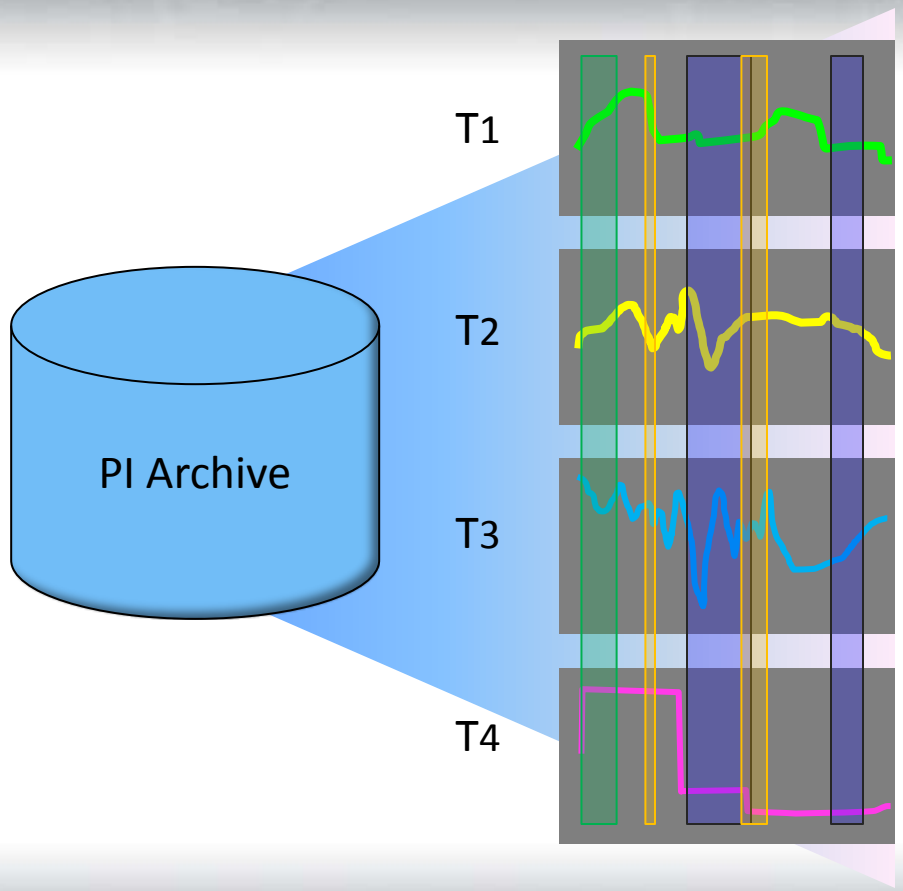
Event Frames Driving Partners' Successes

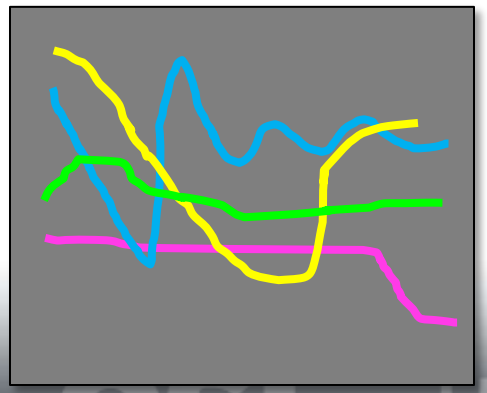
Presented By:

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

OSIsoft®

Event Frames provide context





©2010 OSIsoft, LLC. All Rights Reserved

Event Frames Vision

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

©2010 OSIsoft, LLC. All Rights Reserved

Event Frame Definition

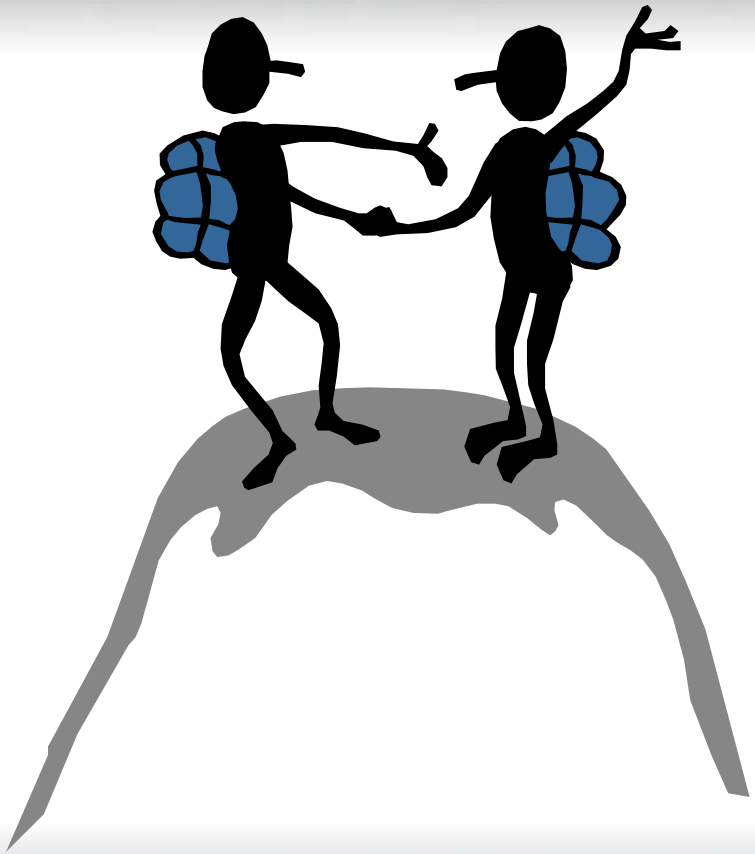
- A time series data type defined by two times and optionally accompanied by supporting data

- 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.

©2010 OSIsoft, LLC. All Rights Reserved

The Challenge



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

©2010 OSIsoft, LLC. All Rights Reserved

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

RtDuet™
Real-time Downtime, Uptime & Event Tracking

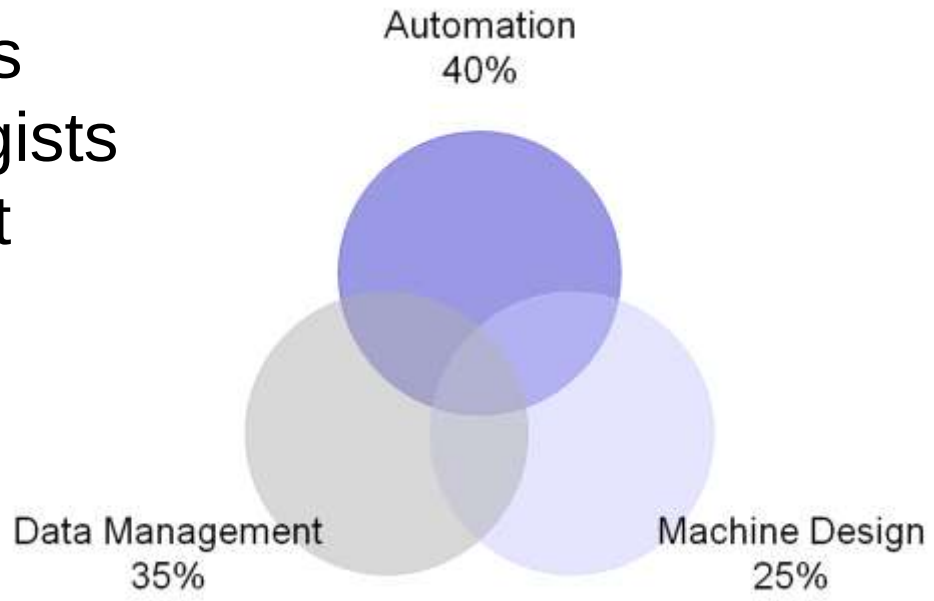
ADM SYSTEMS ENGINEERING LTD.
AUTOMATION, DATA MANAGEMENT & MACHINE DESIGN

OSIsoft®

©2010 OSIsoft, LLC. All Rights Reserved

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



©2010 OSIsoft, LLC. All Rights Reserved

ADM Systems Engineering Ltd.

©2010 OSIsoft, LLC. All Rights Reserved

RtDuet ™

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

©2010 OSIsoft, LLC. All Rights Reserved

RtDuet tm

RtDuet™ Real-time Downtime, Uptime & Event Tracking 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

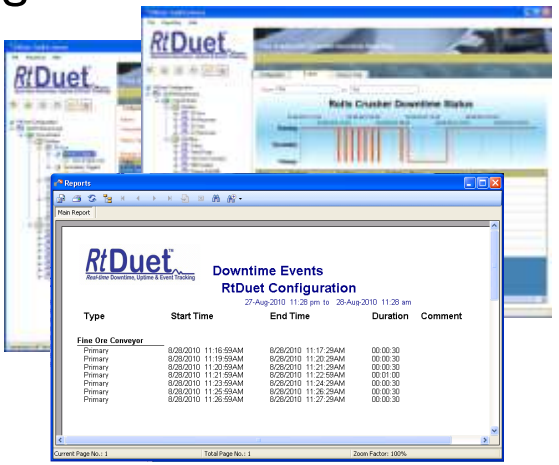
©2010 OSIsoft, LLC. All Rights Reserved

RtDuet ™

RtDuet™ Real-time Downtime, Uptime & Event Tracking 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

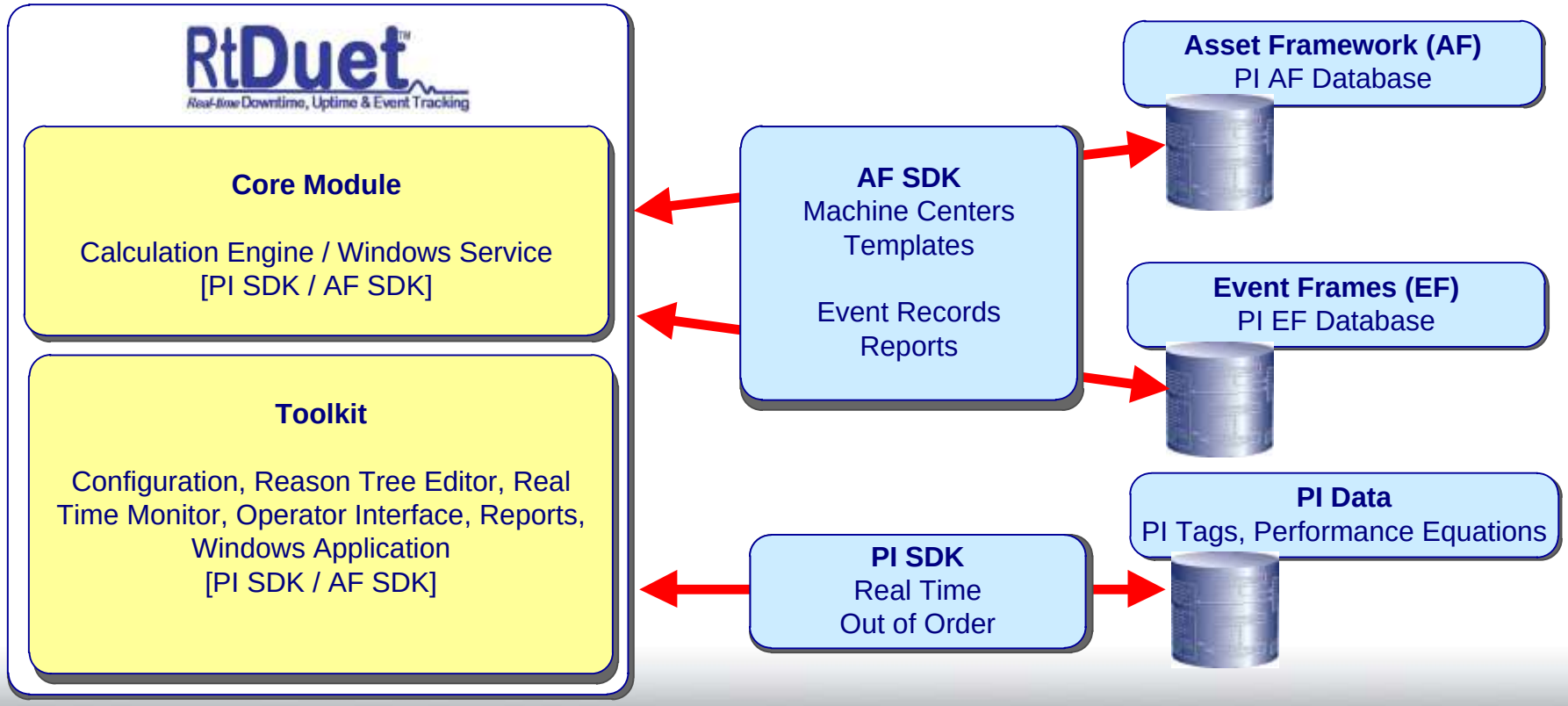


OSIsoft®

©2010 OSIsoft, LLC. All Rights Reserved

RtDuet tm

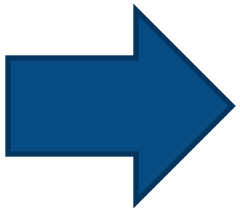
RtDuet – Software Suite



©2010 OSIsoft, LLC. All Rights Reserved

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.**

©2010 OSIsoft, LLC. All Rights Reserved

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.

©2010 OSIsoft, LLC. All Rights Reserved

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

©2010 OSIsoft, LLC. All Rights Reserved

RtDuet
Benefits of leveraging PI System

- The PI System is a great neutralizer.
  - PI is the foundation of RtDuet. Its 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

©2010 OSIsoft, LLC. All Rights Reserved

RtDuet
Benefits of leveraging PI System

- Live Demo

©2010 OSIsoft, LLC. All Rights Reserved

Reuse of Code for MRS.

- **M**anufacturing **R**eporting **S**ystem (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

©2010 OSIsoft, LLC. All Rights Reserved

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
URL: www.admse.com

Special 90day Offer

Free copy RtDuet "Lite"

Please send email to flynnk@admse.com for free download.

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

©2010 OSIsoft, LLC. All Rights Reserved

Thank You!

OSIsoft®

©2010 OSIsoft, LLC. All Rights Reserved

Event Frames and Ekho – better together

Presented By:

Yannick Galipeau
ITI

OSIsoft®

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?

©2010 OSIsoft, LLC. All Rights Reserved

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

©2010 OSIsoft, LLC. All Rights Reserved

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…

©2010 OSIsoft, LLC. All Rights Reserved

What is Ekho? (continued)

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

©2010 OSIsoft, LLC. All Rights Reserved

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

©2010 OSIsoft, LLC. All Rights Reserved

Market and Customers

©2010 OSIsoft, LLC. All Rights Reserved

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…

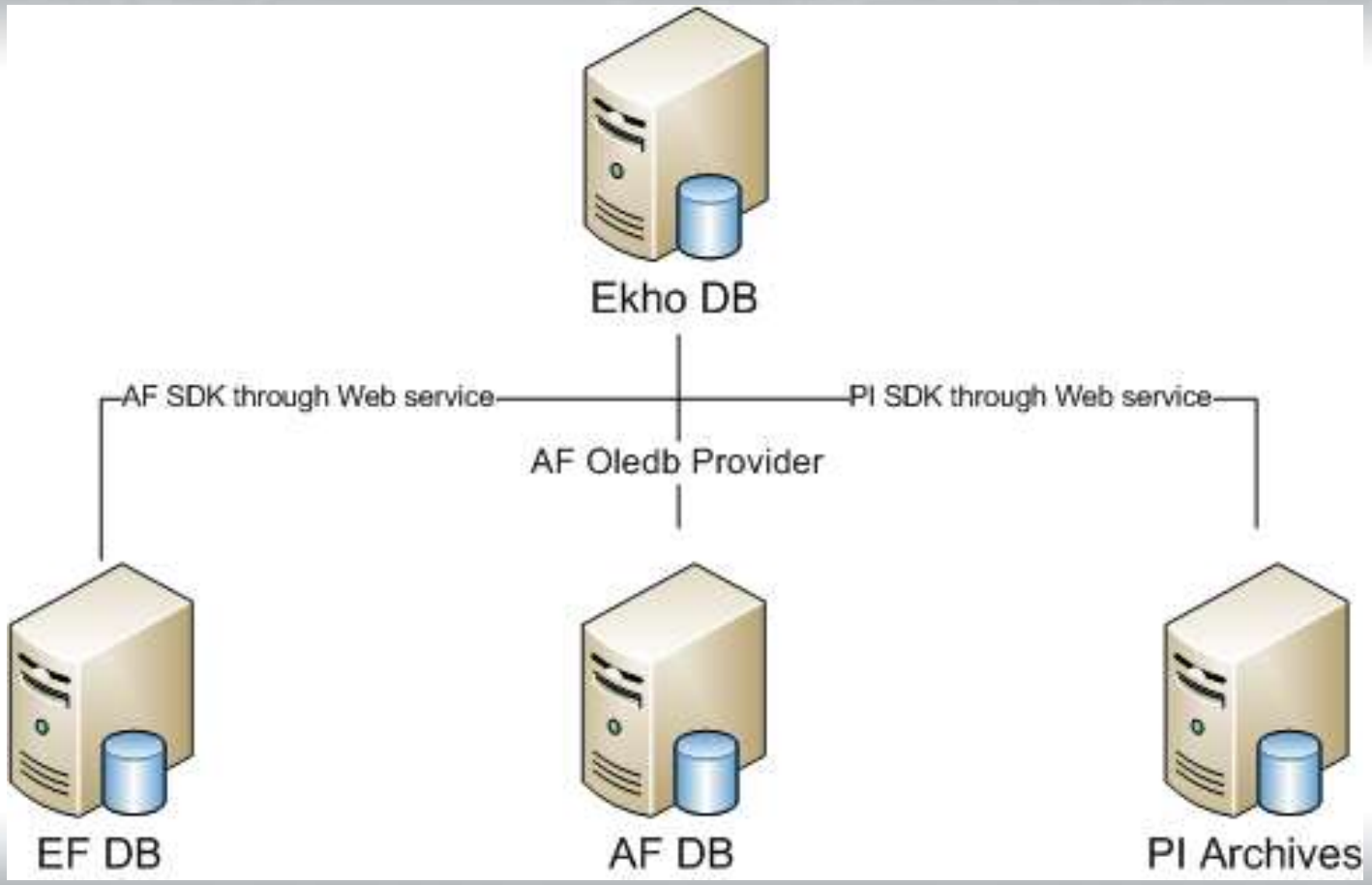
©2010 OSIsoft, LLC. All Rights Reserved

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

©2010 OSIsoft, LLC. All Rights Reserved

System Communications



©2010 OSIsoft, LLC. All Rights Reserved

Ekho Live Demonstration

©2010 OSIsoft, LLC. All Rights Reserved

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)

©2010 OSIsoft, LLC. All Rights Reserved

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 will all OSIsoft platforms (Historian, PI AF, EF and Notifications)
- Allows OSIsoft Clients Apps to use Ekho Data
- Visibility through OSIsoft Customers

©2010 OSIsoft, LLC. All Rights Reserved

Thank You!

OSIsoft®

©2010 OSIsoft, LLC. All Rights Reserved

Backup slides…

Presented By:

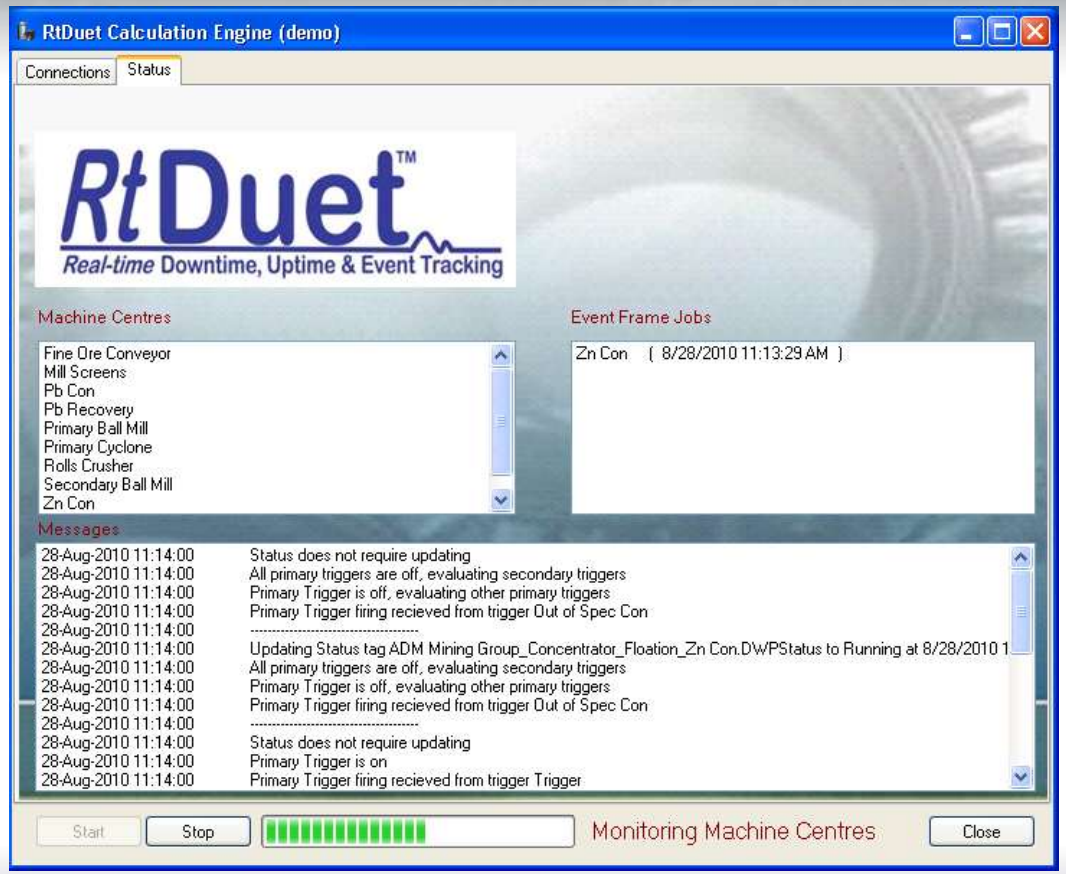
©2010 OSIsoft, LLC. All Rights Reserved.

RtDuet ™ Core Module

- Live Demo Replacement

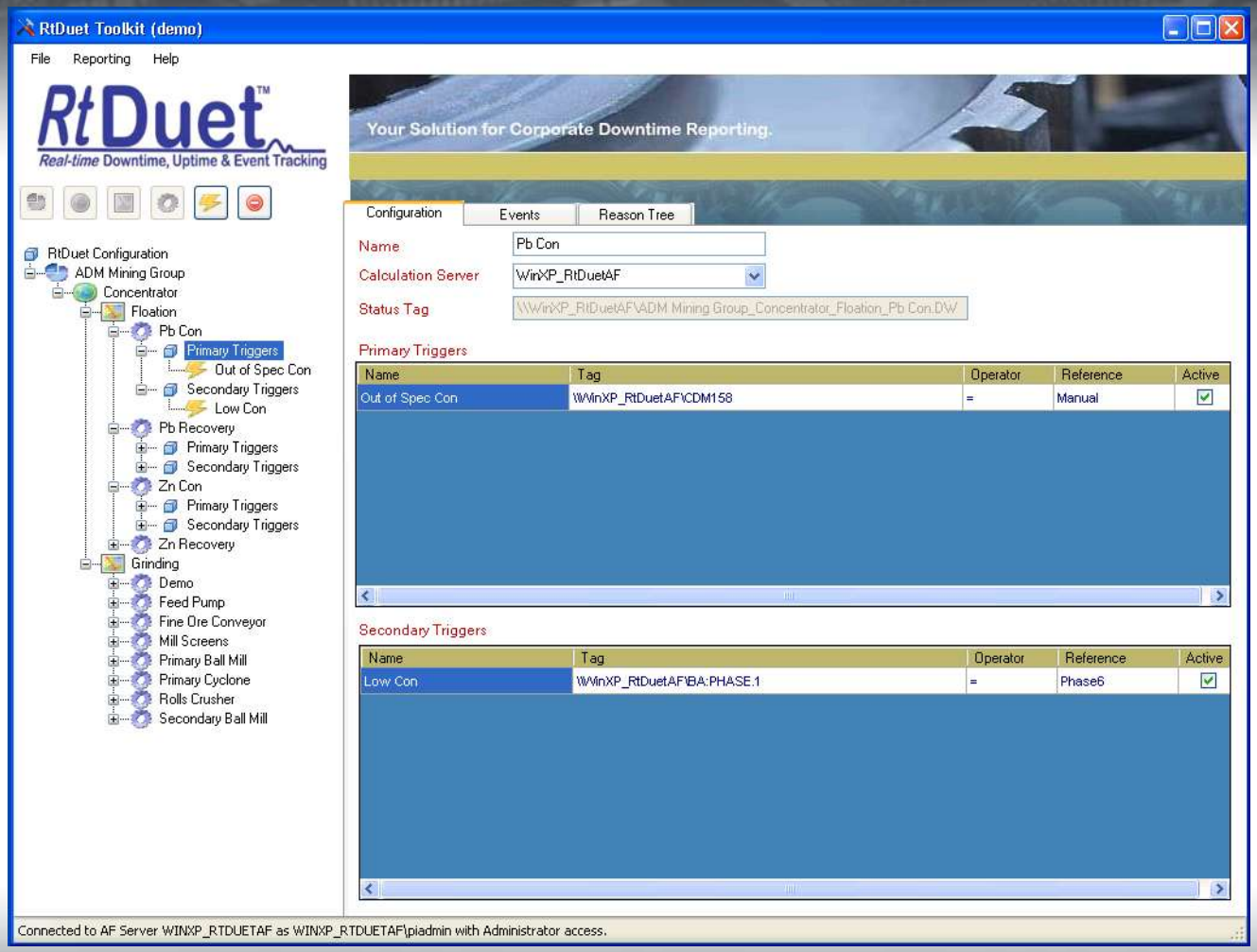
©2010 OSIsoft, LLC. All Rights Reserved

RtDuet ™ Core Module



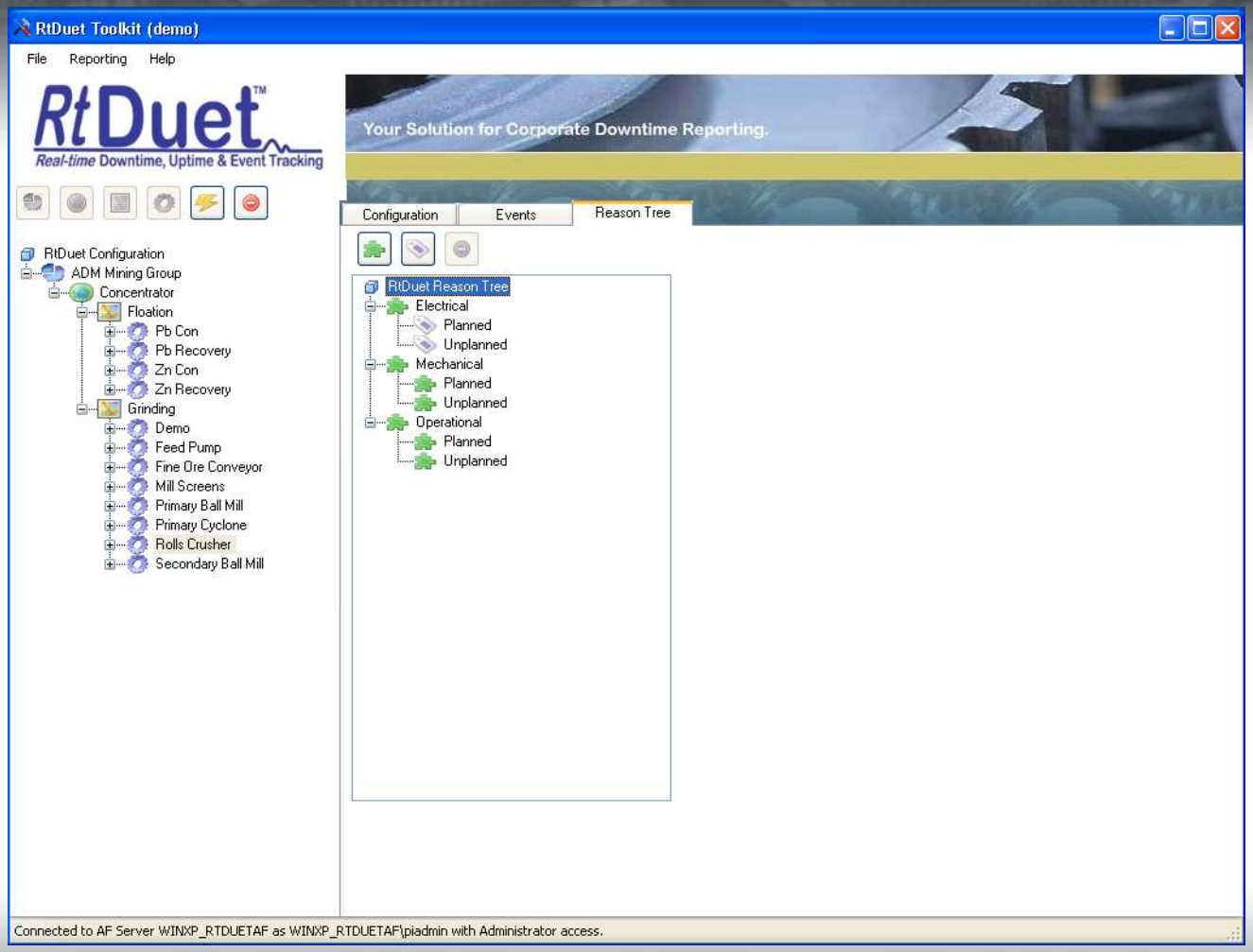
©2010 OSIsoft, LLC. All Rights Reserved

RtDuet ™ Configuration Toolkit



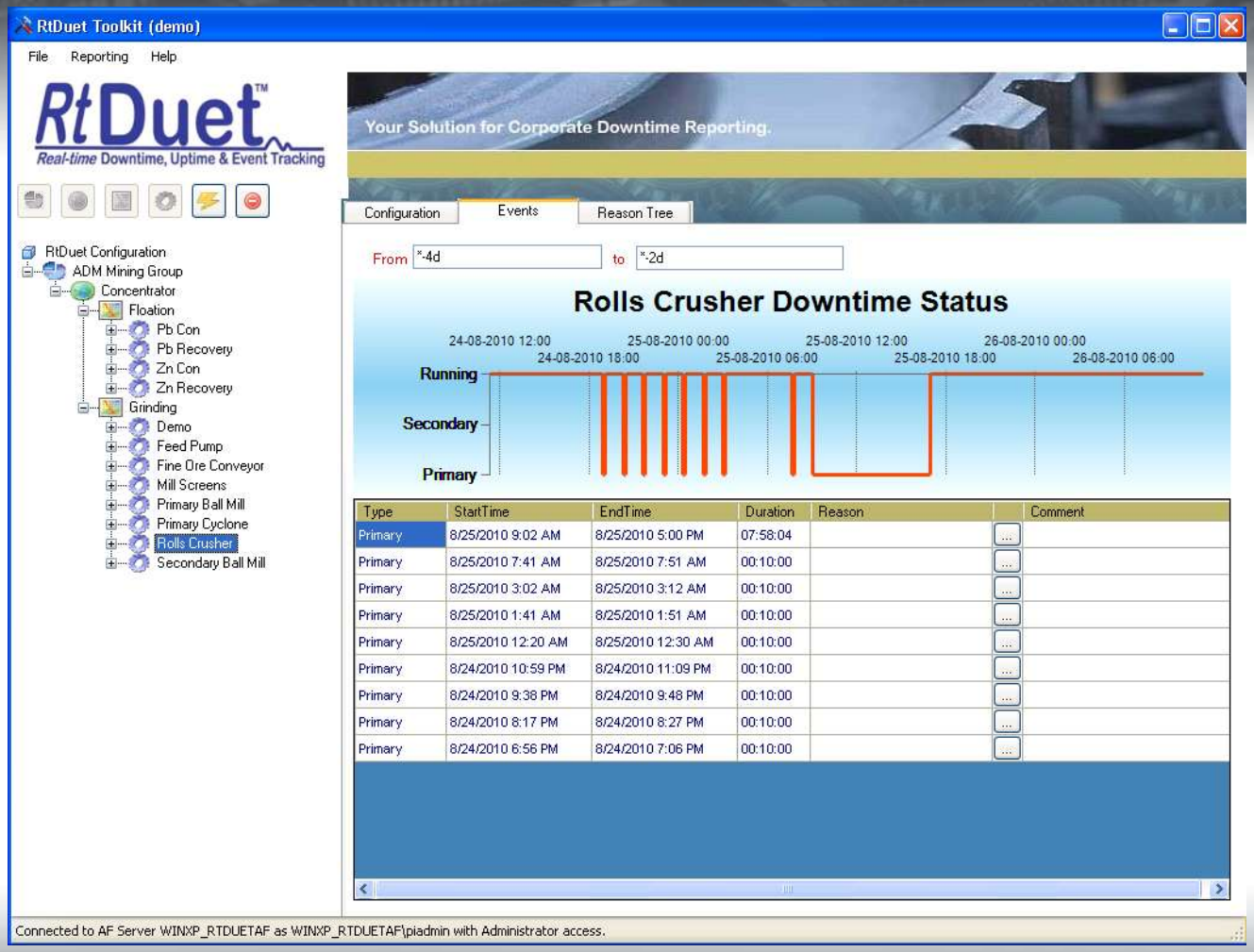
©2010 OSIsoft, LLC. All Rights Reserved

RtDuet ™ Reason Tree



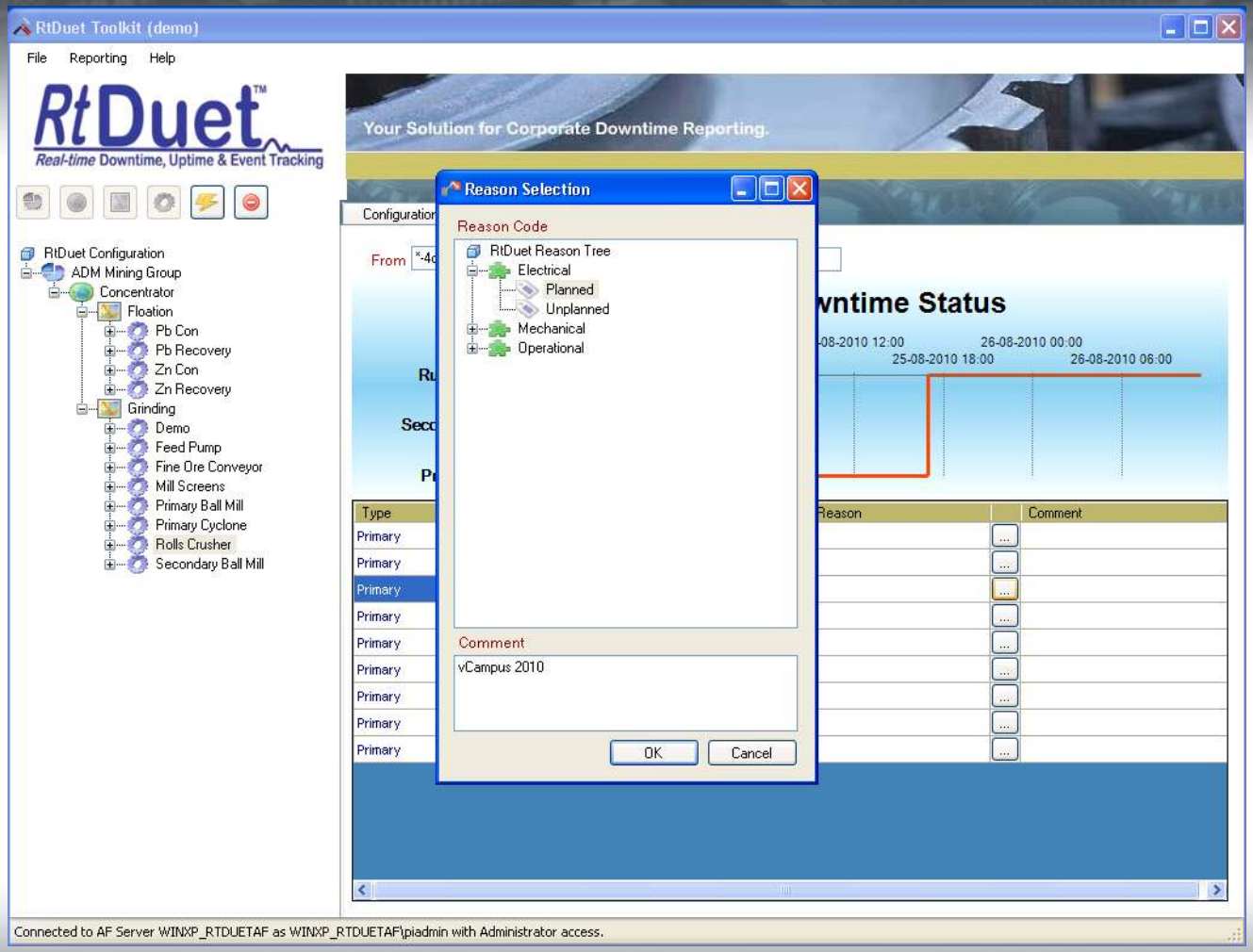
©2010 OSIsoft, LLC. All Rights Reserved

RtDuet ™ Event Monitor



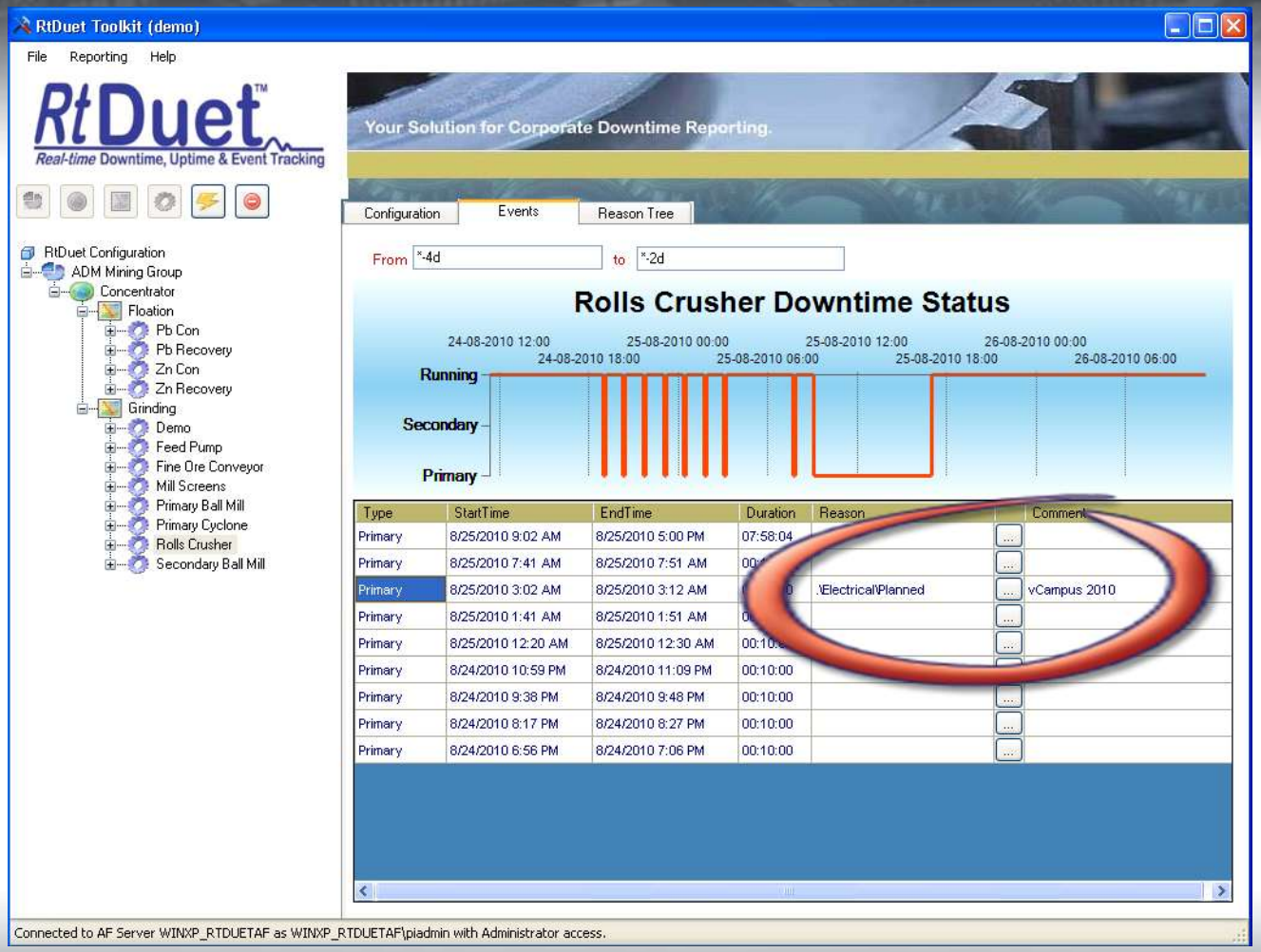
©2010 OSIsoft, LLC. All Rights Reserved

RtDuet ™ Event Monitor



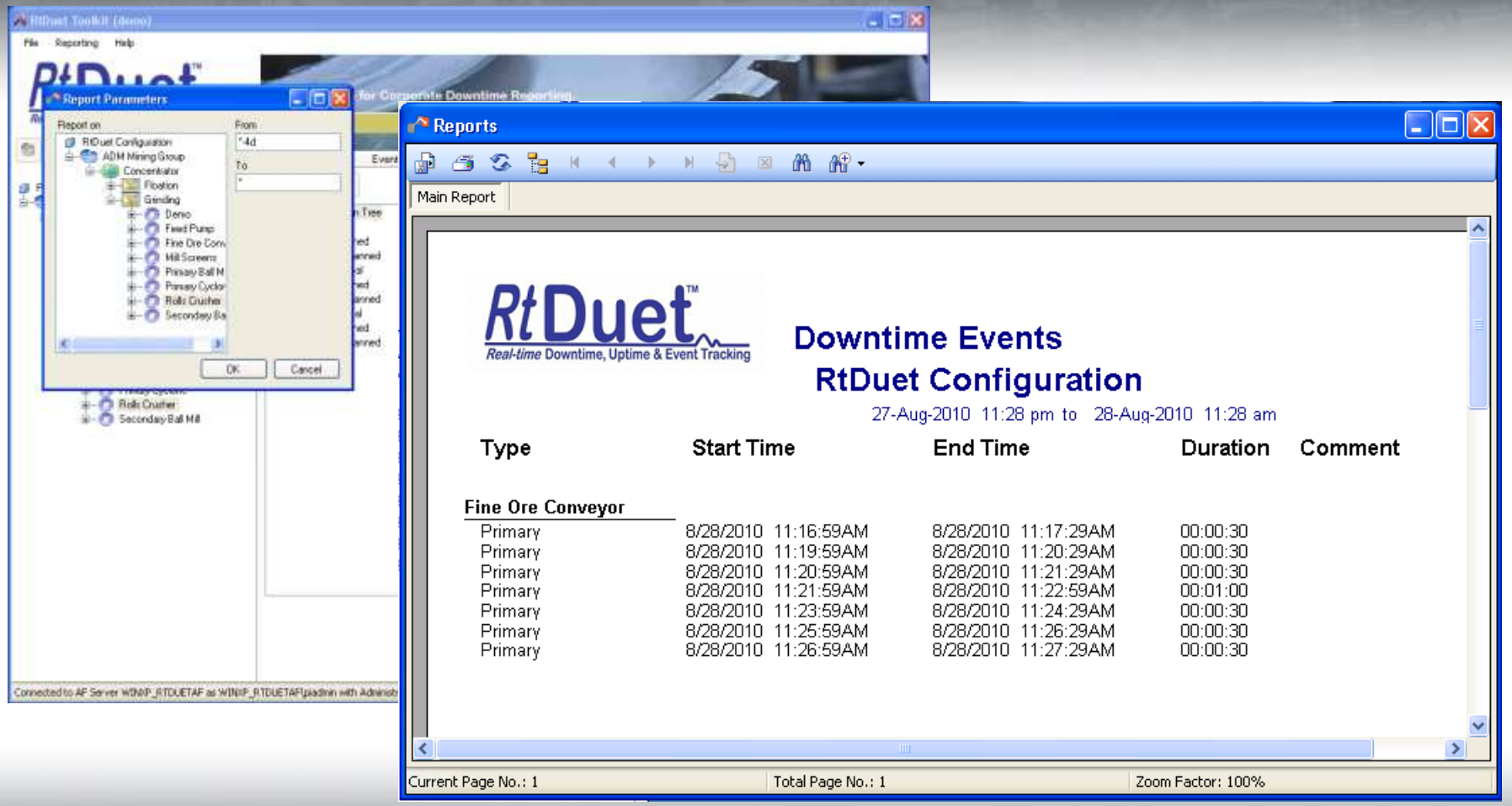
©2010 OSIsoft, LLC. All Rights Reserved

RtDuet ™ Event Monitor



©2010 OSIsoft, LLC. All Rights Reserved

RtDuet ™ Reporting



©2010 OSIsoft, LLC. All Rights Reserved