PI Integrator for Business Analytics

Delivering Your Data in Purpose-Built Formats

Presented by John Maytum - Senior Systems Engineer

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I need to minimize risks through Data Driven Decisions

I want share PI System data to groups outside of Operations

I want to build statistical models from historical data

I want to spend less time on operational reports

I want to compare my equipment with ALL of our other sites

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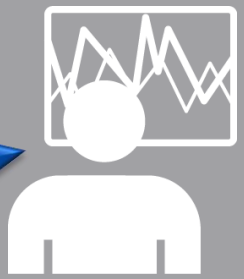
We need to be more confident in the decisions we make. We need trusted data

I want to combine systems of record for our corporate reports

We are starting a Big Data project, and we need operational data



I want to add Operational Data to our existing enterprise data warehouse

I want to get operational data into more of the BI Tools that people use

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Why are These Objectives Elusive?

1. Data Alignment

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Evolving Information Architecture

BI & Reporting

Time Series

Relational

Unstructured

GIS

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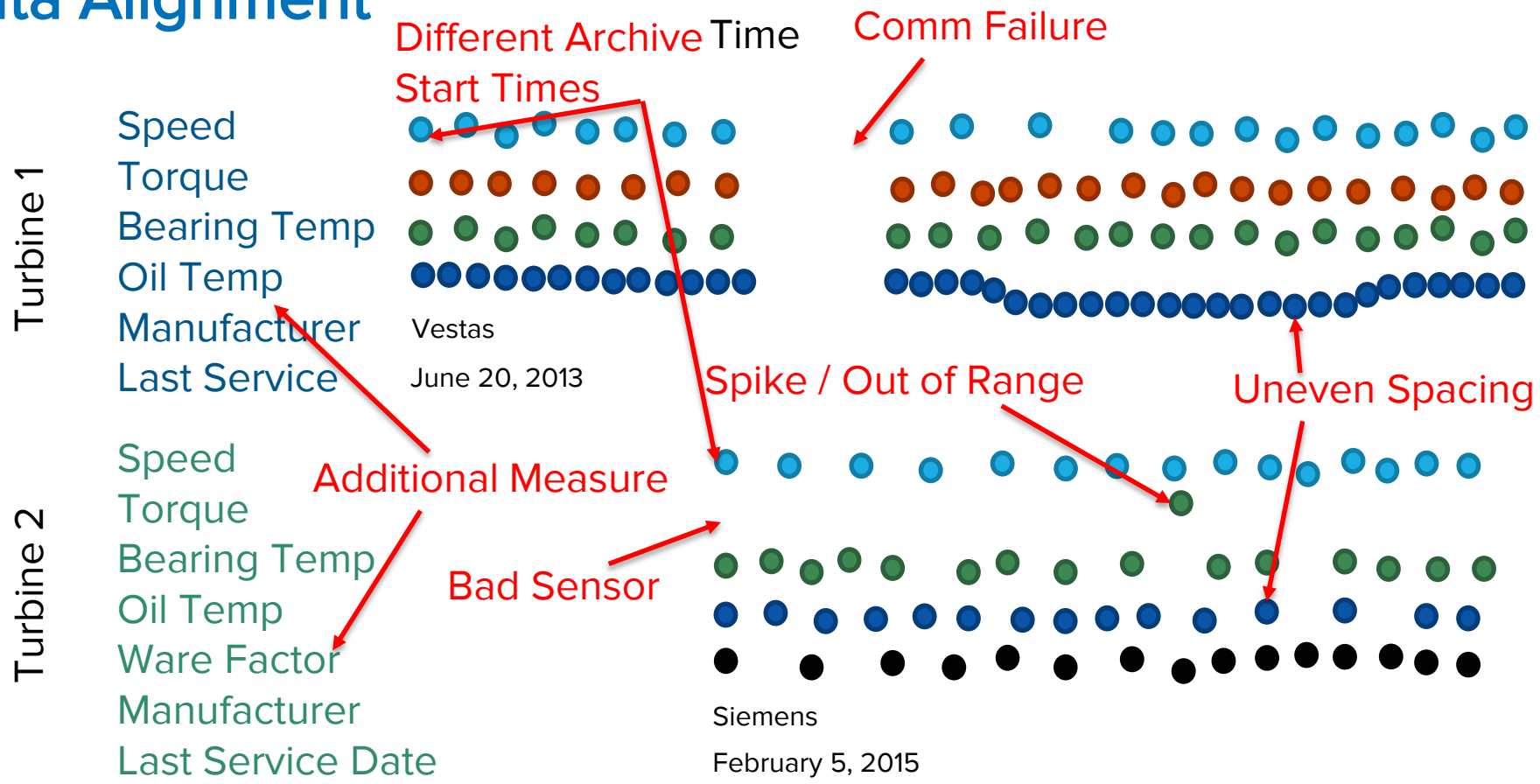
Data Alignment



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Why are These Objectives Elusive?

1. Data Alignment
2. Scalability
3. Context

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Context in the Physical World

- What material is being hauled?
- Was it raining?
- Holes in the road?
- On break?
- What is the grade of the hill?
- Scheduled downtime (in maintenance)
- Shifts—different driving behaviors

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Context in the Physical World

- What product is being made?
- When is the equipment empty?
- Where was the instrument when I took that measurement?

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Context in the Physical World

- How are renewables impacting equipment?
- Was there a voltage violation?
- What are the changes in weather?

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Context of the Physical World

- Was wind gusty or steady?
- Was the maintenance planned?
- How long does this issue usually take to fix?

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Context of the Physical World

- When did the geology change?
- Which well was being drilled?
- What angle was the drill bit?
- Is production related to drill conditions?

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Why are These Objectives Elusive?

1. Data Alignment
2. Scalability
3. Context
4. Managing changes over time
5. Data Governance
6. Security
7. Organizational Hurdles

...these require time and $$$

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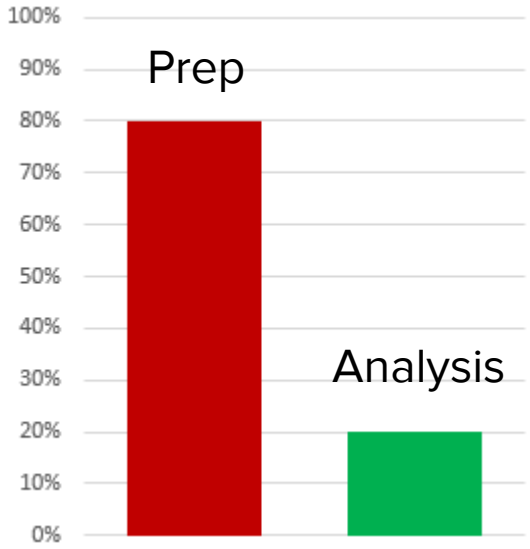
Data Wrangling



Data cleansing and preparation tasks can take 50-80% of the development time and cost

https://hbr.org/2014/04/the-sexiest-job-of-the-21st-century-is-tedious-and-that-needs-to-change/

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Early Adopter Program

Merck

Regeneron

EDF-RE

Cemex

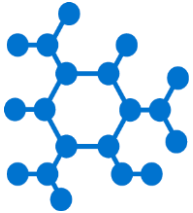
Alcoa GRP

Freeport McMoRan

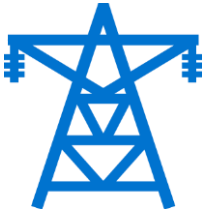
Devon Energy

Noble Energy

NOV



BASF



China Southern Grid

SDG&E

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OSIsoft Solution: PI Integrator for Business Analytics

PI Integrators reduce the complexity of analyzing real world industrial data

*All PI System data delivered on **your terms,** in **your language**, to the **tools you use**, and to the people that can make a difference.*

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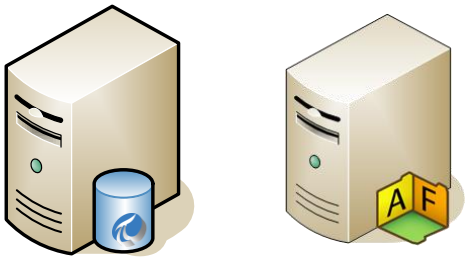
PI Integrator for Business Analytics

System of Record



OSIsoft.

- Guaranteed Delivery & Storage
- Full Fidelity of Sensor
- Optimized for Real-Time
- Backup/Restore
- HA
- Security

Needs

- Cleanse
- Aggregate
- Shape
- Transmit

Analytics Packages

Visual Analytics

Excel, tableau SOFTWARE, DATAWATCH, QlikView, TIBCO Spotfire, COGNOS

Statistical Analytics

R, python, SAS, SAP

- Designed to Analyze Large Sets
- Expects that the Data Exists
- Problem Defines Data Shape
- Typically Evenly Spaced in Time

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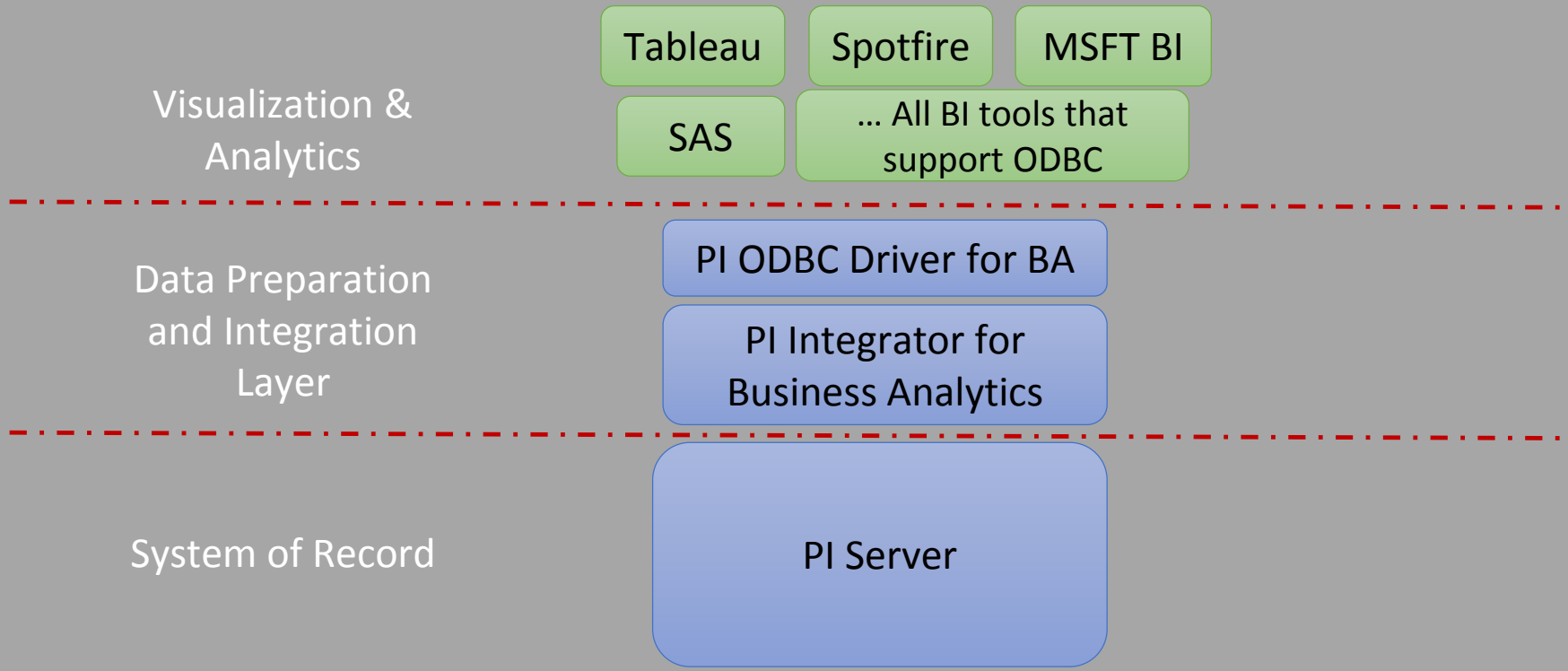
Operational Reporting & Analysis Architecture



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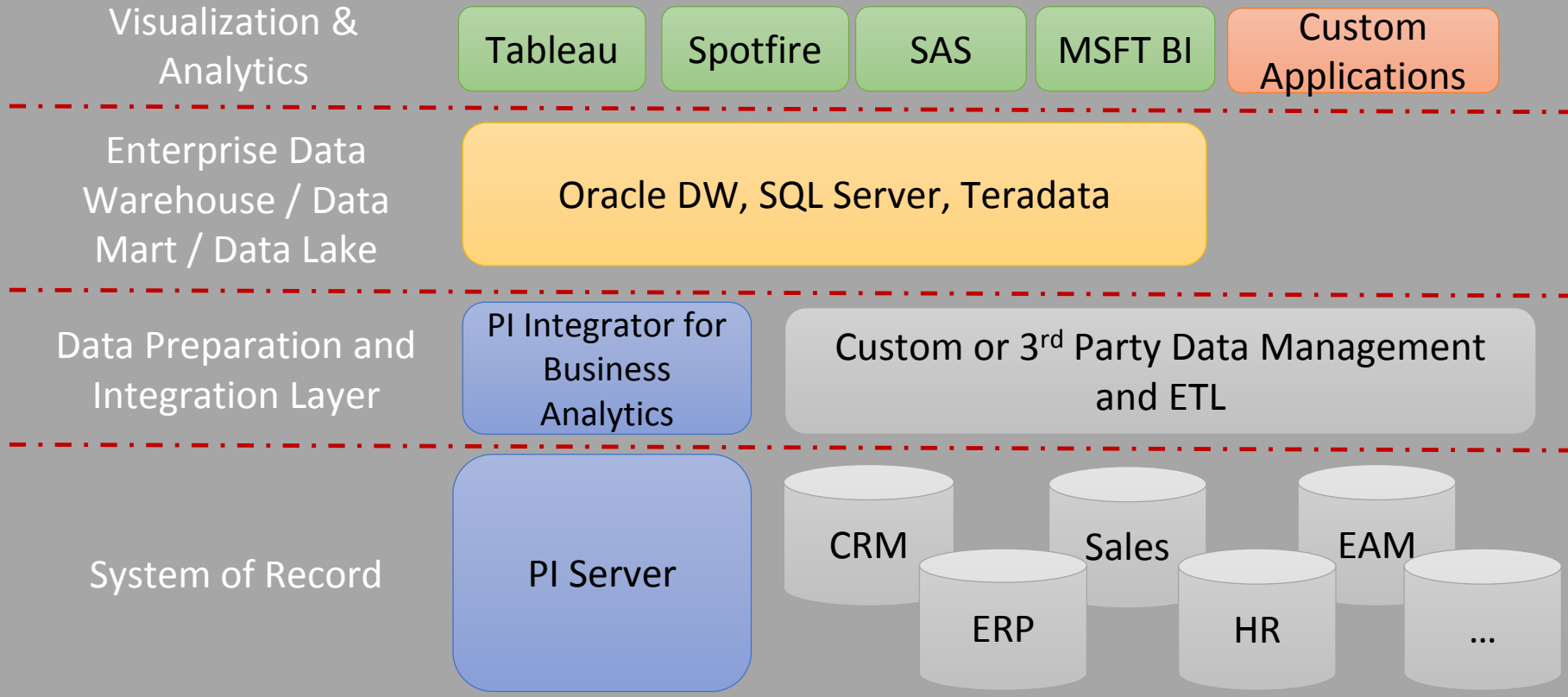
Enterprise Data Warehouse Architecture



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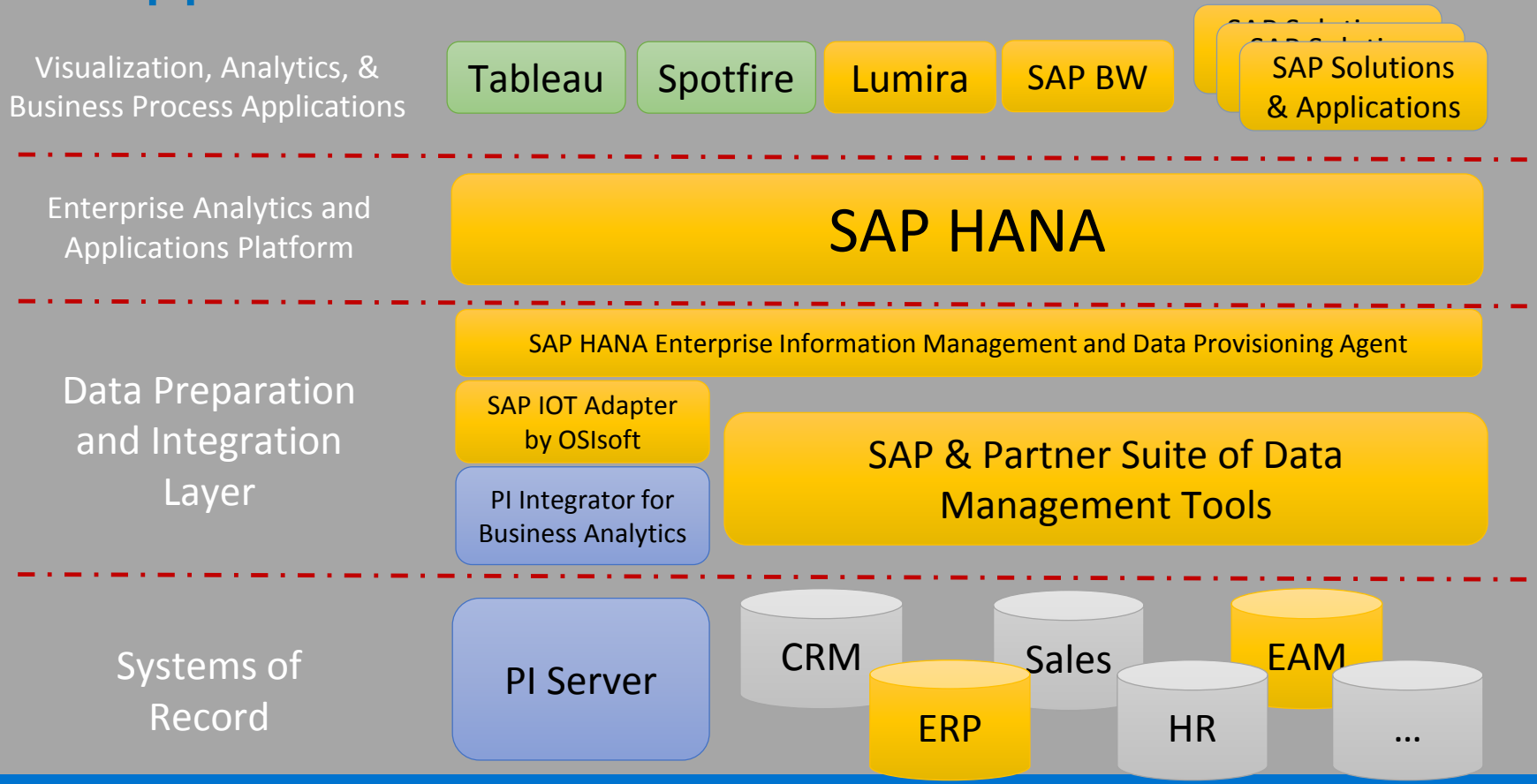
SAP Application & Solutions Architecture



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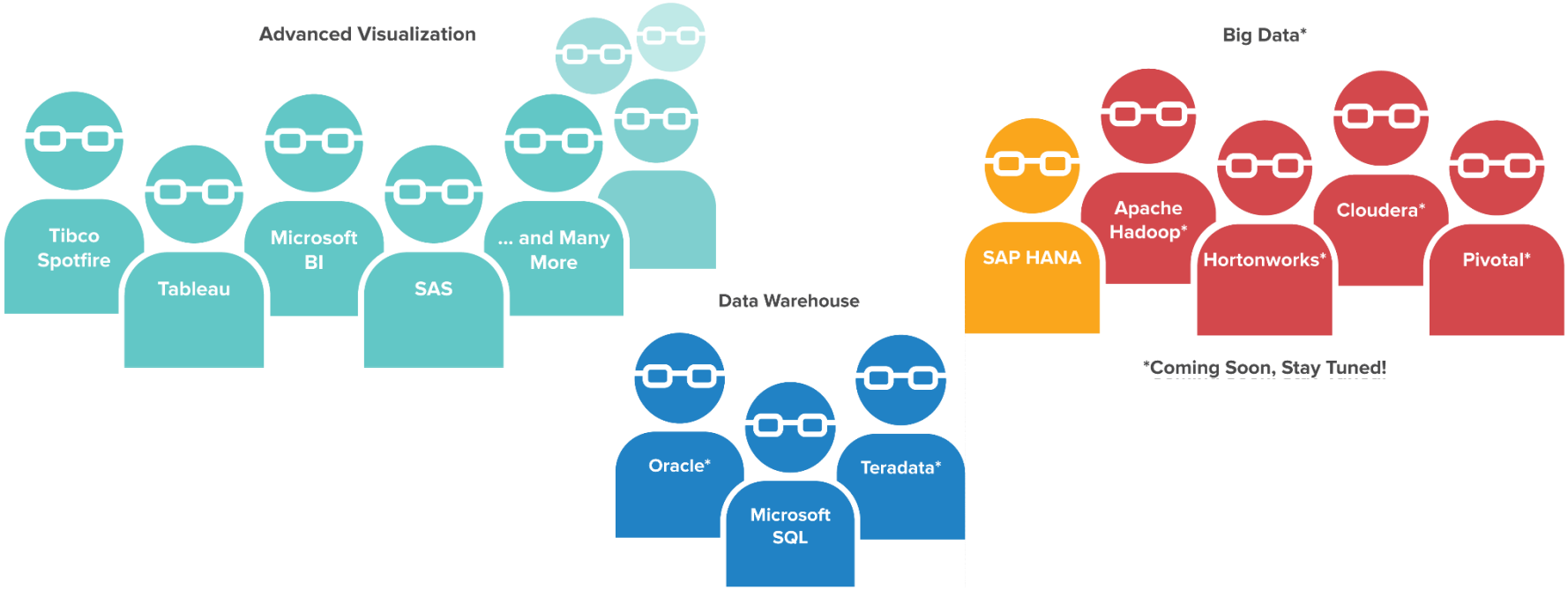
What Systems Are Supported?



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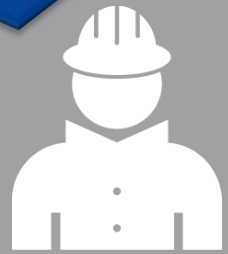
Early Adopter Customer Quotes

“Tableau is very flexible when you aren’t as familiar with process data…only advanced users can do ad-hoc analysis in DataLink”

"this will help me sell the value of PI data to the rest of the company"



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Early Adopter Customer Quotes

"we have over 60 process variables that we need to compare, model, and determine variations"

"we have an enterprise agreement for Spotfire…and most of our executives use QlikView"

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Time to Build Reports ↓

Use Statistical Modeling Tools ↑

Effort to Provide Operational Data to other Teams ↓

Engineering

Executives

Data-Driven Decisions ↑

Confidence in Decisions ↑

Risk in Decisions ↓

Align Disparate Data Sets ↔

Improve Trust in Data ↑

Lower Iteration Time for New Reports ↓

IT

Analyst

Financial-based performance ↑

Costs ↓

Analysis Time ↓

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Launching Q3/4 2015

- **BI Edition**
- Works with any software with an ODBC data source connection

- **Data Warehouse Edition**
- Create Facts & Measures in Microsoft SQL

- **SAP HANA Edition**
- Automatically creates Virtual Tables via Smart Data Access (SDA)

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What can you do to get ready?

Architectural Review

- Network, Governance, & Security Model
- AF Asset Model

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Contact Information

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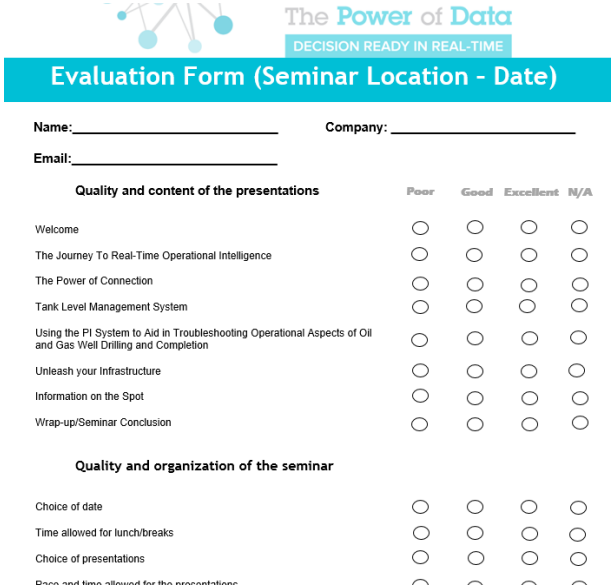
Questions

Please wait for the **microphone** before asking your questions

State your **name & company**

Please remember to…

Complete the Survey for this session



The Power of Data

DECISION READY IN REAL-TIME

Evaluation Form (Seminar Location - Date)

Name:_____ Company: _____

Email:_____

Quality and content of the presentations	Poor	Good	Excellent	N/A
Welcome	○	○	○	○
The Journey To Real-Time Operational Intelligence	○	○	○	○
The Power of Connection	○	○	○	○
Tank Level Management System	○	○	○	○
Using the PI System to Aid in Troubleshooting Operational Aspects of Oil and Gas Well Drilling and Completion	○	○	○	○
Unleash your Infrastructure	○	○	○	○
Information on the Spot	○	○	○	○
Wrap-up/Seminar Conclusion	○	○	○	○

Quality and organization of the seminar				
Choice of date	○	○	○	○
Time allowed for lunch/breaks	○	○	○	○
Choice of presentations	○	○	○	○
Pace and time allowed for the presentations	○	○	○	○

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감사합니다

谢谢

Danke

Gracias

Merci

Thank You

ありがとう

Спасибо

Obrigado

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