



# Strategic Alliance

**Enrique Herrera**

Industry Market Development Manager  
Manufacturing Resources

**Christian Luckock**

Director of Enterprise Architecture  
Data Center & Critical Facilities

# What We Bring to the Table

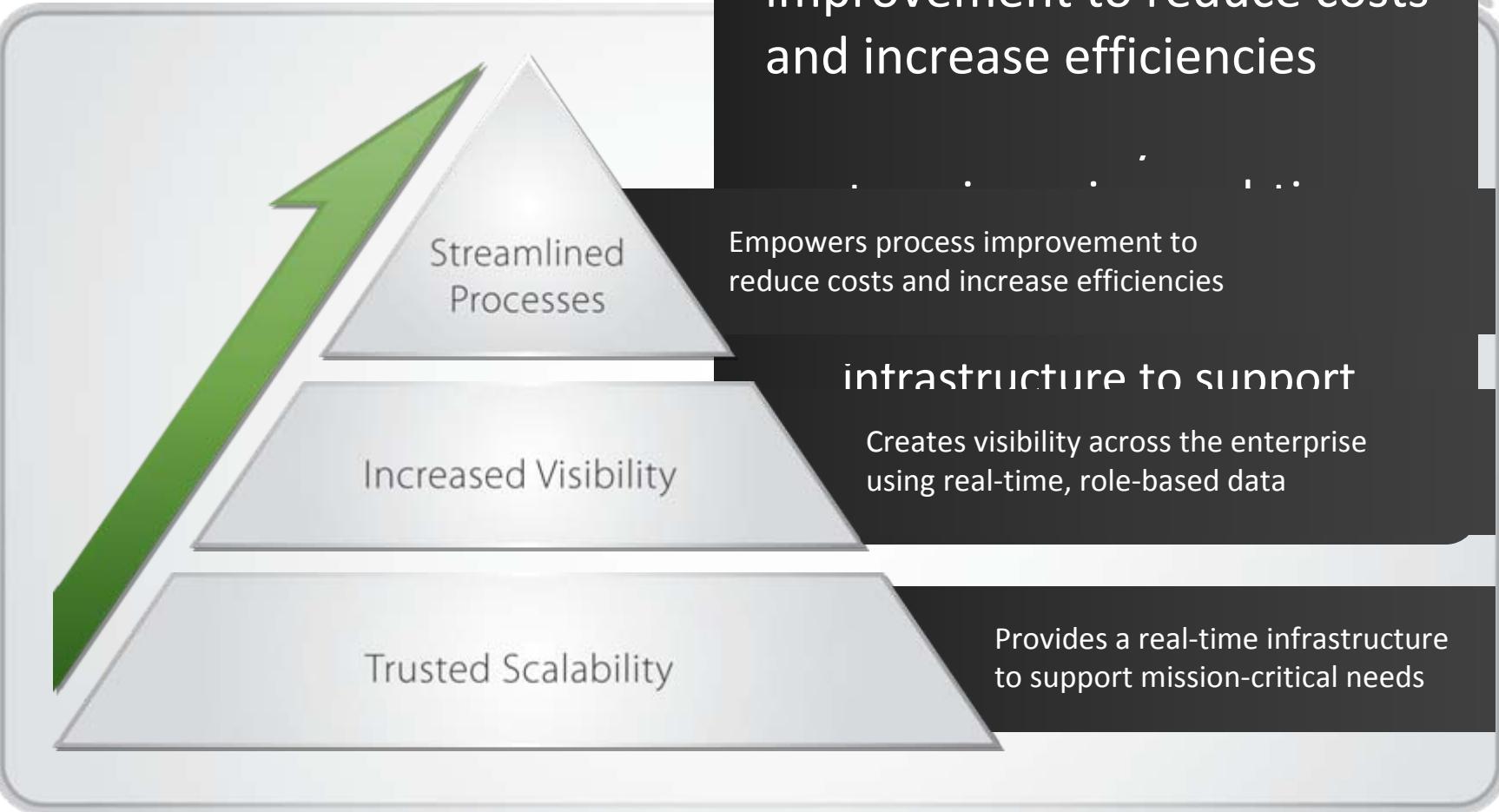
OSIsoft & Microsoft have forged a strong relationship  
to drive business value for joint customers



Provides operational visibility  
through real time data and event  
infrastructure.

Connects you with information to  
make informed business decisions  
via familiar tools.

# Our Vision



# Enterprise Technology Tools

- Platform for Integration and Collaboration
  - Microsoft Office SharePoint 2007
  - RtWeb Parts (PI Infrastructure)
- Business Intelligence
  - Microsoft SQL Reporting Services, PerformancePoint
  - DataLink for Excel Services
- Real-Time Notifications
  - Microsoft Unified Communications
  - PI Notifications

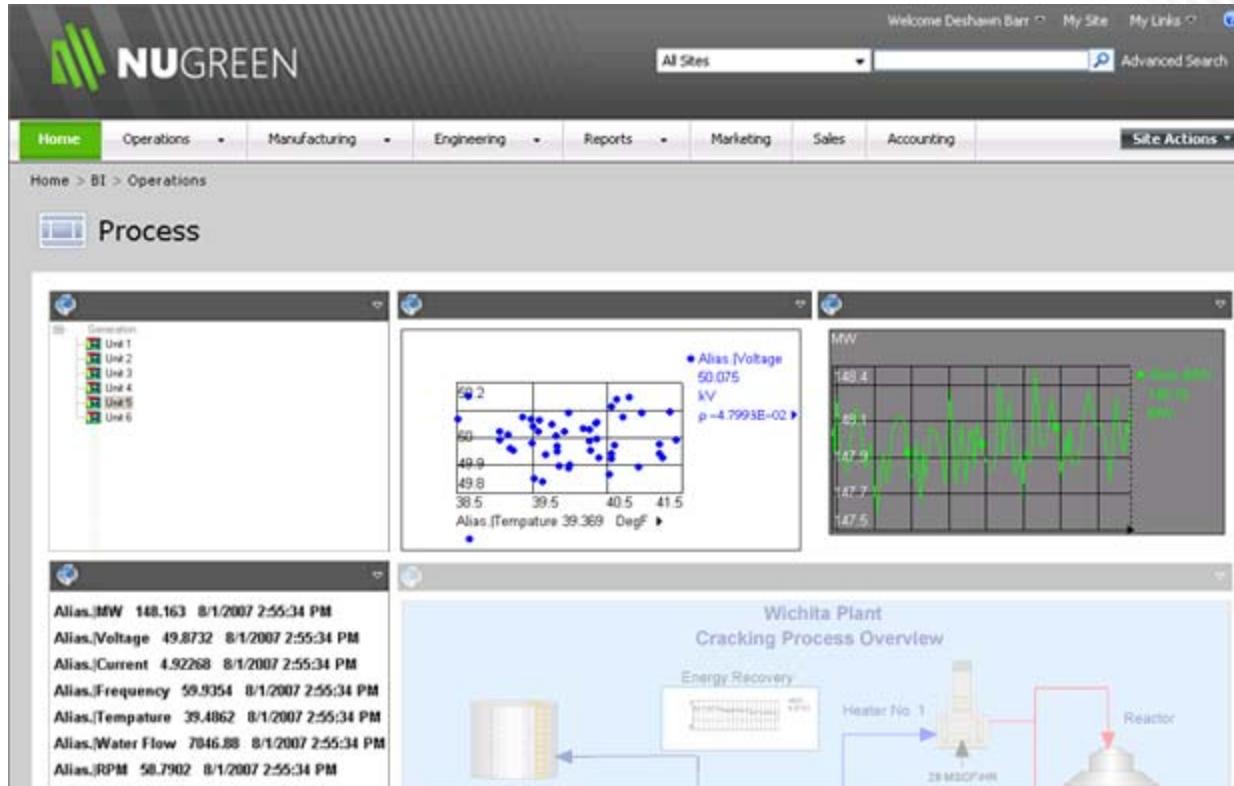


osisoft.

Microsoft

# ProcessBook Graphics

=> Real-time SharePoint 2007 Web Parts



# Technology Integration – MOSS 2007 Enterprise

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Home Operations Manufacturing Engineering Reports Marketing Sales Accounting Site Actions

### Production Schedule Worksheet

#### Cracking Production Schedule

Current Inventories		Today's Performance						
Raw Material	Product	Sales	Energy	Reliability	Quality			
Tons	Days	Tons	T/day	2%	95%	98%		
Houston	30,141	35.9	9,353	7.8	1200	0.5%	95.1%	97.4%
Tucson	30,166	47.1	8,136	8.1	1000	1.9%	96.0%	97.3%
Wichita	21,300	26.6	17,300	23.1	750	-0.3%	94.3%	94.3%

#### Process Overview

Wichita Plant Cracking Process Overview

18,262 TONS Product Inventory  
23,721 TONS Raw Material Inventory  
34 TONS/HR Feedrate  
29 MSCF/HR Fuel Gas Use  
23 MSCF/HR  
Heater No. 1  
Heater No. 2  
Reactor

#### PI Data Displayed Through Excel Services

Month	Little Rock	Tucson	Wichita
January	0.05%	0.00%	0.00%
February	0.10%	-0.05%	0.00%
March	0.15%	-0.10%	-0.10%
April	0.20%	-0.15%	-0.20%
May	0.25%	-0.20%	-0.25%
June	0.20%	-0.25%	-0.30%
July	0.25%	-0.10%	-0.15%
August	0.20%	-0.15%	-0.20%

# Technology Integration – Business Intelligence

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Support Team

Wichita Operations

- Fred Smith
- Carol Berger

Cracking Technology

- Deshawn Barr
- Wilson Adams

Production Logistics

- Carrie Frederickson

**Operations Performance Scorecard**

	Houston				Little Rock			
	To Date	Today	Target	Trend	To Date	Today	Target	Trend
Safety	0	0	Green	Up	0	0	Green	Up
Environment	97.1	97.0	Green	Up	99.0	98.6	Green	Up
Energy Savings	0.4%	0.4%	Yellow	Up	0.5%	0.7%	Yellow	Up
Quality	97.6	97.9	Green	Up	97.3	97.6	Green	Up
Reliability	95.7	96.4	Green	Up	95.6	96.3	Green	Up

**Production Schedule Worksheet**

Open Update

**Cracking Production Schedule**

	Current Inventories				Today's Performance		
	Raw Material Tons	Product Days	Sales T/day	Energy 2%	Reliability 95%	Quality 98%	
Houston	30,141	35.9	1200	0.5%	95.1%	97.4%	
Tucson	30,166	47.1	1000	1.9%	96.0%	97.3%	
Wichita	21,300	26.6	750	-0.3%	94.3%	94.3%	

**Process Overview**

**Wichita Plant Cracking Process Overview**

18,262 TONS Product Inventory

23,721 TONS Raw Material Inventory

34 TONS/HR Feedrate

29 MSCF/HR Fuel Gas Use

Energy Recovery

Heater No. 1

Reactor

Heater No. 2

**Energy Savings by Time**

Month	Houston	Little Rock	Tucson	Wichita
January	0.0%	0.0%	0.0%	0.0%
February	0.3%	0.1%	0.8%	0.0%
March	0.4%	0.5%	0.8%	-0.2%
April	0.5%	0.6%	1.7%	-0.3%
May	0.7%	0.7%	1.9%	0.0%
June	0.5%	0.6%	1.9%	0.0%
July	0.3%	0.5%	1.9%	-0.1%
August	0.4%	0.5%	1.9%	-0.1%

Microsoft SharePoint Server 2007 is the foundation

# Technology Integration – Communications Server

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Home Operations Manufacturing Engineering Reports Marketing Sales Accounting Site Actions

Home > BI > Operations > Wichita Plant

## Wichita Plant

**Selected Process**  
Wichita  
Cracking Plant  
Distilling Plant  
Extruding Plant

**Process Support Team**  
**Wichita Operations**  
Fred Smith  
Carol Berger  
**Cracking Technology**  
Deshawn Barr  
Wilson Adams  
**Production Logistics**  
Carrie Frederickson

Deshawn Barr - Conversation

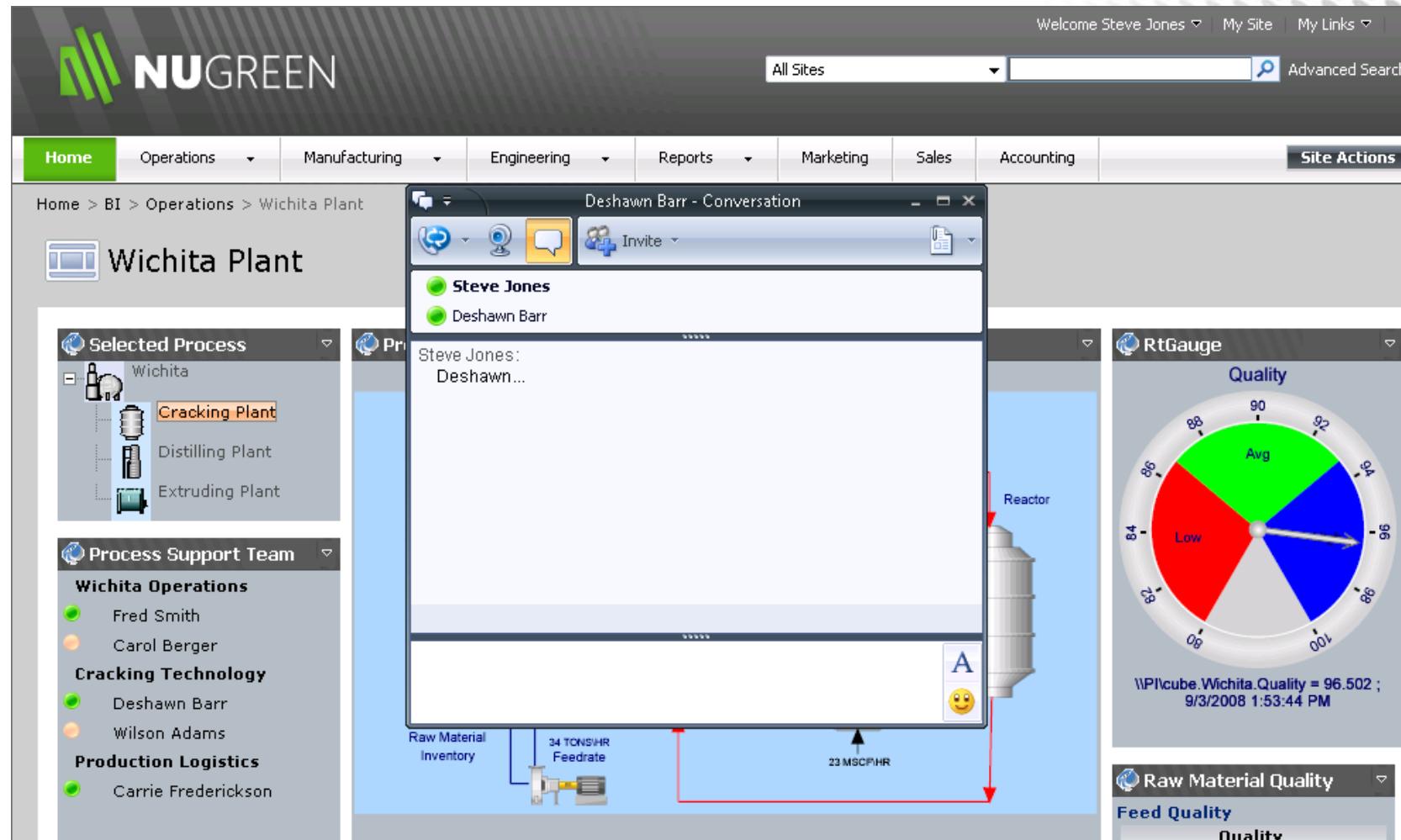
Steve Jones: Deshawn...

RtGauge Quality

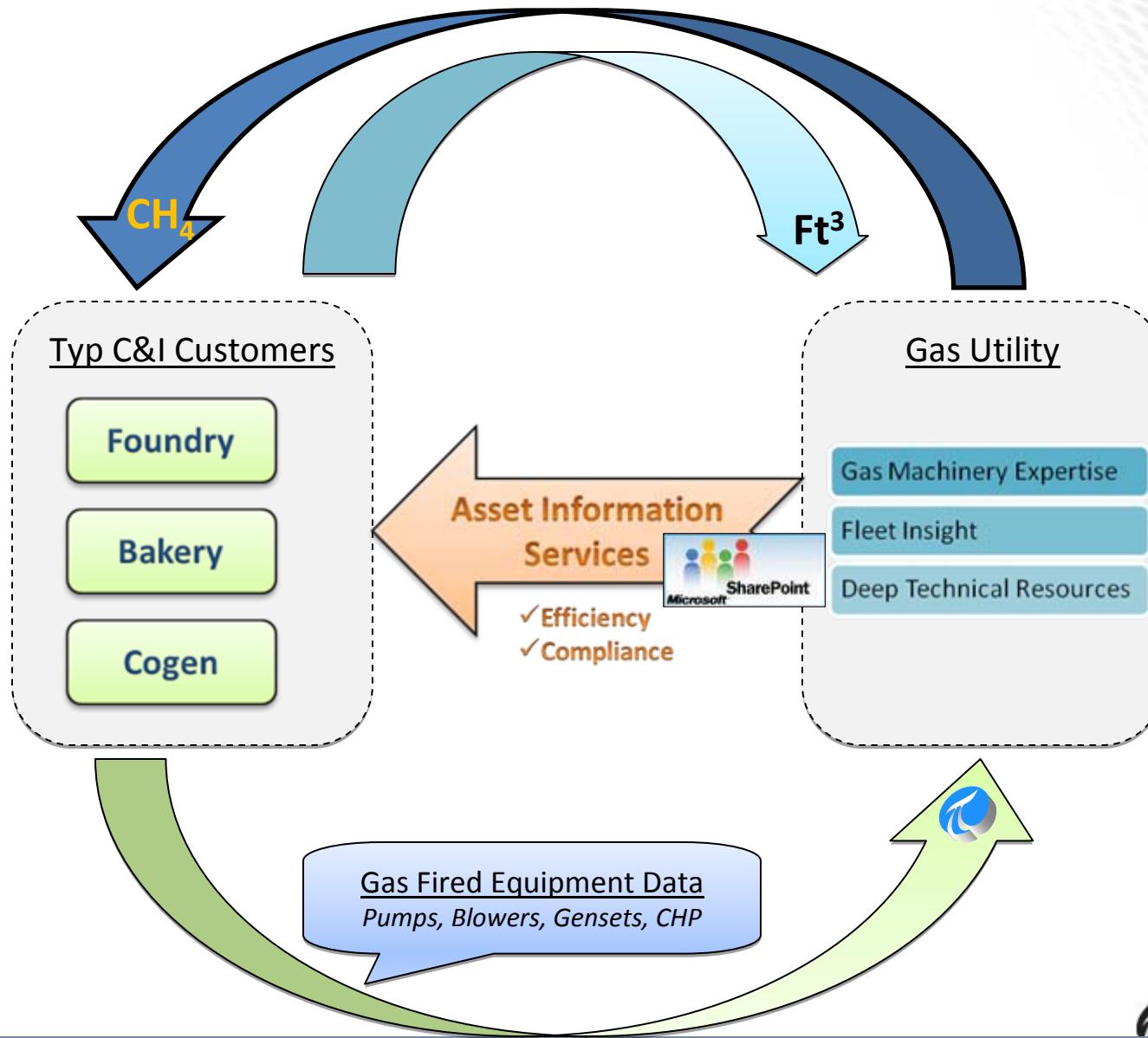
90  
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96.502 ; 9/3/2008 1:53:44 PM

Raw Material Quality Feed Quality Quality



# Asset Information Services – Gas Utility





*"We expect to see the solution support a 5 percent increase in our revenues. Given the more than billion-dollar size of our market, that could be a substantial revenue increase."*

Terry Burleson, Vice President,  
Downstream Energy Services, Nalco



## Process services firm aims to significantly boost profits for its customers

### *Customer Business Challenge*

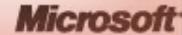
- Nalco used a manual and time-consuming data collection process at customer sites
- It wanted a real-time, automated solution
- Its goal: better customer support, satisfaction, and loyalty

### *Solution*

- To integrate the OSIsoft PI enterprise infrastructure with the Microsoft® application platform and its own systems
- Solution can securely upload customer data over the Internet for detailed analysis and reporting.

### *Customer Results/Benefits*

- Cuts time-to-market in half, provides new capabilities
- Contributes to double-digit revenue growth
- Meets customer needs better, faster



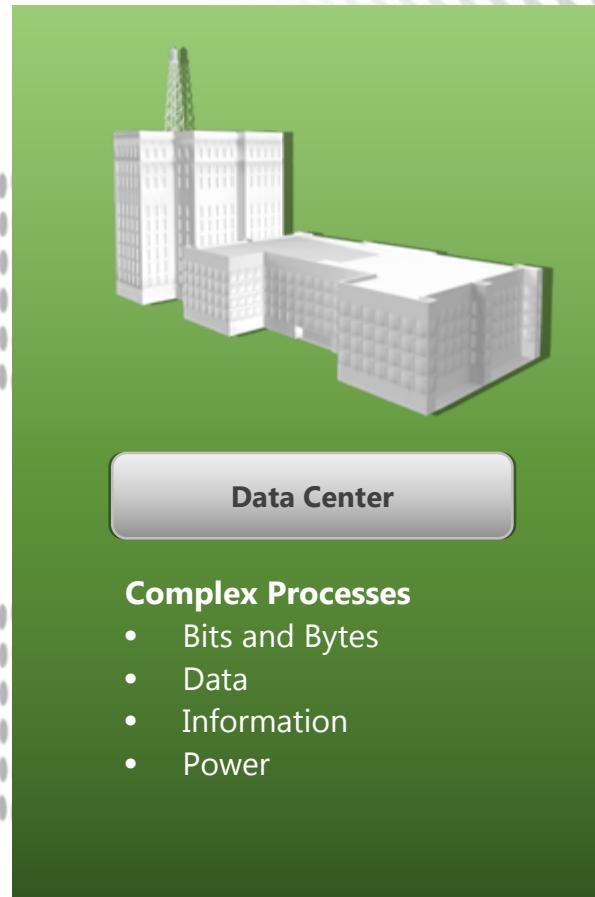
# The Data Center is a 21<sup>st</sup> Century Plant



Plants & Operational Facilities

## Complex Processes

- Pulp & Paper
- Oil & Gas
- Pharmaceuticals
- Power

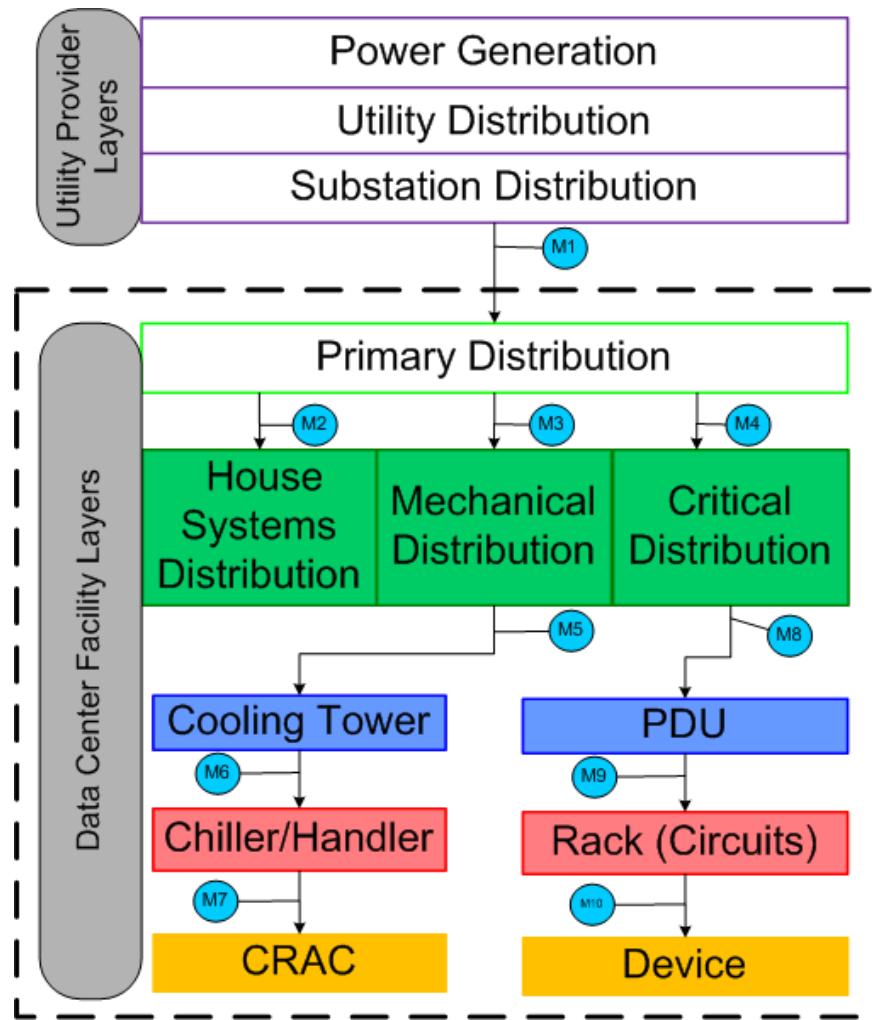


Data Center

## Complex Processes

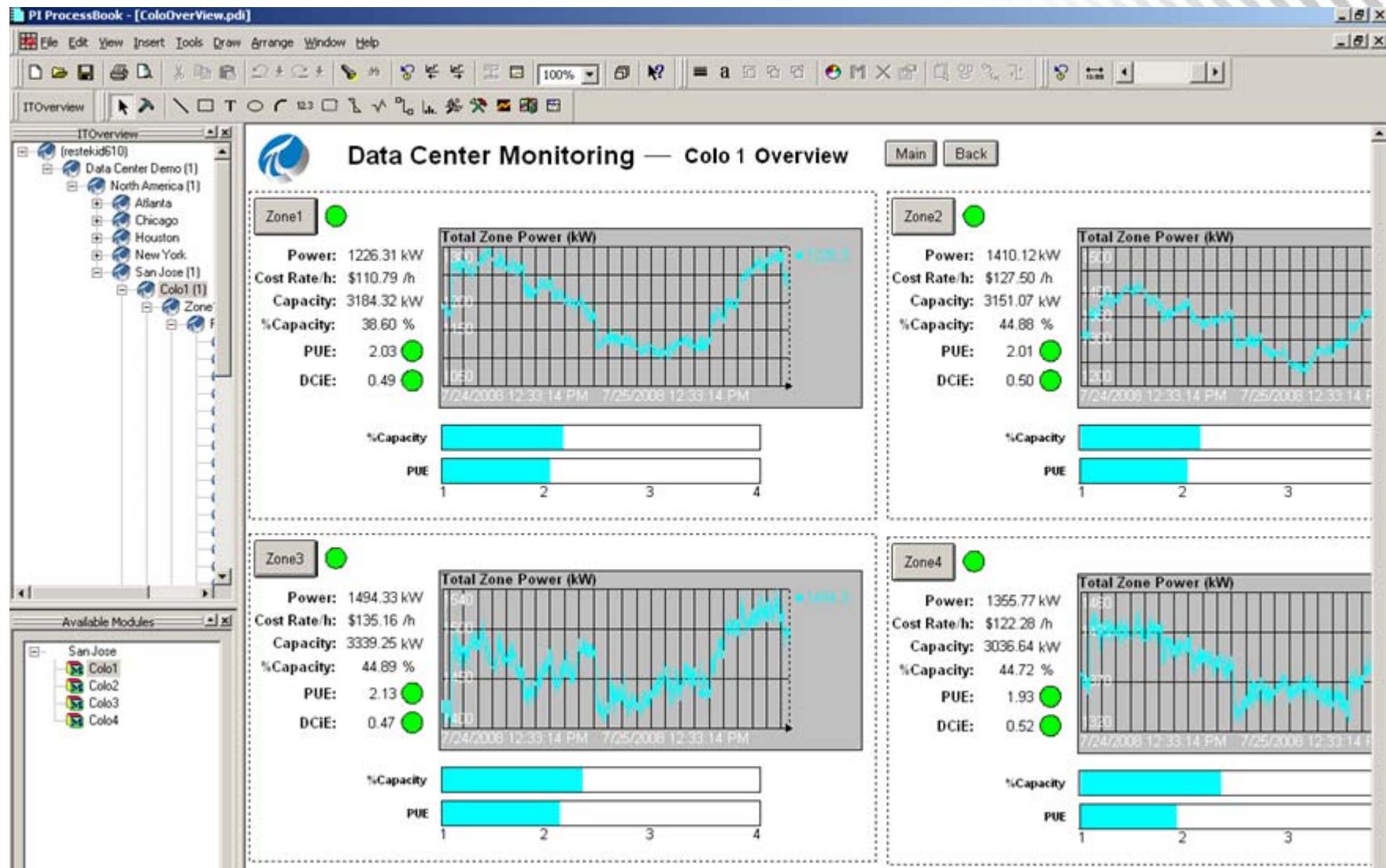
- Bits and Bytes
- Data
- Information
- Power

# Power Flow...



Measurement ID	Description
M1	Utility Provider Total Power Load Measurement
M2	Power Load for Non-critical systems (lighting, offices, etc.)
M3	Power Load for HVAC and Other Mechanical Systems
M4	Total Power Load for Devices and Other Critical Systems
M5	Cooling Tower Load
M6	Chiller, Air Handler Load
M7	CRAC Unit Load
M8	UPS Load Measurements
M9	Pole, Circuit and Rack Loads
M10	IT Asset

# Power Usage



# PDU Detail

**PI ProcessBook - [PDUOverview.pdi]**

File Edit View Insert Tools Draw Arrange Window Help

ITOverview ITOvewrview

**Data Center Monitoring — PDU Detailed View** Main Back

PDU 2 Power 39.70 kW 189.30 A

**Panel A**

Rack	Circuit	Power (W)	Current (A)	Rack	Circuit	Power (W)	Current (A)
1	1	1076.28	4.67 A	1	1071.98	4.67 A	2
2	3	996.10	5.13 A	4	991.81	5.13 A	2
3	5	971.35	4.66 A	6	982.06	4.59 A	3
4	7	1040.77	4.99 A	8	1021.48	4.92 A	4
5	9	1071.70	5.15 A	10	1067.41	5.15 A	5
6	11	976.74	5.04 A	12	987.45	4.90 A	6
7	13	1083.36	5.14 A	14	1049.07	5.00 A	7
8	15	980.48	5.04 A	16	991.18	4.89 A	8
9	17	1079.32	4.96 A	18	1075.03	4.75 A	9
10	19	1070.53	5.01 A	20	1066.24	4.94 A	10
11	21	1004.34	4.99 A	22	1000.05	4.91 A	11
12	23	1086.82	4.71 A	24	1052.52	4.64 A	12
13	25	1080.29	4.94 A	26	1075.99	4.72 A	13
14	27	980.24	4.66 A	28	990.95	4.59 A	14
15	29	265.44	4.74 A	30	1075.99	4.74 A	15
16	31	265.44	1.06 A	32	261.15	1.06 A	16
17	33	250.29	1.26 A	34	245.99	1.26 A	17
18	35	238.47	1.11 A	36	239.17	1.09 A	18
19	37	262.56	1.20 A	38	253.26	1.18 A	19
20	39	272.04	1.26 A	40	267.75	1.26 A	20

**Panel B**

Rack	Circuit	Power (W)	Current (A)	Rack	Circuit	Power (W)	Current (A)
21	1	285.34	1.10 A	2	281.04	1.10 A	21
22	3	250.18	1.22 A	4	245.89	1.22 A	22
23	5	239.08	1.08 A	6	239.79	1.06 A	23
24	7	269.15	1.24 A	8	259.86	1.22 A	24
25	9	281.51	1.30 A	10	277.22	1.30 A	25
26	11	0.00	0.00 A	12	0.00	0.00 A	26
27	13	0.00	0.00 A	14	0.00	0.00 A	27
28	15	0.00	0.00 A	16	0.00	0.00 A	28
29	17	0.00	0.00 A	18	0.00	0.00 A	29
30	19	0.00	0.00 A	20	0.00	0.00 A	30
31	21	0.00	0.00 A	22	0.00	0.00 A	31
32	23	0.00	0.00 A	24	0.00	0.00 A	32
33	25	0.00	0.00 A	26	0.00	0.00 A	33
34	27	0.00	0.00 A	28	0.00	0.00 A	34
35	29	0.00	0.00 A	30	0.00	0.00 A	35
36	31	0.00	0.00 A	32	0.00	0.00 A	36
37	33	0.00	0.00 A	34	0.00	0.00 A	37
38	35	0.00	0.00 A	36	0.00	0.00 A	38
39	37	0.00	0.00 A	38	0.00	0.00 A	39
40	39	0.00	0.00 A	40	0.00	0.00 A	40

**Panel A power (in Watts)**

**PDU 2 power (in kW)**

**Panel B power (in Watts)**

\restekid610\DSL\_MCN\Site Map\Data Center Demo\North America\San Jose\Colo1\PDU1\PDU2

Ready



Microsoft

# UPS Detail

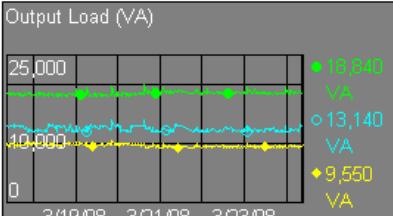
**APC UPS: Symmetra Bldg1**

Main Back 

Model: <b>Symmetra 80K</b>	Phase 1 Output Load%: <b>69</b>	Basic Battery Status: <b>Normal</b>
Basic Output Status: <b>online</b>	Phase 2 Output Load%: <b>49</b>	Battery Run Time Remaining: <b>Over Range</b>
Reason for Last Transfer to UPS: <b>selfTest</b>	Phase 3 Output Load%: <b>36</b>	Battery Replace Indicator: <b>noBatteryNeedsReplacing</b>
Total Output Load %: <b>70</b>	Output Current: <b>12 Amps</b>	Battery Last Replace Date: <b>05/11/07</b>
SwitchGearStatus: <b>OK</b>	Output Voltage: <b>121 Volts</b>	Battery Voltage: <b>218 Volts</b>
	Output Frequency: <b>60 Hz</b>	Battery Temperature: <b>31 F</b>

**Trends**

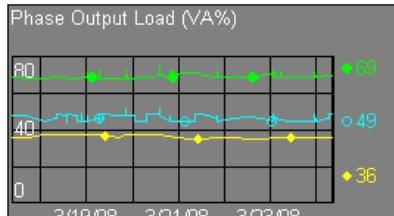
**Output Load (VA)**



25,000  
10,000  
0

3/19/08 3/21/08 3/23/08

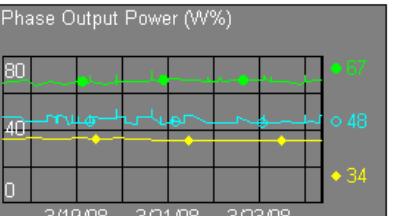
**Phase Output Load (VA%)**



80  
40  
0

3/19/08 3/21/08 3/23/08

**Phase Output Power (W%)**



80  
40  
0

3/19/08 3/21/08 3/23/08

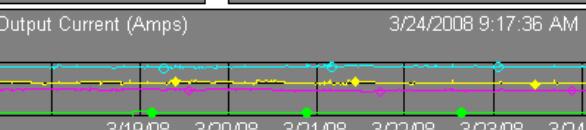
**Input Current (Amps)**



140  
0

3/19/08 3/21/08 3/23/08

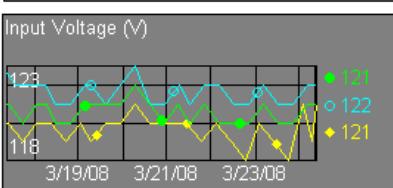
**Output Current (Amps)**



140  
0

3/19/08 3/20/08 3/21/08 3/22/08 3/23/08 3/24/08

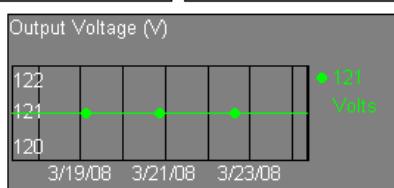
**Input Voltage (V)**



123  
122  
121  
118

3/19/08 3/21/08 3/23/08

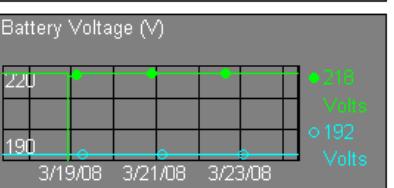
**Output Voltage (V)**



122  
121  
120

3/19/08 3/21/08 3/23/08

**Battery Voltage (V)**



220  
218  
216  
190

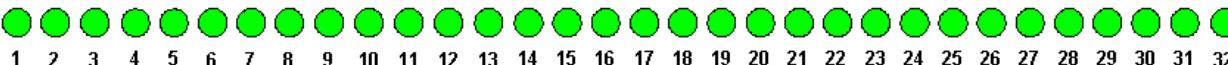
3/19/08 3/21/08 3/23/08

**Switchgear Status**

SwitchGear Input Switch Status: **closed**    SwitchGear Output Switch Status: **closed**    SwitchGearBypassSwitchStatus: **opened**

**Battery Status**

Number of Battery Packs: **32**



1 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 32

**Legend**

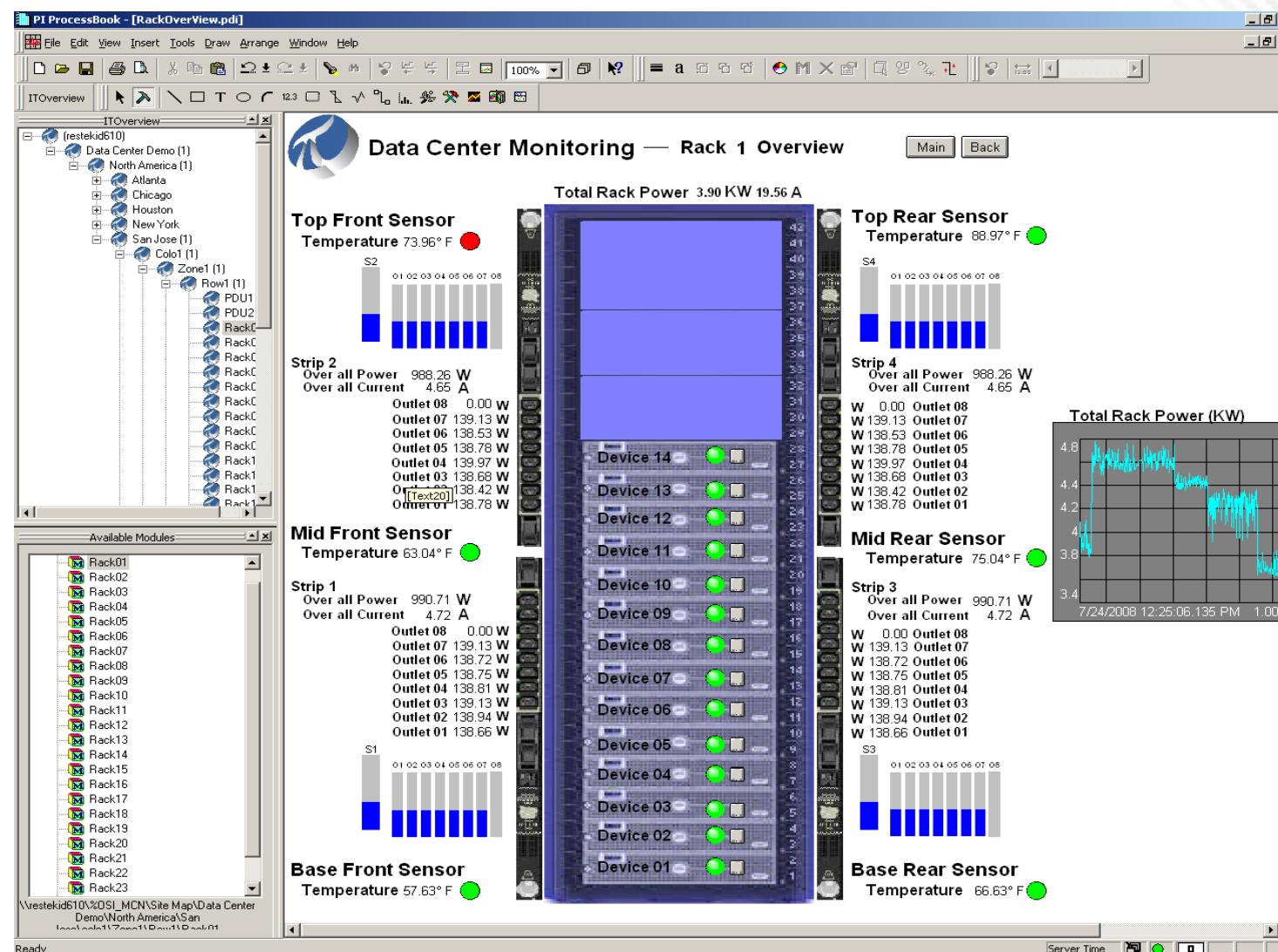
- Not Configured
- Unknown
- Not Installed
- OK
- Failed
- High Temperature
- Replace Immediately
- Low Capacity



OSIsoft.

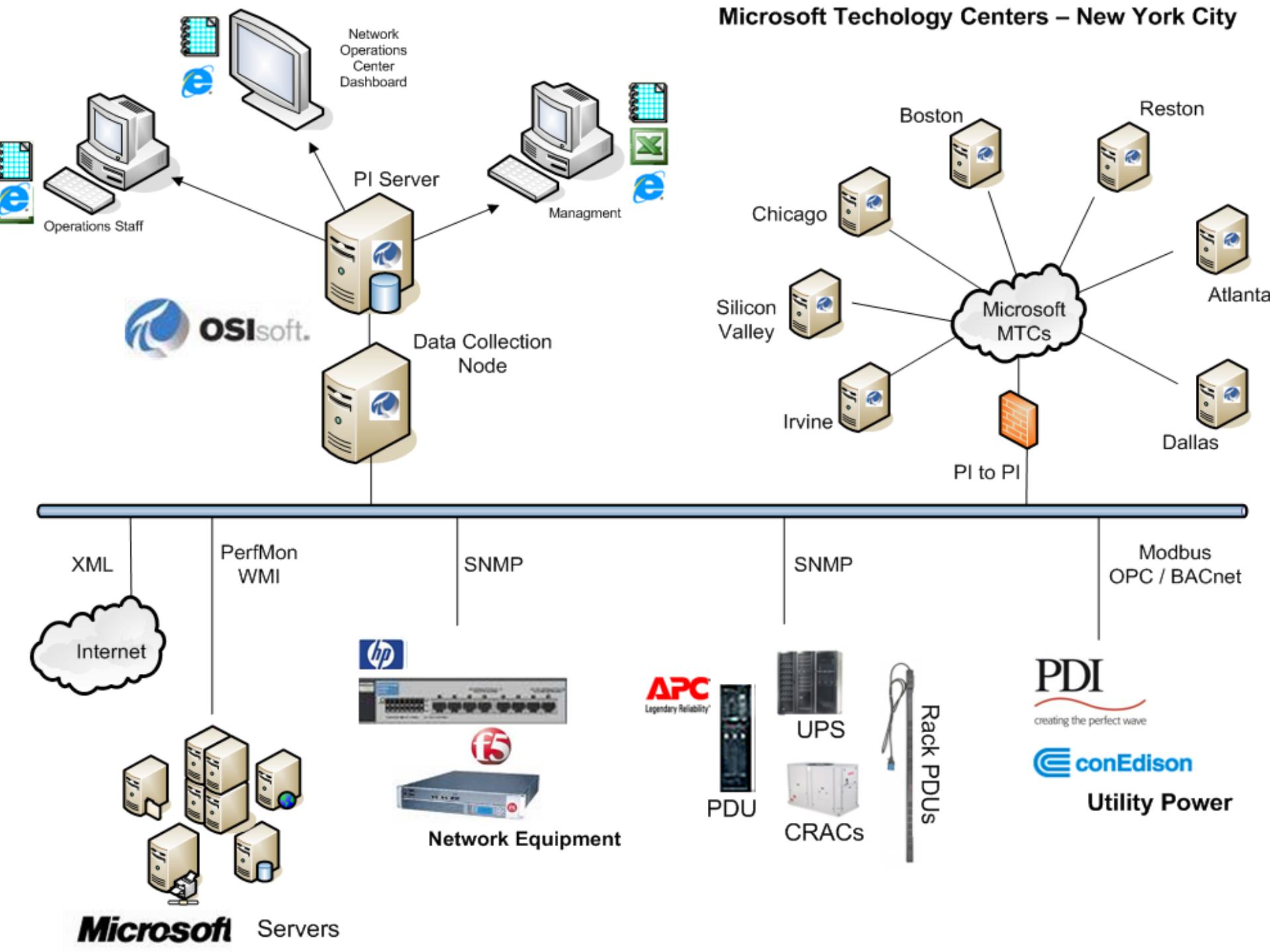
Microsoft

## Rack Detail



- Power
  - Temperature
  - Humidity
  - Capacity

# Microsoft Technology Centers – New York City





### North America KPIs

**PUE****Monthly Power****Monthly Cost****Monthly Emissions**

= 1.7999 ; 3/29/2009 10:37:00 PM

= 1985.3 ; 3/29/2009 10:37:00 PM

= 310.86 ; 3/29/2009 10:37:00 PM

= 0.7718 ; 3/29/2009 10:37:00 PM

### Tree View

- North America
  - Atlanta
  - Boston
  - Chicago
  - Dallas
  - Irvine
  - New York
  - Reston
  - Silicon Valley

### MTCs

#### Microsoft Technology Centers

#### North America



**Displays - New York - Microsoft Internet Explorer**

File Edit View Favorites Tools Help

Back Search Favorites Address http://10.7.102.222/sites/OSIHome/Displays/NewYork.aspx Go

## New York

### New York PKIs

Current IT Load = 41.5 ; 3/29/2009 10:39:00 PM

Current Total IT load = 74.699 ; 3/29/2009 10:39:00 PM

PUE = 1.7999 ; 3/29/2009 10:39:00 PM

Monthly Cost = 311.45 ; 3/29/2009 10:39:00 PM

Monthly Emission = 0.7732 ; 3/29/2009 10:39:00 PM

### Tree View

- New York
  - APC Products
    - CRACs
      - 192.168.1.15
      - 192.168.1.16
    - PDUs
      - 192.168.1.17
    - Racks
      - Rack 1
      - Rack 10
      - Rack 11
      - Rack 12 Short
      - Rack 12 Tall
      - Rack 13 Short
      - Rack 13 Tall
      - Rack 14
      - Rack 2
      - Rack 3
      - Rack 4
      - Rack 5

### New York Data Center

#### Messages [1]

#### APC UPS: THORC456

<b>APC UPS</b>	<b>Model:</b> Symmetra 80K <b>Basic Output Status:</b> online	<b>Phase 1 Output Load%:</b> 63 <b>Phase 2 Output Load%:</b> 62 <b>Phase 3 Output Load%:</b> 59	<b>Basic Battery Status:</b> Normal Over Range noBatteryNeedsReplacing	<b>Battery Run Time Remaining:</b> 05:23:07
<b>selfTest</b>		<b>Output Current:</b> 125 Amps	<b>Battery Replace Indicator:</b>	
<b>Total Output Load %:</b> 64		<b>Output Voltage:</b> 121 Volts	<b>Battery Last Replace Date:</b>	
<b>SwitchGearStatus:</b> OK		<b>Output Frequency:</b> 60 Hz	<b>Battery Voltage:</b>	218 Volts
			<b>Battery Temperature:</b>	32 C
<b>Trends</b>				
<b>Switchgear Status</b>	<b>SwitchGear Input Switch Status:</b> closed	<b>SwitchGear Output Switch Status:</b> closed	<b>SwitchGear Bypass Switch Status:</b> opened	

# Microsoft on PI in the Data Center

**“We are using the OSIsoft PI System to monitor all the critical points within our data centers, and in turn are laying the foundation for a high-availability, global Live infrastructure,”**

**“The return on investment is tremendous. We are enabling innovation through increased collaboration, social networking and commerce—leading to breakthroughs in software plus services. We are setting industry standards with increased utilization of facility resources, real time business continuity, and green computing technologies. As we continue to expand our Live services, the combination of OSIsoft and Microsoft technologies are bringing new levels of performance and reliability to our world-class data centers.”**



**osisoft.**

**Microsoft**



**OSI**soft®

***Microsoft***®