Find What You've Been Looking For:

How AF 2.0 Helps You Organize Your Information
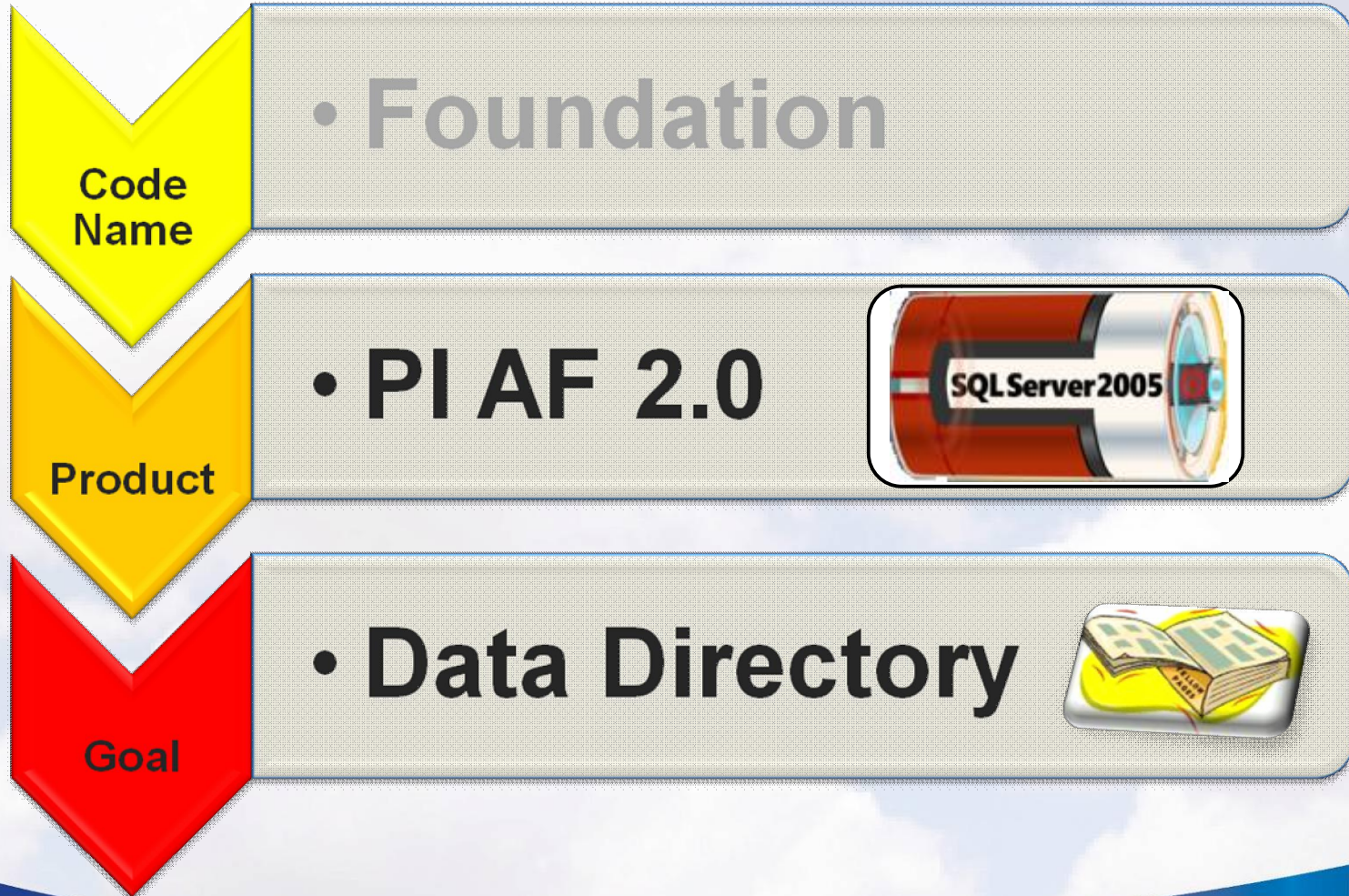
Ray Hall
Development Manager
OSIsoft

Laurent Garrigues
Product Manager
OSIsoft

OSIsoft User Conference 2007 · Monterey California

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Agenda

- What's AF 2.0?

- The value of AF

- Demonstrations

- Backwards compatibility

- What's coming next

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Foundation by any other name

Code Name	• Foundation
Product	• PI AF 2.0
Goal	• Data Directory

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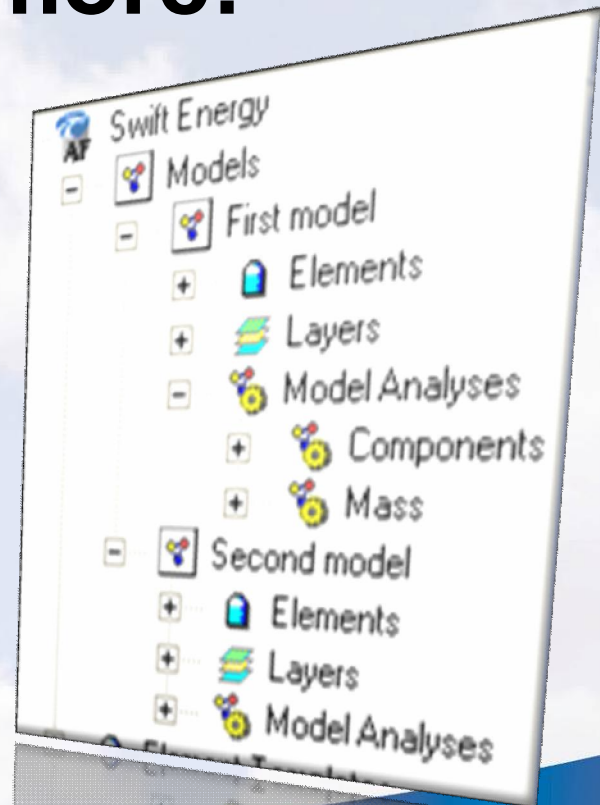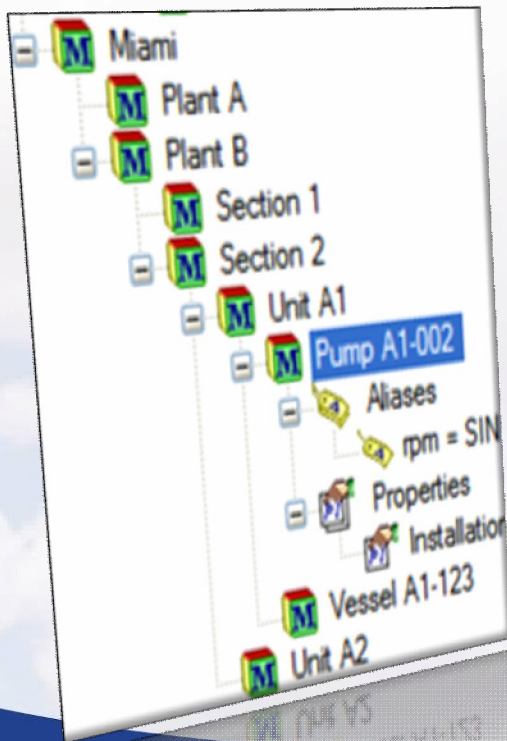
What is AF 2.0?

The best of PI MDB and PI AF 1.x combined

… and a lot more!

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The value of AF: structure

- PI is extremely good at:
  - History of data collected data from almost anywhere
  - Massive scalability, Highly available
  - Ease of use & Rapid deployment
- PI is focused on a points database
- Meta-data: a **structure** for the data
  - PI supplies data
  - AF supplies structure and access to more data

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Why add structure?

- Structure is *your* knowledge applied to *your* points

- Structure helps you:
    - Store your domain expertise
    - Build applications
    - Build displays
    - Answer new questions

AF shapes your data

AF is designed to store structure:

- Defining types of assets   ⟶ Templates

- Associating points with assets   ⟶ Elements

- Extra information about points   ⟶ Attributes

- Physical/logical asset structure   ⟶ Hierarchy

- Assets connectivity   ⟶ Models

- Transactions   ⟶ Transfers

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Domain knowledge - performance

Model different types of equipment

- Heat exchangers

- Reduction furnaces

- Power Meters

- Trucks

- Buildings

- Wells

- IT devices

- Tanks

Domain knowledge - calculations

Apply engineering/business rules

- Heat, mass transfer
- Chemical principals
- Electrical calculations
- Material movements
- Energy consumption
- Production and forecast
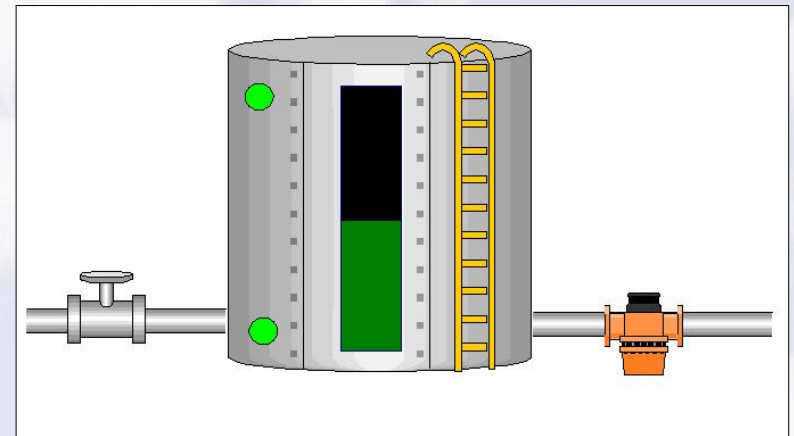- Load, availability
- Inventories

Domain knowledge - limits

Assets performance

- Determine if the equipment is operating effectively
  - Heat exchanger fouling
  - Efficiency
  - Power factor
  - Demand/Supply
- Detect and act on abnormal conditions with PI Notifications
  - Alarming rules

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Domain knowledge – Tank R21

- How to totalize flow rates in/out of Tank R21

- Limits for notification on Tank R21

- Alarm states on Tank R21

- Strapping table

- Capacity of Tank R21

- Production line for Tank R21

- Downstream units of Tank R21

- Responsible person for production line

Domain knowledge – wind turbine

- Power generation

- Weather data

- Owners

- Maintenance data

- Connectivity to the grid

- Availability
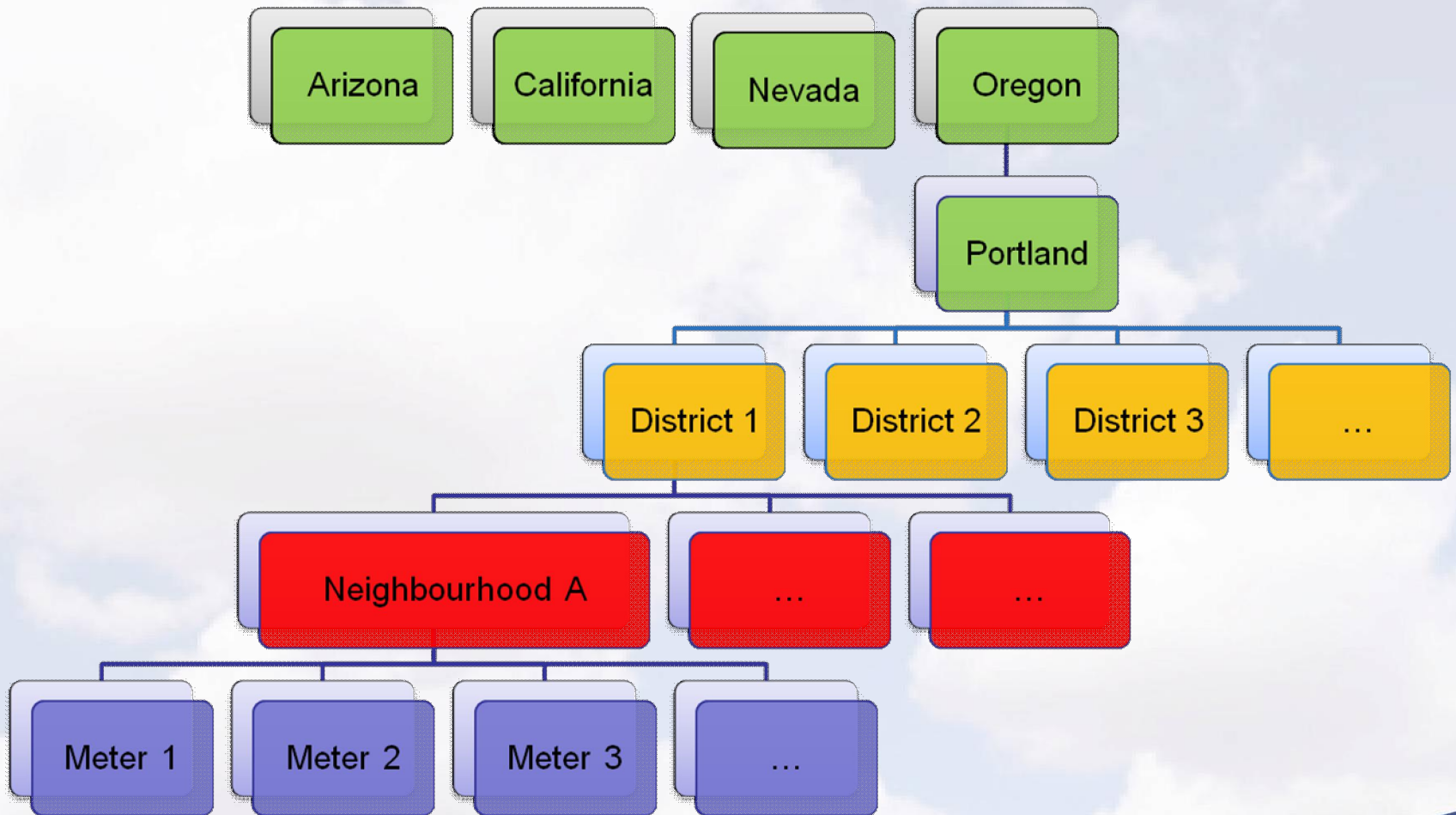
- Power curve

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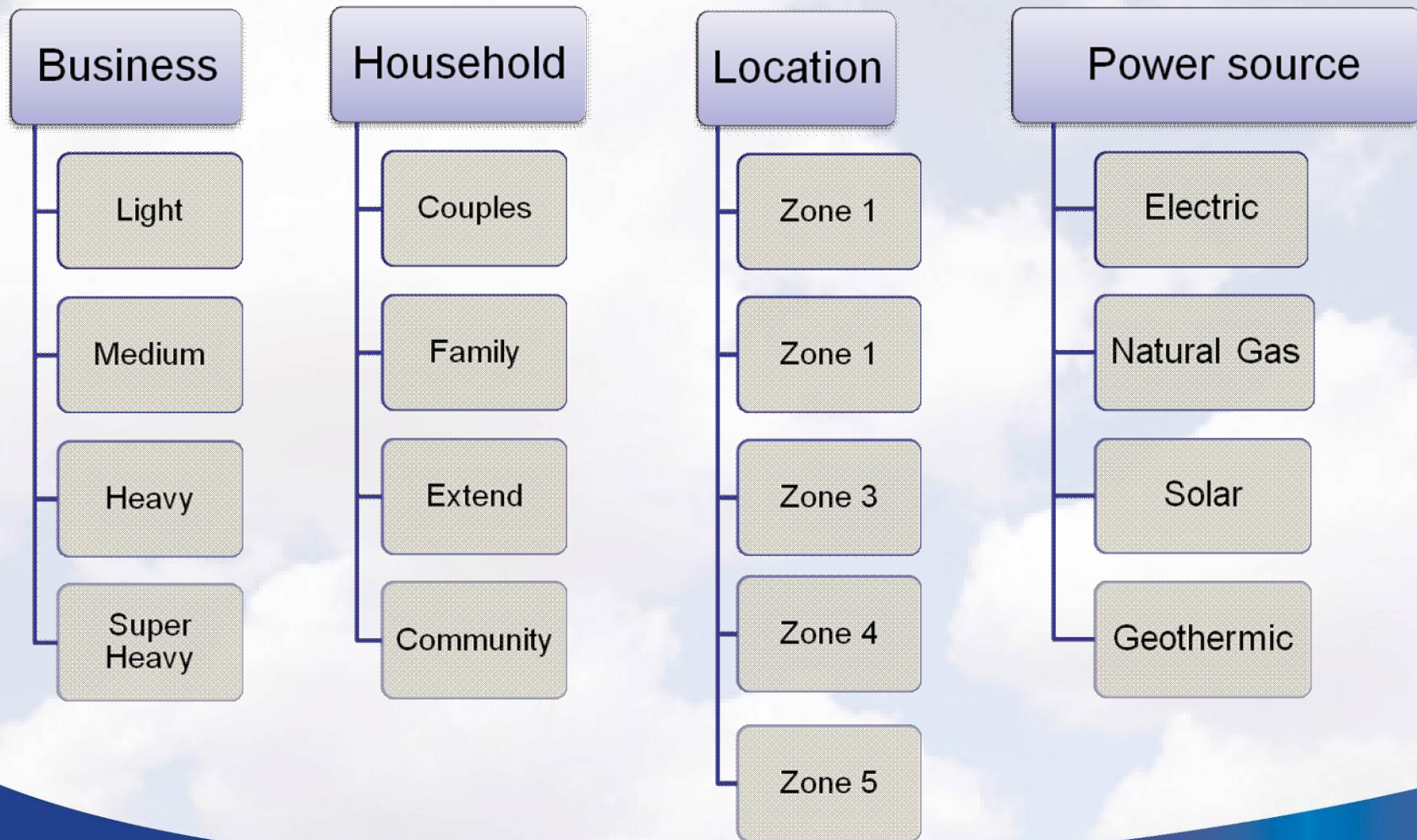VALUE NOW, VALUE OVER TIME

AMI* scenario

- Power meters being managed by an enterprise PI system
  - A single AF Server to organize the meters
  - Real-time data provided by several PI Servers
- Meters are derived from templates
  - PI data   Static data
  - Data from foreign systems   Calculations
  - Forces consistency
  - Allows automatic tag generation

*Advanced Metering Infrastructure

Hierarchical view

Meters categories

Business	Household	Location	Power source
Light	Couples	Zone 1	Electric
Medium	Family	Zone 1	Natural Gas
Heavy	Extend	Zone 3	Solar
Super Heavy	Community	Zone 4	Geothermic
		Zone 5	

Element Templates

Applications – from OSI

- PI Notifications
  - Store Analysis and Notifications
  - Contacts
  - Use Element Attributes

- Assets connectors

- Event frames

- Configuration database

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AF speeds up visualization

- Many displays are centered on equipment

  - Unit detail, Line diagram

  - Process Overview

  - Area displays

- Knowledge of the equipment helps

  - Finding relevant points

  - Creating unit relativity

  - Custom object symbols

Get connected from ProcessBook

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Answer new questions

- Adding your structure is done once
    - Organize points from multiple PI systems
    - Adding consistent naming
    - Adding static configured data
    - Adding data from other systems
- This structure benefits all PI users forever
    - Searches across PI systems
    - Search for information related to the business
    - Ability to view and use additional information

AMI scenario – scalability test

4 states-cities

40 districts

25 neighbourhoods

300 power meters

1.2 million assets

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Summary of new AF 2.0 features

- Improved element hierarchy

- Improved searching capabilities

- Object history (versioning, query dates)

- Hierarchical attributes

- New attributes types

- Enumeration sets
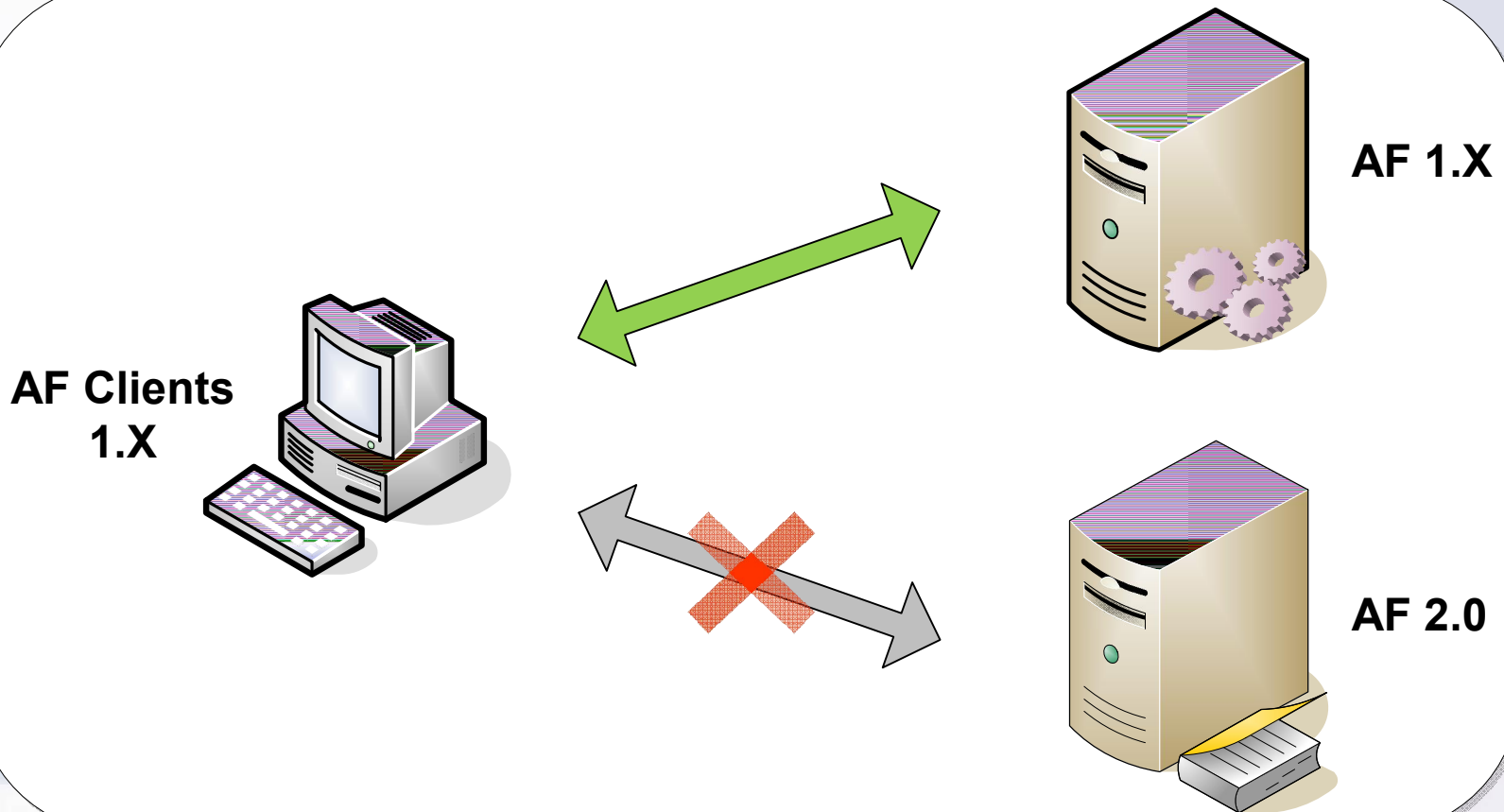
- Object level security integrated with Windows

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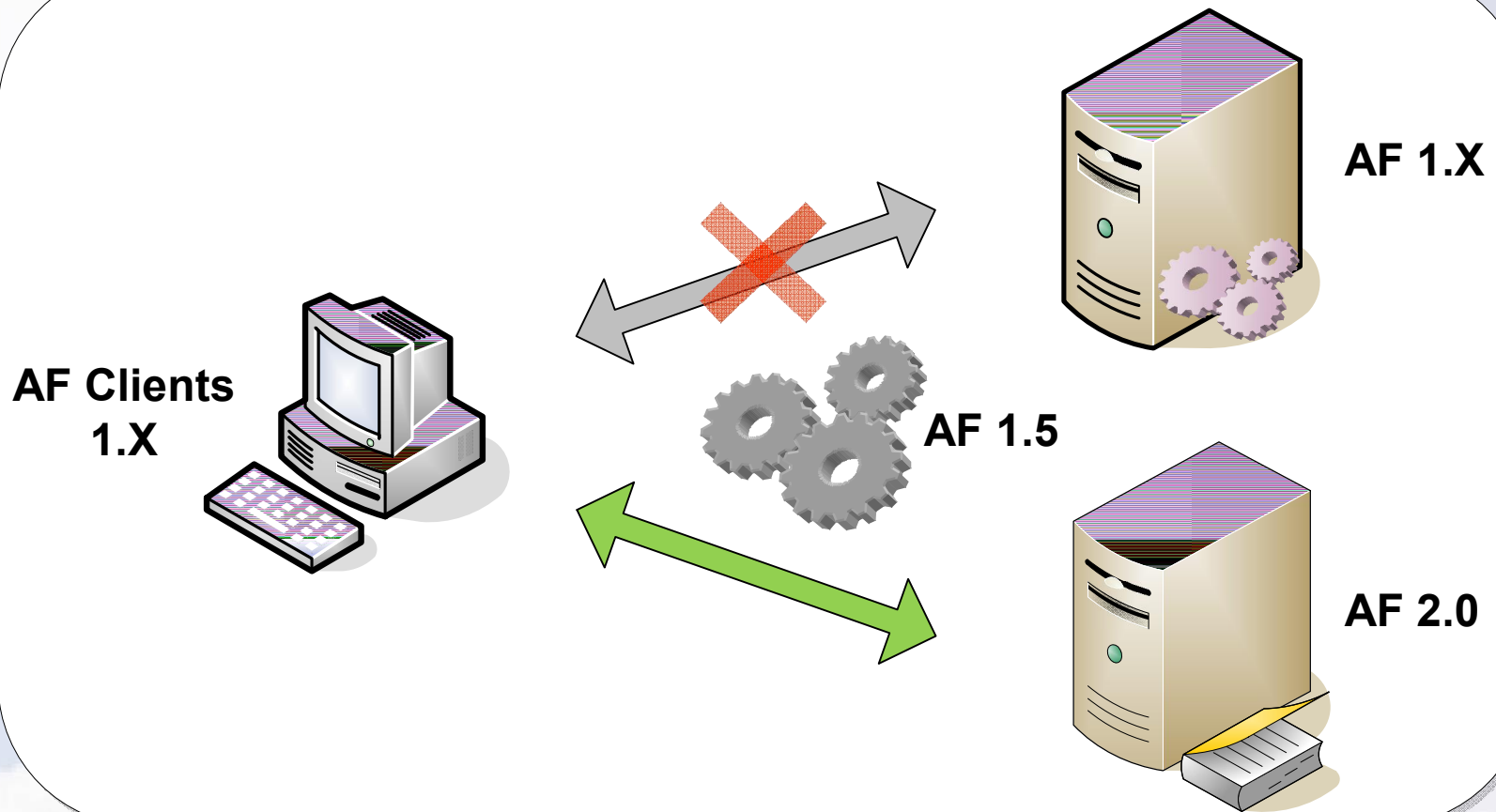
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The AF compatibility layer

- Redirect all AF 1.x clients towards AF 2.0
  - AF Explorer
  - AF Modeler for ProcessBook
  - AF Excel Add-ins
  - Custom DR, AR
- New AF 2.0 features not supported by old clients
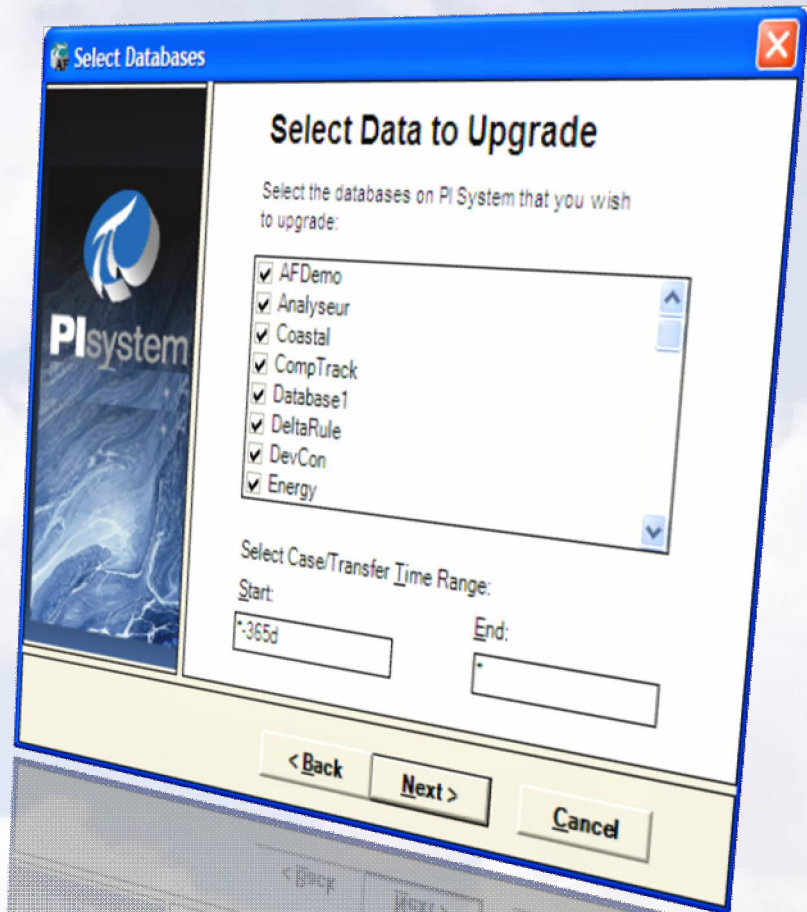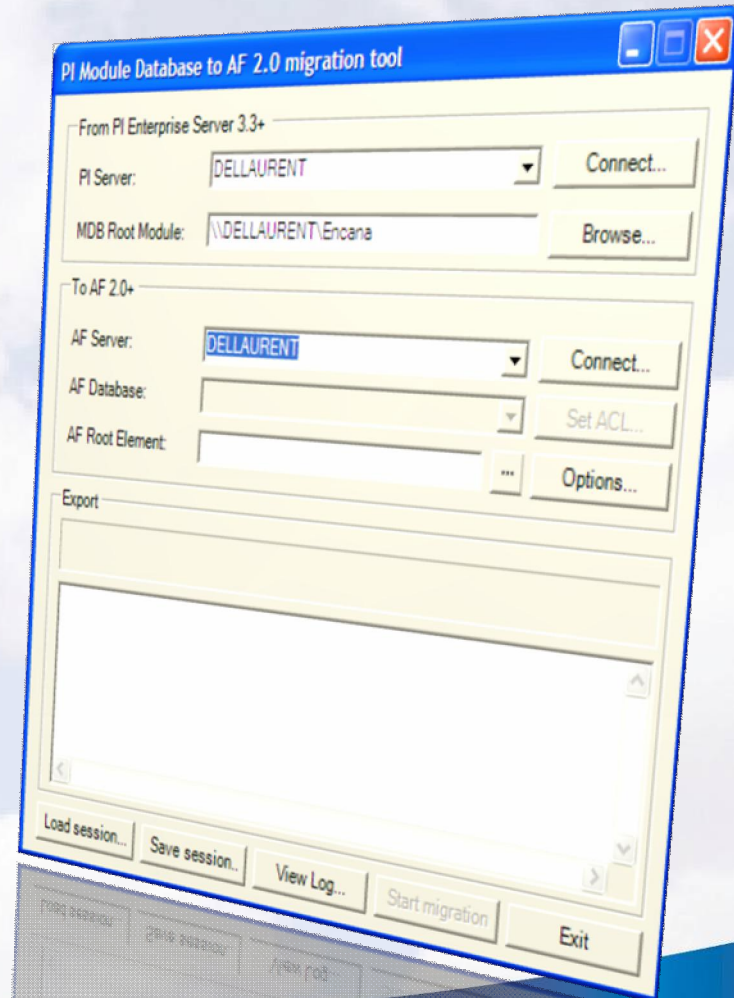
No compatibility layer

AF 1.X

AF Clients
1.X

AF 2.0

With the AF 1.5 compatibility layer

AF 1.X

AF Clients 1.X

AF 1.5

AF 2.0

AF upgrade utility

From AF 1.x
To AF 2.0

Migration from PI MDB

From PI MDB To AF 2.0

Getting started with AF 2.0

The PIServerImport utility
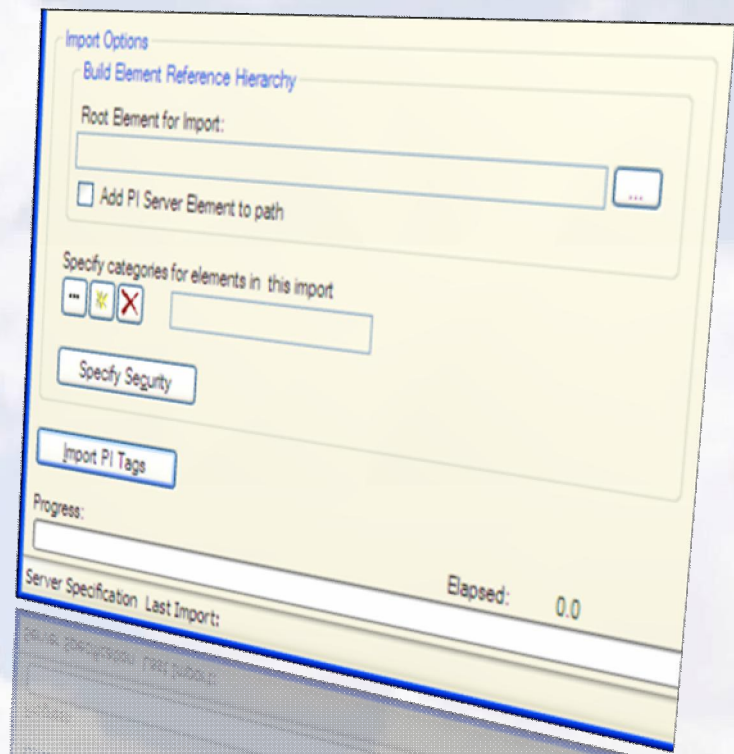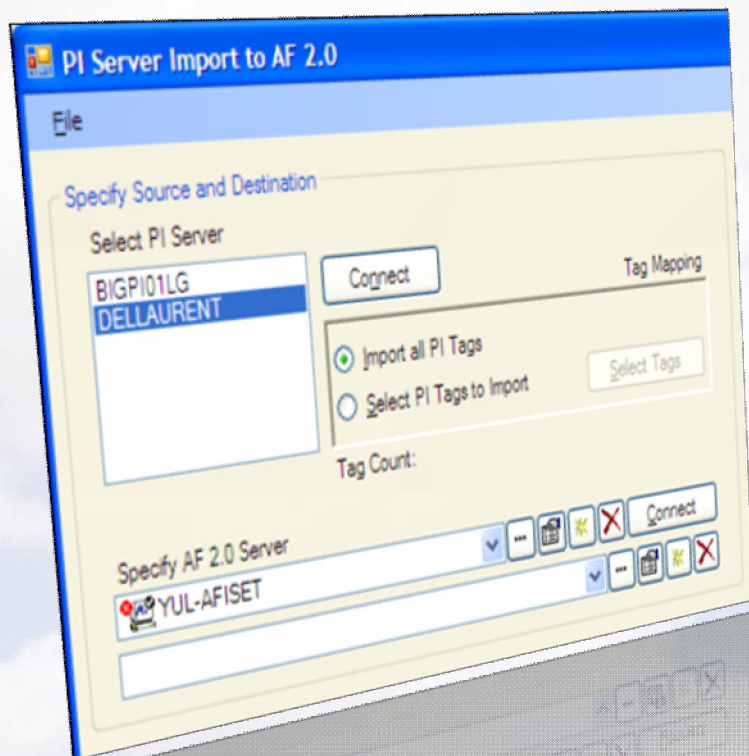
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What's coming next?

- **Visualization**
  - Element Relative Displays/Reports
  - Integration with RtWebParts
- Advanced searches
- AF Views for role based access
- AF OLEDB Provider
- AF Modeler upgrade to AF SDK 2.0
- Integrate AF add-ins for Excel

Your next move…

- ## **Come see us at the demo booth!**
- ## Customers/Partners related talks:

  - **Tues. 13:55**   CIM Models, AF 2.0 and Automatic Substation One-Line Generation

  - **Tues. 16:50**   Ekho: A suite of MES application that leverage AF 2.0.

  - **Wed. 13:30**   Leverage Your PI System with AF 2.0 to Implement and Manage Your Operational KPIs

  - **Thur. 09:55**   3D Navigation: Adding a New Dimension to PI and AF Data

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