

# Event Frames Driving Partners' Successes

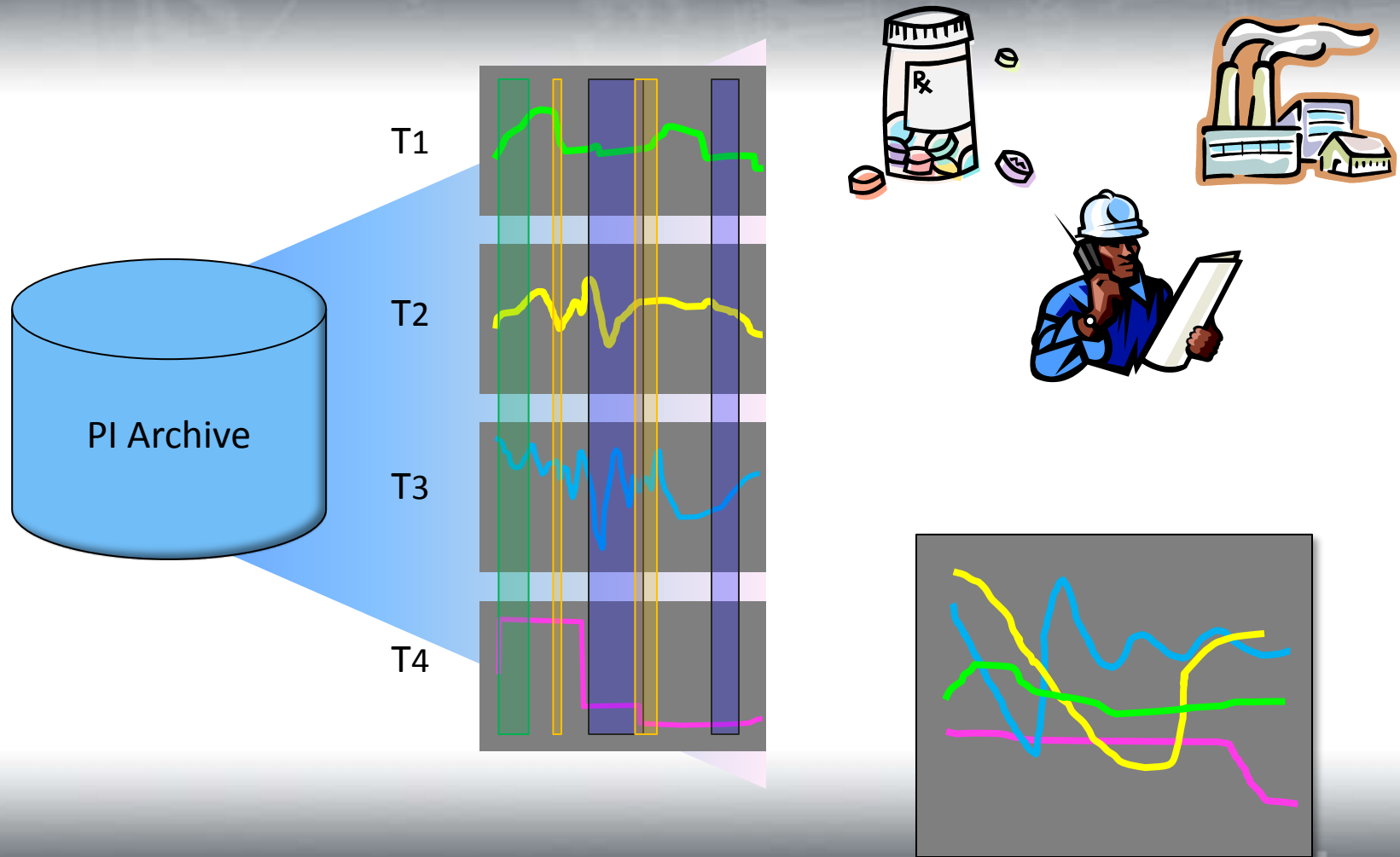
## Presented By:

Chris Coen, OSIsoft, LLC  
Keith Flynn, ADM Systems Engineering Ltd.  
Yannick Galipeau, ITI



OSIsoft®

# Event Frames provide context



OSisoft®

# Event Frames Vision

Event Frames are ***the way*** to index your time series data.

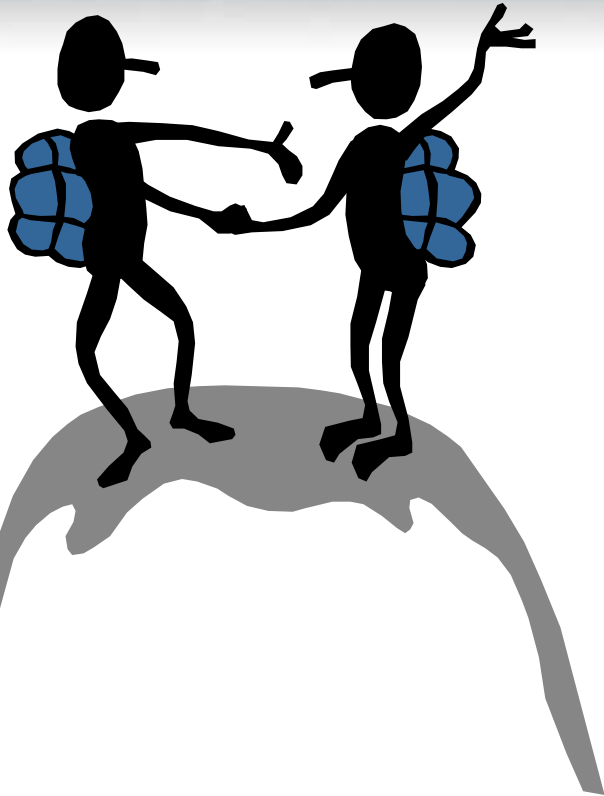


# Event Frame Definition

- A time series data type defined by two times and optionally accompanied by supporting data
- Any event in your process:
  - downtime event
  - incident event
  - material transfer event
  - equipment maintenance event
  - batch processing step
  - specific investigation
  - six-sigma project
  - electrical power outage
  - safety incident
- Any time range or repeatable set of time ranges:
  - shifts
  - day
  - week
  - month
  - year to date
  - etc.



# The Challenge



- OSIssoft vCampus Live! 2009
  - CTP released
  - Challenge announced
- Discussions online
- 2 partners stepped forward

OSIssoft®

# Event Frames Driving ADM's Successes

**Presented By:**

Keith Flynn  
ADM Systems Engineering Ltd.



OSIsoft®

# ADM Systems Engineering Ltd.

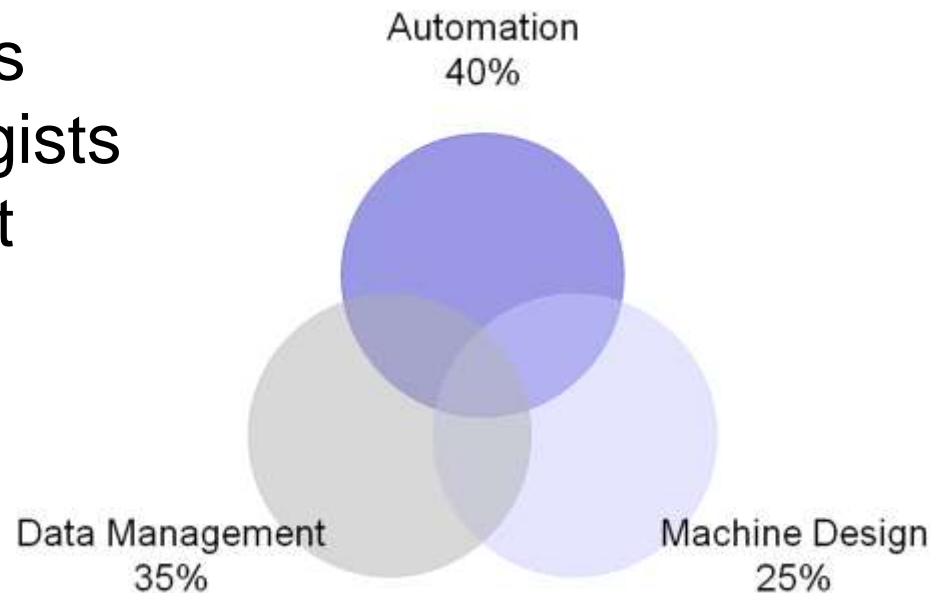


- ADM Systems Engineering Ltd.
  - Engineering and Software Development
  - OSIsoft vCampus Member & OSIsoft Partner
  - Developer of RtDuet™
  - Successfully completed downtime reporting projects all over the world



# ADM Systems Engineering Ltd.

- Total staff of 35+
  - Professional Engineers
  - Engineering Technologists
  - Software Development
  - Employee Owned
- Focused on
  - Automation
  - Data Management
  - Mechanical (Machine Design)
- Steady, uninterrupted growth since 2002



OSIsoft®



# ADM Systems Engineering Ltd.



# RtDuet™



is an automated, real time, Downtime, Uptime and Event Tracking software system; a knowledge based product by ADM Systems Engineering Ltd.

OSIsoft®

# RtDuet™



is a software that

- Automatically captures downtime events
- Generates standardized, real time reports for maintenance and capital planning
- Shares data with other MES applications
- Utilizes corporate models, unique to the corporation & generic for business units.
- Is independent of automation infrastructure & processes
- Is scalable
- Is easy to use, easy to understand
- Is built on OSIsoft and .NET technology

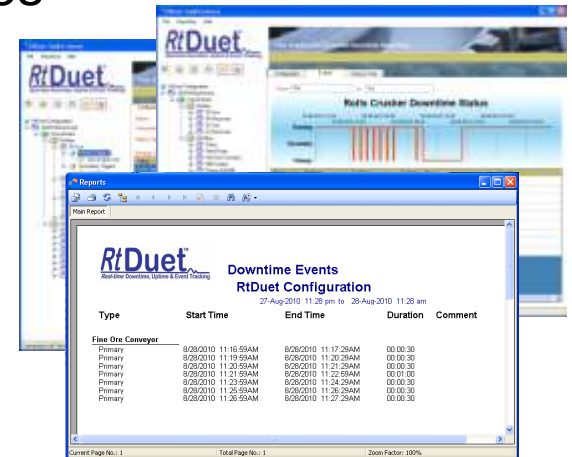


# RtDuet™



helps improve plant performance:

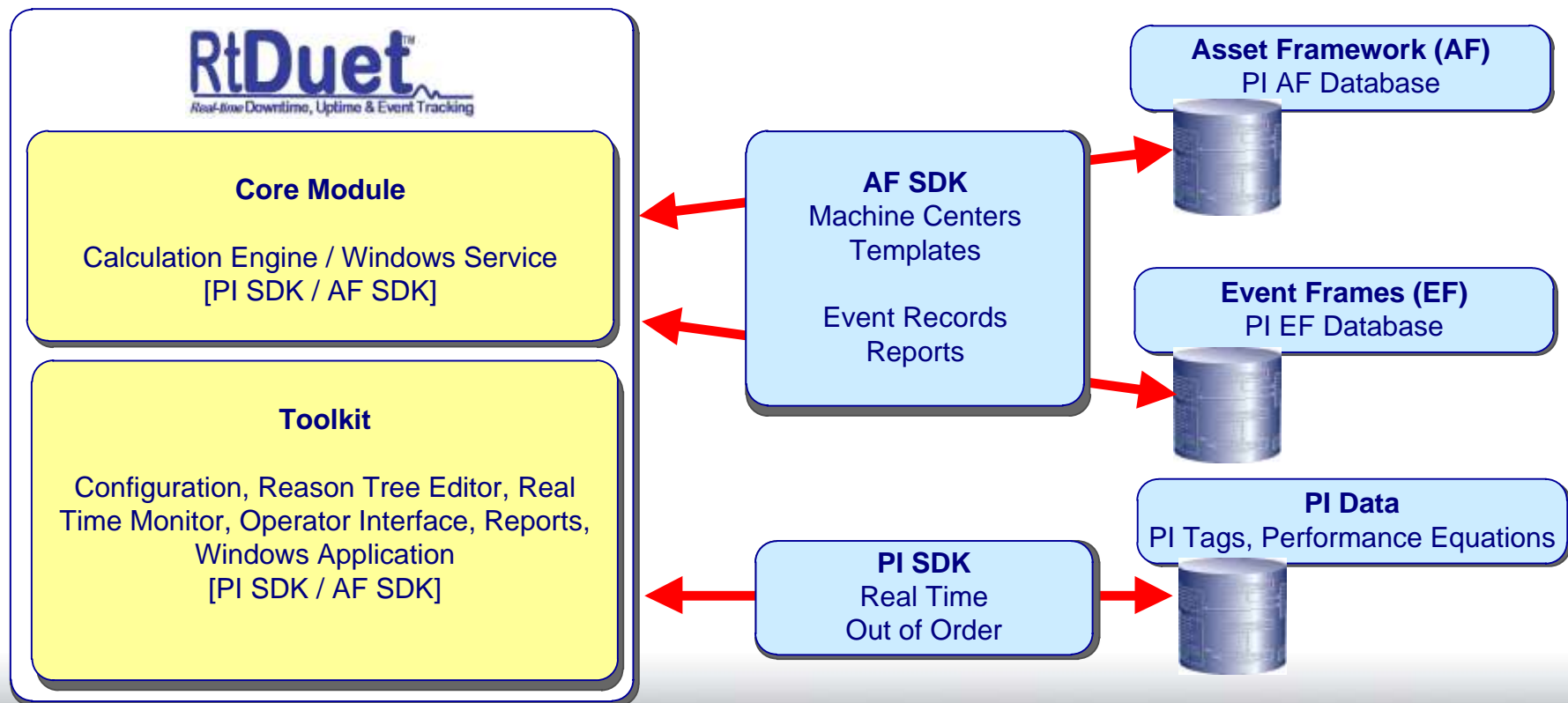
- Reducing Downtime, Speed and Quality Losses
- Identifying Production Bottlenecks
- Delivering Capacity Gains
- Configuration Wizards
- Reporting that supports
  - Relative time stamps for real time monitoring
  - Recalculation based on updated data
  - Dynamic reporting intervals for hour, shift, week or month



OSIsoft®

# RtDuet™

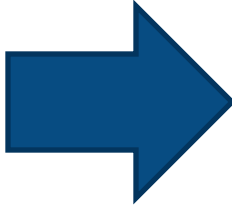
## RtDuet – Software Suite



OSIsoft®



# How Event Frames enabled ADM to rapid prototype a new RtDuet.

- PI Asset Framework (AF) and its toolkit
    - PI AF SDK is relatively easy to use
    - CHM Help file is extremely useful
    - Performance (compared to Module DB)
    - Filters and search functions
    - Object Structures
    - Designed for reuse and scalable
    - **Provides RtDuet with infrastructure.**
- 
- Event Frames (EF) and its toolkit.
    - Built on what was learned from AF
    - Performance (Compared to PI Batch)
    - Object Structures
    - Flexibility (Elements and Attributes)
    - Scalable
    - Reporting
    - **Provides RtDuet with a location to record its events.**

OSIsoft®

# PI Asset Framework vs PI MDB

## Event Frames vs PI Batch

- Both PI AF and EF allowed easy migration of RtDuet. OSI provides all the tools necessary.
- New PI AF allows “n” RtDuet triggers.
- New PI AF allows “n” RtDuet reason tree levels.
- New EF templates allow “n” types of Event Record Types. Not for just Downtime. Production, Quality, Batch...etc.
- New EF features means no need to make an event fit the structure. The structure can be modified to fit the event.



# PI AF and EF Key Features Used.

- PI AF – RtDuet's infrastructure
- EF – RtDuet's main repository
- Searching - Elements or Event Frames
- Templates – Flexible
- Configuration Changes
- Check-Out and Check-In
- Reusable code
- vCampus Sample Code





# RtDuet

## Benefits of leveraging PI System

- The PI System is a great neutralizer.
  - PI is the foundation of RtDuet. It removes any requirement for a single technology or vendor hardware.
- PI SDK
  - Real time process data
  - Late binding data (Lab, Manual Inputs, Batch Process)
- PI AF and EF SDKs
- ROI for Customers



# RtDuet

## Benefits of leveraging PI System



- Live Demo

# Reuse of Code for MRS.

- **Manufacturing Reporting System (MRS)**
- Reused 90% of code from RtDuet AF
  - Uses PI SDK, Event Frames (EF SDK), and Asset Framework (AF SDK)
  - Reports and Dashboards are integrated into SQL Reporting Services and PI WebParts.
- Customized to perform specific requirements.
  - Catch Production events
  - Record Production Values
  - Record Scrap
- Future Development
  - More generic configurable modules
  - RtDuet and other application features all included in one back calculation



# Contact Info.

## **Keith Flynn, P.Eng.**

VP, Data Management  
ADM Systems Engineering Ltd.  
1 Research Drive  
Dartmouth, NS B2Y 4M9, Canada

Phone: +1 902 464 4862  
Mobile: +1 902 476 8574

UK: +44 20 3239 8574  
AUS: +61 8 6102 0954  
NZ: +64 9 889 8574  
Fax: +1 902 466 6889

Email: [flynnk@admse.com](mailto:flynnk@admse.com)  
URL: [www.admse.com](http://www.admse.com)

## **Special 90day Offer**

**Free copy RtDuet “Lite”**

**Please send email to  
[flynnk@admse.com](mailto:flynnk@admse.com) for free  
download.**

- **No timeout**
- **Upgrade anytime to full  
version of RtDuet.**
- **Requires PI AF and EF.**

**OSIsoft®**



# Thank You!

OSIsoft®

# Event Frames and Ekho – better together

**Presented By:**

Yannick Galipeau  
ITI



**OSI**soft®

# Agenda

- ITI at a glance
- Ekho Performance Suite Features
- Market and Customers
- Ekho – BP Alternative Energy Project Description
- Live Demonstration
- Ekho BP Alternative Energy Project Benefits
- Why using PI AF/EF?



# ITI at a glance

- Founded in 2000
- Headquarters and R&D center located in Montreal, Canada
- Presence in Canada, United-States and Europe
- Office in Montreal, Trois-Rivieres, Appleton WI and Savannah GA (sales)
- OSIsoft partner since 2007
- Developer of the Ekho Performance Manufacturing Suite





# What is Ekho?

Ekho is an Event Driven, EMI Software  
(*Enterprise Manufacturing Intelligence*)

- Packaged Cases
- Chemical Reactor Batch
- Cheese Skid
- Steel Coil
- Aluminum Ingots
- Raw Material Lot #
- Reel of Paper
- Fiberoptic tapers or faceplate
- Plastic Film Rolls...



# What is Ekho? (continued)

- Equipment Downtime
- Order
- Complaint
- Wind Turbine Fault
- Environmental Spill
- Process Centerline Event
- Quality upset
- KPI (OEE)
- Injury
- Recipe
- ....



# Ekho Performance Suite Features

- Production Tracking, Genealogy and Traceability
- Process Centerlining
- Quality and Specifications Management
- Downtime Captures and Management
- Performance Management (OEE & KPI's)
- Root Cause Analysis Solutions
- Accident and Injury Tracking
- Ad-Hoc Extractions and Data Analysis
- Web Reporting & Silverlight Web Dashboards



# Market and Customers



alternativenergy



Fresh thinking on paper.  
**Catalyst**



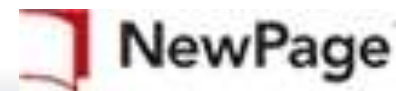
*Rothmans Inc.*



batHium



**SMURFIT-STONE**



OSIsoft®

# Ekho – BP Alternative Energy Project Description

- 8 Wind Farms in the USA
- 487 Wind turbines
- Automatic Capture of all Fault/Downtime Events
  - Scheduled Maintenance
  - Ambient Temperature High
  - High Wind Speed...
- Automatic Calculations of more than 300 KPI per Turbines (daily/weekly/monthly/per Wind Farms/ for complete Fleet)
  - Power Generation
  - Project Availability
  - Gross Availability
  - Commercial Availability
  - Turbine availability...

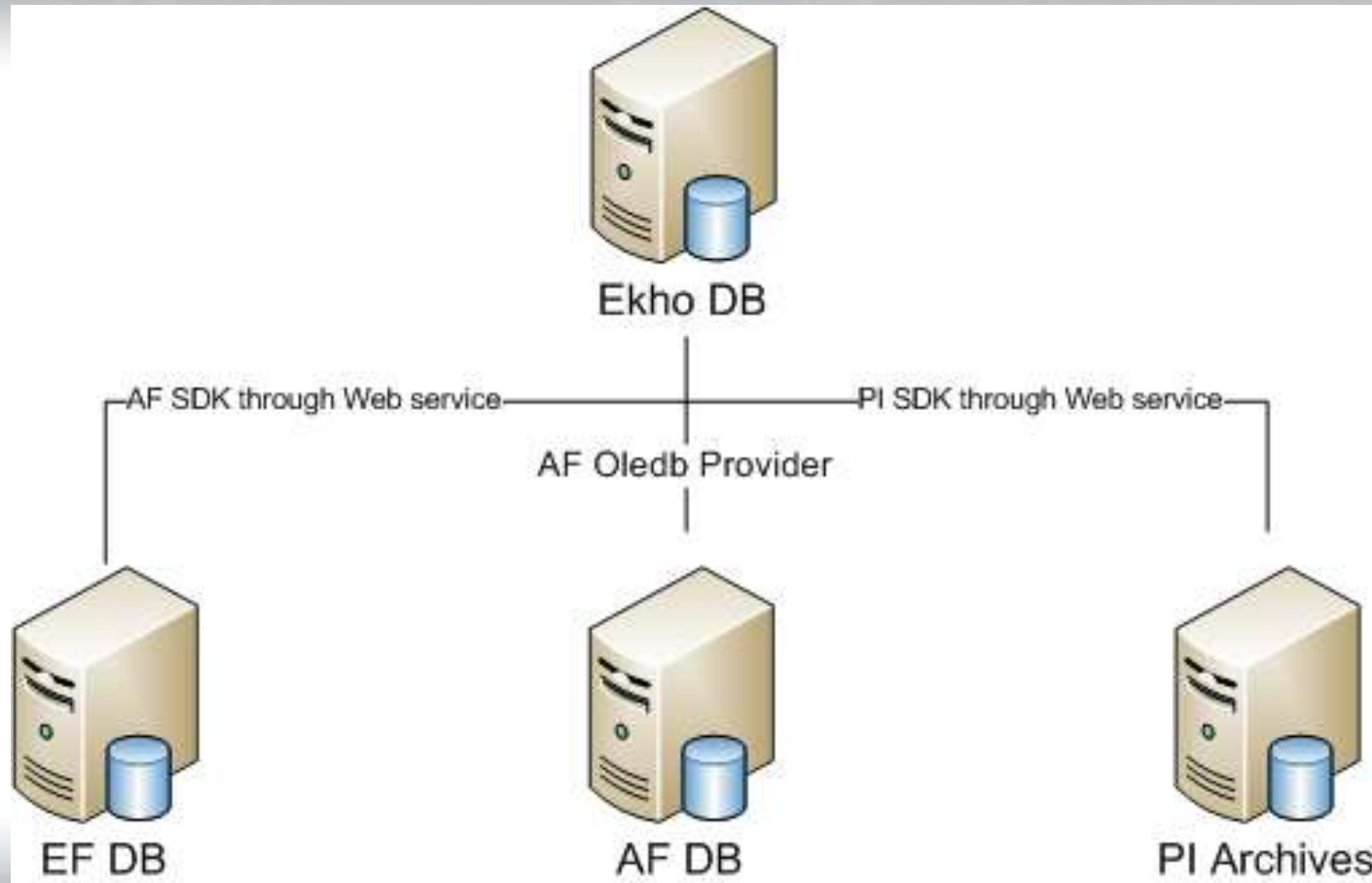


# Ekho – BP Alternative Energy Project Description

- 1 PI Server at each Wind Farms
- 1 Central PI Server that consolidate key values
- 1 Ekho Server for the US Fleet
- All Ekho Web Dashboards in their Corporate MS SharePoint Site



# System Communications



OSIsoft®

# Ekho Live Demonstration



OSIsoft®



# Ekho BP Alternative Energy Project Benefits

- Easy integration with the PI System
- Events driven
- Accessibility to performance data (faults, downtime, downtime categorization)
- Allows to compare equally any type of turbine technologies and turbine modules (GE, Vestas, Clipper, etc... )
- Highly configurable
- Allows expansion (3 other phases are already done/planned)



# Why ITI is moving to Event Frames and PI AF?

- Faster Development for our applications
  - Generic re-usable routines development
- Allows us to focus on added values features on top of OSIsoft Infrastructures
- Complete Integration with all OSIsoft platforms (Historian, PI AF, EF and Notifications)
- Allows OSIsoft Clients Apps to use Ekho Data
- Visibility through OSIsoft Customers





# Thank You!

OSIsoft®

# Backup slides...

## Presented By:



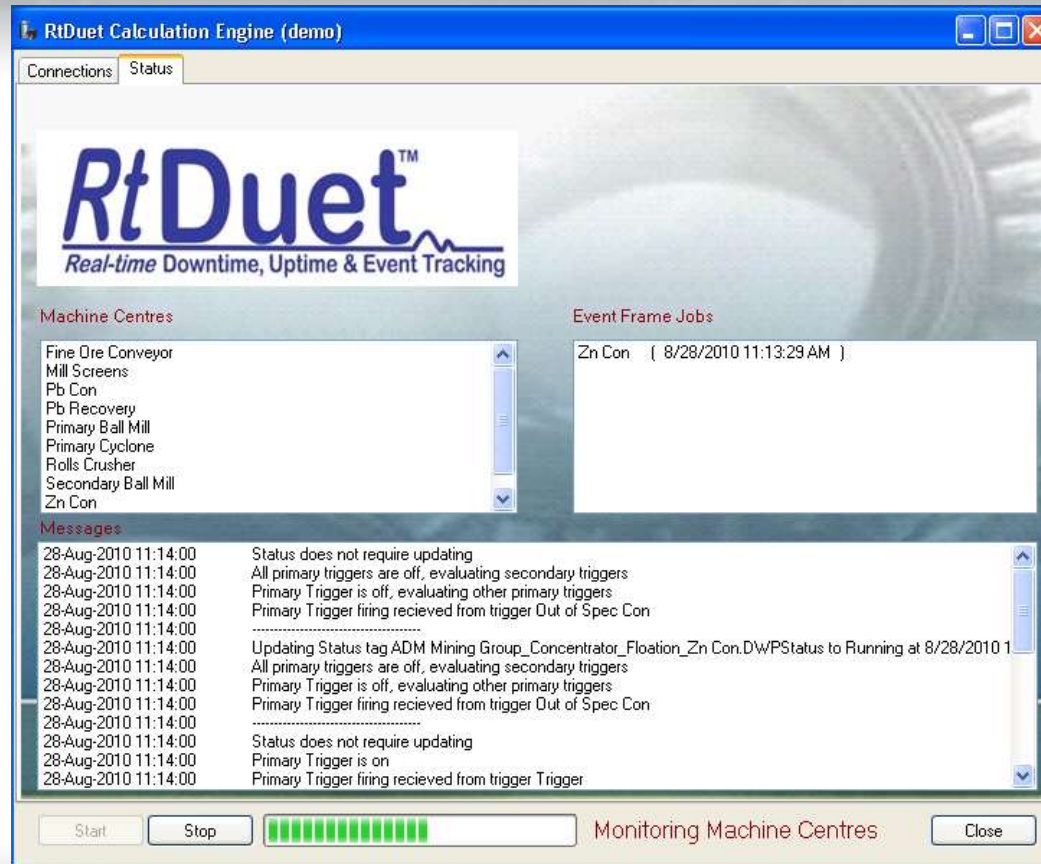
**OSI**soft®

# RtDuet™ Core Module

- Live Demo Replacement



# RtDuet™ Core Module



OSIsoft®

# RtDuet™ Configuration Toolkit

The screenshot displays the RtDuet Configuration Toolkit interface. The title bar reads 'RtDuet Toolkit (demo)'. The menu bar includes 'File', 'Reporting', and 'Help'. The main window features a left-hand tree view showing the configuration hierarchy: 'RtDuet Configuration' > 'ADM Mining Group' > 'Concentrator' > 'Floation' > 'Pb Con'. The 'Pb Con' node is selected, and its sub-items 'Primary Triggers' and 'Secondary Triggers' are expanded. The main panel shows the configuration for 'Pb Con' with the following details:

- Name:** Pb Con
- Calculation Server:** WinXP\_RtDuetAF
- Status Tag:** \\WinXP\_RtDuetAF\ADM Mining Group\_Concentrator\_Floation\_Pb Con.DW

Below these fields are two tables for triggers:

**Primary Triggers**

Name	Tag	Operator	Reference	Active
Out of Spec Con	\\WinXP_RtDuetAF\CDM158	=	Manual	<input checked="" type="checkbox"/>

**Secondary Triggers**

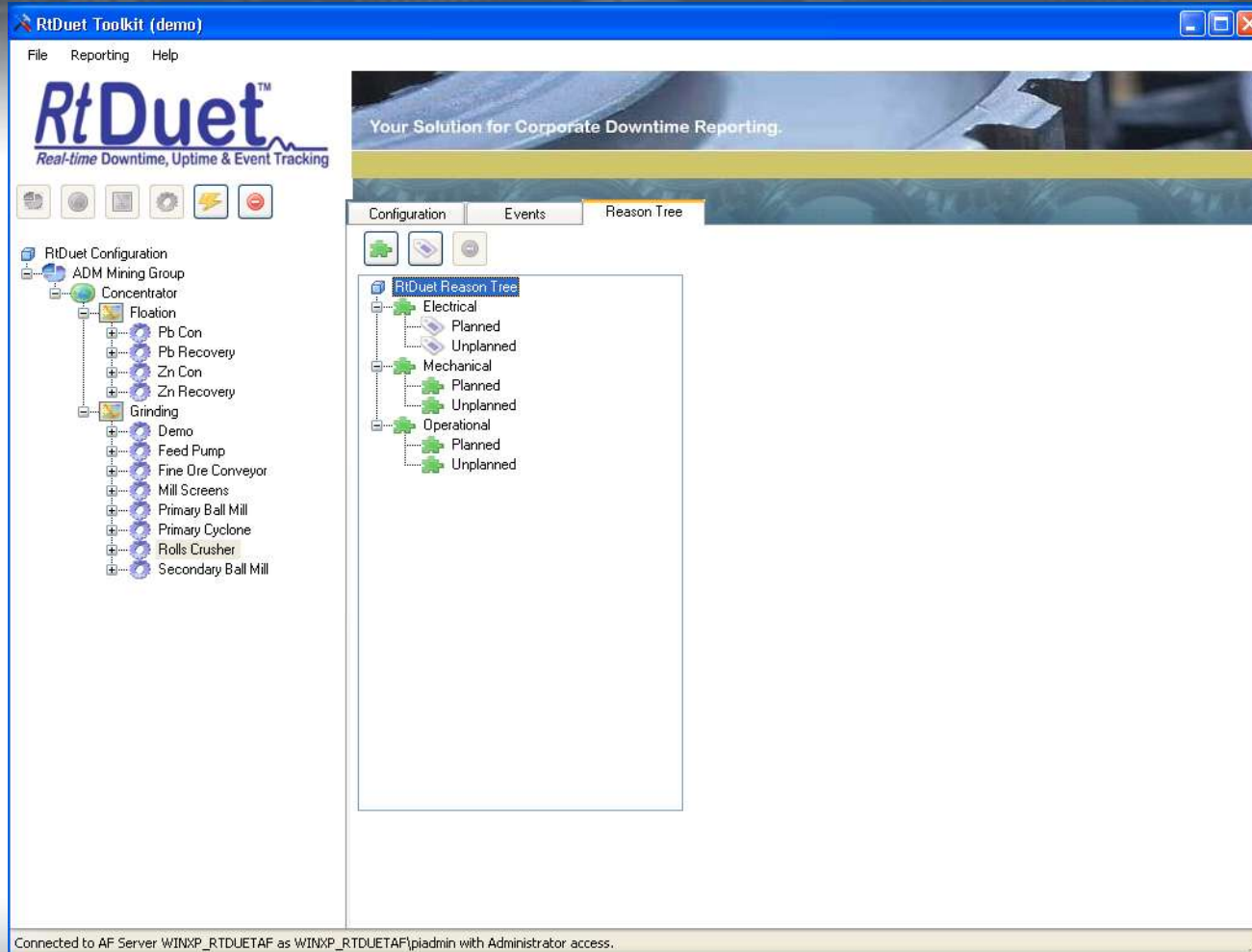
Name	Tag	Operator	Reference	Active
Low Con	\\WinXP_RtDuetAF\BA:PHASE.1	=	Phase6	<input checked="" type="checkbox"/>

At the bottom of the window, a status bar indicates: 'Connected to AF Server WINXP\_RTDUETAF as WINXP\_RTDUETAF\piadmin with Administrator access.'

OSIsoft®



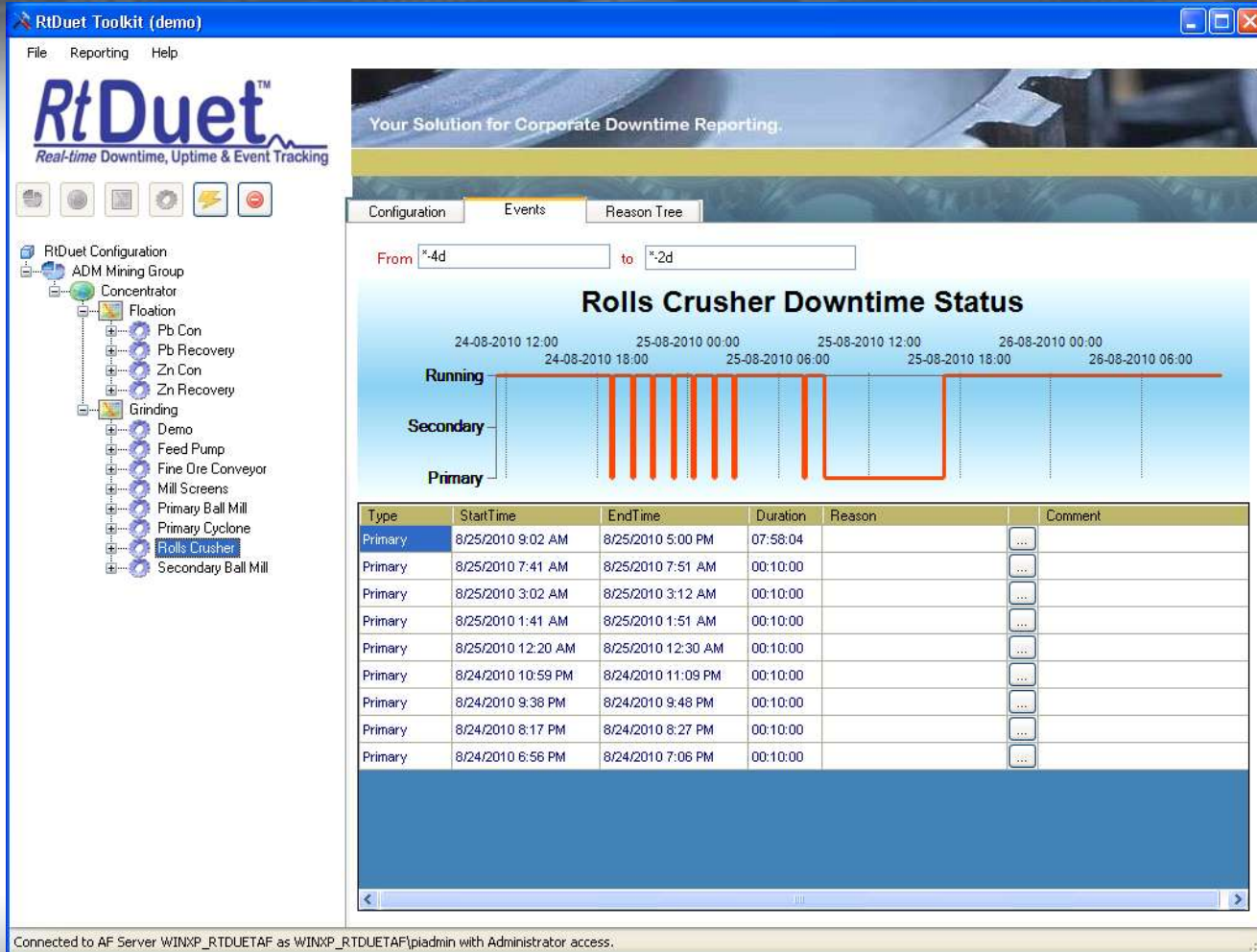
# RtDuet™ Reason Tree



OSIsoft®



# RtDuet™ Event Monitor



OSIsoft®

# RtDuet™ Event Monitor

**RtDuet™**  
Real-time Downtime, Uptime & Event Tracking

File Reporting Help

Configuration

- RtDuet Configuration
  - ADM Mining Group
    - Concentrator
      - Flotation
        - Pb Con
        - Pb Recovery
        - Zn Con
        - Zn Recovery
      - Grinding
        - Demo
        - Feed Pump
        - Fine Ore Conveyor
        - Mill Screens
        - Primary Ball Mill
        - Primary Cyclone
        - Rolls Crusher
        - Secondary Ball Mill

**Reason Selection**

Reason Code

- RtDuet Reason Tree
  - Electrical
    - Planned
    - Unplanned
  - Mechanical
  - Operational

Comment

vCampus 2010

OK Cancel

**Downtime Status**

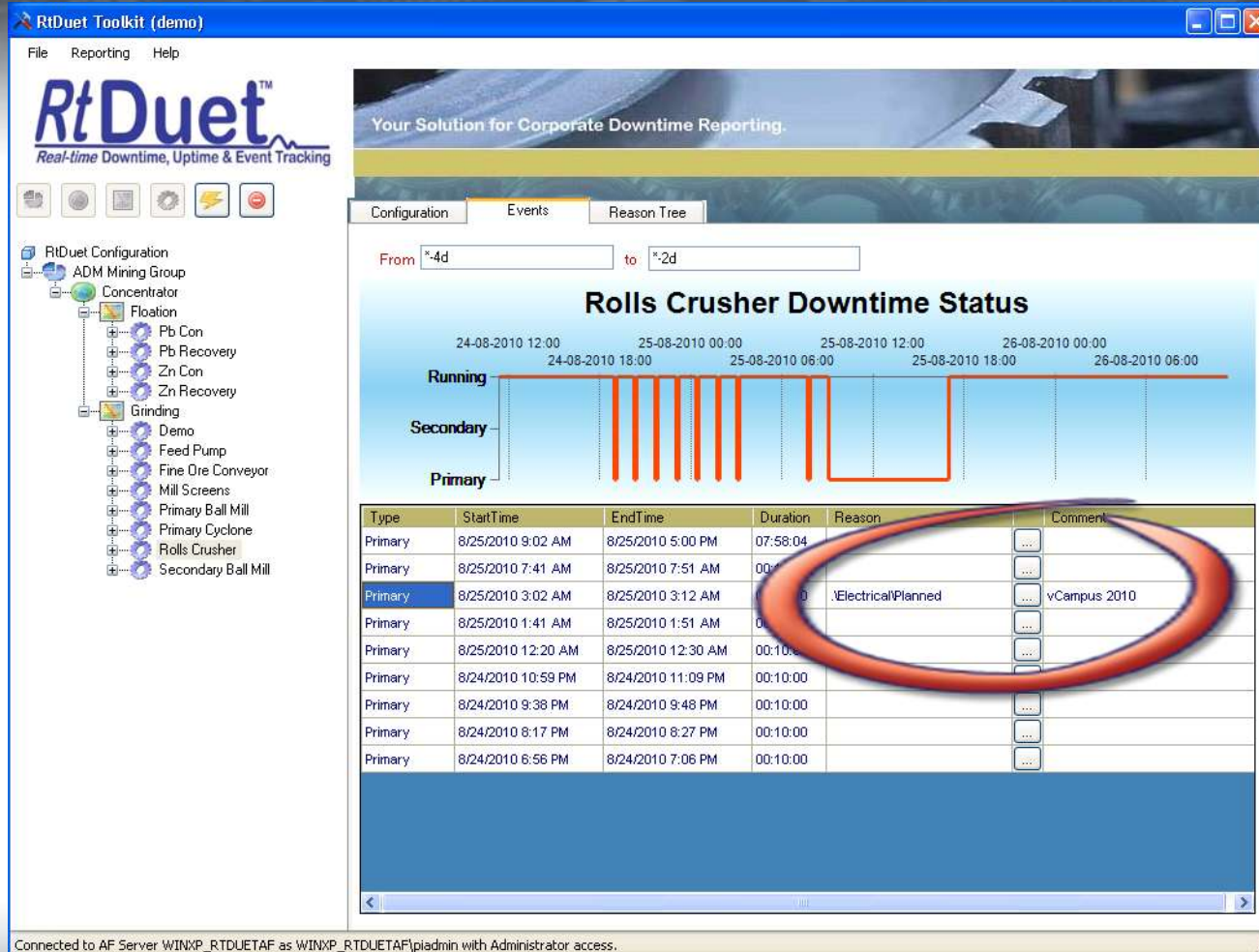
08-2010 12:00 26-08-2010 00:00  
25-08-2010 18:00 26-08-2010 06:00

Reason	Comment
...	...
...	...
...	...
...	...
...	...
...	...
...	...
...	...
...	...
...	...

Connected to AF Server WINXP\_RTUETAF as WINXP\_RTUETAF\piadmin with Administrator access.

OSIsoft®

# RtDuet™ Event Monitor



OSIsoft®

# RtDuet™ Reporting

The screenshot displays the RtDuet Reporting interface. On the left, the 'Report Parameters' dialog box is open, showing a tree view of equipment categories. The 'From' field is set to '14d'. The 'Reports' window on the right shows a 'Main Report' tab with the RtDuet logo and the title 'Downtime Events RtDuet Configuration'. The report covers the period from 27-Aug-2010 11:28 pm to 28-Aug-2010 11:28 am. Below the title is a table of downtime events for the 'Fine Ore Conveyor'.

Type	Start Time	End Time	Duration	Comment
<b>Fine Ore Conveyor</b>				
Primary	8/28/2010 11:16:59AM	8/28/2010 11:17:29AM	00:00:30	
Primary	8/28/2010 11:19:59AM	8/28/2010 11:20:29AM	00:00:30	
Primary	8/28/2010 11:20:59AM	8/28/2010 11:21:29AM	00:00:30	
Primary	8/28/2010 11:21:59AM	8/28/2010 11:22:59AM	00:01:00	
Primary	8/28/2010 11:23:59AM	8/28/2010 11:24:29AM	00:00:30	
Primary	8/28/2010 11:25:59AM	8/28/2010 11:26:29AM	00:00:30	
Primary	8/28/2010 11:26:59AM	8/28/2010 11:27:29AM	00:00:30	

Current Page No.: 1      Total Page No.: 1      Zoom Factor: 100%

OSIsoft®