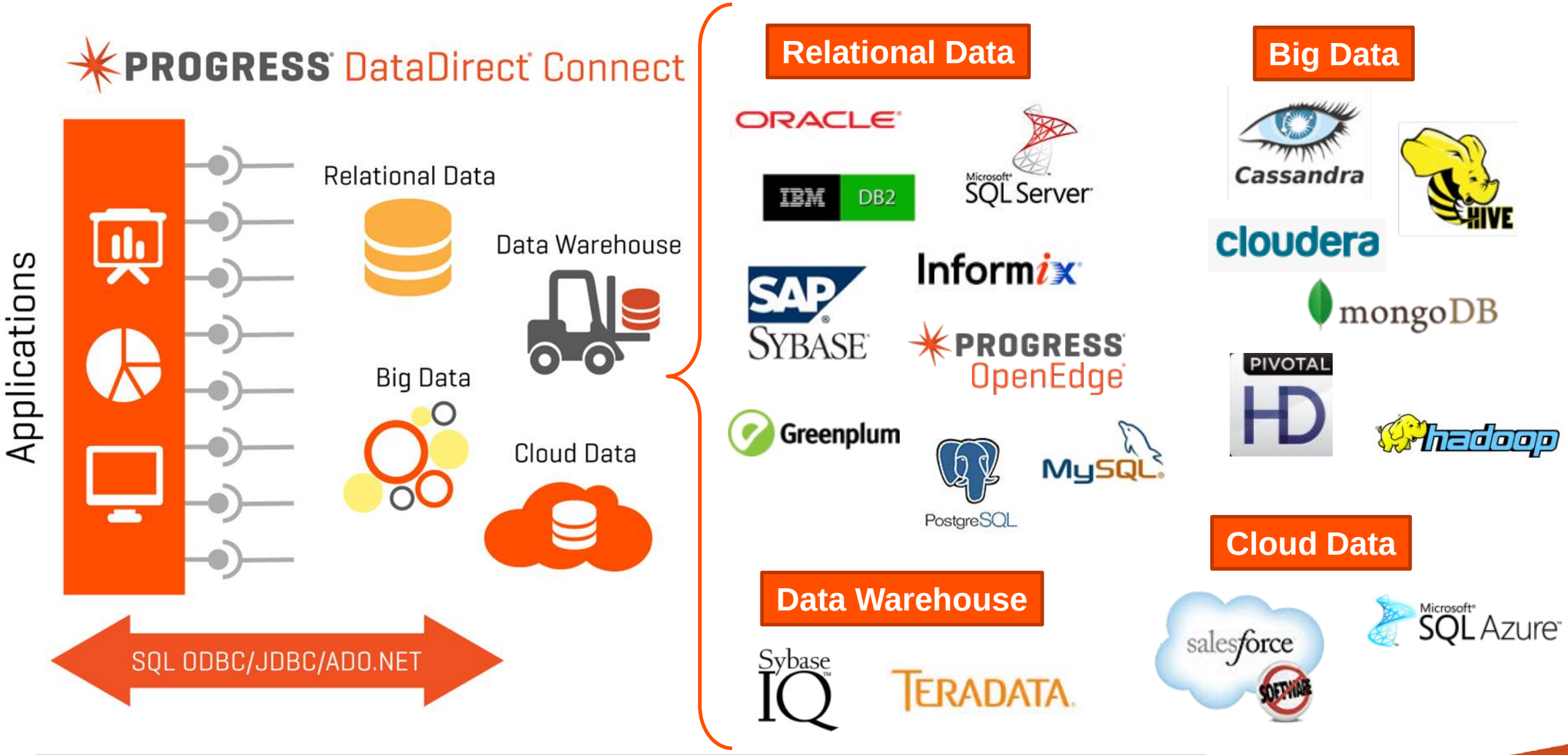


Direct Connectivity to Data



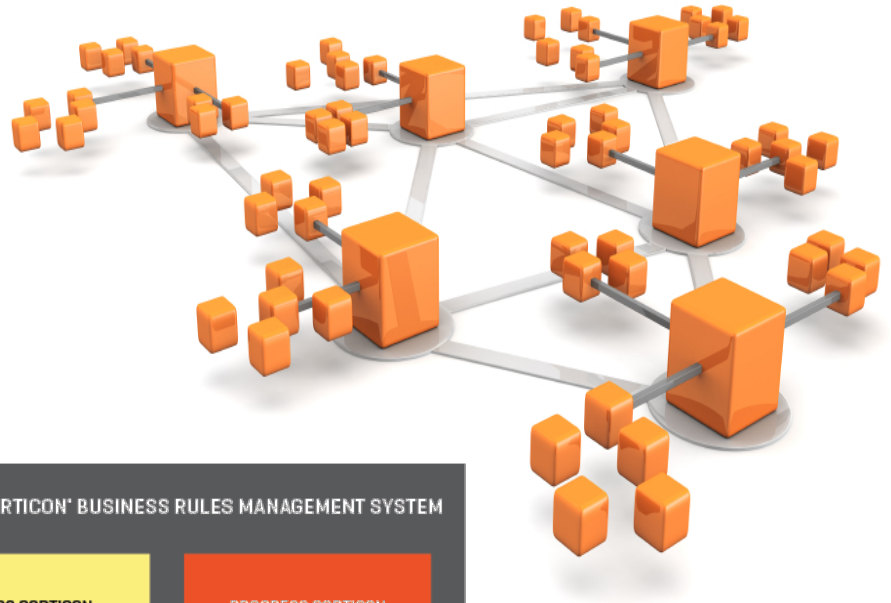
- Ultimate enterprise on-premise data connectivity suite for managing and integrating data across relational, Big Data, and Cloud data sources
- High performance connectivity enables migration, integration, and management of critical data to empower the transformation of data into a valuable asset
- Utilizes standards-based interfaces such as ODBC, JDBC, and ADO.NET
- Bulk load, application failover, security, and efficient resource utilization critical to managing the growing volumes of data.

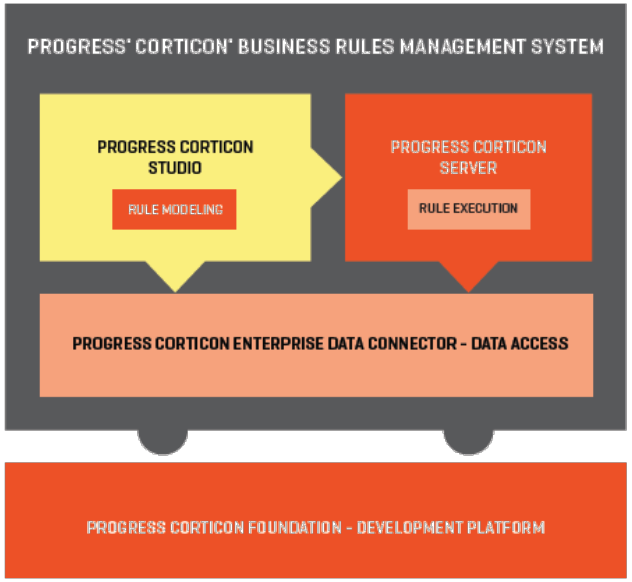
Direct Data Connectivity



Data Connectivity and Corticon BRMS

- Data connectivity can be one of the biggest bottlenecks in creating, changing and deploying enterprise applications
- Progress® Corticon® Enterprise Data Connector clears the path with a unique, model-driven approach to data connectivity
- Eliminates the complex SQL coding traditionally associated with integrating business rules and enterprise applications
- Connects your decision services to external data sources such as relational databases





6. Data Access to Applications

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Challenges in Making My Application Data More Accessible

Current schema is too complex or terse for business analysts to understand

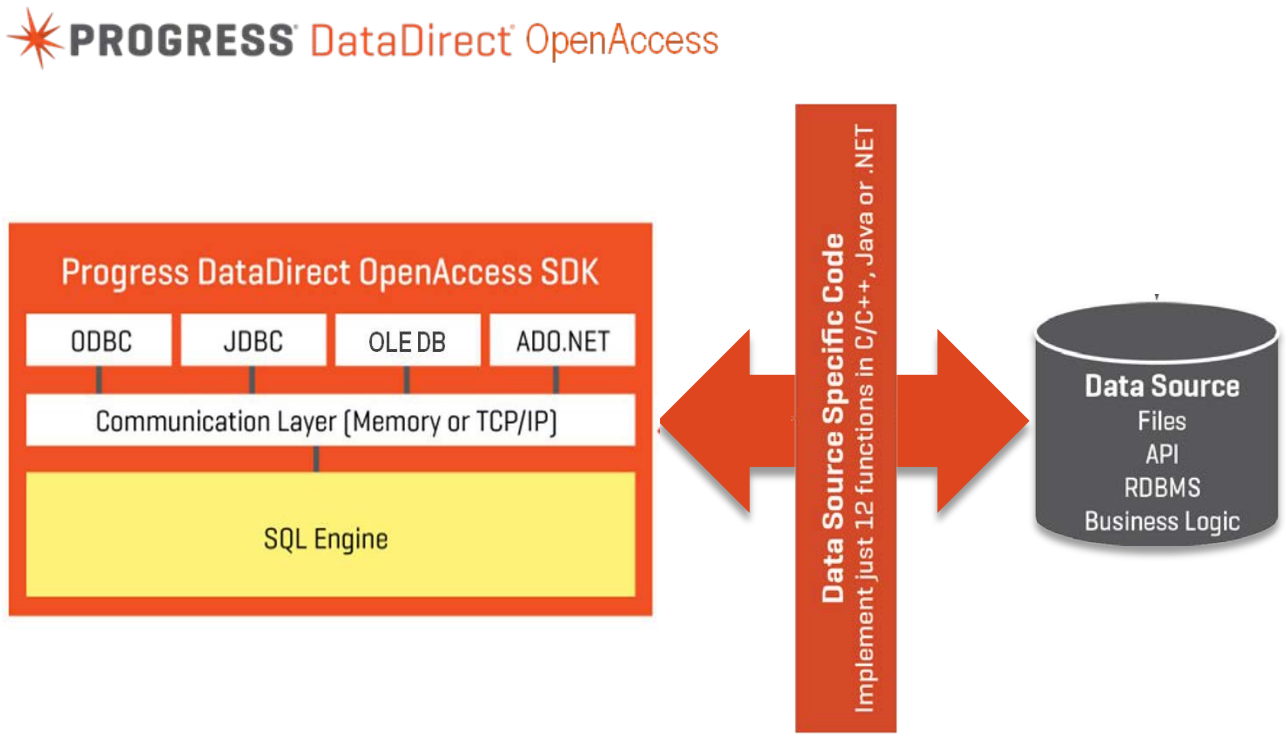
How do I connect my favorite BI or analytics tools to my clients' OpenEdge applications?

No universal access – need a unified, standardized access method

How can I easily integrate applications with ETL processes and data warehouses?

How do I expose multi-tenant data while preserving security and privacy?

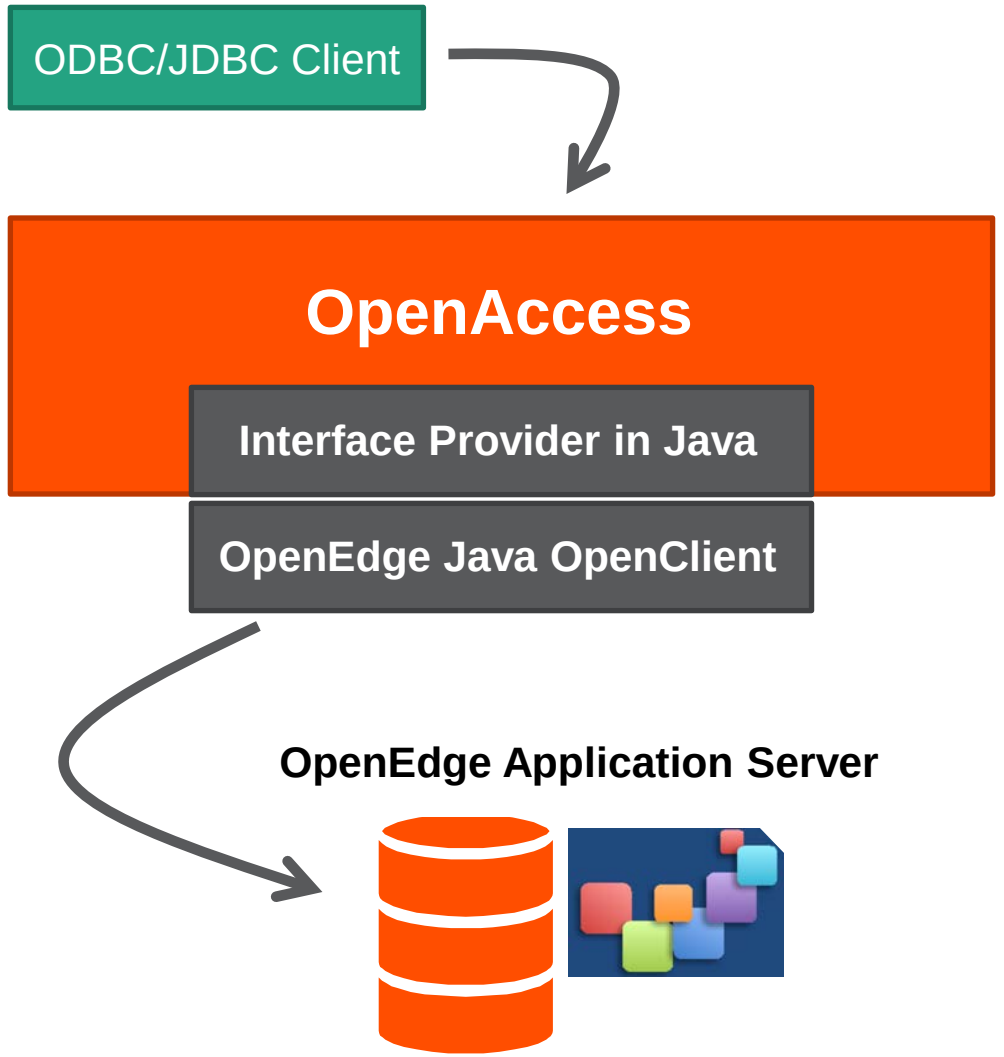
Get to Market Faster with OpenAccess



- Quick and easy implementation, translating into fast time-to-market
- Custom build data connectivity to your application data… from anywhere
- OpenAccess exposes an application's data through standard APIs like ODBC and JDBC
- Data access is optimized by leveraging the OpenAccess SQL execution engine
- OpenAccess provides most of the code needed to open a database
- OpenAccess enables SQL access to any data source, including application data and proprietary files

Building Custom Data Connectivity to OpenEdge Applications

- OpenAccess enables **quick development of drivers** for OpenEdge application data
- **Connectivity through your business logic layer**, not directly to your underlying database
- Expose your **complex or multi-tenant data** in a **simple, secure and reliable** way
- **Standardized data integration** with any data-centric application on the market today
- Provides **pre-built, full-function Interface Provider** (IP) for OpenEdge Business Logic
- **Business Entity** should implement methods to support CRUD operations



7. Data Report Automation and Synchronization

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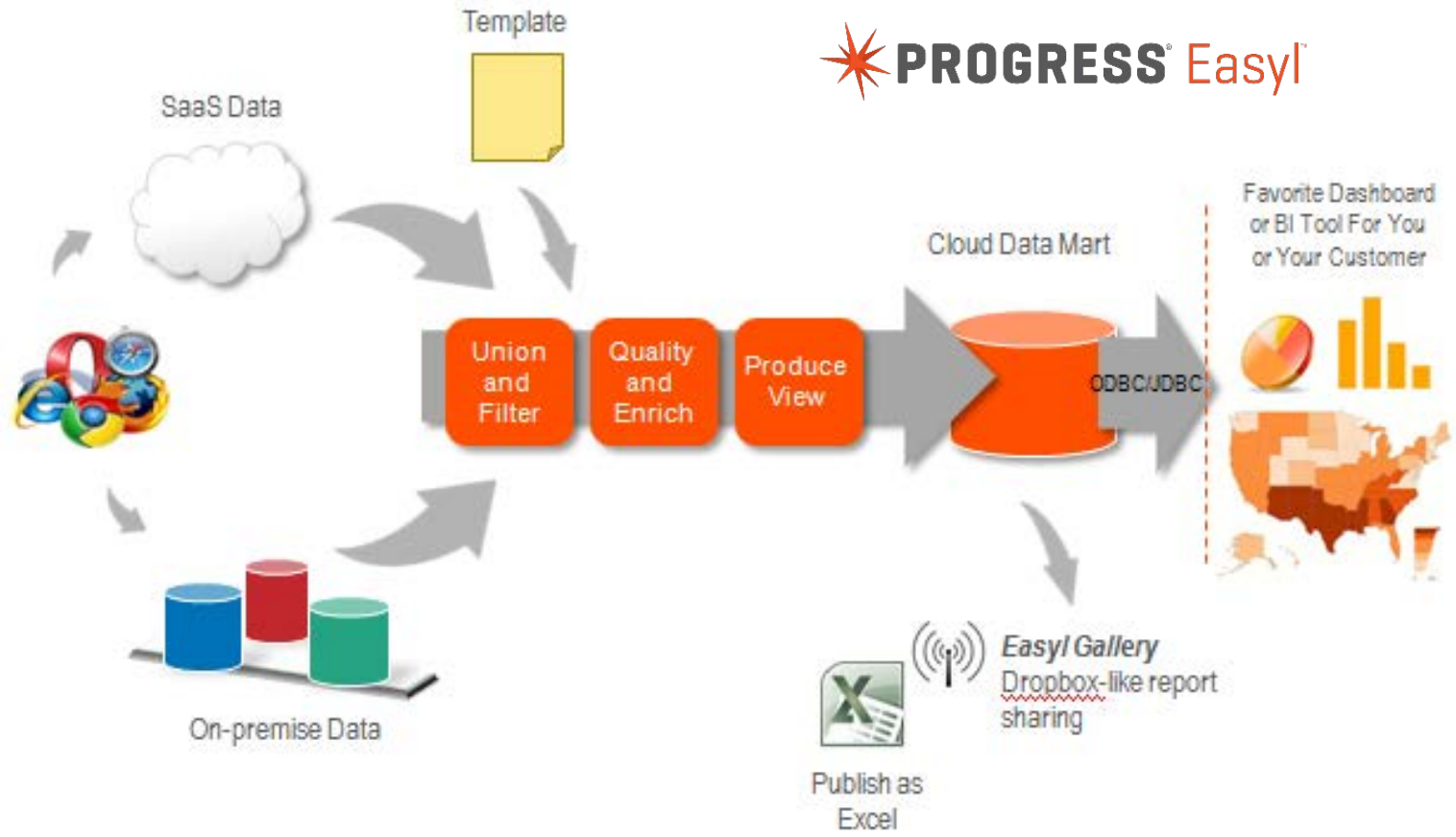
How Can I Avoid Manual, Tedious Report Generation?

- Data overload and failing to reconcile different data sources
- Poor data quality or stale data, causing you to not make sense of the info you are collecting
- Not enough data, sources, or context
- Poor feedback cycles, can’t keep pace with proper reporting, and inflexible reports with constant updating

7. How Can I Automate Report Generation from Multiple Data Sources?



- Simplifies data integration and collaboration
- Automatically connects and imports data
- Combines data from multiple sources
- Provisions a cloud data mart to store data
- Syncs reports for sharing
- Provides compatibility with BI and reporting tools

Integrating Easyl into OpenEdge Applications

- OpenEdge applications often need to integrate with other data systems
- An **ABL ODBC bridge** to Easyl facilitates OpenEdge application integration with SaaS applications like Salesforce, Microsoft Dynamics CRM, and Oracle Service Cloud.
- Interact with business objects in an Easyl dataset using a set of OOABL classes which simplify SQL execution and gathering data results
- **Sample code** allows you to connect and query the data source

In Conclusion …

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Aspirin Relief for Data API Headaches

1. Cloud-based data service helps data variety chaos
2. OData service enables data access for enterprise mobile
3. New technology provides low-touch access to enterprise data
4. SQL access to Hive for Big Data environments
5. Direct access architected for speed and efficiency
6. Customized access to application data
7. Automated and synchronized reports that integrate data

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