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Frontiers in Data Access: The Coming Wave in Data Services

Richard Bourke
Technical Consultant

DataDirect: Unparalleled Data Access

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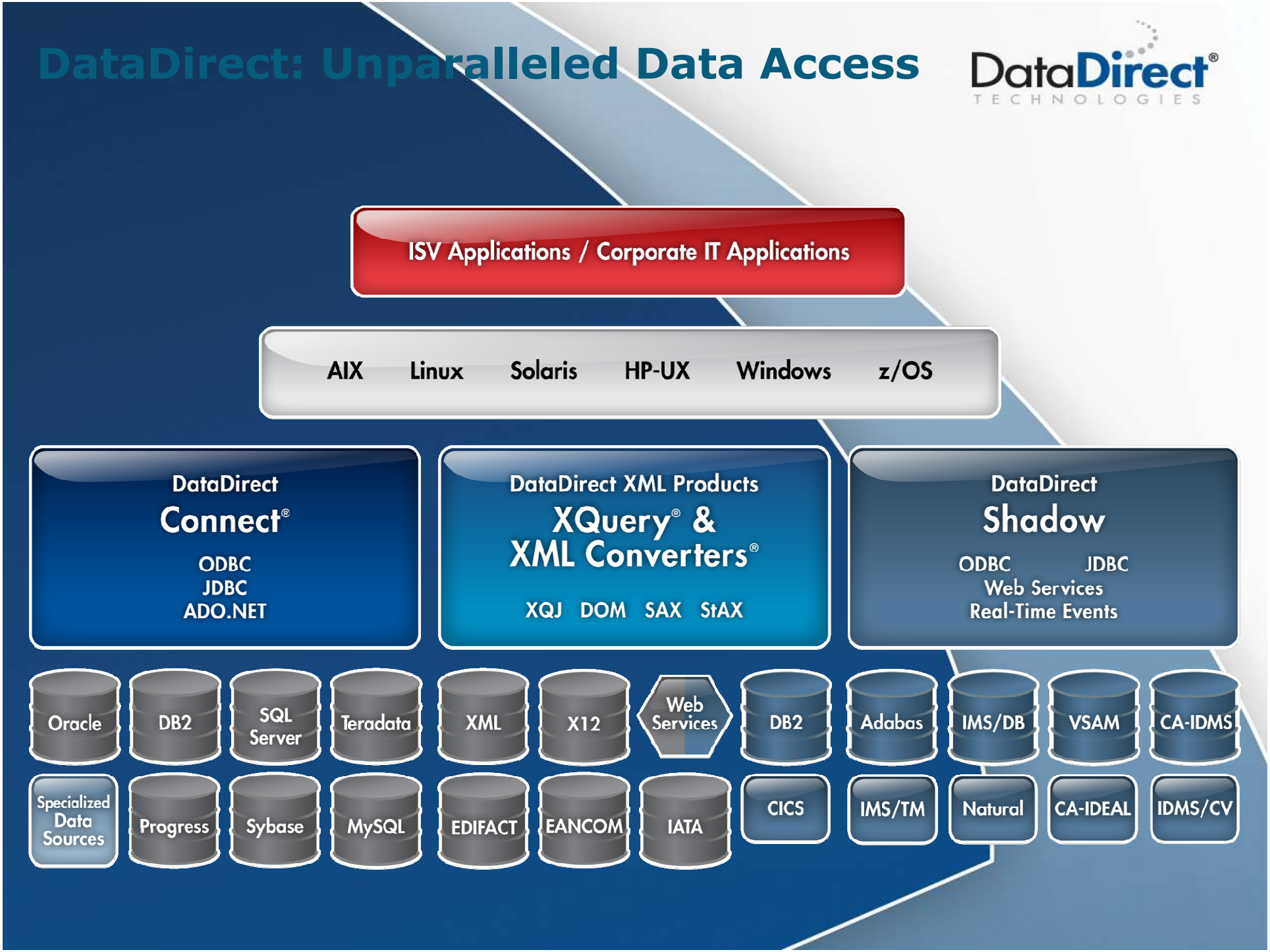


SOA Is Here: Do The Data Architects Care?

- **Every organization is embracing SOA**
  - Using ESBs for message delivery
  - Communicating with outside vendors through web services for supply chain management
  - Providing customer service portals to customers
  - Exposing mainframe assets as web services
  - Building and deploying an increasing number of services
  - Etc

- **Ultimately though, do the Data Architects care?**

Today, SOA Data Access Is Layered On Top Of Traditional Data APIs

- **Traditional Data APIs:**
  - ODBC
  - JDBC
  - ADO.NET
  - OLE DB
  - OCI, ct-lib, embedded SQL, etc

- **These all roughly do the same thing**
  - APIs to connect to data, issue queries, return data
  - Fast and scalable access to relational data
  - Reuse legacy business knowledge

Characteristics of Traditional Data Access APIs vs. SOA Characteristics

Traditional Data Access	SOA
• Tightly coupled	• Loosely coupled
• Complex State Machine	• Stateless
• Connection based	• Disconnected
• Well defined API	• Interface contracts
• Mostly synchronous	• Synchronous / Asynchronous
• Relational model driven • SELECT then Fetch model	• XML data interchange – any data model applies

Let's Re-examine SOA 2008

+ Allows reuse of existing software assets

+ Provides architecture for disparate IT systems

+ Meets goals of abstracted business processes, programming paradigms, architectures, etc

SOA Data Access

- **Provide access to numerous data sources (relational, XML, EJB, Web Services, Mainframe, etc)**
- **Provide ways to access data from various client types (AJAX, HTML, Java, C#, Web Services, C++, etc)**
- **Provide consistent access to all data sources using a variety of standardized query languages (SQL, XQuery, JPQL, LINQ, etc)**
- **Provide a standard transport mechanism for data objects in a disconnected fashion for a loosely coupled solution**

Data Services

- **A Data Service is a (web) service that provides a view of data that is built from multiple data sources throughout the enterprise and can be naturally integrated with other (web) resources**

- **Data Services must be reusable and provide flexible access to corporate data.**
  - That is, provide simple usage patterns but enterprise level QoS support (distributed transaction support, scalable, high performing, enterprise security, caching)

- **Consumers of Data Services are other Data Services, business processes/services, and portals to end users**

Data Services Concepts

- Business Object Model (BOM)/Common Data Model
- Service Data Objects (SDO)
- Data Access Service (DAS)
- Data Services Platform (DSP)
- SaaS/IaaS/Data in the Cloud
- SQL/XQuery/LINQ/JPQL

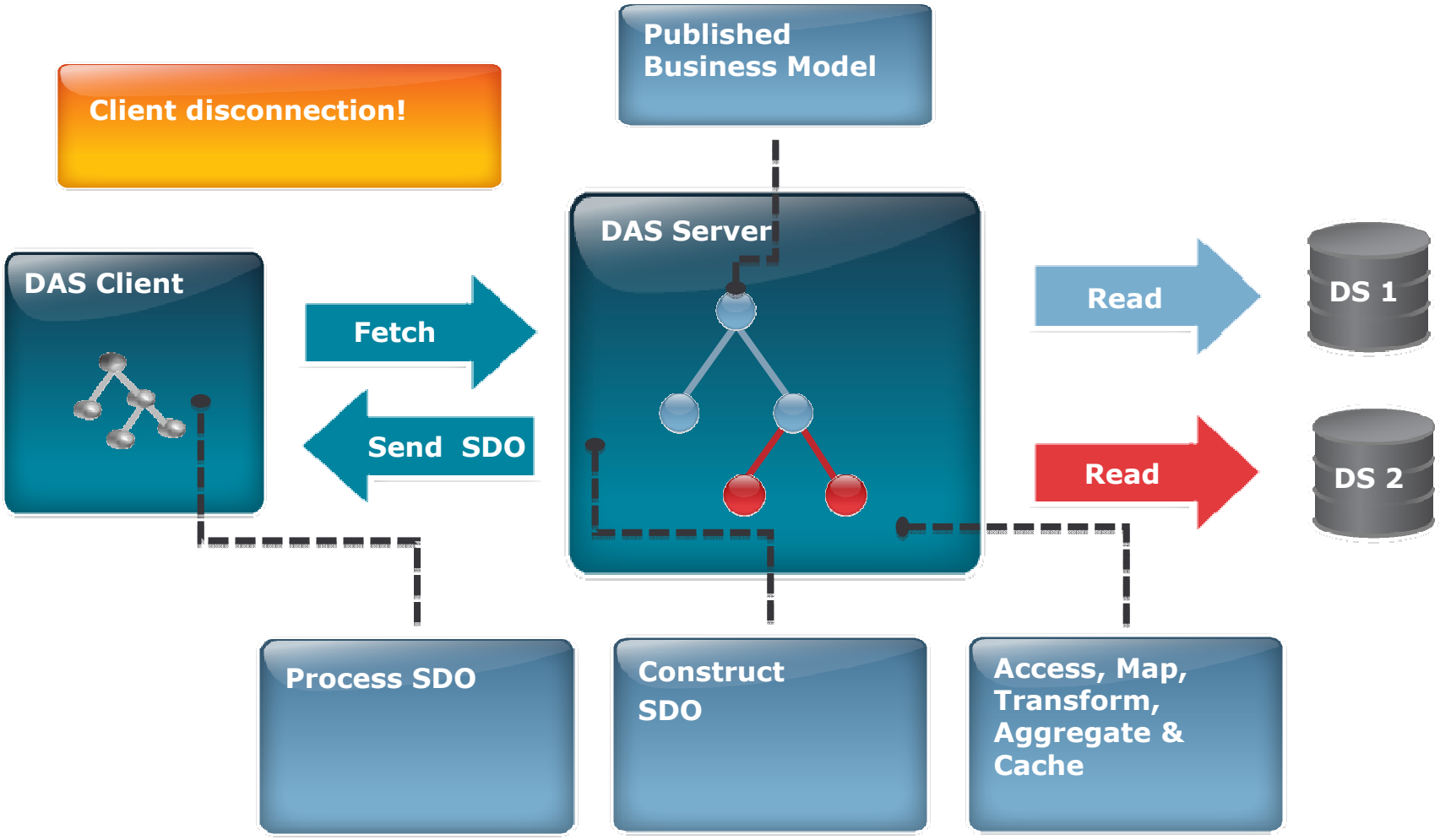
SDO

- **SDO is a unified and consistent data access methodology for heterogeneous data sources**
  - Simplified programming model for application programmers
  - Enable Tools and Frameworks to work consistently across heterogeneous data sources in a web environment

- **To become the standard for Data Access in a Service Oriented Environment (SOA)**
  - SDO will be the standard for SOA just as ODBC is the standard for C++

- **OASIS standard supported by Oracle, BEA, DataDirect, IBM, SAP, etc.**

How SDO/DAS works...



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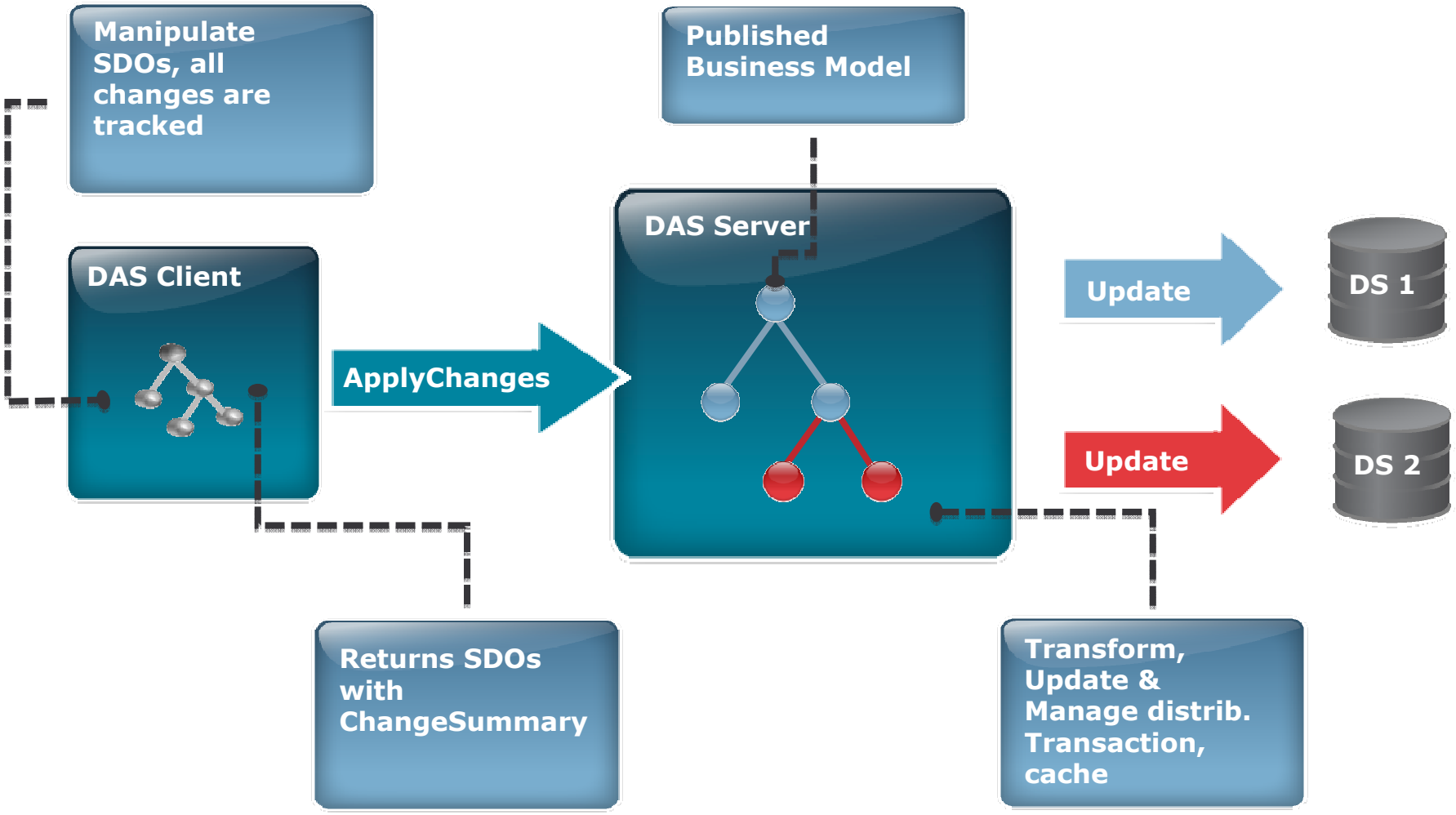
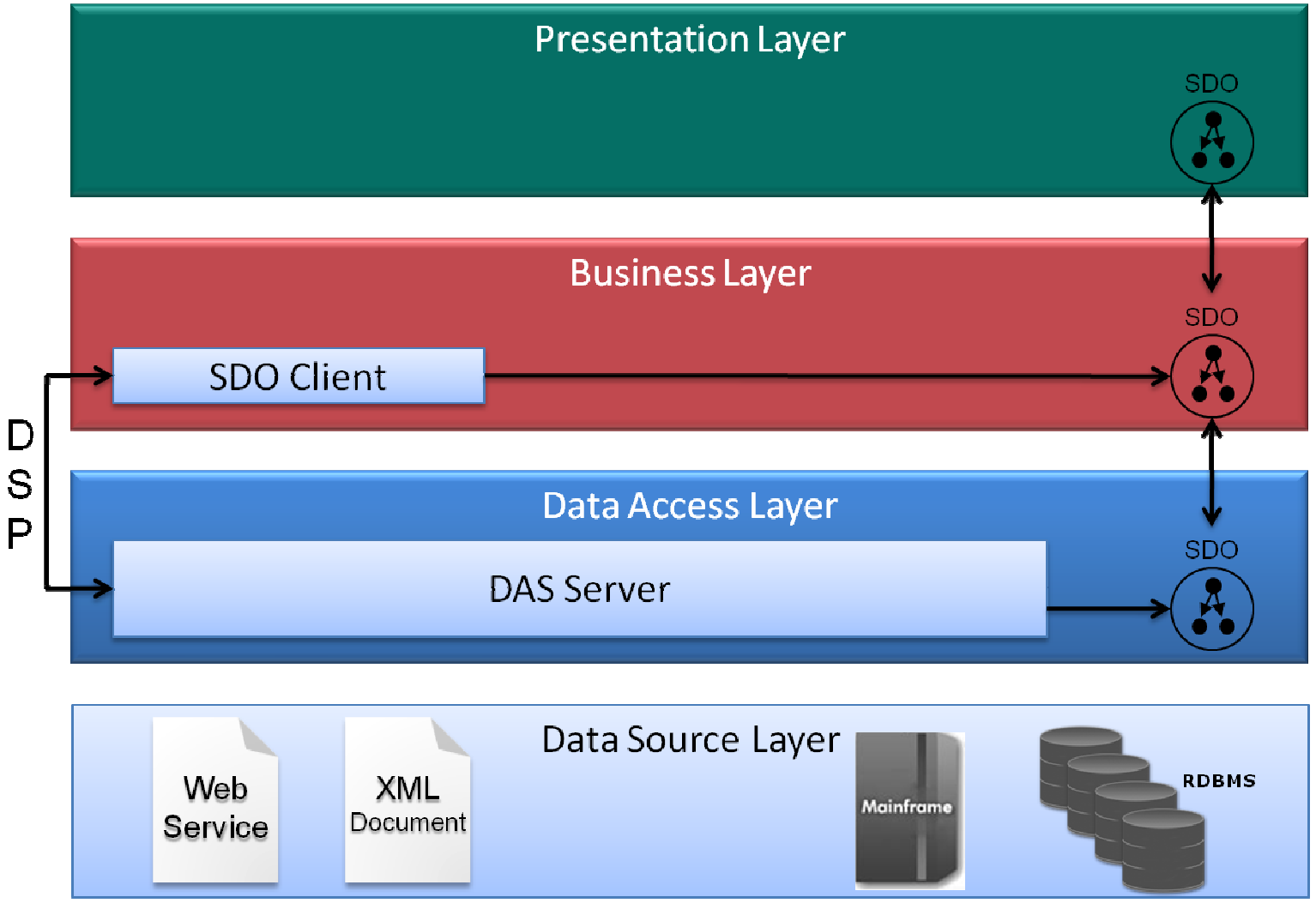


Architectural View of Data Services



SaaS/IaaS/Data in the Cloud

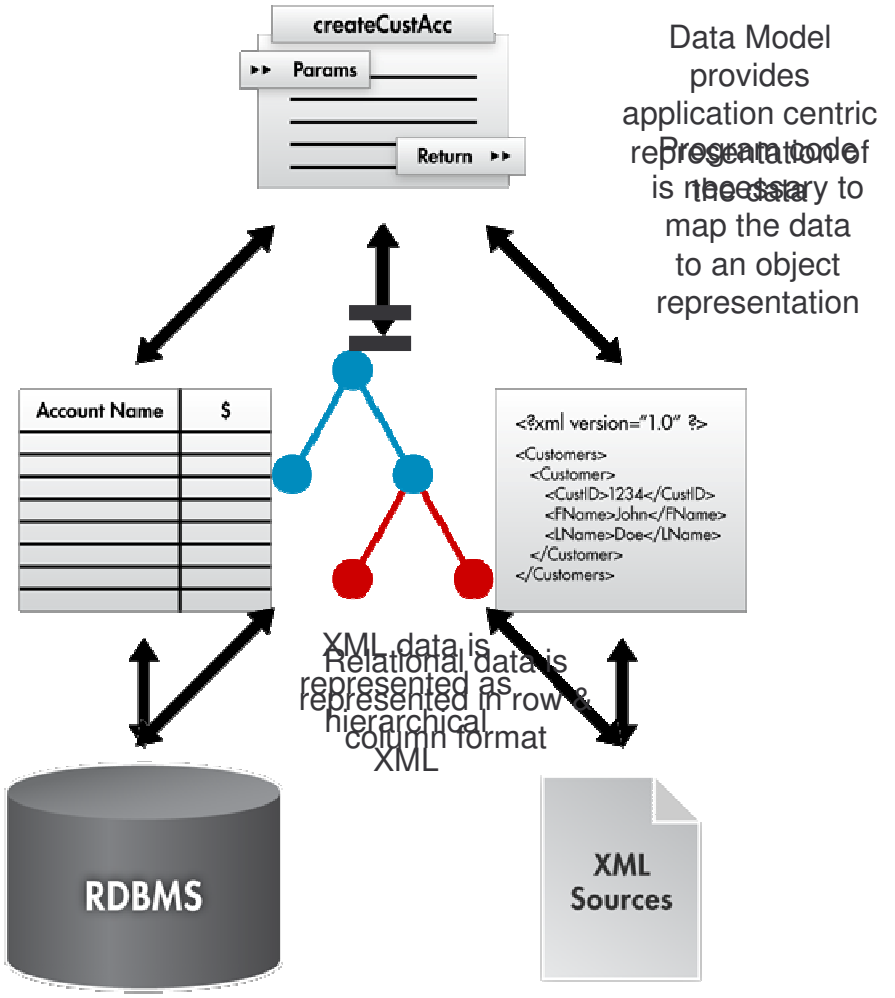
- **"Three years ago, we never would have thought about storing our key information – our customer data – outside our firewall. Now we use salesforce.com and our customer data is stored somewhere out in the internet cloud"**

- **Business objects, like 'customer', are aggregate views of data inside and outside of the firewall**

- **Adapting Enterprise applications to use data in the cloud will become more and more important**

Data Model

- **Because agile Data Services aggregate data across diverse data sources and other Data Services, the data model has become more important than ever**
  - Today, most enterprise applications and third party products operate in data silos that preclude problems with data aggregation.
  - SOA implies distributed access to all data sources

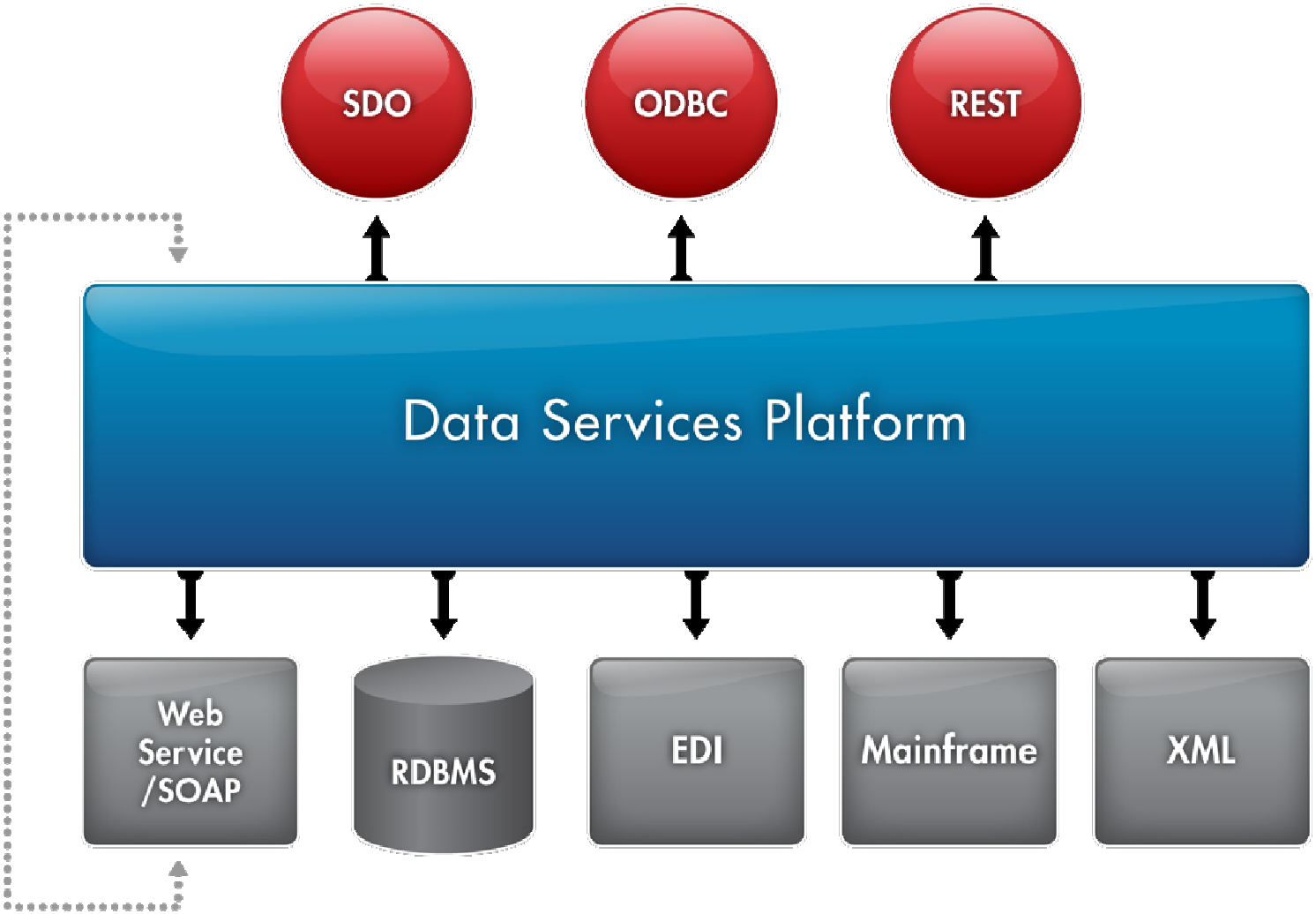


Data Services Platform (DSP)

- **A Data Services Platform (DSP) provides a separate layer to encapsulate and simplify all data access**

- **Benefits of accessing data through DSP (versus directly):**
  - Separate Data Access and Business Logic – best of breed SOA
  - Business Object Model versus Physical Database Model
  - Unified / Standardized Client APIs independent of data source
  - Disconnected model support
  - Data can be exposed as a Web Service
  - Quality of Service: Caching, Security, Query Optimization, distributed transaction management, etc.

Data Services Platform



Summary

- **Data Services are not the "same old, same old" data access we've been used to**
- **Changes around Data Services allow business applications to do things they haven't been able to do before**
- **Careful planning should be done when jumping into SOA and Data Services, specifically around planning for Concurrency Control**

Questions?