RtDuet – Downtime and OEE for the PI System

Presented by **Pablo Asiron - CEO**

RtTech Software Inc.

Agenda

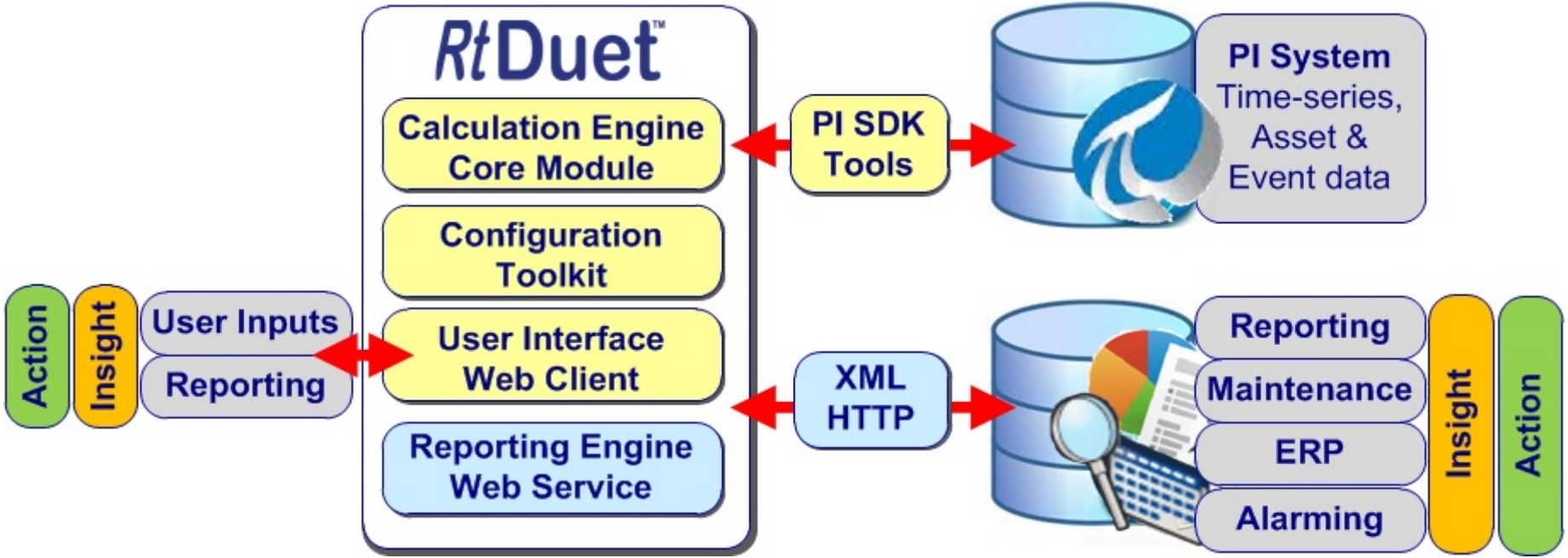
- About RtTech Software Inc.
- About RtDuet
- Main steps on a Downtime and OEE Project
  - Scope and Desired Outputs
  - Time Usage Model
  - Reason Code
- The Solution – the PI System and RtDuet
- Benefits
- Questions

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.

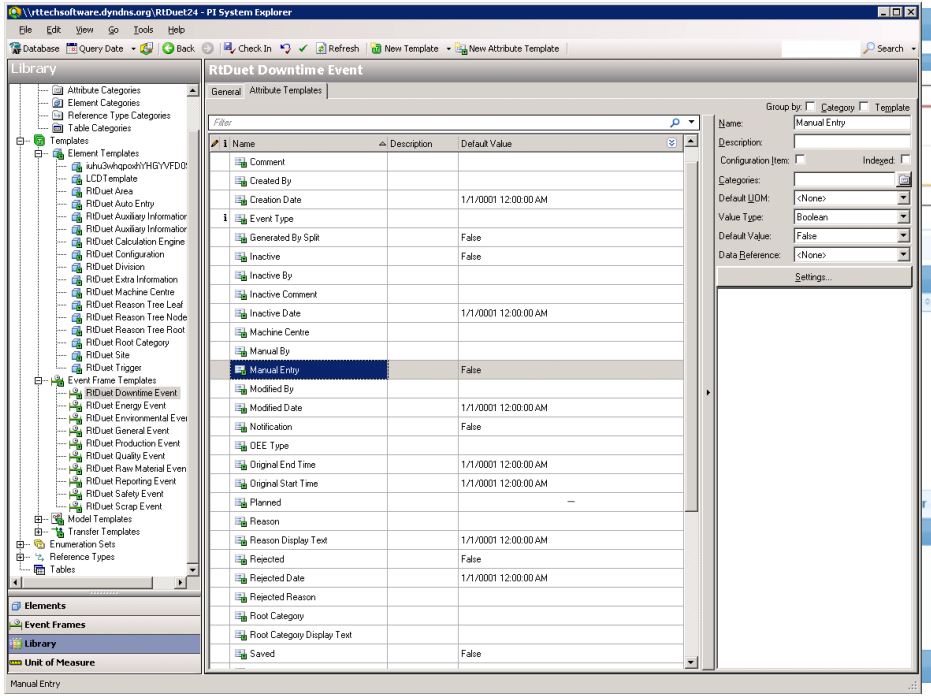
About RtDuet

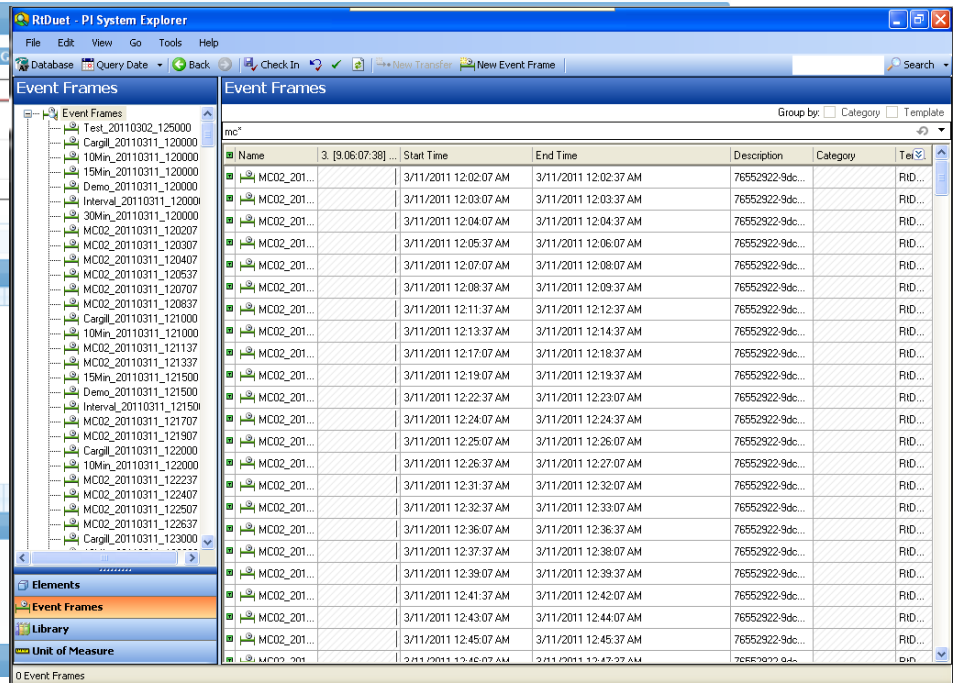
Downtime and OEE for the PI System



About RtDuet

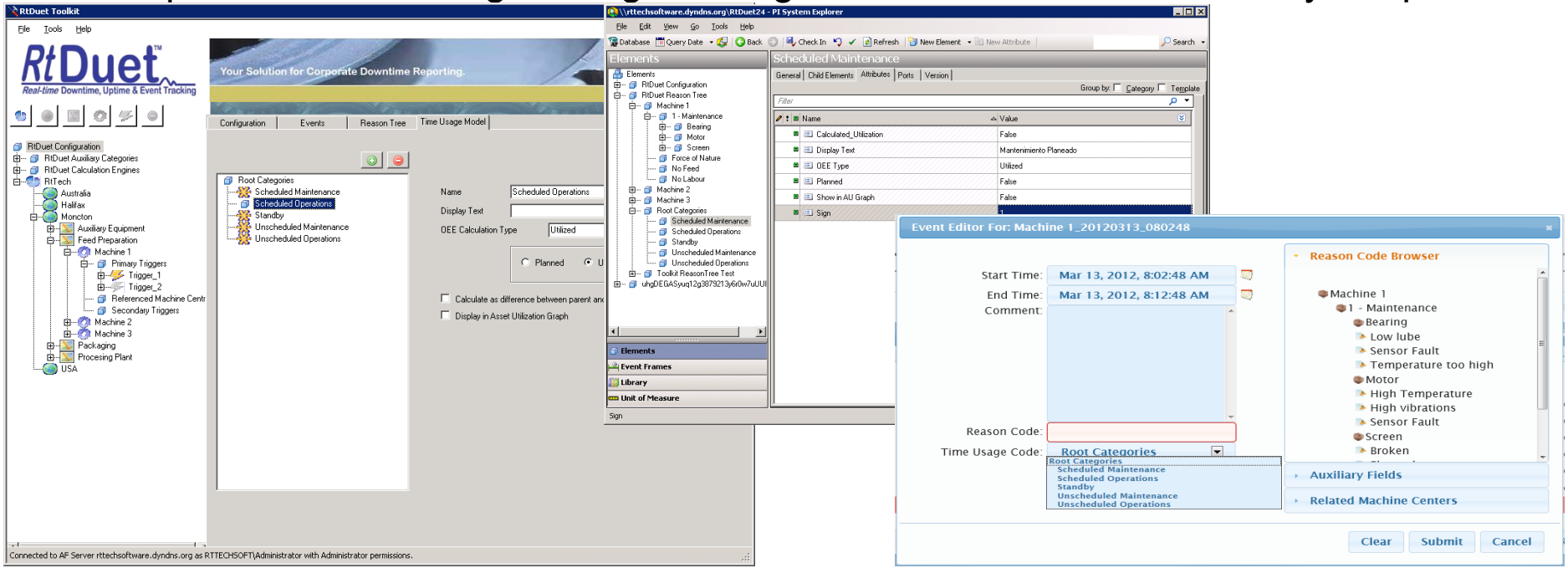
- Automatically generates operational performance information





About RtDuet

- Exposes business logic using a configuration environment driven by templates

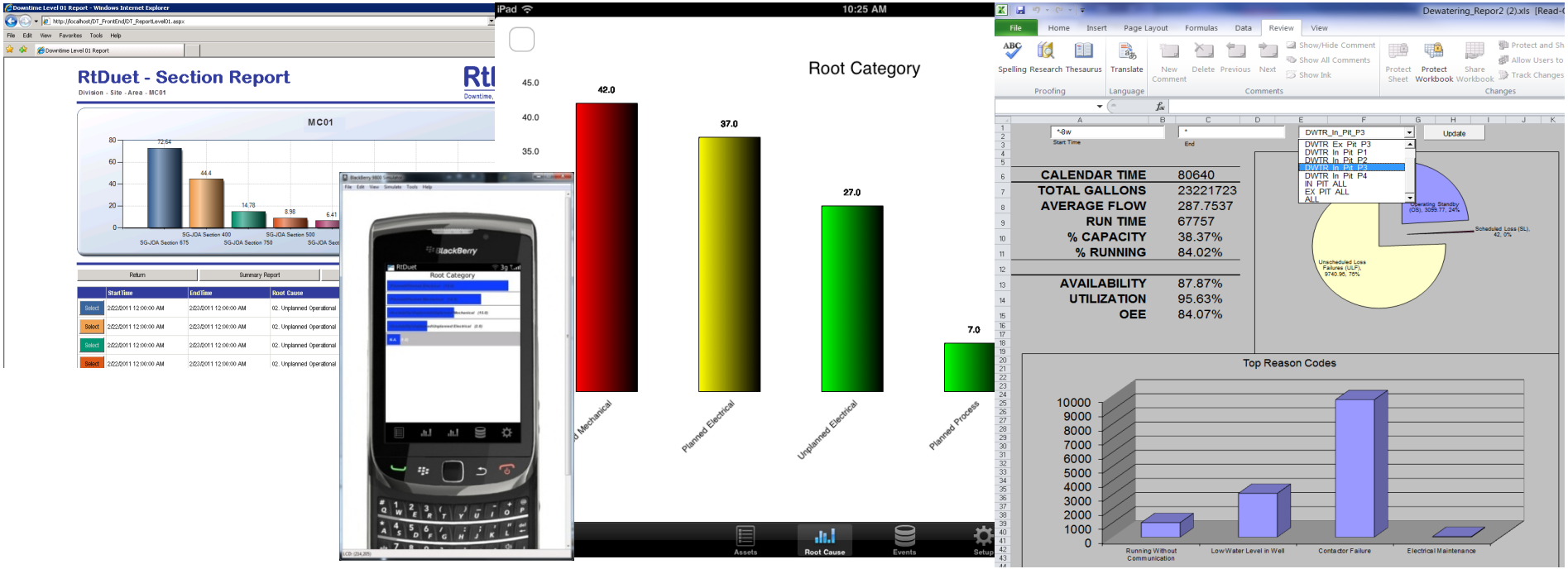


About RtDuet

- 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

- Re
  - –
  - –
- Be
  - –

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

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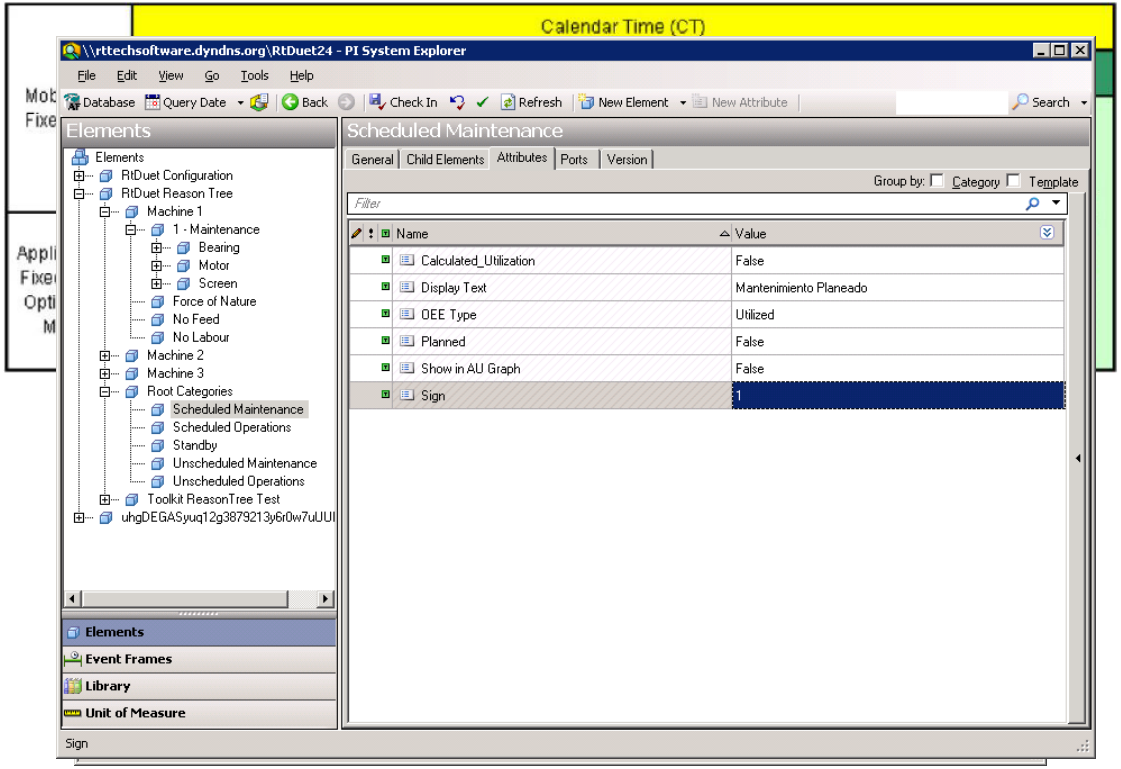
Step 2 – Time Usage Model

- 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

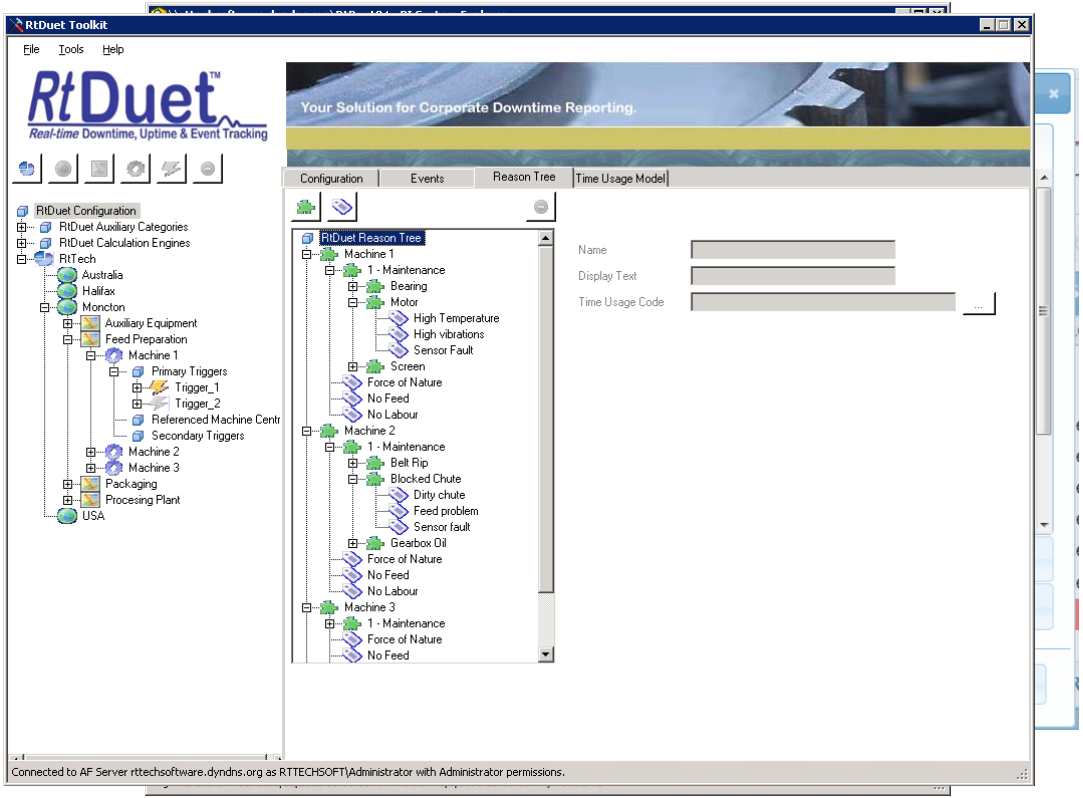


Step 2 – Time Usage Model

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

Step 3 – Reason Codes

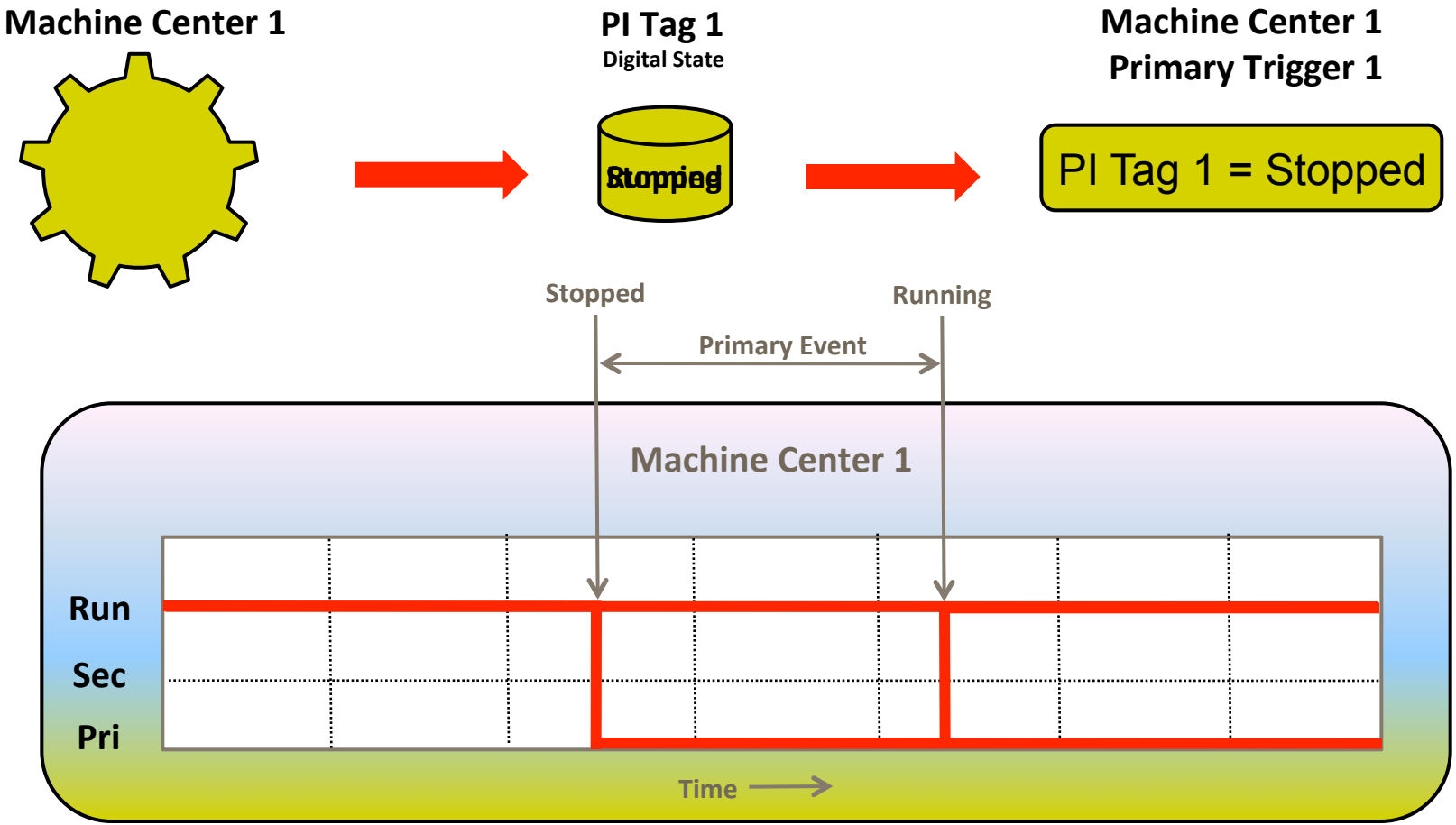
- Standardization of downtime reasons
- How do you want to analyze the downtime reasons? By area and asset, by trade, etc.
- Limit the amount of codes for the Operator to chose from.



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
Stopping
Machine Center 1
Primary Trigger 1
PI Tag 1 = Stopped
Stopped
Running
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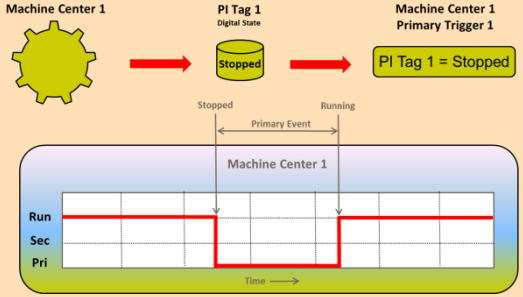
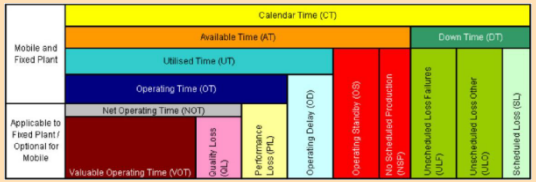
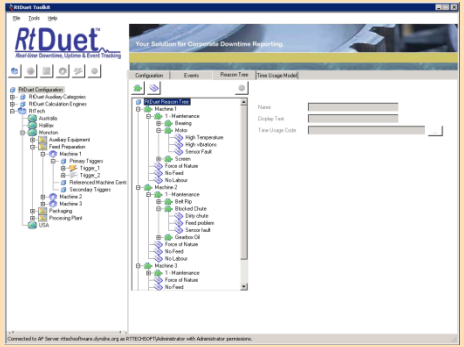




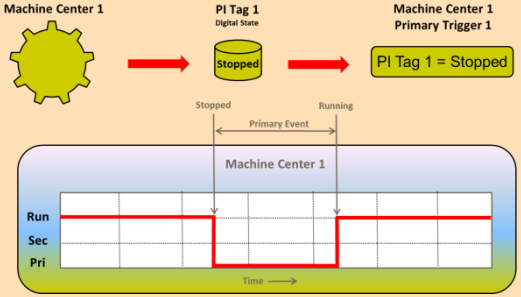


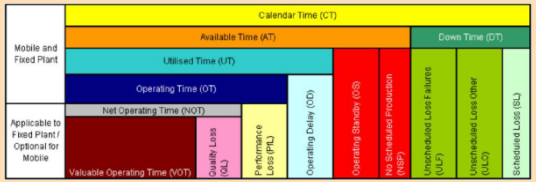
What is my downtime situation like?

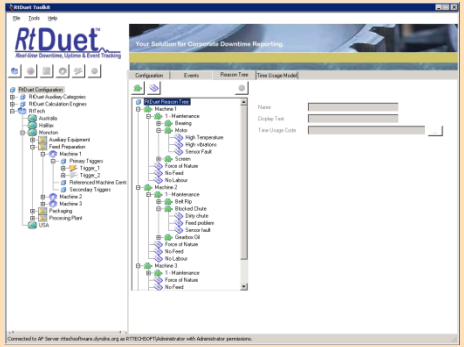
What are my utilization Availability and OEE?

What are the major bottlenecks in my facility?

Is the performance of my assets improving?







RtDuet™

Real-time Downtime, Uptime & Event Tracking

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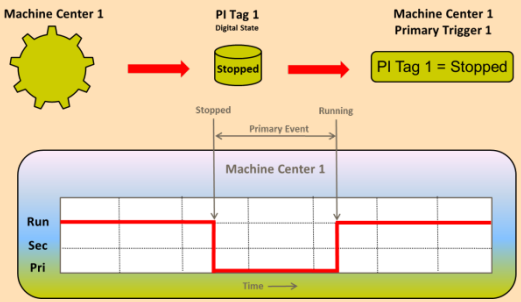

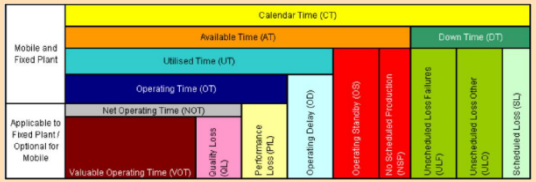

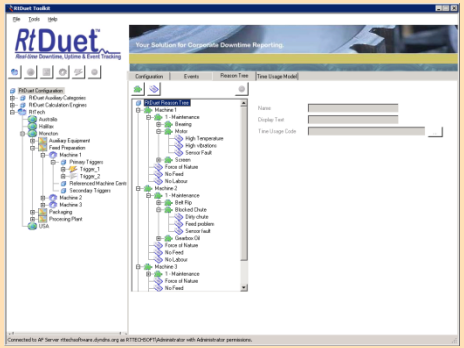

RtDuet™

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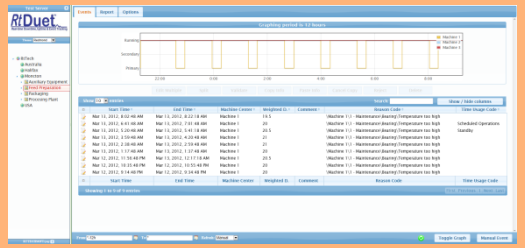
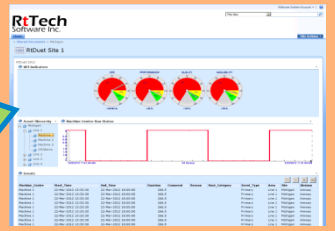
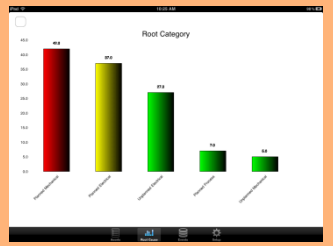






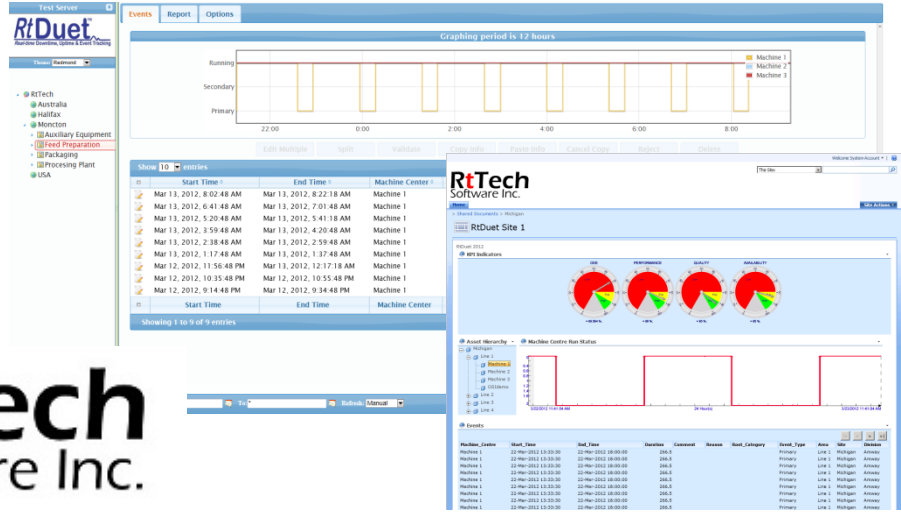
Benefits

- 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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