
REAL-TIME PERFORMANCE MANAGEMENT FOR THE ENTERPRISE
RtPM
SAN FRANCISCO PHILADELPHIA HOUSTON FRANKFURT
OSISOFT USER CONFERENCES 2005
REAL-TIME PERFORMANCE MANAGEMENT FOR THE ENTERPRISE
RtPM

Mobilizing the Field Worker

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Mobilizing the Field Worker

- Introduction
- Process Improvements and Mobile Technology
- Case study example – Operator Driven Reliability and IntelaTrac
- Results
- Critical Success Factors/Lessons Learned
- Path Forward
- SAT and OSISoft

TransAlta

SAT IntelaTrac® Frontline to bottom line.

TransAlta -- Corporate Overview

- One of Canada's largest non-regulated electric generation and wholesale marketing companies
- Founded in 1911
- 47 Facilities operating in Canada, United States, Mexico, and Australia
- Over 10,000 MW generating capacity
- Close to $9 billion in coal-fired, gas-fired, hydro and renewable assets in operation, under construction or in development

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Frontline to bottom line.

SAT -- Corporate Overview

- SAT Corporation, established in 1996 is a privately held software company headquartered in Houston, TX.
- SAT's flagship technology is IntelaTrac®, which is integrated wireless process support software for improving workflow and sustaining best practices
- Our "go to market approach" is a vertical market strategy with a focus on Refining, Chemicals, Oil & Gas Production/Pipelines and Power.
- Recently became an OSIsoft Silver Partner

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Mobility at TransAlta – Our Strategy

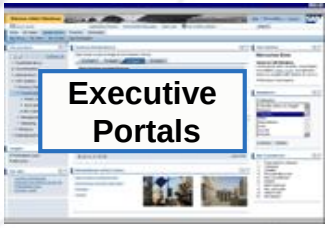
- Enable the Fleet with a Wireless Network
- Deploy solutions tactically – high value first
- Leverage existing legacy infrastructure

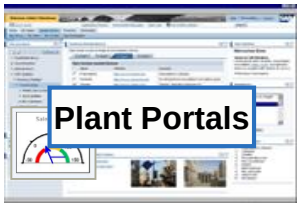
  (SAP and Data Historians)
- Coordinate with other IT Solutions
- Be an Early Adopter in Power Industry of Proven Solutions

TransAlta Vision: "Always On – Always Active"




People





collaboration


Alerts, Status, Results

Software & Hardware

SAP → Database Warehouse

Mine Apps → Controls

TOP → Databases

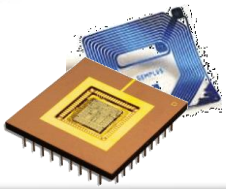
B2B

Trading Apps → Web, Data Feeds, Market Events

Smart Items

Wireless Network — RFID — Embedded Systems — Sensors

TransAlta's World

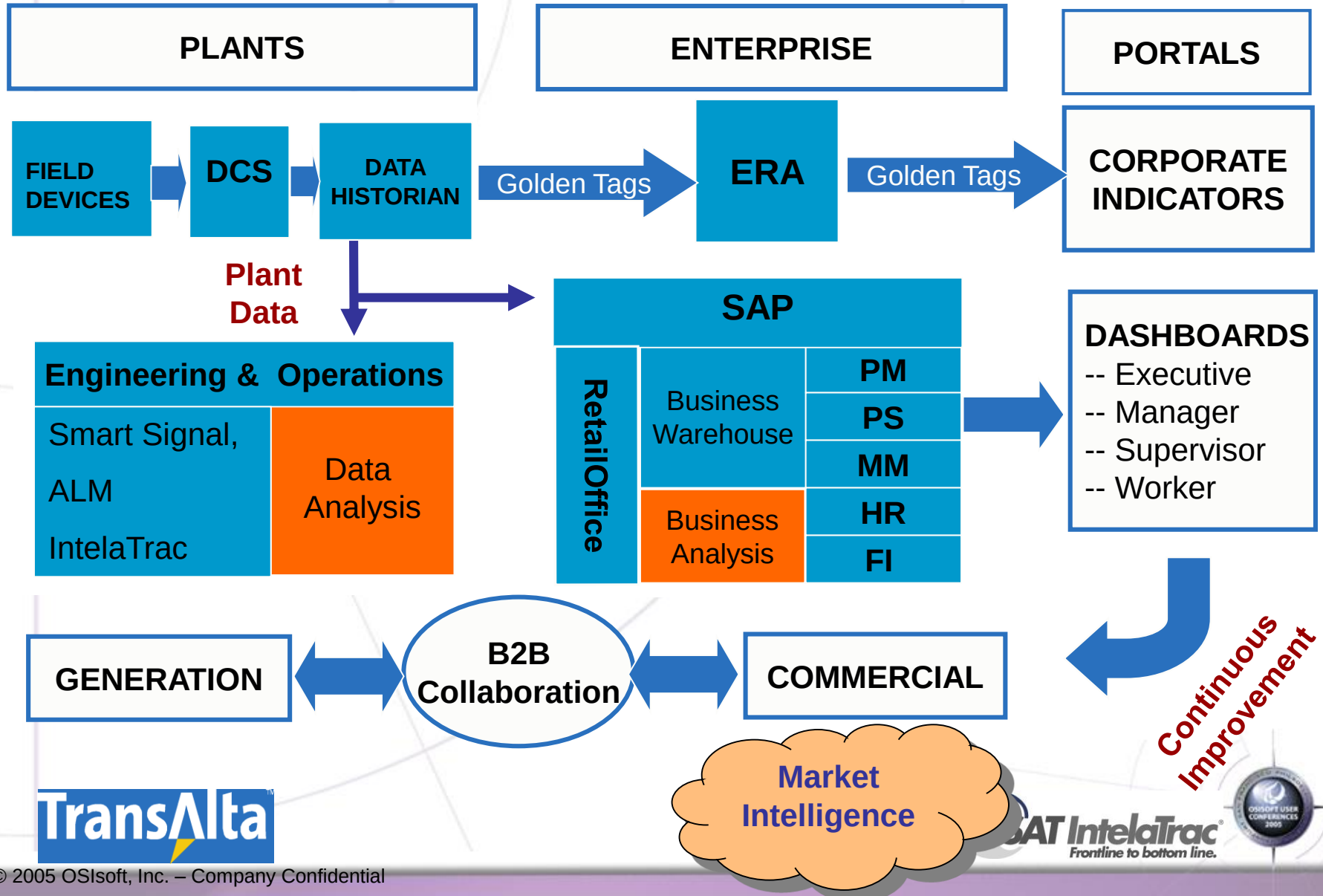



Massively Connected World of 2015

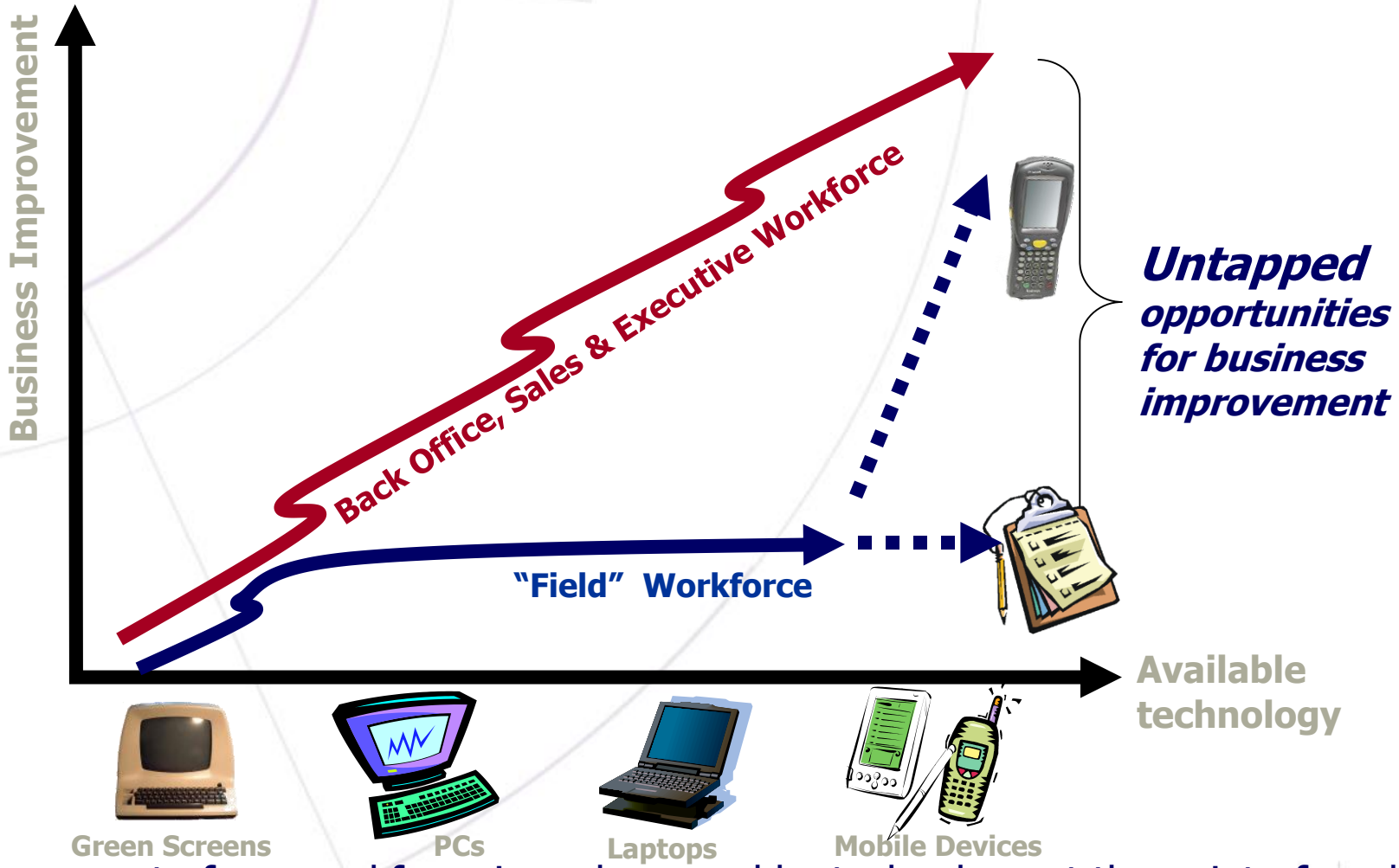
- According to Airbus, from 2005, each new A380 jetliner will contain over 10,000 radio frequency identification (RFID) tags.
- Architects, strategic planners, policy makers and economists working to 10-year time frames should develop midrange probability scenarios in which any physical object worth more than $10 and with a working life of more than one day can be economically monitored.
- But by 2015, the amount of data generated by commonplace physical objects — which will be equipped with sensor nodes and network connected every minute of every day — will give new meaning to the expression "information overload.“

Source: Gartner Group

Strategic Framework



Technology and Business Improvement



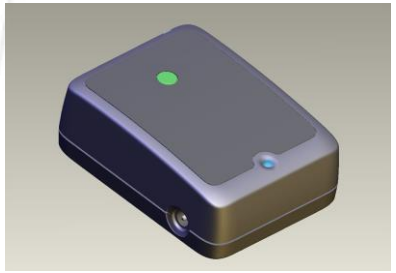
A large segment of our workforce is underserved by technology at the point-of-work

Source: BP Wireless Presentation ARC 2005 – Dave Lafferty

First Generation Mobile Device

Devices and Adding Peripherals

Temperature



RFID

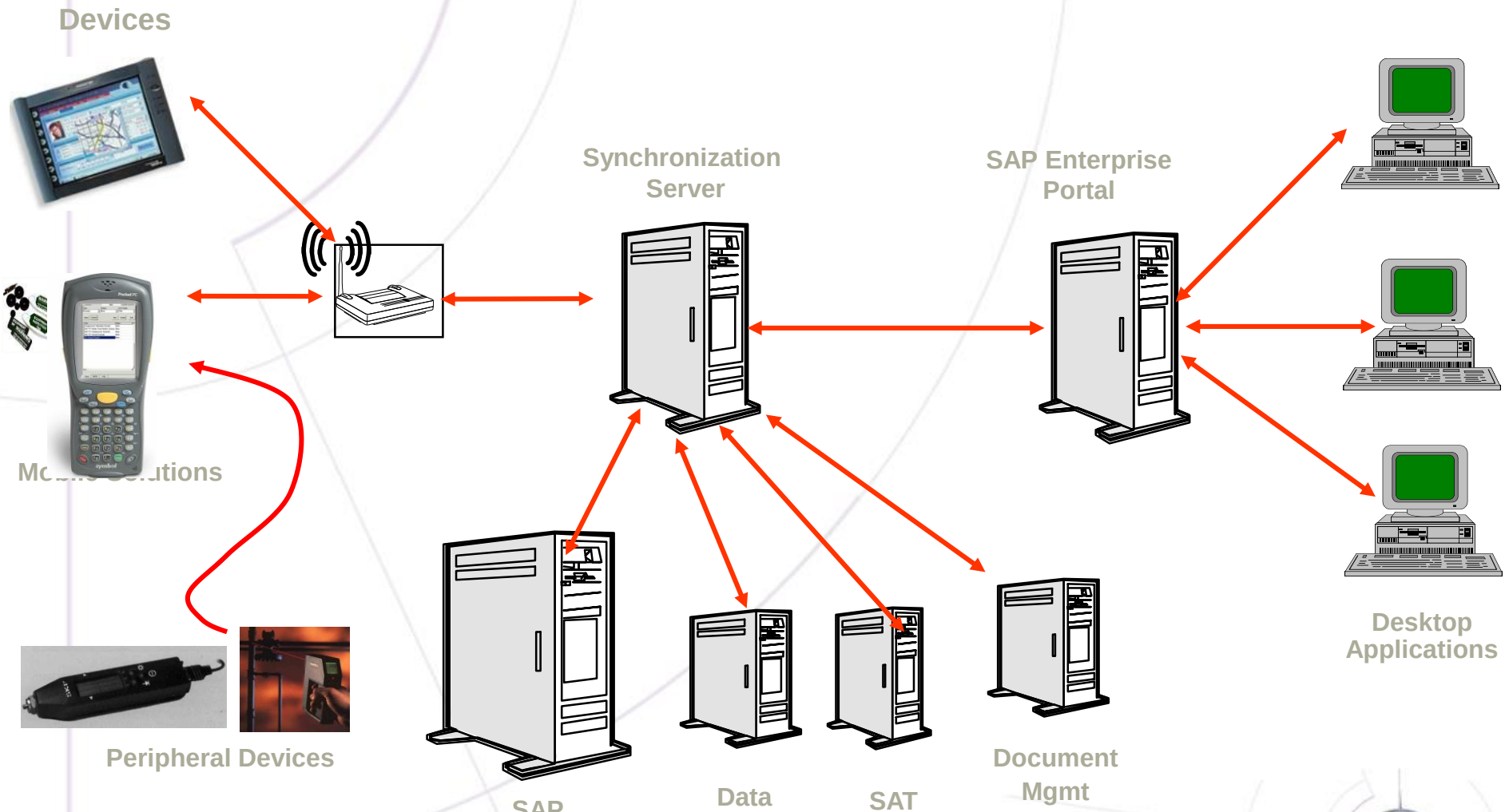
Vibration Probe

Gas Detection

Access Point

GPS

Key Decisions: Infrastructure



Case Study - What is a Bad Actor?

A bad actor is:

- **Annoying**
- **Recognizable**

- **Seen more than once to get classified as "bad"**
- **Won't seem to go away**

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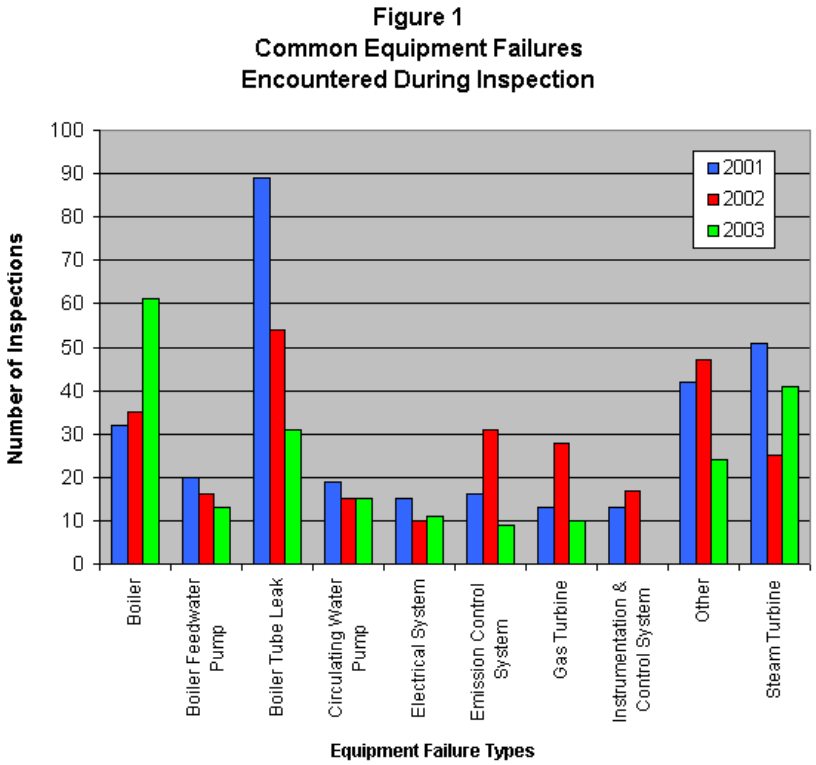
Bad Actors in the Power Industry

Power Industry's Top Bad Actors



Source: CPSD Plant Inspection Reports

TransAlta's Top 5 Bad Actors

Feeders

Precips

Lubrication

Condensors

Unit Startups

Bad Actor Target List to Be Addressed by Operator Driven Reliability Supported by IntelaTrac

Mechanical Routine		Operations Routine	Electrical Routine
Priority	Description	Description	Description
1	Mill Minor/Major Mech & Elec	Fire Extinguisher PM	Brushgear
2	Oil purifier PM	Turbine checks	Battery PM
3	Scraper conveyers	Air ejectors	Analyzer inc. Enviromental
4	Fire Extinguisher PM	Burner tilts	Substation PM
5	Sootblower checks	Heater shell temp. readings	Stack Elevator
6	Lubrication Oil/Grease	Standby Generators	Tranmitter PM
7	Collector /baghouse	Coal Fineness	Valve PM inc. safety mech & In
8	Compressors	Valve freedom & Gov vib.	Precip Electrical & mech
9	Feeders coal & nuva	Line pigging	Canal enviromental
10	Pumps		infared scans
11	Dryers		
12	Sling checks		

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IntelaTrac's Adaptive Process Management Workflow

System Administration

System Administration
User Rights

SuperUsers

Creating Procedures
Managing Content
Scheduling

Field Workers

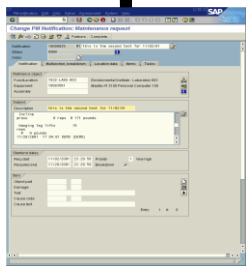
Operator Rounds
Inspections
Work Requests

Management

Manage the Work
Process KPI / Web
Reports

Supervisors

Review Rounds
Approve Rounds Edit
Field Data



CMMS / Reliability

Process Historian

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Mobile Operator Rounds: Timelines

- January
  - Business Case/Funding Approach and Decision
- February
  - Hardware and Software Contacts/Orders
  - Project Preparation, Data Gathering, Blueprinting
- March
  - RFID Tag Format/Deployment
  - Super User Training and Round Construction
  - Field User Training
  - Project "Go-Live" and Support
- April-October
  - Post Implementation & Benefits Realization

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Key Decisions: What Will We Track

(and the need for a tagging strategy)

Field Name	Count	Value
asset_number	35	PL02-01-3133-CL-4140B
asset_description	30	Resid Column B
last_repair_date	1	10/25/2002
Inspector	15	John Smith
hazard_id	11	
Manufacture	14	Chicago Bridge & Iron
Model _Number	14	CL145-B5

- RFID Tag
- Passive RFID
- Durable
- Read / Write Data
- Mounted on Equipment

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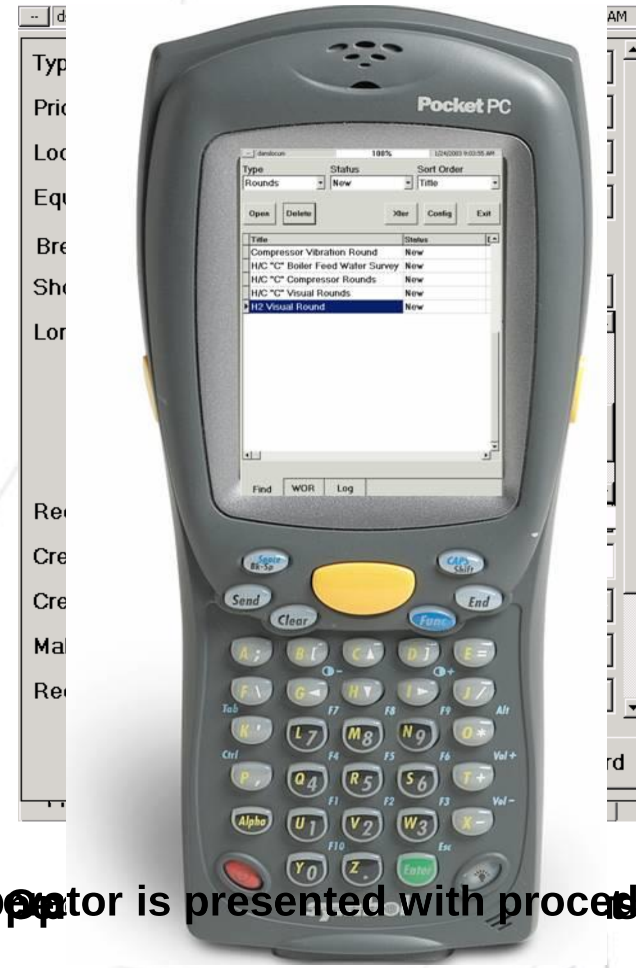
Mobilizing the Process



Problem Recorded	Difference
(+ ½ Hour)	(15+ Hours)

Operator is presented with procedural tasks and records findings

Operator Rounds - The Benefits

Key Performance Indicators		Key Factors
Production Efficiency		Reduction in production downtime/slowdowns
Reduced Maintenance costs		Predictive maintenance of rotating equipment and assets in harsh environments
Increased Workforce Productivity		Electronic paperwork, transfer of some Preventive Maintenance to Operations
Training, Knowledge Management, Permitting		Improved training processes, improved best practices, reduced mean time to permit
Production Arbitrage (e.g. optimization)		Improved decision support with access to non-instrumented data and instant messaging to field
Payback	**-**	**four to six months**

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Results We've Experienced

- Plant Operations
  - Higher Operating Efficiency (fewer de-rates from a reduction in equipment unplanned downtime)
  - Lower Maintenance Costs
  - Improved Decision Support and Data Integrity
- Executive Management
  - Higher Throughput and Asset Responsiveness
  - Increased Workforce Productivity
  - Enhanced Knowledge Management (framework for deploying best practices
- Information Technology
  - Leverage SAP Infrastructure – Extent to new users
  - Data Collection (Non Instrumented Equipment and Events)
  - Radio Frequency Identification (RFID) Tag Reader Capabilities

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Success Is Not in the Eye of the Beholder –

only in the “eyes of management”

TransAlta Signs Enterprise Wide Agreement with SAT Corporation

SAT's IntelaTrac Field Worker Process Improvement Software Delivers 4 Month "Hard Loonie" Payback to Premier Canadian Power Generation Company

Houston, Texas April 11, 2005

SAT Corporation, the leading provider of mobile adaptive process management software to the process industries announced today that TransAlta (NYSE: TAC) has entered into an enterprise wide agreement with SAT for unlimited use of the IntelaTrac software across their power plants. IntelaTrac is a mobile field data collection and work process management system used to accelerate and sustain high payback front line process improvement initiatives such as Operator Driven Reliability and Reliability Centered Maintenance. SAT client companies have consistently demonstrated they can increase asset availability (reduced number of de-rates associated with unplanned downtime of mechanical equipment) and significantly reduce total work order maintenance costs when IntelaTrac is the framework tool to support the projects.

With approximately 10,000 megawatts of generation capacity in operation, under construction and in development, TransAlta is one of Canada's largest non regulated power generation companies. TransAlta deployed IntelaTrac in Q2 of 2004 at their Alberta Sundance Power Plant which is the largest coal-fired electrical generating facility in western Canada with a net capacity of 2,020 MW and over 200 employees. TransAlta achieved a four month post audit payback on the IntelaTrac project by the end of Q3 2004. This success led TransAlta to accelerate the adoption of IntelaTrac for their plants worldwide.

The IntelaTrac project set a new benchmark for how a project should unfold when a high payback goal is identified, resources committed and execution is near flawless," said Robert M. Soeldner, EVP Operations, TransAlta. "IntelaTrac has helped us move to a more proactive culture in our plants, a culture of ownership and taking action in the field at the earliest sign of problems. This fast payback project was the highlight of our reliability and Information Technology teams in 2004 and an example of how functions should work together to deliver technology that supports process improvements tied to management's objectives to reduce costs and de-rates. SAT' has it right when they say IntelaTrac helps the frontline improve the bottom line in terms of real loonies (Canadian dollars)."

SAT's IntelaTrac intelligent mobile workflow software enables rugged handheld computers, RFID asset tracking tags, peripheral instrumentation and data integration with manufacturing decision support systems to deliver an enterprise class mobile platform for field workers across all functions (operations, maintenance, instrumentation and electrical, safety and environmental disciplines).

TransAlta is recognized as a leader in the adoption of proven mainstream technologies to leverage their current investments in ERP systems and to deliver best practices consistently," said Don Frieden, President and CEO of SAT. "TransAlta's decision to deploy IntelaTrac globally reflects confidence that the significant rapid payback at their Alberta coal fired plants is a precursor to even larger benefits when the process improvements supported by IntelaTrac are deployed across their entire enterprise of over 50 plants."

Success Factors

- ROI (“show them the loonies”)
- Legacy System Integration
- Achieving Operational Performance Goals
- Site Readiness
- Field Worker Success and Recognition

Implementations: Questions and Tradeoffs

- Who are your potential mobile users?

  (Manager? Field Worker? Contractor?)
- What functions do these users require?

  (System Elements, Multiple Systems, Peripheral Device Access)
- What kind of information and how much data do these users require?
- How up-to-date does the information/data have to be?

  (Realtime? Synchronized? Transactional?)
- Where and how will your mobile solutions be used?

  (Plants? Office? Home?)

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Key Points to Take Home

- Understand the various Mobile Technologies including RFID
- Educate the Business … help them see the opportunities
- More challenges than in “Desktop World” … and in many cases more benefits
- Identify the devices best suited to your users, technical infrastructure and connectivity requirements
- Incorporate user feedback across entire lifecycle
- Make the field worker successful
- Benefits Realization – do periodic checkpoints after go live date

Start Mobilizing Your Business!

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Next Steps for Solution and Implementation Details

- Executing the three year plan
  - Continuing the foundation (WiFi, SAP NetWeaver Mobile, SAT-IntelaTrac, SAP + SAT Intelatrac, RFID, Wireless Sensors)
  - Continuing rollout of the technology
  - Continuing to exploit the technology
  - Further R&D
- Capturing and sustaining the value
- Staying ahead of the curve

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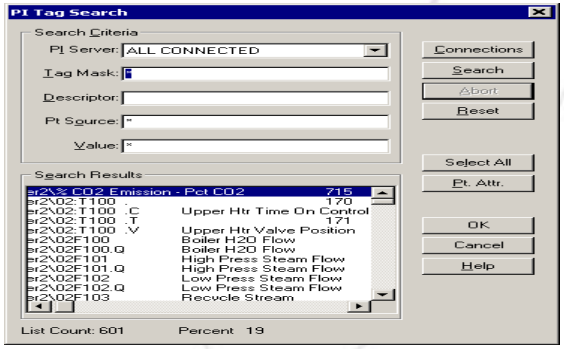
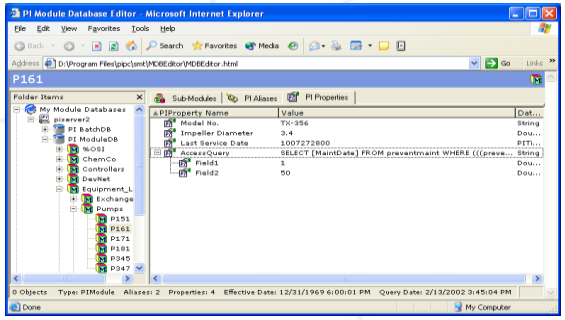
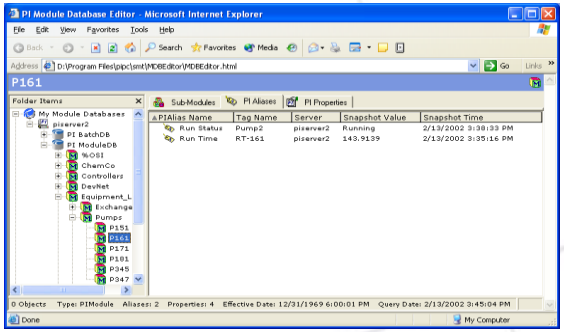
OSIsoft PI and IntelaTrac Integration





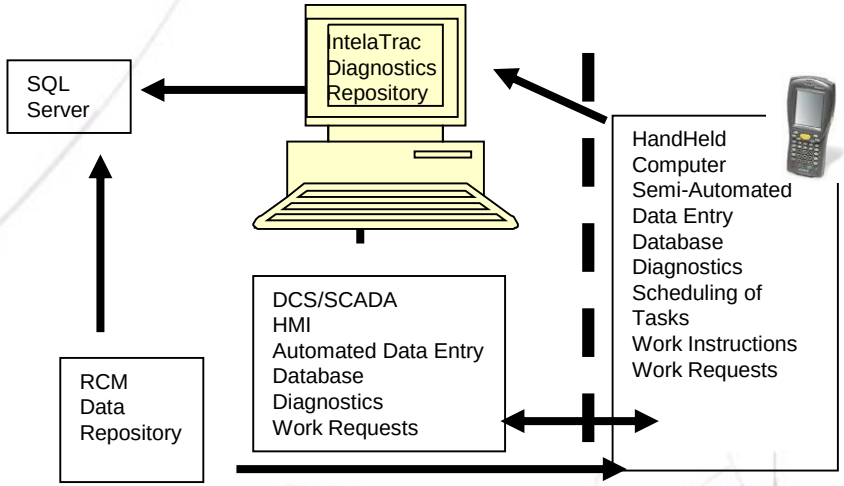


Integration of OSI Soft PI and IntelaTrac workflow framework permits management of real time event correlation of both instrumented and non-instrumented data and events.

Key Deliverable Examples:

- "Based on my actions, what is the impact on another system?"
- "Based on my action/decision, what is the $ impact?"
- "Should I act now or can I wait?" (e.g. real time trending access from IntelaTrac link to PI)

Data Historian/IntelaTrac APM Convergence



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Next Steps - Importance of Data Historian
(extending the benefits of decision support systems)

- IntelaTrac to PI allows correlation of time stamped non-instrumented field data and events with time stamped process control data
- Combining the data sets through PI will allow companies to further exploit new analytical tools (e.g. Smart Signal)
- PI also can serve as an integration to other disparate systems where we want to send field data to
- PI data visualization back to IntelaTrac is also planned and will allow improved communication between board operators and field operators

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