PI SERVER 2012

Do. More. Faster. Now!

OSIsoft.

PARTNER MEETING 2012

EMEA

The Power of Data

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AUGUST 7, 2007 APRIL 14, 2010 APRIL 24, 2012

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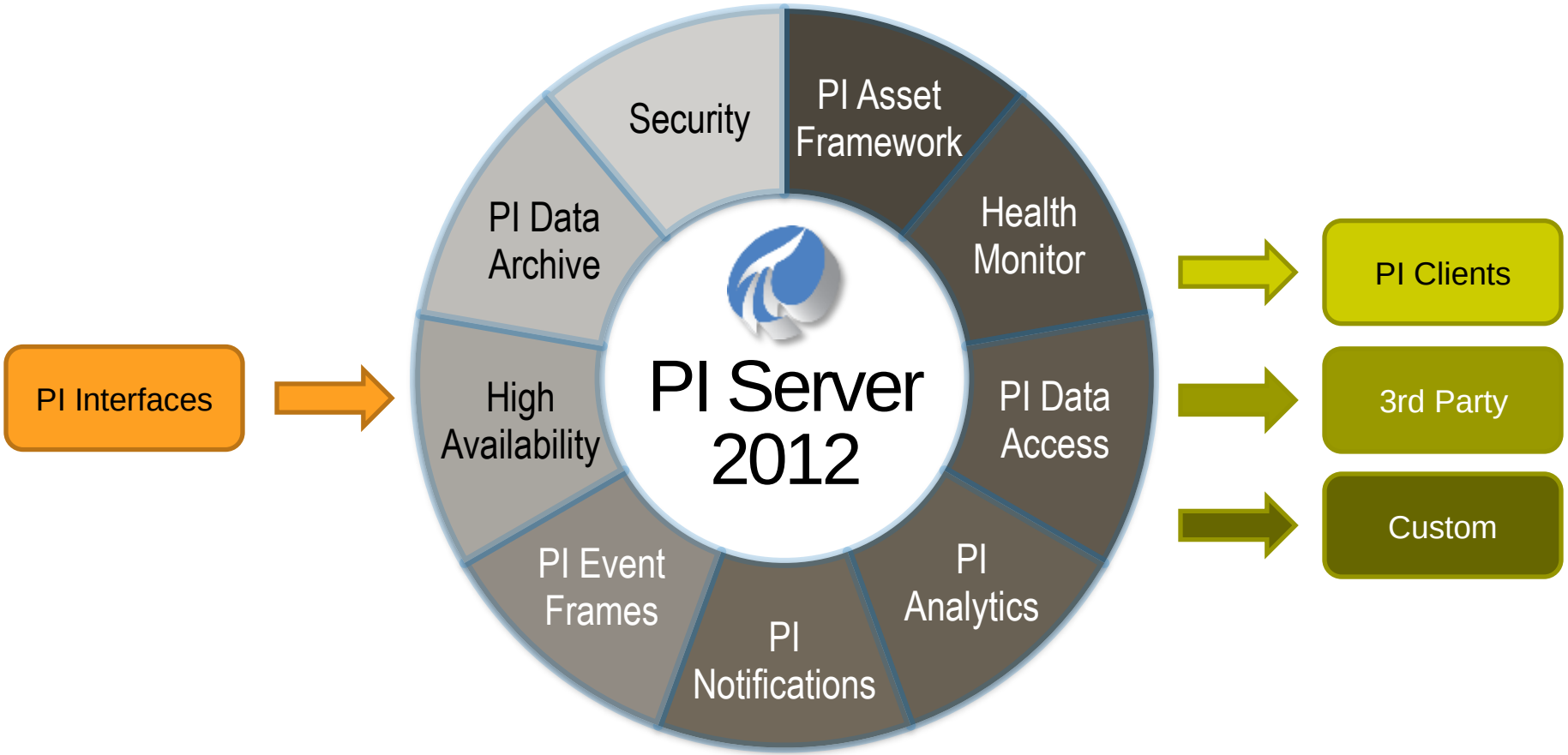

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Why its needed ?

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WORLD'S INFORMATION

10^{21} bytes
(1 billion TB)

ZETTABYTES

Source: http://www.emc.com/leadership/programs/digital-universe.htm

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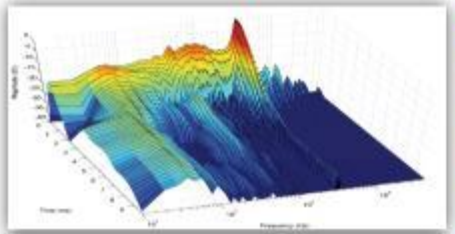
PI SERVER 2012



Syncro Phasors

430TB

4.8K data streams, 120Hz
3 years online
Unique Events: 55 Trillion
Estimated Data: 430TB

Data Center

840TB

100K cells, 2M breakers
10 years online
Unique Events: 105 Trillion
Estimated Data: 840TB

Automated Metering

1,410 TB

20M meters, 5-min reads
7 years online
Unique Events: 177 Trillion
Estimated Data: 1,410TB

Fleet Monitoring

50,460 TB

1K assets, 1M points
10 years online
Unique Events: 6,307 Tr
Estimated Data: 50,460TB

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INFRASTRUCTURE
Highway for your data

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SCALABILITY
MORE LANES FOR YOUR DATA

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PERFORMANCE
MOVE YOUR DATA FASTER

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MANAGEABILITY
BRING ALL YOUR DATA ONLINE

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SECURITY
BETTER PROTECTION FOR YOUR DATA

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Who is already using PI Server 2012

?

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OSIsoft NOC

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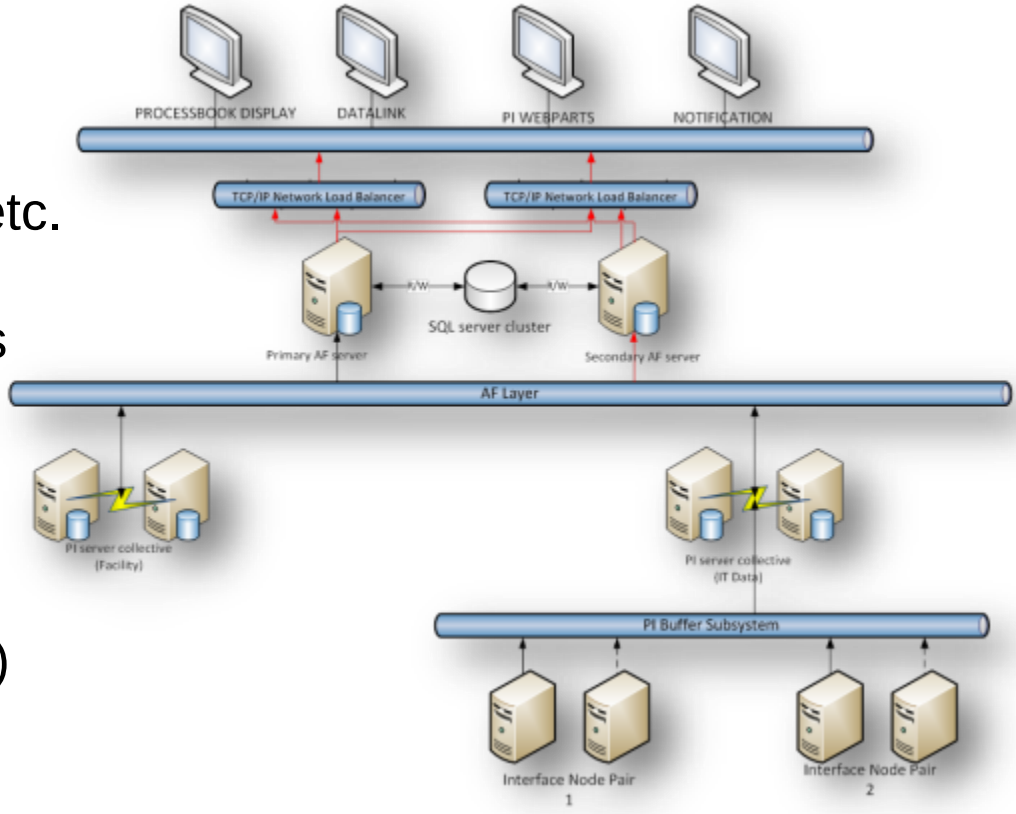
OSIsoft IT Systems

- ☑ 20 OSIsoft Office Locations
- ☑ Servers
  - CPU, Memory, Disk Space, etc.
- ☑ Network
  - Ping Time, Bandwidth, Errors
- ☑ Facilities
  - Building Power Usage
  - Rack Load
  - UPC Battery Status
  - Cooling (HVAC, temperature)
- ☑ More…



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OVERVIEW OF THE OSISOFT NOC

- Monitors health of EA customers' PI Systems worldwide
  - Number of PI Servers Monitored: 871
  - Number of Interface Nodes Monitored: 2387
- Managed PI Production servers – HA Collective
  - 1+ million tags, 118 archives (3 GB each)
  - 350,000 points added last year
- Asset Based (Topology) Structure – PI AF 2010
  - Elements and Attributes created automatically
  - Integrated with OSIsoft's business systems
- Custom Analysis Engine
  - 1000's of health calculations every 5 seconds for every managed endpoint
  - ***Heavy event update load on the PI Servers***

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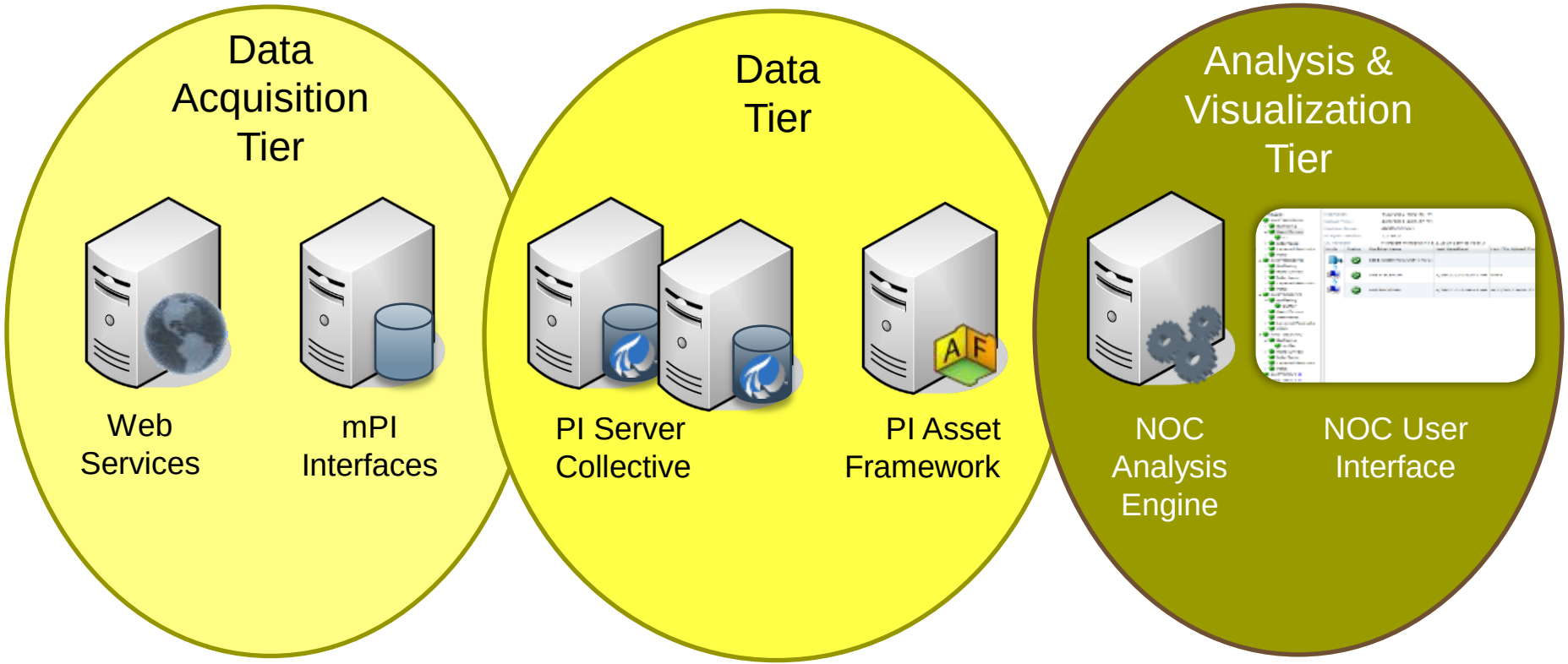
NOC INFRASTRUCTURE



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PI SERVER 2012 IN THE NOC

- PI Server 2012 eliminated need to scale out data tier across additional nodes
  - Prevented potential increase in maintenance
  - Increased scalability
  - Increased reliability
- Upgraded from PI Server 2010 R3 in minutes
  - Rolling HA upgrade, with ***Zero Downtime***
- Running PI Server 2012
  - staging for 2+ months
  - **production for 1+ month**
- Reviewing performance and operation with PI Server group on a weekly basis

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DATA BACKFILLING

2010 R3

1	Create PI Points	Minutes
2	Delete Pt. Created	Minutes
3	Check Disk Space	Minutes
4	Reprocess Archives	Days/Weeks
5	Create Archives	Minutes
6	Backfill Data	Hours/Days

2012

1	Create PI Points	5x Faster
2	~~Delete Pt. Created~~	Zero
3	Check Disk Space	Minutes
4	~~Reprocess Archives~~	Zero
5	Create Archives	Minutes
6	Backfill Data	5x Faster

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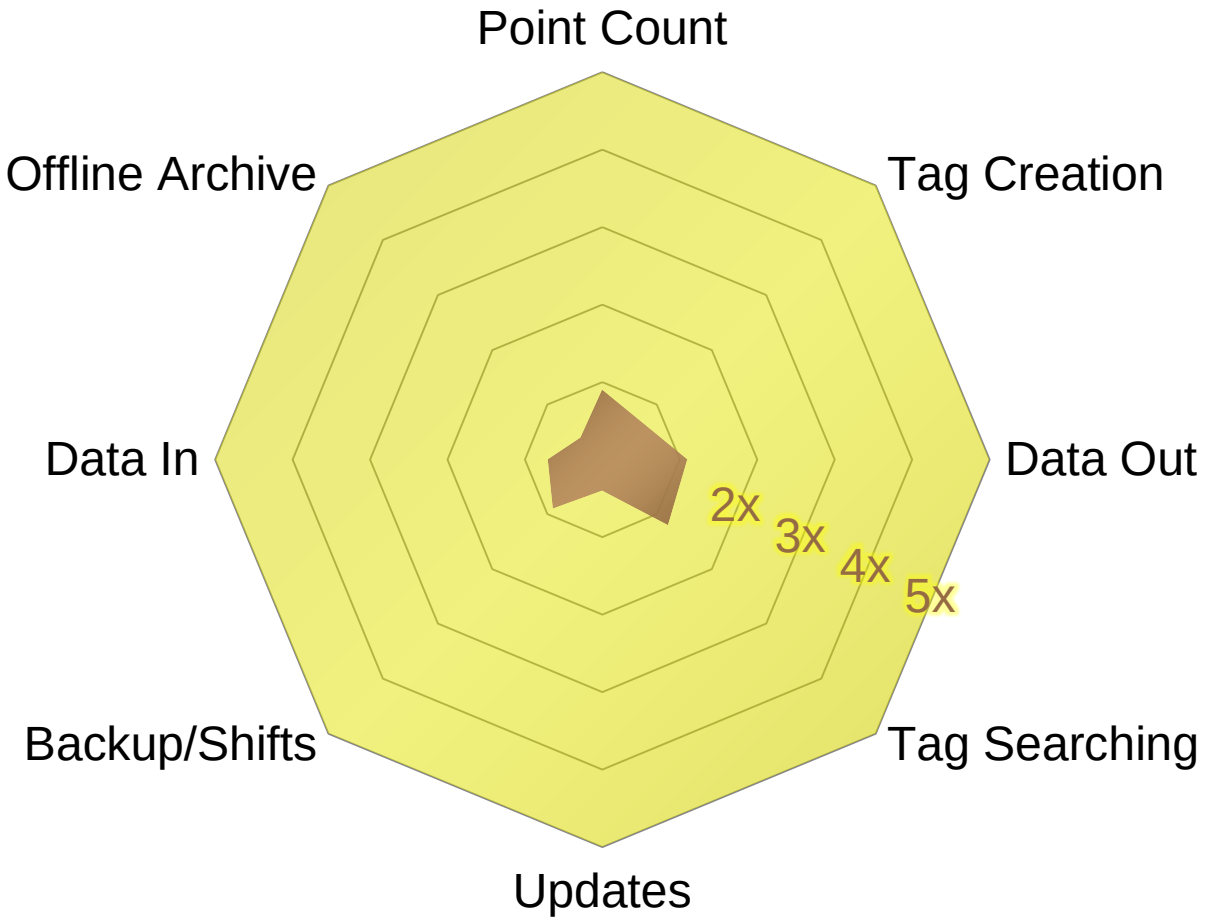

5x

PI Server 2012

PI Server 2010

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2012 vs. 2010: The Final Sheet

	2012	2010	Delta
Max Point Count	20M+	2-3M	5-10x
Startup Time	<30 sec/Mpts	>10 min/Mpts	20x
Point Creation	500-2K pt/sec	<100 pt/sec	5-200x
Tag Searching	Constant or Linear	Variable, Non-Linear	N/A
Max Update Signups	10M+	<200K	50x
Update Signup Rate	>100K/sec	<2K/sec	50x
Data Out (Archive)	>10M ev/sec	<1M ev/sec	10-20x
Data In (Snapshot)	>1M ev/sec	<200K ev/sec	5-10x
Data In (Archive)	>500K ev/sec	<100K ev/sec	5-10x
Archive Shifts	<10 sec/GB	>1 min/GB	6-12x
Online Archives	>50K files	<10K files	5-10x
Backup Speed	<1 min/GB	>5 min/GB	5-10x
Offline Reprocessing	30 sec/GB	>15 min/GB	30x

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PI System upgrade

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Upgrade Steps

Version	Release date	Security Upgrade	Authentication Questions	MDB Preparation & Migration
3.4.385 (2010)	04-Aug-2010	No	Yes/No*	No
3.4.380 (WIS)	21-Sep-2009	No	Yes/No*	Yes†
3.4.375 (PR1)	02-Jan-2007	Yes	Yes	Yes†
3.2.357 (SR2) & later	4-Oct-1999	Yes	Yes	Yes†

(*) No prompt if PI Password-based authentication (PI Explicit Login) is already disabled.

(†) Blocked only if MDB contains data.

Enabling MDB-AF replication requires PI Mappings (Windows Security) for all MDB Users/Groups/Identities.

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Platform Requirements

- Supported Operating Systems
  - **Windows Server 2008 R2 SP1**
  - Windows Server 2008 SP2
  - Windows Server 2003 SP2
  - Windows 7 SP1
  - Windows Vista SP2
- **No Longer Supported**
  - Windows 2003/2008 WOW64
  - Windows XP
  - Windows 2008 Core
  - Microsoft Cluster Services (MSCS)
    - Recommended: PI HA or PI HA + Virtualization

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Upgrade to x64

- **KB00530** *Upgrading to 64-bit PI Server 2010 while moving to 64-bit hardware*
  - Same information with PI Server 2012

- Procedure for a Server Move (A⇨B)
  1. Install same PI Server version on MachineB
  2. Move PI Server backup from MachineA to MachineB
  3. Start/check PI Server on MachineB
  4. Upgrade to newest PI Server version on MachineB

  (Rationale: no changes to MachineA, in case something goes wrong on steps #3 or #4. This can also be done using PI HA.)

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Demo 1

MDB & AF
Element Relative Displays
Formula Data Reference
Coresight
create tags with AF
ACE
Webparts
Notifications

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AF 2.5 will be part of 2012 release

table lookup data reference us now supporting

„FOREIGN“ time stamps !

Foreign time stamps ?
! FUTURE TIME STAMPS !
FORECAST DATA
Data older 1970

default limit is

10000 records

every 10 minutes (pulse of power stock market)
Approx **69** days

Once a day(pulse of ancient weather data)
Approx **27** years

Visit the AF speech today for much more details

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PI Coresight trends with AF future

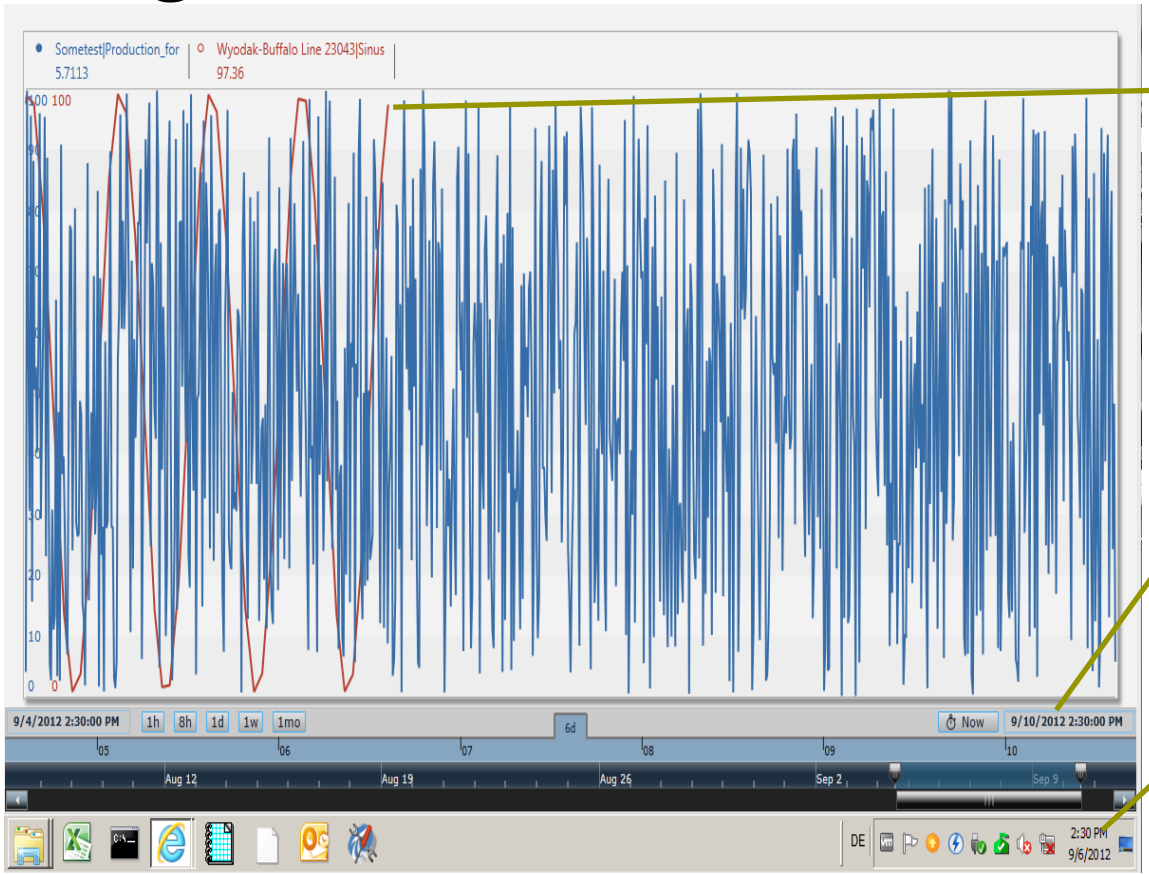
Table lookup
[configstring]
SELECT VALUE
FROM Forecast;
TC=STAMP

Forecast

General | Table | Define Table | Version

Forecast

	STAMP	VALUE
	9/10/2012 1:30:00 PM	92.58
	9/10/2012 1:40:00 PM	13.04
	9/10/2012 1:50:00 PM	70.78
	9/10/2012 2:00:00 PM	83.28
	9/10/2012 2:10:00 PM	24.28
	9/10/2012 2:20:00 PM	48.23
	9/10/2012 2:30:00 PM	3.63
	9/10/2012 2:40:00 PM	25.51
	9/10/2012 2:50:00 PM	89.75



Now()
(where future begins)

9/10/2012
2:30:00 PM

Endtime Time

2:30 PM
9/6/2012

System Time

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Demo 2

another way to
access time series
who are not in archive

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THANK YOU

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