Open Minds think

OpenPlant™

Data Exchange Solutions using
ISO 15926 Adaptive Information Model

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Bentley Systems Inc.

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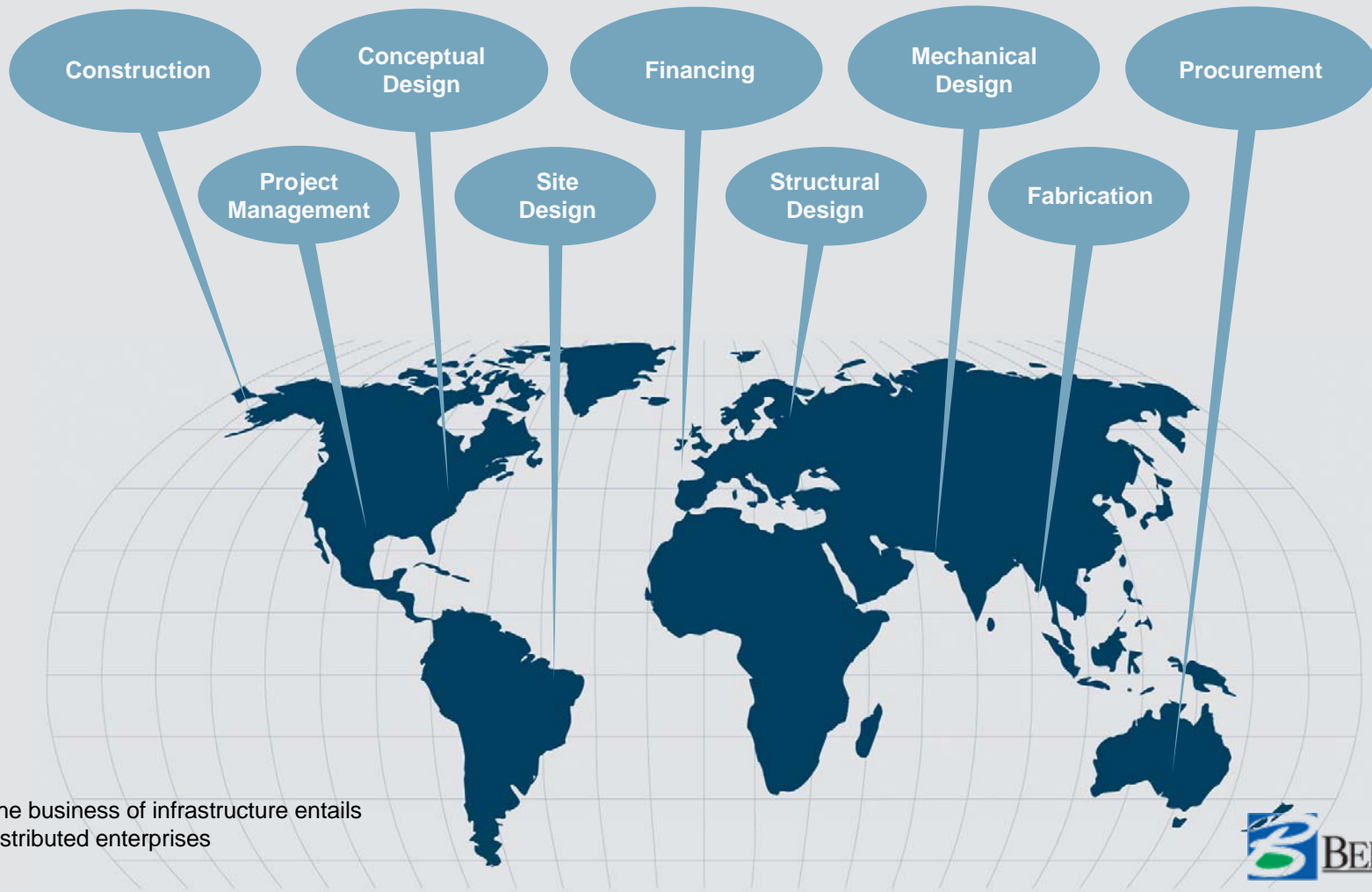
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Outline

- Bentley Overview
- Data interoperability strategy based on ISO 15926
- Bentley's implementation of ISO 15926
- The role of Bentley Class Editor and Adaptive Information Model

Bentley's Mission

Help improve the world's infrastructure

Serving Distributed Enterprises

Construction

Conceptual Design

Financing

Mechanical Design

Procurement

Project Management

Site Design

Structural Design

Fabrication

The business of infrastructure entails distributed enterprises

BENTLEY

A Strong Global Company

- 24 years of growth and stability
- 2,500+ employees, 80 offices, 40 countries

Hoofddorp

Exton

Beijing

★ Headquarters

● Regional Offices and Technology Centers

BENTLEY

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Distinctions

1. A comprehensive software portfolio that is multi-discipline and integrated, just like your projects

2. Collaboration servers that allow distributed enterprises to successfully deliver infrastructure projects

3. A commitment to interoperability to maximize the return on your investments in data

Portfolio of Products

	BUILDING	PLANT	CIVIL	GEOSPATIAL
O&M	Bentley® Facilities™	ProjectWise® Lifecycle Server™	ARPS™ ROW™ LDM™ Optram™ SUPERLOAD®	Bentley® Geo Web Publisher™ Bentley® Geospatial Server™
Applications	Bentley® Architecture™ Bentley® Structural™ RAM™ STAAD® Bentley® Building Mechanical Systems™ Bentley® Building Electrical Systems™ speedikon® ProSteel™	PlantSpace® AutoPLANT® Bentley® AutoPIPE® Bentley® AXSYS® Bentley® CloudWorx™ PlantWise™	GEOPAK® InRoads® Bentley® Rail™ Bentley® MX® Bentley® Rebar™ Bentley® Bridge RM™	Bentley® Map™ Bentley® Descartes™ Bentley® I/RAS B™ Bentley® Electric™ Bentley® Water™ Bentley® Sewer™ Bentley® Copper™ Bentley® Fiber™ Bentley® Coax™ Bentley® Inside Plant® Bentley® CADscript™ Bentley® sisNET™ Haestad Methods® Solutions Bentley® Expert Designer™
Power Products			Bentley® PowerSurvey™ Bentley® PowerCivil™ Bentley® PowerRebar™	Bentley® PowerMap™ Bentley® PowerMap Field™
Extensions	MicroStation® TriForma® Ext.	MicroStation® Schematics™ Ext.	MicroStation® Civil Ext.	
Platform Extensions	MicroStation® GenerativeComponents™ Ext.			

MICROSTATION®
MicroStation® PowerDraft® Bentley® View™ Bentley® Redline™

Platform

PROJECTWISE®
ProjectWise® StartPoint™ ProjectWise® Navigator™ ProjectWise® InterPlot™ ProjectWise® Integration Server™

BENTLEY®

POSC Caesar IDS and FIATECH ADI are accelerating ISO 15926

- **Collaboration between both projects**
  - IDS (Intelligent Data Sets)
    - Reference data expansion and Methodologies
    - Online reference data hosting, browsing, and editing
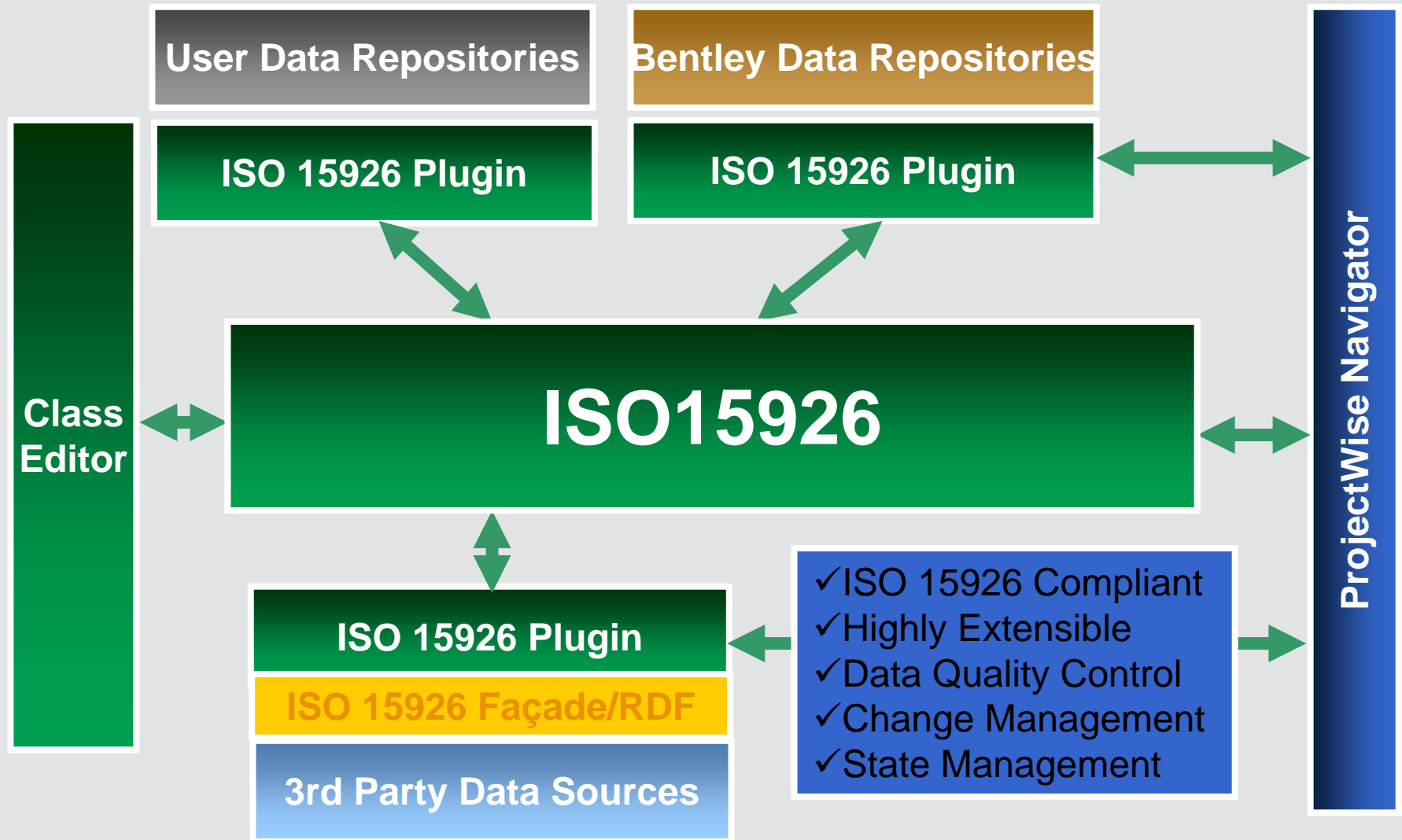   - Simple implementation approaches
    - Training
  - ADI (Accelerating Deployment of ISO 15926)
    - Focus on implementation and tools
    - Reference Data System (RDS) software and utilities
    - Training
- Bentley is very active in both projects

Data Interoperability Architecture

User Data Repositories

Bentley Data Repositories

ISO 15926 Plugin

ISO 15926 Plugin

Class Editor

ISO15926

ProjectWise Navigator

ISO 15926 Plugin

ISO 15926 Façade/RDF

3rd Party Data Sources

- ✓ ISO 15926 Compliant
- ✓ Highly Extensible
- ✓ Data Quality Control
- ✓ Change Management
- ✓ State Management

New Integrated Engineering Workflow

3D Model **Translators** **Structural Analysis** **Piping Analysis**
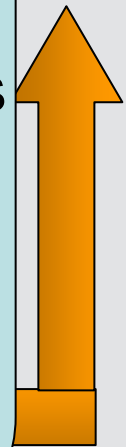

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RAM/STAAD PLATFORM

AutoPLA
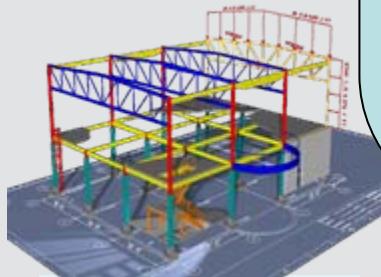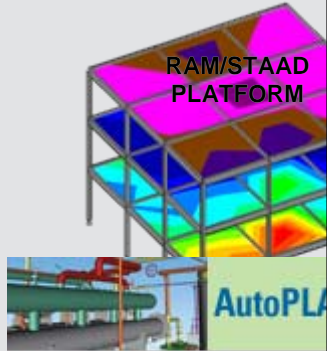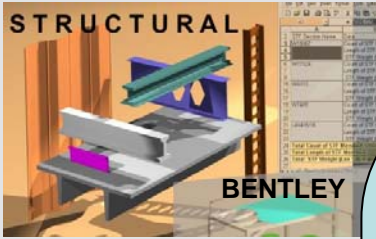
UTOPIPE

OLPipe

What this means for the user?

20-30% reduction in engineering man-hours
Reduced cost of structural steelwork
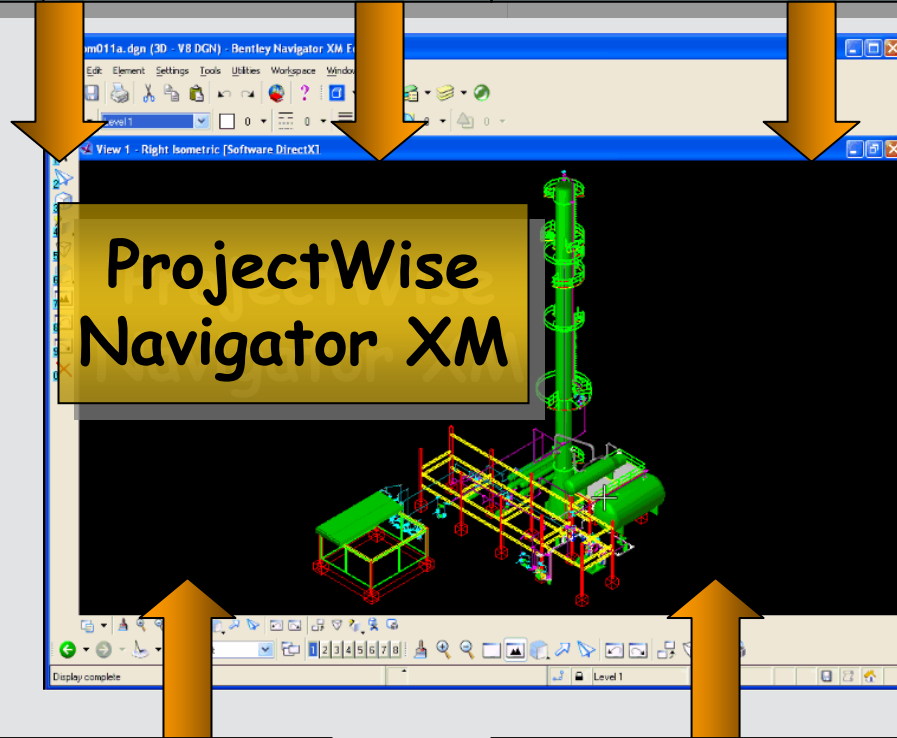
Better, safer plants

CII

Interoperable Data
(ISO15926)

PDS / PDMS

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OpenPlant

Design Interoperability Using ISO 15926

PDS	AutoPlant	PlantSpace	PDMS

More accurate structural & piping design

ProjectWise Navigator XM

Early design decisions by Engineers & Designers

STAAD	⟷	AutoPIPE

Structural　　　**Pipe Stress**

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ISO 15926 WIP: Organization

ISO MA

WIP

User

Contributor
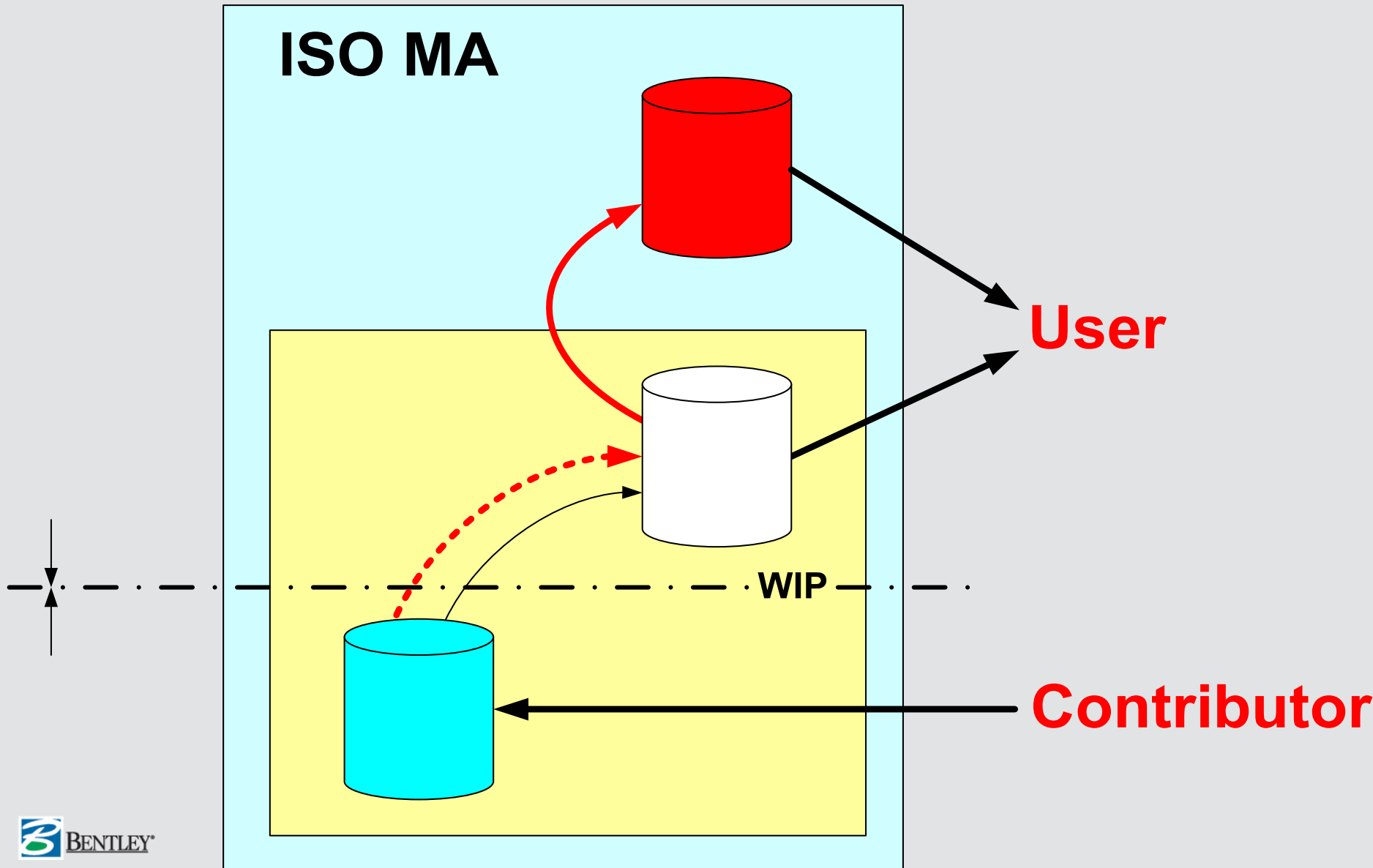
The role of the Bentley Class Editor

ISO 15926 MA / WIP

**Centralized RDL
Management
http://rds.posccaesar.com**

RDS

File Based

Excel

Part 28

OWL

Web Service

API

**Desktop RDL
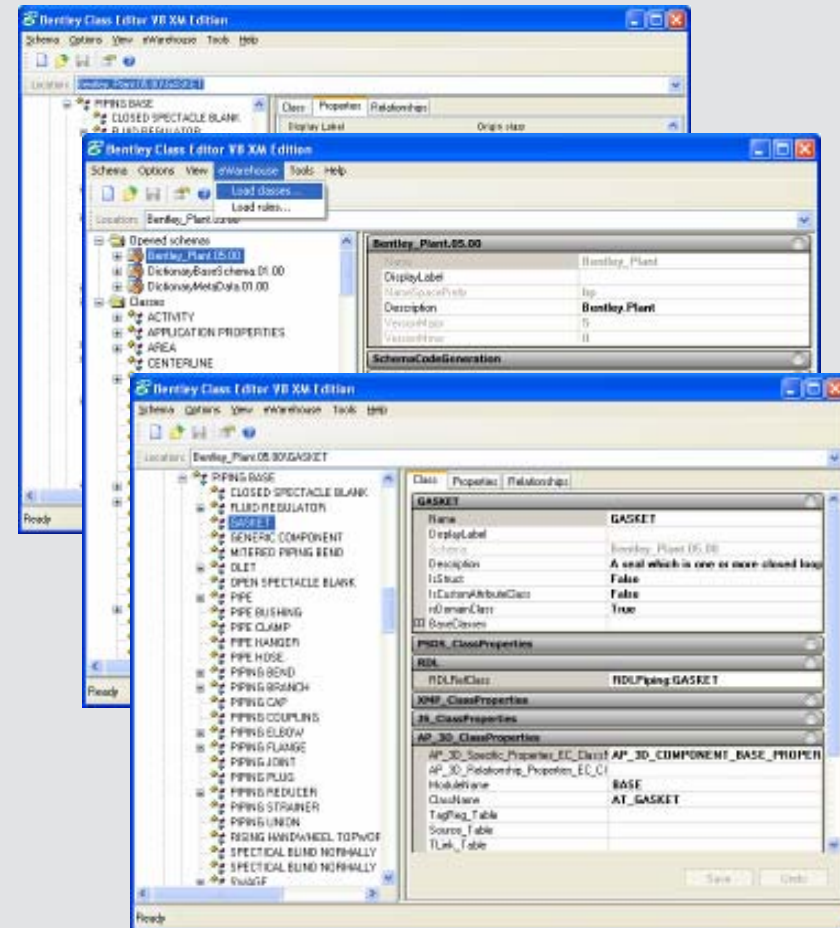Management**

Bentley Class Editor
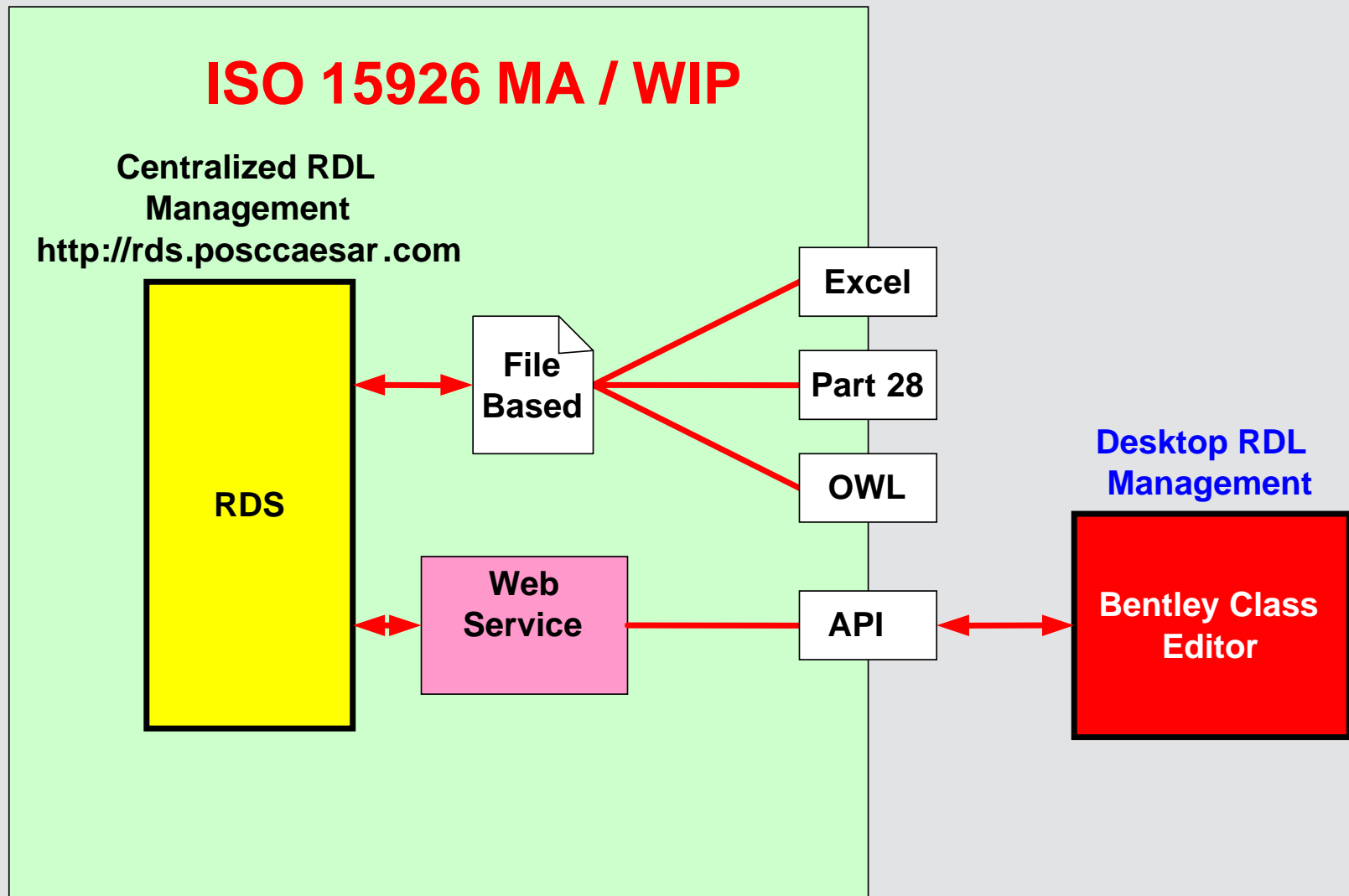
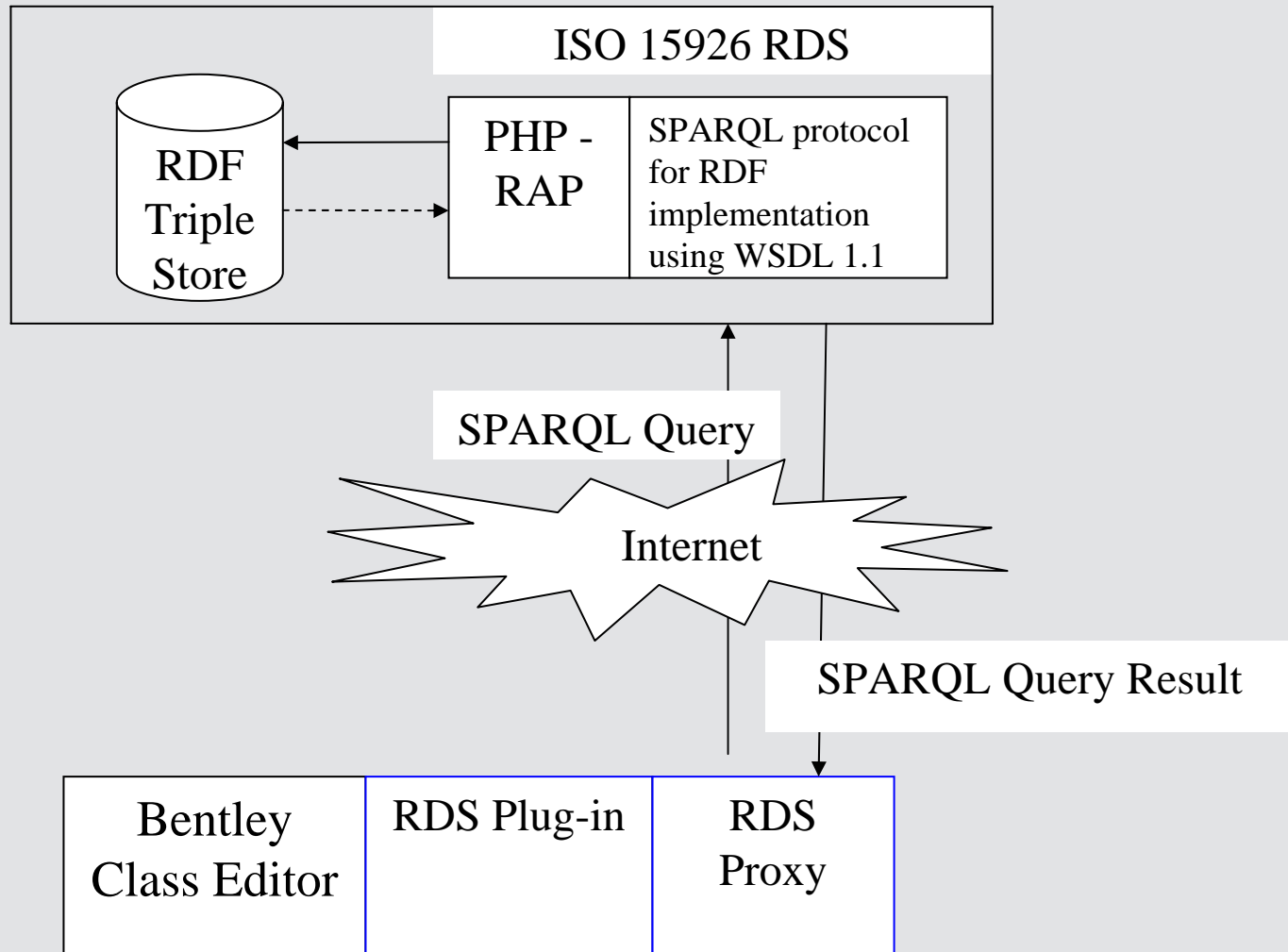Data Interoperability Using ISO 15926
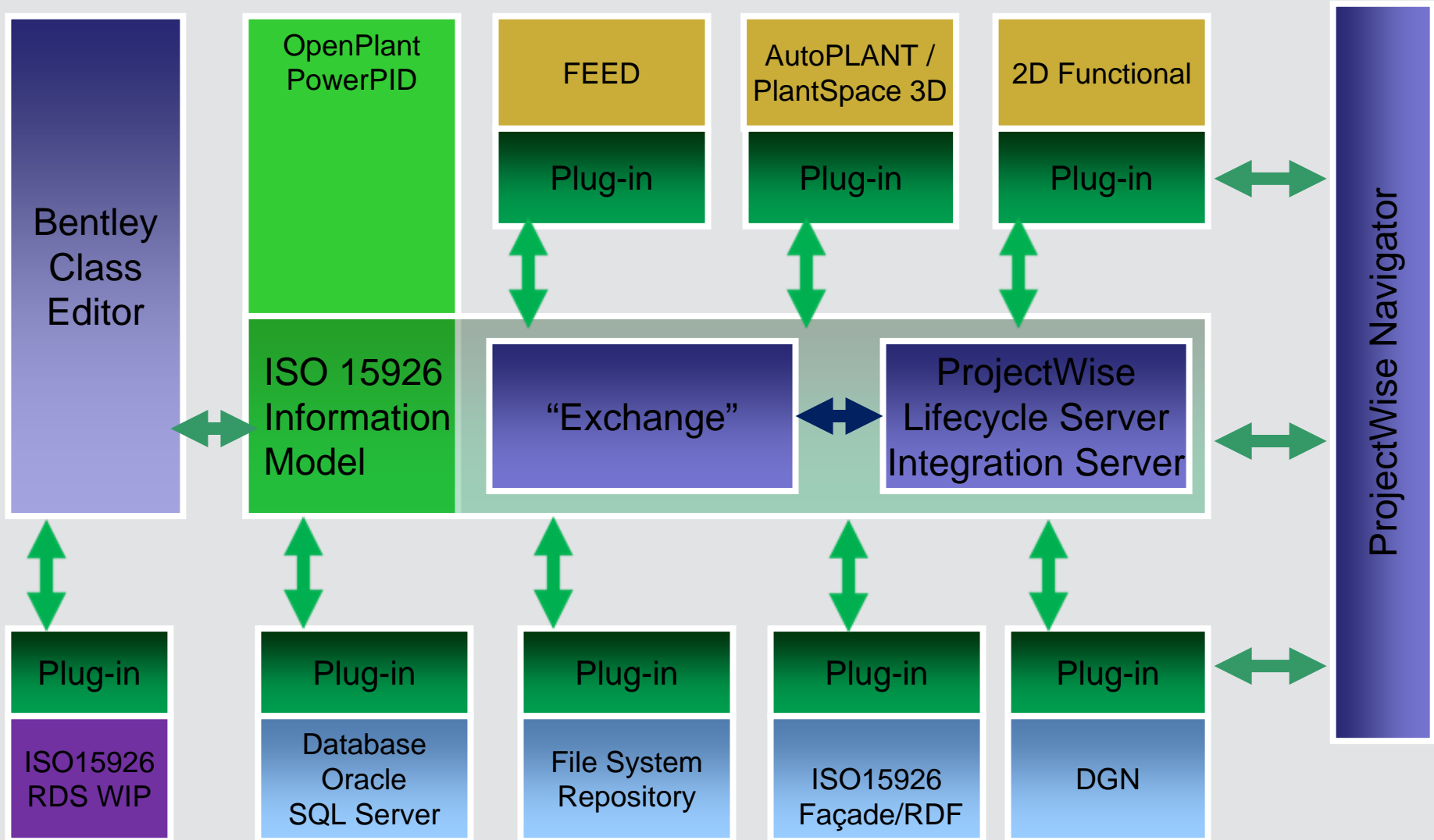
Bentley Class Editor with RDS Support

- ISO 15926 dictionaries
- Engineering Friendly View of Reference Data
- Information model building
- Simplified mapping interface
- Differencing
- Extensible

Overview of RDS WIP Connection

ISO 15926 RDS

RDF Triple Store

PHP - RAP

SPARQL protocol for RDF implementation using WSDL 1.1

SPARQL Query

Internet

SPARQL Query Result

Bentley Class Editor

RDS Plug-in

RDS Proxy

Thank you