

IN-DEPTH ANALYTICS. OPTIMIZED ASSETS.

**RtDUET OVERVIEW** 

Tracking downtime & performance



## Business Challenges



5

Ensuring accurate and immediate KPI calculations.

Justifying budget for capital or operational improvements.



Measuring continuous improvement projects.



Identifying opportunities to improve equipment utilization.



Reducing non-value-added work by operators.

## Business Impacts



5

With data downtime events can be decreased



Eliminate the root-causes of production inefficiencies





Better utilization of the inputs of production



Greater production efficiency results in financial efficiency

## Best Practice





Well defined reason codes



Well defined Time Usage Model



Well defined KPIs



Solution approach to implementation

Standardized approach to data capture

# Implement a best practice to track downtime



#### Manual

In House Development

> Third Party Solution

- Paper and/or Spreadsheet solution are cumbersome to develop and implement
- Result in inaccurate, inconsistent and lost data
- Creates data that is hard to analyse and/or quantify
- Time consuming solution

**RIDUET** 

"RtDuet helps us to determine downtime but also to accurately and easily associate production losses for slowdowns and to quickly drill down to root causes for those production losses."

- Ron Butler, Nystar



#### Manual

In House Development

> Third Party Solution

- Expensive to develop and maintain
- Difficult to integrate with production equipment
- Risky, development typically with one or two people



"We have ensured data precision in terms of asset performance and can now chase improvements because we know they are real" - David Bartolo, Head Of Asset Intelligence – AGL Energy



#### Manual

In House Development

Third Party Solution

- Professionally developed and maintained
- Engineered solution that leverages the experience of multiple clients
- Continuous development cycle
- Access to dedicated support
- Higher ROI than the other options

RIDUET

"RtTECH stood out because they had good experience in industrial environments, the solution worked off the OSIsoft PI System nicely and they were able to meet our timelines"

- Andrew Cooper, P. Eng - New Gold , New Afton Mine



# RIDUET INDUSTRIAL APPS TO

Optimize asset utilization Reduce downtime + slowdowns Reduce energy cost

Increase worker productivity



operation data.

Connect

Monitor

Multiple-source monitoring

Real-time machine data capture

Integrates with OSIsoft PI data historian to aggregate environment, production and

Takes advantage of PI's connectivity to over



"I compare RtDUET to an app on your phone. The right apps make the phone so much more useful"

- David Bartolo, Head Of Asset Intelligence – AGL Energy



# RIDUET

"Understanding where the 'bad actors' lie in your process is critical to improving overall plant availability and production levels. In a large-large scale distributed plant, a centralized tool for capturing and reporting on operational delays is essential"

- Paul Yaroshak, Barrick Gold, Pueble Viejo Mine



#### Asset monitoring

Connect

Monitor

Monitors equipment 24/7 for any stoppages and/or production loses due to delays or quality

Auto-classified downtime Downtime events can be automatically classified when event meets predetermined criteria

#### Supports PI notification

Customized alerts to any device in real-time



"RtDUET was very easy to install, it was easy to deploy. The technical assistance was there every step of the way. A real success story for us." - David Bartolo, Head Of Asset Intelligence – AGL Energy



Connect

Monitor

#### Analyze

- Output KPIs to PI Tags Allowing further analysis in PI
- Output to external reporting tools
   Allowing further analysis in third party tools
   such as Power BI, Excel etc.
- KPI Dashboard Real-time visualization of production performance
- Information Timeline
   Events displayed chronologically to analyze asset performance and repairs
- Web-based interface Accessible anytime via secure web application
- Perato Charting in support of root cause analysis

# Architecture



# RIDUET

## Leverage the Power of PI

- RtDUET leverages OSIsoft PI to deliver downtime KPIs such as OEE
- RtDUET implements a state of the art calculation engine using PI data and complex trigger logic to ensure accurate downtime tracking
- RtDUET is an extension to PI allowing users to use PI tools to visualize results or allow RtDUET to embed PI tools within its web interface

# RIDUET

# Why OSIsoft PI?

- OSIsoft and RtDUET have a long partnership history
- OSIsoft's PI Historian is the market leader
- The PI architecture is optimized to allow the easy integration of programs like RtDUET
- It provides a framework with pre defined connections upstream and downstream of the Historian
- These connections reduce overall cost and risk



# Comprehensive Feature Set









Interface



Data Sync



**KPI Engine** 



Toolkit

- Used to configure the application inclusive of:
  - Asset Hierarchy
  - Machine Centers and Triggers
  - Auto Entries
  - Auxiliary Tags
  - Reason Trees
  - Time Usage Model
  - Security



Showing 1 to 18 of 18 entries



Interface



Data Sync



**KPI Engine** 



Engine

## **Application Reporting Interface**

- Primary users interface allowing the following:
  - Event Maintenance
  - KPI Visualization
  - Root Cause Analysis

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Interface



#### Data Sync

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**KPI Engine** 



## Data Sync

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Bi directional data sync with database to allow RtDUET to leverage third party tools, Excel, Power BI, Tableau, etc.

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Interface



Data Sync



**KPI Engine** 



Engine

## **KPI Engine**

- Uses downtime events to ulletautomatically calculates maintenance and reliability KPIs Supports a number of standard KPIs • such as OEE, MTBF, Reliability, Availability, Utilization, etc. Aggregates KPI up the asset • hierarchy •
  - **Output KPIs to PI tags**

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Showing 1 to 18 of 18 entries







Data Sync



KPI Engine



## **Calculation Engine**

- Monitors equipment status and creates downtime events based on trigger logic and priorities
- Supports auto split and auto classification
- Eliminates minimum events based on pre defined durations
  Determines relative downtime

# An Example





#### Optimize Performance – Reduce Downtime – Increase Profitability

#### **Plant Data from OSIsoft PI**



- RtDUET generates event frame records from Plant Data
- Context added to the event frames to transform plant data into actionable data









#### Optimize Performance – Reduce Downtime – Increase Profitability

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**KPI Dashboard** 

# RtDUET provides insightful reports allowing Users to take corrective action to:

- Decrease unplanned downtime
- Implement asset maintenance strategies
- Meet production targets



**Overview** 



#### Workshop

#### Configuration

Commissioning and Training

Continuous Improvement

- RtTECH will schedule a remote design workshop
- Based on the results of workshop an installation configuration will be developed including:
  - A summary of basic functions
  - System architecture
  - A list of initial machine centers
  - Reporting requirements
  - A time usage model (TUM) and resulting KPI's
    - Integration plan to existing historian
  - Configurations for:
    - Asset hierarchy
    - Machine centers
    - Reason trees
    - Time Usage Model
    - Security
    - Custom Attributes



- "I compare RtDUET to an app on your phone. The right apps make the phone so much more useful"
- David Bartolo, Head Of Asset Intelligence AGL Energy



#### Workshop

#### Configuration

Commissioning and Training

Continuous Improvement

- The configuration stage tasks will be executed remotely as per the installation document and includes the following tasks:
  - Install license and RtDUET
  - Install license and PI OEM
  - Configure Asset Hierarchy
  - Configure Machine Centers and associated triggers
  - Configure Auto Entries
  - Configure Auxiliary Tags
  - Configure Reason Trees
  - Configure Time Usage Model,
  - Configure Security



"Understanding where the 'bad actors' lie in your process is critical to improving overall plant availability and production levels. In a large-large scale distributed plant, a centralized tool for capturing and reporting on operational delays is essential"

- Paul Yaroshak, Barrick Gold, Pueble Viejo Mine



#### Workshop

#### Configuration

### Commissioning and Training

Continuous Improvement

- Commissioning of the system inclusive of the following steps:
  - Perform SAT with Client representative
  - Revise Machine Center Triggers
- Once the system is commissioned RtTECH will schedule a training session.
- Training is focused on:
  - Coding events in RtDUET
  - Managing Security and Users
  - Editing configuration of RtDUET



"RtDUET was very easy to install, it was easy to deploy. The technical assistance was there every step of the way. A real success story for us." - David Bartolo, Head Of Asset Intelligence – AGL Energy



#### Workshop

#### Configuration

Commissioning and Training

Continuous Improvement

- A continuous improvement workshop increases the chance of success
- The objective of the continuous improvement workshop is to further the use of RtDuet by using actual data to drive results
- The following tasks will be undertaken by RtTECH in the continuous improvement workshop:
  - Analyze data (3 months minimum)
  - Root Cause Determination
  - Identify opportunities to improve the process
  - Formulate Action Plans



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# Use Cases





# **MAGL**

AGL is one of Australia's leading integrated energy companies. With 175 years in business, AGL has a diverse portfolio including retail and merchant energy businesses, power generation assets and gas.

## CHALLENGE:

- Rapid growth from 300-10,000 MW results in disconnected operations
- Unable to share data across sites
- Lacked industry compliance (IEEE + NERCS)

## SOLUTION:

- RtDuet for asset
   management
- Multiple site installation
- Integration with existing process log-books
- Standardized KPI calculation across sites

5% data accuracy gain

Compliant with industry standards (IEEE + NERCS)



# RioTinto

Argyle Diamond Mine is one of Australia's oldest diamond mines and is one of the world's largest supplier of diamonds and the world's largest supplier of natural coloured diamonds.

## CHALLENGE:

- Departure of in-house developer rendered existing system inoperable
- Behind on technology advances
- Dependent on user-input

## SOLUTION:

- RtDuet captured, analyzed, downtime
- Event frames record production delays
- Value-based reports

90% of errors automatically reported

Fewer events requiring investigation





Headquartered in Toronto, Canada, Barrick is the world's leading gold mining company, with mines and projects on five continents.

## CHALLENGE:

- Eroding margins push need for operational efficiency
- Unknown production loss areas
- Production loss data inaccurate

## SOLUTION:

- RtDuet for automatic downtime detection
- Automatic calculation of standard metrics
- Integration with existing data historian.

Increased data accuracy

Assists in project justification





Michelin manufactures and sells tires for all types of vehicles ranging from automobiles to the space shuttle. The plant in Granton, Nova Scotia specializes in the manufacturing of semi-finished goods.

## CHALLENGE:

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- Manual data recording
- Phantom downtime events
- Data current only at month-end
- Inconsistent downtime coding

## SOLUTION:

- RtDuet for automatic data recording including micro-events
- Real-time data visualization
- Daily reporting

Reduced hours recording data

Delayed CapEx due to improved efficiency





New Gold is an intermediate gold mining company with a New Afton, British Columbia mine that produces gold and copper with a design capacity of 11 000 tonnes per day.

## CHALLENGE:

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- New mining location
- Desire to meet ISO 50001 standard
- High standards for operational efficiency

## SOLUTION:

- RtEMIS for Energy Management Information System
- Improved Financial Cost Accounting
- Completed All Fuels Audit prior to implementation

17% decrease in consumption on one machine

Efficient energy reporting



## VERESEL

Also known as PEI Energy, Veresen's district energy systems offer a cost-competitive, cleaner and greener alternative to heating and cooling buildings currently using in-house boilers and chillers.

## CHALLENGE:

- Failing to meet industry incinerator temperature standards, which results in environmental fines
- Monthly operations reports
- Manual data input

## SOLUTION:

- RtDuet to automatically detect temperature deviations and record
- Automatic alerts and reporting process

Avoided environmental fines by regulating incinerator temperatures

# Roadmap





# Roadmap

7 <sup>th</sup> Gen R3	8th Gen R1	8th Gen R2	9 <sup>th</sup> Gen	9 <sup>th</sup> Gen R2
RtDUET V2.2	RtDUET v3.1 (R1)	RtDUET v3.2	RtDUET v4.1 (R1)	RtDUET v4.2 (R2)
PI AF SDK (2.9.1)	PI AF SDK (2.9.5)	PI AF SDK (2.10.1)	Reason Tree Custom Attributes	NEW Web Based Toolkit
Report Sync	NEW Embeddable Operator	KPI Rollups	ARI Custom Themes	NEW Dashboards and Mobile Access
NEW RtTech Dispatch	NEW event split features	Enhanced Chart Visualizations	Complete list of User Options	Batch based KPI's
Improved KPIs	Trigger Level Minimum Event	Interactive KPI Dashboard	Enhanced column flexibility	Inline event editing
Improved Reporting	Duration	Enhanced URL embedding option	Multiple ARI Maintenance (Dispatch)	Allow MC to have different shift patte
Waterfall Interactive	Filter the Reason Tree based	NEW Event merge option	Peak Prior Rate for Events	R NEW Job scheduler
	Time offect to distribute load	Improved performance		AF Defined Triggers
	of multiple CalcEngines	Event recalculation from any Level of Asset Hierarchy		FULL PI WEB API
2017	2018	в	2019	2020

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IN-DEPTH ANALYTICS. OPTIMIZED ASSETS.

#### **COMPANY OVERVIEW**

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