

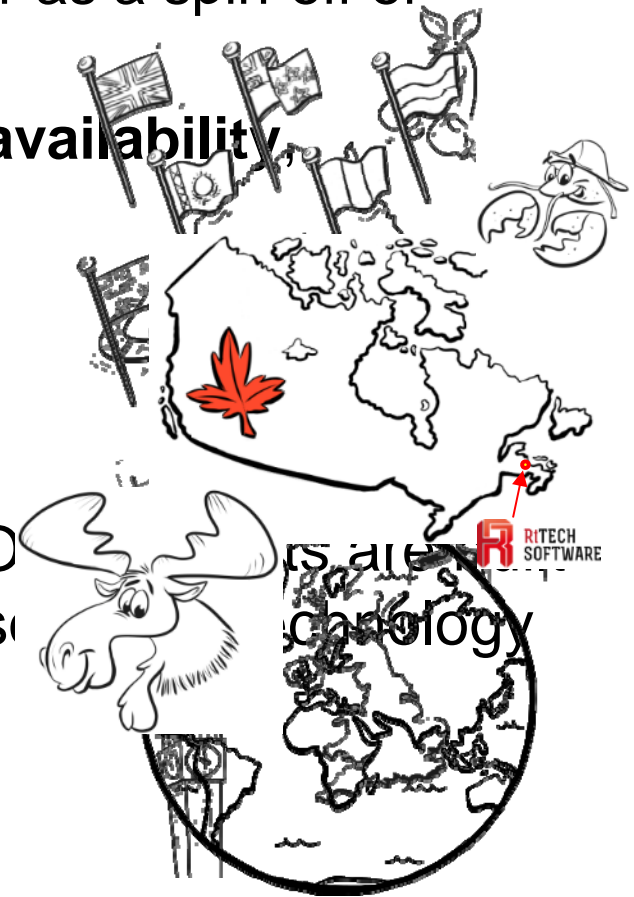
Uptime, Downtime and Event Tracking

Presented by **Sean Rowlands**
Regional Director, Australasia
RtTech Software Inc.

RtTech

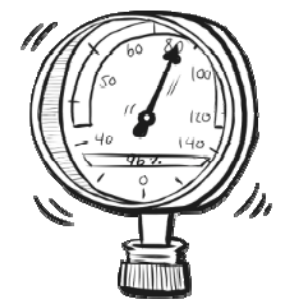
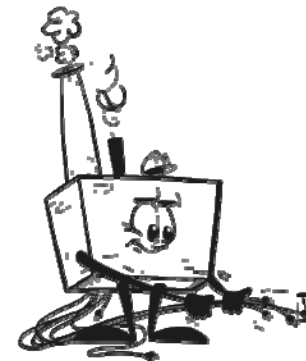
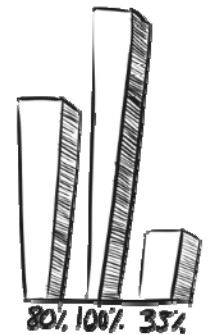
RtTech Software

- RtTech is a company formed in November 2011 as a spin-off of **ADM's** Software division.
- Develops software products to improve **asset availability**, **utilization** and **utilities consumption**
- Based in NB, Canada
- Sales Offices in Australia and UK
- Customers in 13 countries (6 in Europe).
- **OSIsoft** and RtTech Software are partners. OSIsoft is a leader in the process industry. OSIsoft products include PI Server, PI AF, PI Event Frames, Micro



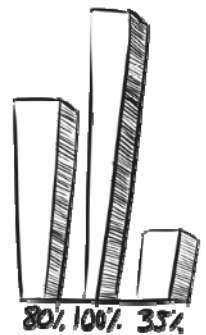
RtTech Software

- Developers of:
 - **RtDuet**: Downtime Monitoring and Maintenance & Reliability KPI calculator
 - **RtEMIS**: Industrial Energy Management Information System



RtDuet

RtDuetTM
Real-time Downtime, Uptime & Event Tracking



RtDuet – What does it do?

- Downtime Monitoring and Maintenance & Reliability KPIs like Availability, Utilization, OEE, MTBF, MTTR,...
- Automatically captures downtime events complete with associated equipment, problem, cause and category
- Generates standardized, real time reports for maintenance and capital planning
- Seamlessly shares data with other MES applications and databases through Web services.

Benefits of RtDuet

- Enables prioritization of reasons for Down Time and Reduced Rate
- Identifies issues preventing plant to meet production goals
- Calculates automatically and in real time Reliability and Maintenance KPIs based on equipment data
- Increases data quality and efficiency of data collection
- Increases data accessibility and enables effective data analysis
- Reduction of non-value added work by operators/supervisors
- Integrates seamlessly with your existing infrastructure
- Flexible to meet reporting needs

Downtime in Operations

❑ Equipment Stoppages

- Unplanned maintenance (breakdowns)
- Scheduled maintenance
- Operational delays (blockages, shift change)
- Non-scheduled time
- Idle (Energy supply, feed supply, stock-bound)

❑ Equipment Slowdowns

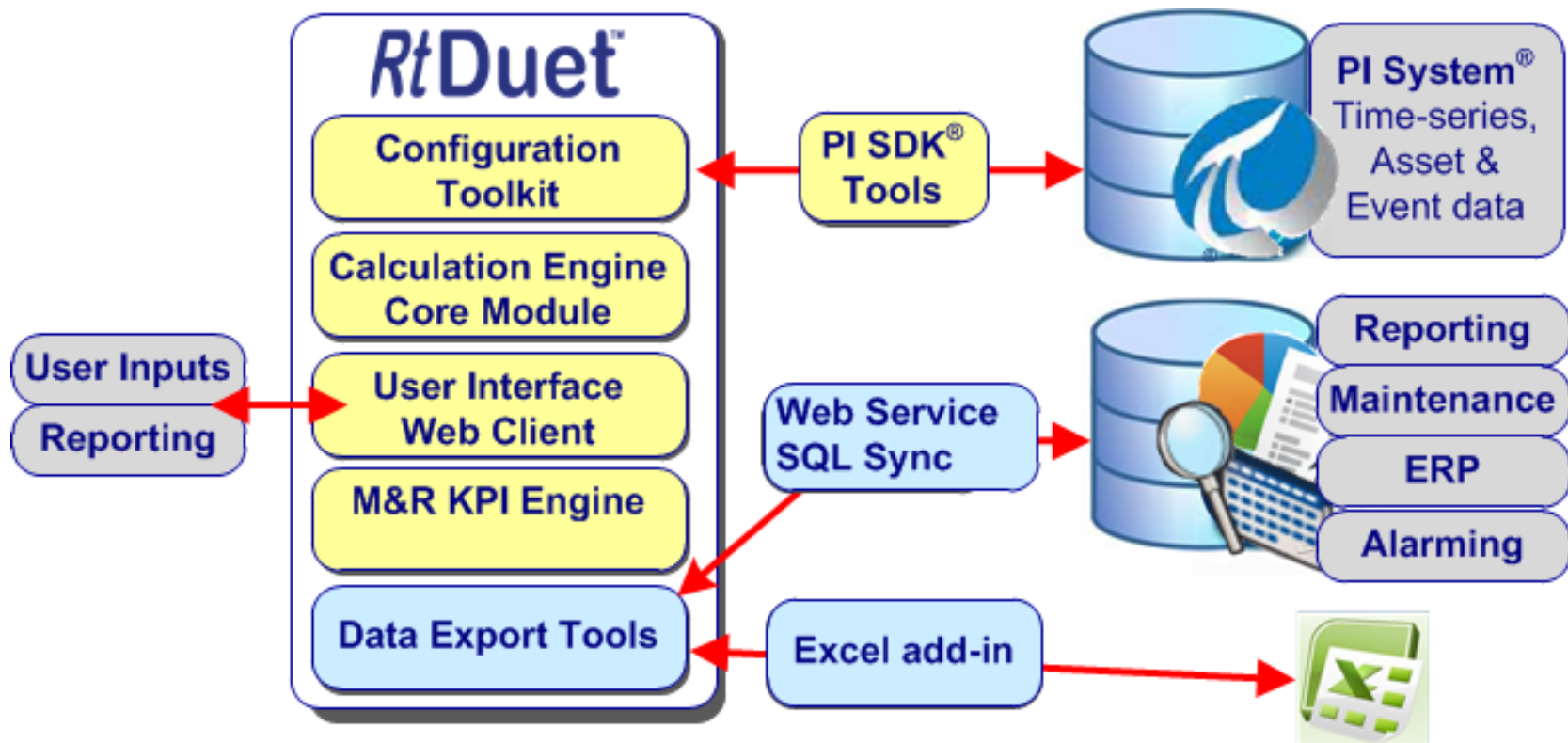
- Aging equipment
- Poor quality feed
- Bottlenecks

Typical scenarios

- Paper log sheets / Excel based solution
 - Inaccurate information
 - Time consuming
 - Sheets are lost
 - Comments can not be analysed or quantified
- Downtime collation time consuming
- Uncontrolled information
- Home grown reporting systems are expensive to develop and maintain.

About RtDuet

Downtime and Maintenance KPI Calculator



About RtDuet - Downtime

- Automatically generates operational performance information

The screenshot displays the RtDuet - PI System Explorer application. The interface is divided into several panes:

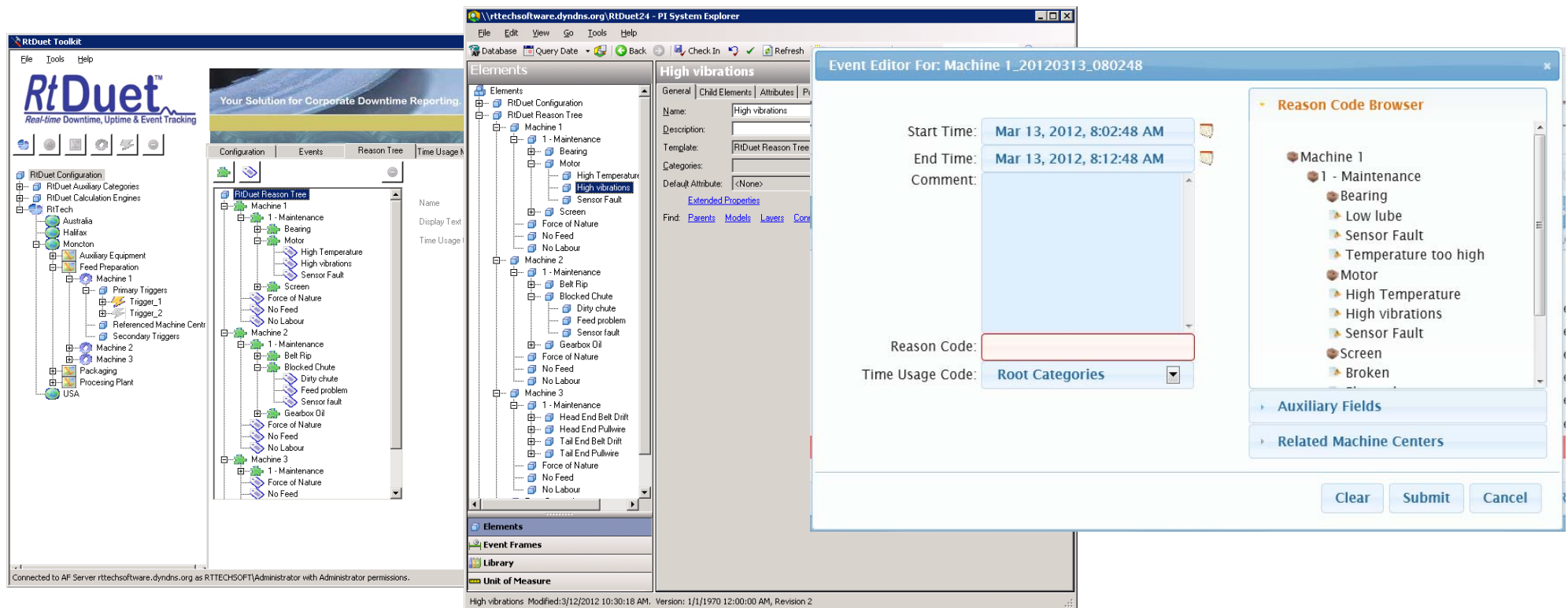
- Library:** A tree view on the left showing various templates and categories, including 'Event Frame Templates' and 'Unit of Measure'.
- RtDuet Downtime Event:** A central pane showing a table of event frames. The table has columns for Name, Description, and Default Value. The 'Manual Entry' event frame is highlighted.
- Event Frames:** A pane on the right showing a list of event frames with columns for Name, Start Time, End Time, Description, Category, and Tei. The list includes various event frames such as 'Test_20110302_125000', 'Cargill_20110311_120000', and 'MC02_20110311_120000'.
- Manual Entry:** A pane at the bottom left showing a form for entering event frame data, including fields for Name, Description, and Default Value.

The 'Event Frames' table shows a list of event frames with the following columns: Name, Start Time, End Time, Description, Category, and Tei. The data is filtered by 'Group by: Category' and 'Template'.

Name	Start Time	End Time	Description	Category	Tei
MC02_20110311_120000	3/11/2011 12:02:07 AM	3/11/2011 12:02:37 AM	76552922-9dc...	RID...	
MC02_20110311_120000	3/11/2011 12:03:07 AM	3/11/2011 12:03:37 AM	76552922-9dc...	RID...	
MC02_20110311_120000	3/11/2011 12:04:07 AM	3/11/2011 12:04:37 AM	76552922-9dc...	RID...	
MC02_20110311_120000	3/11/2011 12:05:37 AM	3/11/2011 12:06:07 AM	76552922-9dc...	RID...	
MC02_20110311_120000	3/11/2011 12:07:07 AM	3/11/2011 12:08:07 AM	76552922-9dc...	RID...	
MC02_20110311_120000	3/11/2011 12:08:37 AM	3/11/2011 12:09:37 AM	76552922-9dc...	RID...	
MC02_20110311_120000	3/11/2011 12:11:37 AM	3/11/2011 12:12:37 AM	76552922-9dc...	RID...	
MC02_20110311_120000	3/11/2011 12:13:37 AM	3/11/2011 12:14:37 AM	76552922-9dc...	RID...	
MC02_20110311_120000	3/11/2011 12:17:07 AM	3/11/2011 12:18:37 AM	76552922-9dc...	RID...	
MC02_20110311_120000	3/11/2011 12:19:07 AM	3/11/2011 12:19:37 AM	76552922-9dc...	RID...	
MC02_20110311_120000	3/11/2011 12:22:37 AM	3/11/2011 12:23:07 AM	76552922-9dc...	RID...	
MC02_20110311_120000	3/11/2011 12:24:07 AM	3/11/2011 12:24:37 AM	76552922-9dc...	RID...	
MC02_20110311_120000	3/11/2011 12:25:07 AM	3/11/2011 12:26:07 AM	76552922-9dc...	RID...	
MC02_20110311_120000	3/11/2011 12:26:37 AM	3/11/2011 12:27:07 AM	76552922-9dc...	RID...	
MC02_20110311_120000	3/11/2011 12:31:37 AM	3/11/2011 12:32:07 AM	76552922-9dc...	RID...	
MC02_20110311_120000	3/11/2011 12:32:37 AM	3/11/2011 12:33:07 AM	76552922-9dc...	RID...	
MC02_20110311_120000	3/11/2011 12:36:07 AM	3/11/2011 12:36:37 AM	76552922-9dc...	RID...	
MC02_20110311_120000	3/11/2011 12:37:37 AM	3/11/2011 12:38:07 AM	76552922-9dc...	RID...	
MC02_20110311_120000	3/11/2011 12:39:07 AM	3/11/2011 12:39:37 AM	76552922-9dc...	RID...	
MC02_20110311_120000	3/11/2011 12:41:37 AM	3/11/2011 12:42:07 AM	76552922-9dc...	RID...	
MC02_20110311_120000	3/11/2011 12:43:07 AM	3/11/2011 12:44:07 AM	76552922-9dc...	RID...	
MC02_20110311_120000	3/11/2011 12:45:07 AM	3/11/2011 12:45:37 AM	76552922-9dc...	RID...	
MC02_20110311_120000	3/11/2011 12:46:07 AM	3/11/2011 12:47:37 AM	76552922-9dc...	RID...	

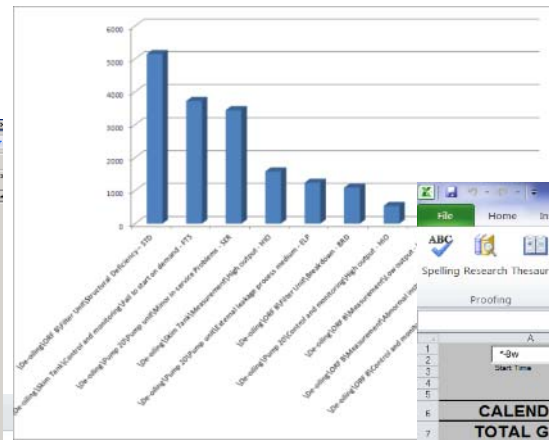
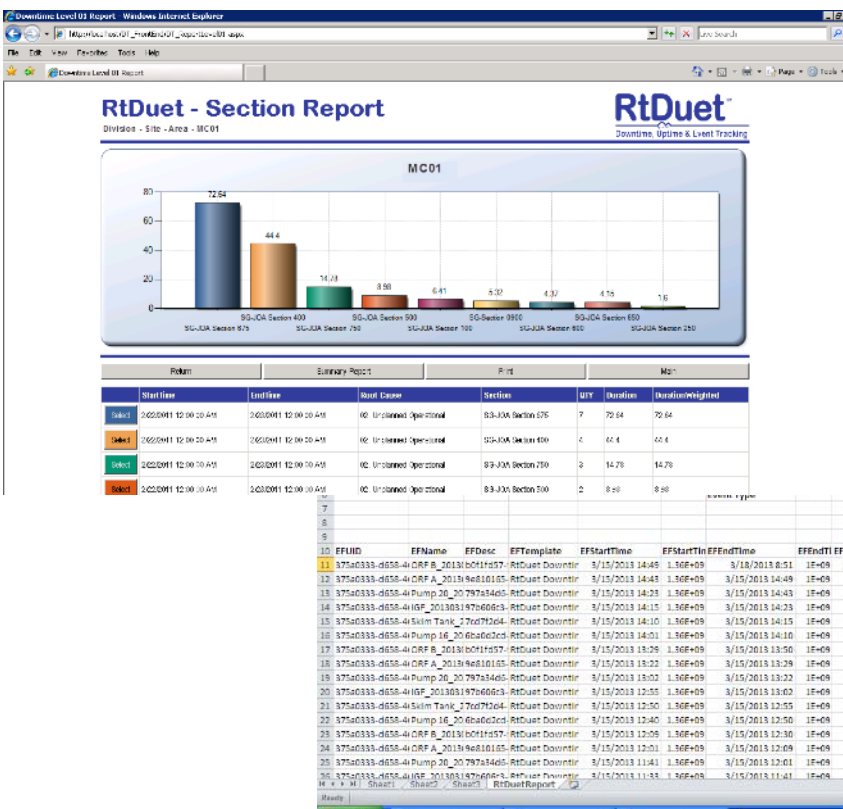
About RtDuet - Downtime

- Exposes business logic using a configuration environment driven by templates

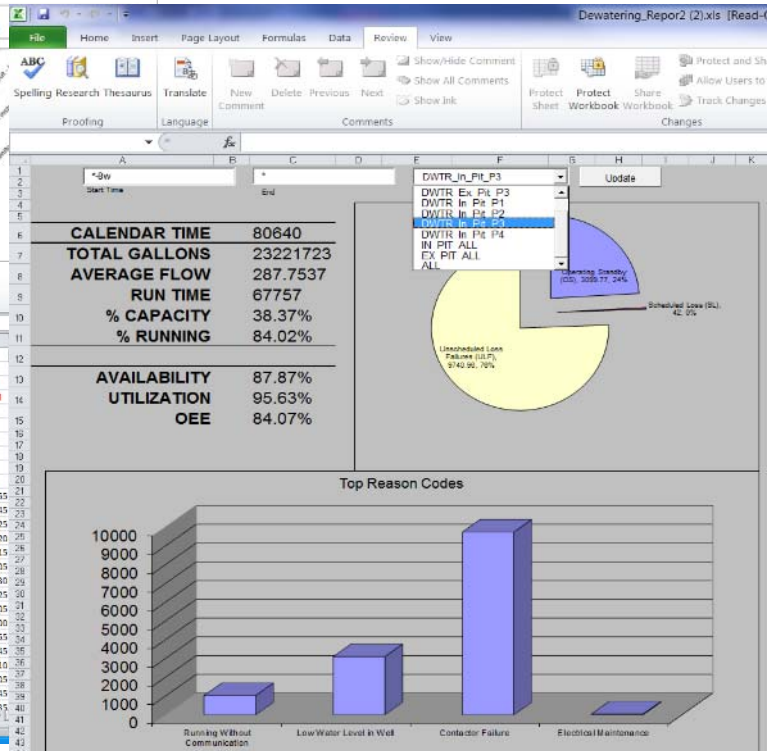


About RtDuet - Downtime

- Delivers Information

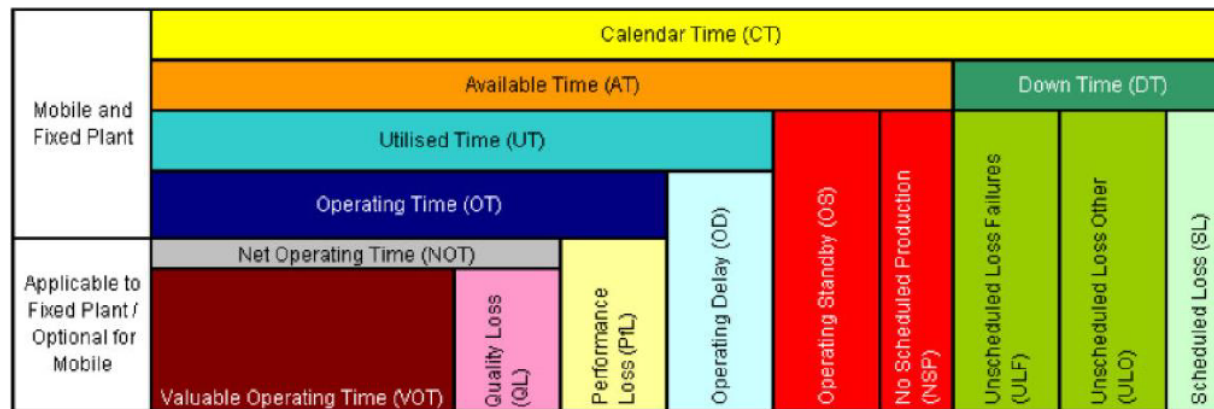


AF Server Name	RTTECH-SUJET-MP	Execution (sec) - 1.83
AF Database Name	RtDuet2012	Event Frame Count - 547
		Status - Update Complete
		Update Time - 3/18/2013 12:45:36 PM

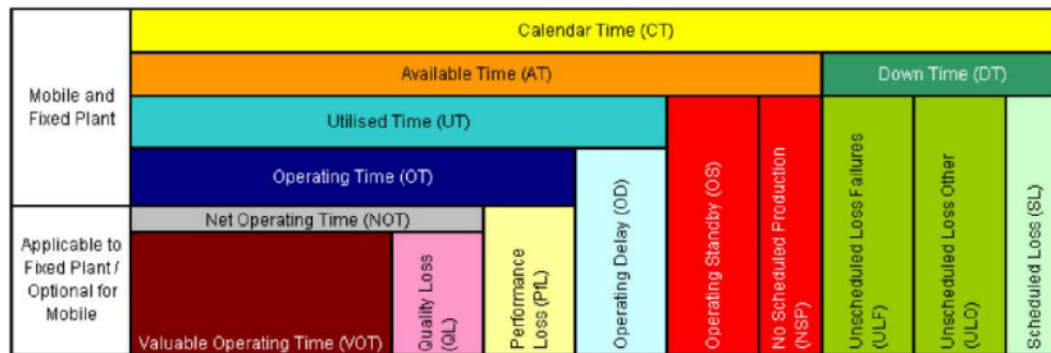


About RtDuet – Maintenance KPI

- RtDuet is configured with the client's Time Usage Model TUM
- The TUM:
 - Determines how downtime events need to be classified
 - Determines how Maintenance KPIs are calculated



About RtDuet – Maintenance KPI



Availability	=	Available Time (AT)	%
		Calendar Time (CT)	

Utilisation	=	Utilised Time (UT)	%
		Calendar Time (CT)	

Use of Availability	=	Utilised Time (UT)	%
		Available Time (AT)	

Effective Utilisation	=	Operating Time (OT)	%
		Calendar Time (CT)	

Operating Efficiency	=	Operating Time (OT)	%
		Utilised Time (UT)	

Effective Use of Availability	=	Operating Time (OT)	%
		Available Time (AT)	

MTBF	=	Utilised Time (UT)	Hours
		Number of Breakdowns (Count of ULF Events)	

MTTR _F	=	Unscheduled Loss Failures (Hours ULF)	Hours
		Number of Breakdowns (Count of ULF Events)	

MTBS	=	Utilised Time (UT)	Hours
		Total Count of All Events Causing Stoppage	

About RtDuet – Maintenance KPI

The image displays several overlapping windows from the RtDuet software, illustrating the maintenance KPI configuration and calculation process.

Top Left Window: KPI Configuration

- Root Categories:** Operating Delay, **Planned Maintenance** (selected), Planned Operations, Unplanned Maintenance, Unplanned Operations.
- Name:** Planned Maintenance
- Display Text:**
- Type:** ☒ Planned, ☐ Unplanned
- Time Classification:** ☐ Nominal, ☒ Available, ☐ Utilised, ☐ Operating, ☐ Other
- Validation Type:** ☒ Electrical, ☐ Mechanical, ☐ Operations, ☐ Other

Bottom Left Window: RTDuet24 - PI System Explorer

- Elements:** RTDuet Configuration, RTDuet Reason Tree, Machine 1 (selected), Machine 2, Machine 3, Root Categories, Scheduled Maintenance, Scheduled Operations, Standby, Unscheduled Maintenance, Unscheduled Operations, Toolkit ReasonTree Test, uhyDEGASyuj12p3873213y6dw7uJUI.
- Scheduled Maintenance:** Filter, Name, Value, Group by.
- Table:**

Name	Value
Calculated_Utilization	False
Display Text	Mantenimiento Planeado
OEE Type	Utilized
Planned	False
Show in AU Graph	False
Sign	1

Top Right Window: KPI ORF B_20130407_070000

- General:** Child Event Frames, Referenced Elements, Attributes.
- Table:**

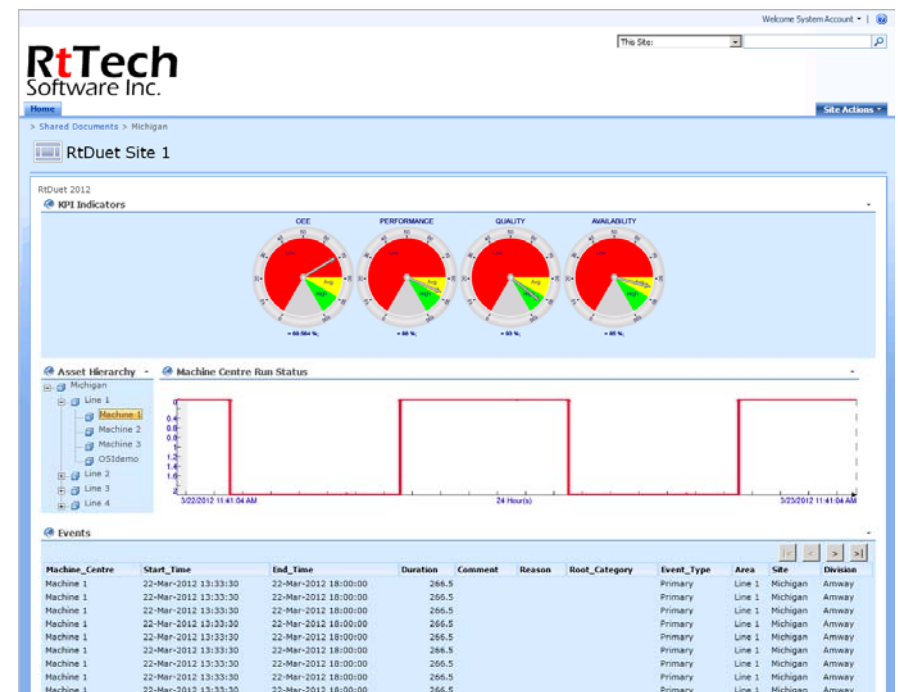
Name	Value	Description
SourceMC_ID	s590155-1a274094-bcb0-9579615213	SourceMC_ID
SourceMC_Name	ORF B	SourceMC_Name
SourceMC_Path	Cenoxus/SAGD-De-oiling/ORF B	SourceMC_Path
Category: R/Duet KPI Metrics		
Availability	100	Availability = Available Time (AT) / Calendar Time (CT) %
EffectiveUsedAvailability	38.84	Effective Use Of Availability = Operating Time (OT) / Available Time (AT) %
EffectiveUtilization	38.84	Effective Utilization = Operating Time (OT) / Calendar Time (CT) %
MTBF	0h	(Mean Time Between Failures) MTBF = Utilized Time (UT) / Number of Breakdowns (JUF)
MTBS	111.17h	(Mean Time Between Stoppages) MTBS = Utilized Time (UT) / All Stoppages
MTTR	0h	(Mean Time to Repair) MTTR = Unscheduled Loss Failure Hours / Number of Breakdowns
OEE	100	OEE = Availability (%) x OEE Performance (%) x OEE Quality (%)
OEE_Performance	100	OEE_Performance (Input Tag)
OEE_Quality	100	OEE_Quality (Input Tag)
OperatingEfficiency	100	Operating Efficiency = Operating Time (OT) / Utilized Time (UT) %
Reliability		Reliability = (Calendar Time CT - Unplanned Downtime) / Calendar Time CT %
Use Of Availability		Use Of Availability = Utilized Time (UT) / Available Time (AT) %
Utilization		Utilization = Utilized Time (UT) / Calendar Time (CT) %

Bottom Right Window: Event Editor For: Machine 1_20120313_080248

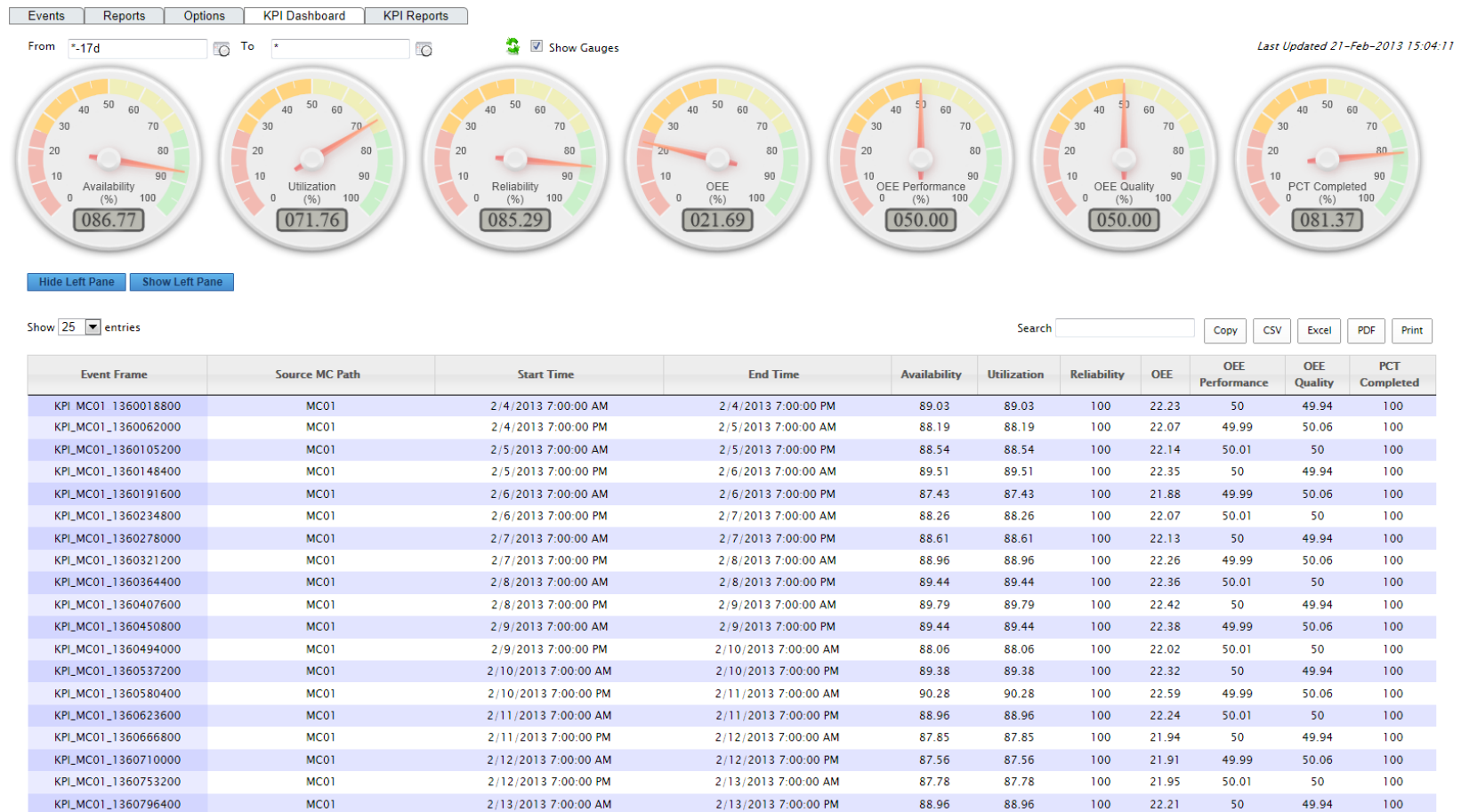
- Start Time:** Mar 13, 2012, 8:02:48 AM
- End Time:** Mar 13, 2012, 8:12:48 AM
- Comment:**
- Reason Code:**
- Time Usage Code:** Root Categories
- Reason Code Browser:** Machine 1, 1 - Maintenance, Bearing, Low lube, Sensor Fault, Temperature too high, Motor, High Temperature, High vibrations, Sensor Fault, Screen, Broken.
- Auxiliary Fields:**
- Related Machine Centers:**
- Buttons:** Clear, Submit, Cancel.

About RtDuet – Maintenance KPI

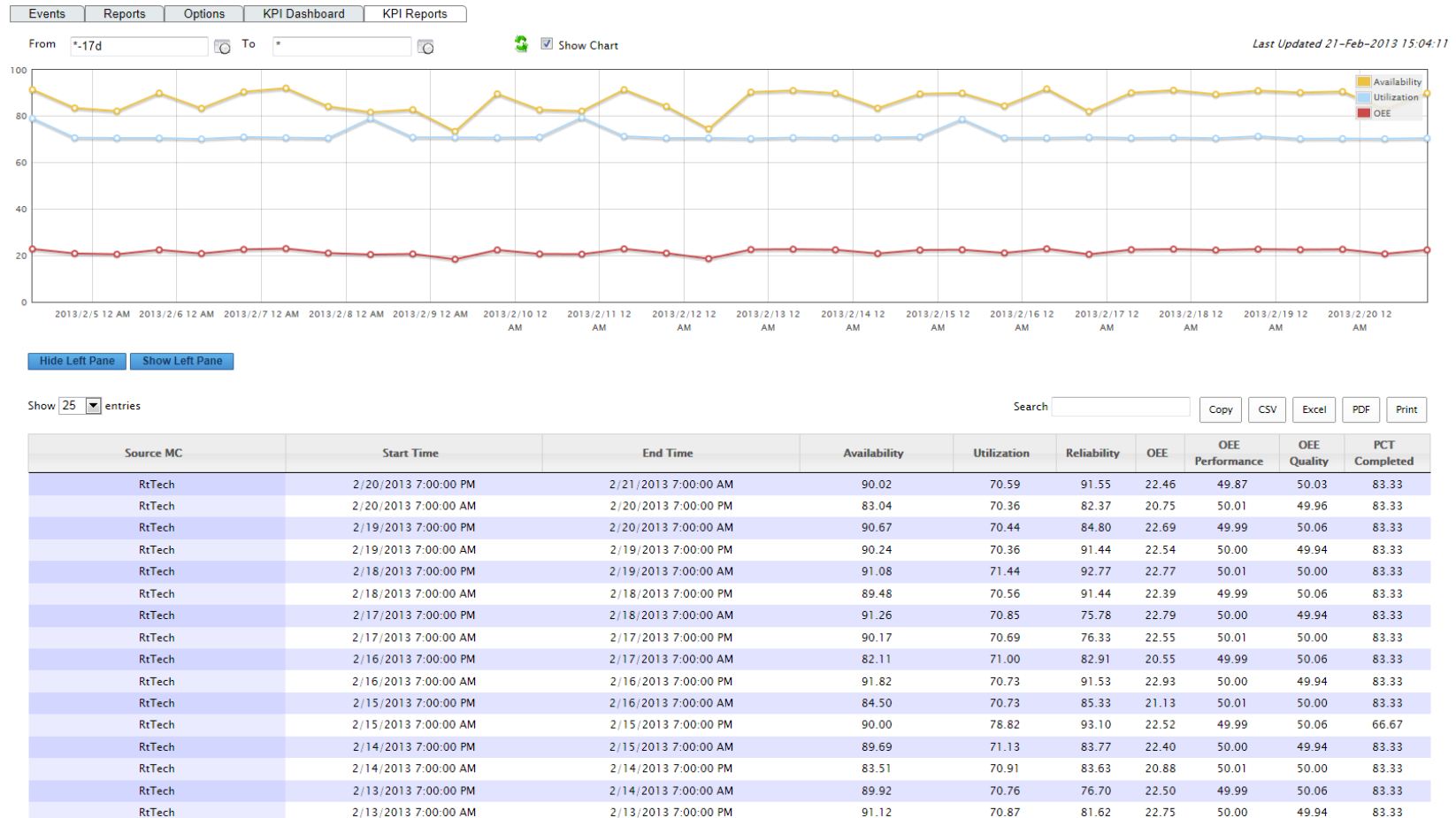
- RtDuet uses the classified events to calculate the KPIs mentioned before.
- All data is stored in the PI System allowing for the creation of Dashboards using the OSIsoft visualization tools.



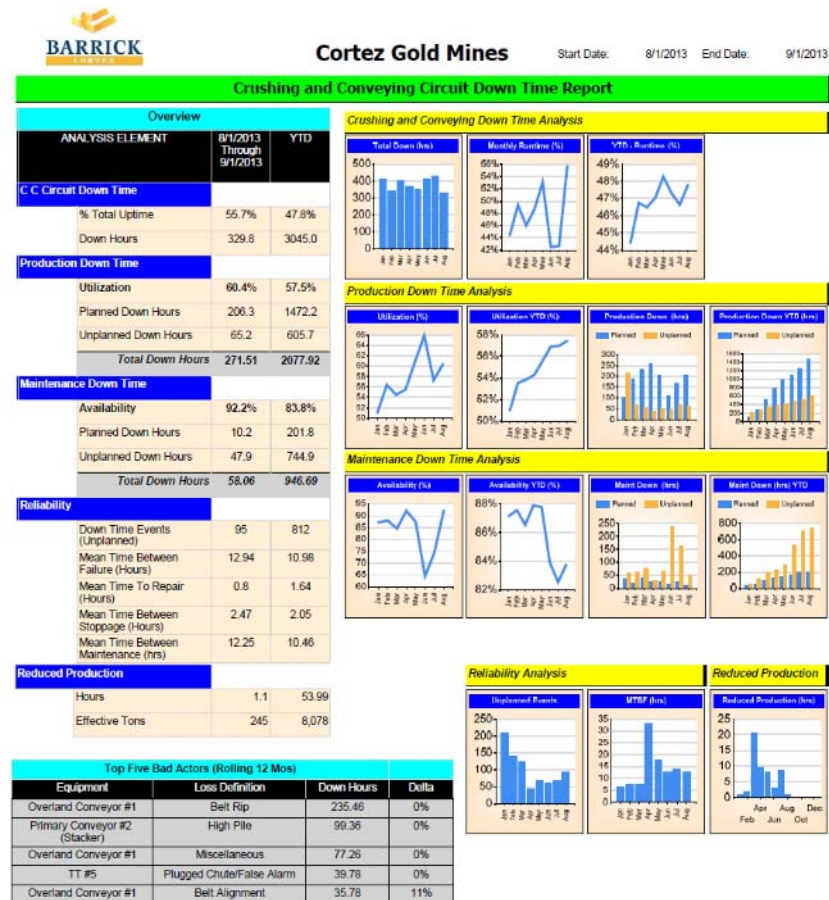
About RtDuet – Maintenance KPI



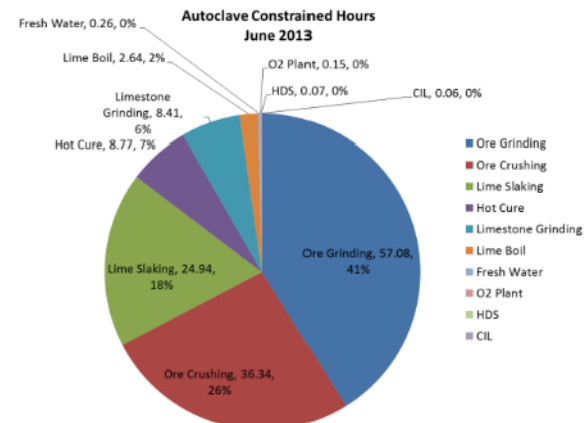
About RtDuet – Maintenance KPI



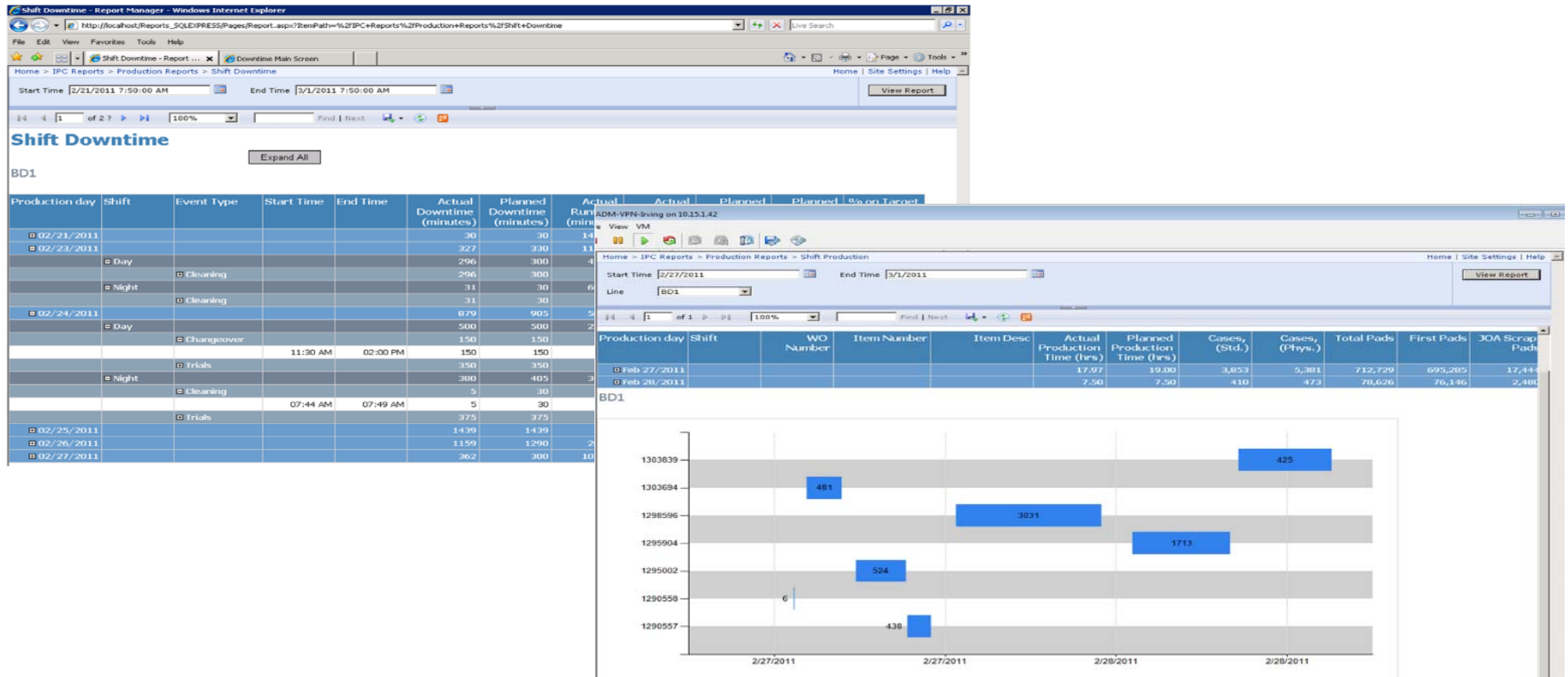
RtDuet Sample Reports



TOP 10 Longest Duration Down Events (LAST 12 MONTHS)				
Start Down	End Down	Duration (Hrs.)	Reason	Comment
6/13/2013 1:55:01 PM	6/17/2013 4:06:31 PM	98.19	Overland Conveyor #1 Belt Rip	cvo 1 belt down belt rip
6/2/2013 11:58:40 AM	6/6/2013 7:20:00 AM	91.36	Overland Conveyor #1 Belt Rip	belt coming apart overland #1
5/22/2013 5:17:45 AM	5/24/2013 12:25:09 AM	43.12	Primary Conveyor #2 (Stacker) High Pile	mill down extended down, high pile
7/29/2013 11:09:38 PM	7/31/2013 4:16:59 PM	41.12	Overland Conveyor #1 Belt Rip	splice coming apart. Primary ran during entire time.
7/5/2013 6:02:47 AM	7/6/2013 3:01:23 PM	32.98	Overland Conveyor #1 Miscellaneous	belt coming apart and fixed it. Primary ran during downtime
7/14/2013 9:01:34 AM	7/15/2013 6:00:00 PM	32.97	Primary Conveyor #2 (Stacker) High Pile	mill feeder bound up
8/16/2013 5:52:58 PM	8/18/2013 12:21:18 AM	30.47	Overland Conveyor #1 Belt Alignment	Belt was tracing into the framework, Then #2 reclaim feeder jammed up making it impossible to run until feeder is cleared
6/25/2013 4:08:31 PM	6/26/2013 4:38:36 PM	24.5	Overland Conveyor #2 Pulley Bearing	Bad pulley bearing on tail end
7/16/2013 10:42:40 AM	7/17/2013 7:00:00 AM	20.29	Miscellaneous See Comment	Apron feeder #2 bound up due to alignment. Had to shut down both crushers to dig out.
7/17/2013 4:00:01 PM	7/18/2013 11:22:49 AM	19.38	Miscellaneous Power Outage	Extended pipeline sub down



RtDuet Sample Reports



RtDuet – What's New!

1st Generation

Stand Alone Application
PI Tags for outputs and comments
Excel Reports

2nd Generation

PI ACE
Recalculation
Excel Reports

3rd Generation

Logic Tables
Annotations
New interface
Improved reporting

4th Generation

PI Batch
Web Interface
Configuration Toolkit
Web Service
SAP Integration

5th Generation

PI AF
Event Frames
Calculation Engine

RtTech



RtDuet – What's New!

- 2013
 - AF 2.4 and AF 2.5 → AF 2.6
 - PI HA with PI SDK 1.4 or higher.
 - Windows 8 and Server 2012 (x64 and x86) / SQL Server 2012
 - Failover RtDuet Calculation engine support.
 - Multi Language Support
- 2014
 - Launch in Cloud (Windows Azure)
 - New Graphics
 - New Data Interface (dlls, Excel Add ins... etc)
 - Smart Work Flow

RtDuet Customers



Questions



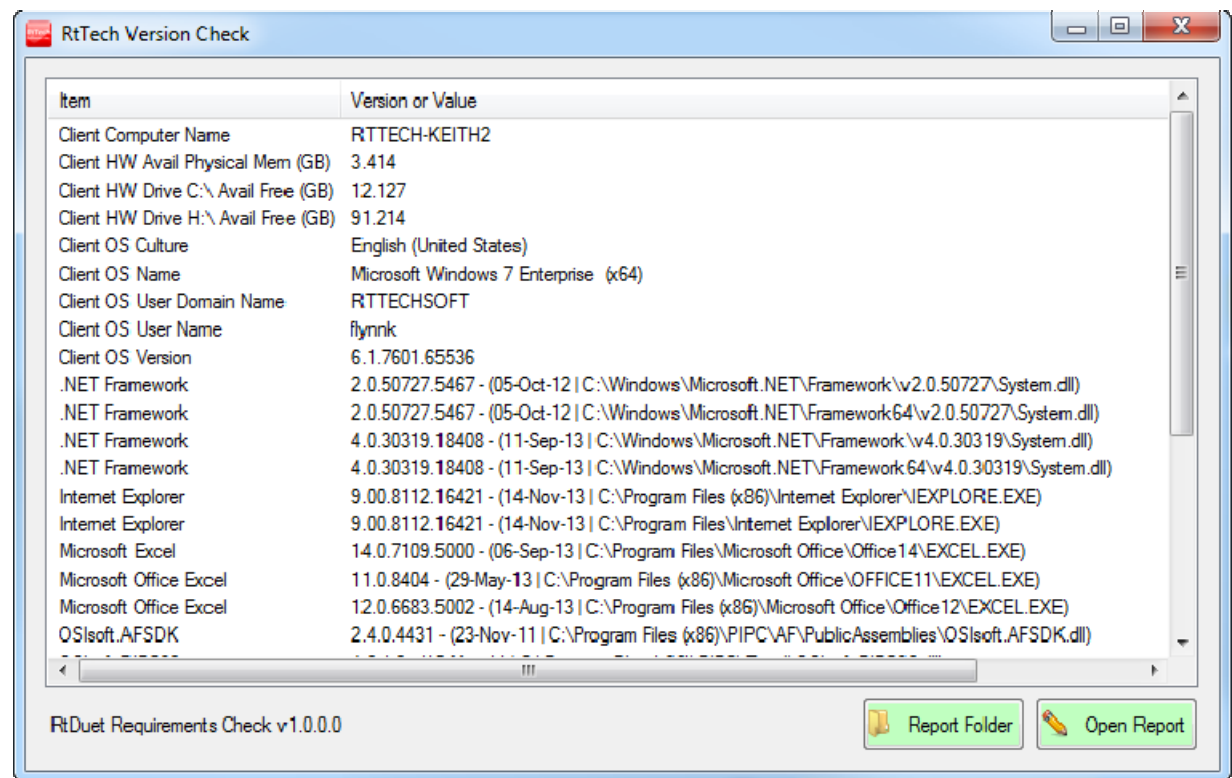
RtDuet – New User Interface

- RtTech User Interface
 - Complete Overhaul
 - AF 2.5 / AF 2.6
 - Increased Performance
 - .Net 4.0/4.5 platform

	Start Time	End Time	All	Duration	Weighted Duration	Comment	Reason Code	TUC	Type
<input type="checkbox"/>	03-Feb-2013 6:31:24pm	--:--	MC03	55:60	0:00	There was an electrical problem.	Select	Select	N
<input type="checkbox"/>	03-Feb-2013 6:31:24pm	--:--	MC03	55:60	0:00	Enter Comment	Select	Select	N
<input type="checkbox"/>	03-Feb-2013 6:31:24pm	--:--	MC03	55:60	0:00	Enter Comment	Select	Select	N
<input type="checkbox"/>	03-Feb-2013 6:31:24pm	--:--	MC03	55:60	0:00	Enter Comment	No Feed	Unscheduled Maintenance	N
<input type="checkbox"/>	03-Feb-2013 6:31:24pm	--:--	MC03	55:60	0:00	Enter Comment	No Feed	Unscheduled Maintenance	N
<input type="checkbox"/>	03-Feb-2013 6:31:24pm	--:--	MC03	55:60	0:00	Enter Comment	No Feed	Unsch. Maint.	N
<input type="checkbox"/>	03-Feb-2013 6:31:24pm	--:--	MC03	55:60	0:00	Enter Comment	No Feed	Unscheduled Maintenance	N
<input type="checkbox"/>	03-Feb-2013 6:31:24pm	--:--	MC03	55:60	0:00	Enter Comment	No Feed	Unscheduled Maintenance	N

RtDuet – New Support / Installs

- RtTech Version Check
 - Used for Support
 - Prerequisites check
 - Customer can perform self check before calling RtTech.



RtDuet – New Excel Add in

- Excel Add in
 - Downtime and KPI
 - No coding required
 - Easy filtering
 - Excel 2007/2010
 - Automatic refresh

Book1 - Microsoft Excel

FileHomeInsertPage LayoutFormulasDataReviewViewRtDuet ReportsPI AF BuilderTeam

Get RtDuet FFsGet RtDuet KPI FFs

Create RtDuet SheetCreate RtDuet KPI Sheet

Start TimerStart KPI Timer

RtDuet DataRtDuet KPIs

A1																
Division																
A	B	C	D	E	F	G	H	I	J	K	L	M				
1	Division	*	Start Time	*-1d		MinDuration (Min)	0		AF Server Name	RTTECH-PI2012		Execution				
2	Site	*	End Time	*		Saved	*		AF Database Name	RtDuet		Event Fran				
3	Area	*	Timer Minutes	5		Validated	*					Status = U				
4	Machine Center	*	Use Long Form	TRUE		Reason Code	*					Update Tir				
5						Root Category	*									
6						Event Type	*									
7																
8																
9																
10	FF-UID	FF-FFDesc	FF-Template	FF-StartIn	FF-StartIn	FF-End Time	FF-FFDuratio	FF-Open	Active	Comment	CreatedBy					
11	6032fb1a-b1de-4	M 70a5ea16-	RtDuet Downtir	#####	1.39E+09	1/24/2014 17:04	#	331	TRUE	TRUE	RtDuet201					
12	6032fb1a-b1de-4	M 70a5ea16-	RtDuet Downtir	#####	1.39E+09	1/24/2014 16:59	#	420	FALSE	TRUE	RtDuet201					
13	6032fb1a-b1de-4	M 70a5ea16-	RtDuet Downtir	#####	1.39E+09	1/24/2014 16:52	#	300	FALSE	TRUE	RtDuet201					
14	6032fb1a-b1de-4	M 70a5ea16-	RtDuet Downtir	#####	1.39E+09	1/24/2014 16:26	#	2910	FALSE	TRUE	RtDuet201					
15	6032fb1a-b1de-4	M 70a5ea16-	RtDuet Downtir	#####	1.39E+09	1/24/2014 15:38	#	330	FALSE	TRUE	RtDuet201					
16	6032fb1a-b1de-4	M 70a5ea16-	RtDuet Downtir	#####	1.39E+09	1/24/2014 15:32	#	300	FALSE	TRUE	RtDuet201					
17	6032fb1a-b1de-4	M 70a5ea16-	RtDuet Downtir	#####	1.39E+09	1/24/2014 15:07	#	3000	FALSE	TRUE	RtDuet201					
18	6032fb1a-b1de-4	M 70a5ea16-	RtDuet Downtir	#####	1.39E+09	1/24/2014 14:17	#	570	FALSE	TRUE	RtDuet201					
19	6032fb1a-b1de-4	M 70a5ea16-	RtDuet Downtir	#####	1.39E+09	1/24/2014 14:07	#	300	FALSE	TRUE	RtDuet201					
20	6032fb1a-b1de-4	M 70a5ea16-	RtDuet Downtir	#####	1.39E+09	1/24/2014 13:43	#	2820	FALSE	TRUE	RtDuet201					
21	6032fb1a-b1de-4	M 70a5ea16-	RtDuet Downtir	#####	1.39E+09	1/24/2014 12:56	#	450	FALSE	TRUE	RtDuet201					
22	6032fb1a-b1de-4	M 70a5ea16-	RtDuet Downtir	#####	1.39E+09	1/24/2014 12:48	#	300	FALSE	TRUE	RtDuet201					
23	6032fb1a-b1de-4	M 70a5ea16-	RtDuet Downtir	#####	1.39E+09	1/24/2014 12:22	#	2850	FALSE	TRUE	RtDuet201					
24	6032fb1a-b1de-4	M 70a5ea16-	RtDuet Downtir	#####	1.39E+09	1/24/2014 11:35	#	330	FALSE	TRUE	RtDuet201					
25	6032fb1a-b1de-4	M 70a5ea16-	RtDuet Downtir	#####	1.39E+09	1/24/2014 11:29	#	330	FALSE	TRUE	RtDuet201					

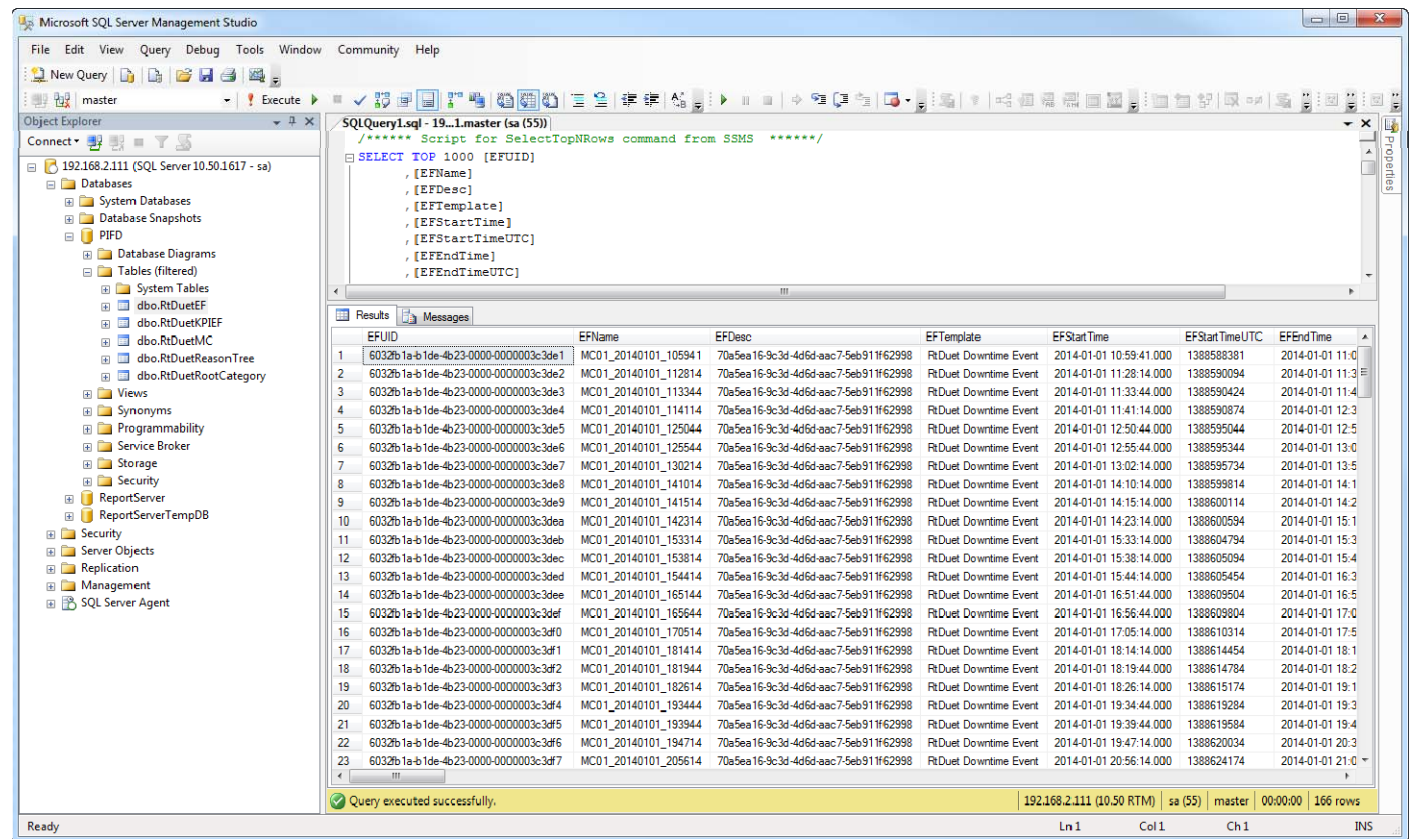
Ready

Sheet1Sheet2Sheet3RtDuetReport

100%

RtDuet – New SQL Sync

- SQL Sync
 - DT Records
 - KPI Records
 - Reason Tree
 - Root Category
 - Asset Tree



RtDuet – New dll interface

- COM enabled dll:
 - Custom Apps
 - Excel VBA
 - Rapid Development

Microsoft Visual Basic for Applications - Sample for Joe.xlsm - [Module1 (Code)]

Project - VBAProject

VBAProject (Sample for Joe.xlsm)

Sheet1 (Sheet1)

Sheet2 (Sheet2)

Sheet3 (Sheet3)

Sheet4 (RtDuetReport)

ThisWorkbook

Module1

Properties - Module1

Module1 Module

Alphabetic

Categorized

References - VBAProject

Available References:

- ☒ Visual Basic For Applications
- ☒ Microsoft Excel 14.0 Object Library
- ☒ OLE Automation
- ☒ Microsoft Office 14.0 Object Library
- ☒ RtDuetReports
- ☐ A COM .dll to upgrade the old Track-IT pro database
- ☐ AccessibilityCplAdmin 1.0 Type Library
- ☐ Acsesso FLEXnet Connect Agent 11.5 Type Library
- ☐ Acsesso FLEXnet Connect Download Manager 11.5 Ty
- ☐ Acsesso FLEXnet Connect Software Manager 11.5 Ty
- ☐ Acsesso FLEXnet Connect WebAgent 11.5 Type Libr
- ☐ Acrobat Access 3.0 Type Library
- ☐ AcrobatLib
- ☐ AcrobatLib 1.0 Type Library

RtDuetReports

Location: C:\Projects\RtDuetReports\RtDuetReports\bin\Debug\Rt

Language: Standard

Code:

```
Site = dataSheet.Range("RtDuetSite").Value2
Area = dataSheet.Range("RtDuetArea").Value2
MachineCentre = dataSheet.Range("RtDuetMachineCentre").Value2

Dim Saved As String
Dim Validated As String
Dim EventType As String
Dim ReasonCode As String
Dim RootCategory As String

Saved = dataSheet.Range("RtDuetSaved").Value2
Validated = dataSheet.Range("RtDuetValidated").Value2
EventType = dataSheet.Range("RtDuetEventType").Value2
ReasonCode = dataSheet.Range("RtDuetReasonCode").Value2
RootCategory = dataSheet.Range("RtDuetRootCategory").Value2

Dim myEfs As RtDuetReports.RtDuetReports
Set myEfs = New RtDuetReports.RtDuetReports

Dim myReturnResult As Boolean
myReturnResult = myEfs.FFIFFTable(AFServerName, AFDatabaseName, AFUser, APassword, _
    StartDateString, EndDateString, MinimumDurationMin, _
    Division, Site, Area, MachineCentre, _
    Saved, Validated, EventType, ReasonCode, RootCategory)

Dim HeaderArray() As Variant
HeaderArray = myEfs.GetEFOObjectArrayHeader
```

Watches

Expression	Value	Type	Context

Get Funct Frames

FFIID	FFIName	FFIType	FFIStatus	FFIStartTime	FFIEndTime	FFIStartTime/UTC	FFIEndTime/UTC	FFIValue
6032b1e1b1e4	MCD1_20140125	70a5ea16-9c3d	RtDuet Downst...	1/25/2014 6:29	1390645764	1/25/2014 7:15	1390648554	2790
6032b1e1b1e4	MCD1_20140125	70a5ea16-9c3d	RtDuet Downst...	1/25/2014 6:21	1390615314	1/25/2014 6:29	1390615764	450
6032b1e1b1e4	MCD1_20140125	70a5ea16-9c3d	RtDuet Downst...	1/25/2014 6:10	1390644364	1/25/2014 6:21	1390645314	330
6032b1e1b1e4	MCD1_20140125	70a5ea16-9c3d	RtDuet Downst...	1/25/2014 5:58	1390643864	1/25/2014 6:10	1390644314	2880
6032b1e1b1e4	MCD1_20140125	70a5ea16-9c3d	RtDuet Downst...	1/25/2014 5:50	1390610334	1/25/2014 5:58	1390610864	570
6032b1e1b1e4	MCD1_20140125	70a5ea16-9c3d	RtDuet Downst...	1/25/2014 4:59	1390640004	1/25/2014 5:50	1390640534	330
6032b1e1b1e4	MCD1_20140125	70a5ea16-9c3d	RtDuet Downst...	1/25/2014 4:53	1390640004	1/25/2014 4:59	1390640534	330
6032b1e1b1e4	MCD1_20140125	70a5ea16-9c3d	RtDuet Downst...	1/25/2014 3:47	1390638064	1/25/2014 4:53	1390638594	2670
6032b1e1b1e4	MCD1_20140125	70a5ea16-9c3d	RtDuet Downst...	1/25/2014 3:30	1390635534	1/25/2014 3:47	1390636064	510
6032b1e1b1e4	MCD1_20140125	70a5ea16-9c3d	RtDuet Downst...	1/25/2014 3:33	1390635234	1/25/2014 3:30	1390635534	300
6032b1e1b1e4	MCD1_20140125	70a5ea16-9c3d	RtDuet Downst...	1/25/2014 2:26	1390631184	1/25/2014 3:33	1390633664	2880
6032b1e1b1e4	MCD1_20140125	70a5ea16-9c3d	RtDuet Downst...	1/25/2014 2:16	1390630614	1/25/2014 2:26	1390631184	570
6032b1e1b1e4	MCD1_20140125	70a5ea16-9c3d	RtDuet Downst...	1/25/2014 2:11	1390630314	1/25/2014 2:16	1390630864	300
6032b1e1b1e4	MCD1_20140125	70a5ea16-9c3d	RtDuet Downst...	1/25/2014 1:16	1390629204	1/25/2014 2:11	1390629734	2670
6032b1e1b1e4	MCD1_20140125	70a5ea16-9c3d	RtDuet Downst...	1/25/2014 1:05	1390628534	1/25/2014 1:16	1390629064	300

Get Event Frames

Start Time: 1/25/2014 1:05

End Time: 1/25/2014 1:05

Get Event Frames

Save Settings

Reload Settings

Server: H:\Tech\PI2012

Database: RtDuet

User Name: af

Password: af

Message:

Division: 0

Site: 0

Area: 0

Machine: 0

Reason Code: 0

Event Type: 0

Reason Code: 0

Minimum Duration: 0

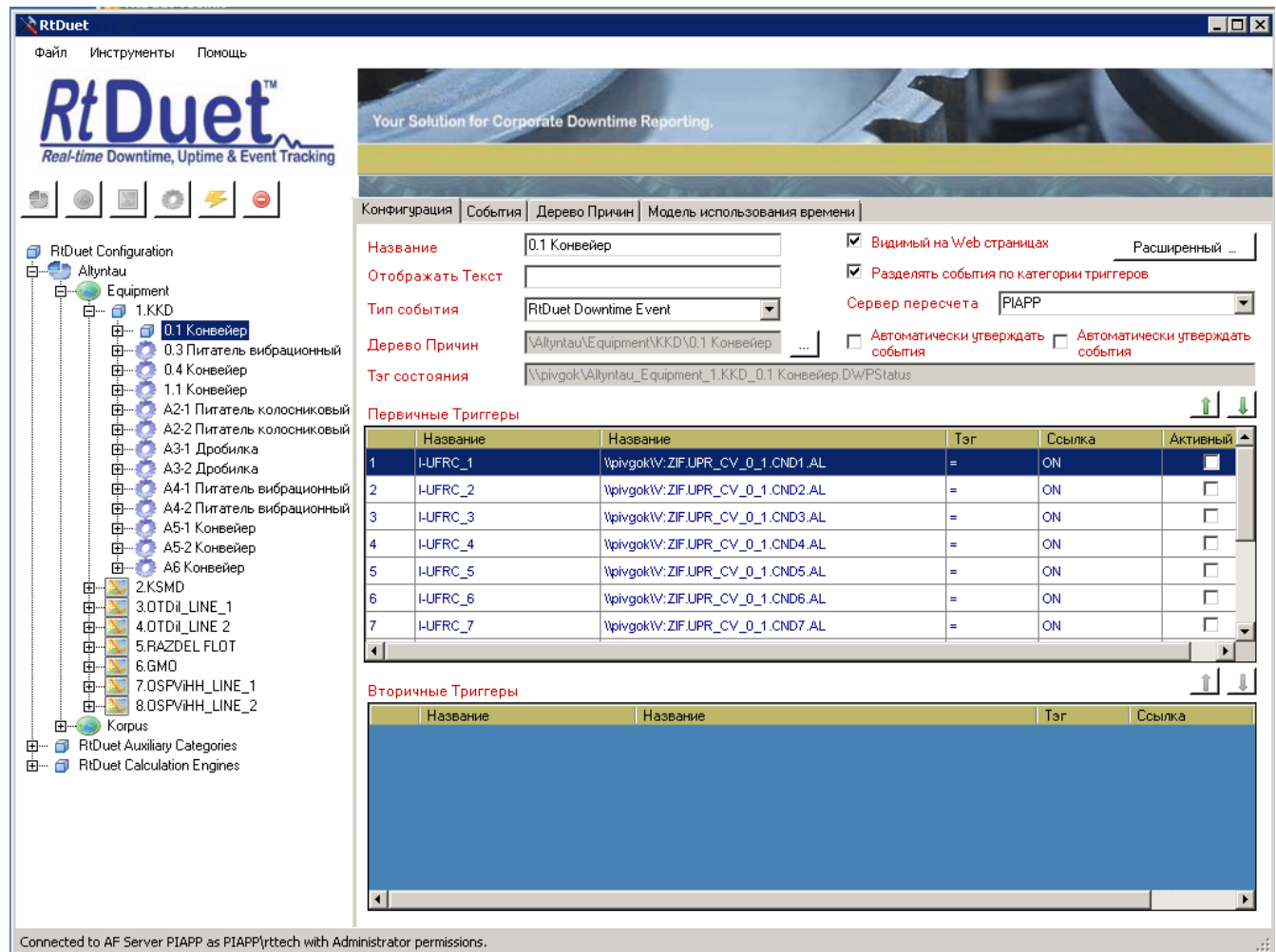
Event Frames: 53

Query Time: 1.43

Execution Time: 1.58

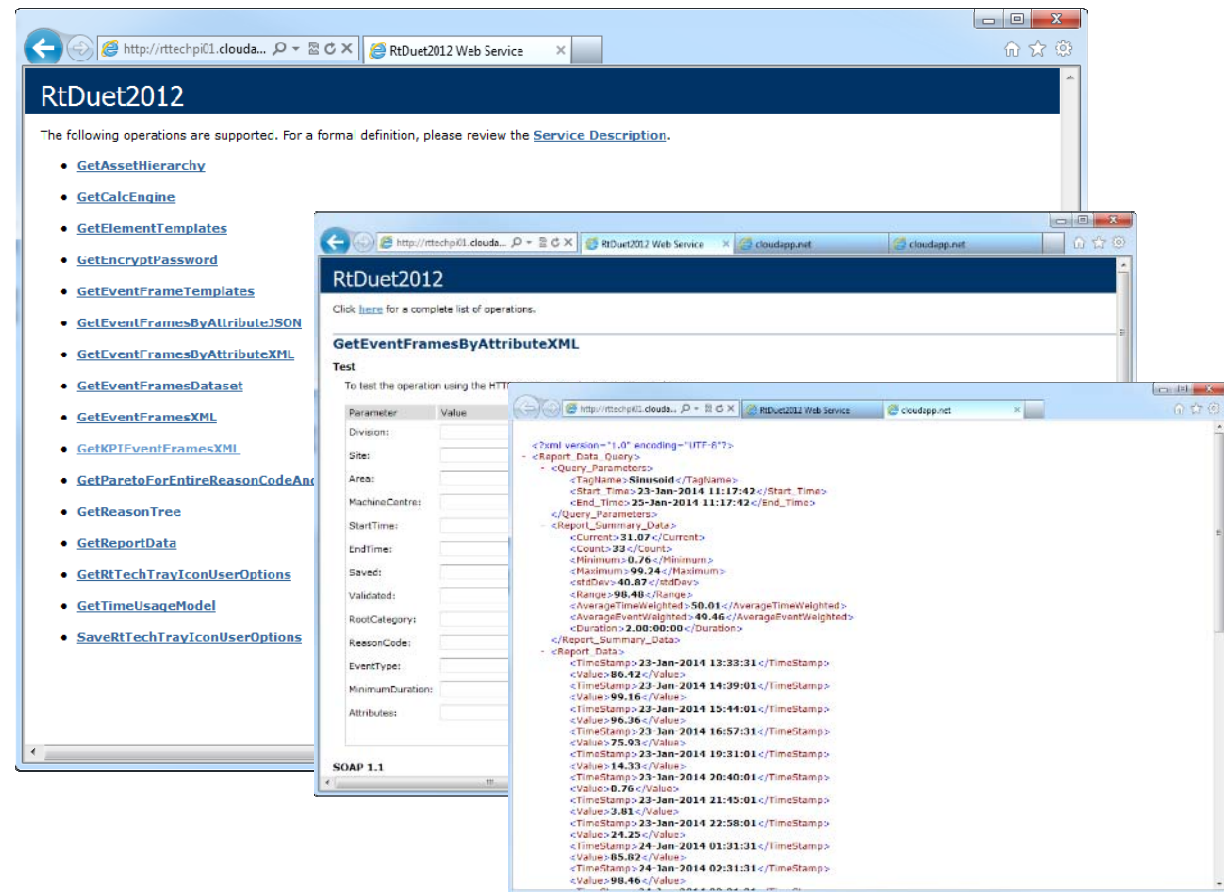
RtDuet – New Multi Language

- Languages:
 - English
 - French
 - Spanish
 - Russian
 - Italian
 - Dutch



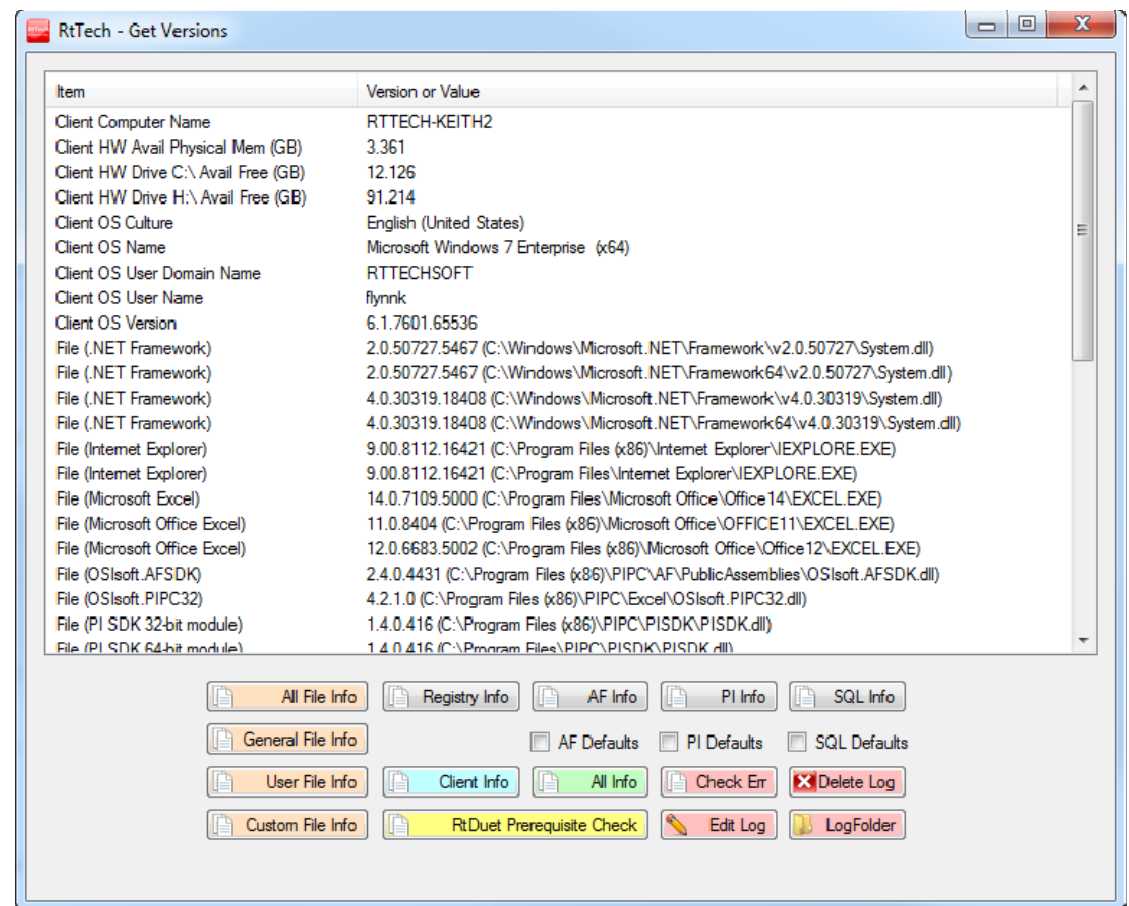
RtDuet – New Web Service

- Web Service
 - Improved XML structure
 - JSON
 - Improved query filters
 - Improved PI Tag Data



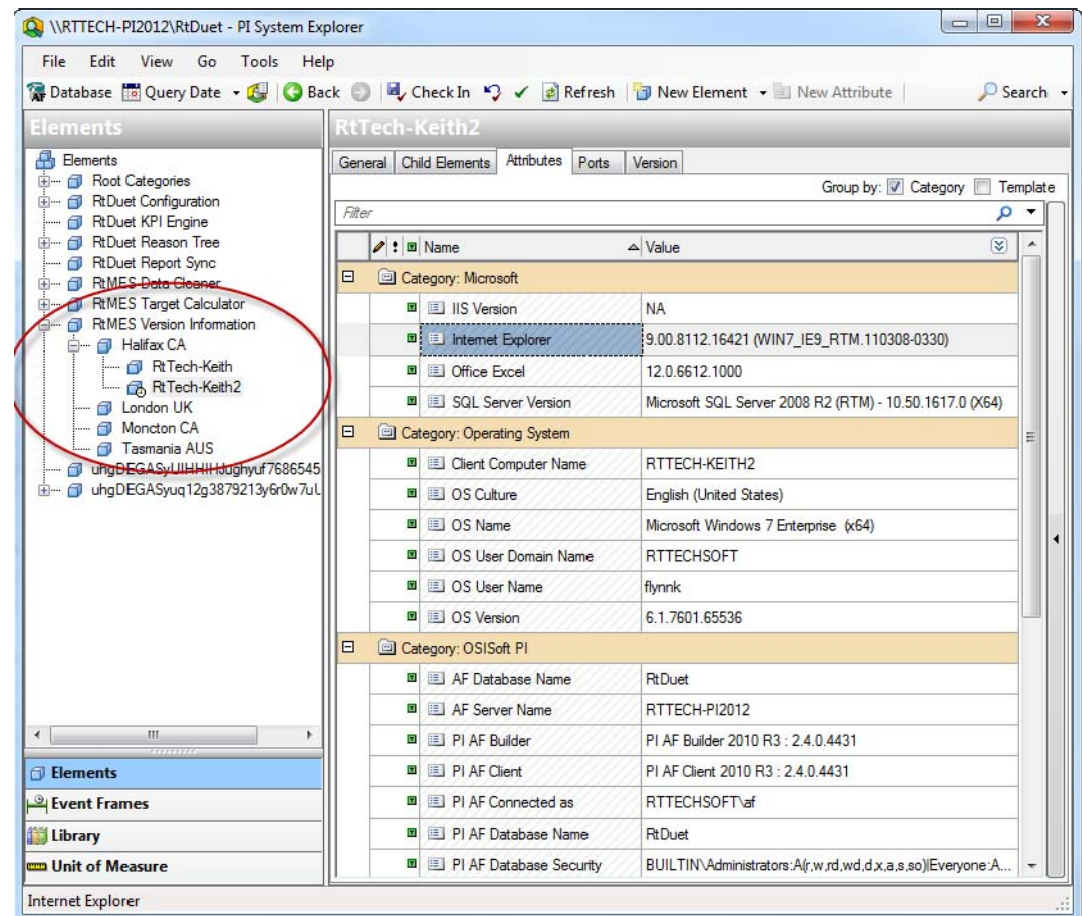
RtDuet – New IT Monitoring

- RtTech IT Asset Monitor
 - 3rd Quarter 2014
 - Internal application support for computers, laptops, servers.
 - Windows service or interactive client.
 - Stores information centrally via an AF connection or an imported xml file.



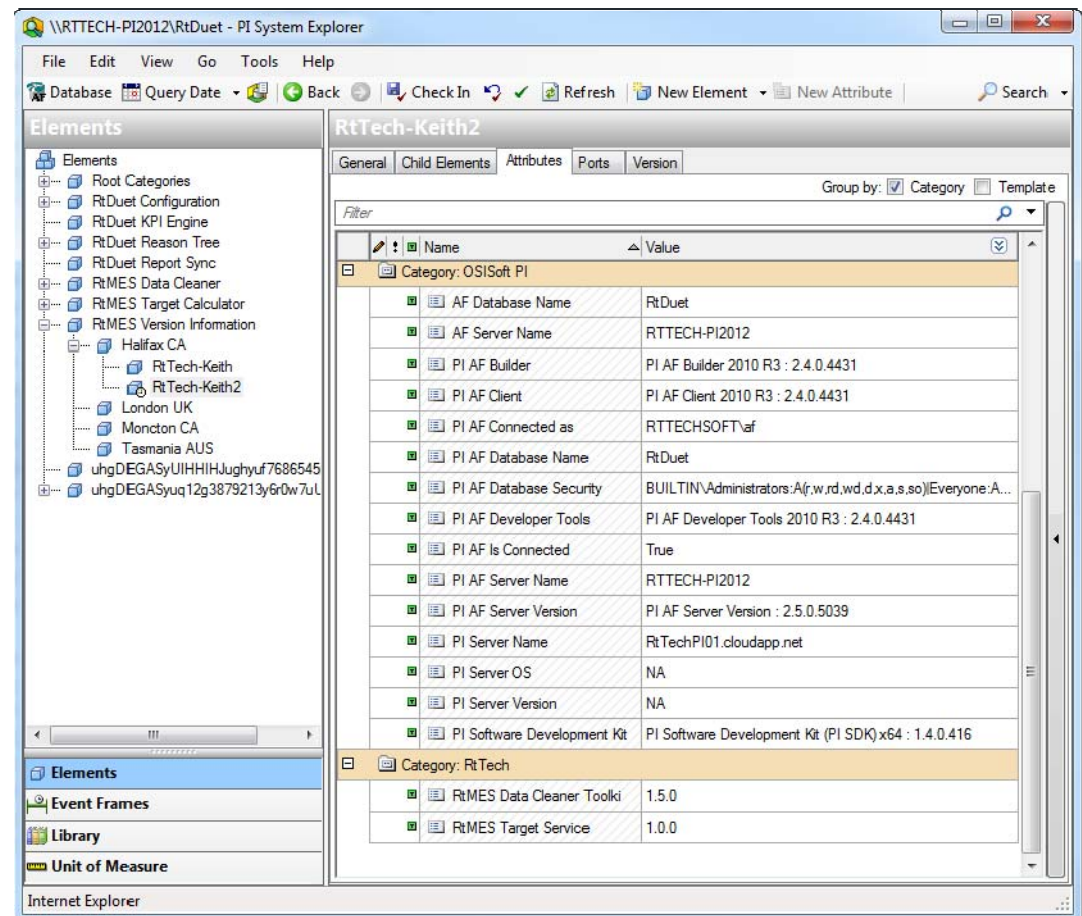
RtDuet – New IT Monitoring

- RtTech IT Asset Monitor
 - Results are stored centrally
 - Provides auditing information for standardized application versions.
 - Provides easy non-compliant email reports.



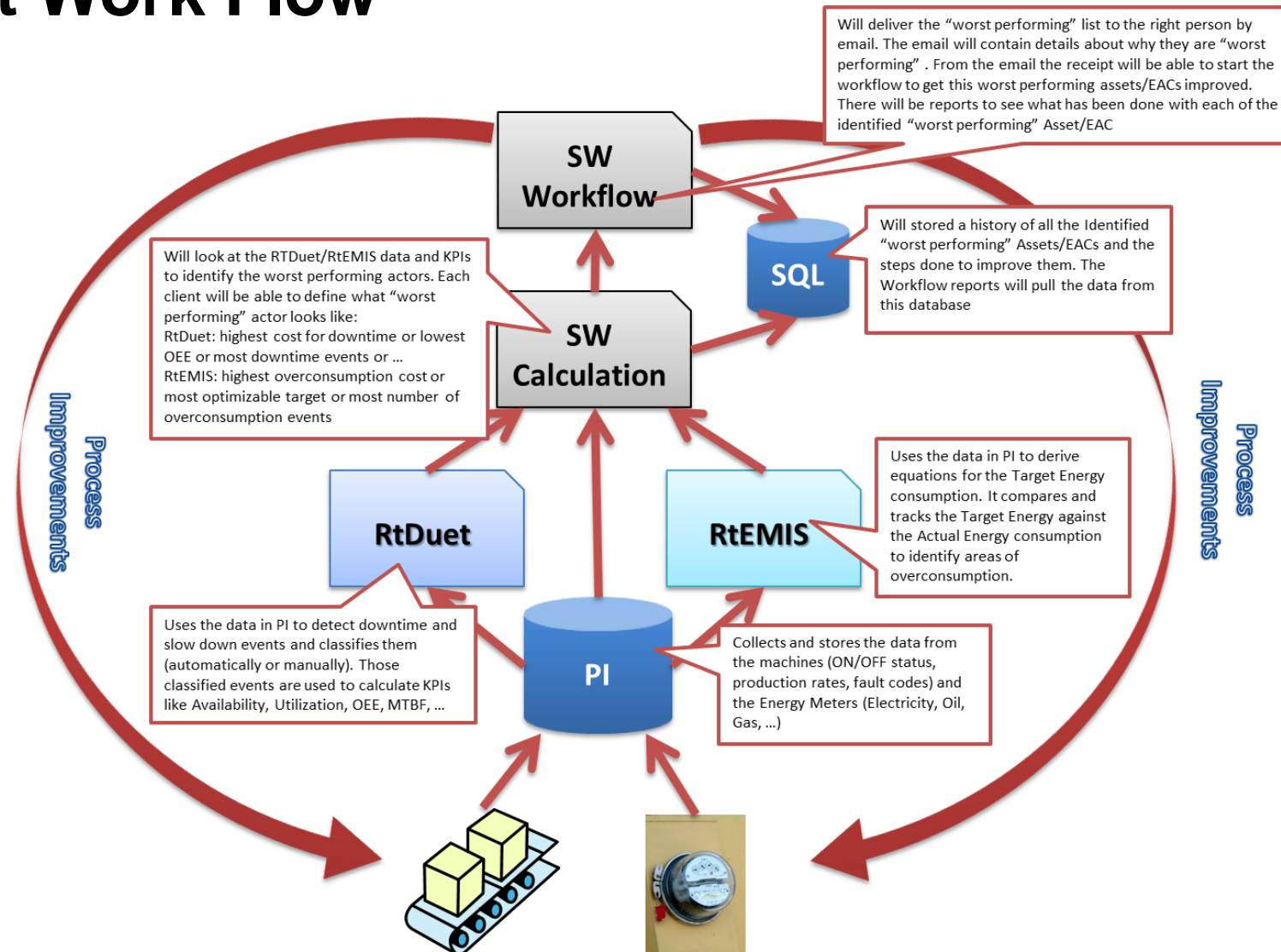
RtDuet – New IT Monitoring

- RtTech IT Asset Monitor
 - Centralized list of all RtTech applications and versions.
 - Centralized list of all PI Client component versions.



New – Smart Work Flow

- 3rd Quarter 2014
- Works with both RtDuet and RtEMIS.



Contact Us

Keith Flynn CTO

keith@rttechsoftware.com

+1 902-817 1725

Pablo Asiron CEO

pablo@rttechsoftware.com

+1 506-232 3791

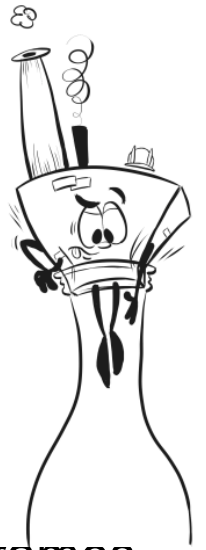


Extra Slides



RtDuet

- Downtime Monitoring and Maintenance & Reliability KPIs like Availability, Utilization, OEE, MTBF, MTTR,...
- Key facts:
 - ~30 installations in 11 countries in industries like Mining, Pulp and Chemicals, Manufacturing, Power
 - Staple clients: Irving, Cargill, BHP Billiton, Xstrata, Glencore, Mic Barrick Gold, Syngenta
 - Based in AF and Event Frames
 - First application in production at a customer site based in Event Frames (Dec 2010)
 - RtDuet can not be installed without a PI System
 - All RtDuet data is stored in the PI System



Why Manage Downtime

- Increased plant efficiency and performance
- Improved safety
- Extended asset life cycle
- Availability is a key maintenance and reliability metric
- Reduced Unplanned Maintenance
- Reduced maintenance costs
- Improved product quality
- Greater visibility of asset performance
- Working smarter rather than harder

Downtime in Operations

- Equipment Stoppages
 - Unplanned maintenance (breakdowns)
 - Scheduled maintenance
 - Operational delays (blockages, shift change)
 - Non-scheduled time
 - Idle (Energy supply, feed supply, stock-bound)
- Equipment Slowdowns
 - Aging equipment
 - Poor quality feed
 - Bottlenecks

Typical scenarios

- Paper log sheets / Excel based solution
 - Inaccurate information
 - Time consuming
 - Sheets are lost
 - Comments can not be analysed or quantified
- Downtime collation time consuming
- Uncontrolled information
- Home grown reporting systems are expensive to develop and maintain.

RtDuet Benefits

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

New – Smart Work Flow

The screenshot displays the RtTech Smart Work Flow application interface. The top navigation bar includes tabs for DASH BOARD, RULES, WORK FLOWS, USER ACTIONS, and CONFIGURATIONS. A 'View Details' icon is visible on the left, and a 'Setup AF Connections' button is on the right. The main section is titled 'DASHBOARD CONFIGURATION' and features a date range filter set to 'From: 21-01-2014' and 'To: *'. A dropdown menu shows 'In Progress'. Below this, a table lists rule entries with columns for Rule Name and Asset Element. The first entry, 'Emis Negative CUSUM' for 'Central Utility', is selected. A modal window titled 'User Action Details' is open, showing a table with columns: Created, Action, Comments, Status, and Modify By. The data row shows '24/01/2014 8:08:38 AM', 'General Plant Manager', an empty comment, 'OPEN' status, and 'NT AUTHORITY\SYSTEM' as the modifier. A 'Close' button is at the bottom right of the modal.

Rule Name	Asset Element
<input checked="" type="checkbox"/> Emis Negative CUSUM	Central Utility
<input type="checkbox"/> Emis Negative CUSUM	Central Utility
<input type="checkbox"/> Emis Negative CUSUM	Central Utility
<input type="checkbox"/> Emis Negative CUSUM	Central Utility
<input type="checkbox"/> Emis Negative CUSUM	Central Utility
<input type="checkbox"/> Emis Negative CUSUM	Central Utility
<input type="checkbox"/> Emis Negative CUSUM	Central Utility

Showing 1 to 7 of 7 entries

Created	Action	Comments	Status	Modify By
24/01/2014 8:08:38 AM	General Plant Manager		OPEN	NT AUTHORITY\SYSTEM

Comments	User Status	Status
	OPEN	In Progress
	OPEN	In Progress
	OPEN	In Progress
	OPEN	In Progress
	OPEN	In Progress
	OPEN	In Progress
	OPEN	In Progress

New – Smart Work Flow

The screenshot displays the 'BAD ACTORS RULES CONFIGURATION' section of the RtTech Smart Work Flow application. The interface includes a navigation bar with tabs for DASH BOARD, RULES, WORK FLOWS, USER ACTIONS, and CONFIGURATIONS. Below the navigation bar, there are icons for Insert, Edit, and Delete, and a 'Setup AF Connections' button. The main content area shows a table of rules with columns for Rule Name, Work Flow, Asset Element, # of Events, Schedule Interval, Last Triggered Date, and Active. Two rules are listed: 'Duet DownTime Event Count' and 'Emis Negative CUSUM'. The 'Showing 1 to 2 of 2 entries' text is displayed below the table.

http://localhost:52879/rules.aspx#rulesContent

RtTech Smart Work ...

DASH BOARD RULES WORK FLOWS USER ACTIONS CONFIGURATIONS

Insert Edit Delete

Setup AF Connections

BAD ACTORS RULES CONFIGURATION Active

Show 10 entries

	Rule Name	Work Flow	Asset Element	# of Events	Schedule Interval	Last Triggered Date	Active
<input type="checkbox"/>	Duet DownTime Event Count		Particle Board	1	1 Day(s)	28/01/2014 8:00:00 AM	true
<input type="checkbox"/>	Emis Negative CUSUM	Emis Work Flow	Central Utility	1	1 Day(s)	28/01/2014 8:00:00 AM	true

Showing 1 to 2 of 2 entries

New – Smart Work Flow

The screenshot displays the 'RtTech Smart Work Flow' application interface. The main window has a navigation bar with tabs: DASH BOARD, RULES, WORK FLOWS, USER ACTIONS, and CONFIGURATIONS. Below the navigation bar are icons for Insert, Edit, and Delete. The 'RULES' tab is active, showing a 'BAD ACTORS RULES CONFIGURATION' section. On the left, there is a list of rules with columns for Rule Name and Work Flow. The 'Duet DownTime Event Count' rule is selected. The 'EDIT BAD ACTOR RULE' dialog box is open, showing the configuration for this rule. The dialog box has fields for Bad Actor Name, Status, Work Flow, Scheduled Interval, RtTech Product Asset Tree, and Maximum Elements Condition Order. It also has a 'RULE CONDITIONS' section with a table of conditions. The 'Save Info' and 'Close' buttons are at the bottom right of the dialog box.

EDIT BAD ACTOR RULE

Bad Actor Name : Duet DownTime Event Count Status : Active ☐ Single Work Flow Force Close Oldest

Work Flow : ---SELECT OPTION--- Scheduled Interval : 1 Day(s) 8 AM ☐ Single Work Flow Force Close Newest

RtTech Product Asset Tree: RtDuet Particle Board Maximum Elements Condition Order : 1 --- ID --- Ascending

RULE CONDITIONS

Insert Condition Edit Condition Delete Condition Test Conditions

ID	Group	EF Template	EF Attribute	Formula	Count Value	Operator	Operator Value	Group Operator
0	1	RtDuet Downtime Event	Total Event Frame			>	5	

Save Info Close

New – Smart Work Flow

The screenshot shows a web browser window with the URL `http://localhost:52879/workflow.aspx#workflowContent`. The browser tab is titled "RtTech Smart Work...". The application has a navigation bar with tabs: DASH BOARD, RULES, WORK FLOWS (selected), USER ACTIONS, and CONFIGURATIONS. Below the navigation bar is a dark blue header with icons for Insert, Edit, and Delete, and a "Setup AF Connections" button. The main content area is titled "WORK FLOWS CONFIGURATION" and includes an "Active" dropdown menu. Below this, there is a "Show 10 entries" label and a table with the following data:

	Work Flow	Rule Name	Created Date	Active
<input type="checkbox"/>	Emis Work Flow	Emis Negative CUSUM	14/01/2014 11:36:21 AM	true

Below the table, it says "Showing 1 to 1 of 1 entries".

New – Smart Work Flow

The screenshot displays the 'RtTech Smart Work Flow' application interface. The main window has a navigation bar with tabs: DASH BOARD, RULES, WORK FLOWS (selected), USER ACTIONS, and CONFIGURATIONS. Below the navigation bar are icons for Insert, Edit, and Delete, and a 'Setup AF Connections' button. The 'WORK FLOWS CONFIGURATION' section shows a list of work flows with a 'Show 10 entries' dropdown and a table with columns 'Work Flow' and 'Active'. The table contains one entry: 'Emis Work Flow' with 'Active' set to 'true'. A modal dialog box titled 'EDIT WORK FLOWS' is open, showing a tree view of the 'Emis Work Flow' with sub-items 'General Plant Manager' and 'Plant Area Supervisors'. The dialog also has a 'Work Flow Name' field (containing 'Emis Work Flow'), an 'Active' dropdown (set to 'True'), and buttons for 'Insert Action', 'Update Action Tree', 'Save Info', and 'Close'. Below the tree view is a table with columns 'Action Name', 'EDIT', and 'DELETE'. The table contains two entries: 'General Plant Manager' (checked) and 'Plant Area Supervisors' (unchecked).

WORK FLOWS CONFIGURATION

Show 10 entries

Work Flow	Active
<input checked="" type="checkbox"/> Emis Work Flow	true

Showing 1 to 1 of 1 entries

EDIT WORK FLOWS

Work Flow Name : Active :

Action Name	EDIT	DELETE
<input checked="" type="checkbox"/> General Plant Manager	<input type="button" value="EDIT"/>	<input type="button" value="DELETE"/>
<input type="checkbox"/> Plant Area Supervisors	<input type="button" value="EDIT"/>	<input type="button" value="DELETE"/>

New – Smart Work Flow

The screenshot displays the 'USER ACTIONS' tab in the 'RtTech Smart Work Flow' application. The interface includes a navigation bar with 'DASH BOARD', 'RULES', 'WORK FLOWS', 'USER ACTIONS', and 'CONFIGURATIONS'. Below the navigation bar are 'Edit' and 'View Details' icons. The main section is titled 'USER ACTION CONFIGURATION' and features a date range filter 'From: 21-01-2014 To: *' and a status dropdown set to 'In Progress'. A table lists 7 entries, each with a checkbox, rule name, asset element, schedule interval, start time, time elapsed, current work flow action, user comments, user status, and overall status.

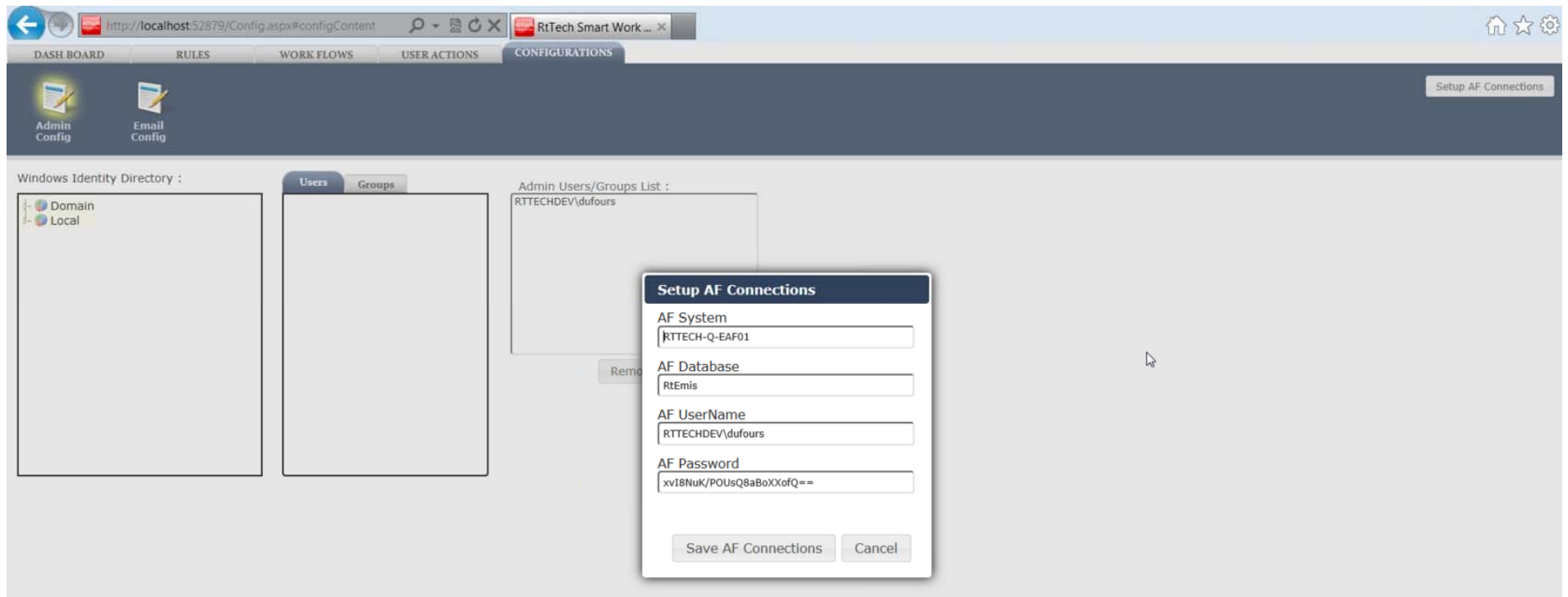
USER ACTION CONFIGURATION From: 21-01-2014 To: * In Progress

Show 10 entries

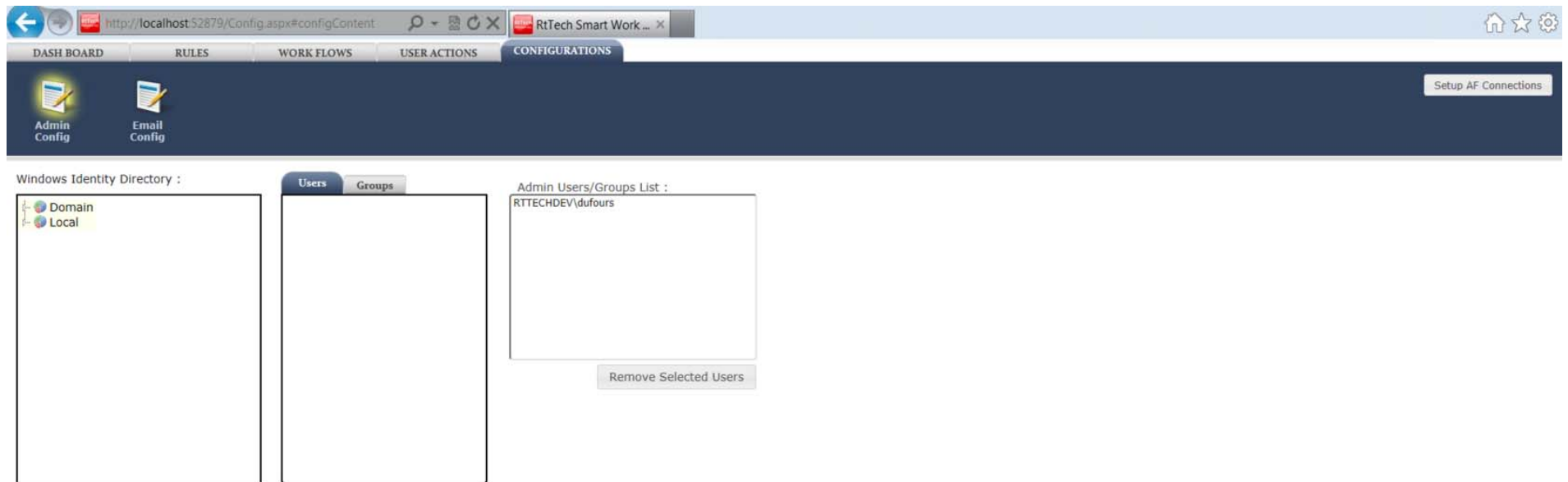
	Rule Name	Asset Element	Schedule Interval	Start Time	Time Elapsed	Current Work Flow Action	User Comments	User Status	Status
<input type="checkbox"/>	Emis Negative CUSUM	Central Utility	1 Day(s) - 8 AM	23/01/2014 8:00:00 AM	4 Days 00:01:21	General Plant Manager		OPEN	In Progress
<input type="checkbox"/>	Emis Negative CUSUM	Central Utility	1 Day(s) - 8 AM	27/01/2014 8:00:00 AM	00:01:36	General Plant Manager		OPEN	In Progress
<input type="checkbox"/>	Emis Negative CUSUM	Central Utility	1 Day(s) - 8 AM	24/01/2014 8:00:00 AM	3 Days 00:04:34	General Plant Manager		OPEN	In Progress
<input type="checkbox"/>	Emis Negative CUSUM	Central Utility	1 Day(s) - 8 AM	25/01/2014 8:00:00 AM	2 Days 00:07:44	General Plant Manager		OPEN	In Progress
<input type="checkbox"/>	Emis Negative CUSUM	Central Utility	1 Day(s) - 8 AM	22/01/2014 8:00:00 AM	5 Days 00:08:14	General Plant Manager		OPEN	In Progress
<input type="checkbox"/>	Emis Negative CUSUM	Central Utility	1 Day(s) - 8 AM	21/01/2014 8:00:00 AM	5 Days 16:02:48	General Plant Manager		OPEN	In Progress
<input type="checkbox"/>	Emis Negative CUSUM	Central Utility	1 Day(s) - 8 AM	26/01/2014 8:00:00 AM	20:21:42	General Plant Manager		OPEN	In Progress

Showing 1 to 7 of 7 entries

New – Smart Work Flow



New – Smart Work Flow



New – Smart Work Flow

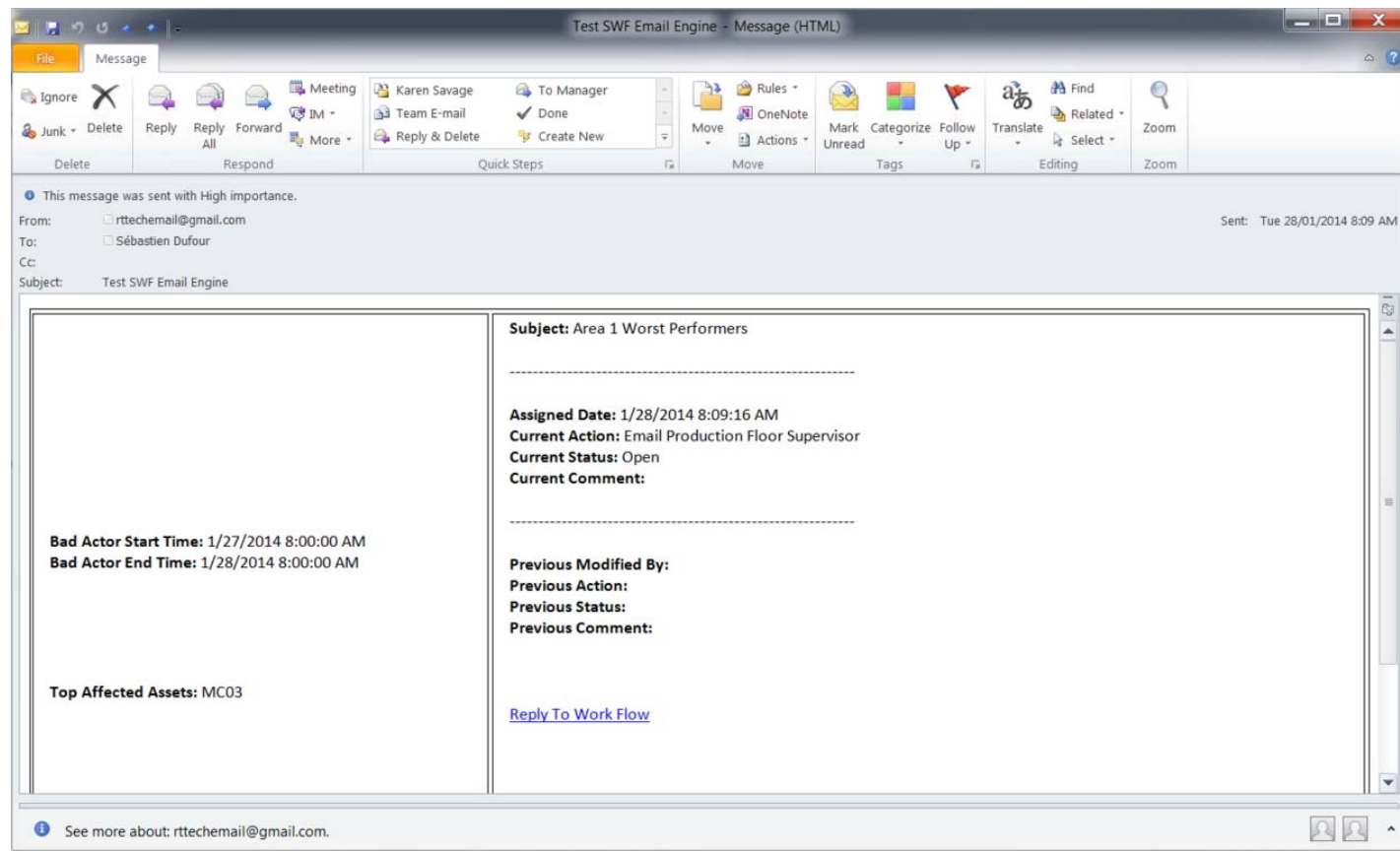
The screenshot displays the 'CONFIGURATIONS' tab of the RtTech Smart Work Flow application. The interface includes a navigation bar with 'DASH BOARD', 'RULES', 'WORK FLOWS', 'USER ACTIONS', and 'CONFIGURATIONS'. Below the navigation bar, there are icons for 'Admin Config' and 'Email Config', and a 'Setup AF Connections' button. The main configuration area is divided into two columns. The left column contains fields for 'Send To:', 'Send From:' (RtTechEmailEngine@RtTech.com), 'Subject:' (SWF Test Email from RtTech-Q-EAF01), and 'Body:' (HTML code). The right column contains fields for 'SMTP Host:' (smtp.gmail.com), 'SMTP Port:' (587), 'Enable SSL' (checked), 'Use Default Credentials' (unchecked), 'User Name:' (rttechemail@gmail.com), 'Password:' (RtTech!1123), and 'Email Link Server Bindings:' (http://localhost:52879). At the bottom, there are buttons for 'Send Test Email' and 'Save Data'.

Send To :
Send From : RtTechEmailEngine@RtTech.com
Subject : SWF Test Email from RtTech-Q-EAF01
Body :
<html>
<head>
<meta http-equiv="Content-Language" content="en-us">
<meta http-equiv="Content-Type" content="text/html; charset=windows-1252">
<title>RtTech SWF Notification</title>
<style>
table.MsoTableGrid
{border:1.0pt solid black;
font-size:11.0pt;
font-family:"Calibri","sans-serif";
}
</style>
</head>
<body>
<div style="text-align:left;">
</div>
</body>
</html>

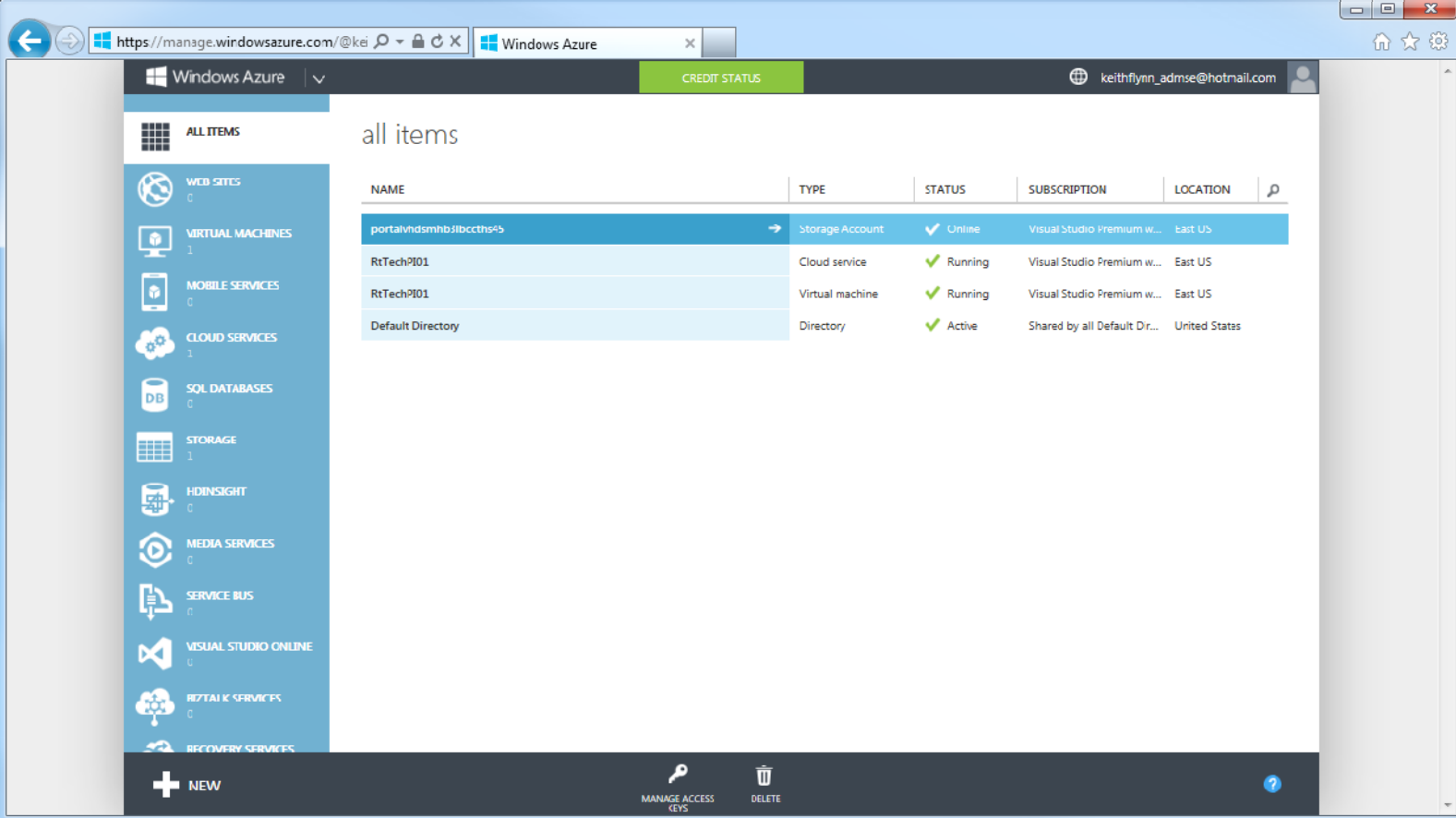
SMTP Host : smtp.gmail.com
SMTP Port : 587
☒ Enable SSL
☐ Use Default Credentials
User Name : rttechemail@gmail.com
Password : RtTech!1123
Email Link Server Bindings : http://localhost:52879

☒ Use HTML
Preview Email
Send Test Email
Save Data

New – Smart Work Flow



New – Cloud Services

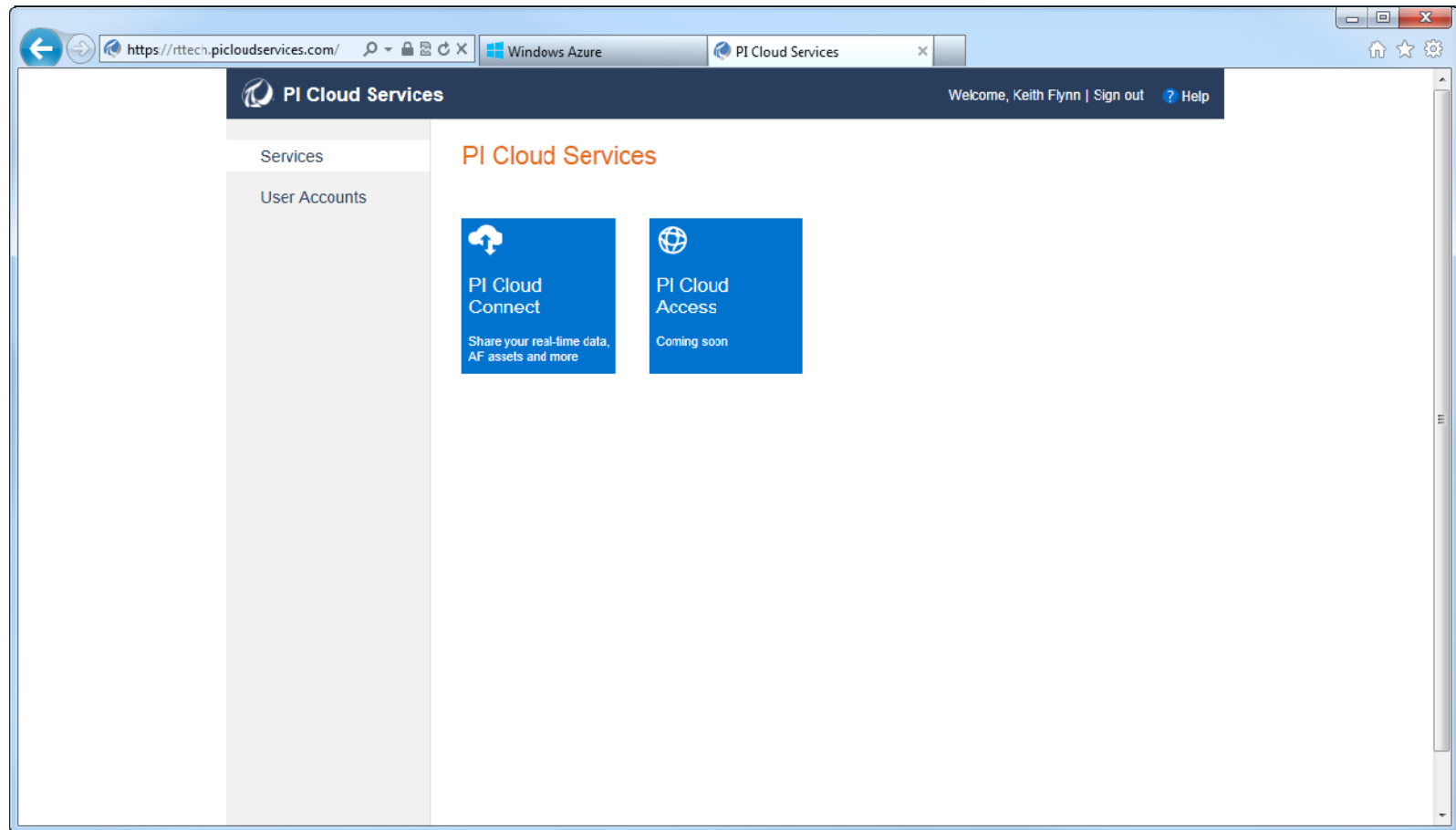


The screenshot shows the Windows Azure portal interface. The browser address bar displays <https://manage.windowsazure.com/@kei>. The page title is "Windows Azure" and the user is logged in as "keithflynr_admin@hotmail.com". The left sidebar lists various service categories: ALL ITEMS, WEB SITES, VIRTUAL MACHINES, MOBILE SERVICES, CLOUD SERVICES, SQL DATABASES, STORAGE, HDINSIGHT, MEDIA SERVICES, SERVICE BUS, VISUAL STUDIO ONLINE, HYPERV SERVICES, and RECOVERY SERVICES. The main content area is titled "all items" and displays a table of resources.

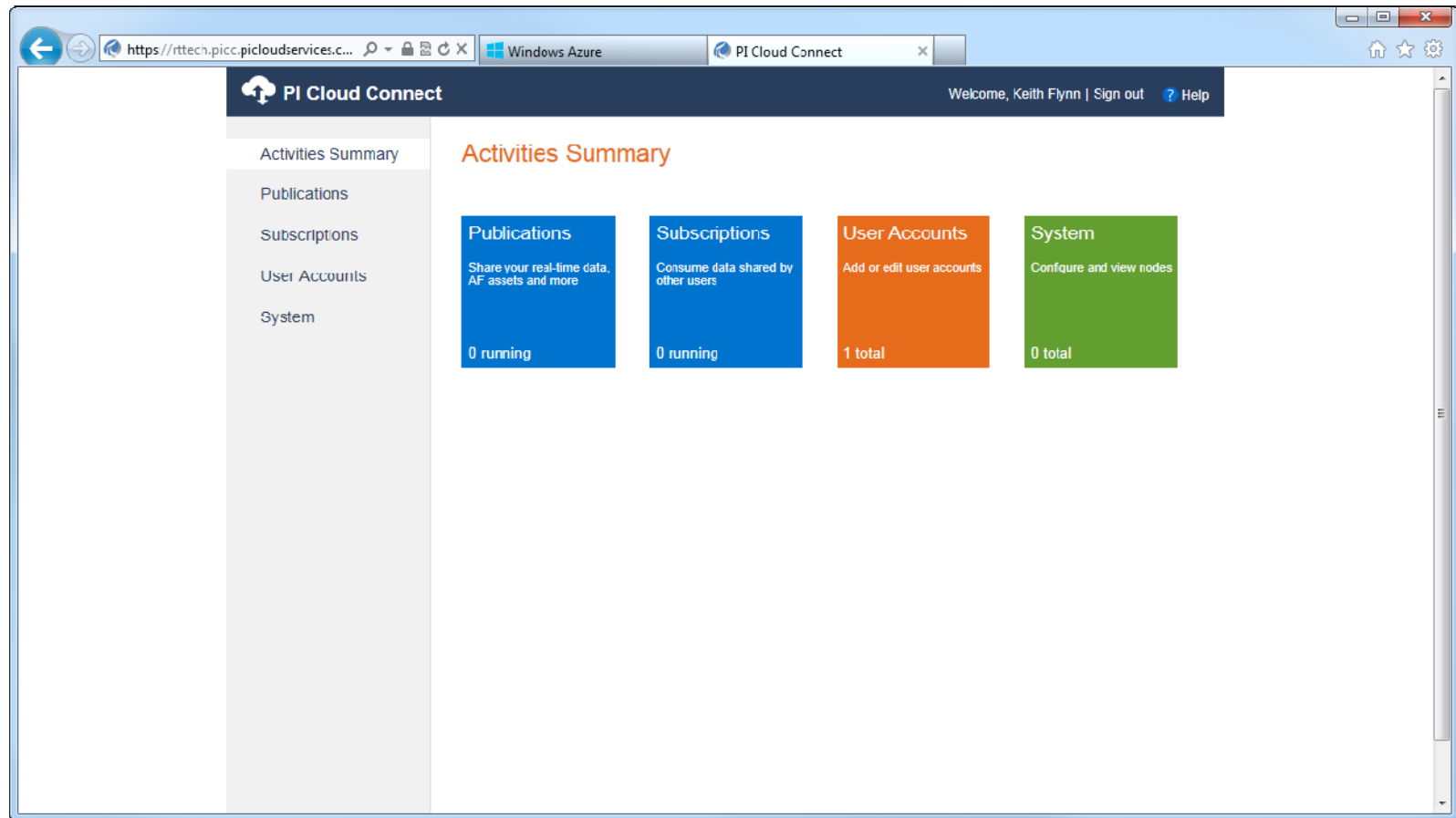
NAME	TYPE	STATUS	SUBSCRIPTION	LOCATION
portalvhdsmhbsibccths45	Storage Account	✓ Online	Visual Studio Premium w...	East US
RtTechPI01	Cloud service	✓ Running	Visual Studio Premium w...	East US
RtTechPI01	Virtual machine	✓ Running	Visual Studio Premium w...	East US
Default Directory	Directory	✓ Active	Shared by all Default Dr...	United States

At the bottom of the interface, there are buttons for "NEW", "MANAGE ACCESS KEYS", and "DELETE".

New – Cloud Services



New – Cloud Services





THANK YOU

Brought to you by  **OSIsoft.**