Enterprise Integration

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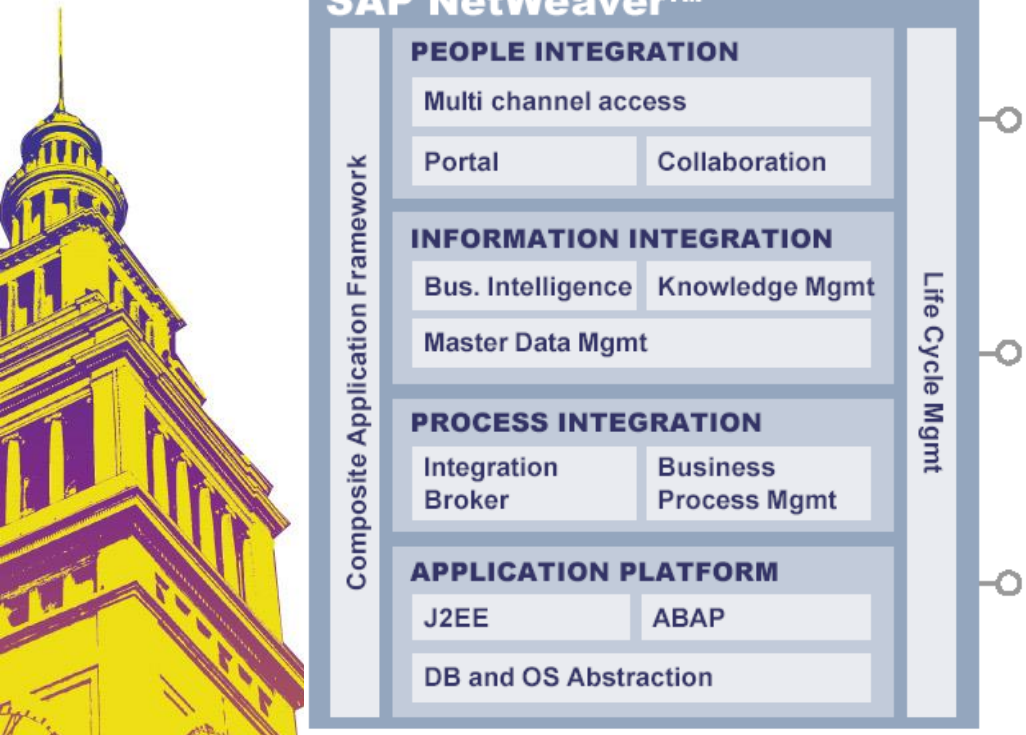
Agenda

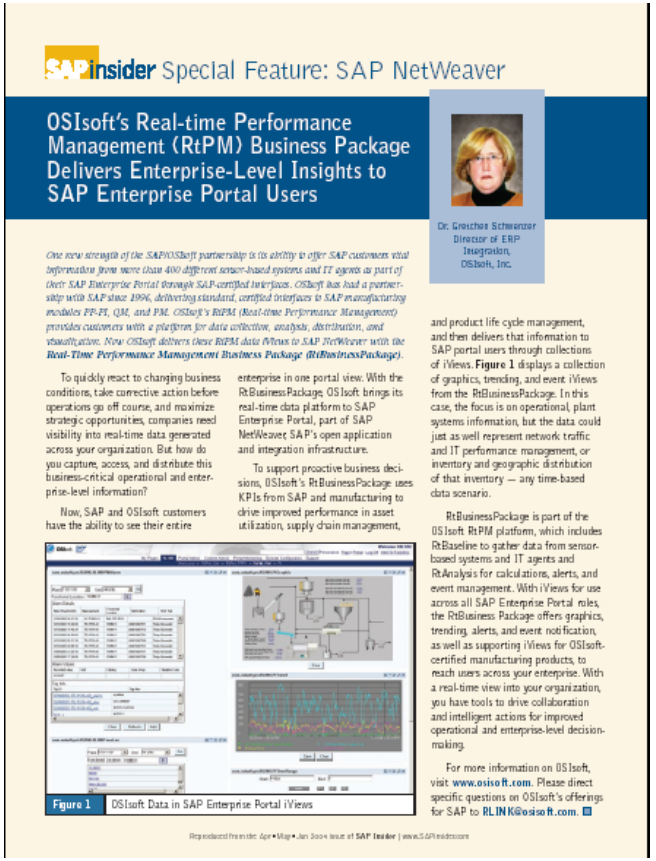
- Enterprise System Market
- Business Value
- Transform RtData to Transactions
- Technology Options
- Portal Integration
- Project Execution
- RLINK what is new

Enterprise System Market

- AMR reports there is consolidation in market by reduction in vendors thru acquisition and % of market
- Movement to strategic best rather than Best of Breed
- ERP vendors expand footprint Strategic Best
- SAM (Strategic Asset Management) Best of Breed
- ERP vendors move into Manufacturing Space
- ERP vendors offer platform technology architectures

SAP NetWeaver Architecture





SAPinsider Special Feature: SAP NetWeaver

OSIsoft's Real-time Performance Management (RtPM) Business Package Delivers Enterprise-Level Insights to SAP Enterprise Portal Users

Dr. Gretchen Schwenker
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One new strength of the SAP/OSIsoft partnership is its ability to offer SAP customers vital information from more than 400 different sensor-based systems and IT agents as part of their SAP Enterprise Portal through SAP-certified interfaces. OSIsoft has had a partnership with SAP since 1996, delivering standard, certified interfaces to SAP manufacturing modules PP-PI, QM, and PM. OSIsoft's RtPM (Real-time Performance Management) provides customers with a platform for data collection, analysis, distribution, and visualization. Now OSIsoft delivers these RtPM data iViews to SAP NetWeaver with the ***Real-Time Performance Management Business Package (RtBusinessPackage).***

To quickly react to changing business conditions, take corrective action before operations go off course, and maximize strategic opportunities, companies need visibility into real-time data generated across your organization. But how do you capture, access, and distribute this business-critical operational and enterprise-level information?

Now, SAP and OSIsoft customers have the ability to see their entire enterprise in one portal view. With the RtBusinessPackage, OSIsoft brings its real-time data platform to SAP Enterprise Portal, part of SAP NetWeaver, SAP's open application and integration infrastructure.

To support proactive business decisions, OSIsoft's RtBusinessPackage uses KPIs from SAP and manufacturing to drive improved performance in asset utilization, supply chain management, and product life cycle management, and then delivers that information to SAP portal users through collections of iViews. **Figure 1** displays a collection of graphics, trending, and event iViews from the RtBusinessPackage. In this case, the focus is on operational, plant systems information, but the data could just as well represent network traffic and IT performance management, or inventory and geographic distribution of that inventory — any time-based data scenario.

RtBusinessPackage is part of the OSIsoft RtPM platform, which includes RtBaseline to gather data from sensor-based systems and IT agents and RtAnalysis for calculations, alerts, and event management. With iViews for use across all SAP Enterprise Portal roles, the RtBusiness Package offers graphics, trending, alerts, and event notification, as well as supporting iViews for OSIsoft-certified manufacturing products, to reach users across your enterprise. With a real-time view into your organization, you have tools to drive collaboration and intelligent actions for improved operational and enterprise-level decision-making.

For more information on OSIsoft, visit **www.osisoft.com**. Please direct specific questions on OSIsoft's offerings for SAP to **RLINK@osisoft.com**.

Figure 1 OSIsoft Data in SAP Enterprise Portal iViews

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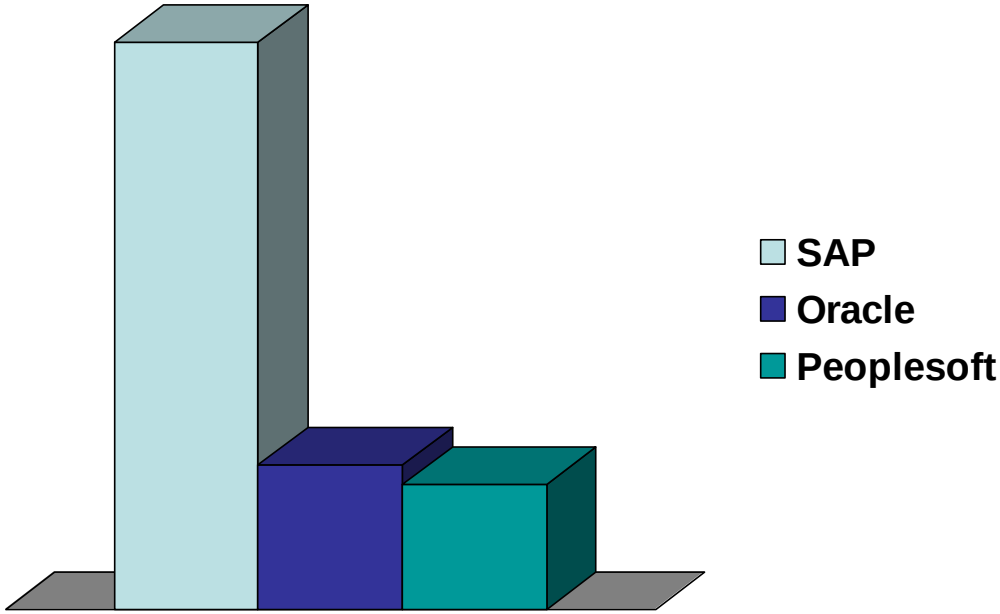
DISCOVER YOUR PORTAL TO PERFORMANCE

Market Share depends on what is included

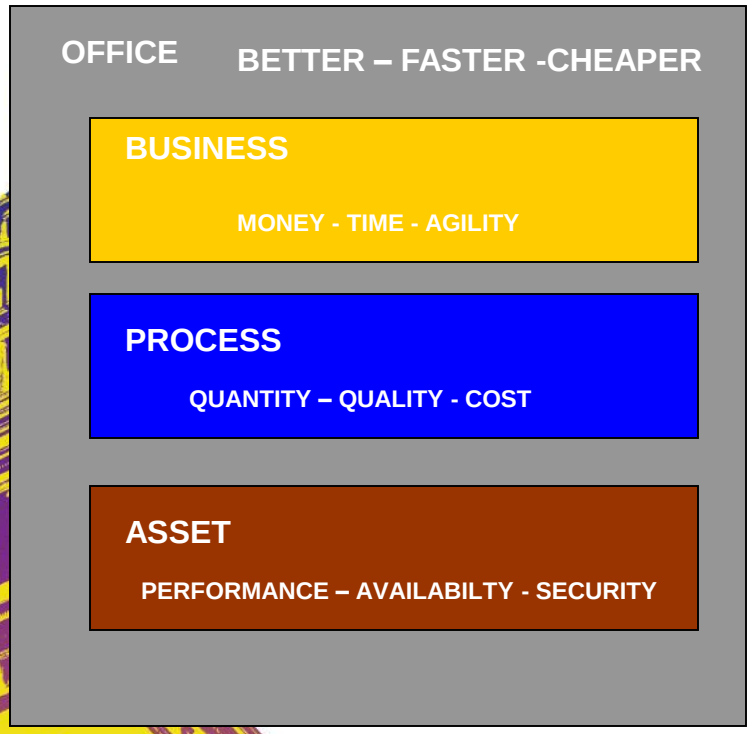
- AMR 72% of 2004 market is SAP, Peoplesoft, Oracle, Sage Group and Microsoft
- Yearly Reports 2003



Strategic Asset Management Vendors

- MRO Software MAXIMO
- Indus Passport and EMPAC
- Synergen Series
- Datastream MP2, MP7
- Mincom Ellipse

Business Value – Better Integration Business, Process, Asset and Office



- Involved & empowered USERS, having accurate information will improve company decision process. Less variance will result in higher efficiency and lower operation cost

- Tighter Production Control integrated with the business process will result in higher throughput, improved quality at lower cost

- Good supervision will result in good equipment performance, higher equipment availability and secure operation

Business Value

Accurate Inventory	Inventory Reorder Minimize Inventory Meet order requirements
Timely Data	Business Status in Real Time React to Business Issues Analysis in time to react or take advantage of opportunities
Automated Asset Availability	Focused Maintenance Expenditure Asset Availability Capital Utilization Reduced Costs
Quality Integration (on-line sensor integrate lab and process)	Compliance Reporting Process Improvements Timely Data

Business Value

Visibility	Collaborative Enterprise Sarbanes-Oxley Customer Responsive
Traceability	Compliance Reporting
Product production variables	Cost of production, increased margins
Performance Improvement	Performance Improvements over all manufacturing

Transform RtData into Transactions

- Data Buckets or not equivalent on both sides, there is no simple mapping of single value from one system to the other

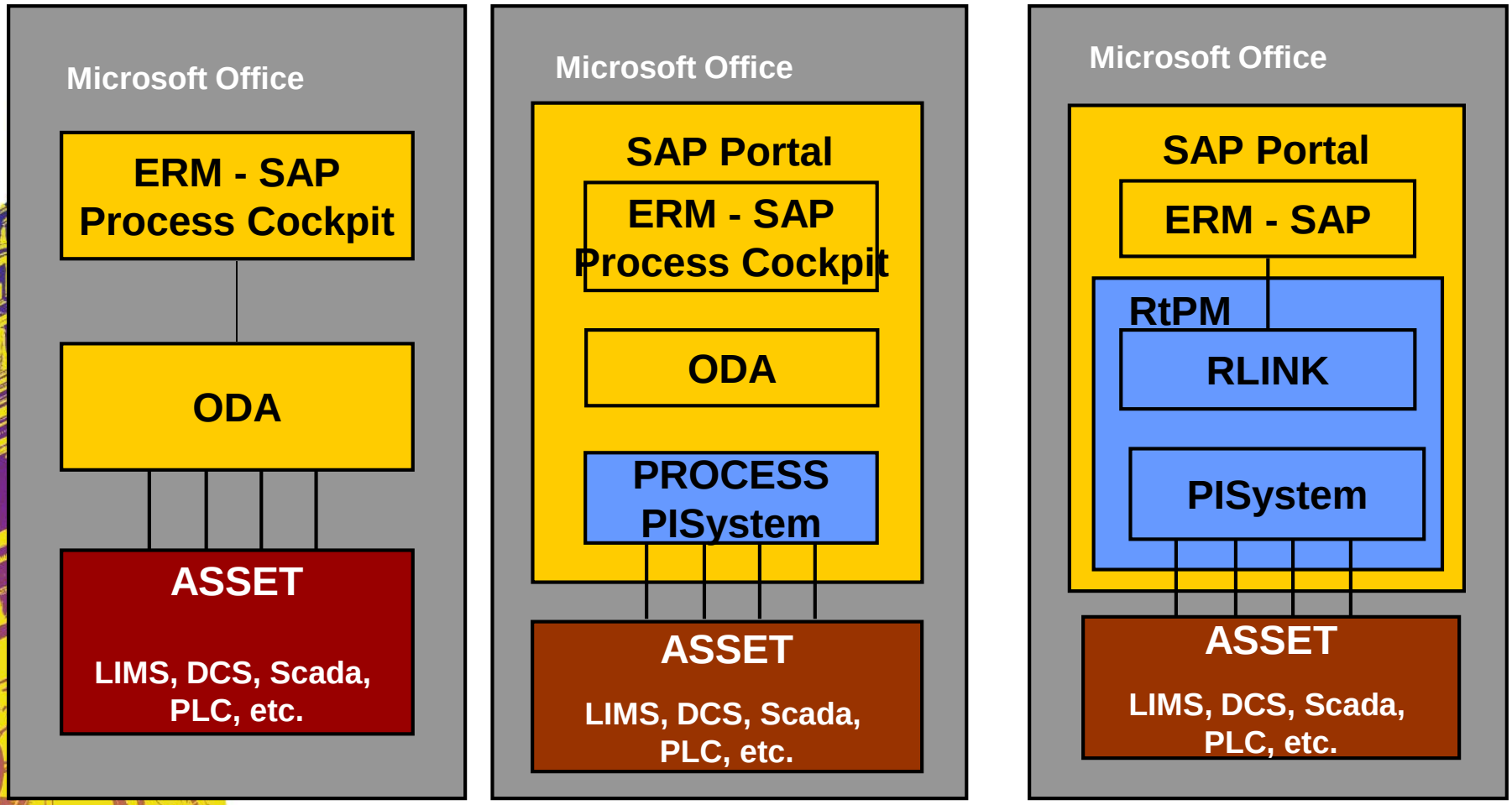
- Sensor Alarm for Plant Maintenance
  - SAM and ERP systems talk in terms of work orders, notifications, steps to execute work order
  - Some systems have no place to record reading value
  - Alarm must be translated to notification or work order
  - Status must be monitored

- Tank Inventory Values
  - Inventory can only be posted as goods movement resulting from goods receipt for purchase order or goods receipt or issue for process, production order
  - Cost production, confirm against orders
  - No equivalent to tank inventory
  - Adjustments to inventory must be made according to respective order

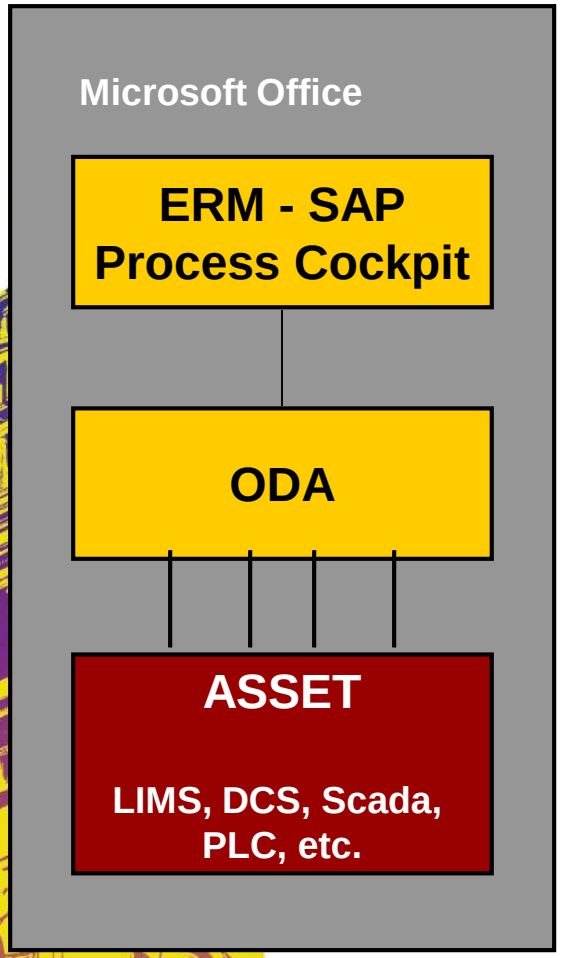
Technology Options

- Manufacturing Process Management Integration
- Portal Integration
- Business Warehouse
- Message Bus

Solution Spectrum for Manufacturing for SAP

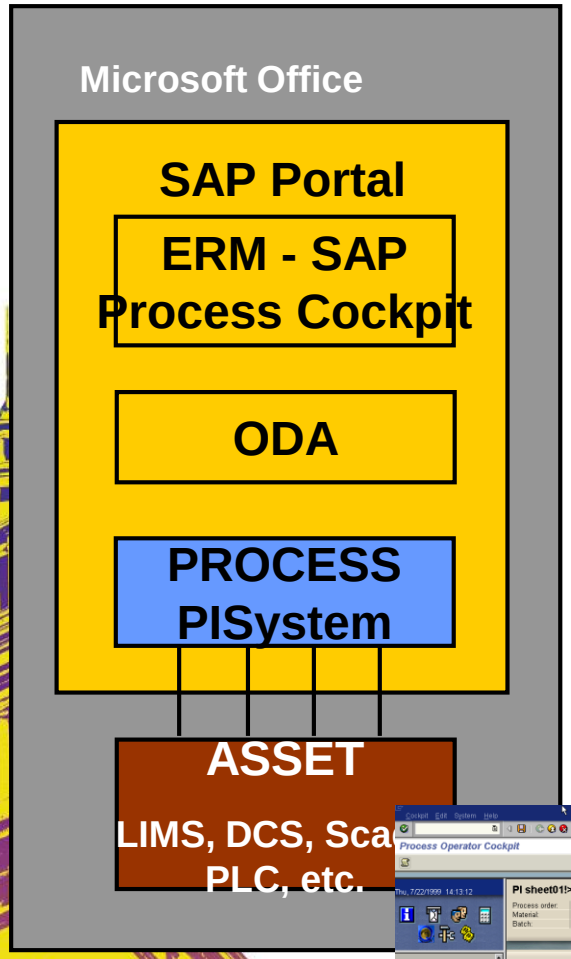


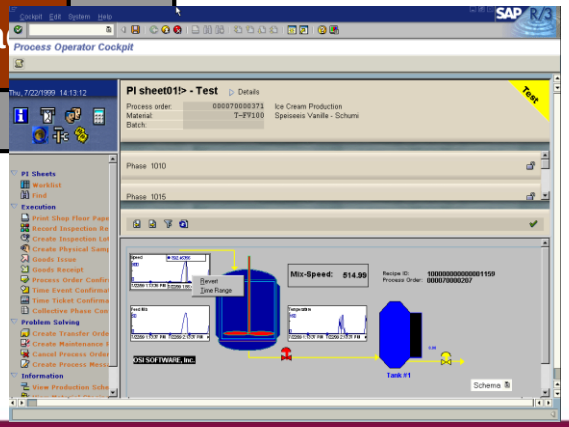
Solution Spectrum for Manufacturing for SAP - Option 1



- Designed for enterprise functionality
- Missing Knowledge of the Process
- Adapting to changes is a project
- No process analysis for improvement
- Process and Business isolated by time
- No Potential of improvement from Automation
- Multiple versions of OPC needed to support

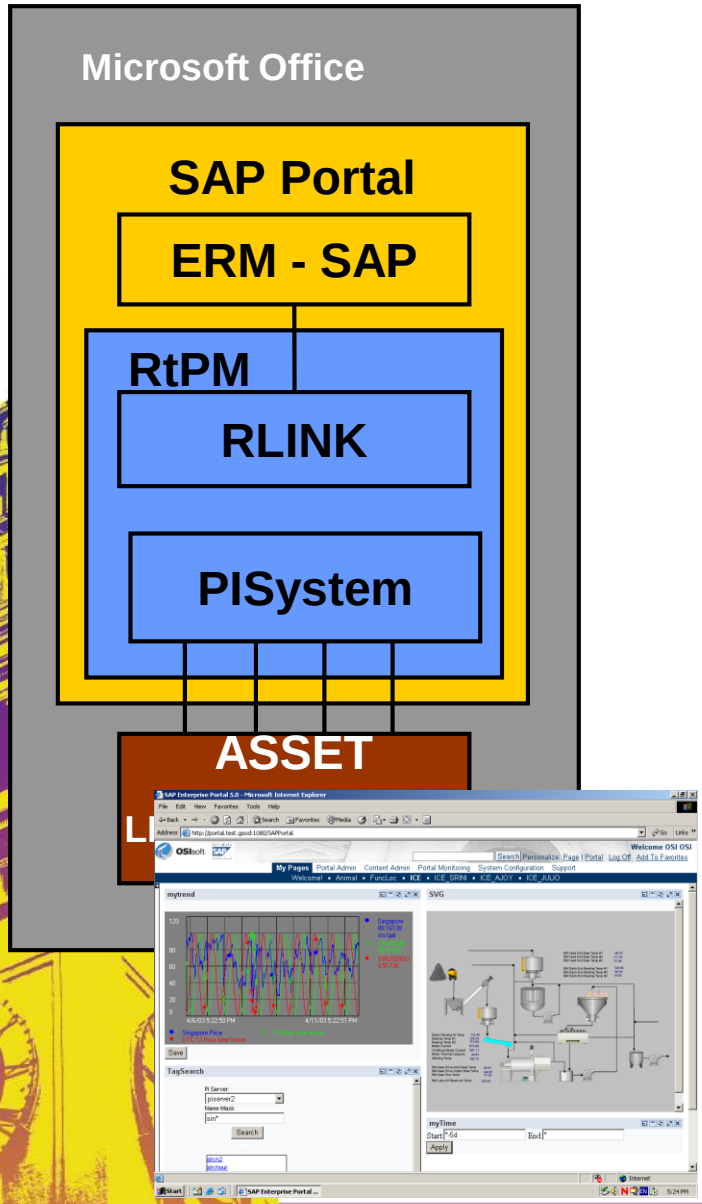
Solution Spectrum for Manufacturing for SAP – Option 2





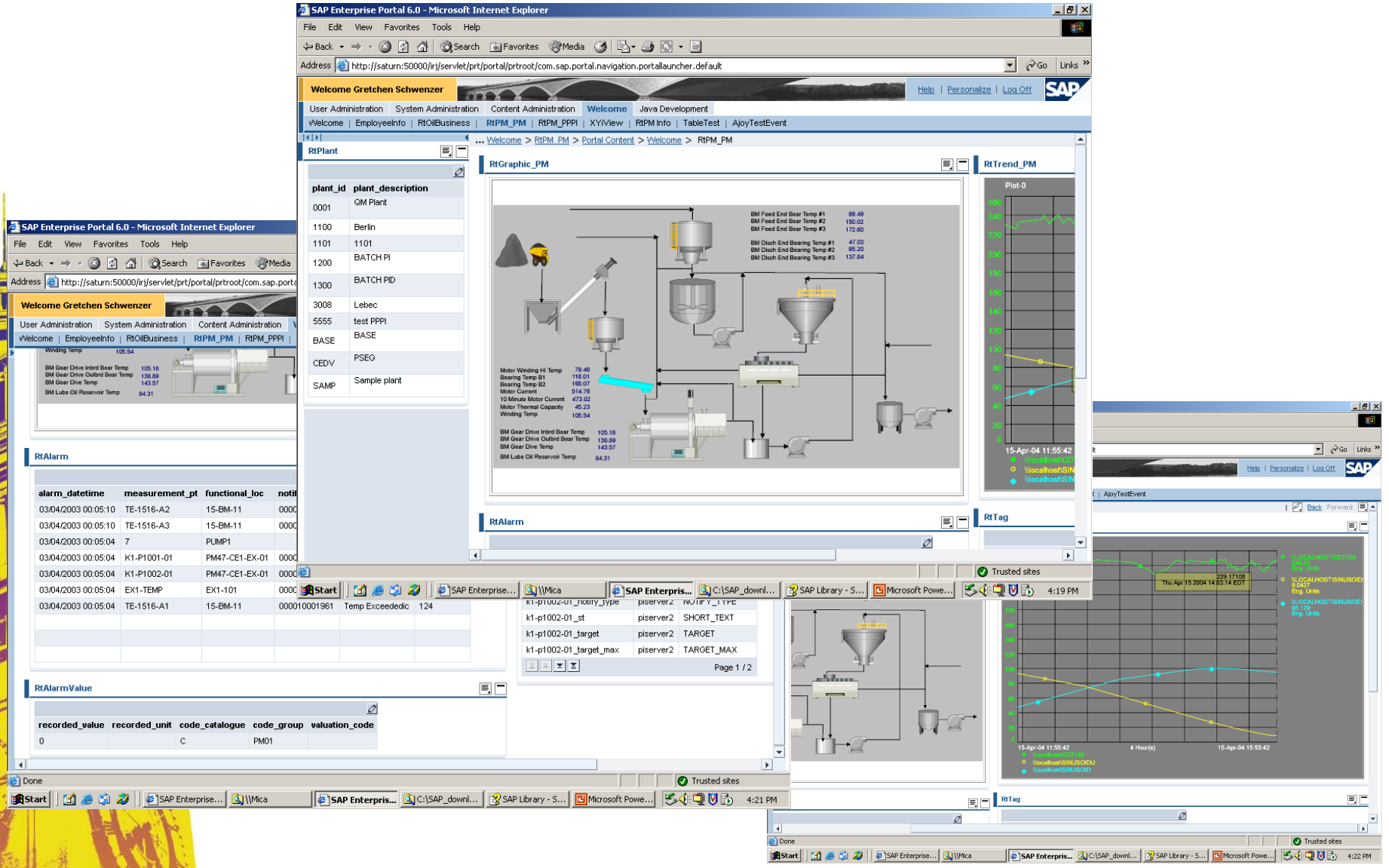
- One variety of OPC
- Calculations – no data to SAP is a raw value
- Configuration isolated at the PISystem level, no need to change SAP recipe
- Brings data from OPC as well as other data sources. Thus protecting your investment in data collection systems
- Performance analysis across business and automation shop floor systems: Scada, Lims, DCS, PLC etc.
- Alarming and Eventing
- Active View schematic integration into the SAP Process Cockpit or SAP Portal. One graphic instead of multi-vendor approaches. Reduce training and cost of ownership
- PISystem becomes Data Warehouse for time based data used in conjunction with SAP Business Warehouse
- SQC, Performance Analysis, Modeling, Golden Batch Analysis
- One set of Rules and Tools for Modeling and Analysis

Solution Spectrum for Manufacturing for SAP – Option 3



- Manufacturing floor independence from ERP – buffering data no data lost
- High cost to write and maintain SAP PI Sheets replaced with simple recipes
- All data captured in time based for analysis (Lab, PM, Manual Entries)
- Integration LAB, ASSET, Performance data for business improvement PM, QM Integration
- Analysis tools across enterprise RtPM
- User interface acceptance ProcessBook and HMI
- Automated with minimal user interaction vs. Manual or Semi automatic and no automation system potential
- Error handling exception handling does not interrupt execution. Knows what data cannot be collected and why
- Data automatically calculated and summarized by EVENTS (some time delayed)

OSIsoft RtPM Business Package for the SAP Portal EP 6.0



OSIsoft RtPM Business Package for the SAP Portal

- Certified by SAP Interface Software for SAP NetWeaver™
- Eventing between iViews
- Role-based views
- Combine Process and Business views on same page
- Combine Multi-business functions in view
- User designed, configured
- Limited to Vendors with SAP Relationship

SAP® Certified Integration

DISCOVER YOUR PORTAL TO PERFORMANCE

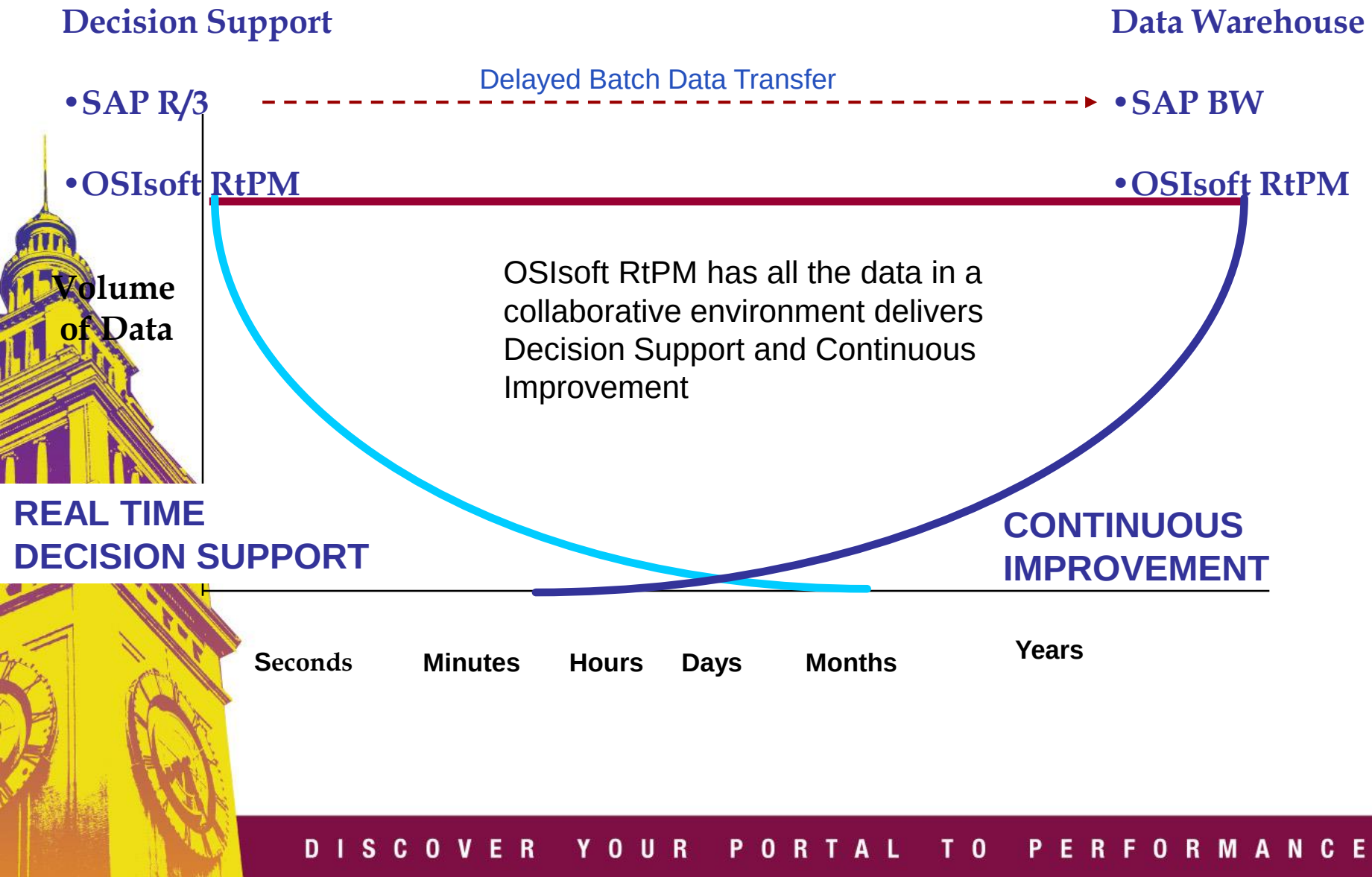
Business Package

- Certification
- Downloadable from SAP site
- Selling license to ICE and RLINK
- Customer incorporates into many applications
- We fix scope and definition

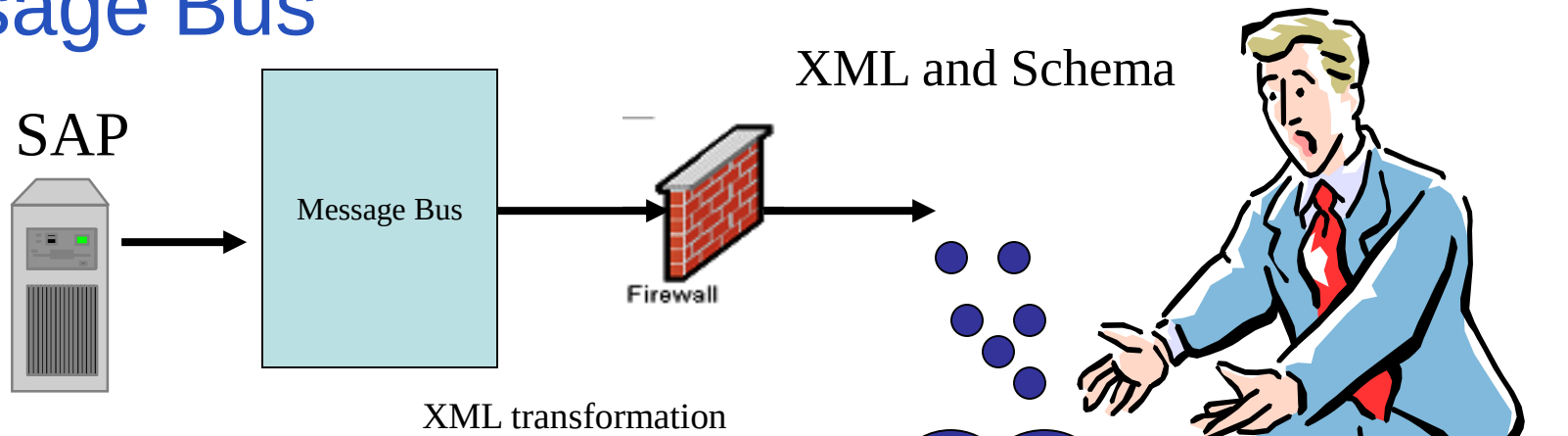
xAPP

- Defined application
- Approved application by SAP
- Fixed scope resolved with SAP
- Marketing announcements by SAP
- SAP uses to sell seats to portal

RtPM and Transactions to Business Warehouse



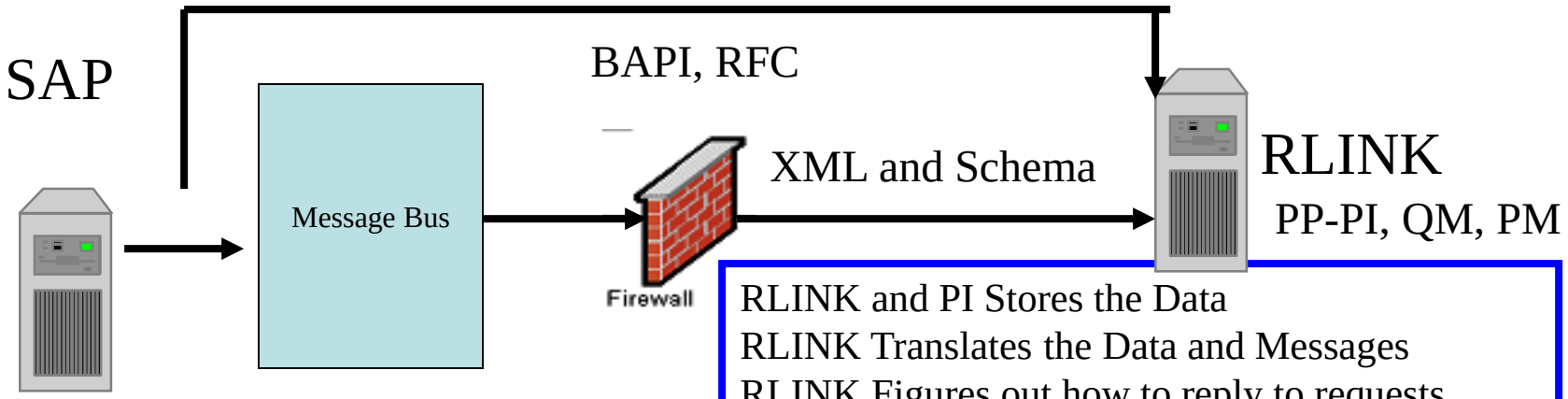
Message Bus



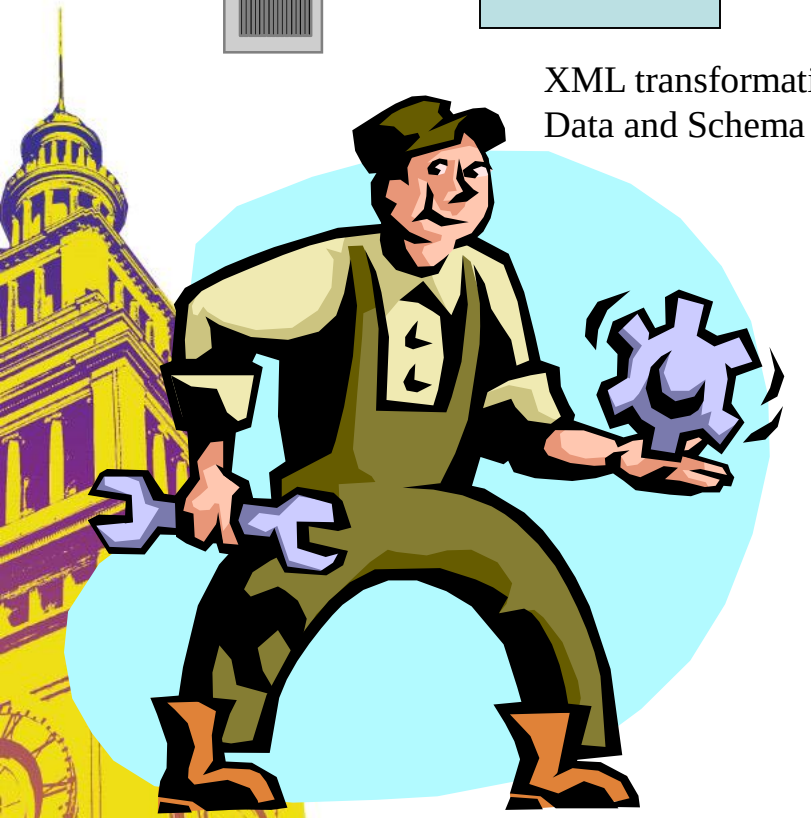
Who Stores the Data?
Who Translates the Data?
Who Figures out how to reply to requests?
Who traces errors in requests and data?
Who interfaces to sensors?
Who figures out when to reply?
Who presents data to the user?
Where is analysis done?
Who traces the completion and knows what is missing?
Who holds data when servers are down?
How does this fit with my Portal?
Who schedules the collection of data?
Who aggregates the data?
Who cleanses the data?
Who formats the data?

Custom Connector or Adaptor

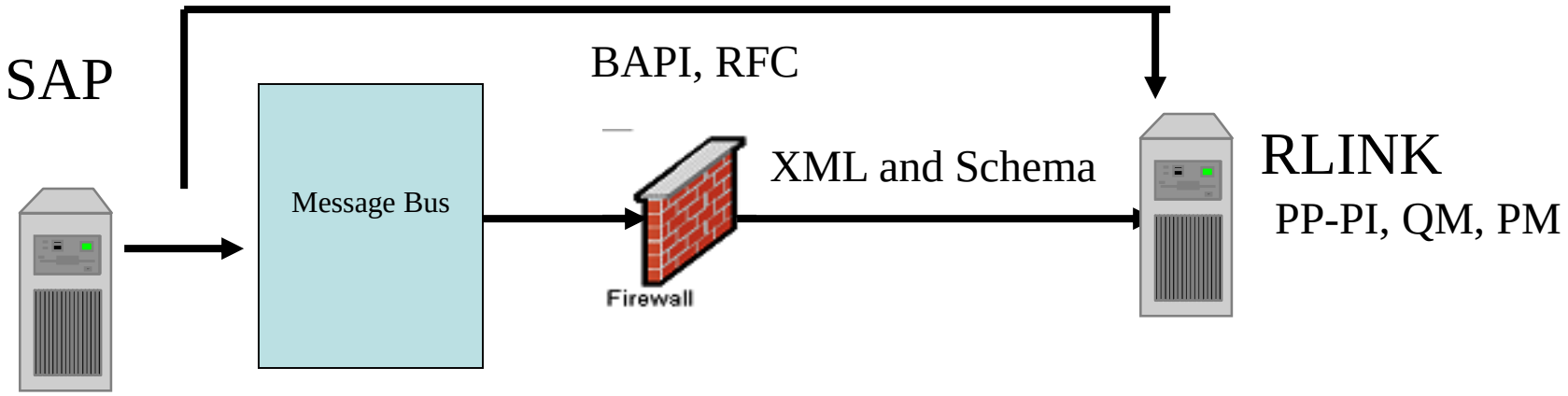
How do I support the mapping?
How do I build a connector?
How do I handle upgrades?
What are my on-going costs?



XML transformation
Data and Schema



RLINK and PI Stores the Data
RLINK Translates the Data and Messages
RLINK Figures out how to reply to requests
RLINK Detects errors in requests and data
PI Interfaces to sensors
RLINK Figures out when to reply and how
RLINK Traces the completion and knows what is missing
ProcessBook presents data to the user
PI and ProcessBook does the analysis
PI and RLINK stores data when servers are down
PI-ICE and PI-ActiveView work with mySAP.com and other portals and gives me web parts
RLINK schedules the collection of data
RLINK aggregates the data
Sigmafine cleanses the data
RLINK formats the data
RLINK stores Business Rules



BAPI and RFC

Direct Connection
Immediate Delivery
Guaranteed Delivery
Certified End to End
Internal Company
Graphics Connection
Standard install
Standard Tools

Message Bus

Crosses Firewall
XML Based
Must Configure Business Connector
Message Queue Delivery
Another point of failure
Handles exchange between companies
Still requires support of same BAPI's and RFC's
Development Tools of connector Requires

RLINK

PI

Message Bus

Firewall

XML and Schema

XML Integration Broker

Translates
Formats
Interprets
Checks
Aggregates
Traces
Stores
Answers
Calculations
Business Rules

History

Interfaces

UDS Server

Calculates

BAPI and RFC

BAPI RFC Inter-face

Certified!!
Upgrades
Fixed Costs

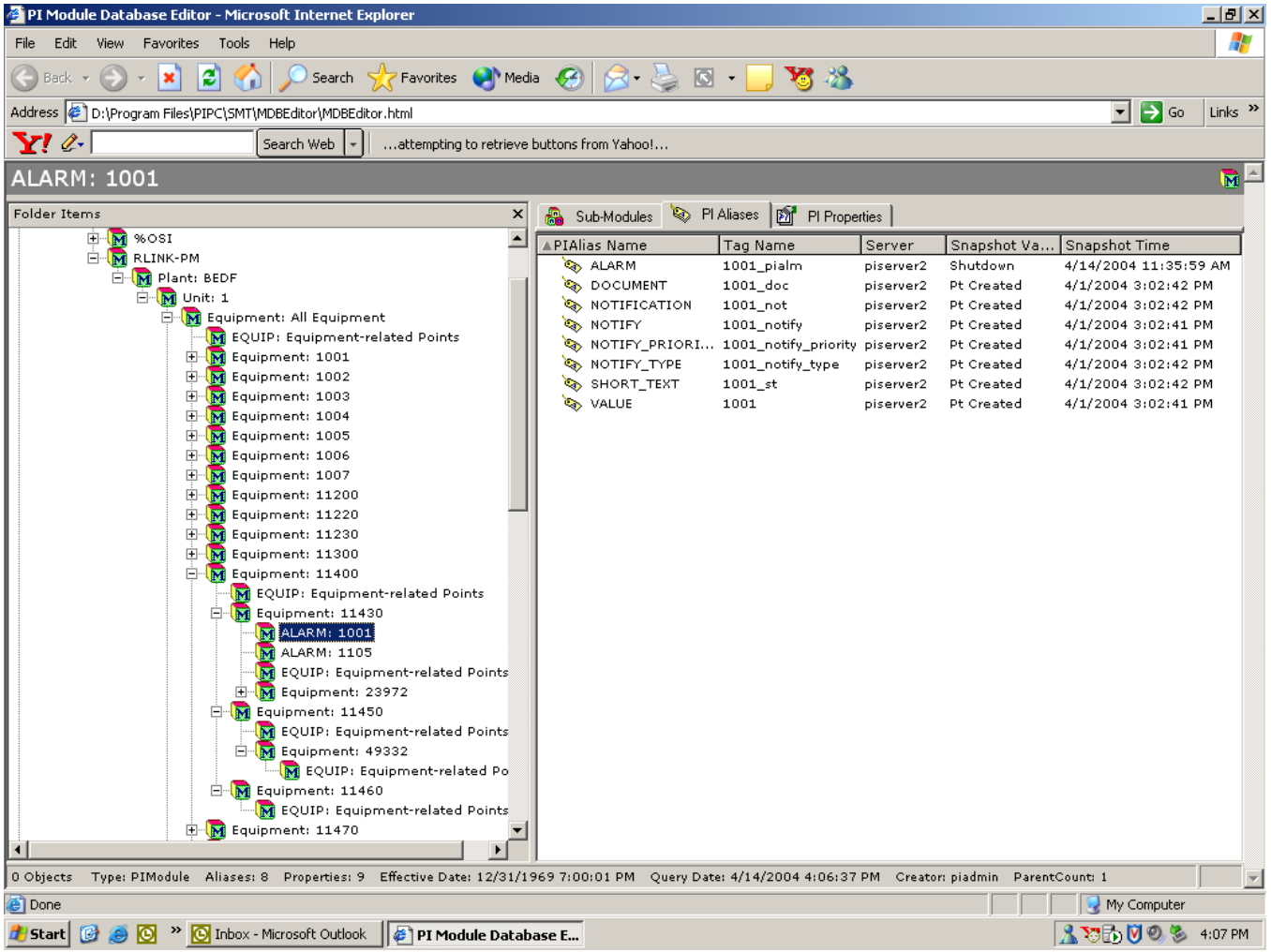
Project Execution

- Create a multidisciplinary Team
- Identify workflow and constraints
- Prototype small facility to explore concepts and identify issues
- Plan for and Incorporate early in project schedule
- Plan for data validation

RLINK what is new

- SAP PP-PI
  - Repetitive Manufacturing with Albermale
- SAP PM
  - Support of 17 additional BAPI's
    - Create maintenance Order :BAPI_ALM_ORDER_MAINTAIN
    - Change Maintenance Order :BAPI_ALM_ORDER_MAINTAIN
    - Display/Read Maintenance Order :BAPI_ALM_ORDER_GET_DETAIL
    - Find Maintenance Order :BAPI_ALM_ORDERHEAD_GET_LIST
    - Create Equipment Mater Record: BAPI_EQUI_CREATE
    - Change Equipment Master Record: BAPI_EQUI_CHANGE
    - Display/Read Equipment Master Record :BAPI_EQUI_GETDETAIL
    - Find Equipment Master Record: BAPI_EQUI_GETLIST
    - Create Functional Location: BAPI_FUNCLOC_CREATE
    - Change Functional Location : BAPI_FUNCLOC_CHANGE
    - Display/Read Functional Location: BAPI_FUNCLOC_GETDETAIL
    - Find Functional Location: BAPI_FUNCLOC_GETLIST
    - Create Maintenance Notification: BAPI_ALM_NOTIF_CREATE
    - Change Maintenance Notification: BAPI_ALM_NOTIF_DATA_MODIFY
    - Display/Read Maintenance Notification : BAPI_ALM_NOTIF_GET_DETAIL
    - Find Maintenance Notification: BAPI_ALM_NOTIF_LIST_EQUI or BAPI_ALM_NOTIF_LIST_FUNCLOC
  - Automatic load of Functional Locations and Equipment RLINK and Module Database

Module Database automatically created from ERP – Maximo example



RLINK Developments

- MRO Software MAXIMO
  - Product Released last year new release will include equipment load, event status tracking
- PeopleSoft EnterpriseOne (J.D. Edwards OneWorld)
  - Agreeement with Peoplesoft in final phase
  - PM interface released Irving Paper
  - Other modules we are looking at include Product Data Management, Shop Floor, Inventory etc.
- Indus Passport and EMPAC
  - Used Mimosa standard developed XML based interface
- Synergen Series
  - Trying to identify common customer base with Synergen
- Oracle eBusinessSuite (eAM)
  - Investigating partnership looking for customer interest
- Datastream MP2, MP7
  - Preliminary stage
- Mincom Ellipse
  - Need Vendor and customer cooperation to pursue
- MIMOSA OSA-EAI

Questions?

- Salon A3 Tuesday
- Irving Paper Wednesday 8:00