OSIsoft
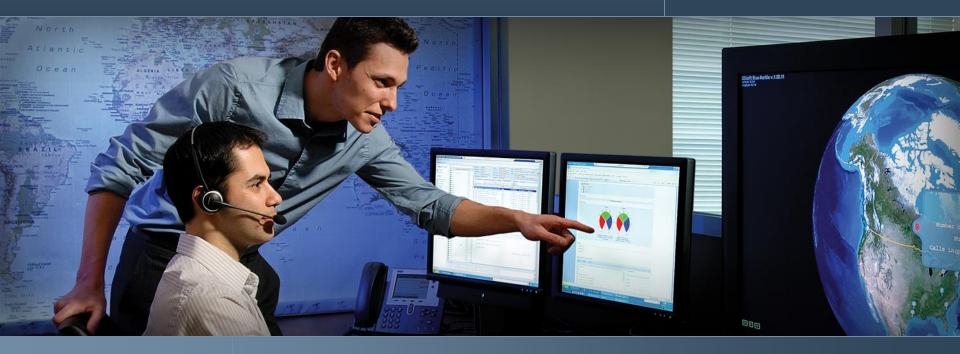
Regional Seminar Series
Houston

FLOWSERVE

Flowserve's Technology Advantage: Act or React

Josh Lyon
IT Project Manager
Flowserve

October 28, 2009

Agenda

- Background on Flowserve

- Challenges facing our customers

- Our offerings to help with these challenges

- Technology Advantage™ Web Portal

- Questions

Empowering Business in Real Time.

Vision

Distinguish ourselves to our customers by *delivering integrated flow management solutions* as a global, unified, customer-centric business

Brand Promise

Flowserve is a *Trusted Partner* that uses its collective experience and resources to help customers exceed their business goals

Empowering Business in Real Time.

FLOWSERVE **OSIsoft**

POWER   **CHEMICAL**

PUMPS – VALVES – SEALS

SERVICES AND SOLUTIONS

OIL/GAS   **WATER**

GENERAL INDUSTRY

Quick Response Centers

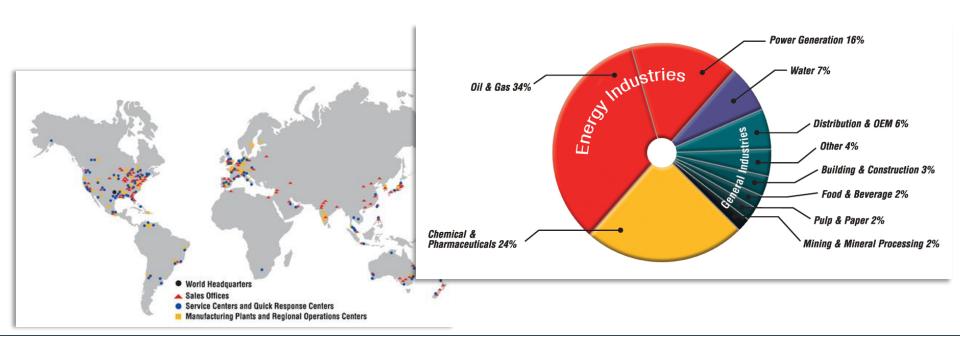**Integrated Solutions Group**

Empowering Business in Real Time.

Company Overview

- More than 14,000 employees in 56 countries

- World headquarters: Irving, Texas, USA

- Over 200 years of progress and innovation

World Headquarters
Sales Offices
Service Centers and Quick Response Centers
Manufacturing Plants and Regional Operations Centers

Oil & Gas 34%
Power Generation 16%
Water 7%
Distribution & OEM 6%
Other 4%
Building & Construction 3%
Food & Beverage 2%
Pulp & Paper 2%
Mining & Mineral Processing 2%
Chemical & Pharmaceuticals 24%
Energy Industries
General Industries

Empowering Business in Real Time.

Challenges facing our customers

FLOWSERVE   **OSI**soft.

<table>
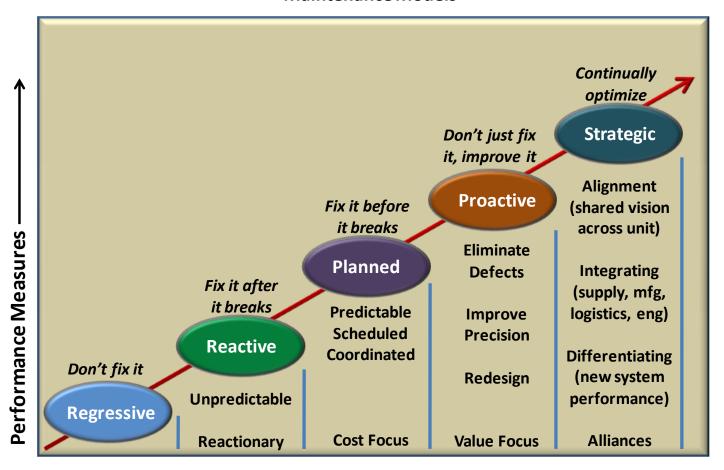<tr><td>

Decreasing Operating Budgets ⬇

</td><td>

- Pressure to reduce or keep operating budgets flat

- Rising energy costs

- Spare part inventory
  - Availability
  - Carrying costs

- "Bad actor" systems

- Emergency breakdowns
  - Short cycled MTBR, MTBF, & MTBPM

- Lack of data / too much data
  - Expertise in what it all means

- Aging workforce
  - Rotating equipment expertise retiring

</td></tr>
<tr><td>

⬆ **Rising Energy Costs**

</td></tr>
<tr><td>

⬆ **Rising Operational Costs**

</td></tr>
</table>

Empowering Business in Real Time.

Reducing Cost & Maximizing Reliability

Maintenance Models

Performance Measures

Continually optimize

Strategic

Don't just fix it, improve it

Proactive

Fix it before it breaks

Planned

Fix it after it breaks

Reactive

Don't fix it

Regressive

Unpredictable

Predictable
Scheduled
Coordinated

Eliminate
Defects

Improve
Precision

Redesign

Alignment
(shared vision
across unit)

Integrating
(supply, mfg,
logistics, eng)

Differentiating
(new system
performance)

Reactionary

Cost Focus

Value Focus

Alliances

Empowering Business in Real Time.

Our offerings...

FLOWSERVE **OSI**soft.

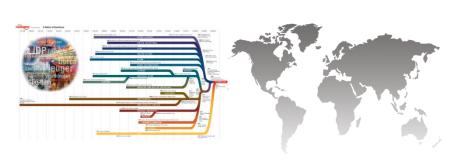| Technical Services	• **Upgrades** • **Life cycle cost transactional & performance contracts** • **Engineering services**
LifeCycle Advantage™	• **Long term agreements** • **Performance & availability contracts** • **Primary & preferred source contracts**
Educational Services	• **Learning resource centers (Classroom & Labs)** • **On Site standard & customized courses** • **Remote hydraulic lab & training products**
Consulting	• **Technical assessments & audits** • **Mentoring** • **3rd party benchmarking**
Technology Advantage™	• **Online assurance programs & enterprise data** • **System optimization & equipment monitoring** • **Edge intelligence & advanced diagnostics / prognostics**
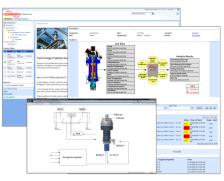
Empowering Business in Real Time.

Technology Advantage ™
Information • Expertise • Performance

Global installed base, product portfolio and experience in fluid motion and control

A global network of service support, technical resources and Quick Response Centers

Our commitment to partner with our customers to lower their total Life Cycle Cost

Continued technology investments in intelligent devices, advanced communications & data convergence

Creating the 'Service Model of the Future'
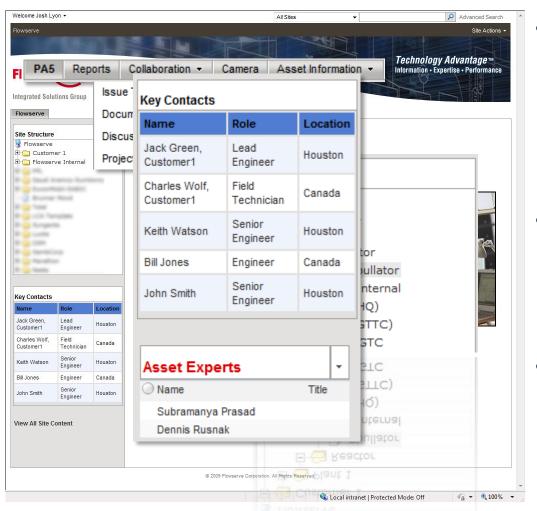
Getting information from the assets

- **IPS Wireless**
  - Wireless sensors, repeaters, receivers, etc
  - Pressure, Vibration, Temperature, Gas Detection

- **IPS APEX**
  - Edge device intelligence

- **OSIsoft Platform**
  - Connectivity to many systems

- **Multiple Security Layers**

- **Communication Methods:**
  - Satellite, Cellular, Network

Empowering Business in Real Time.

Site Entry
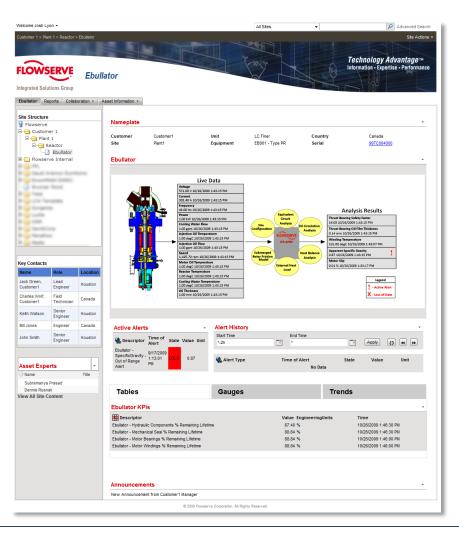
- **Site Structure**

  - Navigate the contracted customers

  - Follows: Customer > Site > Unit > Equipment

- **Tabbed sections**

  - Sections of a customer portal: reports, asset information, collaboration

- **Key Contacts / Asset Experts**

  - Access to asset-specific experts

Empowering Business in Real Time.

Layout Overview
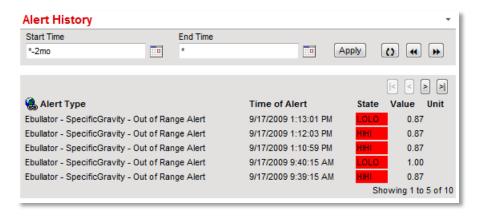
- Schematics

- Alarms / Notifications

- KPIs

- Data Views:
  - Tables
  - Gauges
  - Trends

- Contact: Asset Experts

Alarms / Notifications

Active Alerts

Descriptor	Time of Alert	State	Value	Unit
Ebullator - SpecificGravity - Out of Range Alert	9/17/2009 1:13:01 PM	LOLO	0.87	

Alert History

Start Time	End Time		
*-2mo	*	Apply	

Alert Type	Time of Alert	State	Value	Unit
Ebullator - SpecificGravity - Out of Range Alert	9/17/2009 1:13:01 PM	LOLO	0.87	
Ebullator - SpecificGravity - Out of Range Alert	9/17/2009 1:12:03 PM	HIHI	0.87	
Ebullator - SpecificGravity - Out of Range Alert	9/17/2009 1:10:59 PM	HIHI	0.87	
Ebullator - SpecificGravity - Out of Range Alert	9/17/2009 9:40:15 AM	LOLO	1.00	
Ebullator - SpecificGravity - Out of Range Alert	9/17/2009 9:39:15 AM	HIHI	0.87	

Showing 1 to 5 of 10

- Setup based on sensory data, KPIs, or custom formulas

- Notifications are sent via e-mail or SMS

- Alarms are color coded

Empowering Business in Real Time.

KPIs –Tables / Gauges / Trends
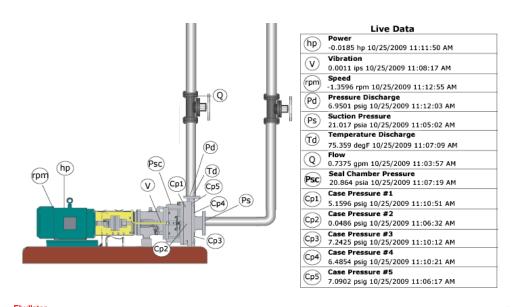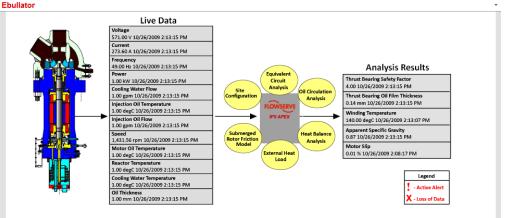
- Key Performance or Process Indicators

- Can be based on sensory data, equations, life cycle data, etc

- Multiple visualizations:

  - Tables, Gauges, Trends

Empowering Business in Real Time.

Schematics
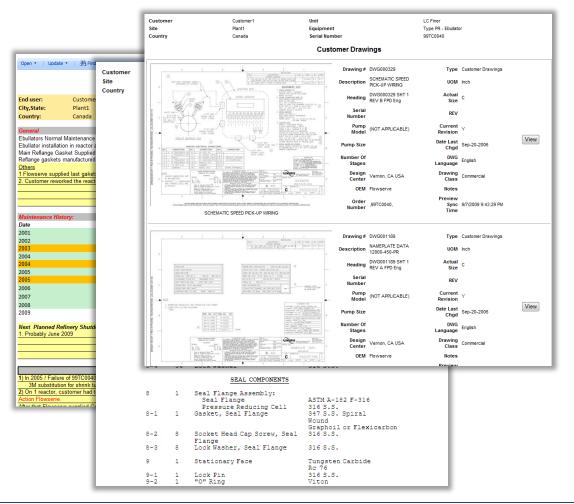
- Graphical representation of unit, equipment, or process

- Can contain:
  - Alarm indicators
  - Trends
  - Level indicators
  - Sensory values
  - Etc

Empowering Business in Real Time.

Asset Info - Enterprise Data
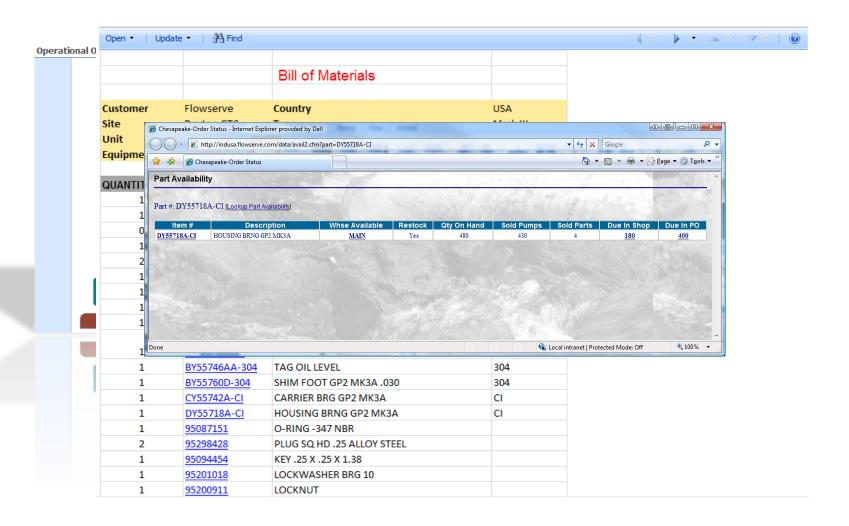
- Maintenance Data

- Installation Information

- Drawings

- Bill of Materials

Empowering Business in Real Time.

Ex: Bill of Materials

Empowering Business in Real Time.
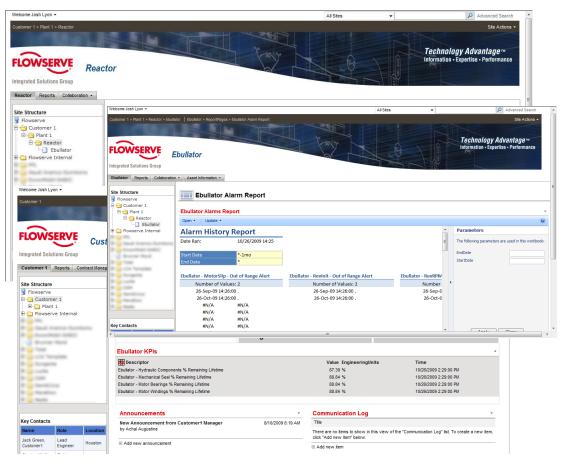
Reports

- Reports are built using Excel and shared via the web

- Custom layouts

- Can pull sensory data live and/or historically

- Can embed trends, graphics, etc.

- Scheduled Reports

Empowering Business in Real Time.

Contract Management

Key Performance Indica...

| Show Only Problems |
| Indicator |
| Current Monthly Savings |
| 2008 YTD Savings |

Contract Overview

Open ▼ | Update ▼

KEY ACCOUNT CONTAC...
- Purchaser: Mr. ...
- (972...
- Texa...

KEY SUPPORT CONTAC...
- Commercial: Mr. ...
- (908...
- Project Manager: Mr. ...
- (972...
- Ebullator SME: Mr. ...
- (323...

CONTRACT DETAILS
- Contract Type: Perfo...
  - Lo...
  - Te...
  - Po...
- Price: $50,...
  - Se...
  - fo...

2008 - Saving per Month

Open ▼ | Update ▼

— Monthly Savi...

2008 - Cumulative YTD Savings

Open ▼ | Update ▼

2008 Saving Summary Table

Open ▼ | Update ▼

|	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
Monthly Savings ($)	$5,035	$6,632	$7,435	$7,646	$7,198	$4,540	$3,498	$4,169	$6,857	$7,587		
Cumalitive Savings YTD ($)	$5,035	$11,667	$19,102	$26,748	$33,946	$38,486	$41,984	$46,153	$53,010	$60,597		
Base Avg. Power Usage (HP)	2,600.00	2,600.00	2,600.00	2,600.00	2,600.00	2,600.00	2,600.00	2,600.00	2,600.00	2,600.00		
Upgraded Avg. Power Usage (HP)	2,561.74	2,549.60	2,543.50	2,541.90	2,545.30	2,565.50	2,573.42	2,568.32	2,547.89	2,542.35		

Current Monthly Savings	$7,587	**Cumulative YTD Savings**	$60,597
Monthly Savings Goal	$5,000	**YTD Savings Goal Value**	$50,000
Monthly Savings Warning	$4,167		

2008 - Saving per Month

Open ▼ | Update ▼

Goal Value $5,000

Warning Value $4,167

— Monthly Savings ($) —— Monthly Savings Goal Value —— Monthly Savings Warning Value

Empowering Business in Real Time.

Leveraging our industry leadership

FLOWSERVE **OSI**soft.

Technology Advantage ™
Information • Expertise • Performance

Global installed base, product portfolio and experience in fluid motion and control

A global network of service support, technical resources and Quick Response Centers

Our commitment to partner with our customers to lower their total Life Cycle Cost

Continued technology investments in intelligent devices, advanced communications & data convergence

The 'Service Model of the Future'…..Now

Empowering Business in Real Time.

Questions?

http://www.flowserve.com/isg

Empowering Business in Real Time.

Thank you