



**Extend Your PI Investment:
*Deliver New Bottom Line
Value in 30 Days***

Greg Kashmer - Dominion

Ed Yachimiak - AEP

Michael Saucier - Transpara

**Empowering Business in Real Time
PI Infrastructure for the Enterprise**



**Extend Your PI Investment:
*Deliver New Bottom Line
Value in 30 **Minutes*****

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PI Infrastructure for the Enterprise**



1 Minute Economic Refresher

In the Beginning...



Source: AP Photo

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SAN FRANCISCO

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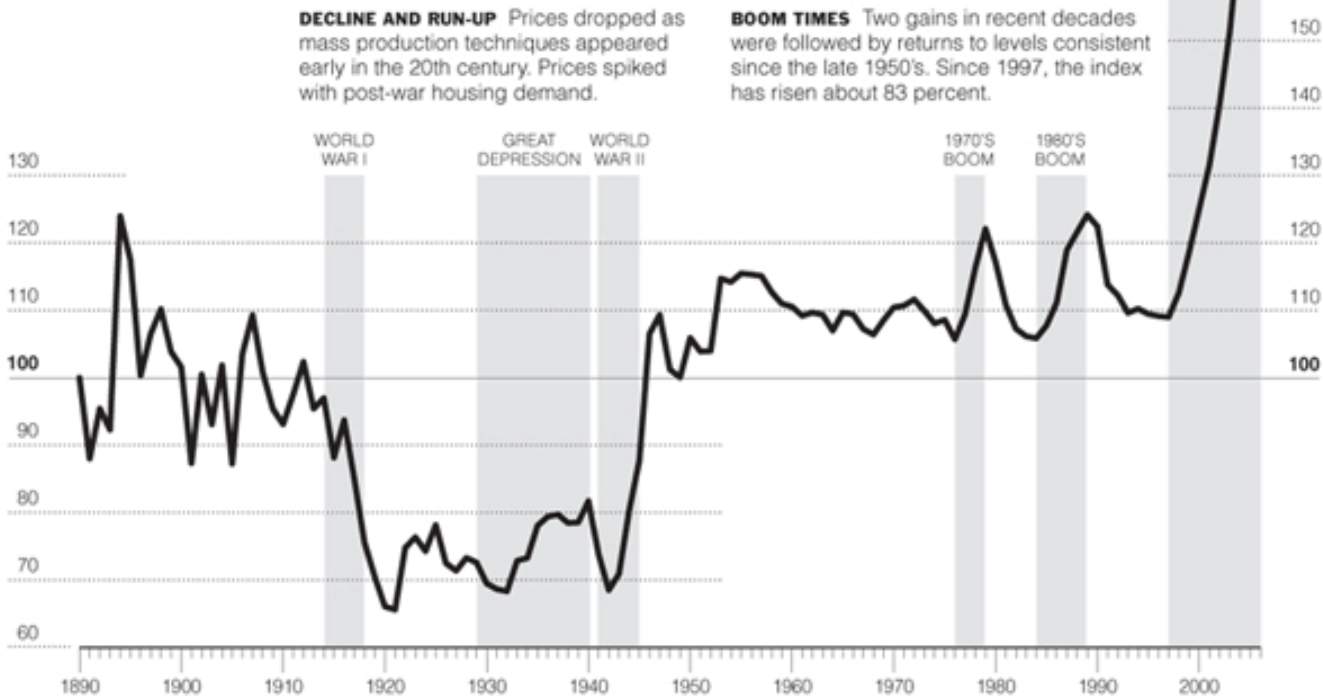
House Values Ballooned



A History of Home Values

The Yale economist Robert J. Shiller created an index of American housing prices going back to 1890. It is based on sale prices of standard existing houses, not new construction, to track the value of housing as an investment over time. It presents housing values in consistent terms over 116 years, factoring out the effects of inflation.

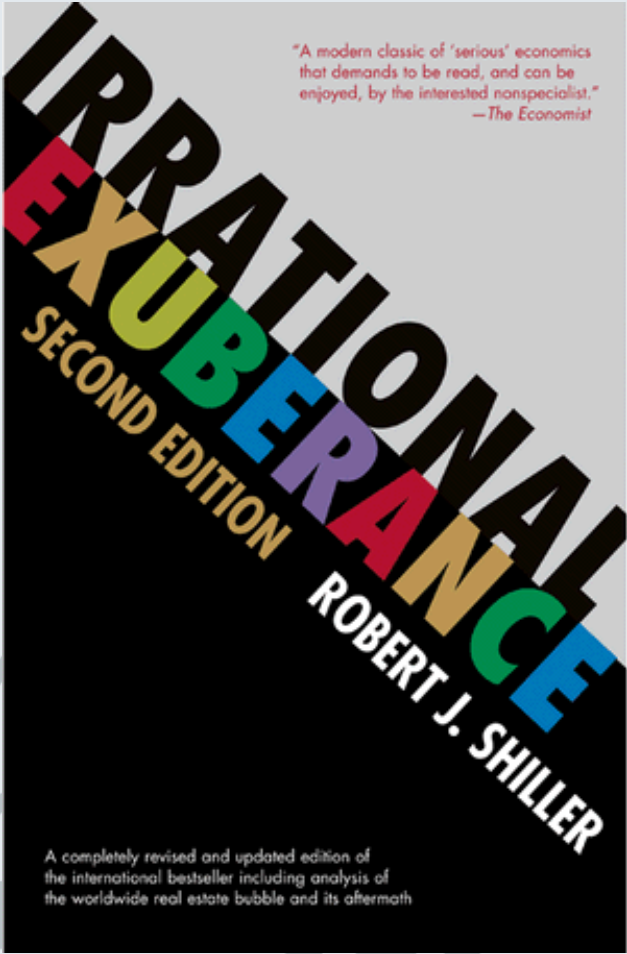
The 1890 benchmark is 100 on the chart. If a standard house sold in 1890 for \$100,000 (inflation-adjusted to today's dollars), an equivalent standard house would have sold for \$66,000 in 1920 (66 on the index scale) and \$199,000 in 2006 (199 on the index scale, or 99 percent higher than 1890).



Source: "Irrational Exuberance," 2nd Edition, 2006, by Robert J. Shiller

Bill Marsh/The New York Times

Homeowners Swooned

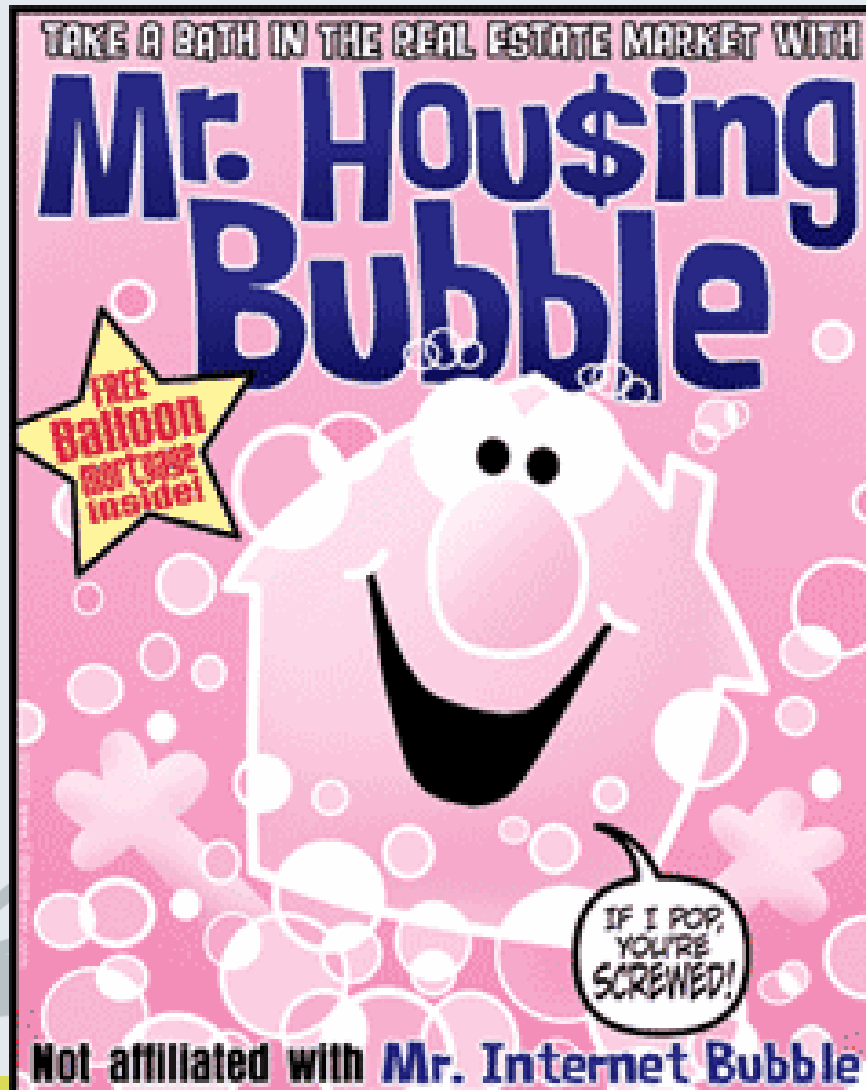


Source: Amazon.com

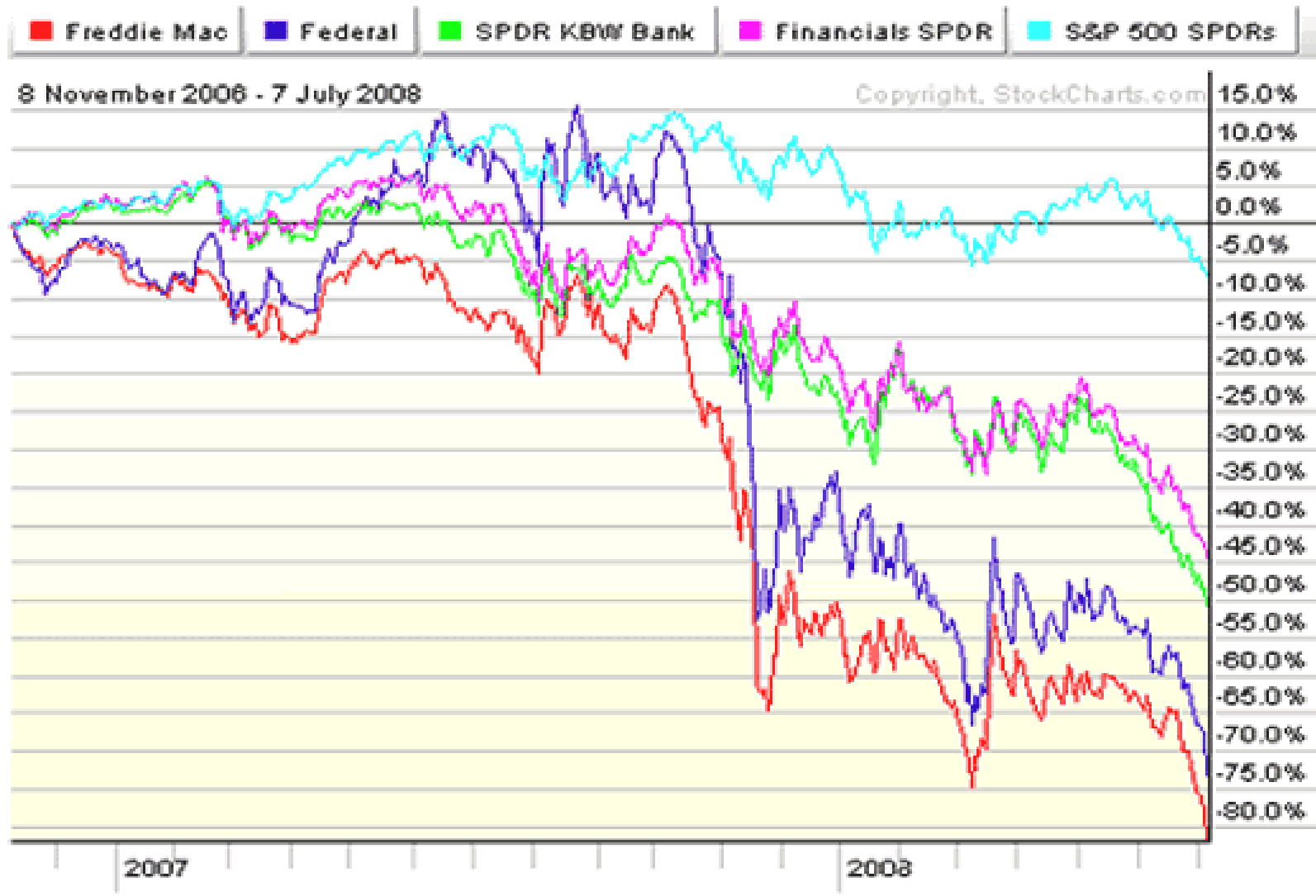


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The Bubble Popped



The Markets Flopped



The Economy Tanked



A Few Guilty Were Spanked



© Fox News

Some Guilty Were Meaner



© Fox News

Sent Us to the Cleaners



Source: AP Photo

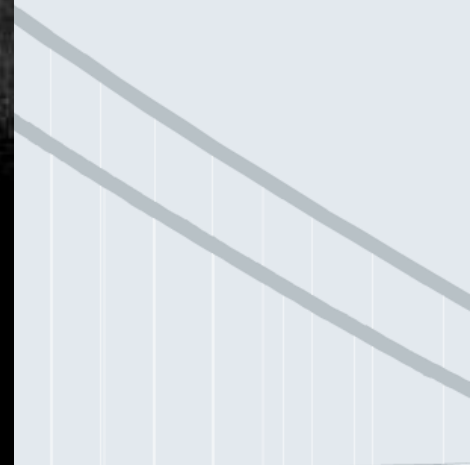
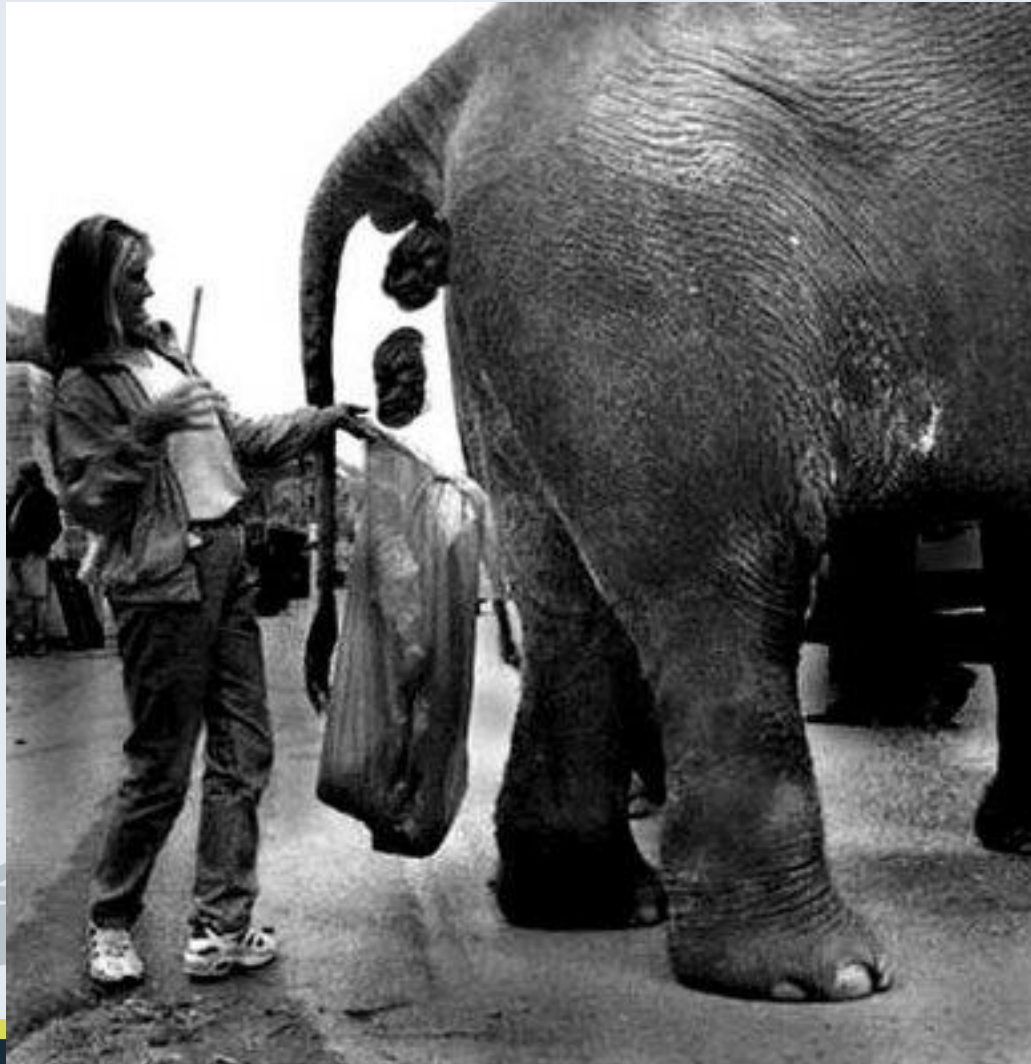


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Source: nowholdon.wordpress.com

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Or Just Left Us Holding the Bag



Source: AP Photo

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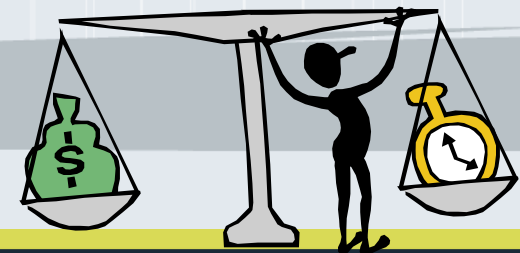
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So Where
Are We ?

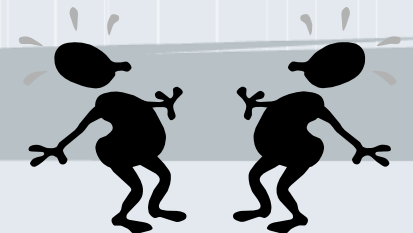
Projects Must Show Extremely Short-term Value



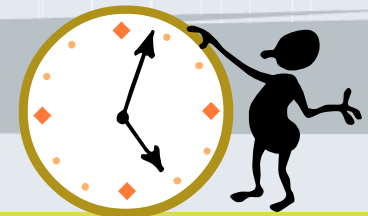
But Long-Term Value is Still Important



You Need *Both*



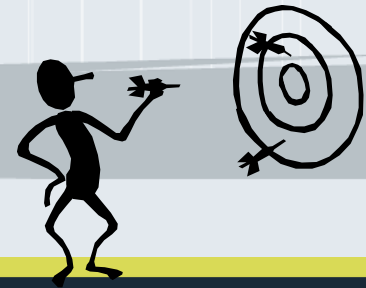
Value Now And Value Over Time





Sound Familiar?

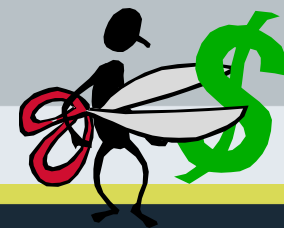
Focus Your Efforts



Leverage PI !



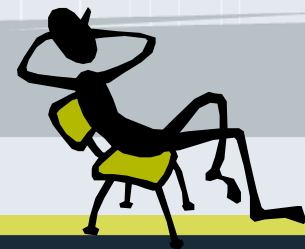
PI Projects: Low Cost



PI Projects: Low Risk



PI Projects: Low Effort

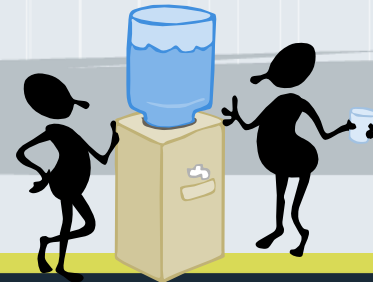


PI Projects: Fast Time to Benefit





PI Projects: Easily Socialized for Quick Buy-In



PI Projects: Deliver Actionable Data To Decision Makers



So Be A Hero



Make Someone Say Wow!

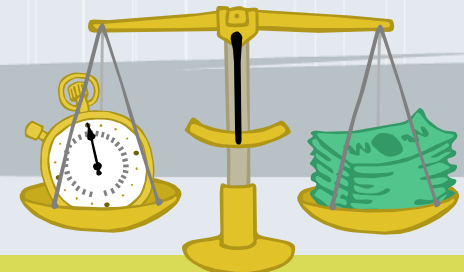


Put PI in Their Pocket

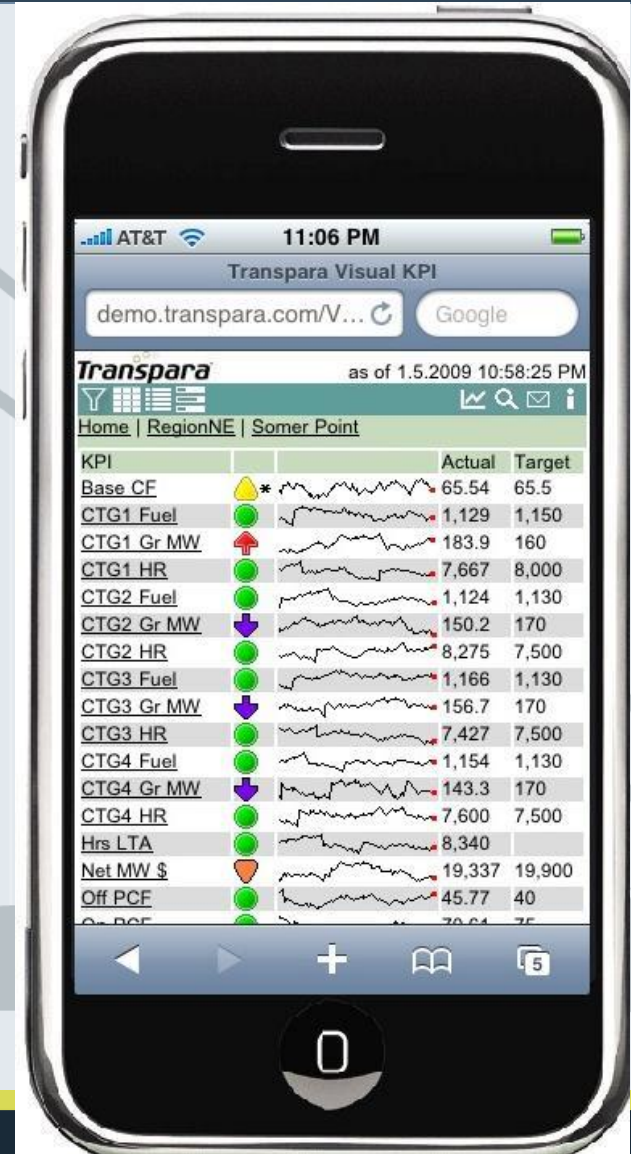
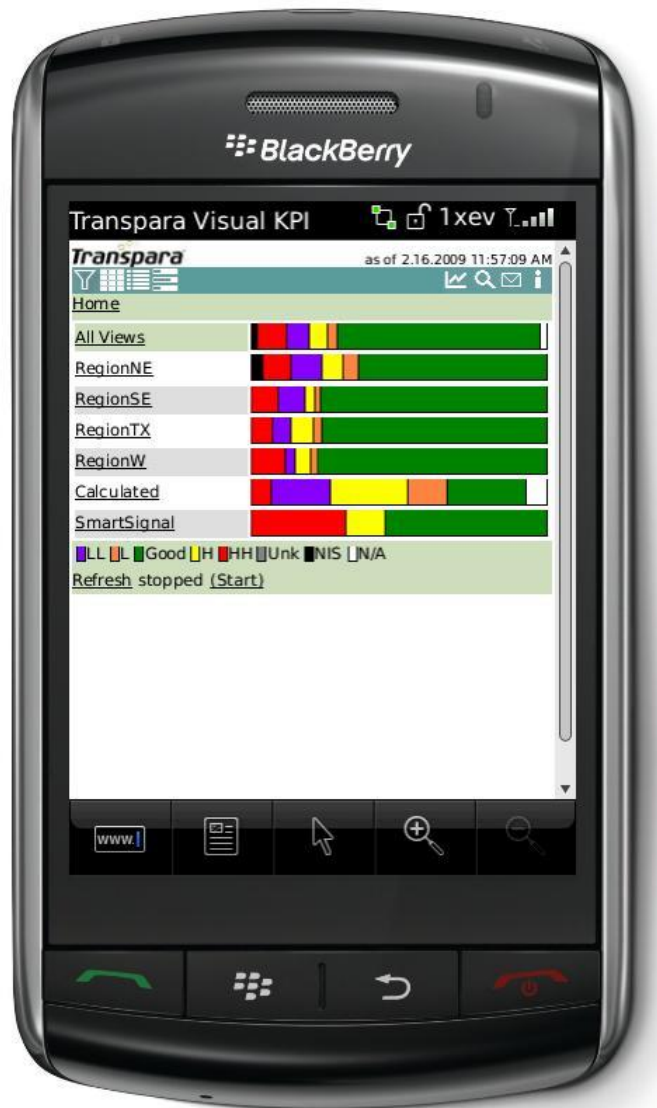




Get Benefits Now.



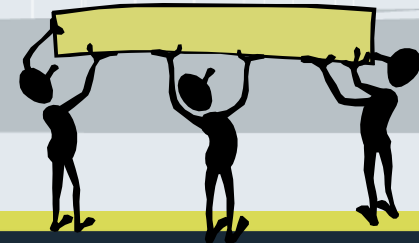
Visual KPI



Visual KPI lets you
Take PI wherever you go !



Visual KPI Creates *Spontaneous Collaboration*



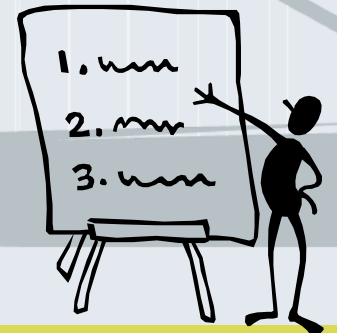
What's That?

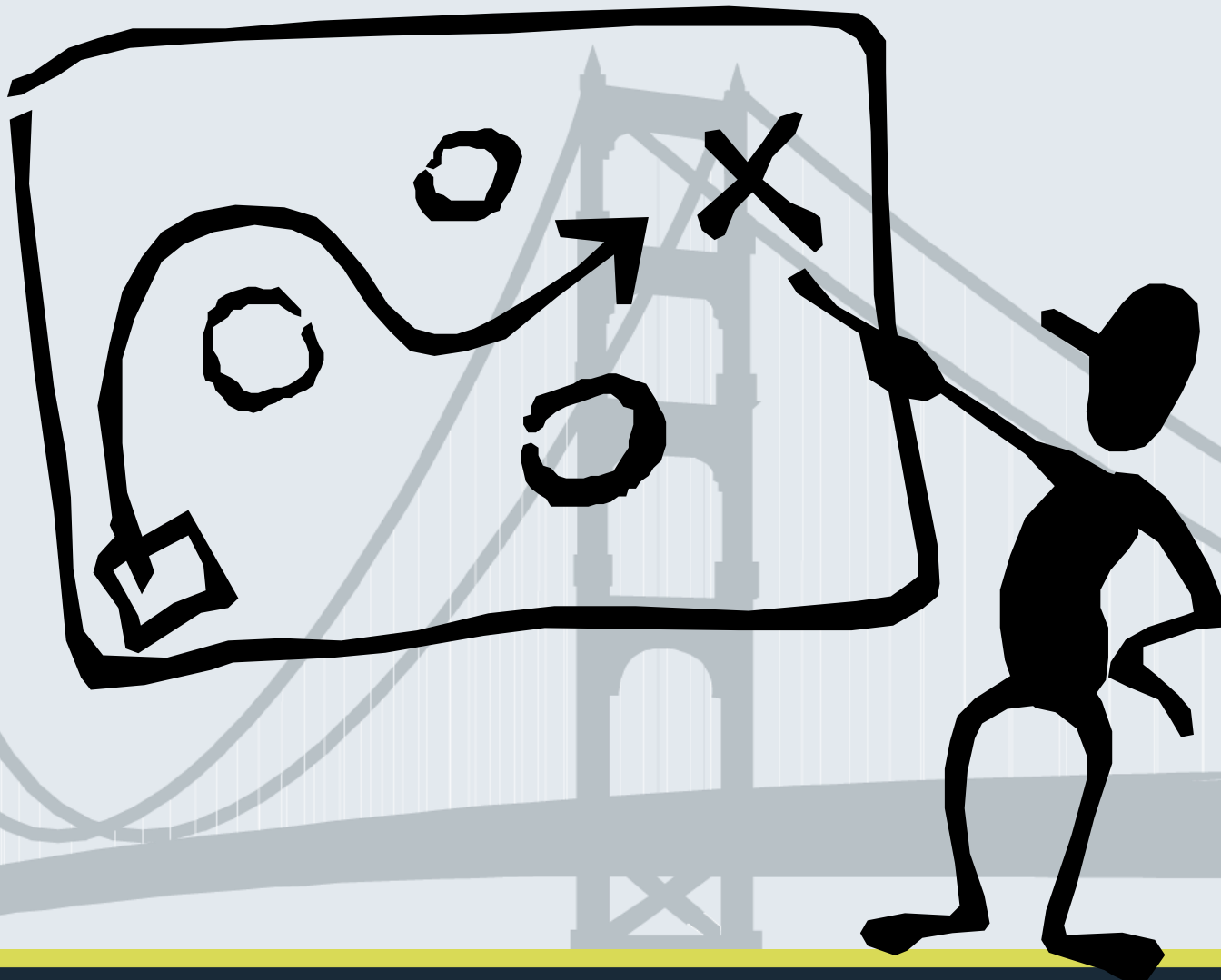


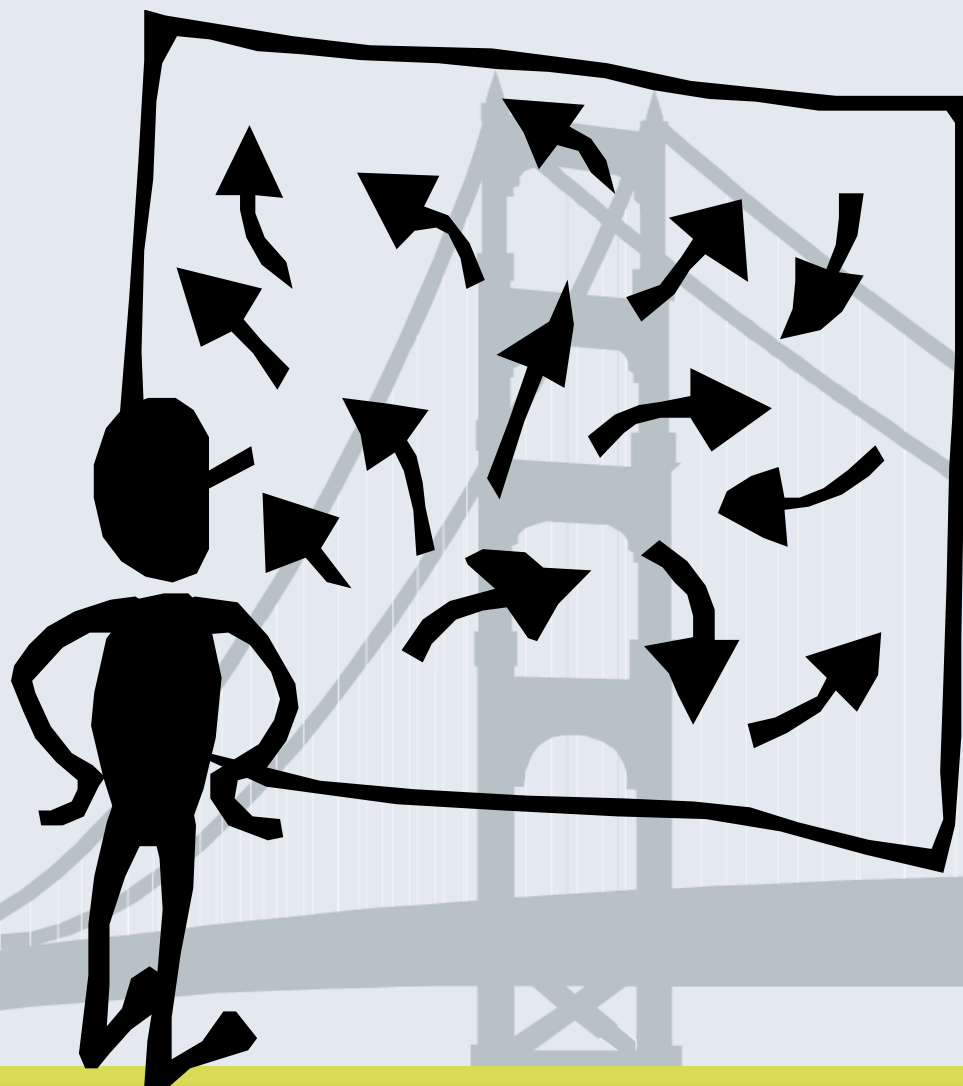
And Why Does it Matter?



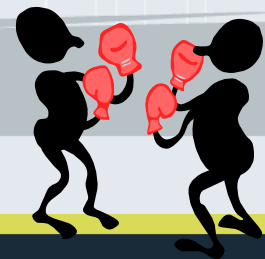
Example: Typical Project







Chaos Happens When People Act on Conflicting Data









Planned or Structured Collaboration Can Help



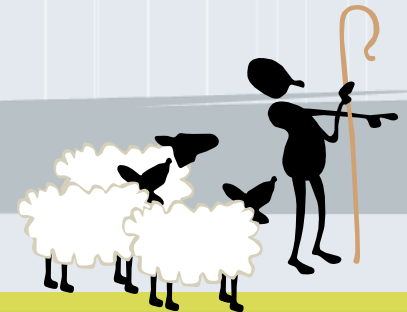
But Requires Many Meetings



Central Control Reduces Meetings



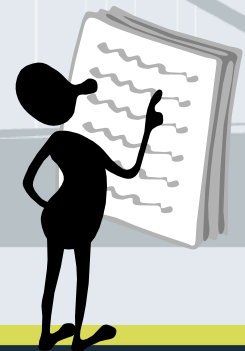
But Underutilizes People and Increases Bureaucracy

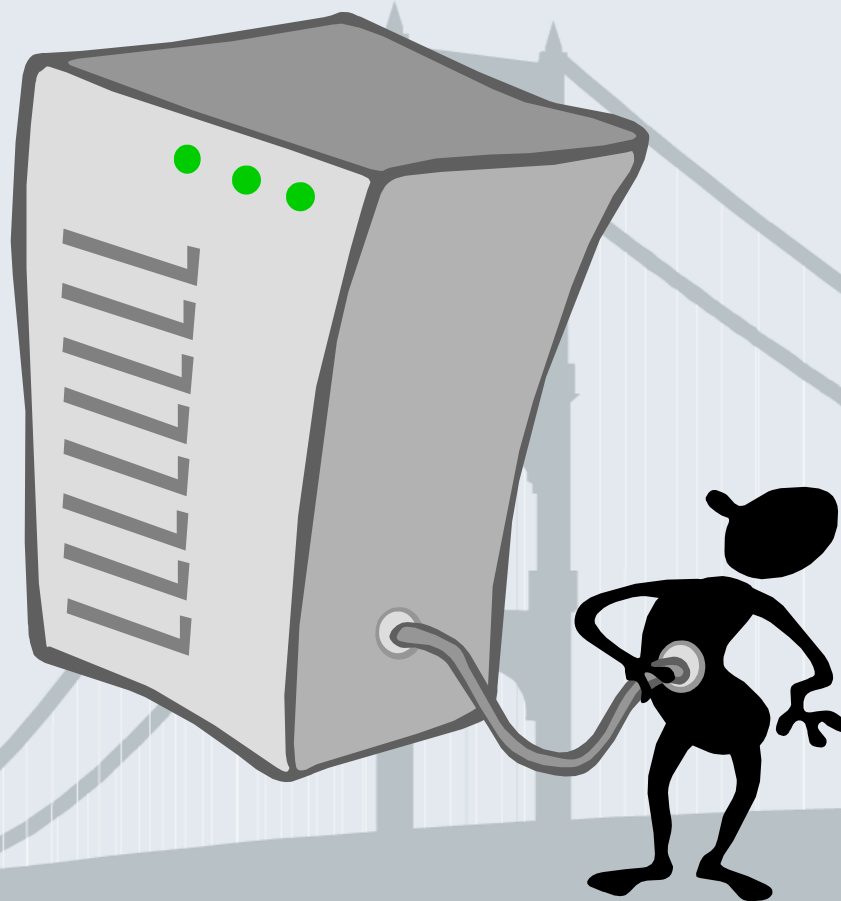


People Will Do the Right Thing



Given Reliable Metrics For Decision Making





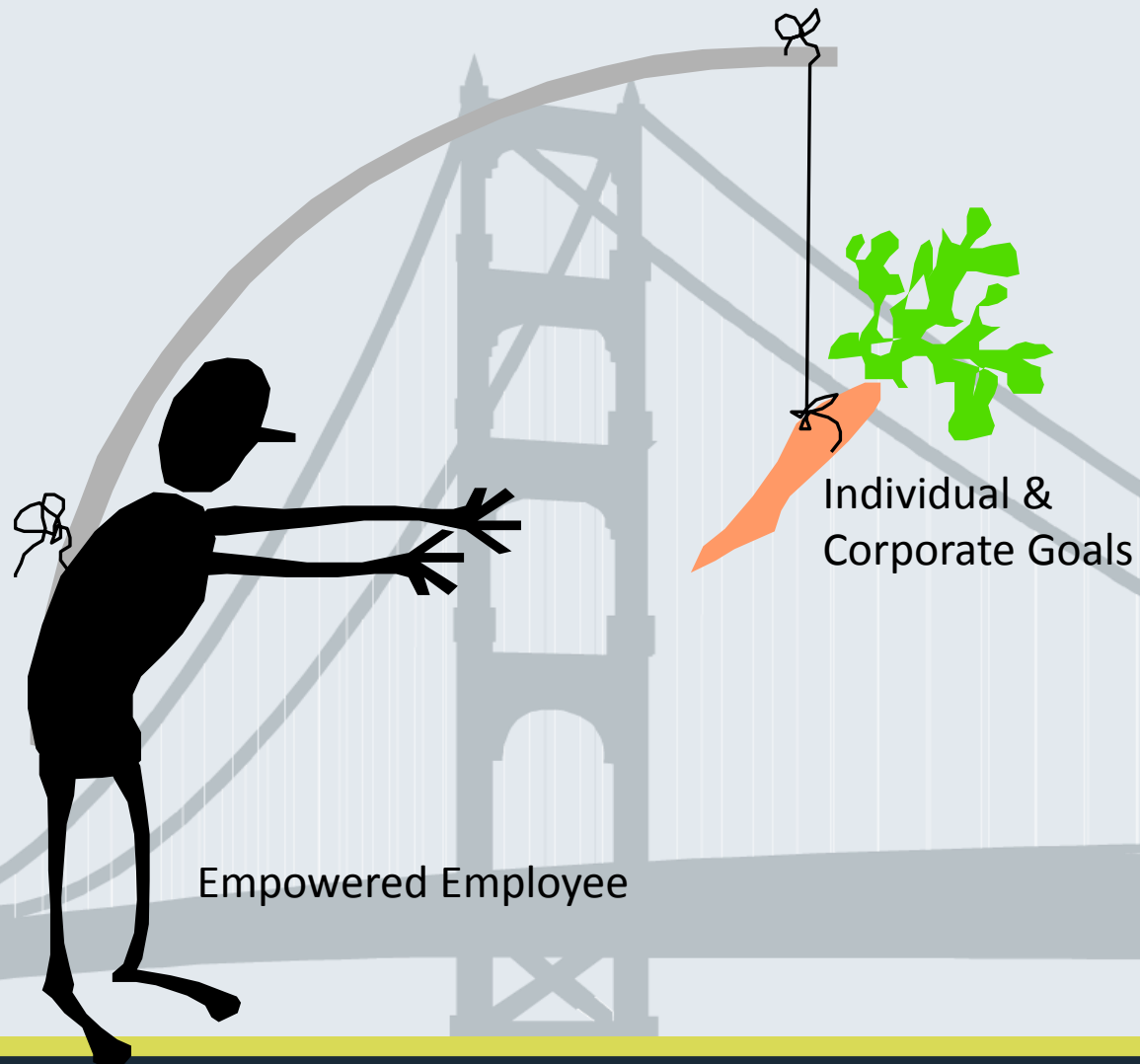
So
Spontaneous Collaboration
is



Teamwork Without Meetings or Mandates













So What Was This Talk About Again?



Oh Yeah



Now I Remember



New Value in 30 Minutes



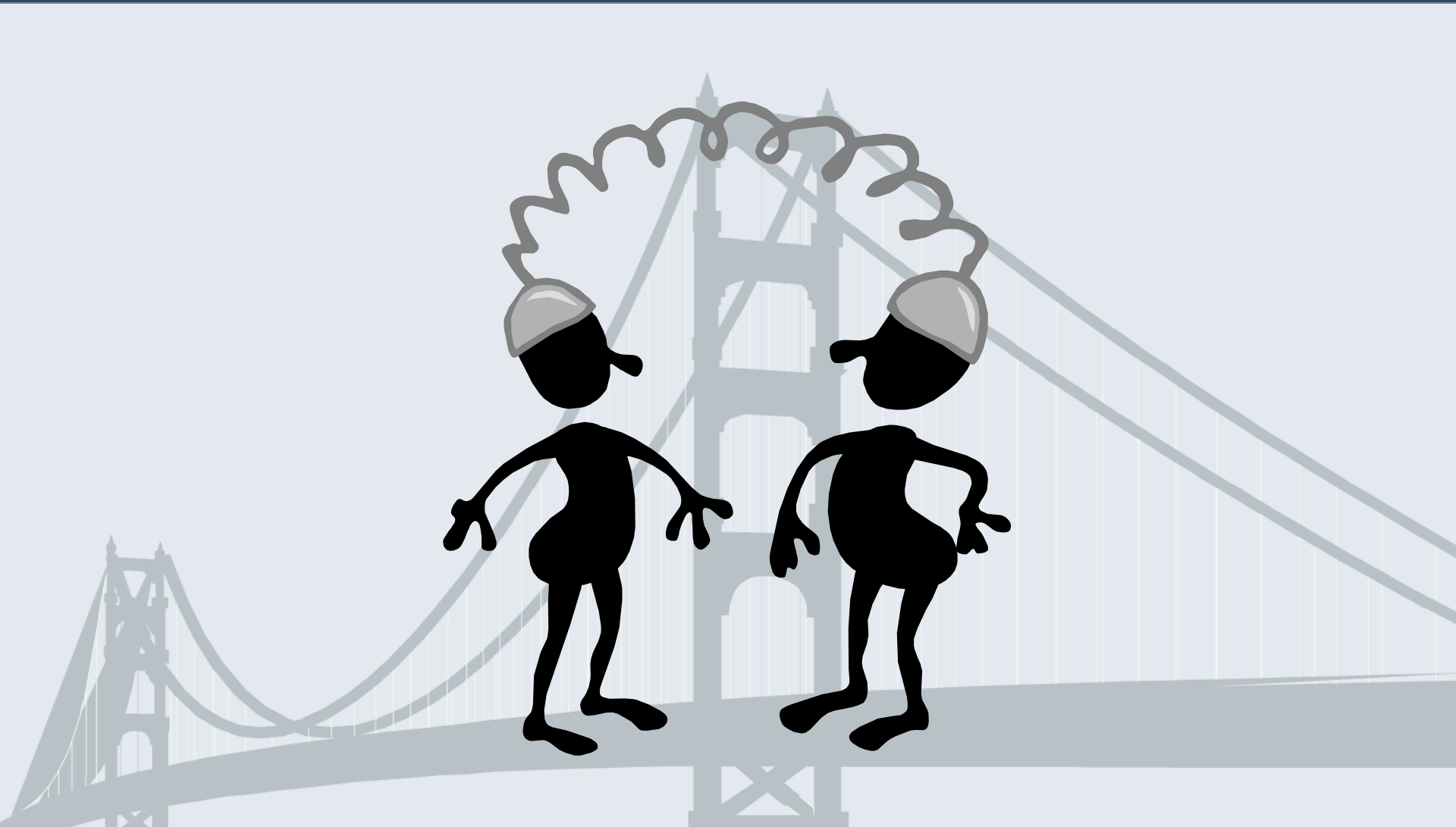
Distributed Teams



Reach New Levels Of Productivity



With
Spontaneous Collaboration

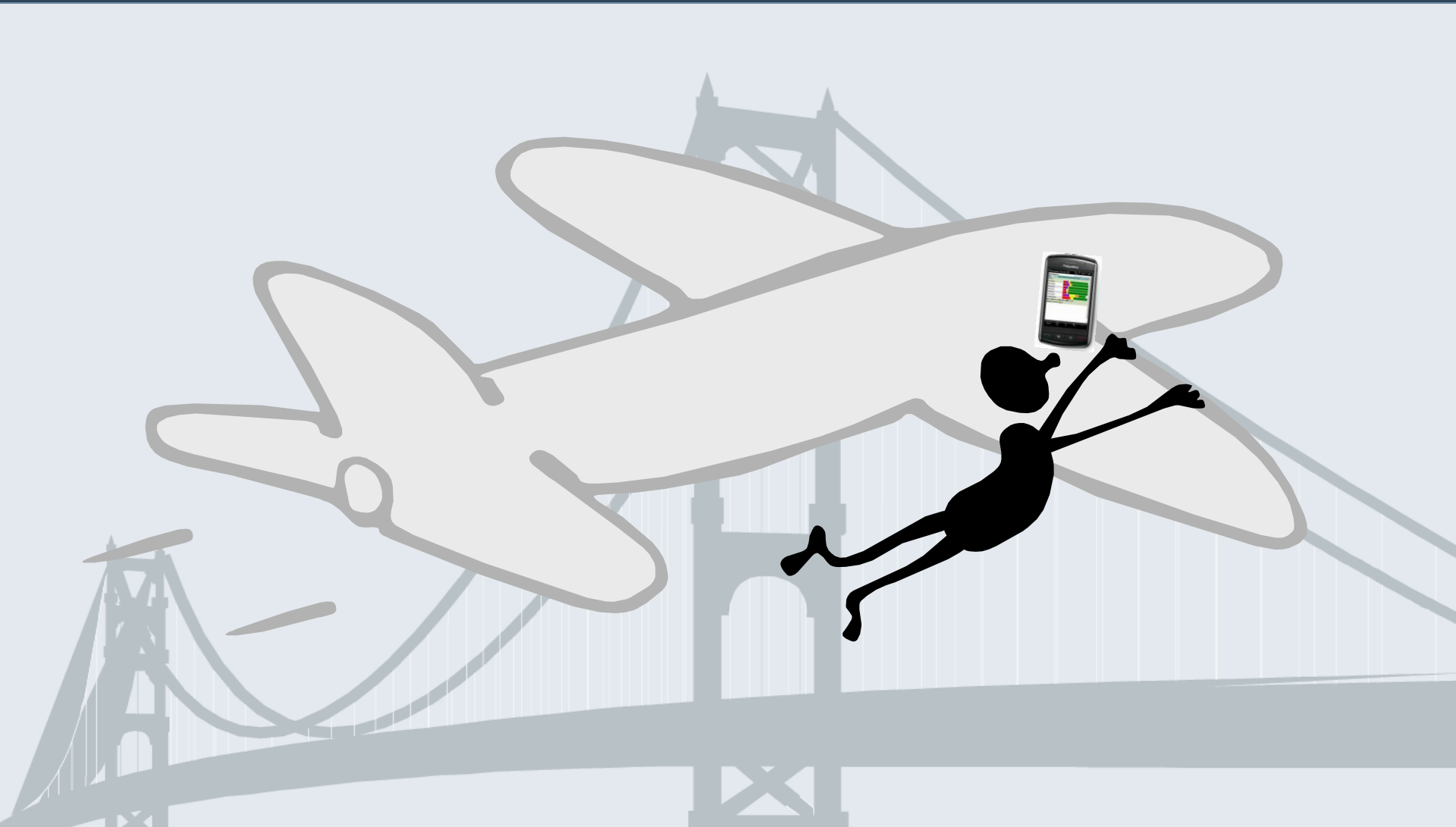










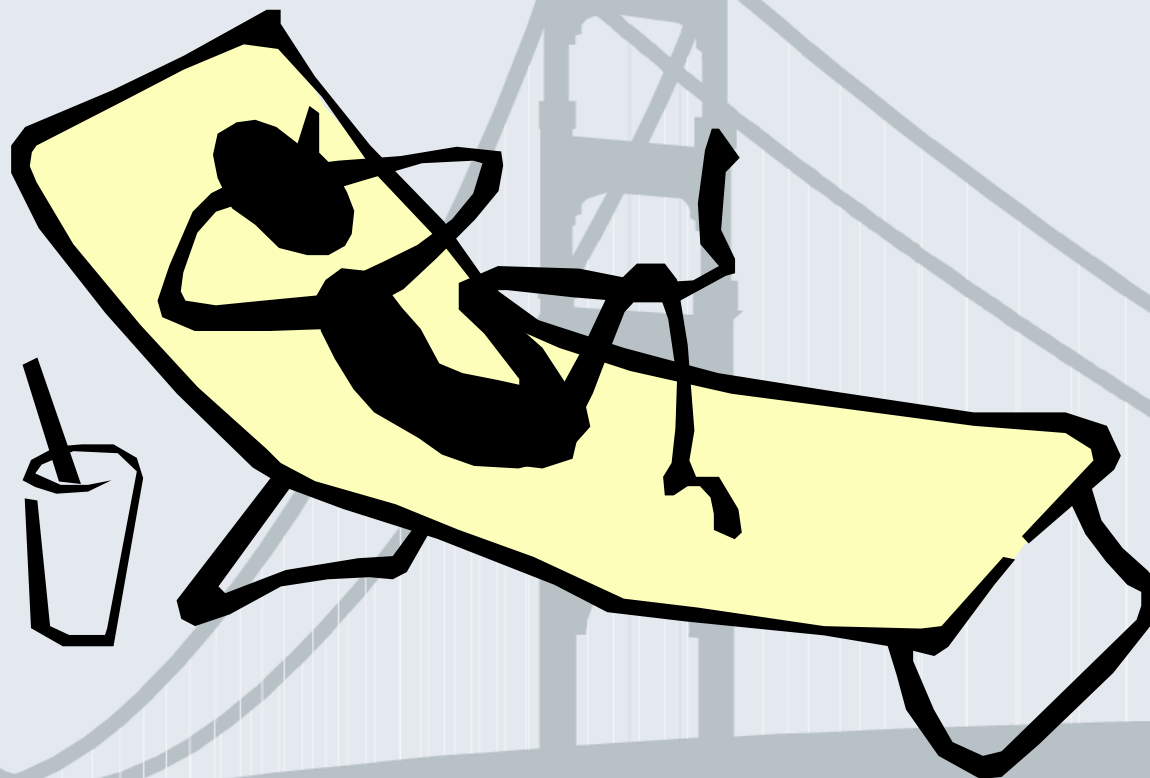


And for Those Responsible?









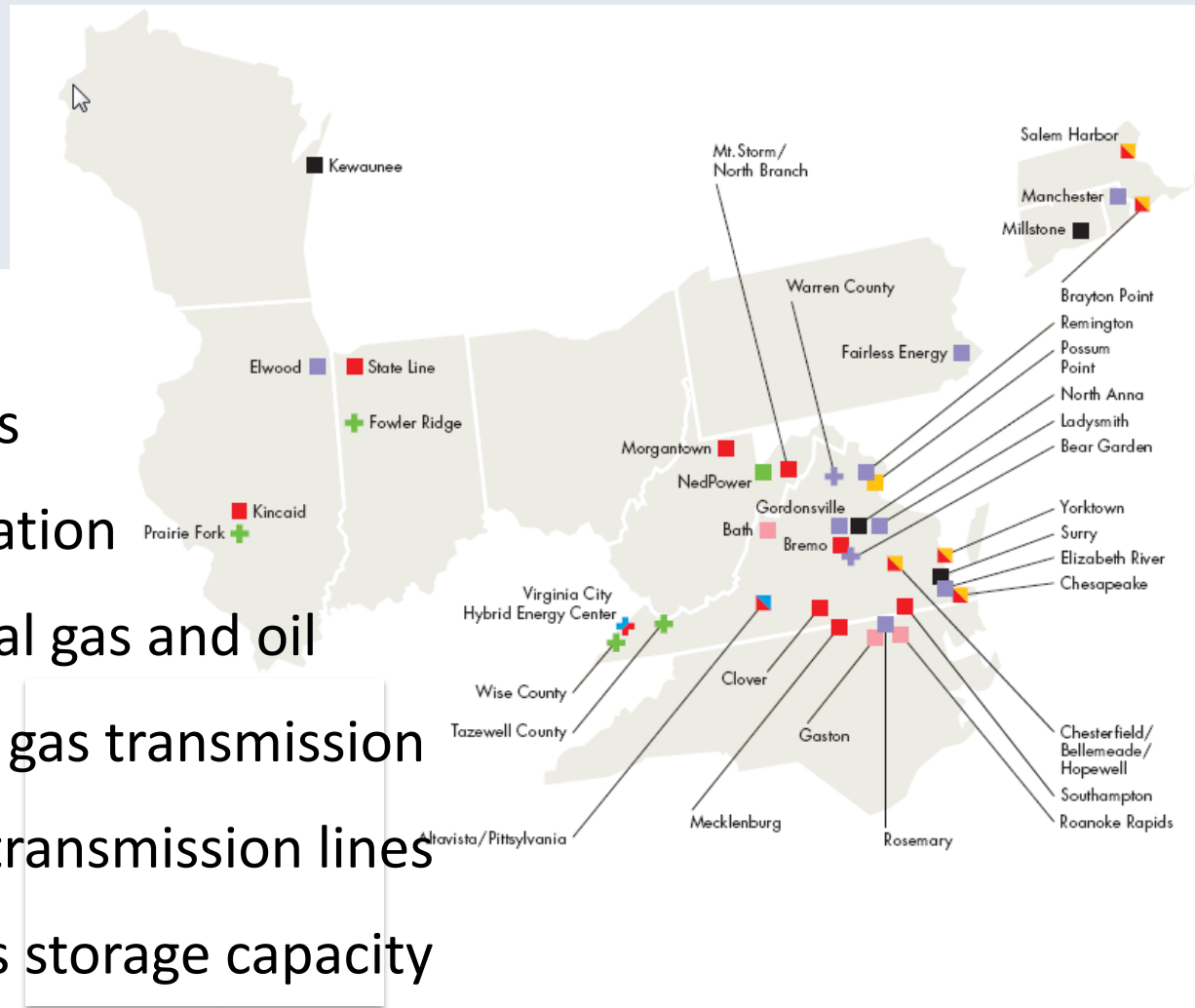
Voice Of the Customer



Dominion Energy



- HQ in Richmond, VA
- Operating in 12 states
- 27,000 MW of generation
- 1.2 trillion ft³ natural gas and oil
- 14,000 mi. of natural gas transmission
- 6,000 mi. of electric transmission lines
- 975 billion ft³ of gas storage capacity



Dominion - OSIsoft Footprint

- 23 PI Server installations in Dominion F&H
 - OSIsoft PI in use since 1997
 - Thick client tools
 - ProcessBook & DataLink primarily.
 - Firm tool throughout F&H

Key Purchase Decisions of Transpara

- Small Initial \$\$\$ Investment
 - Reasonable Entry Price to Kindle Growth
- Fit Business and Dominion PI Improvement Plans
 - Enhance the Value of the PI Investment
- Seamless Integration of existing PI Data
- User-Familiar Configuration Tool, Easy Setup
- Optimized for Dominion Standard Blackberry

Evaluation & Implementation

- High Level Pilot Program
 - 4th Quarter 2008
 - Focus on providing PI data to mobile devices
 - Focus group was Dominion Sr. VP F&H
- Purchased a small number of Client Licenses
 - 1st Quarter 2009
 - Initial focus will be on ‘Serving’ PI data
 - Growth may include other data connectors to capture more robust KPI’s
- Full Implementation plan scheduled July 2009

Value Now:

- PI data now in reach of any mobile user
- Provide additional methods of connecting to PI data for real-time decision making
- Remote visibility into plant operations

Possible Product Application

- **Excel** Performance Indicators – Power Station

2008 Clover Power Station Performance Indicators

F&H Performance Driver	Clover Power Station Performance Indicators: December 08												Previous Months			YTD																					
	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Sep	Oct	Nov	Dec			
Safe Operations	Safety Awareness Training		Safety Risk Reduction		Pre-Job Briefing Success		Housekeeping		Safety Severity		OSHA Recordables - Dominion		OSHA Recordables - Contractors		OSHA Compliance																						
Environmental Compliance	Environmental Awareness Training		Environmental Audits, Assessments, Inspections		F&H Incident Report		SO2 Removal Rate		Nox Emissions (Ozone Season)		Nox Emissions (Non-Ozone Season)		Operating Permit Performance																								
High Availability & Reliability	EFORD		EA		Peak EA		Unit Automatic Trips		Chemistry Compliance		Outage Performance		Work Order Backlog		PM Compliance																						
Low Cost Operations	O&M Budget Compliance		Capital Budget Compliance		Delta LDHR		Inventory																														
Human Performance	Team Member Availability		Overtime		Adherence to Training Schedule																																

■ Green - Exceeds Goal
 ■ Blue - Meets Goal
 ■ Yellow - Goal In Jeopardy
 ■ Red - Goal Not Met

Goal Accomplishment 93%
 (15 Green Windows + 13 Blue Windows / 30 Total Windows)

Prototype

- **Web** Performance Indicators – Power Station

Transpara Visual KPI - Windows Internet Explorer
http://demo.transpara.com/Dominion/map.aspx?view=88bfd8b8-0da9-4b9e-9bb8-7f833c3c7c798

Transpara
as of 3.18.2009 10:44:28 AM

Home | Dominion Performance | All Scorecards

Scorecard: CL: Safety					
Safety Aware Trai	Safety Risk Red	Pre-Job Brief Succ	House keeping	Safety Severity	OSHA Rec Dominion
OSHA Rec Contractor	OSHA Compl				

Scorecard: CL: Env					
Env Aware Train	Env Aud Asses/Insp	F & H Inc Re	SO2 Rem Rate	Nox Emiss Ozone	Nox Emiss Non-Ozone
Op Permit Perf					

Scorecard: CL: Reliable					
EFORd	EA	Peak EA	Unit Auto Trips	Chem Compl	Outage Perf
Work Order Backlog	PM Compl				

Scorecard: CL: Cost					
O&M Budg Compl	Cap Budg Compl	Delta LDHR	Inventory		

Scorecard: CL: HR					
Team Mem Avail	Overtime	Training Sched			

Possible Product Application

- **Paper** Fleet Generation Overview

Dominion - Virginia Power Generation Summary Page 1 of 2

DomNet Wednesday, Mar 18, 2009 Index | Directory | Advanced Search

Dominion - Virginia Power Generation Summary

Per Unit Generation
As of **03/18/09** at **16:53**
Values are displayed in **NET MW's**

- » Generation Summary
- » NUG Summary
- » Peaker CT's
- » Zonal Load Forecast
- » Unit Outage Schedule
- » VAR Reserves
- » Monthly Peaks

	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6	Unit 7	Unit 8
Bellemeade	210							
Bremo			35	151				
Buggs (Mecklenburg)	0	0						
Chesapeake	61	66	125	171				
Chesterfield			47	136	276	671	166	195
Clover	0	431						
Hall Branch (Altavista)	0							
Hurt (Pittsylvania)	64							
Mount Storm	0	491	442					
North Branch	0							
Polyester (Hopewell)	0							
Possum Point			0	0	0	432		
Rosemary	0							
South Anna (Gordonsville)	0	0						
Southampton	0							
Yorktown	115	125	0					
North Anna	0	919						
Surry	811	813						
Darbytown	0	0	0	0				
Elizabeth River	0	0	0					

<http://bpdnet.dominionnet.com/cgi-bin/sm/bpo/emi/vpSummary.cgi> 3/18/2009

Prototype

- *Real-time* Fleet Generation Detail

Transpara Visual KPI - Microsoft Internet Explorer provided by Dominion Resources Services, Inc.

Address: http://nbtvvr301/visualKPI/map.aspx?view=8f07b203-0ffb-4014-beeb-b8eed9b45fb68ac=All&group=02&pinmap=2

as of 3.23.2009 11:35:05 AM

Home | Summary | All Scorecards

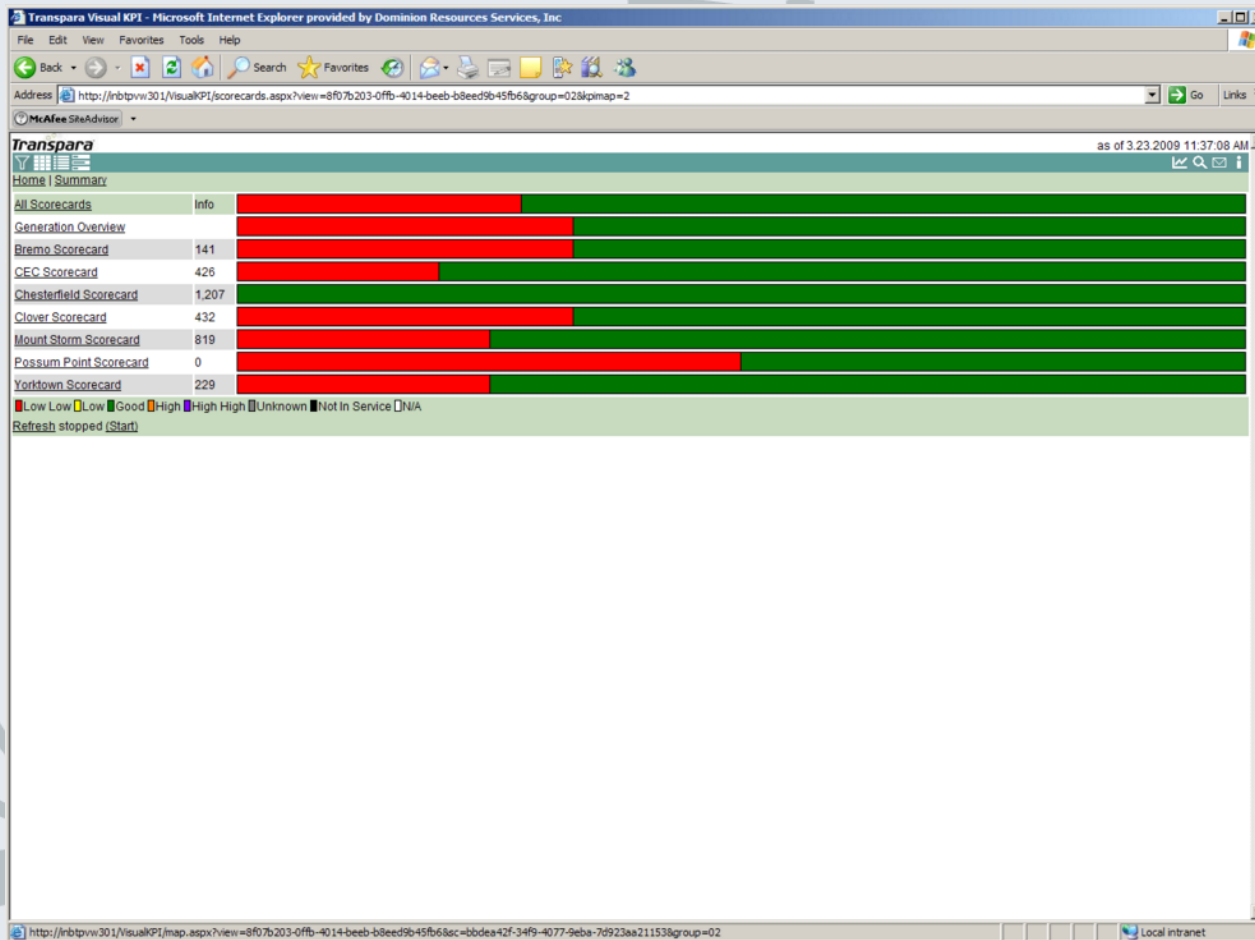
Plant: Bremo						
Bremo PS 141	Bremo 1 0	Bremo 2 141				
Plant: Chesapeake						
CEC PS 429	CEC 1 0	CEC 2 95	CEC 3 137	CEC 4 195		
Plant: Chesterfield						
Chest PS 1,216	CH 3 89	CH 4 128	CH 5 325	CH 6 672		
Plant: Clover						
Clover PS 432	Clover 1 432	Clover 2 0				
Plant: Mount Storm						
MT PS 827	MS 1 0	MS 2 307	MS 3 519			
Plant: Possum Point						
PP PS 3-5 0	PP PS 6 669	PP 3 0	PP 4 0	PP 5 0	PP 6A 129	PP 6B 130
PP 6STM 409						
Plant: Yorktown						
YT PS 228	YT 1 114	YT 2 113	YT 3 0			

Low Low Good High High High Unknown Not In Service N/A
 Refresh stopped (Start)

Local intranet

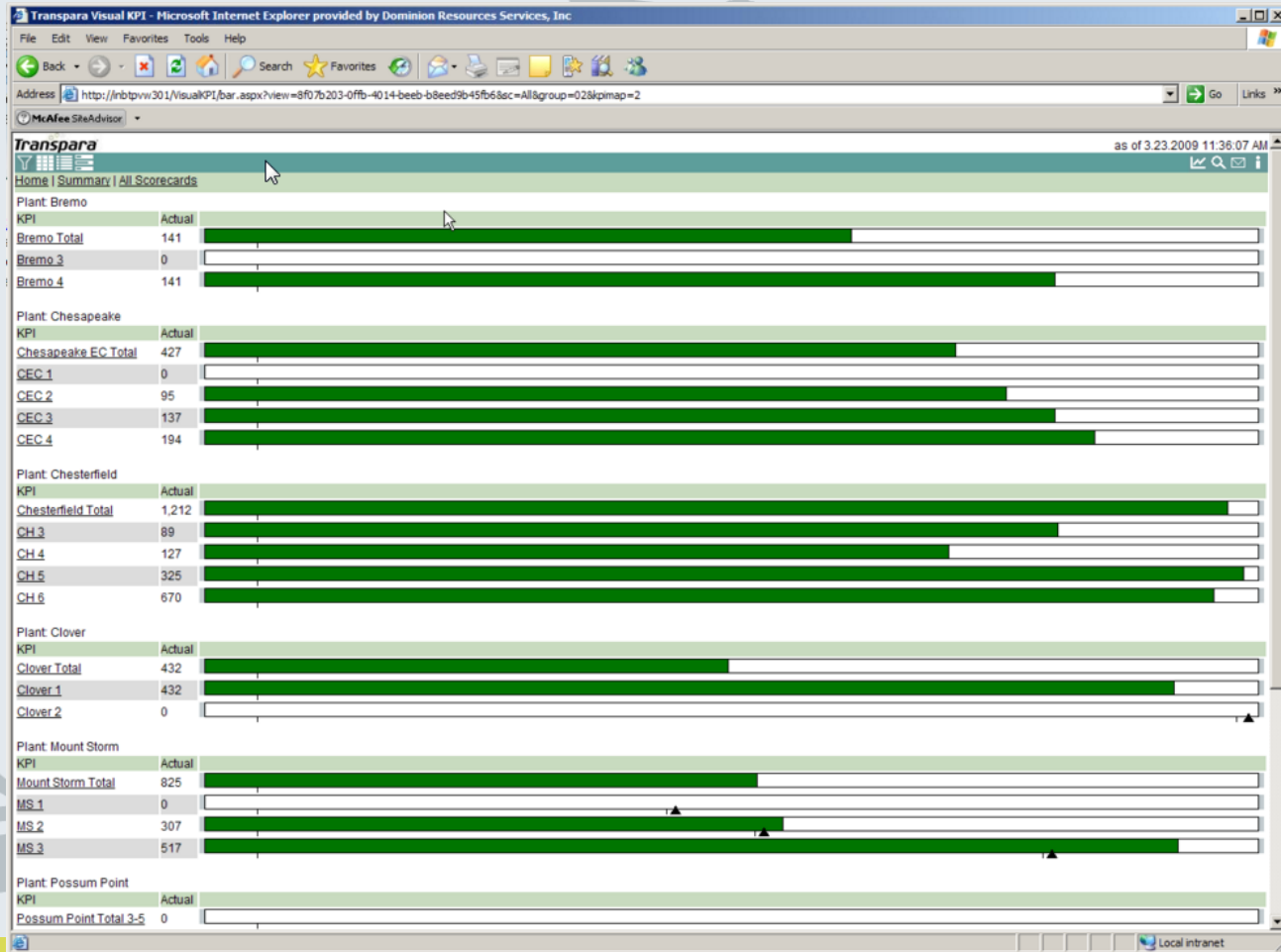
Prototype

- **Real-time** Fleet Generation Overview



Prototype

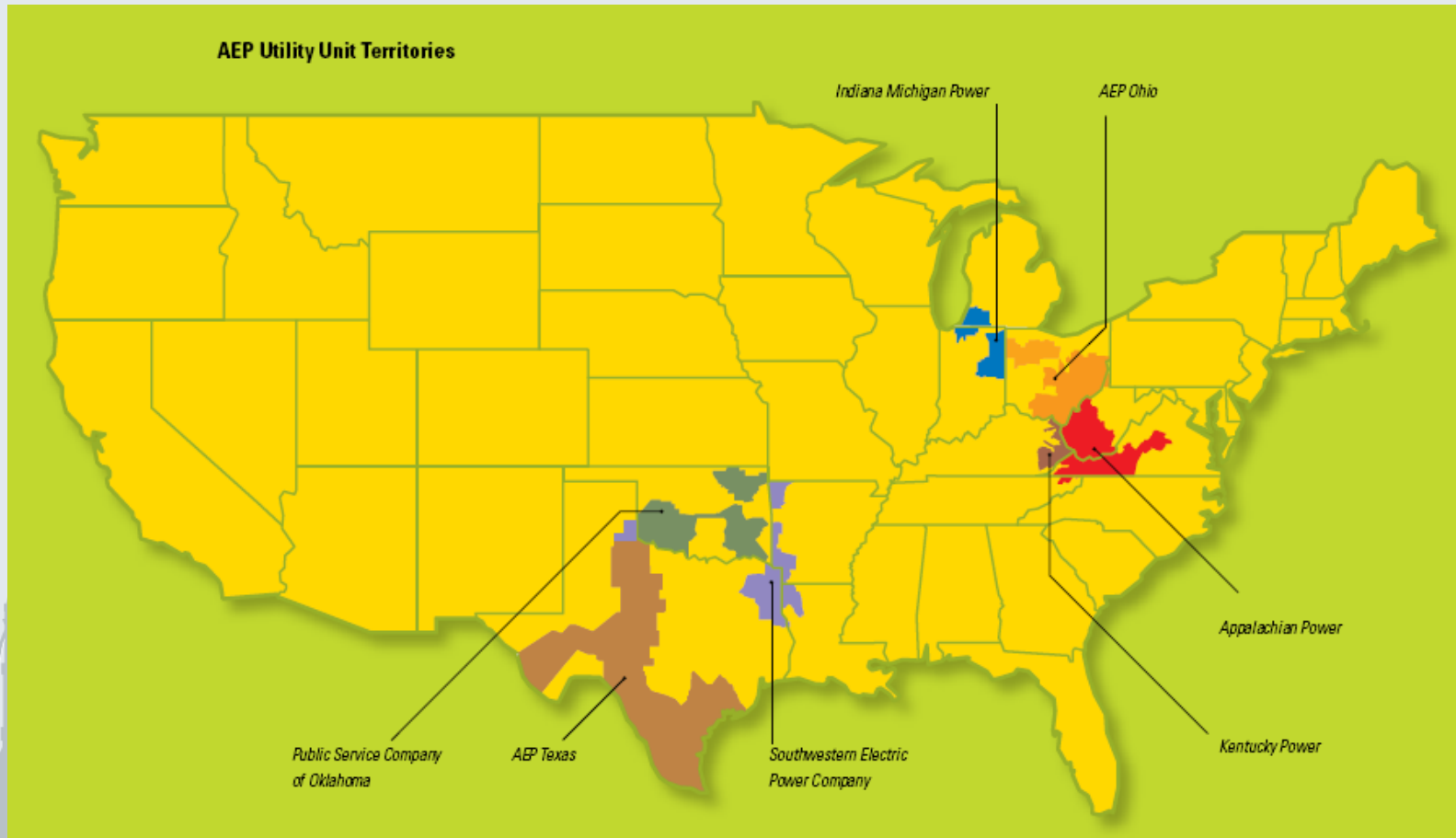
- **Real-time** Generation – COC Separated Information



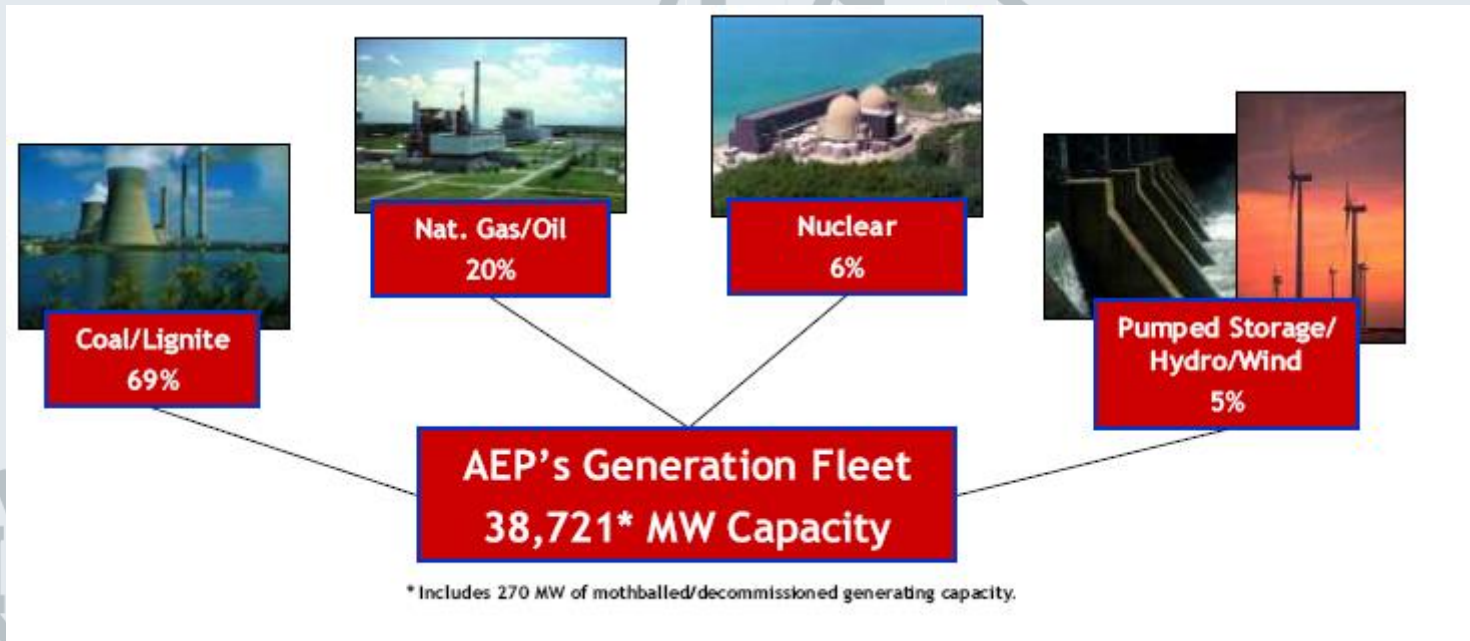


DOMINION SUMMARY

American Electric Power (AEP)

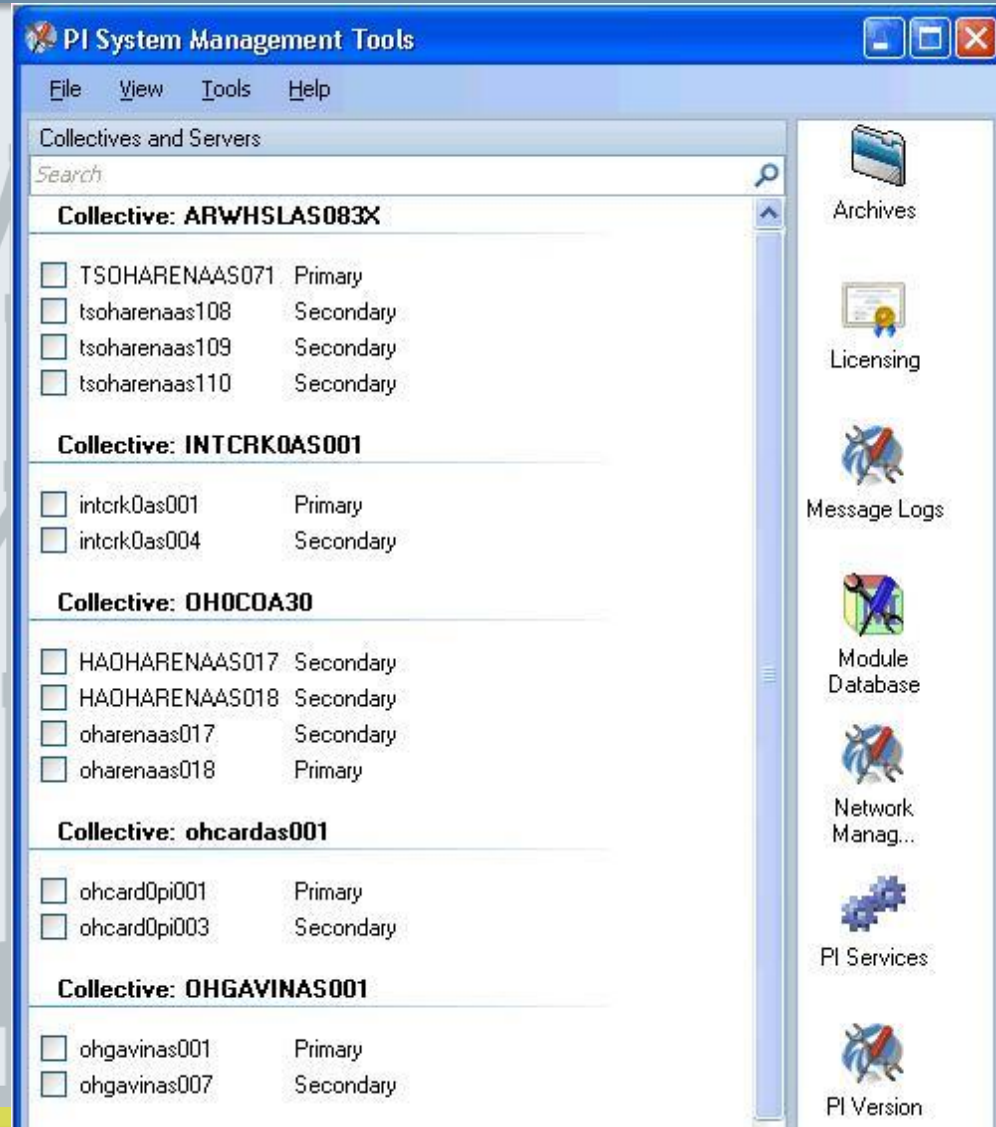


AEP's Generation Fleet



AEP's OSIsoft Footprint

- 53 PI servers
- 767,000 tags
- Using PI since 1993
- HA PI used heavily



The screenshot displays the 'PI System Management Tools' application window. The main pane shows a list of collectives and their associated servers. The interface includes a menu bar (File, View, Tools, Help), a search bar, and a right-hand sidebar with various tool icons.

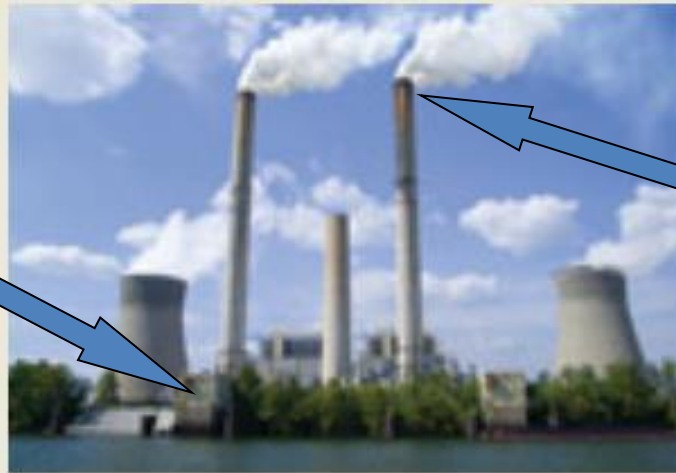
Collective	Server	Role
Collective: ARWHSLAS083X	<input type="checkbox"/> TSOHARENAAS071	Primary
	<input type="checkbox"/> tsoharenaas108	Secondary
	<input type="checkbox"/> tsoharenaas109	Secondary
	<input type="checkbox"/> tsoharenaas110	Secondary
Collective: INTCRK0AS001	<input type="checkbox"/> intcrk0as001	Primary
	<input type="checkbox"/> intcrk0as004	Secondary
Collective: OH0COA30	<input type="checkbox"/> HAOHARENAAS017	Secondary
	<input type="checkbox"/> HAOHARENAAS018	Secondary
	<input type="checkbox"/> oharenaas017	Secondary
	<input type="checkbox"/> oharenaas018	Primary
Collective: ohcardas001	<input type="checkbox"/> ohcard0pi001	Primary
	<input type="checkbox"/> ohcard0pi003	Secondary
Collective: OHGAVINAS001	<input type="checkbox"/> ohgavinas001	Primary
	<input type="checkbox"/> ohgavinas007	Secondary

Power Plant Dilemma

How does a control tech troubleshoot an environmental instrument when the device is 800 feet up the stack and the instrument is displayed on PI in the control room?

Control room

PI display

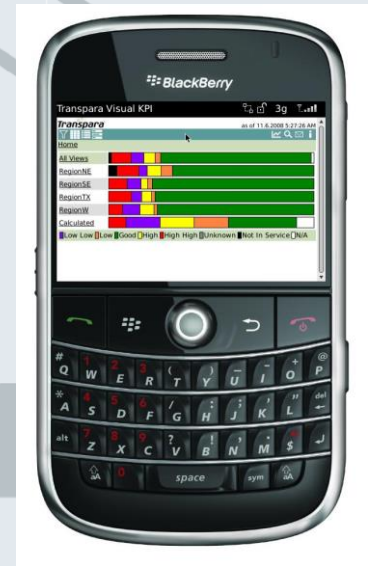


Instrument

Location

Plant Manager Envy

- Initially, power plants were slow to adopt Transpara PDA technology
- One plant developed a special display on unit operational KPIs for the manager to view from home.
- At a plant manager's meeting, when the SVP asked about a critical unit's startup status to meet load that morning, that manager had the right answer at the right time.
- The following week 3 more plants requested Transpara.
- And the word spread like wildfire.....

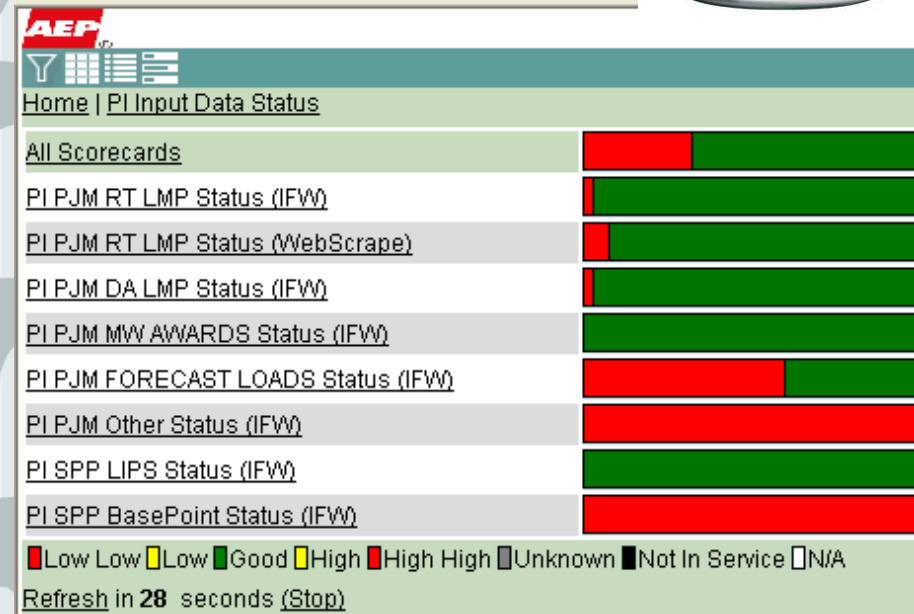
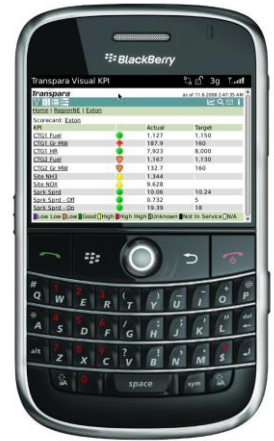


Monitoring Data Flows from the RTO's

- Data flows from RTO systems to internal AEP systems from once per day to once every 5 minutes.
- Data flow is monitored in a PI ProcessBook Display.
- Displayed in Transpara as a large flat panel display for office monitoring
- But is available via Blackberry when the flows fail in the evening and support staff is at home and need to troubleshoot the issue.

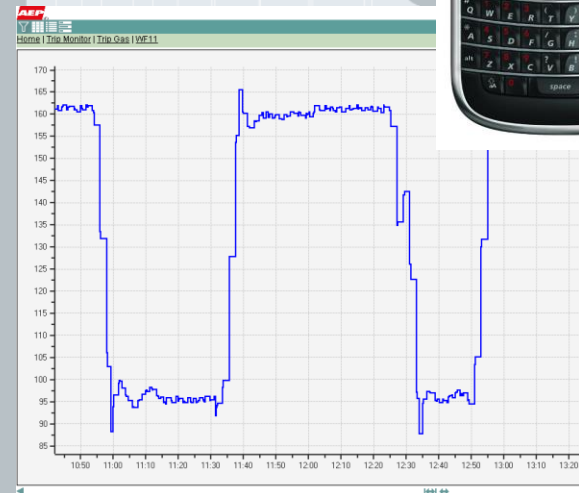
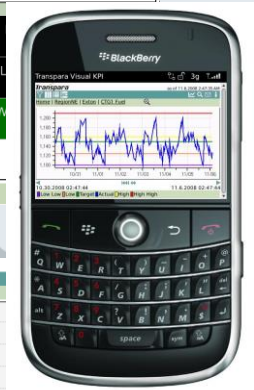
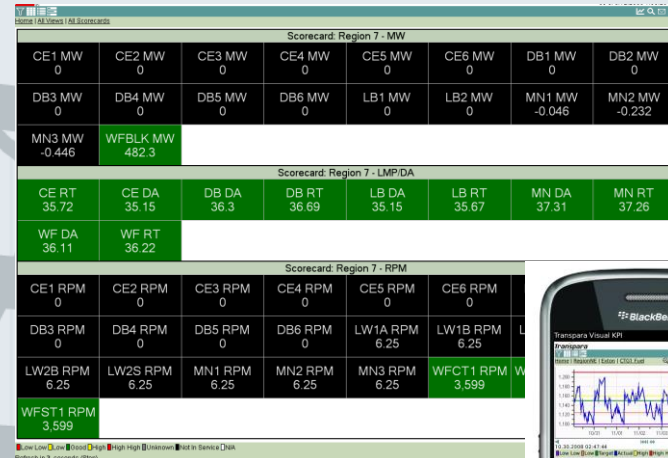
Corporate (OH0COA30 or OHARENAAS01)
Note: Report items in RED to 6900. Note: Items in YELLOW are informational only.

I/O Status Summary			
PI PJM Data Transfer			
PJM RT LMPs - Integration Named "LMPRealTime.eData.PI[RT]"			
PJMRTLMP_edatafeed_Status OK 3/11/2009 12:41:19 PM	30.22	3/11/2009 12:45:00 PM	
PJM DA LMPs - Integration Named "LMPDayAhead.eMarket.PI[DLY/HRLY]"			
PJMDALMP_Status OK 3/11/2009 11:56:19 AM	34.15	3/11/2009 12:00:00 PM	
PJM MW Awards - Integration Named "GenerationAwards.PBRK.PI[DLY]"			
TOTALPJMMWAWARD_Status OK 3/11/2009 11:56:19 AM	680	3/11/2009 12:00:00 PM	
PJM Regulation - Integration Named "RegulationResults.eMKT.PI[HRLY]"			
PJMRegulationRMCP_Status OK 3/11/2009 11:56:19 AM	15.56	3/11/2009 12:00:00 PM	
PJM Demand Awards - Integration Named "DemandAwards.PBRK.PI[DLY]"			
PJMDEMANDAWARDAEP_Status OK 3/11/2009 11:56:19 AM	13553	3/11/2009 12:00:00 PM	
GLF Forecast for Internal Load - Integration Named "LoadForecastPJM.UDR.PI[DLY]"			
GLF_Internal_Load_Forecast_AEP_Status OK 3/11/2009 11:56:19 AM	14294	3/11/2009 12:00:00 PM	



Monitoring AEP's Gas Turbine Fleet

- AEP has an extensive simple cycle and combined cycle gas turbine fleet, reporting to a Director in Fossil and Hydro Operations
- Many of these units are dispatched as the RTO requires, a lot of times in the early morning and late evenings.
- Transpara and unit pages permits the Director to stay up on the operational status of his fleet, in the office, at home, or when traveling.



One Display is All They Need Approach

- At one of AEP's largest plants, a 50" flat screen display hangs in the control room with many Transpara points displayed.
- The screen is designed to be all green if normal operations.
- At shift change, when the new team comes onsite, non green points become a subject of discussion at shift handoff.

as of 3.12.2009 2:48:47 PM

Home | Running Limits | All Scorecards

Scorecard: Steam

#1 AH TEMP	#2 AH TEMP	#3 AH TEMP	AVG AH TEMP	ECONLFT TEMP	ECONRHT TEMP	STMGEN WTRLOSS	FURNACE PRESS	BAA001 LSLF	BAA002 RSLF	BAA003 LSLF	BAA004 RSLF	BAA005 LSLF
BAA006 RSLF	BAA007 FMF	BAA008 FMF	BAA009 FMF	BAA010 RMF	BAA011 RMF	BAA012 RMF	BAA013 FF3rdP	BAA014 FF3rdP	BAA015 VVWEL	BAA016 WVER	BAA017 FAWW	BAA018 FAWW
BAA019 FWUF	BAA020 FWUF	BAA021 FWUF	BAA022 LSVRH	BAA023 RSVRH	BAA024 LSRHXO	BAA025 RSRHXO	BAA026 HRH	BAA027 HRH	BAA028 HRH	B&W Pwr Cl Alarm	B&W Pwr Cl Man	U#2 Gross Load

Scorecard: Electrical

T2IRD BFP3	T2IRD BFP4	T2BNB FFT1H	T2BNB FFT1V	T2BNB FFT2H	T2BNB FFT2V	SHAFT POS A	SHAFT POS B	SHAFT POS C	HP1H VIB	HP1V VIB	HP2AH VIB	HP2AV VIB
HP2H VIB	HP2V VIB	HP3AH VIB	HP3AV VIB	HP3H VIB	HP3V VIB	HP4H VIB	HP4V VIB	HP5H VIB	HP5V VIB	HP6H VIB	HP6V VIB	HP7H VIB
HP7V VIB	HP8H VIB	HP8V VIB	HPSHFT POS A	HPSHFT POS B	HPSHFT POS C	RH1H VIB	RH1V VIB	RH2AH VIB	RH2AV VIB	RH2H VIB	RH2V VIB	RH3AH VIB
RH3AV VIB	RH3H VIB	RH3V VIB	RH4H VIB	RH4V VIB	RH5H VIB	RH5V VIB	RH6H VIB	RH6V VIB	RH7H VIB	RH7V VIB	RH8H VIB	RH8V VIB
RHSHFT POS A	RHSHFT POS B	RHSHFT POS C	HPVAC Hot	HPVAC Cold	RHVAC Hot	RHVAC Cold	HP GEN DEVTMP	RH GEN DEVTMP	HP SP #1 TEMP	HP SP #2 TEMP	RH SP #1 TEMP	RH SP #2 TEMP
HPECOC %	RHEOC %	HPDE FRONT	HPDE REAR	RHDE FRONT	RHDE REAR	MINSTM TEMP 1	MINSTM TEMP 2	RHSTM TEMP 1	RHSTM TEMP 2	LPEXHD TMP A1	LPEXHD TMP A2	LPEXHD TMP A3
LPEXHD TMP A4	LPEXHD TMP B1	LPEXHD TMP B2	LPEXHD TMP B4	LPEXHD TMP B4	LPEXHD TMP C1	LPEXHD TMP C2	LPEXHD TMP C4	LPEXHD TMP C4	LPXOVR TMP A	LPXOVR TMP B	LPXOVR TMP D	HP Htr Leak
RH Inlet Flow Max	FPT Speed RPM	FP Valves % Open	MN STM Pres Limit	RH STM Pres Limit	FPT BDLO Flow	Cond Flow High	Htr Six Alt Drms	Chg H20 Frm Cooler				

Scorecard: Environmental

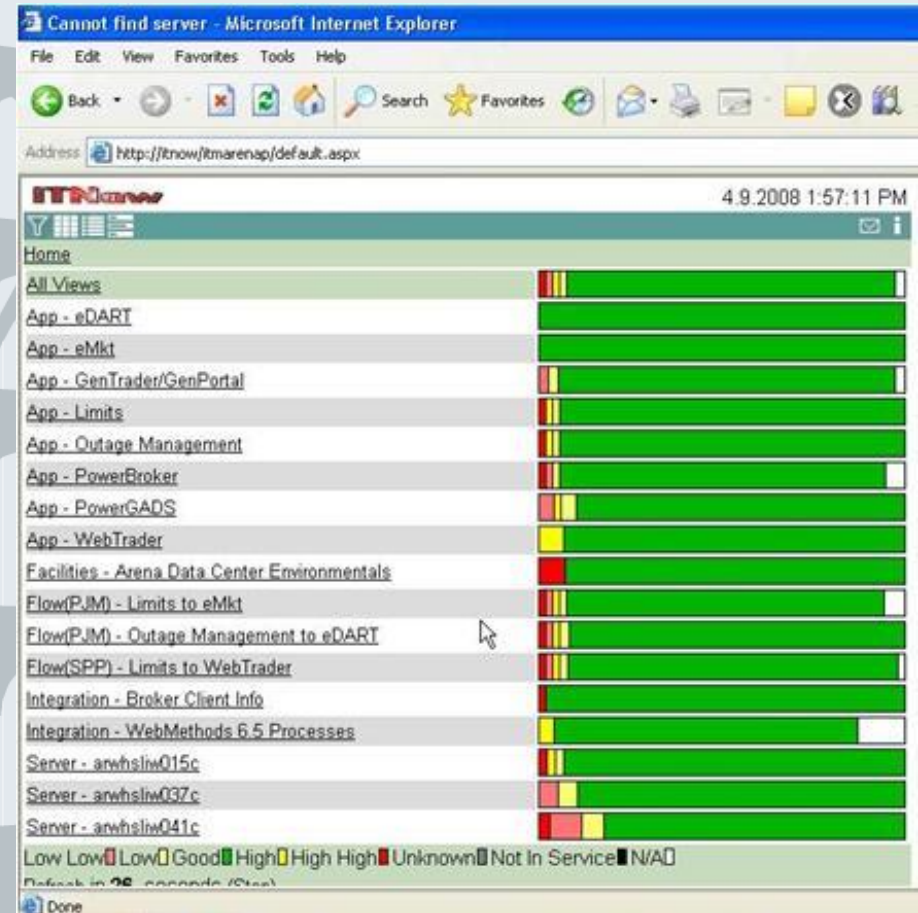
STACK OPACTY	UNIT#2 NOx	SO2 Right Lb/Hr	SO2 Right #MMBTU	SO2 Left Lb/Hr	SO2 Left #MMBTU
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■ Low ■ Low ■ Good ■ High ■ High High ■ Unknown ■ Not in Service ■ N/A
 Refresh in 50 seconds (Stop)

- With all points in one display, those off site just use one screen and scroll to the points in question.

Monitoring of IT Assets

- Standard metrics for IIS, ASP, .NET, SQL
- Targets and Limits around metrics derived from Technet
- Each KPI is linked back to the Technet reference document





AEP SUMMARY

Architecture



Data Sources



PI Historian

- Real-time Data
- Meta Data
- Equations

Any RDB / BI / OLAP

- Existing Data
- External KPIs
- Perf Point Server

Any LOB App

- Link to financials
- Planned values
- SAP, MRO, etc.



Visual KPI Excel Editor

- Excel 2003 or Excel 2007 with VSTO
- Configuration only, no run-time association or storage

Web Services

Publish Scorecards via Web Services

Web Services

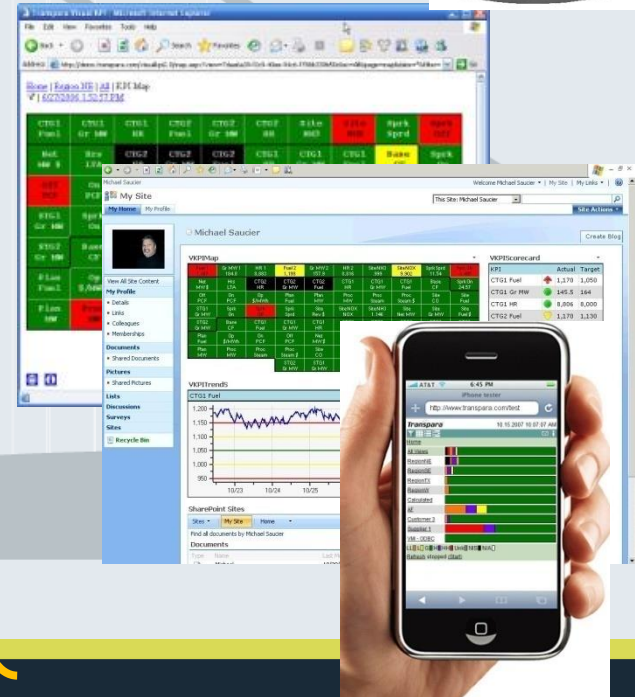


XML over HTTP

Visual KPI Server

- Composite KPI Engine
- All meta data in SQL 2005, 2008
- Windows Server 2003, 2008

Any Mobile or Desktop Client



Switch To Live Demo

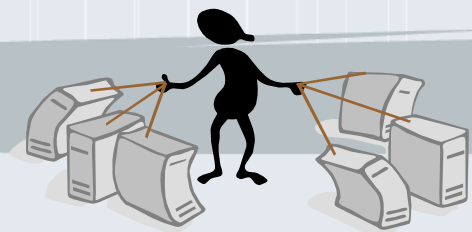




What this means to you



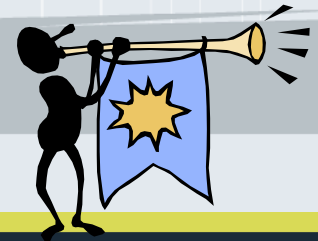
Guaranteed implementation



90 minutes
on your site
with your PI data



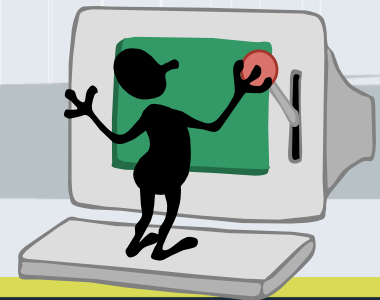
Special Offer for Today's UC Attendees



Free 90 day Pilot



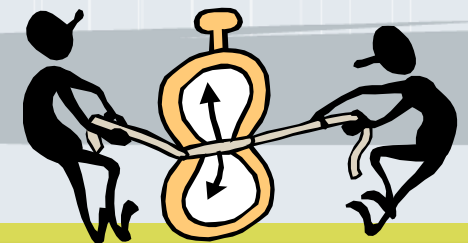
100% Installed



Hands-On Training



Working in 90 Minutes



The Java's On Us!



Contact Transpara at:

- E-mail: freepilot@Transpara.com
- Phone: 925-218-6983
- Offer Code: TR-UC09