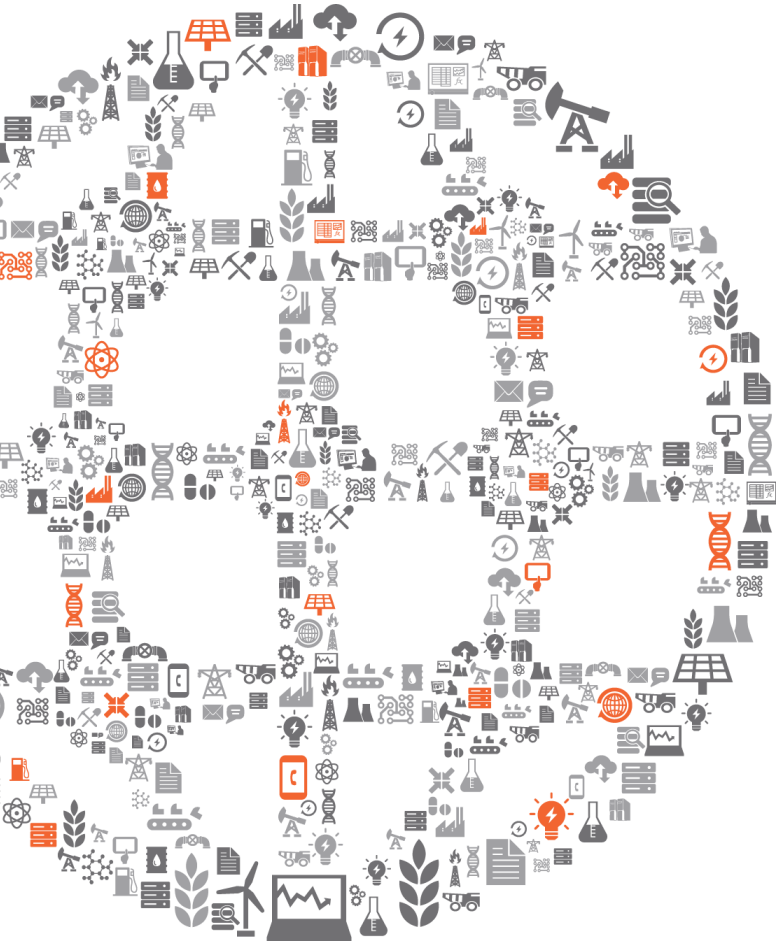


Historian to Infrastructure

Presented by **Adam Taqui**

Vice President – Latin America

Devices generate data constantly

Geophysical Exploration

Medical Imaging

Smart Grids

And connectivity is growing

Mobile devices

Social Media

In 2000 years, the world generated approximately two exabytes of new information:

2,000,000,000,000,000,000

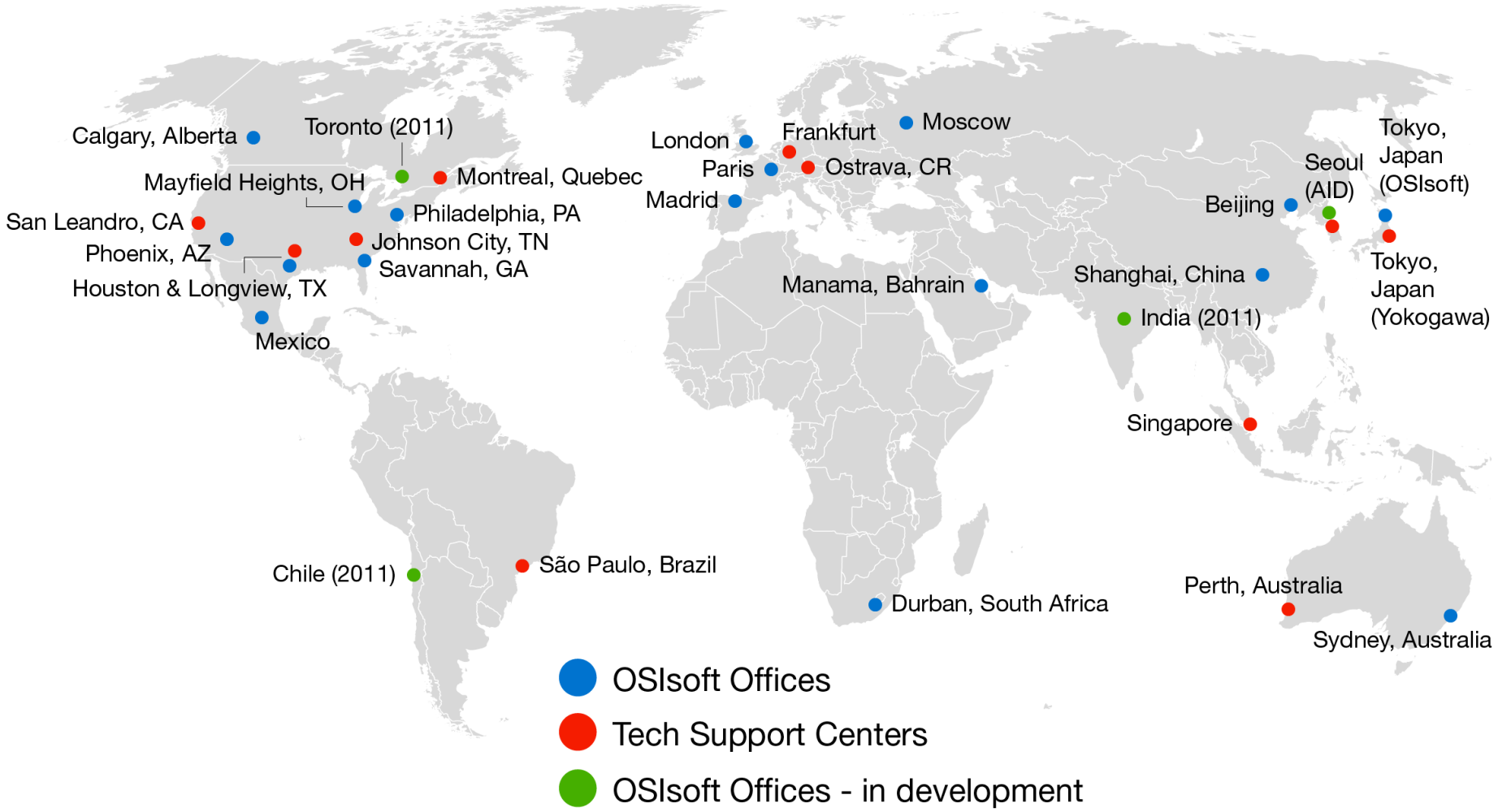
It now generates that much data in

1 day

Fact Sheet

- **Corporate – Founded 1980, Private**
  - Dr. J. P. Kennedy, Founder and CEO
- **Employees – 900**
  - Engineering – 200 Cust. Support - 290
  - Sales & Mkt – 220 Operations - 135
- **Sales**
  - $ 270 MM (FYE 2012)
  - 60% of annual revenue with Energy Companies around the globe
- **Geography**
  - Doing business in 110 + countries
  - 26 offices in 16 countries.
- **The business we are in…**
  - Enterprise Wide Infrastructure for Streaming Data & Events
- **Installed Base**
  - 16, 000 + Active System licenses (excluding OEM)
  - Siemens, GE, ABB, Emerson , Schneider Electric, Rockwell, Kongsberg, Yokogawa, IHS
- **Strategic Partners**
  - Microsoft, IBM, Cisco, SAP, ESRI,Accenture

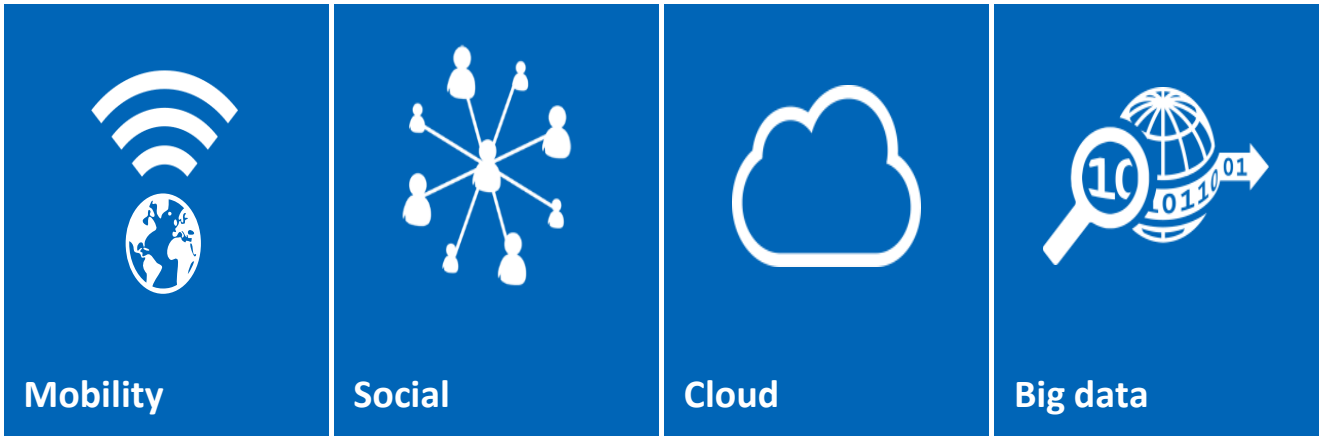
Worldwide Presence of OSIsoft





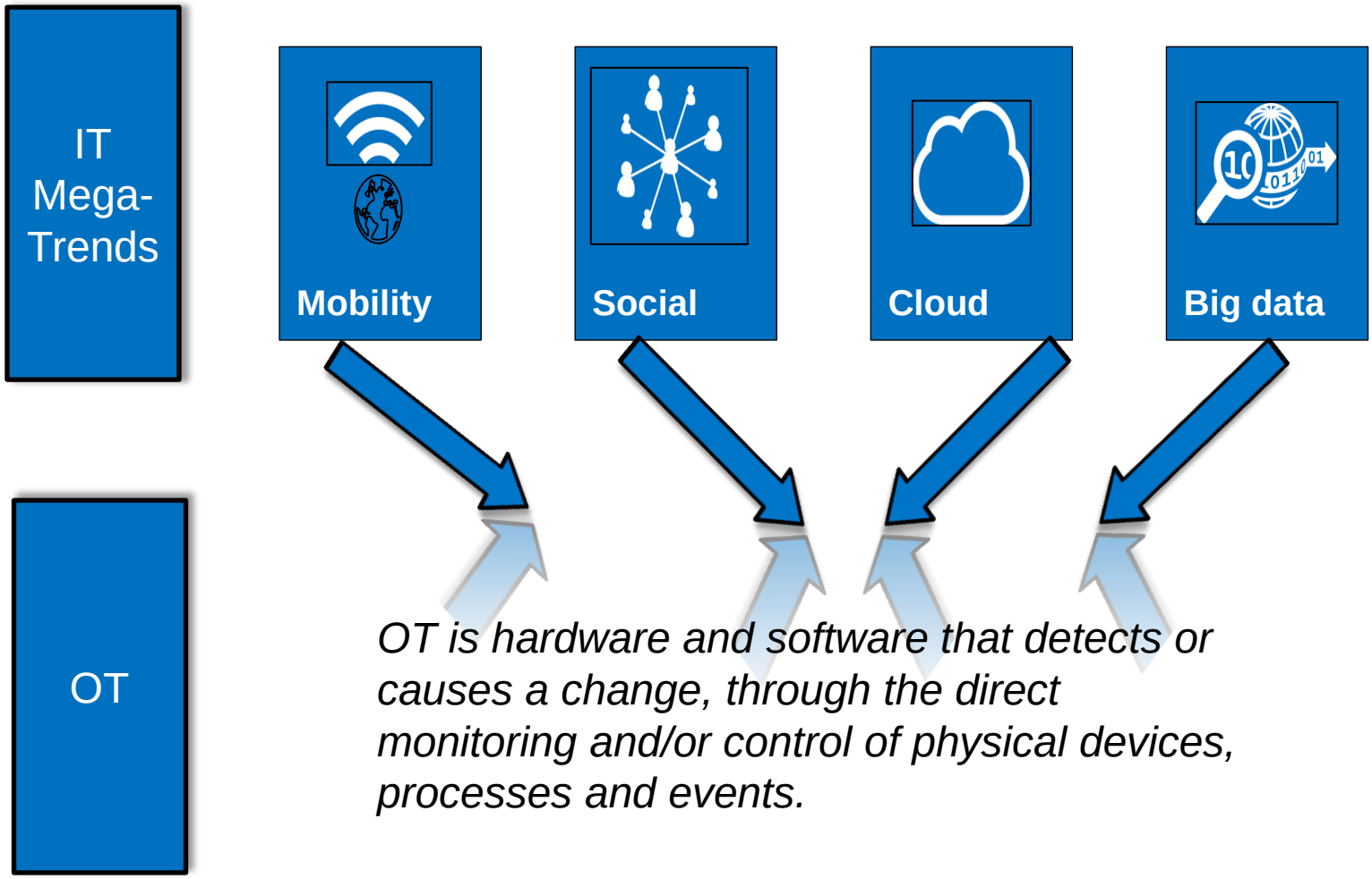



Technology trends accelerating business Excellence



> Social connections, mobility, cloud delivery and pervasive information are converging in a powerful way. This convergence is creating a new era of computing and new opportunities for business.
>
> *– Gartner, August 2012*

IT Mega Trends…How does OT adapt?



OT is hardware and software that detects or causes a change, through the direct monitoring and/or control of physical devices, processes and events.

Real- Time Infrastructure for the Enterprise….

Integrated IT and OT Governance Is a Critical Success Factor

Goal: Overcome Silos — Build a Connected Enterprise

Build sound foundations

Adopt these best practices

- Ensure it's governance of information and processes primarily, not chiefly of technology
- Accept architecture variations between technologies but create integrated planning
- Alternate chairmanship of key steering groups between IT, OT and other stakeholders to build trust and shared outcomes

Gartner

Maintenance: A Strategic Road Map

Financial/Risk Optimized

Reliability-Centered Maintenance

Predictive Forecasting

Based on Condition

Preventive — Planned on Usage

Preventive — Planned on Time

Run to Failure

OT

OT

OT

ERP

EAM

Business Drivers: Tactical to Strategic

IT Systems: Silo to Integrated

Gartner

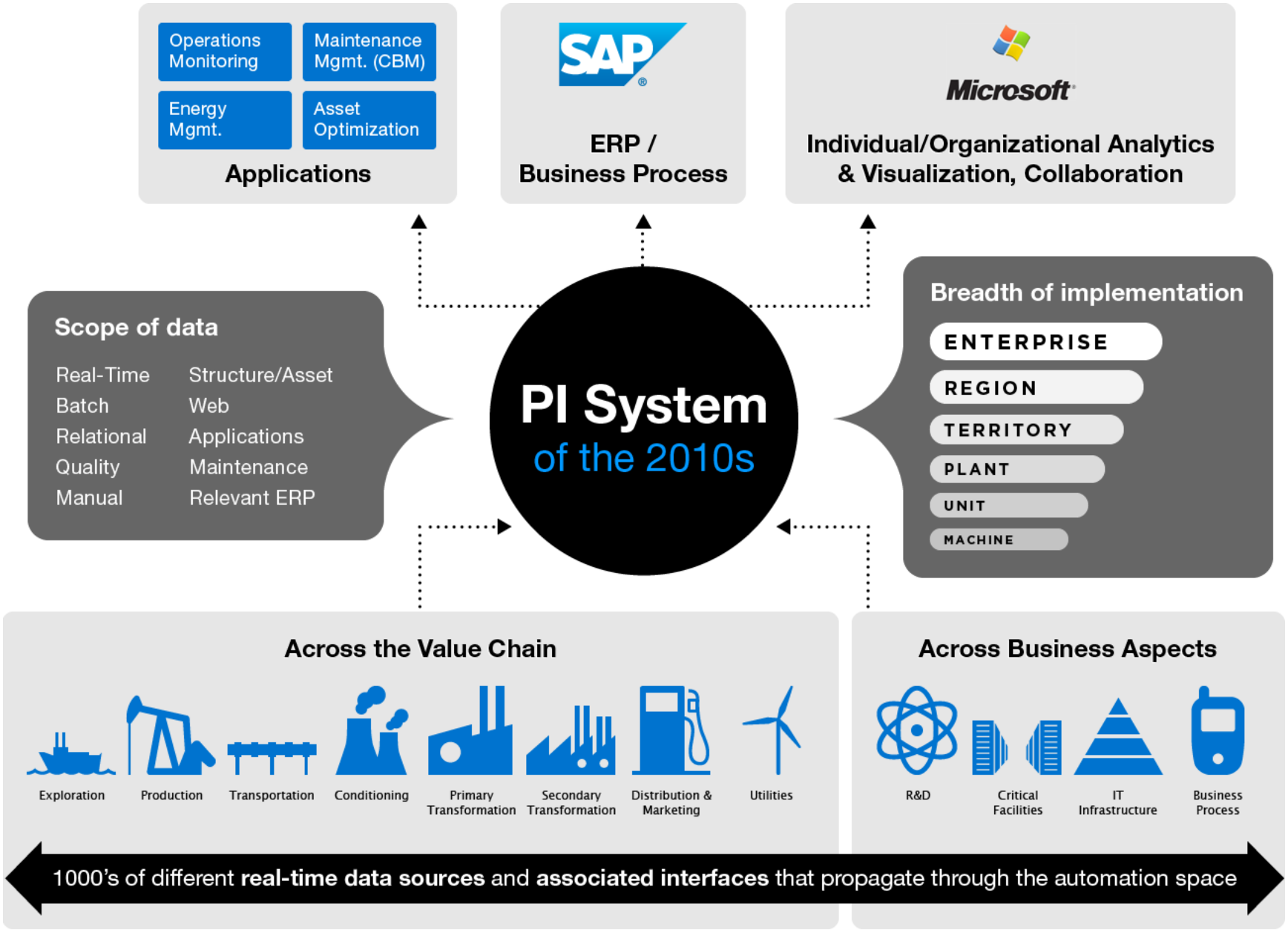
Technology requirements…The road towards Operation Excellence looks a lot like an infrastructure

Electrical Power

Communications

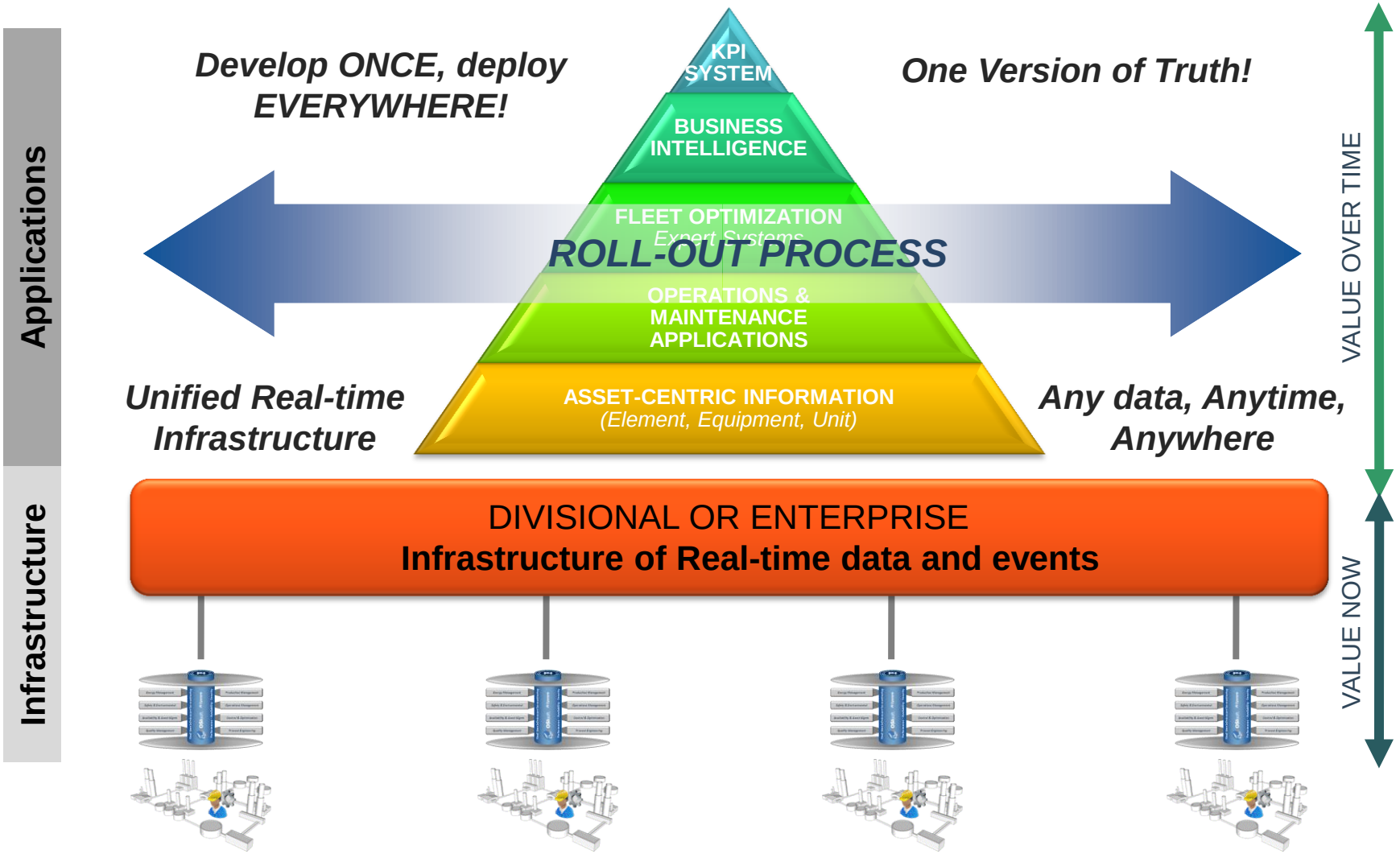
Transportation

- **Valuable** – delivers a recognized benefit
- **Reliable and Secure** – always available, safe and trusted
- **Accessible** – adaptable to innovation, easy to use
- **Contextual** - organized to be effective, efficient, and extendable
- **Sustainable** – must be able to last and adapt to change



Infrastructure, to harness the Power of Data

Implementing Strategic Initiatives on Enterprise Scale



Power of Data Use Case

Centralized Monitoring and Diagnostic Center

A Technology Center ensures that the Production Fleet operates at peak performance with the highest possible availability in-line with the business and market requirements

– A place where BorsodChem knowledge, experience and skills are concentrated to optimize Operations and Maintenance

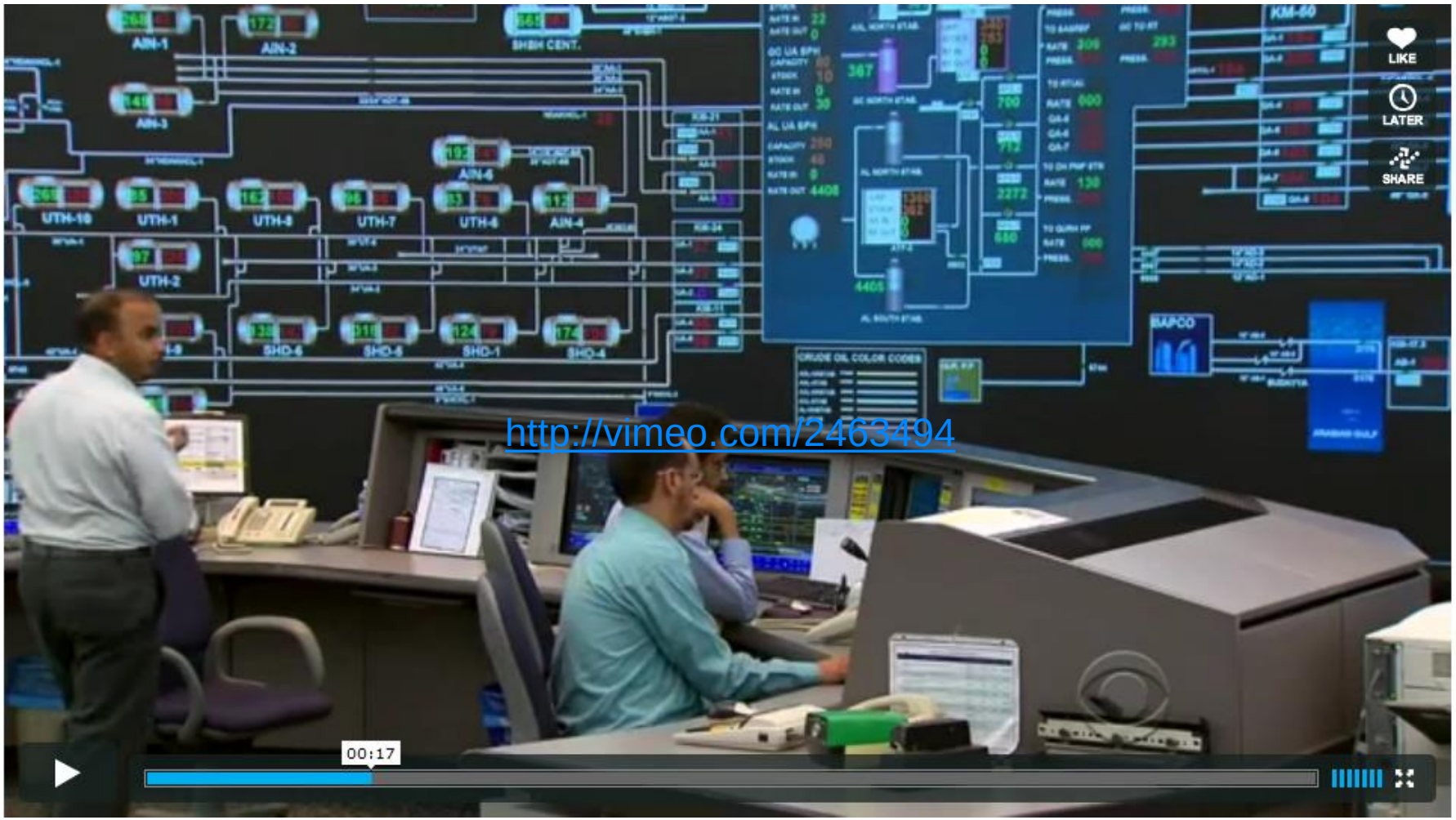
– ***Functions:***
  - Operation & Maintenance monitoring and reliability tracking
  - Diagnosis of the key plant parameters (performance and condition monitoring)
  - Detection of malfunctions before they lead to trips and serious faults in the plant (avoiding catastrophic failure)
  - Archive and retrieval of M&D and O&M data
  - Generation of reports on performance and incidents
  - Carrying out of O&M recommendations

Spain-Red Electrica- *"Real-time Grid Monitoring for a country"*

CORESO – " Real-Time Monitoring for a group of Countries"

UK, France, Germany, Belgium, Netherlands, and Italy

Saudi Aramco Command & Control Room



Power of Data -Big Engine Data

10,000 engines

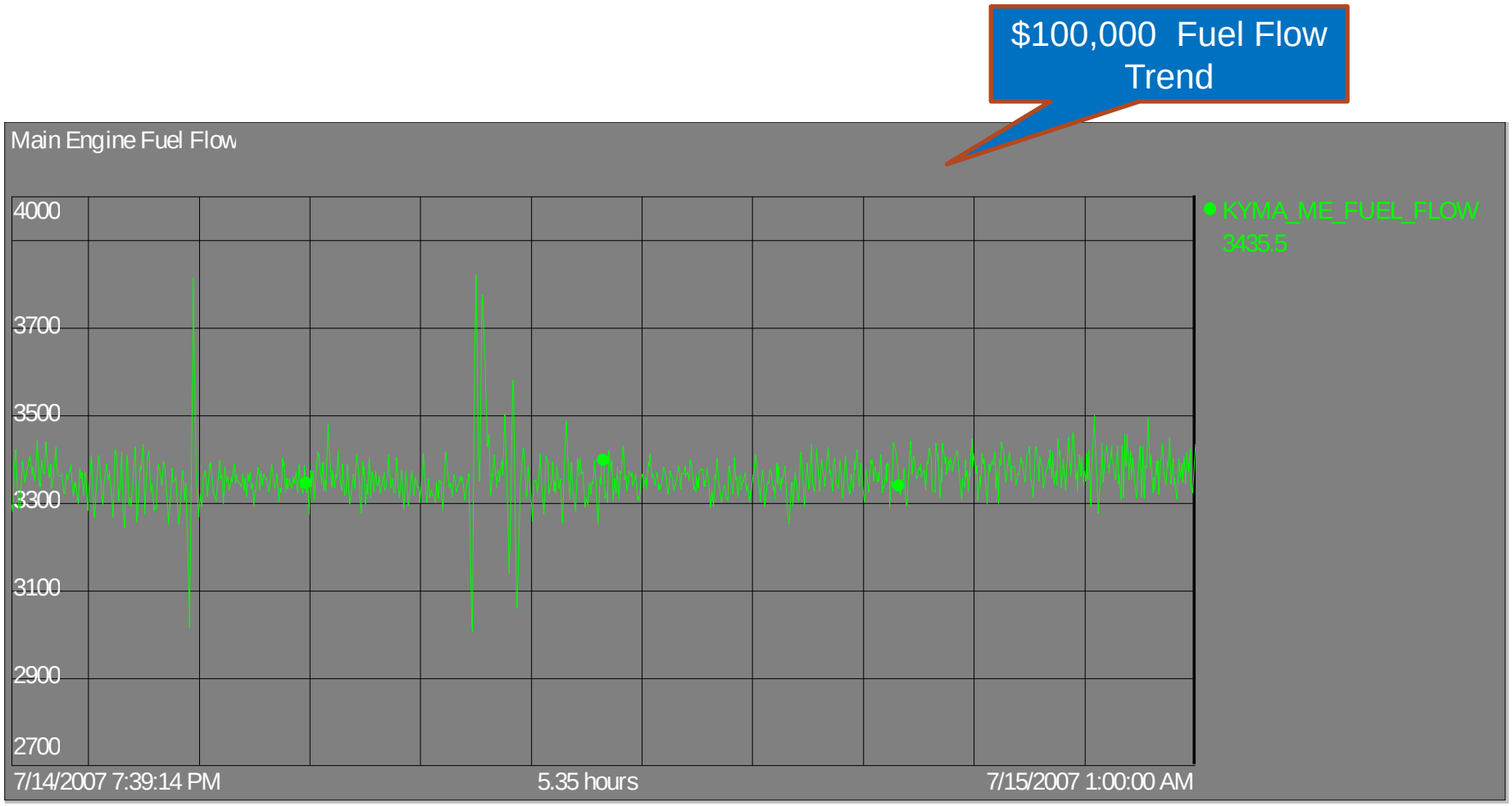
250 measurements/second/engine

168 Gigabytes/hour

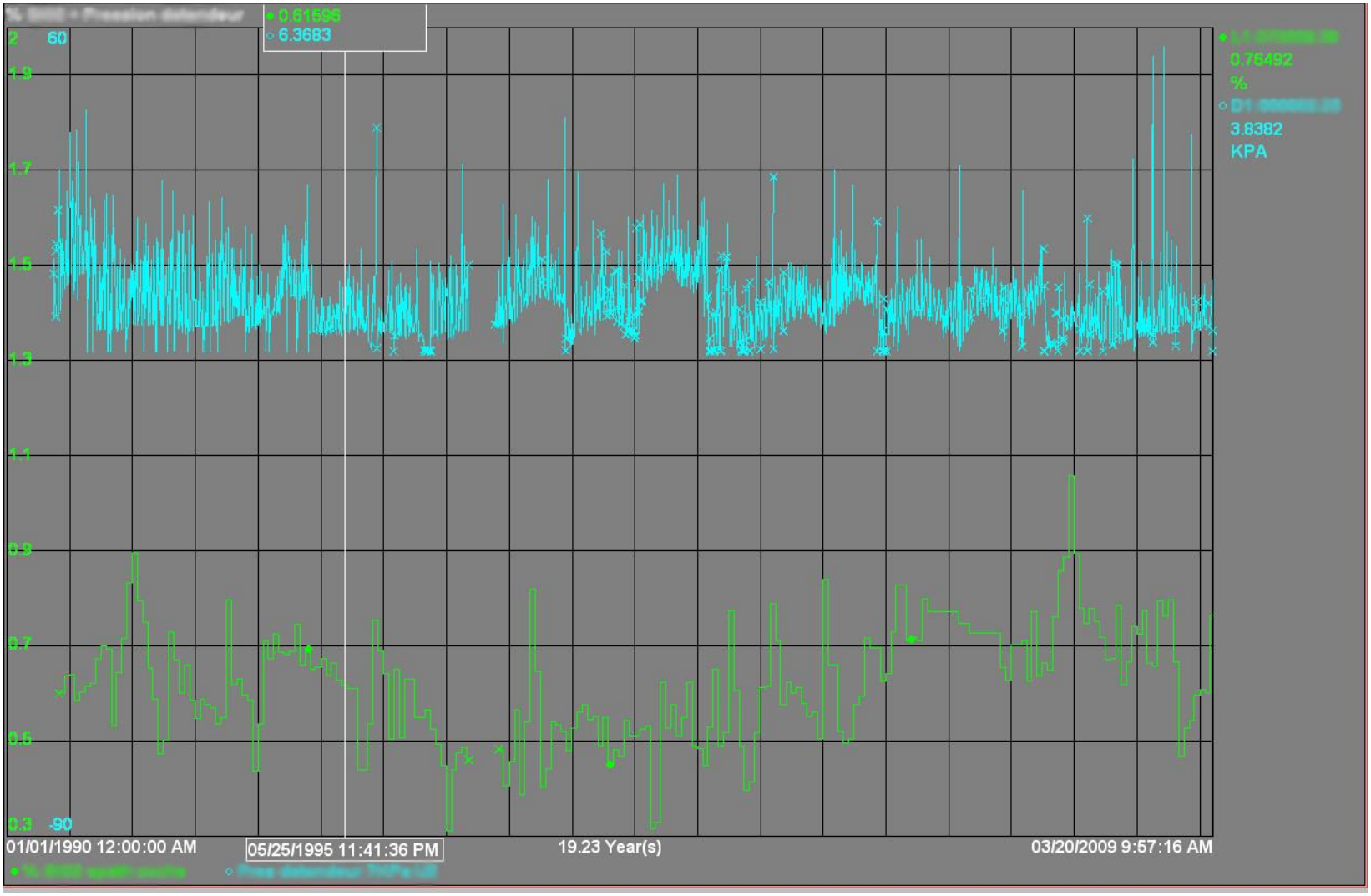
4 Terabytes/day

1.4 Petabytes/year

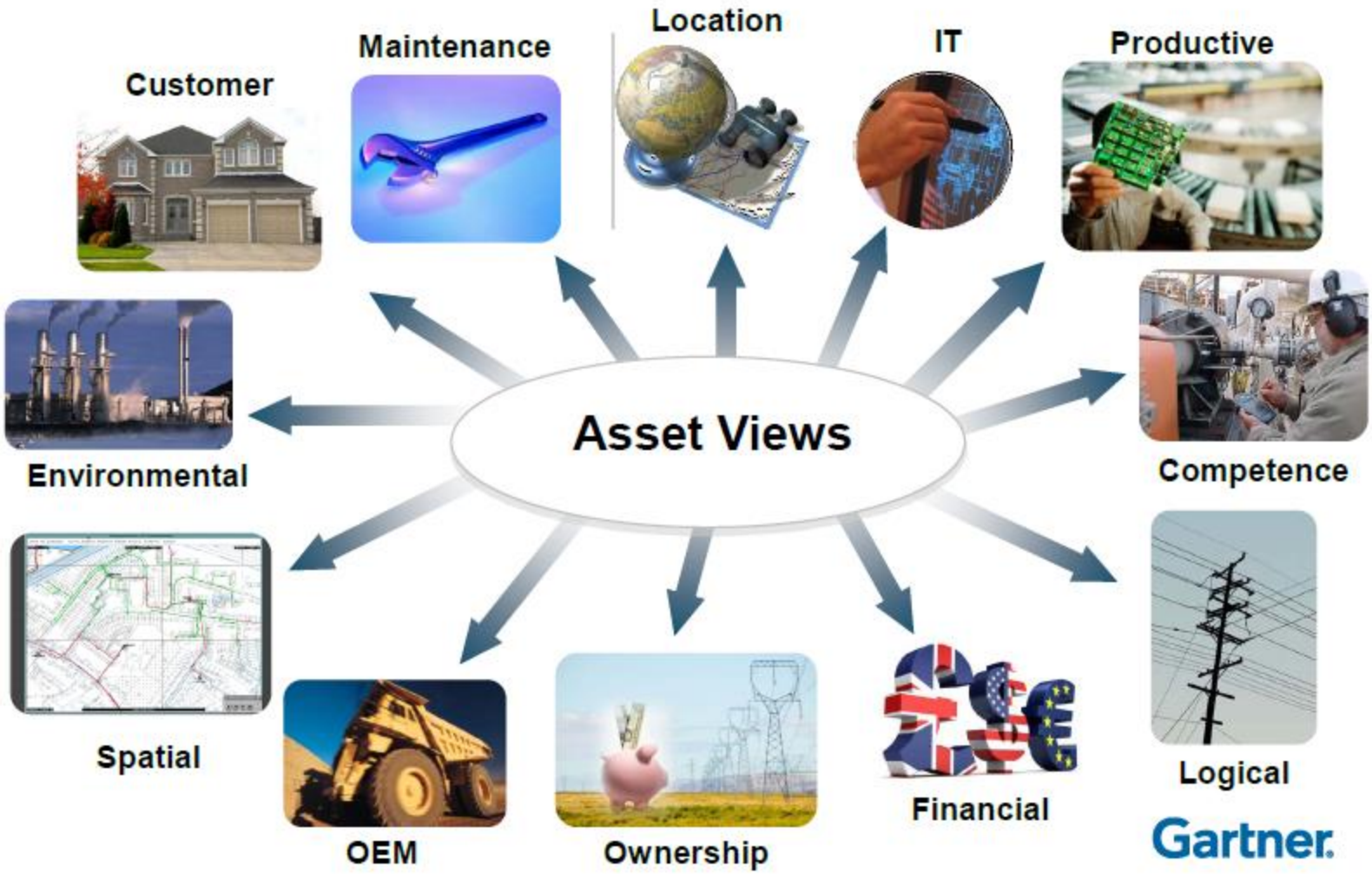
The Power of Little Wins - Fleet Wide



Store Data Forever- 20 Years



Assets: The Big Picture



NOxTool

Time Control

Start Time *-7d End Time * Apply

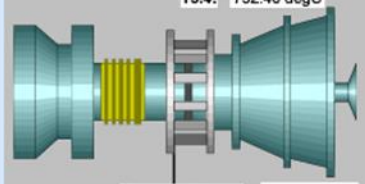
Installations

- Rotating Equipment
  - Åsgard A
  - Åsgard B
  - Brage
    - C07-CT80001A
    - C07-CT80001B
    - M16-CT23010
  - Grane
  - Gullfaks A
  - Gullfaks C
  - Heidrun
  - Njord A
  - Norne
  - Oseberg C
  - Oseberg Øst
  - Oseberg Sør
  - Sleipner A
  - Sleipner T
  - Snorre A
  - Snorre B
  - Statfjord A
  - Statfjord B
  - Statfjord C
  - Troll B
  - Troll C
  - Veslefrikk

View

C07-CT80001A

P2: -10.00 mbarg P3: 15.05 barg
T2: 8.20 degC T3: 394.53 degC
T5.4: 732.40 degC



Measured Flow: 4182 Sm3/h
GAS Allocated Flow: 3998 kg/h

NOx Concentration (*)	170 ppm
NOx Rate (*)	0.89 kg/min
NOx Method (*)	PEMS
NOx Last Month	14281 kg

* Value one hour ago

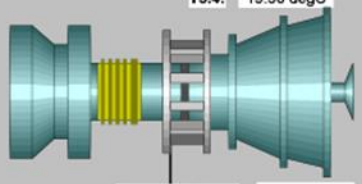
Total values

NOx Rate (*)	1.61 kg/min
NOx Last Month	65248 kg
Calculated Density (*)	0.93 kg/Sm3
Fuel Gas Flow Rate	7664 kg/h
Relative Humidity	66 %RH
Ambient Temperature	6 degC

* Value one hour ago

C07-CT80001B

P2: 0.00 mbarg P3: 0.01 barg
T2: 18.02 degC T3: 662.88 degC
T5.4: 19.50 degC



Measured Flow: 354 Sm3/h
GAS Allocated Flow: 0 kg/h

NOx Concentration (*)	0 ppm
NOx Rate (*)	0.00 kg/min
NOx Method (*)	PEMS
NOx Last Month	18970 kg

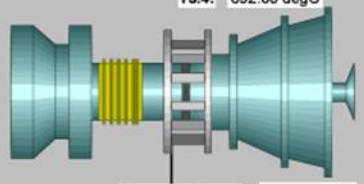
* Value one hour ago

Fuel gas analysis

N2	1.96 %
CO2	1.66 %
C1	74.53 %
C2	10.92 %
C3	6.86 %
IC4	1.01 %
nC4	2.03 %
IC5	0.42 %
nC5	0.41 %
C6+	0.20 %

M16-CT23010

P2: -11.00 mbarg P3: 14.09 barg
T2: 10.35 degC T3: 388.67 degC
T5.4: 692.80 degC

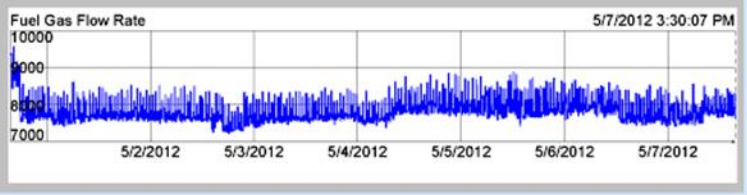


Measured Flow: 3859 Sm3/h
GAS Allocated Flow: 3666 kg/h

NOx Concentration (*)	147 ppm
NOx Rate (*)	0.72 kg/min
NOx Method (*)	PEMS
NOx Last Month	31997 kg

* Value one hour ago

Brage



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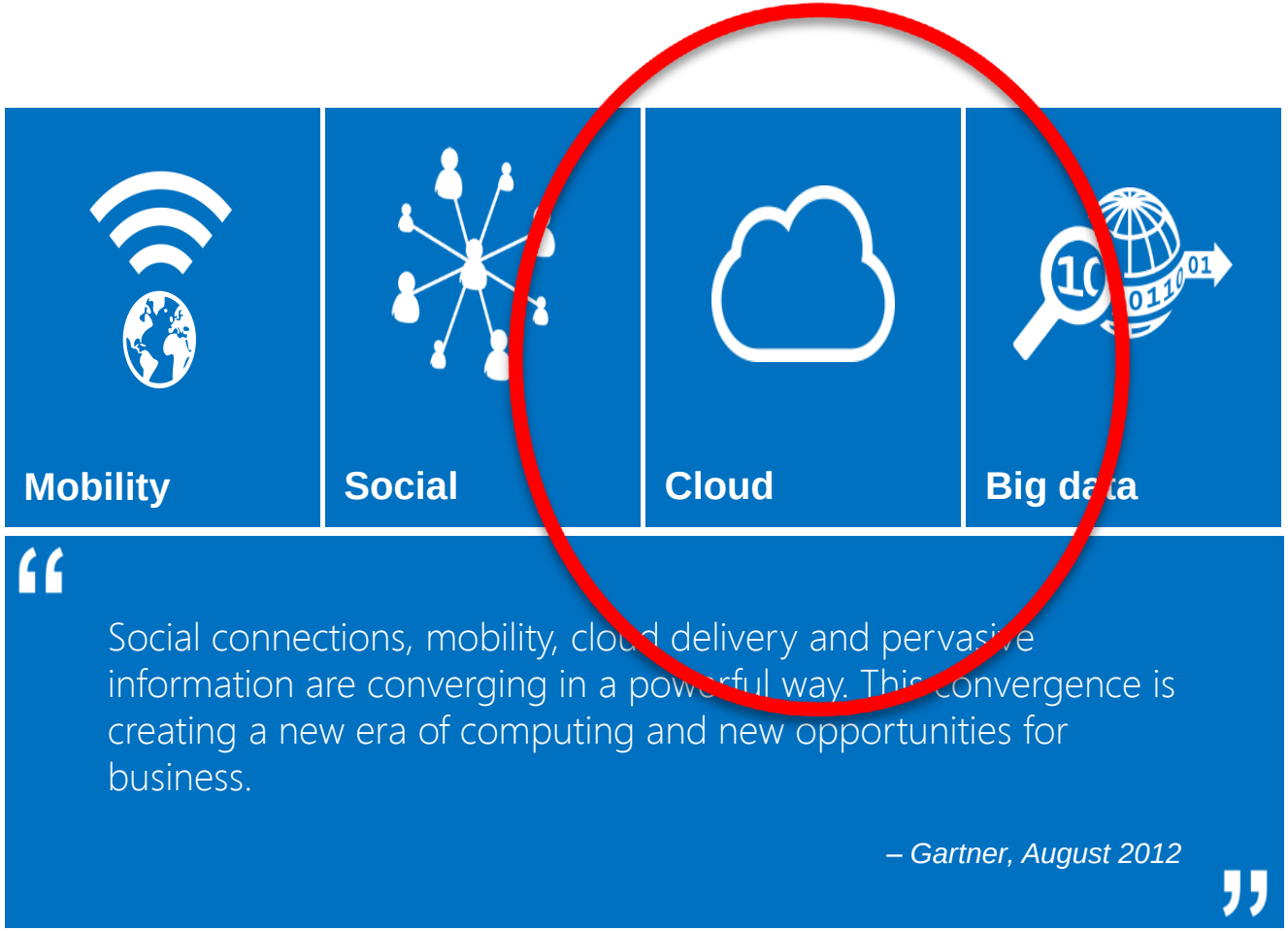
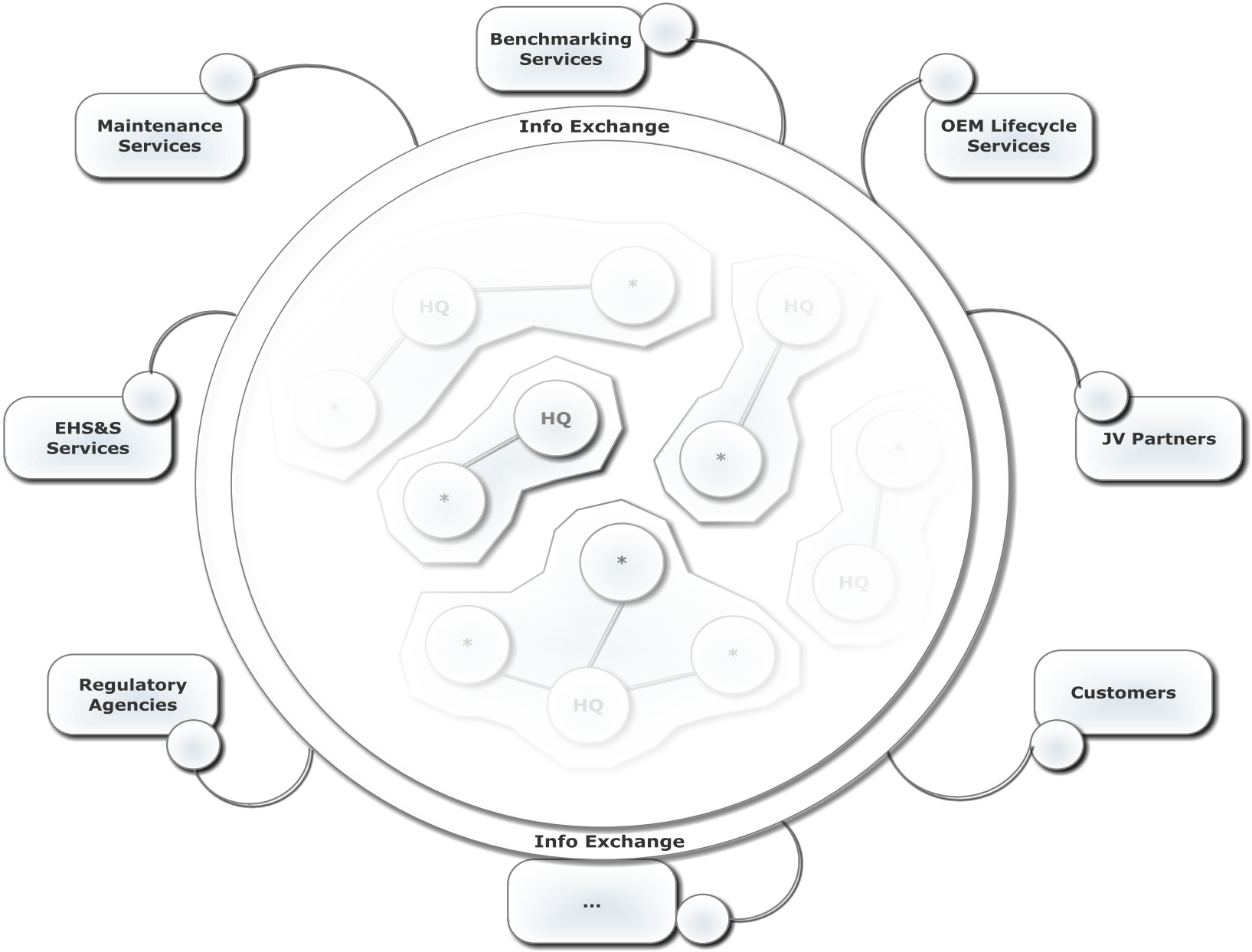
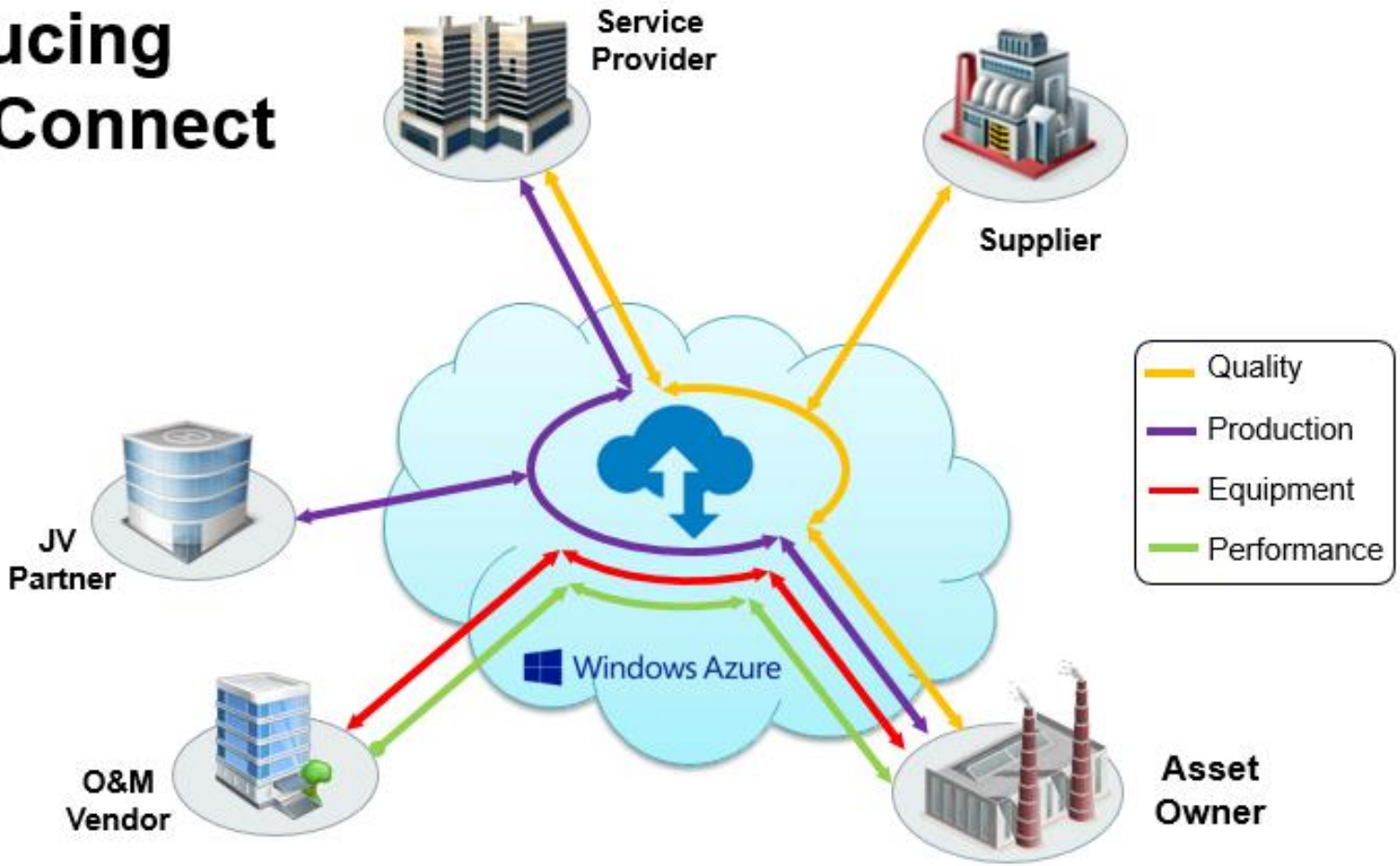




Mike's Company

Introducing PI Cloud Connect

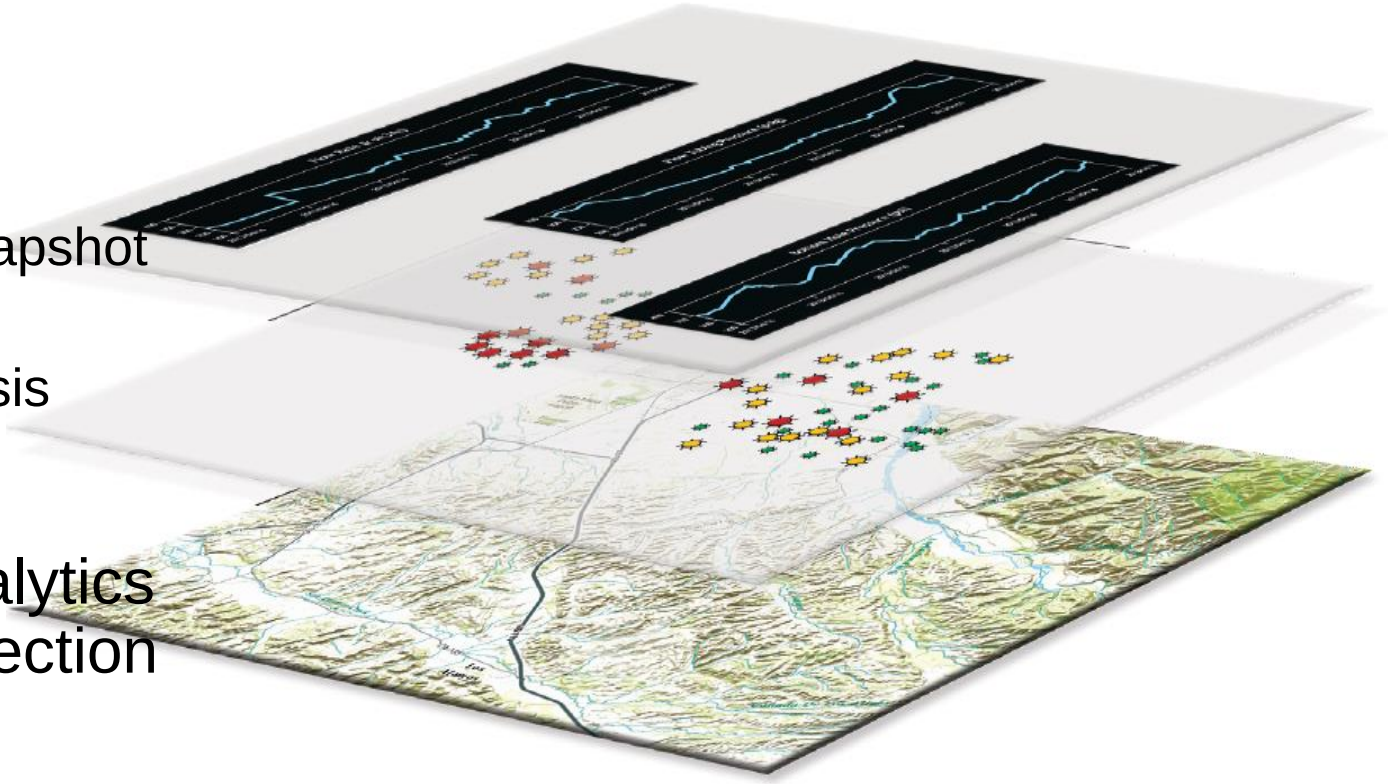


Real-time Data in Geospatial Context

Use Cases

- Utility organizations
- Geographically dispersed network of assets
- Complex, multi-class, asset environments
- Safety, Performance & Uptime
- Accurate Fault identification
- Layer with weather / Industry symbology

- Asset:
  - Dynamic Symbology
  - Status / Snapshot
  - History
  - Data Analysis through PI Coresight
- Location Analytics with GeoSelection
  - Aggregates
  - Comparisons
  - Events



THANK YOU

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REGIONAL SEMINAR

The Power of Data

THRIVING IN A WORLD OF CHANGE