



RtDuet – Downtime and OEE for the PI System

Presented by **Pablo Asiron** - CEO

RtTech
Software Inc.

Agenda

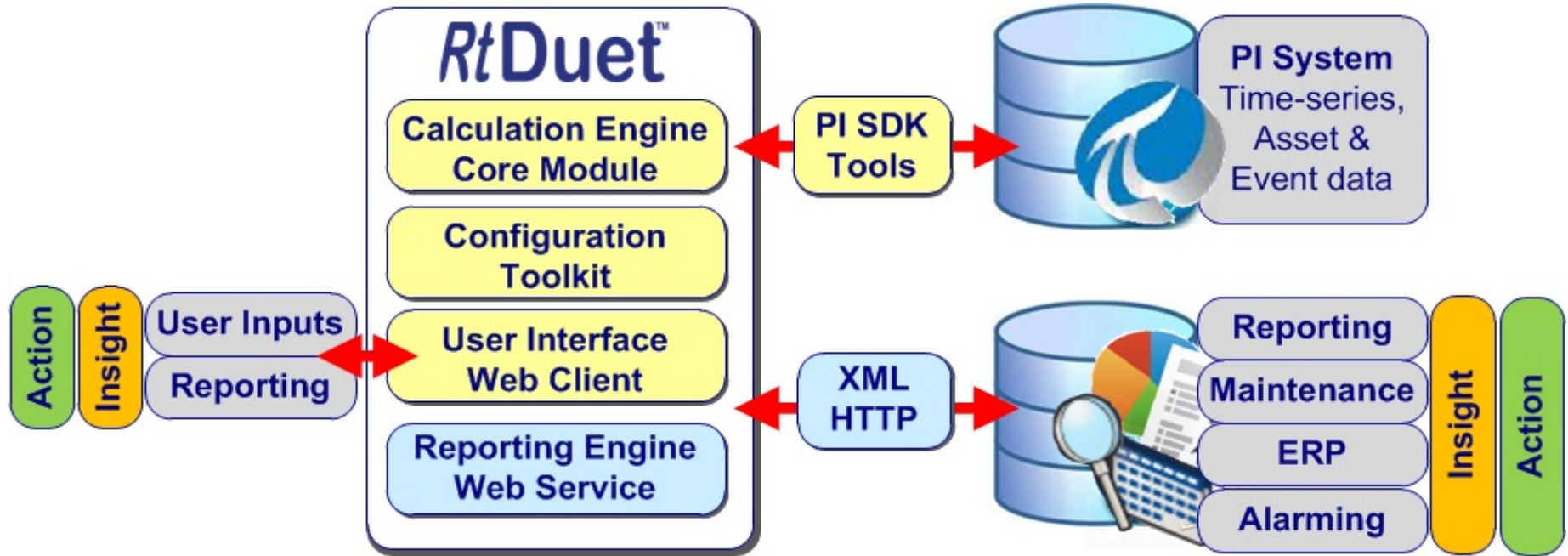
- About RtTech Software Inc.
- About RtDuet
- Main steps on a Downtime and OEE Project
 - Scope and Desired Outputs
 - Time Usage Model
 - Reason Code
- The Solution – the PI System and RtDuet
- Benefits
- Questions

About RtTech Software Inc.

- Founded in November 2011 by ADM System Engineering Software Group and Capital Investment.
- Head Office in Moncton, NB, Canada
- Resources in Canada, Europe, Australia
- Developer of 2 products:
 - RtDuet: 6 year old product with 34 installations worldwide.
 - RtEMIS: 2 year old product with 5 installations in North America.
- Mission: Development, Marketing and Sales of best in class products to turn Data into Actionable Information.

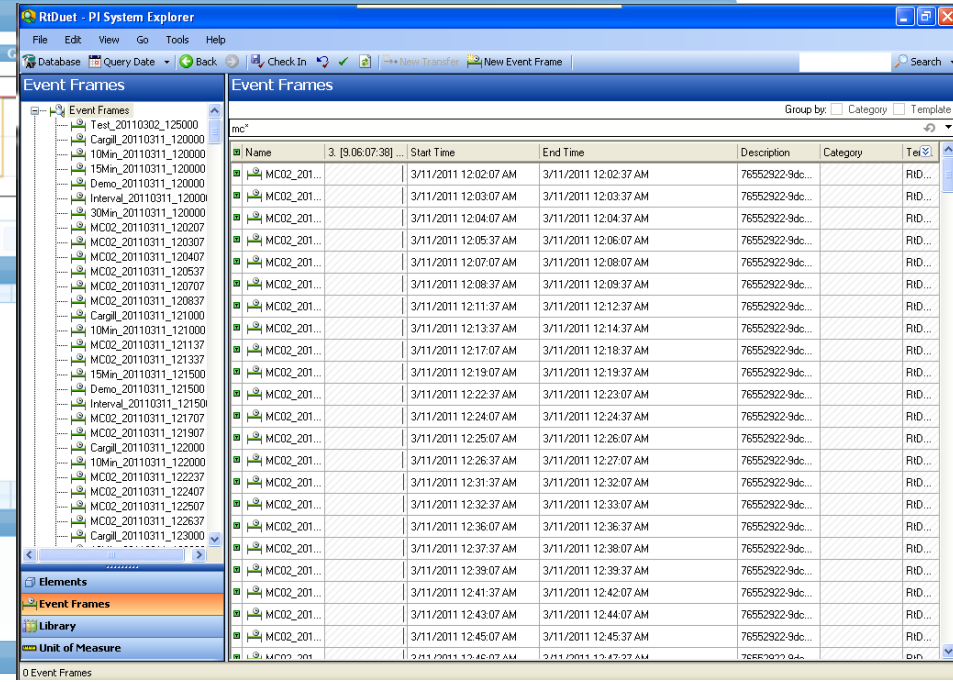
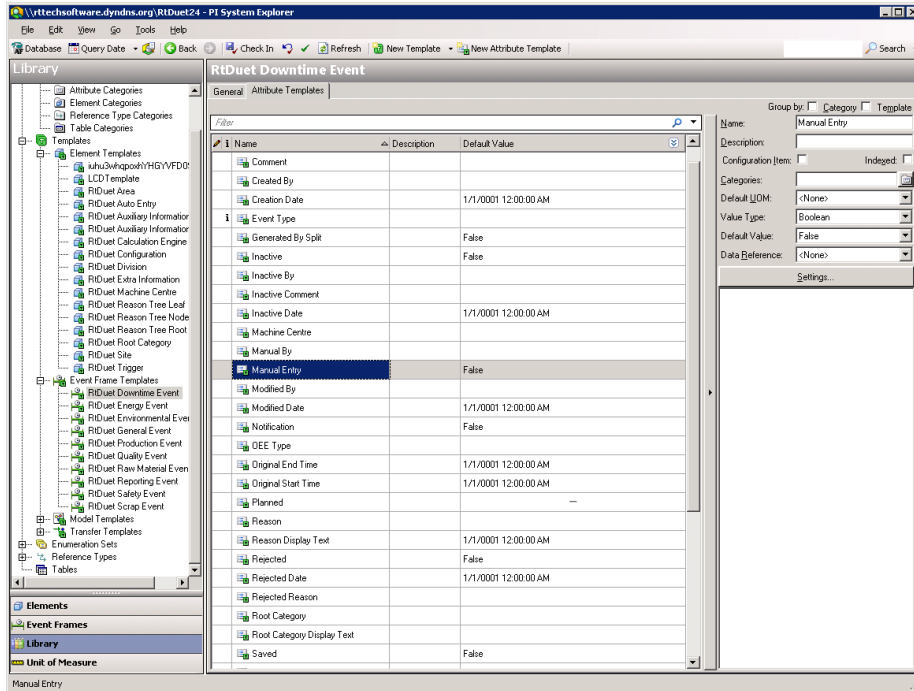
About RtDuet

Downtime and OEE for the PI System



About RtDuet

- Automatically generates operational performance information



About RtDuet

- Exposes business logic using a configuration environment driven by templates

The image displays the RtDuet software interface, which is used for configuring and managing downtime reporting. The main window is titled "RtDuet Toolkit" and features a sidebar with a tree view of the configuration structure. The tree view shows a hierarchy starting from "RtDuet Configuration" down to "Machine 1" and "Machine 2". The main area is divided into several tabs: "Configuration", "Events", "Reason Tree", and "Time Usage Model". The "Configuration" tab is active, showing a form for configuring "Scheduled Operations". The form includes fields for "Name", "Display Text", "OEE Calculation Type", and "Planned" status. The "Events" tab is also visible, showing a list of events for "Machine 1". The "Reason Tree" tab shows a tree view of reasons for downtime, including "Machine 1" and "Machine 2". The "Time Usage Model" tab shows a table of time usage data.

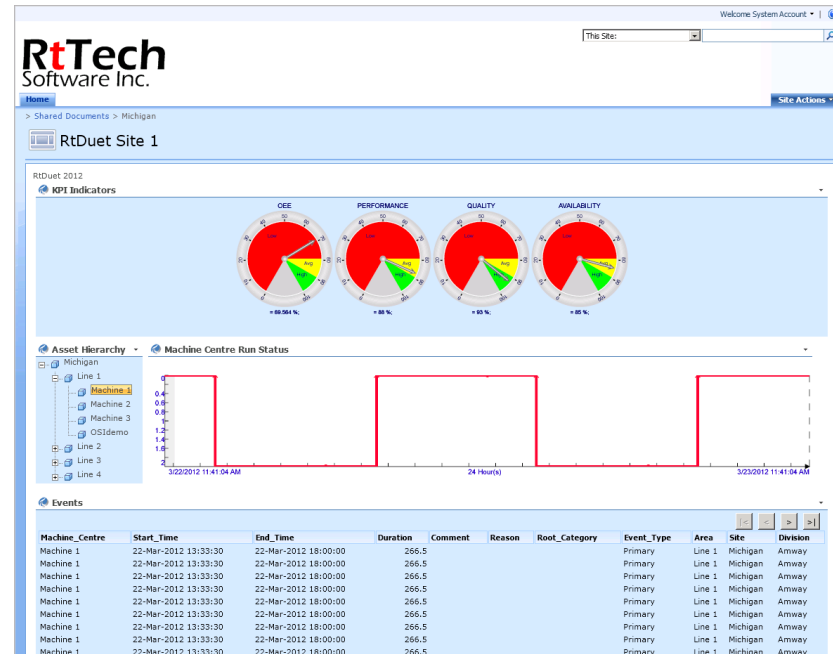
The "Scheduled Maintenance" window is open, showing a table of maintenance events. The table has columns for "Name" and "Value". The events listed are:

Name	Value
Calculated Utilization	False
Display Text	Mantenimiento Planeado
OEE Type	Utilized
Planned	False
Show in AU Graph	False
Sign	

The "Event Editor For: Machine 1_20120313_080248" window is also open, showing a form for editing an event. The form includes fields for "Start Time", "End Time", "Comment", "Reason Code", and "Time Usage Code". The "Reason Code" field is highlighted, and a dropdown menu is open showing a list of reasons for downtime, including "Machine 1" and "Machine 2".

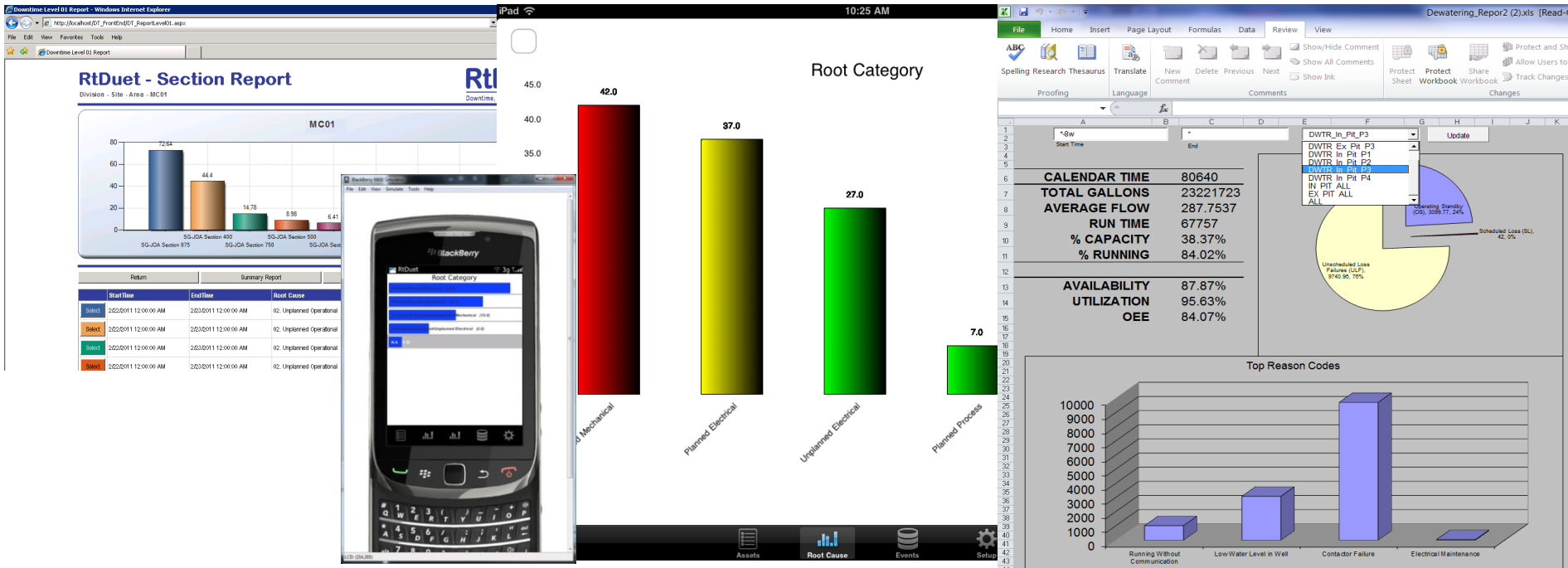
About RtDuet

- Calculates (using PI ACE) real-time Key Performance Indicators (KPI) like:
 - OEE
 - Availability
 - Utilization
 - MTBF
 - MTTR
 - MTBS
 - Effective Utilization
 - Operating Efficiency



About RtDuet

- Delivers Information



About RtDuet

- Current Customers

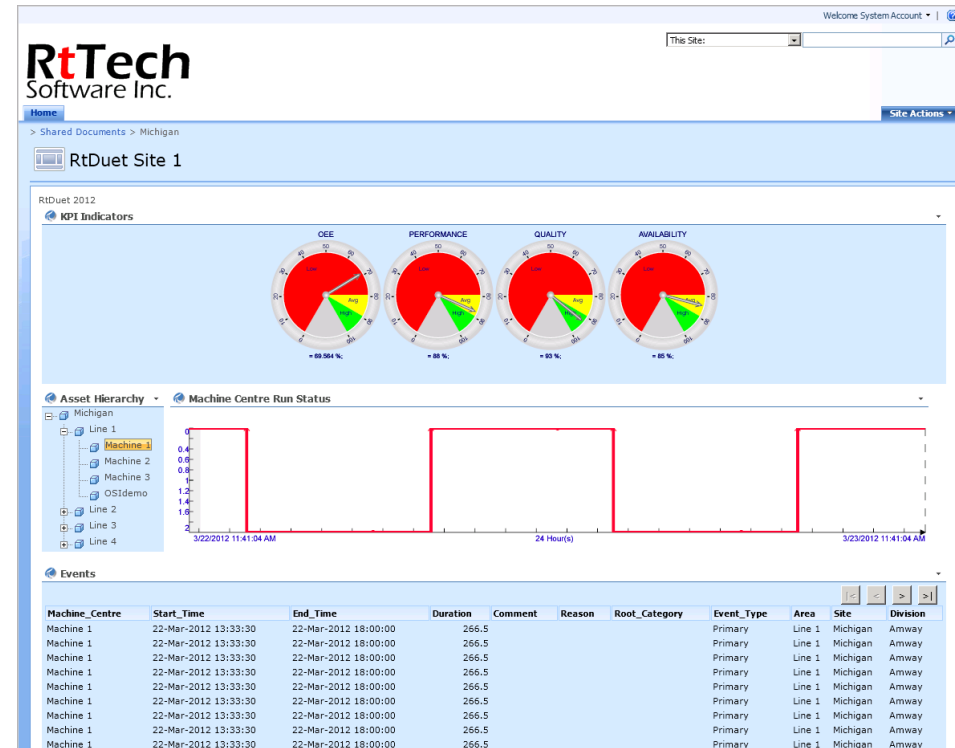




Three Main steps to a Downtime and OEE project

Step 1 – Scope and desired Outputs

- Scope:
 - What assets to monitor
 - Stoppages? Slow-downs? Both?
- Desired Outputs
 - Identify bottlenecks in the plants
 - Quantify downtime
 - KPIs:
 - Availability, Utilization, OEE, MTBF, MTTR, etc.



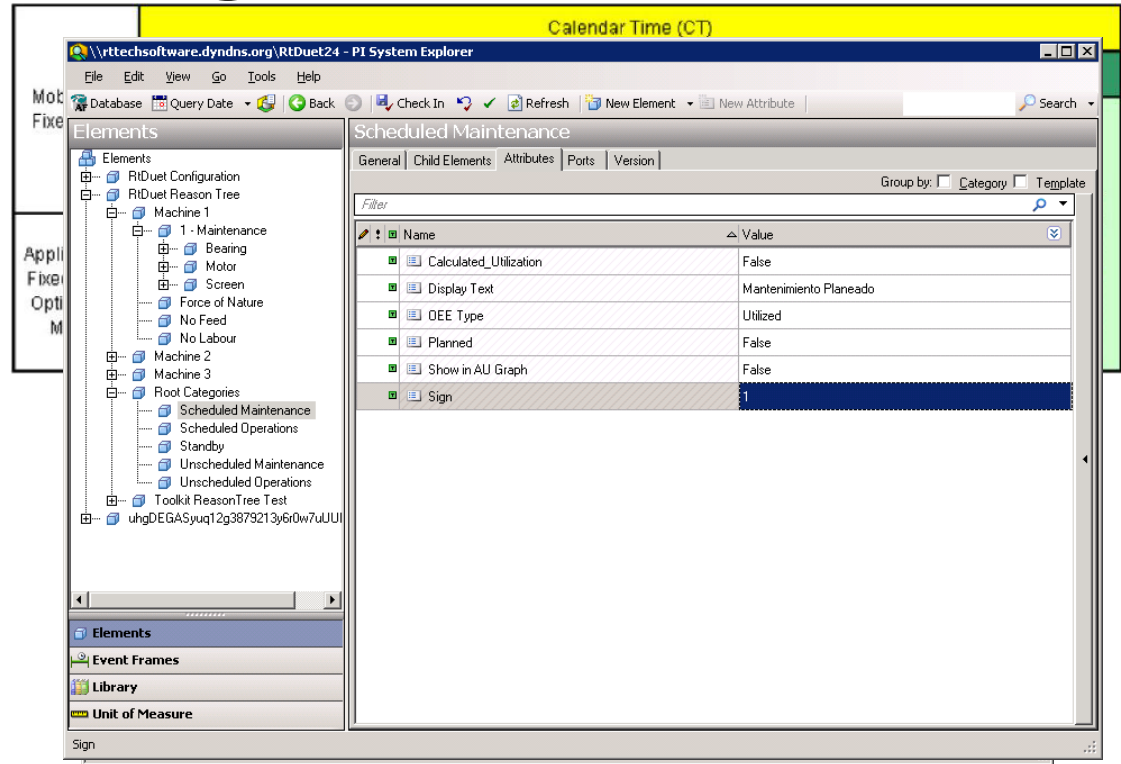
Step 1 – Scope and desired Outputs

- Ore Crushing
 - Operations
 - Apron Feeder Crusher Discharge
 - Stockpile Feed Conveyor Belt Scale
 - Maintenance
- Re
 -
 -
- Be
 -
 - Grease Barrel Pump
 - Lube System #1 Pump
 - Lube System #2 Pump
 - Ore Crusher
 - Stockpile Feed Conveyor
 - SAG Mill Feed Conveyor
 - Dust Seal Blower

rs

Step 2 – Time Usage Model

- Design and standardized on a Time Usage Model (TUM)
- A good TUM is able to:
 - Determine how downtime events need to be classified
 - Determine how KPIs are calculated
- Make sure all downtime events are classified using YOUR TUM

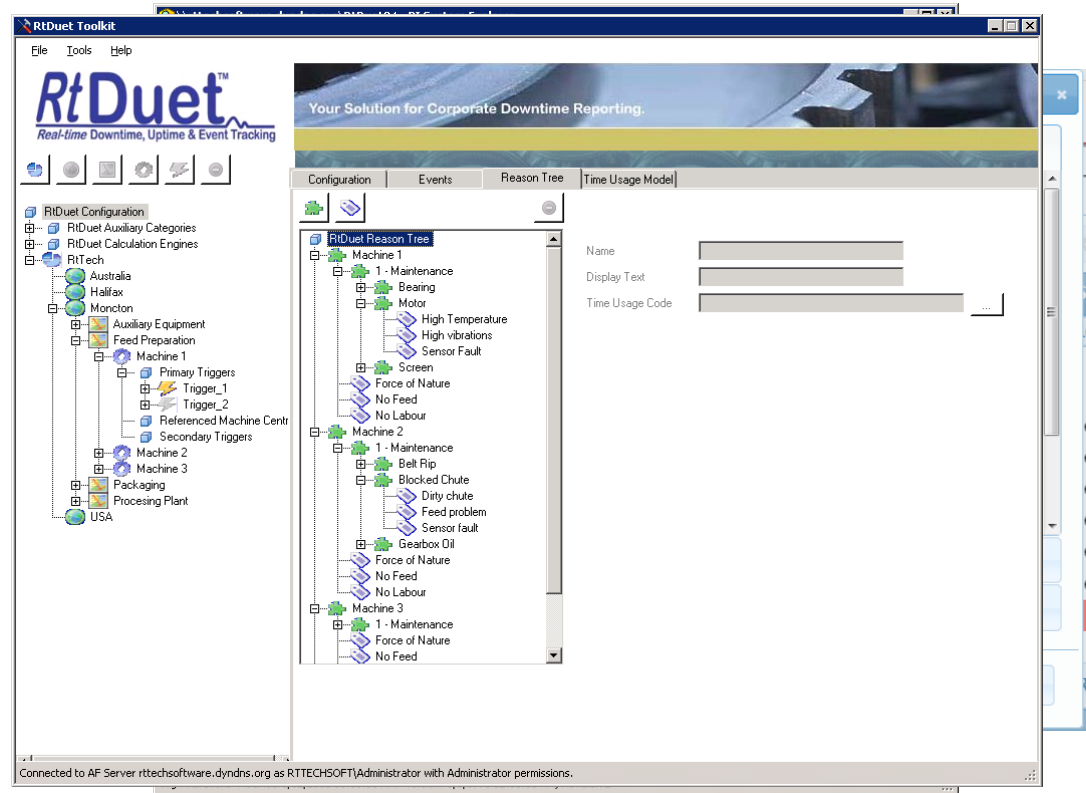


Step 2 – Time Usage Model

- Recommendations
 - Research what other companies have done
 - Agree on one TUM for all areas and facilities in a corporation

Step 3 – Reason Codes

- Standardization of downtime reasons
- How do you want to analyze the downtime reasons? By area and asset, by trade, etc.
- Limit the amount of codes for the Operator to chose from.



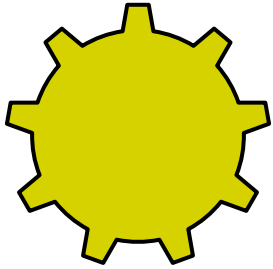
Step 3 – Reason Codes

- Recommendations:
 - Start simple
 - Try to go down to the reason not the symptom
 - i.e. Bearing High Temperature is a symptom not a reason
 - Minimize the number of options for an Operator



The Solution – the PI System and RtDuet

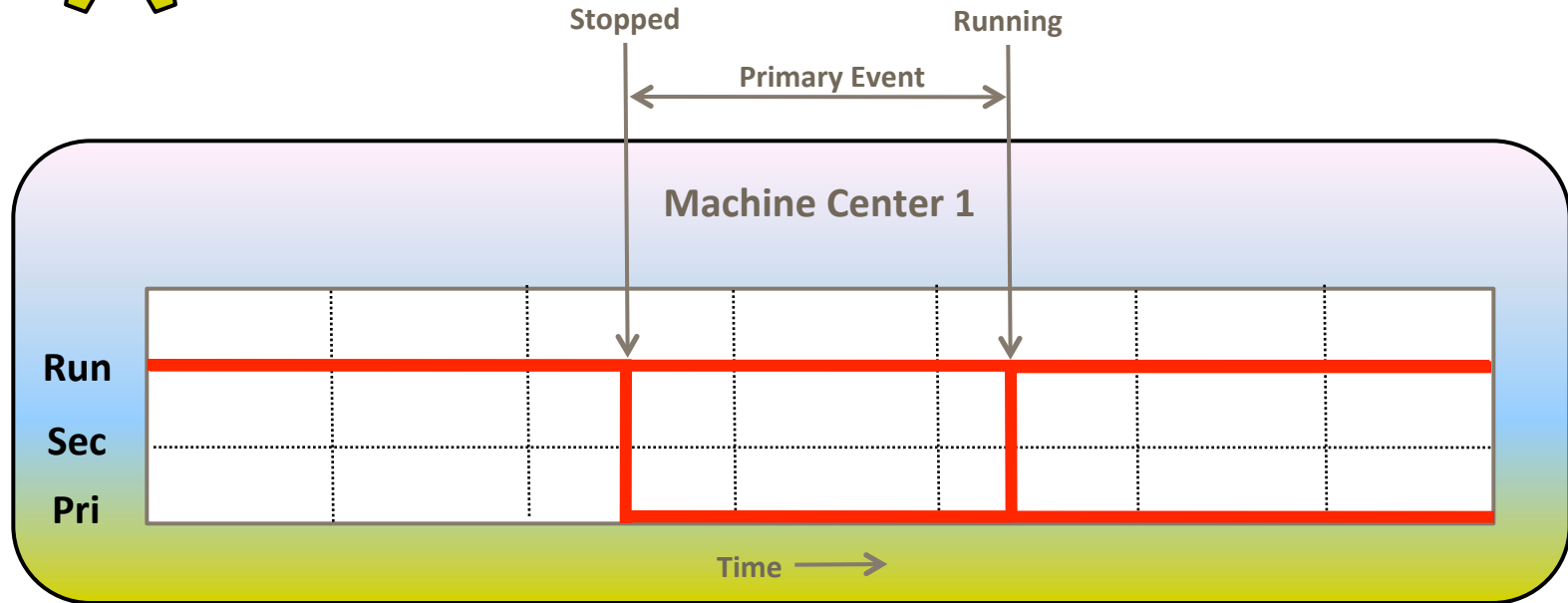
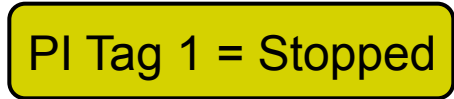
Machine Center 1

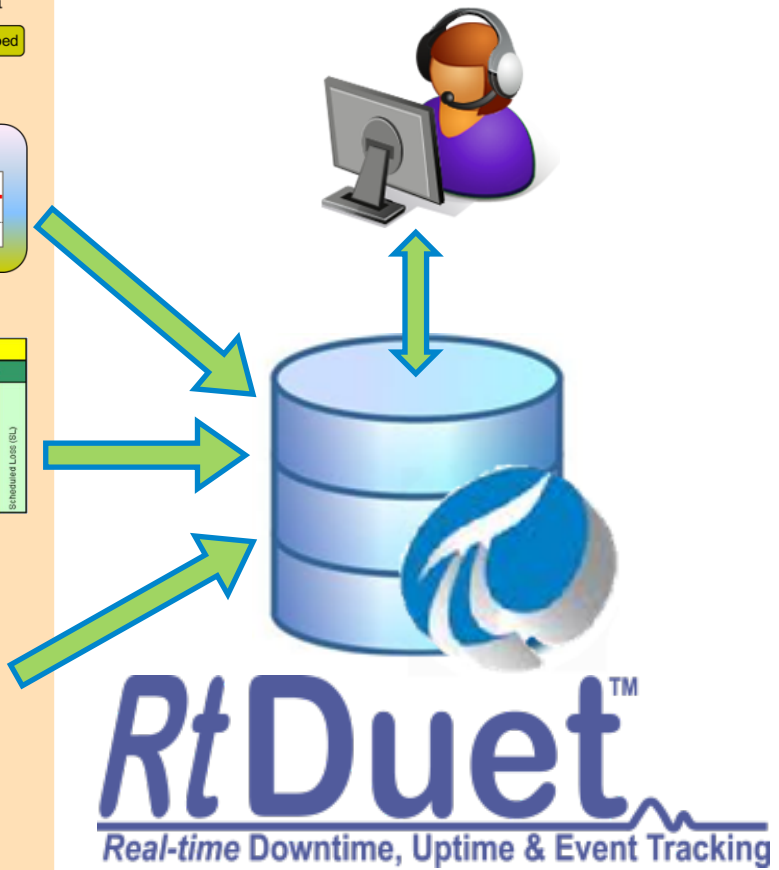
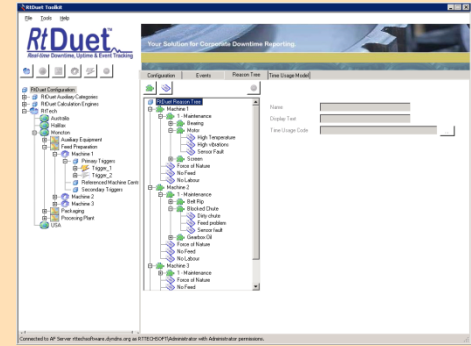
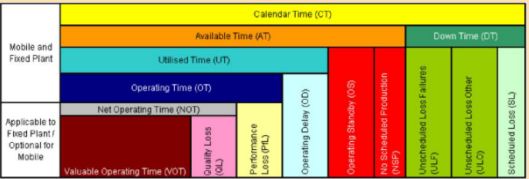
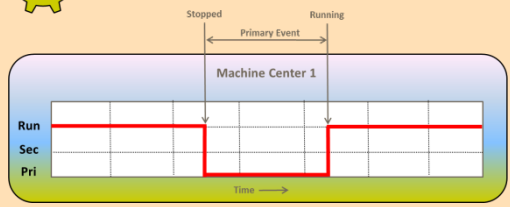


PI Tag 1
Digital State



Machine Center 1
Primary Trigger 1





What is my downtime situation like?

What are my utilization Availability and OEE?

What are the major bottlenecks in my facility?

Is the performance of My assets improving?

Benefits

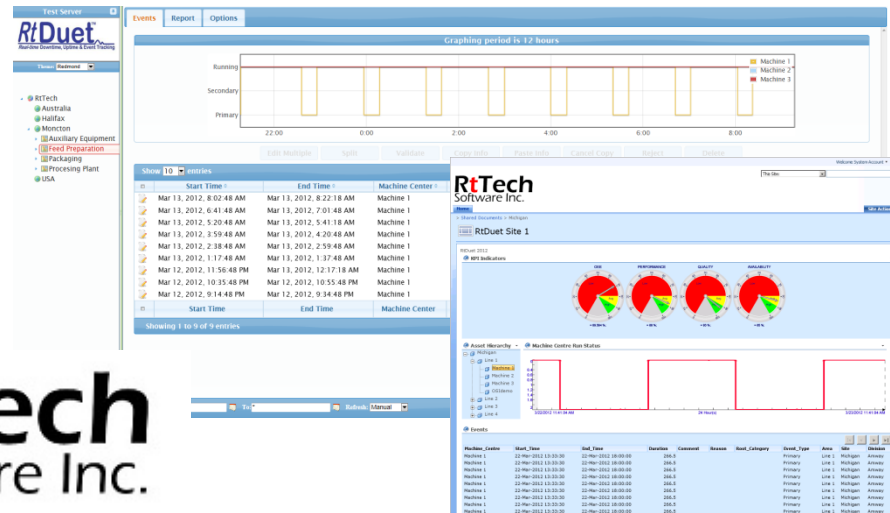
- Transforms Operational Data into Actionable Information to:
 - Optimize Performance
 - Reduce Downtimes
 - Reduce Operator workload
 - Standardized Information
 - Increase Profits

RtDuet – Downtime and OEE for the PI System

“With RtDuet now we can quantify a production problem we knew we had in our plant for a long time. RtDuet makes visible the size of the problem and more importantly it points us to the cause of the problem.”

Anonymous RtDuet user.

RtTech
Software Inc.



Business Challenges

- Identify downtime and slowdown events
- Standardized classification of the events
- Calculate KPIs in real-time

Solution

RtDuet is a Real-time Downtime Monitoring and Equipment Performance Product built in top of the PI System.

Results & Benefits

- Optimize Performance
- Reduce Downtime
- Reduce Operator Workload
- Standardized Information
- Increase Profits

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THANK YOU

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