

A decorative horizontal band with a dark red top section and a grey bottom section. The grey section contains a faint, stylized image of a hand pointing at a screen with the text "to do" and a mouse cursor arrow.

Pizza & Beer: ODATA - Open Data Rest API Protocol for OpenEdge

**Spotkania techniczne dla partnerów aplikacyjnych
i klientów technologii Progress**

O REST raz jeszcze – Service Interface

ODATA

Hybrid Data Pipeline

ODATA w praktyce

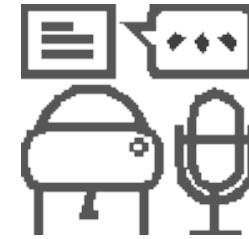
REST - cases



Nowoczesne interfejsy
Web



Aplikacje
mobilne



Nowe
technologie

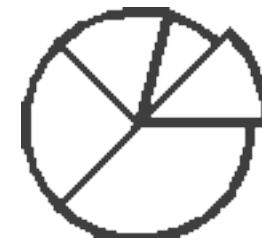


Integracja
aplikacji

Custom lub Standard

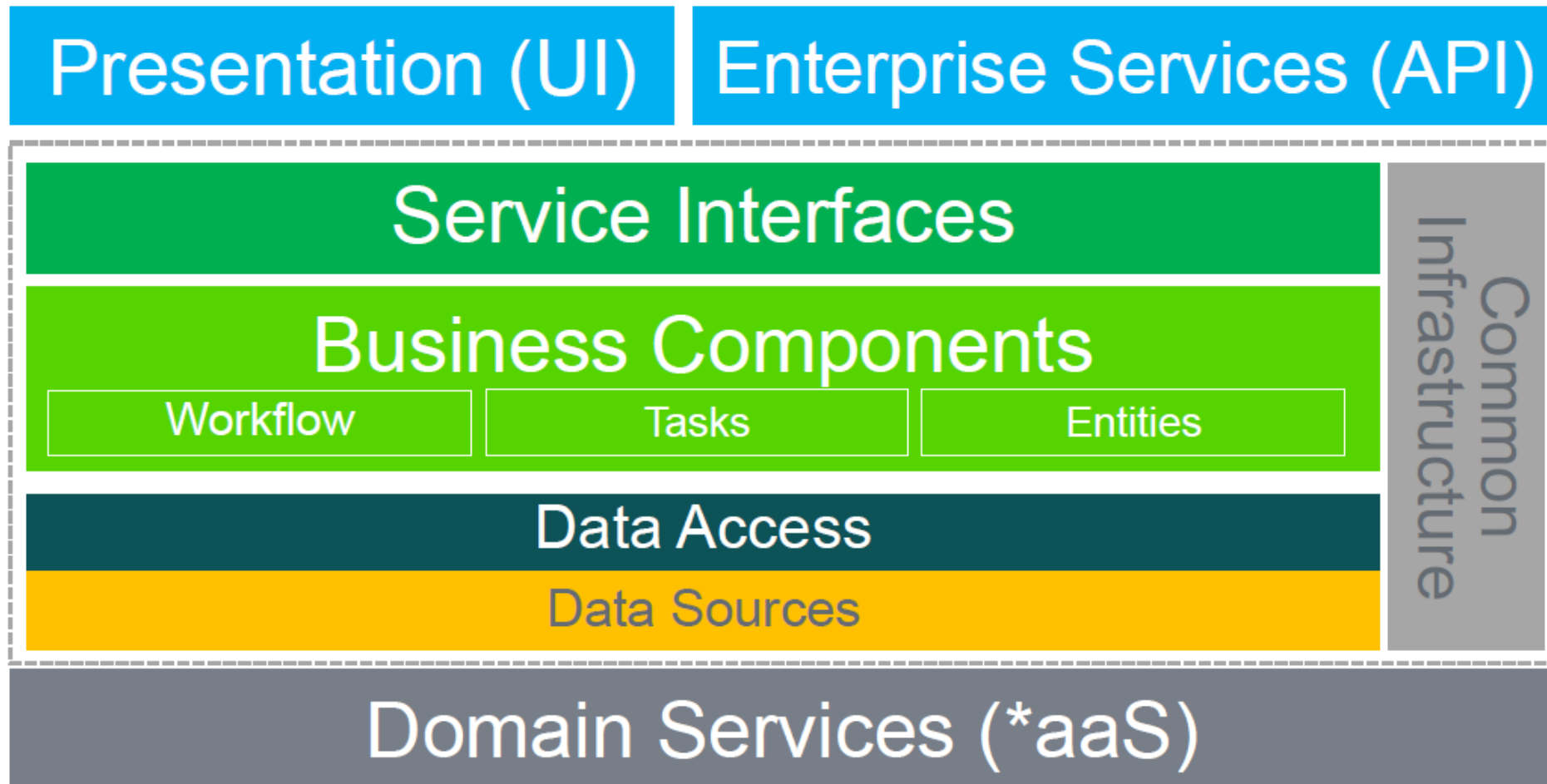


Modularyzacja
poprzez Microserwisy



BI, Analytics

REST standaryzowany



Co to jest REST

REST = REpresentational State Transfer

REST - architektoniczny styl dla oprogramowania sieciowego, który wymaga bezstanowej, buforowanej komunikacji między klientem a serwerem poprzez jednolity interfejs między komponentami.

Dostęp do zasobów poprzez adres URL

Obsługa różnych reprezentacji danych: JSON, XML, ...

Jednolity interfejs - HTTP Verbs: GET, PUT, POST, DELETE... itd.

Stateless, nie ma kontekstu między żądaniami

Zaprojektowany pod kątem wydajności i skalowalności

Opcje REST Service Interface w Opendge

Data Object Services (transport REST)

Data Object Services (transport WEB)

Mapped RPC REST Service (transport REST)

Custom/DIY WebHandler (transport WEB)

Data Object Handler WebHandler (transport WEB)

OData (Hybrid Data Pipeline)

Opcje JSDO REST Service Interface

Data Object Services (transport REST)

Data Object Services (transport WEB)

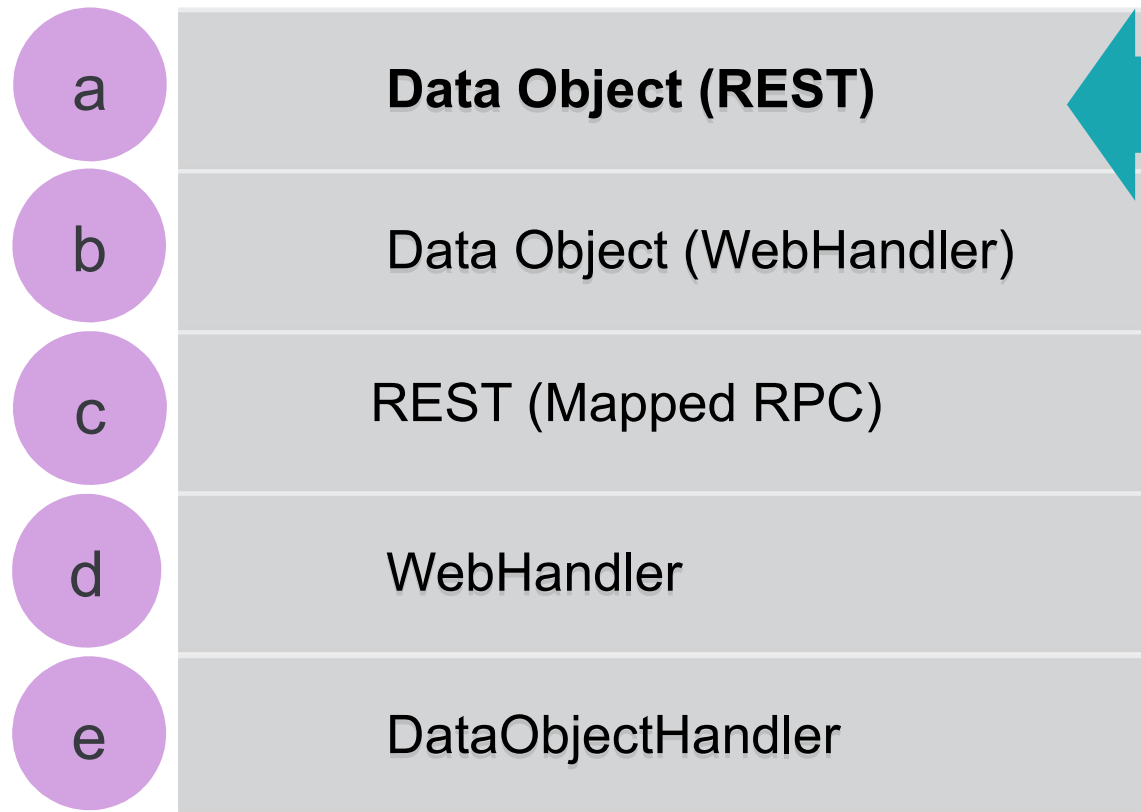
Mapped RPC REST Service (transport REST)

Custom/DIY WebHandler (transport WEB)

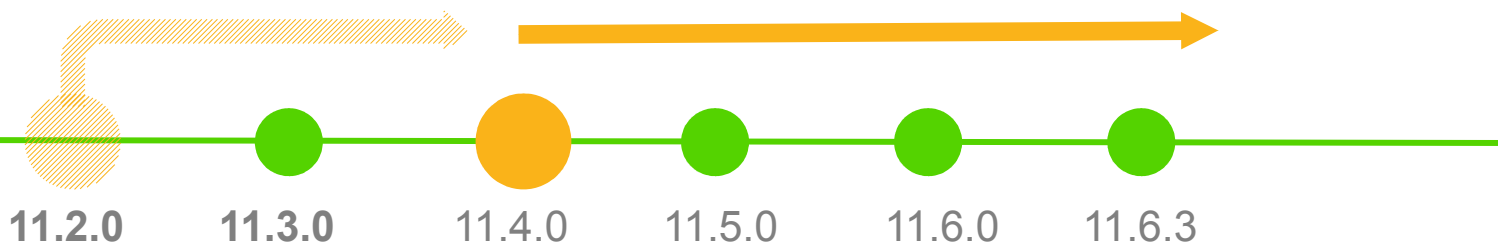
Data Object Handler WebHandler (transport WEB)

OData (Hybrid Data Pipeline)

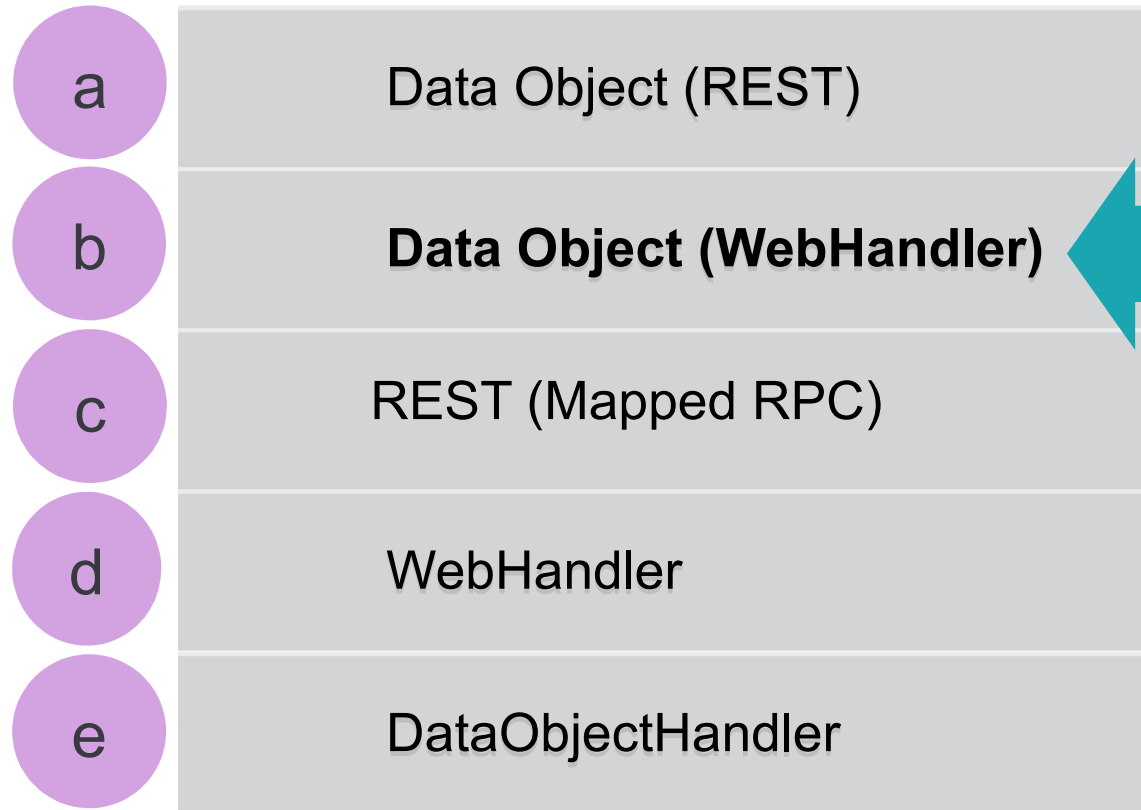
Service Interface



- Dawniej: Mobile Services
- Annotacje metod z sygnaturami
- Ściśle nakazowy
 - Model programowania
 - Ścieżki URI
- Transport REST
- Tworzony jest Data Service Catalog - publiczne API



Service Interface



- Annotacje pewnych metod z sygnaturami
- Dość nakazowy
- Więcej elastyczności w mapowaniu
- Transport WEB
- Wymagany PAS for OpenEdge
- Tworzony jest Data Service Catalog – publiczne API



Opcje niestandardowe (custom) Service Interface w Opendge

Data Object Services (transport REST)

Data Object Services (transport WEB)

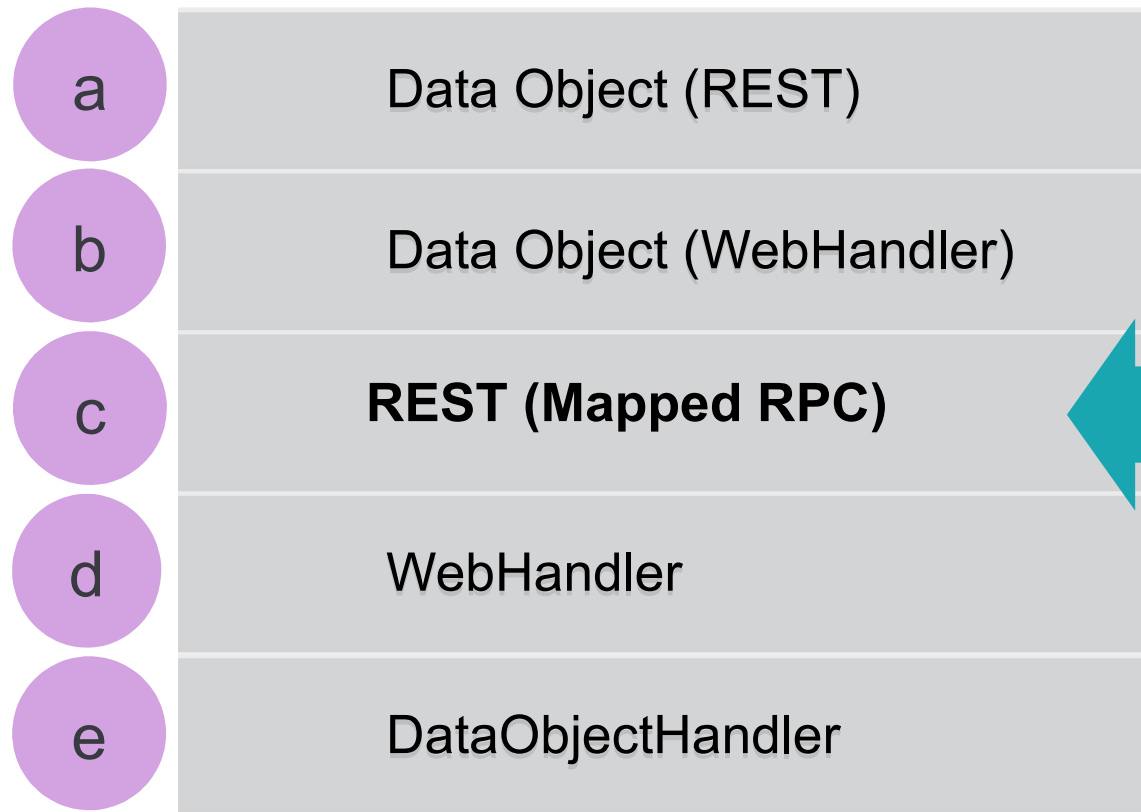
Mapped RPC REST Service (transport REST)

Custom/DIY WebHandler (transport WEB)

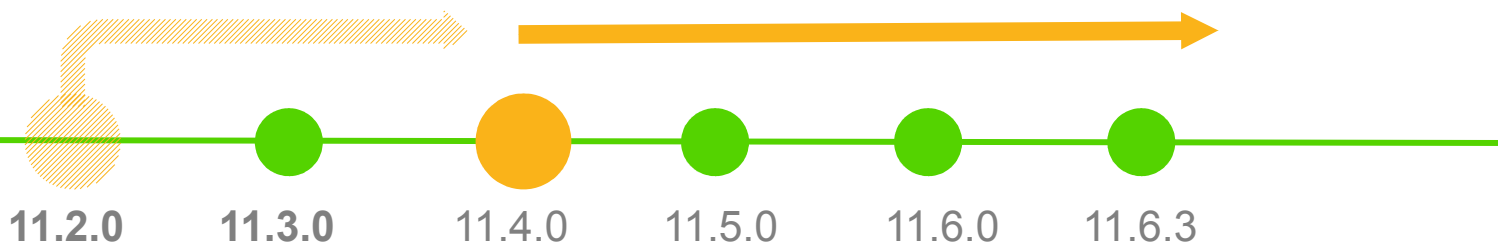
Data Object Handler WebHandler (transport WEB)

OData (Hybrid Data Pipeline)

Service Interface



- Dawniej: REST Services
- Graficzne narzędzia mapowania
- Transport REST
- Elastyczna ścieżka URI



MappedRPC: graficzne narzędzie do mapowania

The screenshot displays the REST Resource URI Editor interface. At the top, the service relative URI is `/NEXT_MappedRPCService`. The interface is divided into several sections:

- Resources:** A tree view on the left showing `/TalksRPC` and `/TalksRPC/{talkID}`.
- Verb Association:** A table mapping HTTP verbs to service methods:

Verb='GET'	read_talks..get_filtered_talks
Verb='PUT'	
Verb='POST'	new_talk..create_talk
Verb='DELETE'	
- Mapping Definitions:** A diagram showing the mapping between input parameters and output parameters. The **Request** input is categorized into:
 - URL Parameters:** Complete URL, Query String Parameters (top, skip, filter).
 - HTTP Message:** Method, Headers, Cookies.
 - Server Contexts:** Servlet Request, Servlet Response, Servlet Context, Servlet Config.The **Parameters** output is categorized into **Interface Parameters** with types and names:
 - `{java:String}` mapped to `pFilter`
 - `{java:Integer}` mapped to `pSkipRecs`
 - `{java:Integer}` mapped to `pTopRecs`

11.2.0

11.3.0

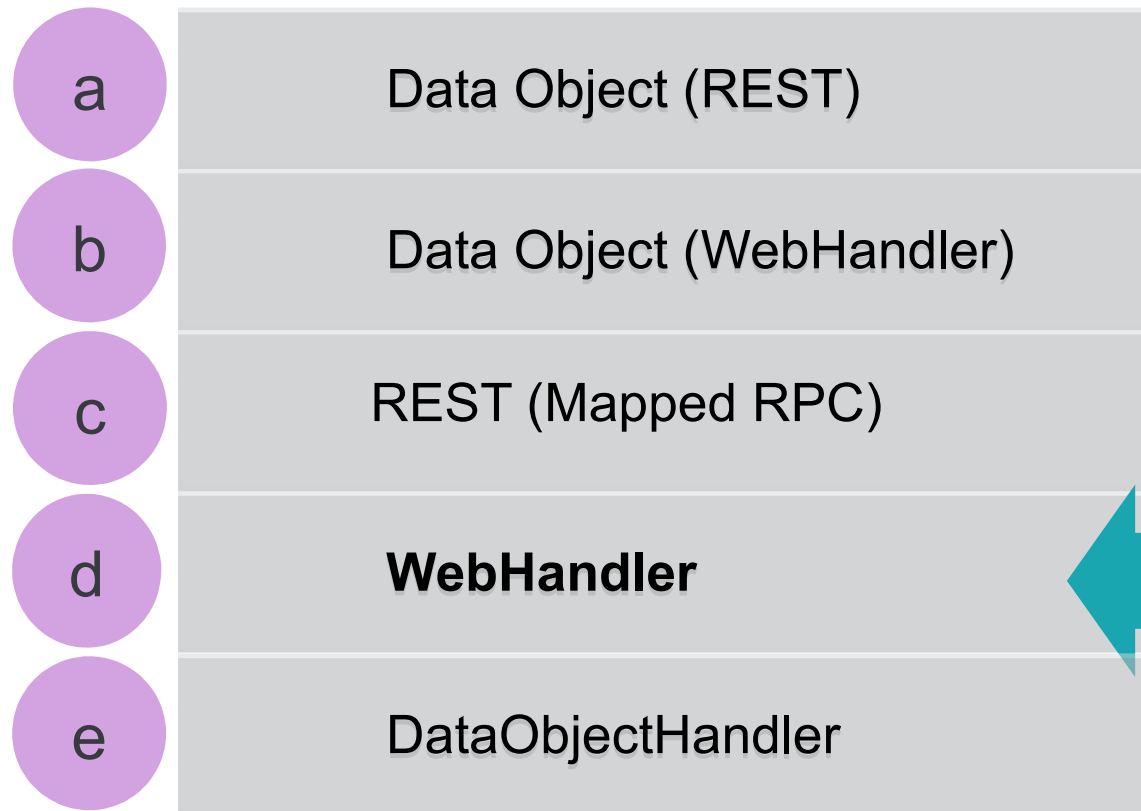
11.4.0

11.5.0

11.6.0

11.6.3

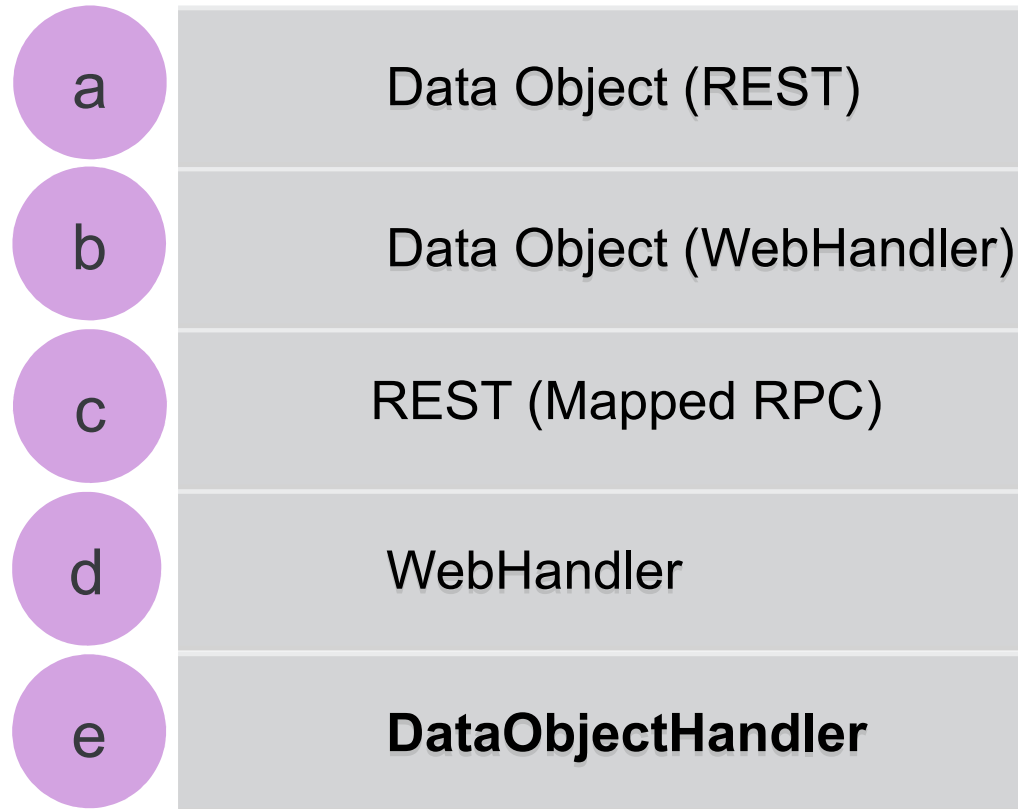
Service Interface



- Skojarzenie klasy OOABL WebHandlera ze wzorcem URI
- Transport WEB
- Wymagany PAS for OpenEdge
- DUŻA elastyczność
- Dowolność działania w kodzie ABL
- URI należy do nas



Service Interface



- Wbudowany generyczny WebHandler
- Mapowanie zdefiniowane w pliku JSON
- DUŻA elastyczność
- Wymagany PAS for OpenEdge
- Słabo udokumentowane



Opcje standaryzowane REST Service Interface

Data Object Services (transport REST)

Data Object Services (transport WEB)

Mapped RPC REST Service (transport REST)

Custom/DIY WebHandler (transport WEB)

Data Object Handler WebHandler (transport WEB)

OData (Hybrid Data Pipeline):

Eksplozja API REST

- **W ProgrammableWeb zarejestrowanych jest ponad 18.000 API**
- **40 nowych dodawanych tygodniowo**
- **Trudność z opanowaniem funkcjonowania API**

Aby rozwiązać ten problem, Microsoft stworzył standard OData do budowania interfejsów API REST

Odata = Open Data Protocol

Otwarty protokół umożliwiający tworzenie i używanie **interoperacyjnych RESTful API** w **prosty i standardowy** sposób



Kto stosuje OData



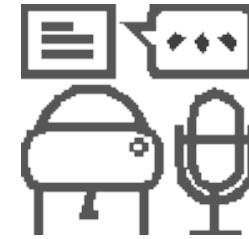
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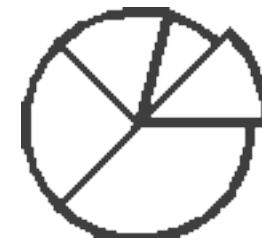


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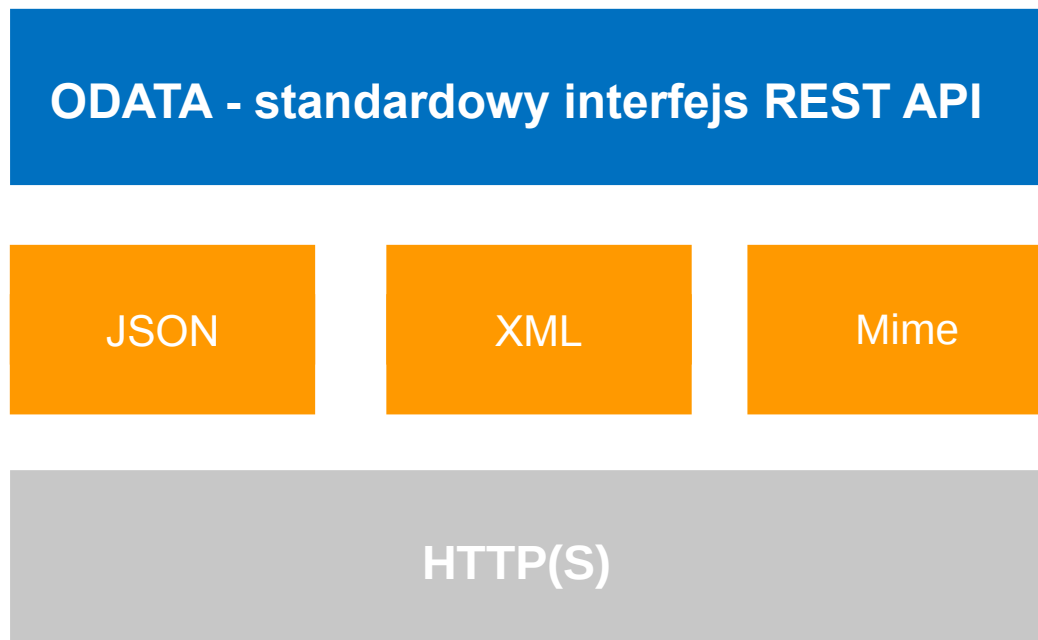


BI, Analytics

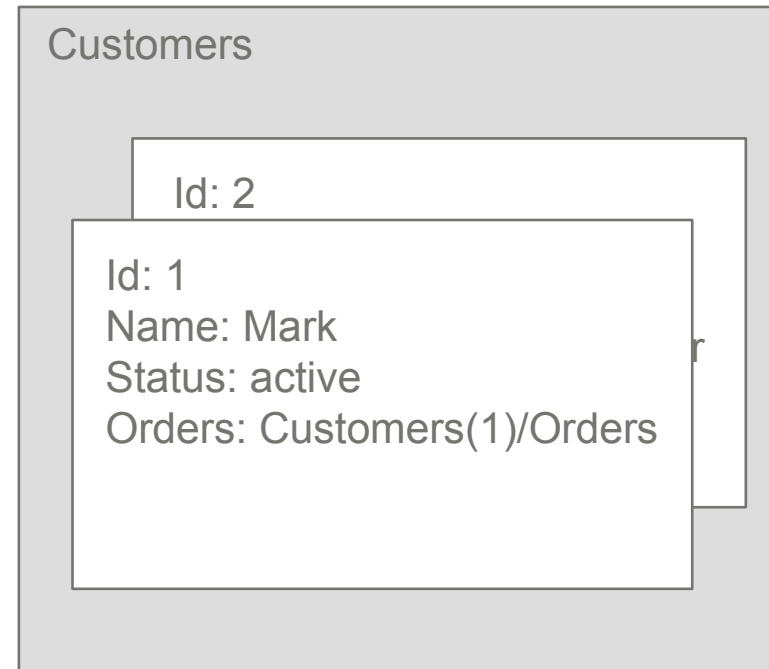
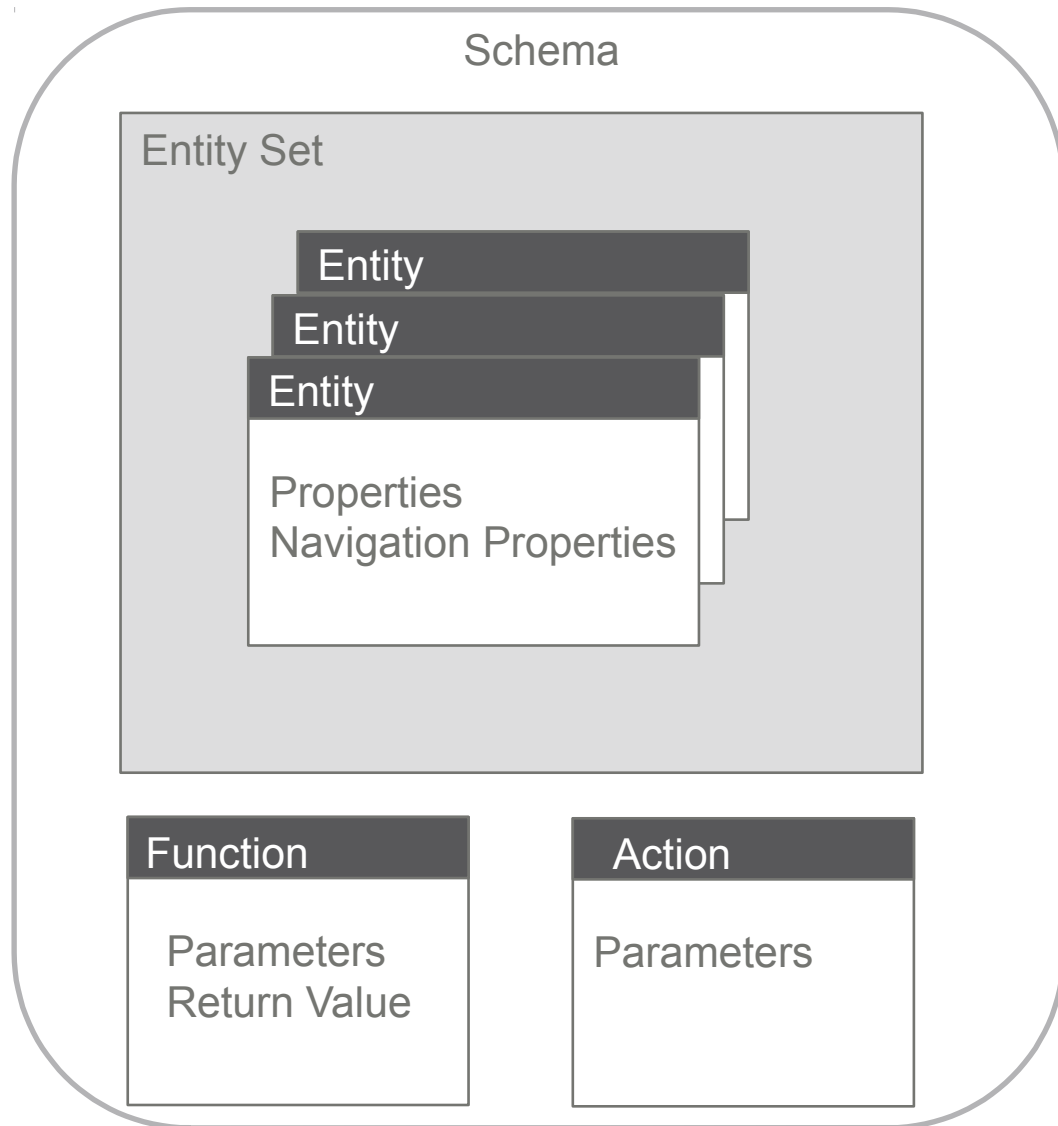
REST standaryzowany

OData jest standardem dla REST








OData to w zasadzie SQL dla sieci web zbudowany na bazie standardowych protokołów HTTP, JSON, ETag – przy jednoczesnym wykorzystaniu stylu architektury REST



Model danych OData



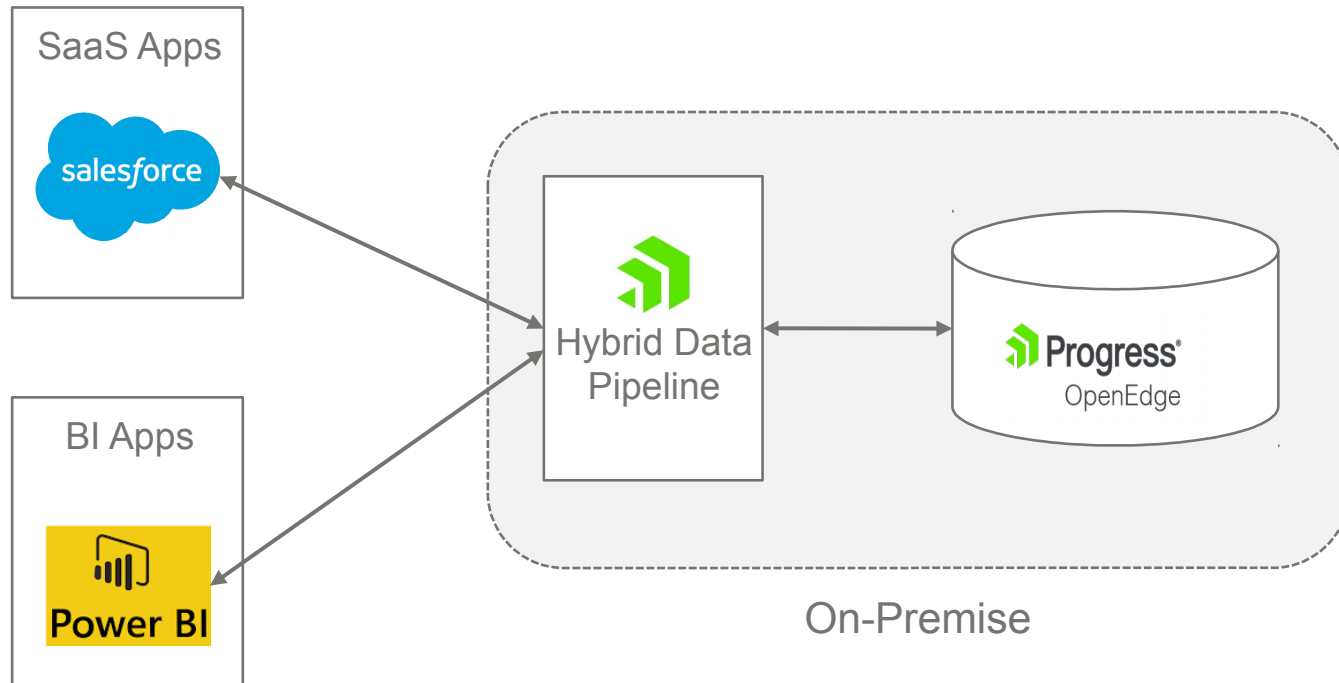
Mapowanie bazy danych do OData

Database Construct		OData Construct
Table		Entity Set
Row		Entity
Column		Property
Stored Procedure		Action (lub Function)
User Defined Function		Function
Primary Key		Entity Key
Foreign Key		Navigation Property

Mapowanie SQL do OData

Metoda HTTP	Operacja REST OData	Komenda SQL
GET	Pobierz 0 lub więcej obiektów (entity)	SELECT
POST	Utwórz nowy obiekt	INSERT
PUT	Aktualizuj obiekt (zastąp semantykę)	UPDATE
PATCH	Aktualizuj obiekt (aktualizuj semantykę)	UPDATE
DELETE	Skasuj obiekt	DELETE
GET	Wywołaj funkcje i pobierz jej wynik	CALL
POST	Wywołaj akcję i pobierz jej wynik	CALL

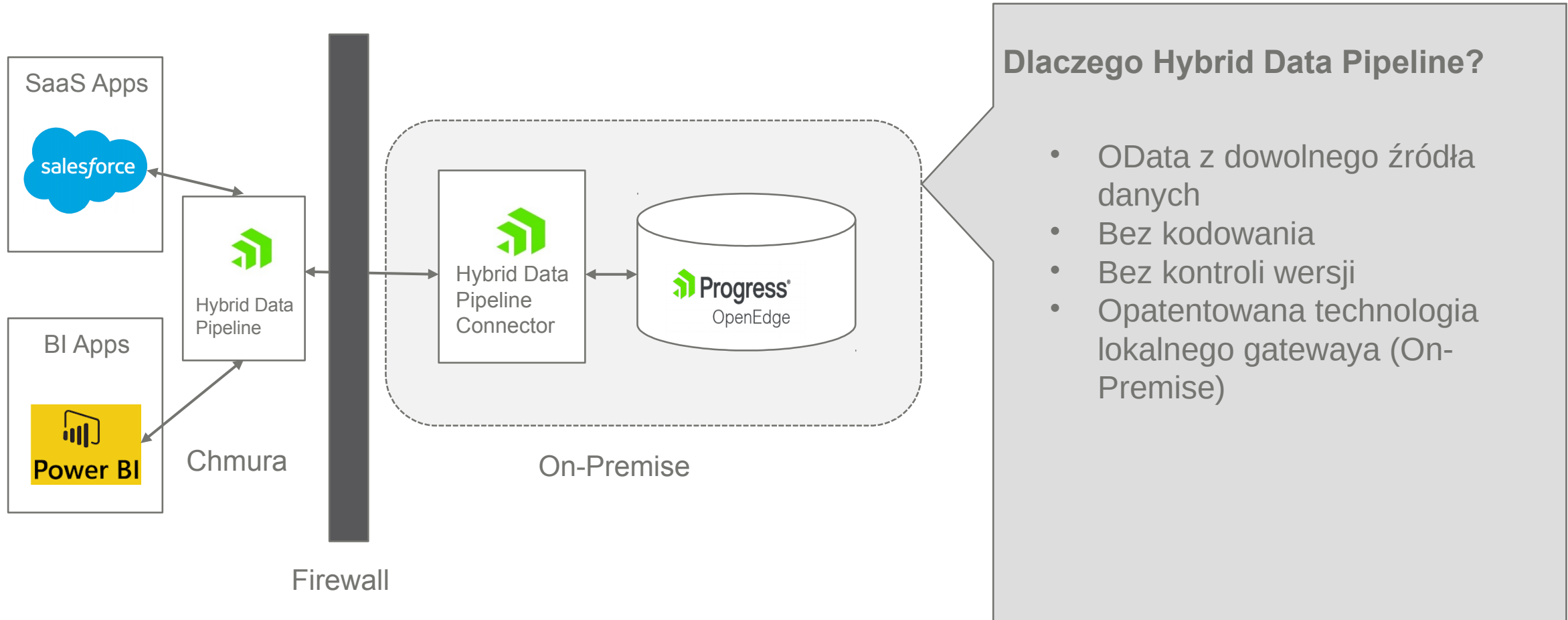
Użyj Hybrid Data Pipeline do stworzenia OData REST API z Waszych korporacyjnych baz danych – scenariusz 1



Dlaczego Hybrid Data Pipeline?

- OData z dowolnego źródła danych
- Bez kodowania
- Bez kontroli wersji
- Opatentowana technologia lokalnego gatewaya (On-Premise)

Użyj Hybrid Data Pipeline do stworzenia OData REST API z Waszych korporacyjnych baz danych – scenariusz 2



OData w praktyce

The screenshot shows the 'Edit OpenEdge Data Source' configuration page in the Progress DataDirect Hybrid Data Pipeline. The interface includes a navigation sidebar with 'Data Sources' and 'SQL Testing' options. The main content area has four tabs: 'General', 'Security', 'OData', and 'Advanced', with 'General' selected. The configuration fields are as follows:

Field	Value	Help Icon
Data Source Name:*	OpenEdge_Demo	?
Description:		?
User ID:	oe114	?
Password:	?
Server Name:*	nc-lnx73	?
Port Number:	2800	?
Database:*	sports2000	?
Connector ID:	NBMORMARKB2_HDP_DEMO	?

OData w praktyce c.d.

The screenshot shows the 'Edit OpenEdge Data Source' configuration page in the Progress DataDirect Hybrid Data Pipeline. The page is divided into four tabs: General, Security, OData (selected), and Advanced. The OData tab contains the following configuration options:

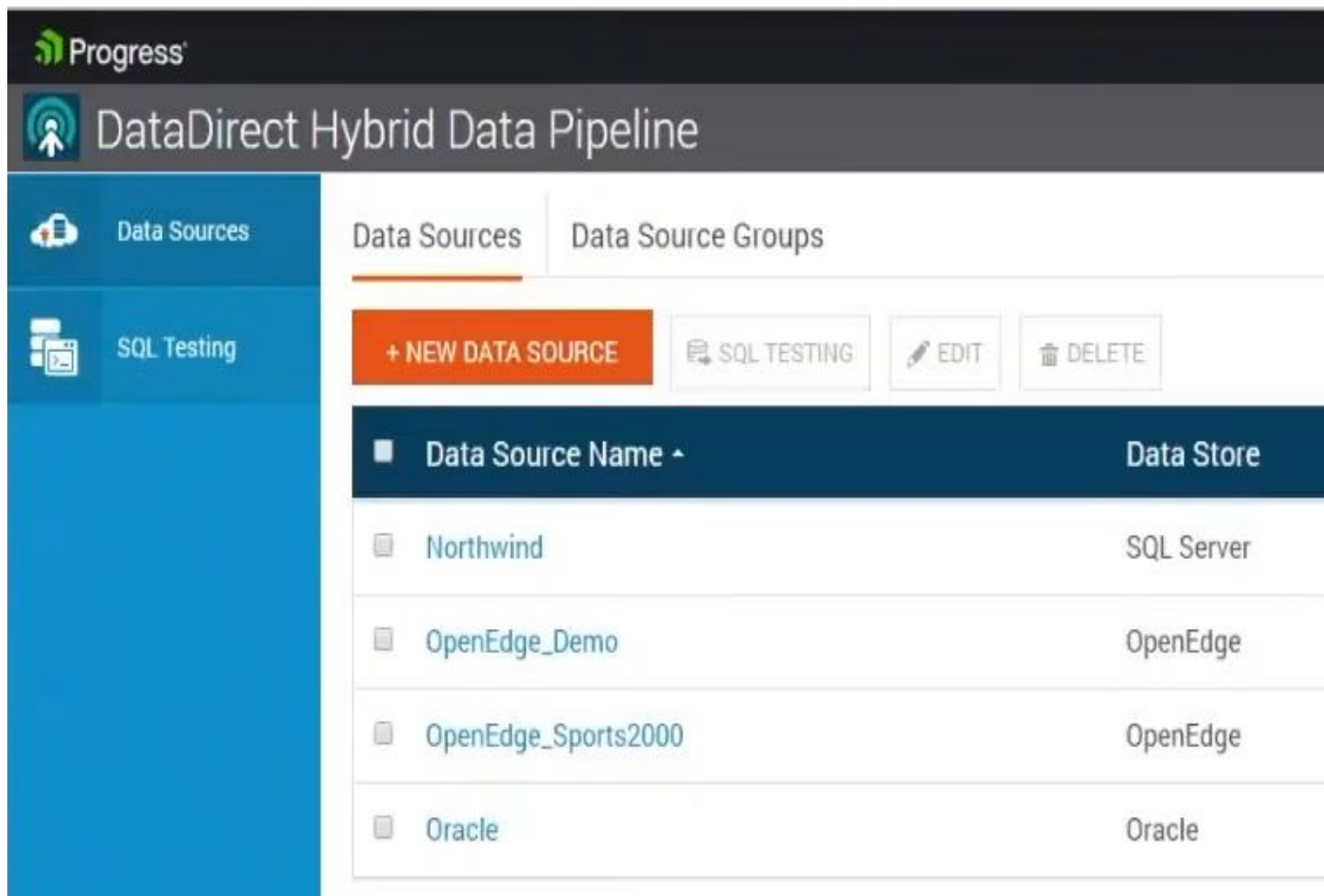
- OData Version:** Version 4
- OData Access URI:** https://hdp.demo.datadirect.com/api/odata4/OpenEdge_Demo/
- Schema Map:** (Empty field)
- CONFIGURE SCHEMA:** (Orange button)
- Data Source Caching:** 1
- Page Size:** 0
- Refresh Result:** 1
- Inline Count Mode:** 1
- Top Mode:** 0
- OData Read Only:** (Unchecked checkbox)

OData w praktyce c.d.

The screenshot displays a software interface for managing data. On the left, a panel titled 'Customer' is open, showing a 'Columns' tab. Below the tab is a search bar and a list of columns. The 'CustNum' column is highlighted with a yellow icon. Other columns include Name, Address, Address2, City, State, Country, Phone, Contact, SalesRep, Comments, CreditLimit, Balance, and Terms. On the right, a vertical list of related entities is shown, each with a plus icon and a radio button: Department, Employee, Family, InventoryTrans, Invoice, Item, LocalDefault, and Order.

Entity	Selected
Department	<input type="radio"/>
Employee	<input type="radio"/>
Family	<input type="radio"/>
InventoryTrans	<input type="radio"/>
Invoice	<input type="radio"/>
Item	<input type="radio"/>
LocalDefault	<input type="radio"/>
Order	<input type="radio"/>

OData w praktyce c.d.



The screenshot shows the Progress DataDirect Hybrid Data Pipeline interface. The top navigation bar includes the Progress logo and the application title. A left sidebar contains 'Data Sources' and 'SQL Testing' options. The main content area has two tabs: 'Data Sources' (active) and 'Data Source Groups'. Below the tabs are action buttons: '+ NEW DATA SOURCE', 'SQL TESTING', 'EDIT', and 'DELETE'. A table lists the configured data sources.

Data Source Name ^	Data Store
Northwind	SQL Server
OpenEdge_Demo	OpenEdge
OpenEdge_Sports2000	OpenEdge
Oracle	Oracle

OData w praktyce c.d.

The screenshot displays the 'Edit OpenEdge Data Source' configuration page in the Progress DataDirect Hybrid Data Pipeline. The interface includes a left-hand navigation menu with 'Data Sources' and 'SQL Testing' options. The main content area is divided into four tabs: 'General', 'Security', 'OData', and 'Advanced', with 'OData' currently selected. The configuration fields are as follows:

- OData Version:** A dropdown menu set to 'Version 4'.
- OData Access URI:** A text input field containing the URL https://hdp.demo.datadirect.com/api/odata4/OpenEdge_Demo/.
- Schema Map:** A text input field containing the JSON configuration: `{"odata_mapping_v3":{"schemas":[{"name":"PUB","tab`.
- EDIT CONFIGURATION:** An orange button located below the Schema Map field.
- Data Source Caching:** A dropdown menu set to '1'.
- Page Size:** A text input field set to '0'.
- Refresh Result:** A dropdown menu set to '1'.
- Inline Count Mode:** A dropdown menu set to '1'.
- Top Mode:** A dropdown menu set to '0'.
- OData Read Only:** A checkbox that is currently unchecked.

OData w praktyce c.d. - co dalej?

SalesForce

Chrome Postman

NativeScript Sidekick

Understanding OData in 6 steps:

<http://www.odata.org/getting-started/understand-odata-in-6-steps/>

FAQs we hear on OData:

<https://www.progress.com/blogs/odata-faqs-why-should-rest-api-developers-use-odata>

Getting Started Tutorial with OData for your enterprise databases:

<https://www.progress.com/tutorials/odata/rest-api-for-sql-server-oracle-or-postgres-via-odata>

Hybrid Data Pipeline Product Page:

<https://www.progress.com/cloud-and-hybrid-data-integration>



A decorative horizontal bar consisting of a solid red line with several vertical white gaps of varying widths.A blurred, grey-toned image of a computer mouse cursor pointing towards the top-left corner, overlaid on a background of vertical grey bars.

Dziękuję za uwagę