



OpenPlant Modeler

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OpenPlant is

- OpenPlant is... Our flagship plant design product.
- OpenPlant applications are based on ISO 15926 for interoperability
- OpenPlant applications are designed for the distributed world
- OpenPlant applications let engineers collaborate in an open environment
- OpenPlant applications leverage Bentley's proven platform technology

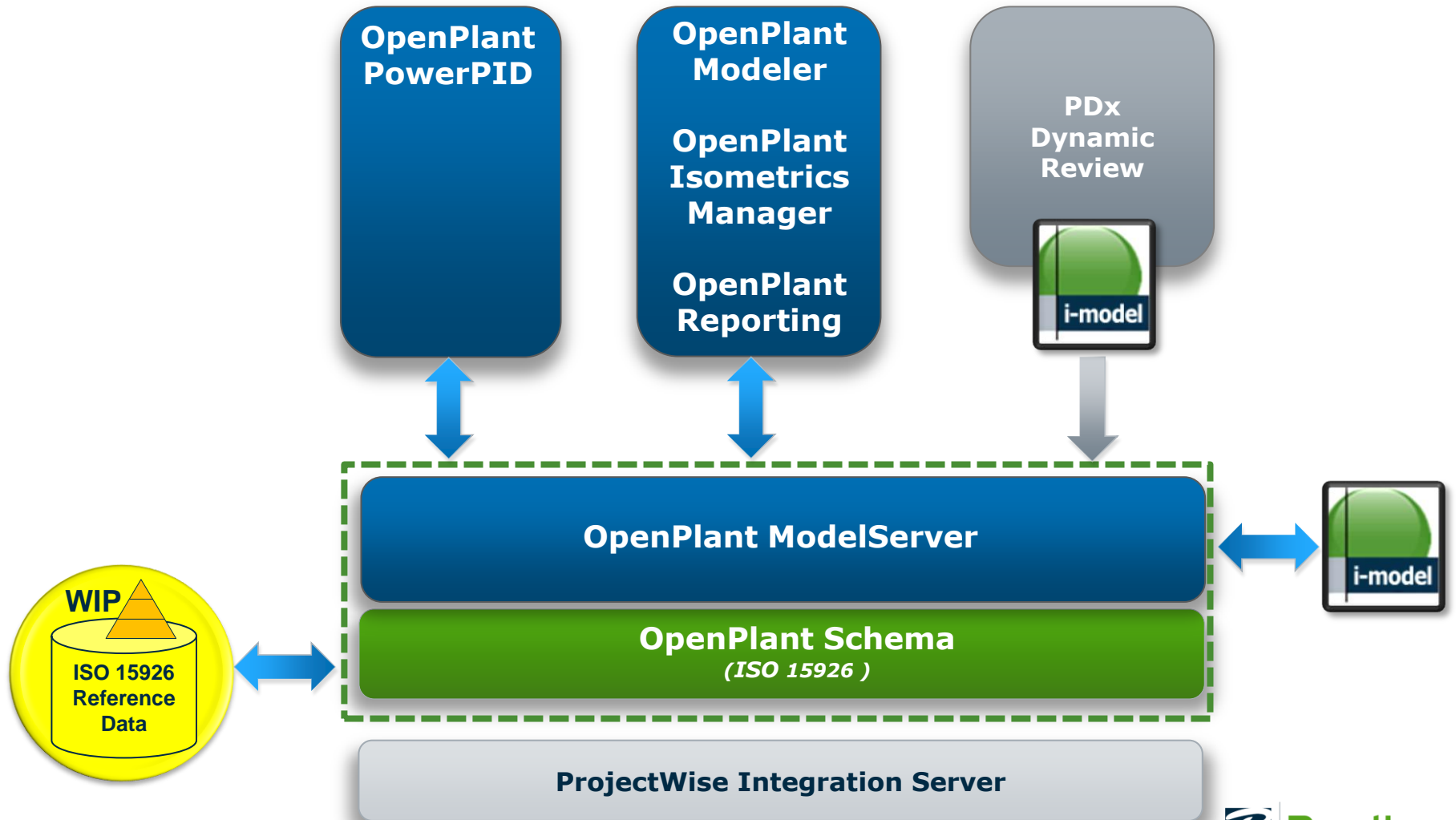
Business Needs ...

REDUCE COSTS	Globally sourced, reuse designs
SHORTEN SCHEDULES	Improve productivity, schedule, better planning
IMPROVE OPERATIONS	Faster turnaround, handover, document updates

Software requirements ...

Distributed work, affordable pricing, meet today's AND future needs

OpenPlant Interoperable Environment



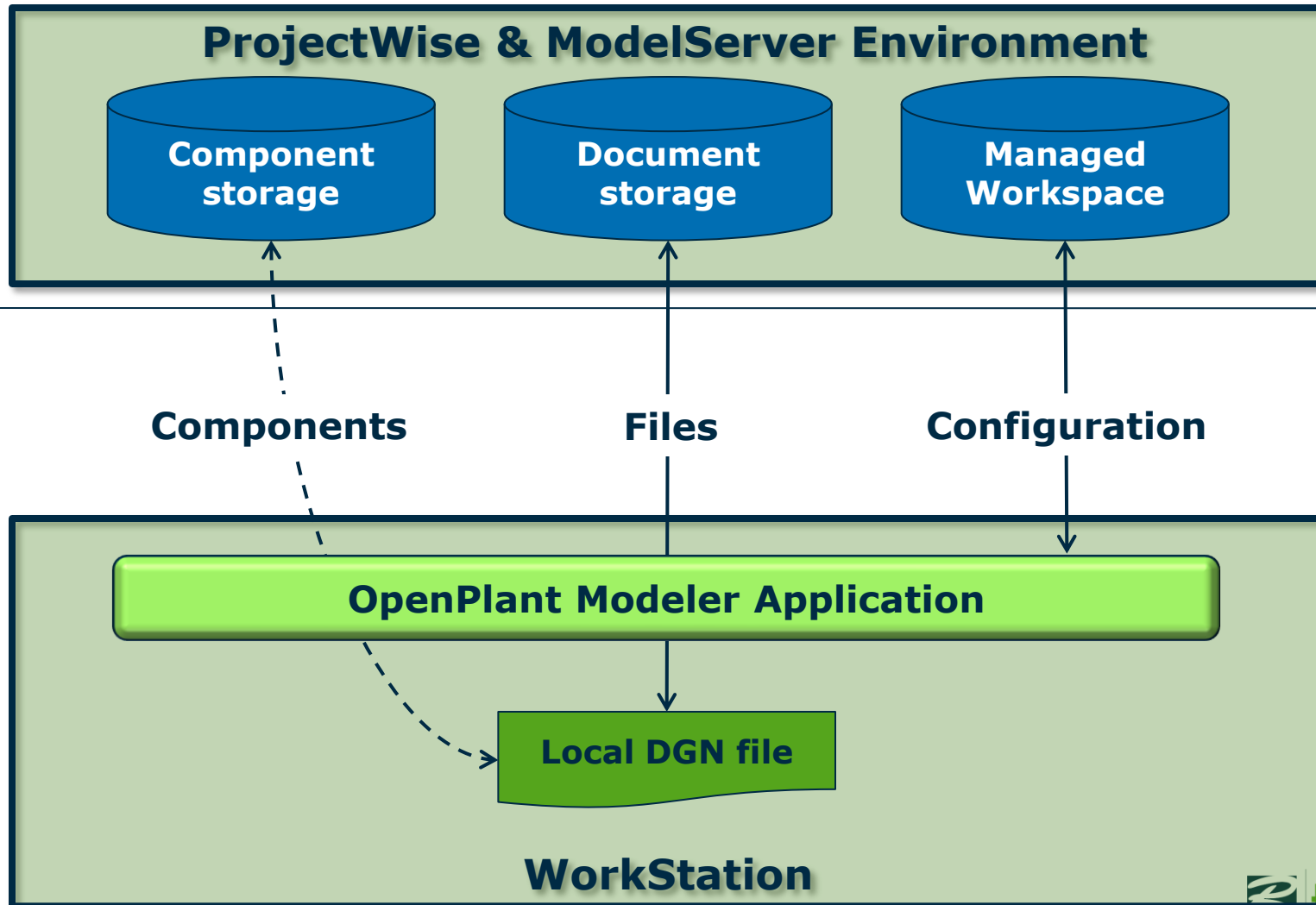
Challenges

- Smarter project execution within a distributed world
- Protecting your investment in a trained workforce
- Improve productivity
- Protecting your significant investment in PDS Catalogs and Specifications
- “Fit for purpose” handover
- Usefulness in operations

Data-centric Design

- Project team collaboration platform
- Centrally managed, easily distributed
 - Configure based on project needs
 - Easily collaborate with others
 - Component-level access control
 - Offline modeling
- Resource loading
 - Maximise utilisation in each office

OpenPlant Modeler System Architecture

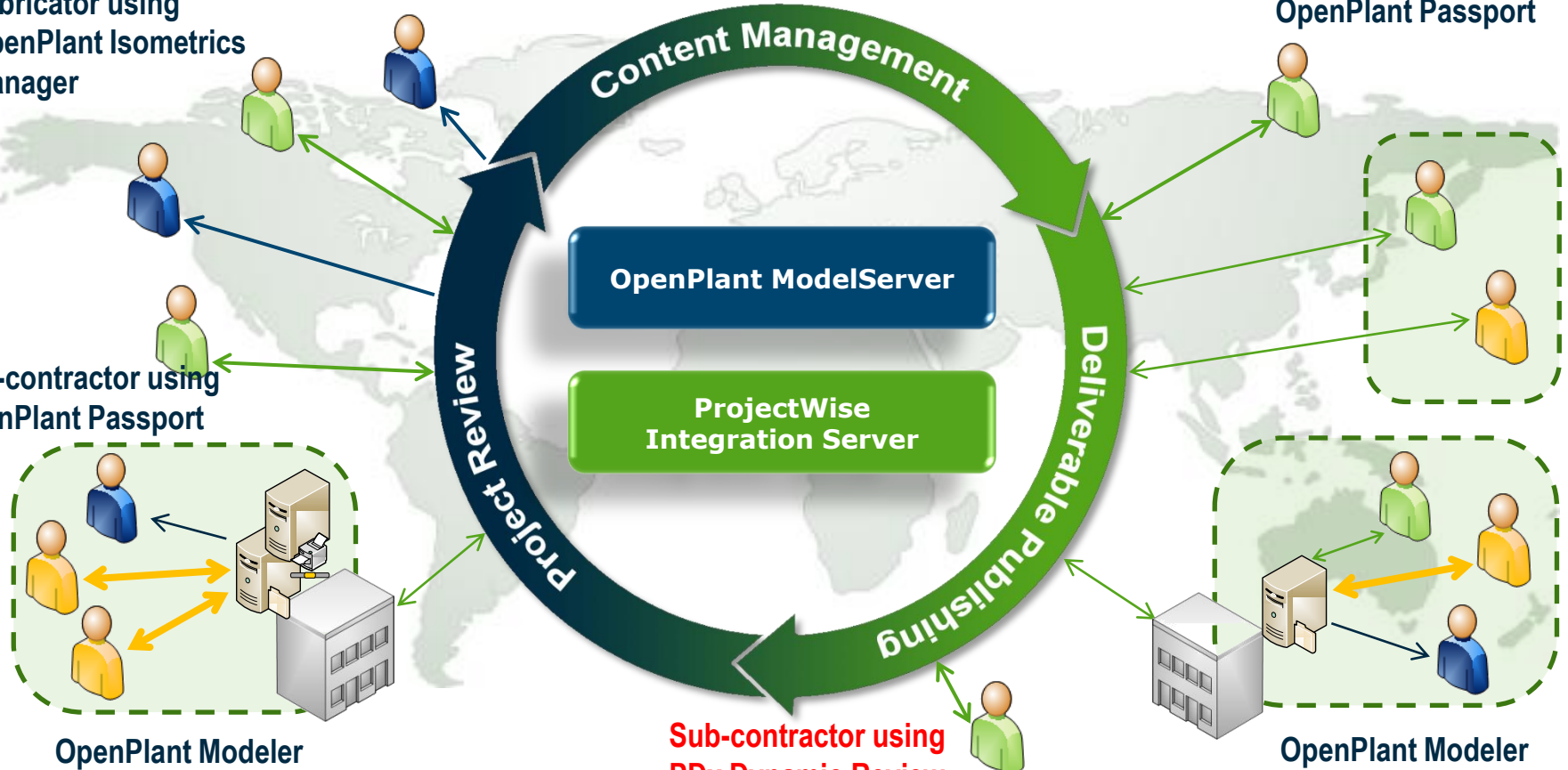


OpenPlant and ProjectWise is a Project Team Collaboration Platform for the Design of Capital Projects

Fabricator using
OpenPlant Isometrics
Manager

Sub-contractor using
OpenPlant Passport

Sub-contractor using
OpenPlant Passport



OpenPlant Modeler

Sub-contractor using
PDX Dynamic Review
Service

OpenPlant Modeler



Bentley
ProjectWise V8i

Engineering Project Collaboration Platform

Open Minds think

OpenPlant

Built on ISO 15926



Demo – Data-centric Design

- Distributed component based design
 - Check-in, check-out
- Offline use of design data

Trained Workforce

- Reduced training costs
- Leverages MicroStation core capabilities
 - Built on MicroStation, the same platform that PDS uses
- Availability of trained contractors
- Flexible training options
 - Bentley LEARN

Demo – Leverage MicroStation Skills

- Familiar CAD platform
 - User interface
 - Levels
 - References
 - Task based design

Ease of Use

- **Faster, more intuitive modeling**
 - Task-focused menus
 - Single user interface
 - Intelligent rules-based modeling
- **Easier to visualise**
 - Rendered mode
 - Dynamic sectioning
- **Component-based design**
 - Tree navigation and presentation of information in familiar format
- **Improved interrogation**
 - Re-work rather than re-model

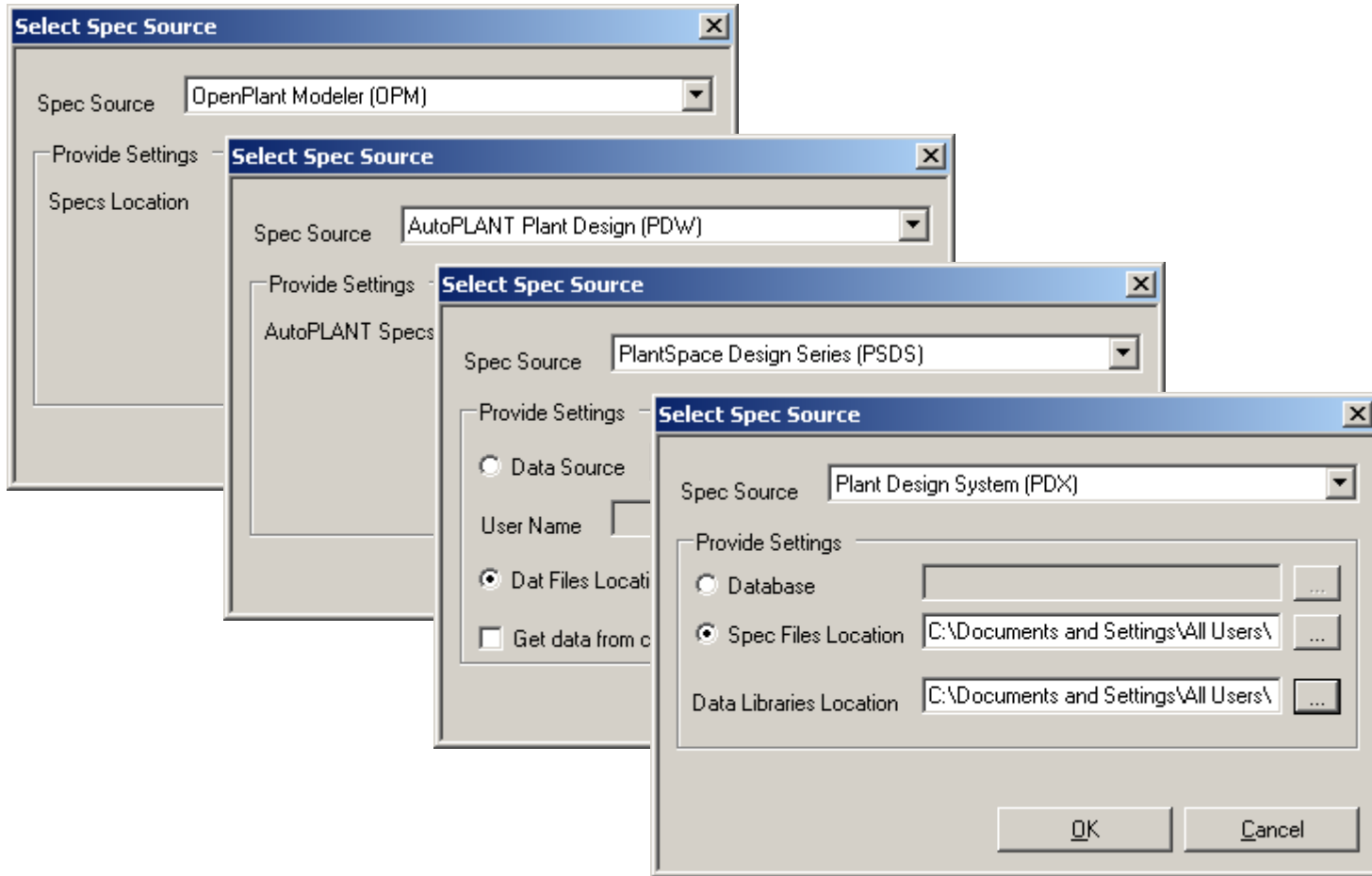
Demo – Improve Productivity

- Equipment design
 - Parametric equipment
 - Nozzle manager
- Piping design
 - Pipe routing
 - Automatic fittings
 - Pipeline manager

Existing Catalogues and Specifications

- Re-use
 - Native use of existing catalogues and specifications
 - PDS
 - PlantSpace
 - AutoPLANT

Re-use



Existing Catalogues and Specifications

- Re-use
 - Native use of existing catalogues and specifications
 - PDS
 - PlantSpace
 - AutoPLANT
- Convert
 - Multiple specifications from other systems
- Manage
 - Standard spec management interface

Convert and Manage

The screenshot displays the Bentley OpenPlant Specification Generator V8i software interface. The main window is titled "Bentley OpenPlant Specification Generator V8i (SELECTseries 2): A1-OPM.mdb (D:\BentleyWorkspace\OpenPlantModeler V8i\Workspace\Projects\OPModeler_Imperial\Data...". The interface is divided into several sections:

- Spec Properties:** A table with columns for Name and Description, showing details for Bentley Systems, US, OPM, Sweet Hydrocarbons, Fuel Gas, Utility Water..., ASME B31.3, and Butt Weld, Threaded, Socket Weld.
- Spec Filter:** A section with a filter icon and a dropdown menu showing "N.B" and "Schedule".
- Pipe:** A table with columns for Min Size, Max Size, and Count, showing a list of pipe sizes and their counts.
- Flanges, Fittings, Branches, Reducers:** A series of blue buttons for managing different components.

Name	Description	Name	Description
Company	Bentley Systems	Division	BSW Development
Location	US	Spec. #	CS 150
Project	OPM	Description	Sample Piping Spec
Service	Sweet Hydrocarbons, Fuel Gas, Utility Water...	Rating	ASME B16.5
Design Code	ASME B31.3	Temperature Rating	-29C/260C (Note 12)
Joint Type	Butt Weld, Threaded, Socket Weld	ASME Class	150

Min Size	Max Size	Count
1/2	1+1/2	0
2	10	0
12	24	0
1/2	1+1/2	0
1/2	1+1/2	0
1/2	1+1/2	0

Project Control

- Project team collaboration platform
- Inherent workshare and collaboration
 - Simplified joint ventures and workshare administration
- Managed content
 - Component and document-based
 - Manage design review and co-ordinated task management
- Project reporting
 - Visual design statusing
 - Single reporting engine across multiple applications

Demo – Centralised Project Management

- Design management
- Isometric production and management
- Project reporting
- Progress tracking

OpenPlant

- ✓ • Smarter project execution within a distributed world
- ✓ • Protecting your investment in a trained workforce
- ✓ • Improve productivity
- ✓ • Protecting your significant investment in PDS Catalogs and Specifications
- ✓ • “Fit for purpose” handover
- ✓ • Usefulness in operations



Thank you

Coffee break

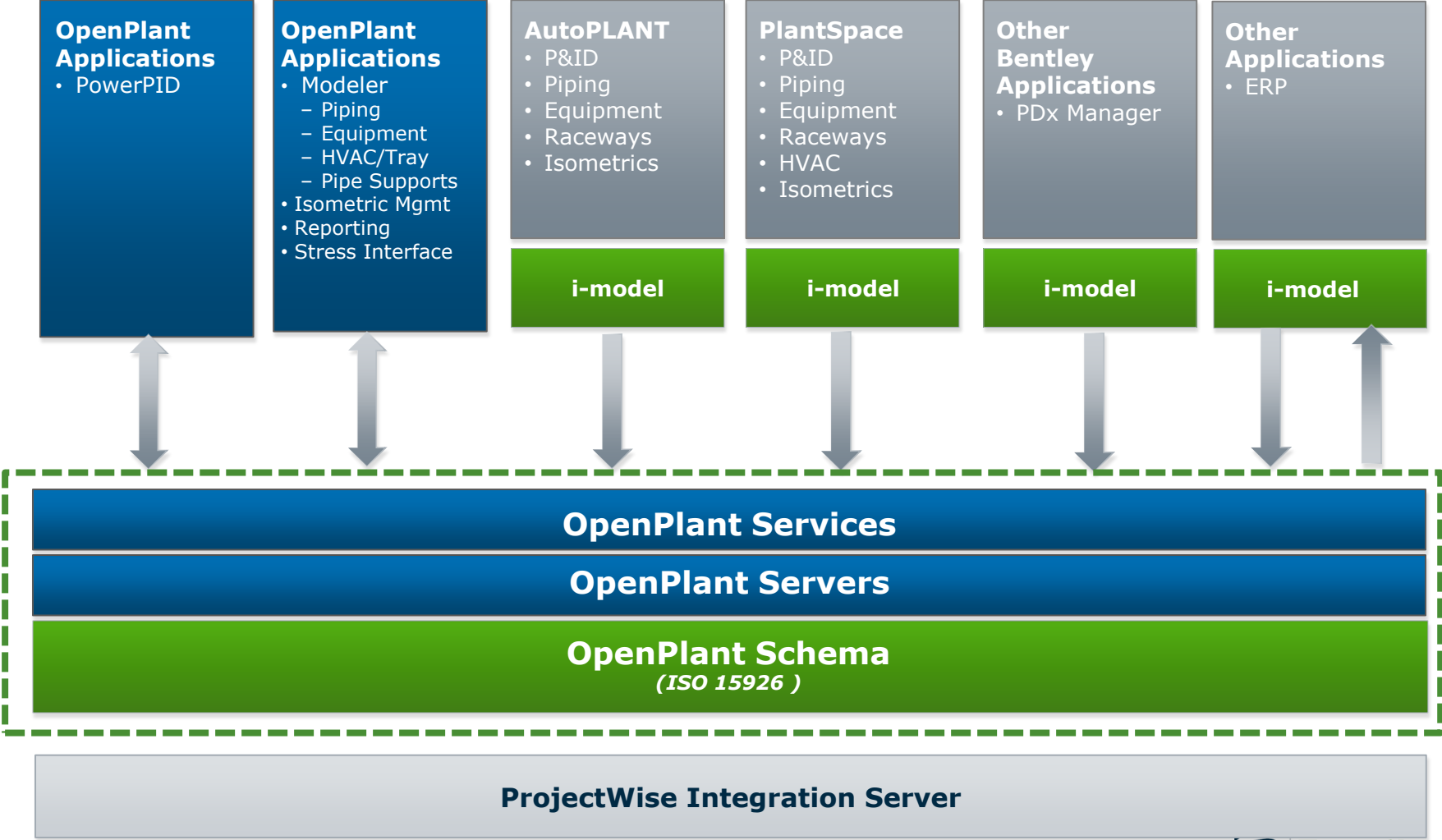


Technology Deep Dive

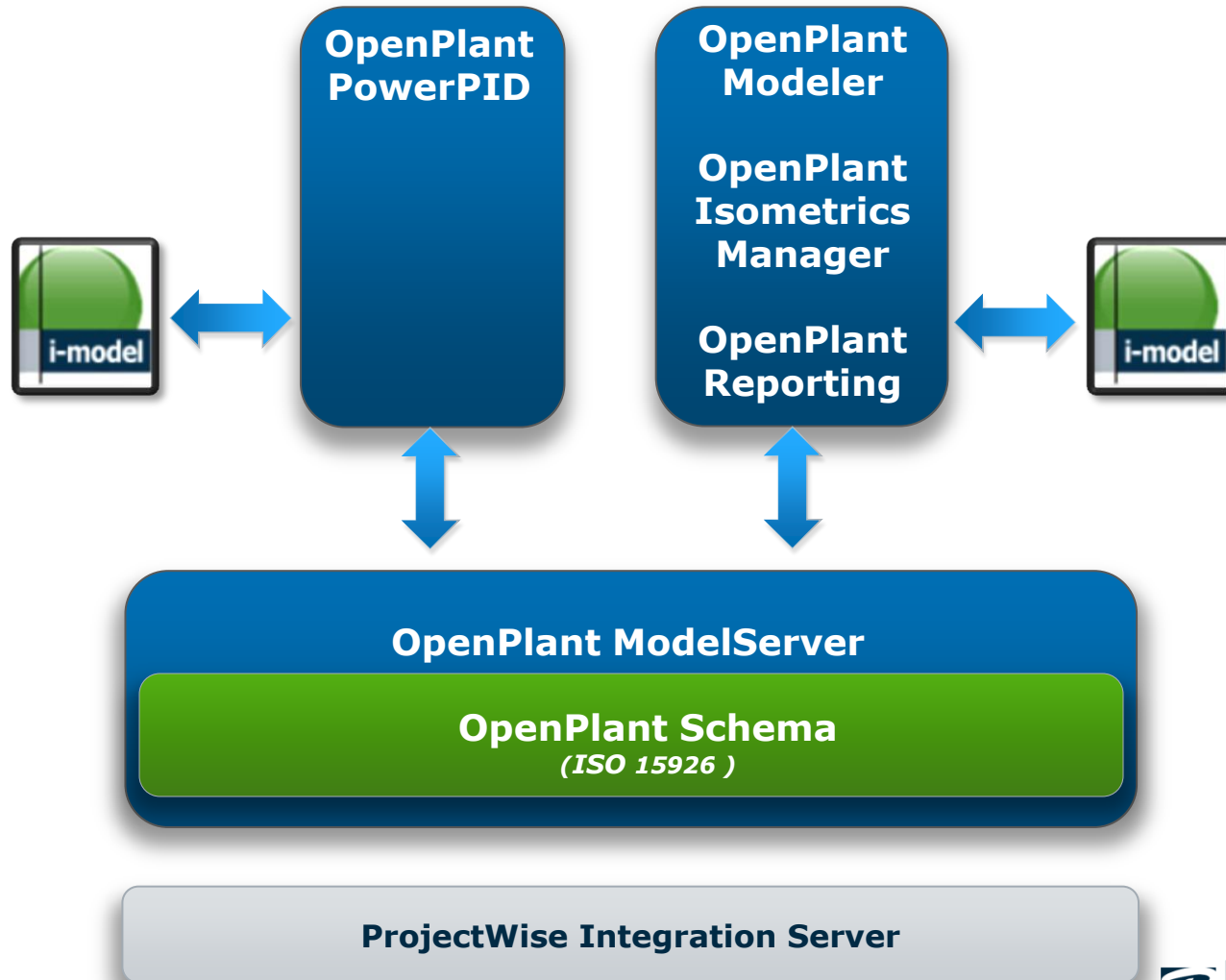
Topics

- Using i-models with OpenPlant
 - Publishing i-model from OpenPlant Modeler
 - Markups in ProjectWise Navigator
 - Show markups
 - Referencing other i-models
- Dynamic Views and drawing production
- PDx Dynamic Review Service
- Administering OpenPlant
 - Managing Schemas, Class Editor
 - Specification Generator
- ProjectWise Integration and Managed workspaces

Bentley OpenPlant Design Technology

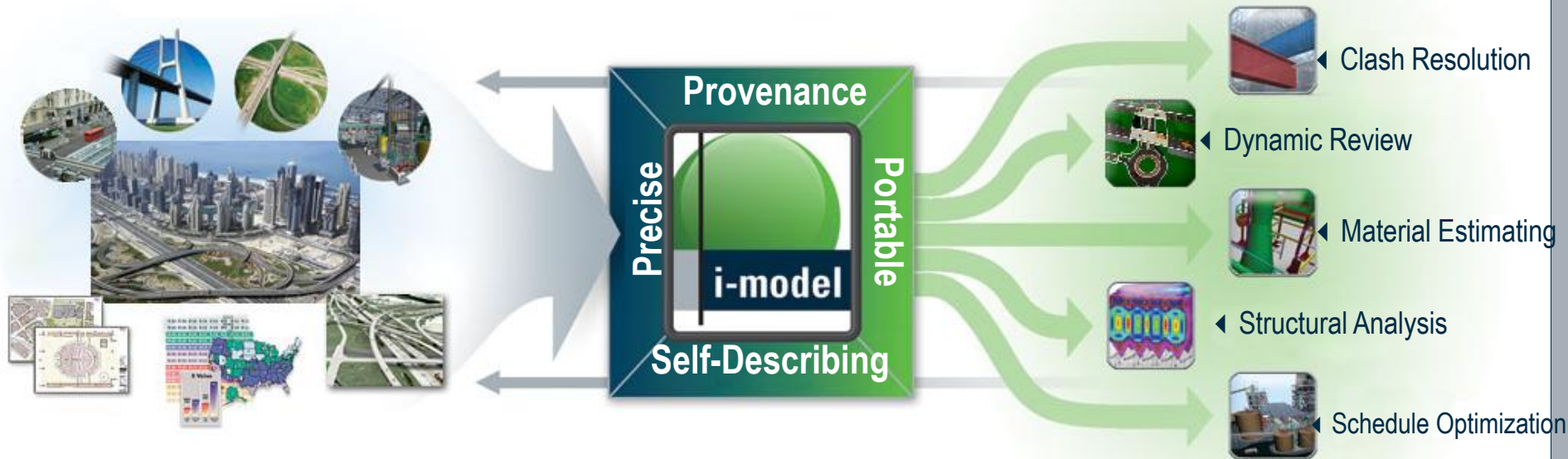


OpenPlant Interoperable Environment



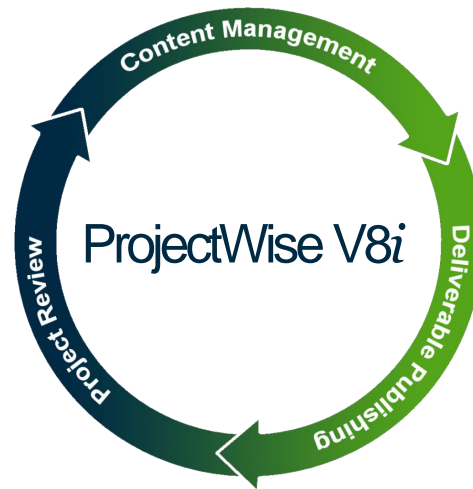
i-models: Publish for Purpose

Precise Provenance Portable Self-Describing



ProjectWise Collaboration Technology

- ProjectWise V8i is software for connecting people and information across distributed teams and is used by architects and engineers to manage, find, and share content



**Globally Sourced,
Loosely Coupled**

ProjectWise Collaboration Technology

- *ProjectWise V8i is software for connecting people and information across distributed teams and is used by architects and engineers to manage, find, and share content*
 - Caching servers for fast file access and reduced rework
 - CAD standards management for improved data quality
 - Reference file management for easy collaboration
 - Integrated project framework for managing a portfolio of projects
 - Desktop application integration
 - Online fully managed solutions for "hands-free" administration

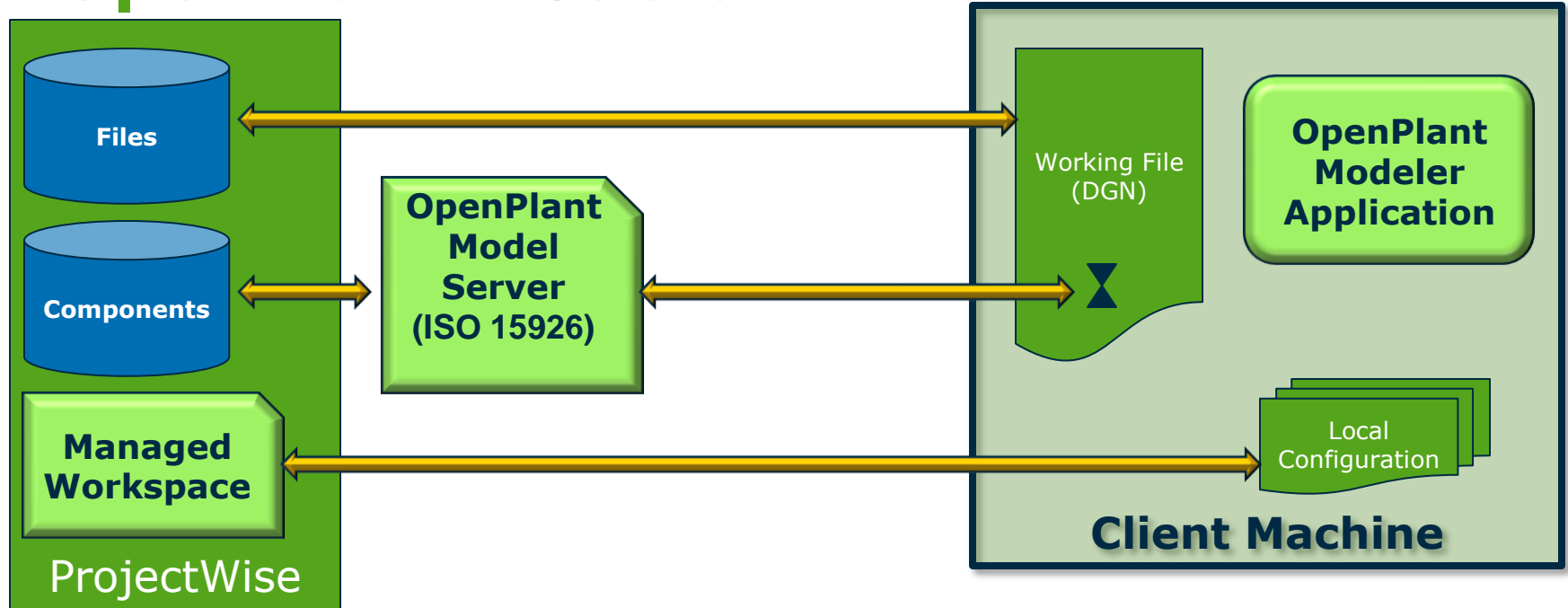
OpenPlant ModelServer

- OpenPlant ModelServer V8i *is the first plant design server software to effectively and productively manage both files and components*
 - Project team collaboration platform
 - Complete project control
 - Centrally managed, easily distributed
 - Configure based on project needs
 - Easily collaborate with others
 - Component-level access control
 - Offline modeling
 - Global working
 - Maximise utilisation in each office

OpenPlant Modeler

- Desktop modeling application
- Based on latest MicroStation and ProjectWise V8i engine
 - Uses latest features of MicroStation
 - Dynamic views
 - Managed workspace
 - Specs, catalogs, schema..
- Designed to support multiple work practices
 - i.e. Offline, remote, distributed, etc.

OpenPlant Modeler



- ProjectWise is the Component and Document Store
- OpenPlant ModelServer manages each application client request, providing check-in/out, security, etc
- OpenPlant modeler works on the client machine, stores local reference data (catalogs) as well as ability to save local files

OpenPlant Modeler

- OpenPlant Modeler V8i is the first 3D plant modeling software to natively use an ISO 15926 core data model

The screenshot displays the Bentley OpenPlant Modeler V8i interface. The main window shows a 3D rendering of a complex piping system with various components like tanks, pumps, and pipes. On the left, there are several panels: 'Standard Preferences for Piping Composer', 'Items', and 'OpenPlant Model Component Browser'. The 'Details' panel at the bottom is open, showing a table of components.

Item	Angle	Charpy Impa...	Component Name	Component	Description	Line Number	Standard	Design State
ECCENTRIC REDUCER 10			ECCENTRIC REDUCER 10 IN ASME/ANSI B16.9	Design	ECCENTRIC REDUCER, SCH 40, BW	20-P100-CS150	ASME/ANSI B16.9	
ELBOW 90 DEG. LR 10 CS150 20-P101-CS150	90		ELBOW 90 DEG. LR 10 IN ASME/ANSI B36.10	Design	90 DEG. LR ELBOW, SCH 40, BW	20-P101-CS150	ASME/ANSI B36.10	
ELBOW 90 DEG. LR 10 CS150 20-P101-CS150	90		ELBOW 90 DEG. LR 10 IN ASME/ANSI B36.10	Design	90 DEG. LR ELBOW, SCH 40, BW	20-P101-CS150	ASME/ANSI B36.10	
ELBOW 90 DEG. LR 10 CS150 20-P101-CS150	90		ELBOW 90 DEG. LR 10 IN ASME/ANSI B36.10	Design	90 DEG. LR ELBOW, SCH 40, BW	20-P101-CS150	ASME/ANSI B36.10	
ELBOW 90 DEG. LR 10 CS150 20-P101-CS150	90		ELBOW 90 DEG. LR 10 IN ASME/ANSI B36.10	Design	90 DEG. LR ELBOW, SCH 40, BW	20-P101-CS150	ASME/ANSI B36.10	
PIPE 10 CS150 20-P100-CS150		0	PIPE 10 IN ASME/ANSI B36.10	Design	PIPE, SCH 40	20-P100-CS150	ASME/ANSI B36.10	
PIPE 10 CS150 20-P100-CS150		0	PIPE 10 IN ASME/ANSI B36.10	Design	PIPE, SCH 40	20-P100-CS150	ASME/ANSI B36.10	
PIPE 10 CS150 20-P100-CS150		0	PIPE 10 IN ASME/ANSI B36.10	Design	PIPE, SCH 40	20-P100-CS150	ASME/ANSI B36.10	
PIPE 10 CS150 20-P100-CS150		0	PIPE 10 IN ASME/ANSI B36.10	Design	PIPE, SCH 40	20-P100-CS150	ASME/ANSI B36.10	
PIPE 10 CS150 20-P100-CS150		0	PIPE 10 IN ASME/ANSI B36.10	Design	PIPE, SCH 40	20-P100-CS150	ASME/ANSI B36.10	
PIPE 10 CS150 20-P100-CS150		0	PIPE 10 IN ASME/ANSI B36.10	Design	PIPE, SCH 40	20-P100-CS150	ASME/ANSI B36.10	
PIPE 10 CS150 20-P100-CS150		0	PIPE 10 IN ASME/ANSI B36.10	Design	PIPE, SCH 40	20-P100-CS150	ASME/ANSI B36.10	
PIPE 10 CS150 20-P100-CS150		0	PIPE 10 IN ASME/ANSI B36.10	Design	PIPE, SCH 40	20-P100-CS150	ASME/ANSI B36.10	
PIPE 10 CS150 20-P100-CS150		0	PIPE 10 IN ASME/ANSI B36.10	Design	PIPE, SCH 40	20-P100-CS150	ASME/ANSI B36.10	



OpenPlant Modeler

- OpenPlant Modeler V8i *is the first 3D plant modeling software to natively use an ISO 15926 core data model*
 - Faster, more intuitive modeling
 - Task-focused menus
 - Single consistent user interface
 - Intelligent rules-based modeling
 - Easier to visualise
 - Rendered mode
 - Dynamic sectioning
 - Component based design
 - Tree navigation and presentation of information in familiar format
 - Improved interrogation
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OpenPlant Modeler Demo

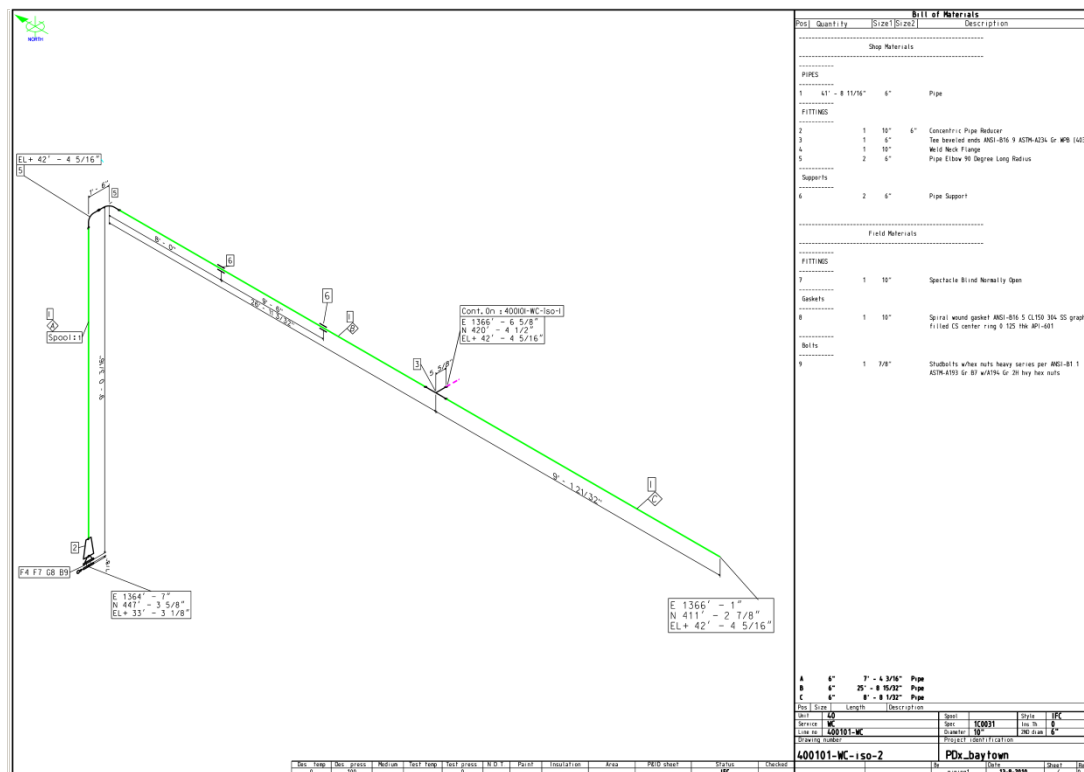
- Using OpenPlant ModelServer
- Check-in / Check-out
- Modeling equipment and piping
- Pipeline manager and isosheets



Generating Deliverables

OpenPlant Isometrics Manager

- OpenPlant Isometrics Manager V8i is the first software to extract intelligent isometric information from multiple design systems, automatically and in real time



OpenPlant Isometrics Manager

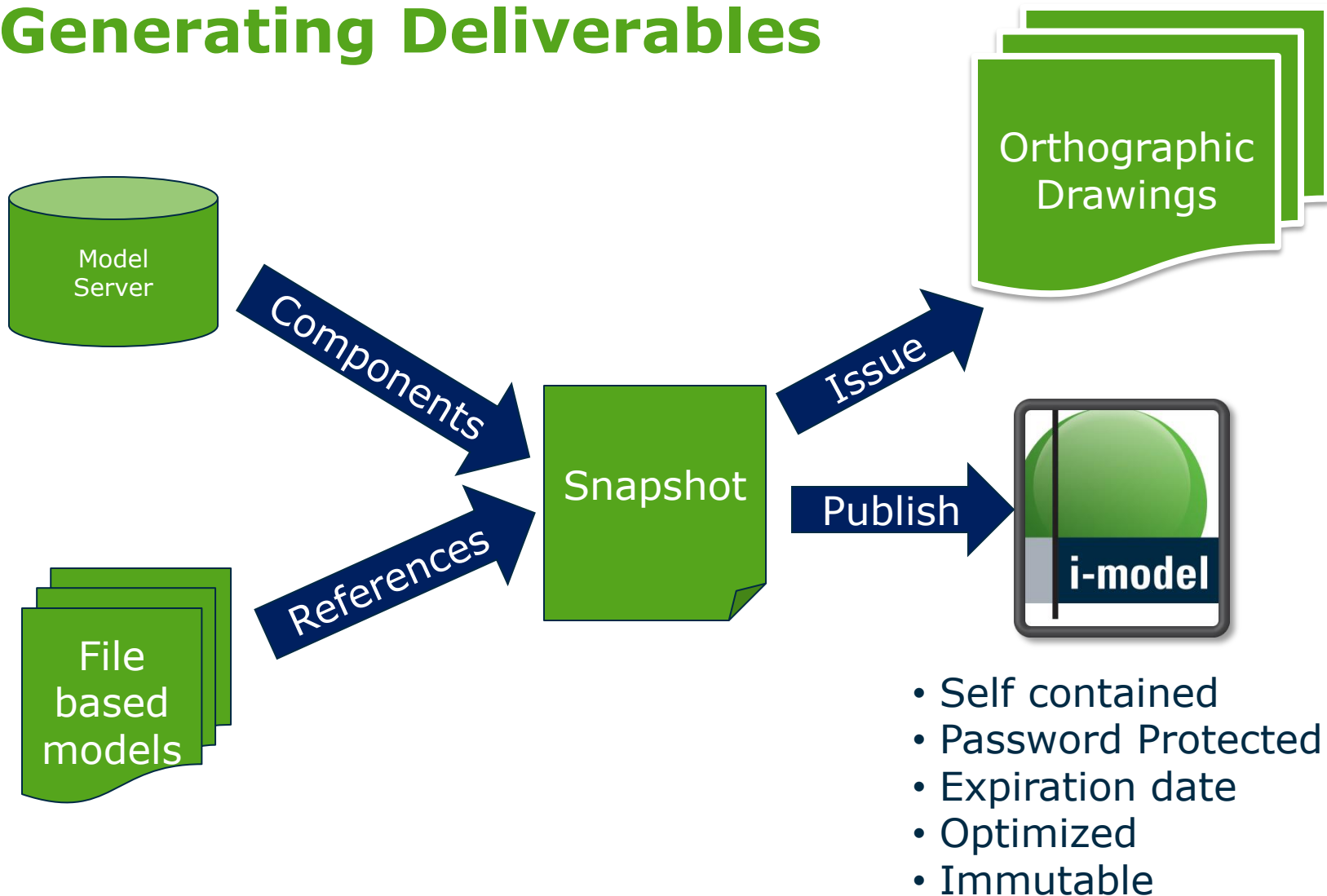
- OpenPlant Isometrics Manager V8i *is the first software to extract intelligent isometric information from multiple design systems, automatically and in real time*
 - Improve Isometric quality and consistency
 - Meet requirements of several isometrics styles
 - Version control
 - Global distribution to engineering, fabrication and construction team
 - Based on Open Data Model, data can be shared with other applications
 - Single application will create Isometrics from multiple sources
 - Reporting on isometric production for billing purposes

OpenPlant Isometrics - demo

OpenPlant drawing production

- Creating dynamic views and composing a drawing
- Managing drawings in ProjectWise
 - Drawing attributes, Drawing numbering
 - Titleblock integration
- PDF creation
- i-models

Generating Deliverables



OpenPlant Reporting

- OpenPlant Reporting V8i is a free module that allows reports to be generated from checked out components or from the OpenPlant ModelServer V8i repository

The screenshot displays the Bentley OpenPlant Reporting V8i interface. On the left is the 'OpenPlant Model Component Browser' showing a tree view of components under 'PID1'. The main window displays a 'VALVE LIST (TAGGED)' table with the following data:

Tag No.	Valve Type	Operator	Component Description	Size 1	Size 2	Class / Rating	End 1	End 2	Quantity
-	GLOBE_VALVE	AT_TOPWORKS_HANDWHEEL	GLOBE VALVE 100 ME Area1 Process L103 mcC130 AT_TOPWORKS_HANDWHEEL	100	20	CL300	FLANGED	FLANGED	7
-1	GLOBE_VALVE	AT_TOPWORKS_HANDWHEEL	GLOBE VALVE 250 ME PID0-L130 mcC130 AT_TOPWORKS_HANDWHEEL	250	250	CL150	FLANGED	FLANGED	1
-122	GATE_VALVE	AT_TOPWORKS_HANDWHEEL	SOLID WEDGE GATE VALVE 300 ME L110 AT_TOPWORKS_HANDWHEEL	300	300	CL150	FLANGED	FLANGED	1
HV-0001	GATE_VALVE	HAND_WHEEL	GATE VALVE 50 ME L2002 HAND_WHEEL	50	50	CL150	BUTT_WELD	BUTT_WELD	1
HV-0002	GATE_VALVE	HAND_WHEEL	GATE VALVE 50 ME L2002 HAND_WHEEL	50	50	CL150	BUTT_WELD	BUTT_WELD	1
HV-0003	GATE_VALVE	HAND_WHEEL	GATE VALVE 50 ME L2002 HAND_WHEEL	50	50	CL150	BUTT_WELD	BUTT_WELD	1
HV-0004	GATE_VALVE	AT_TOPWORKS_HANDWHEEL	CONDUIT GATE VALVE 300 ME Area1 Low Pressure Steam-mC130	300	300	CL150	FLANGED	FLANGED	1
HV-0005	GATE_VALVE	HAND_WHEEL	GATE VALVE 150 ME L2001 HAND_WHEEL	150	150	CL150	BUTT_WELD	BUTT_WELD	1
HV-0006	GATE_VALVE	HAND_WHEEL	GATE VALVE 50 ME L2003 HAND_WHEEL	50	50	CL150	BUTT_WELD	BUTT_WELD	1
HV-0007	GATE_VALVE	HAND_WHEEL	GATE VALVE 50 ME LPS100 HAND_WHEEL	50	50	CL150	FLANGED	FLANGED	1
HV-0008	ANGLE_VALVE		ANGLE VALVE 80 ME FL100	80	80	CL150	FLANGED	FLANGED	1
HV-0009	GATE_VALVE	HAND_WHEEL	CONDUIT GATE VALVE 200 ME L101 HAND_WHEEL	200	200	CL150	FLANGED	FLANGED	1

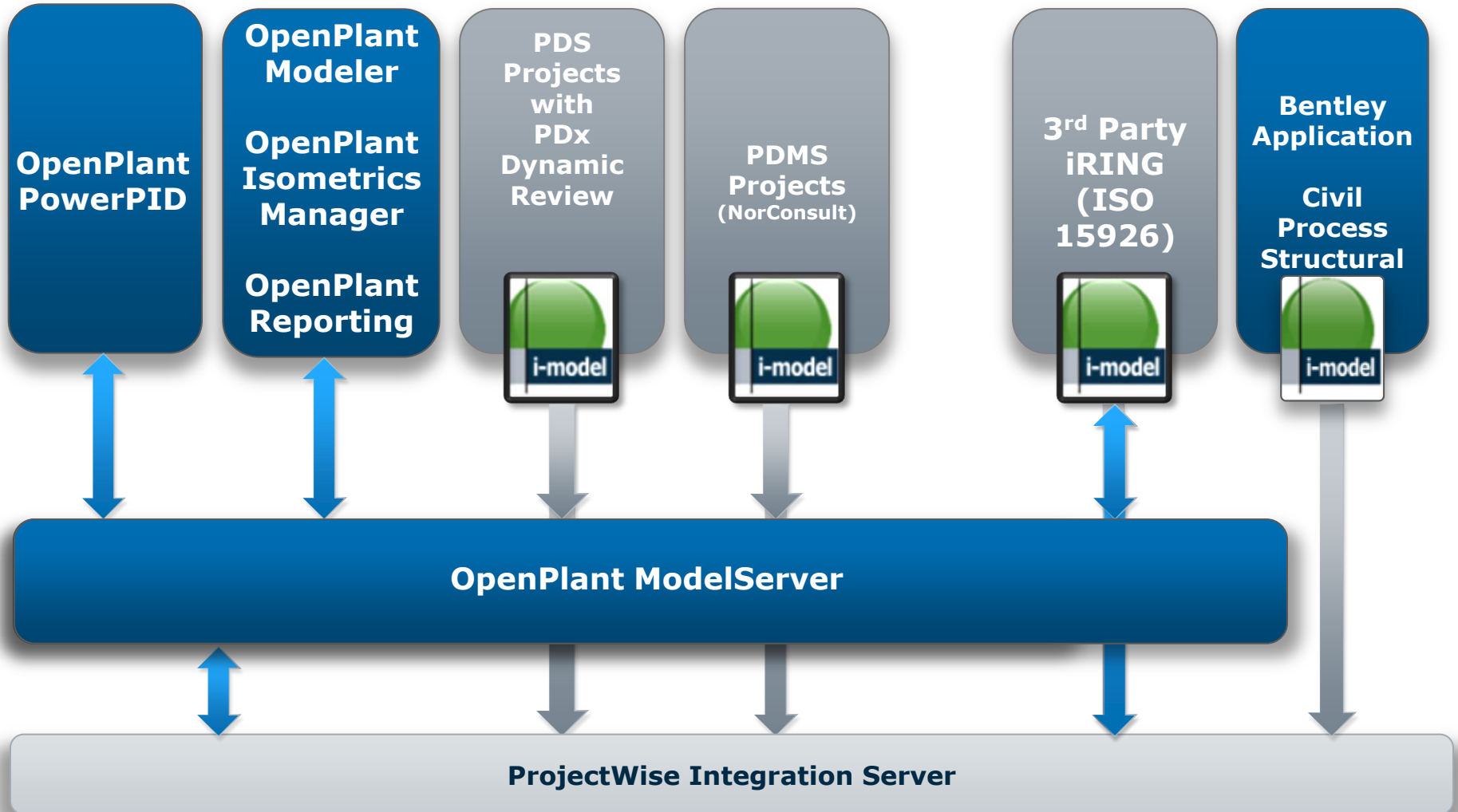
Page 1 of 3



OpenPlant Reporting

- OpenPlant Reporting V8i *is a free module that allows reports to be generated from checked out components or from the OpenPlant ModelServer V8i repository*
 - Custom reports can be easily created and stored, using Excel or Crystal Reports as the reporting format

OpenPlant Interoperable Environment





Questions and answers