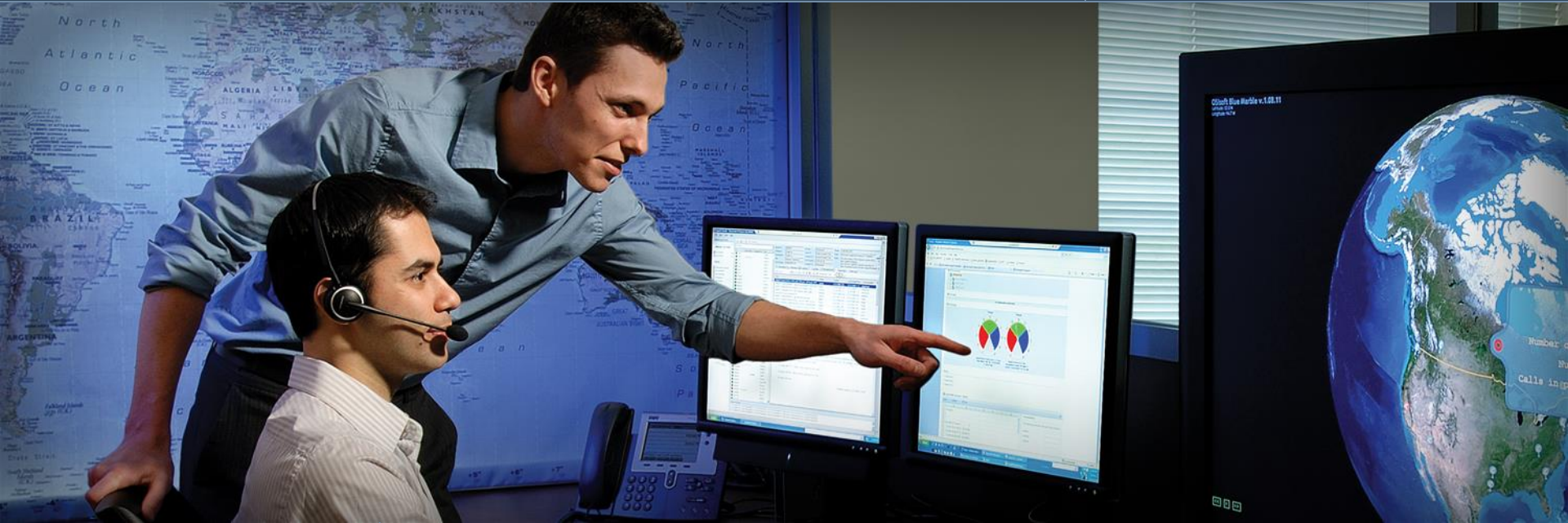OSIsoft®

Regional Seminar Series

Lubrizol Corp - Growth thru acquisitions and the Enterprise Agreement

Robert Low
Systems Integrator
Lubrizol Corp

Sandy O'Dell
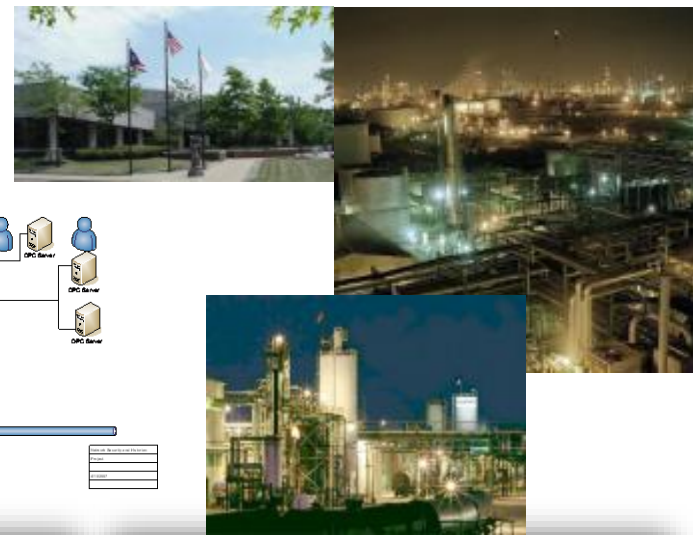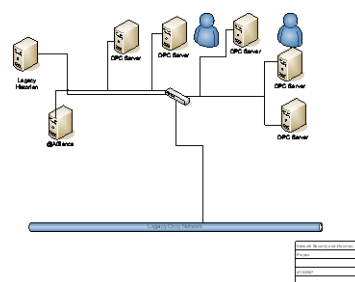Global IS Mgr – for Manufacturing and Maintenance
Lubrizol Corp

October 8th, 2009

The Challenge: Consistent integration of Real Time and Accounting Systems with New Construction and Acquired Assets

"In the past 5 years, Lubrizol has grown thru acquisition and new construction. In doing so, we inherited many real time systems including DCS, Historian and Accounting Systems. We have recently used the EA to leverage a single Historian corporate wide."

Customer Business Challenge	Solution	Customer Results / Benefits
• Provide the corporation with a standard environment for all projects dealing with production, quality or accounting information. • Reduce the requirement to support multiple DCS, Historian, Engineering and Accounting Systems. • Reuse/cookie cutter implementation efforts to reduce cost or projects. • Improve quality, usage and effectiveness of these systems.	• Implement PI and SAP at all facilities. • Develop a single standard for network security and DCS interfaces, allowing for remote support • Institute corporate standards for all new construction to use a single DCS, Historian and Accounting System.	• Single Historian and Accounting system reduces support cost. • Delivery of data in single vehicle. • Uniform training across Corporate Divisions • Cookie Cutter approach for rollout of sites • SMS Team can test single software package and apply world wide updates of Client Software • Support multiple requirements of Corporate versus Site Initiatives • 20% Cost Savings and measurable ROI

About Us

- ## Sandy O'Dell
  - Global IS Manager for Manufacturing and Maintenance

- ## Robert Low
  - System Integrator
  - Long time PI user

Empowering Business in Real Time.

- The Lubrizol Corporation is an innovative specialty chemical company focused on improving the quality and performance of our customers' products in the global transportation, industrial and consumer markets. While we serve many different markets, similar technologies drive their growth. Our focus is on surface active chemistries, rheology modifiers, and polymer and film technologies. Our customers know and value our ability at solving their problems and our ability to provide them with differentiable performance claims that they use in marketing their products.

  - Chairman, President and Chief Executive Officer: James L. Hambrick
  - 2008 Revenues: $5.0 billion
  - Headquarters: Cleveland, Ohio USA
  - Number of Employees Worldwide: 6,800

- The Lubrizol Corporation is geographically diverse, with an extensive global manufacturing, supply chain, technical and commercial infrastructure. Lubrizol owns and operates manufacturing facilities in 18 countries, as well as sales and technical offices around the world.

- Contact Information

- For additional information about The Lubrizol Corporation, visit our Web site at
  - www.lubrizol.com.

- ·

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- ## Lubrizol Additives (LZA)
  - The Lubrizol legacy was built upon the unprecedented pioneering of lubricant additives designed to improve the performance of fuels and lubricants for transportation and industry. Our engine oil additives offer an expansive range of applications, from cars to construction equipment, motorcycles to marine vessels. We also have a full range of gasoline, diesel and biofuel additives that can improve the performance of our customers' fuels. As the only additive company with a product line for all on- and off-road driveline applications, Lubrizol provides advanced technologies for use in transmission fluids, gear oil and farm tractor fluids. In addition, we offer performance additive packages and components for a wide range of industrial lubrication applications.

Lubrizol Divisions

- Lubrizol Advanced Materials (LZAM)
  - With an impressive history extending back to the 1870s (formerly BFGoodrich Performance Materials), Lubrizol Advanced Materials is a leading global producer of advanced specialty polymers, polymer-based additives and chemical additives.
  - Used in everyday consumer and industrial applications, our additives and ingredients can be found in everything you touch, from personal care products to pharmaceuticals, plastics technology to performance coatings. Businesses include: Estane® Engineered Polymers; Noveon® Consumer Specialties; Performance Coatings; and TempRite® Engineered Polymers

- ## How to support this Corporate Structure
  - ### We have 2 of everything
    - Business Divisions
    - Worldwide Footprint
    - Accounting Systems
    - Data Historians
    - DCS Vendors
  - ### Multiple user communities
    - Corporate Quality Assurance
    - Plant Quality Assurance
    - Plant Engineering
    - Plant Operations

- ## Reality was we could not support this.

Challenges

Cost of keeping existing was too high

- Yearly maintenance payments for 2 different Data historians
- Resource costs for 2 different Data historians
  - Software
    - Upgrades
    - Issue Resolution
  - Servers
    - Operating Systems upgrades
    - Security patches
  - Cross Training of Personnel
  - Corporate Certification of Client Software

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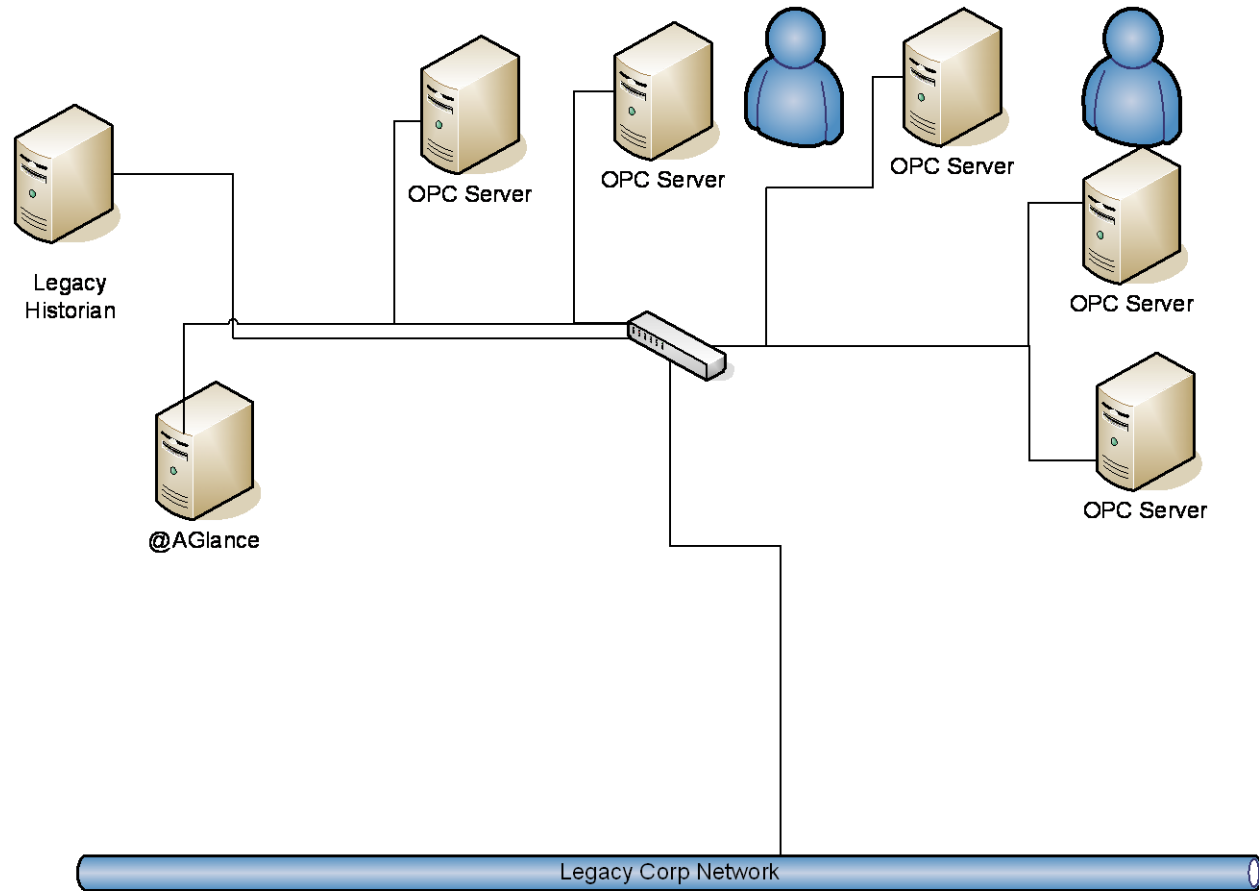
Challenges –Decision Path

- Single hardware environment
  - Similar Server H/W
  - Single O/S
  - Cisco Firewalls
  - Remote Access/Support
- Similar yet flexible standard site environment
- Centralized support
- Single Training Requirement
- Yearly spend to remain unchanged (as much as possible)
- Support site and corporate initiatives

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Challenges –Decision Path

- Which Data Historian to use?
  - Cost to change
  - Cost to support
  - Functionality
  - In house expertise

- Decision was made standardized on OSI PI Data Historian

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Lubrizol – Enterprise Agreement

- Signed EA in 2007

- Software implemented:
  - PI Server
  - PI Batch (LZAM Sites)
  - PI Clients
  - PIWebParts
  - Interfaces
    - OPC-DA
    - OPC-HDA
    - Smart connectors

- Had Existing Agreement for LZA PI System

- New Agreement provides path forward for acquisitions and new construction

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Implementation

- Identified sites to get servers
- Identified sites to be rolled up to regional servers
- Installed PI servers at 2 US Sites, 1 European DC and updated existing DC Server
- Identified interfaces required
  - OPC
  - Legacy and unsupported Interfaces/Operating Systems
  - Manual Entry Screens (Lab Data)
- Identified Corporate Resources
  - Project Mgr
  - Network Team
  - PI Team
  - SAP Process
  - Data Security

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Legacy
Historian

OPC Server

OPC Server

OPC Server

OPC Server

OPC Server

@AGlance

Legacy Corp Network

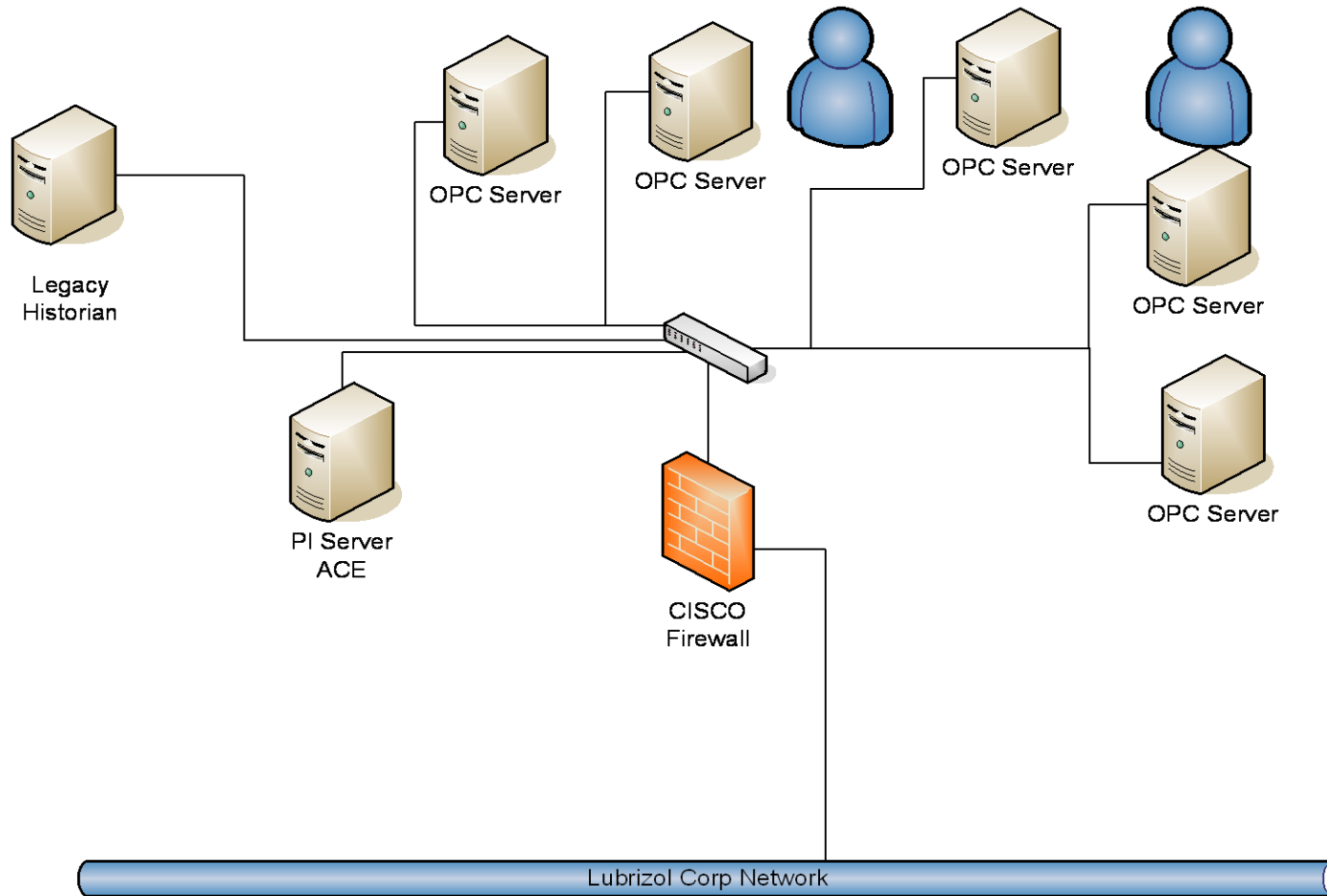| Network Security and Historian |
| --- |
| Project |
| |
| 4/10/2007 |
| |

Implementation

- **Identified Site Resources**
  - Site Technical Resources for interfaces
  - Local SME
  - Batch Resources
  - Lab Personnel for Data Entry Systems
- **Who to Train**
  - Mgmt Training
  - Engineer/Technical Training
  - Operator Training
- **Parallel Operations**
- **Retirement plans for Legacy hardware**

Implementation Challenges - Culture

- ## Culture of Change
  - Fear of new systems
  - Time involved, double effort
  - Retraining versus Updating
  - Cost
    - Software
    - Hardware
    - Manpower
  - Commitment from Management
  - Buy in from the sites

- Way Points
  - At 6 months, we had visited each major site at least once
  - Two larger sites required more manpower
    - Batch Component
    - Calculations
    - Manual Entry Systems
  - Two smaller sites required new interfaces
    - Issues with O/S supporting new technology
    - Purchased new OPC server to replace legacy interface
  - Lessons Learned
    - House of Cards
    - Legacy batch (Dark Hole)
    - ACE best practices

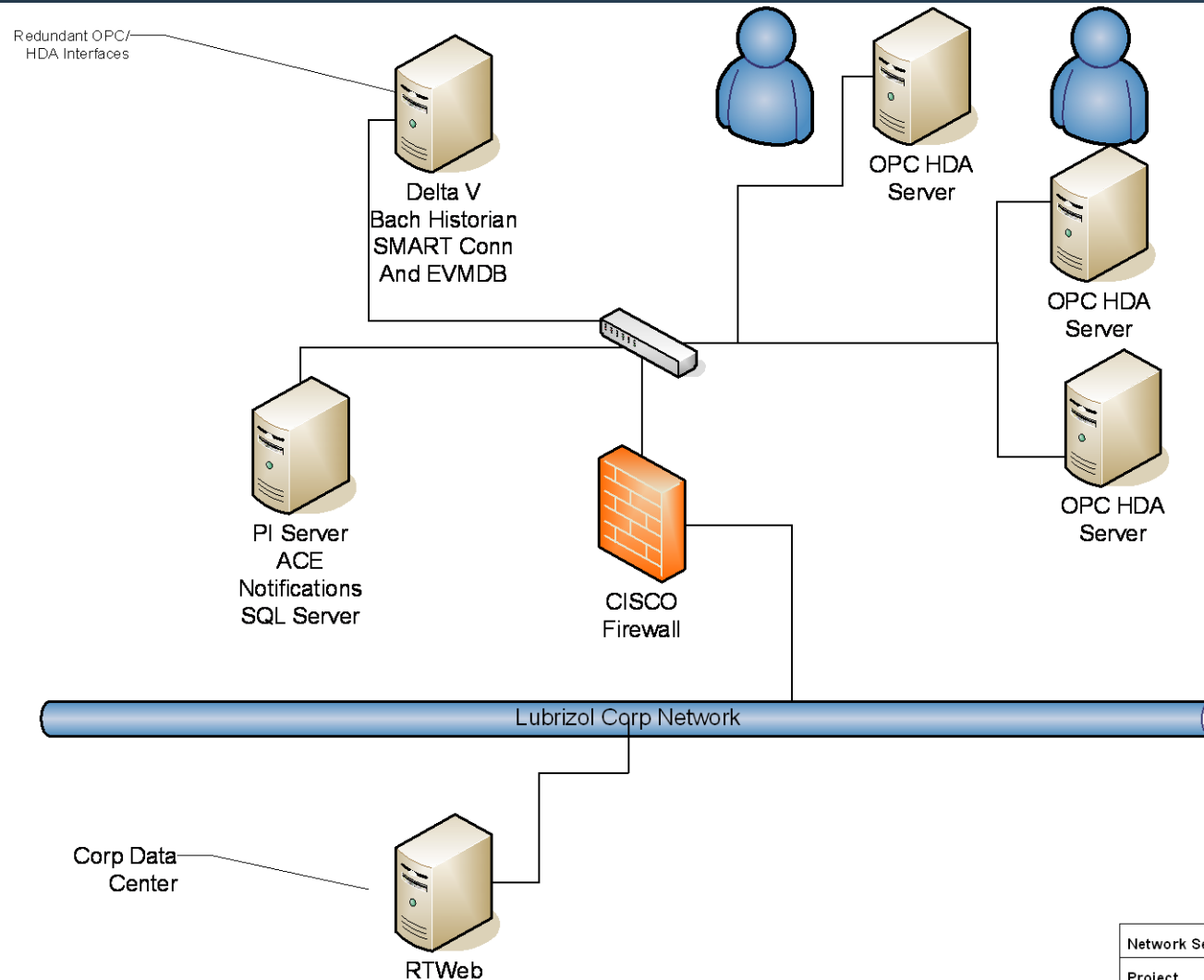- Best Practices established for year 1 and beyond

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Implementation –LZAM @18 Months

- Established Retirement Dates for Legacy
- Go Live or Go Home!
- Parallel Operations highlighted deficiencies
- Upgraded Fractional T1 at some sites
- Training/Need to have local mentors
- Backfilled Legacy Data
- Centralized Support for Historian
- Starting to use Notifications and PIWebParts

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Implementation –LZAM 2009

- ## First PI Client updates
  - Certified latest S/W from OSISoft
    - PIPB
    - PIDL
    - PI Notifications
    - PI SDK
    - PI Batchview

- ## Looking to use Smart Connectors
  - Emerson Delta V®
    - Batch Database to PI Batch
    - OPC-HDA/DA
    - Alarm/Events
  - ABB® (Oracle®)based batch records
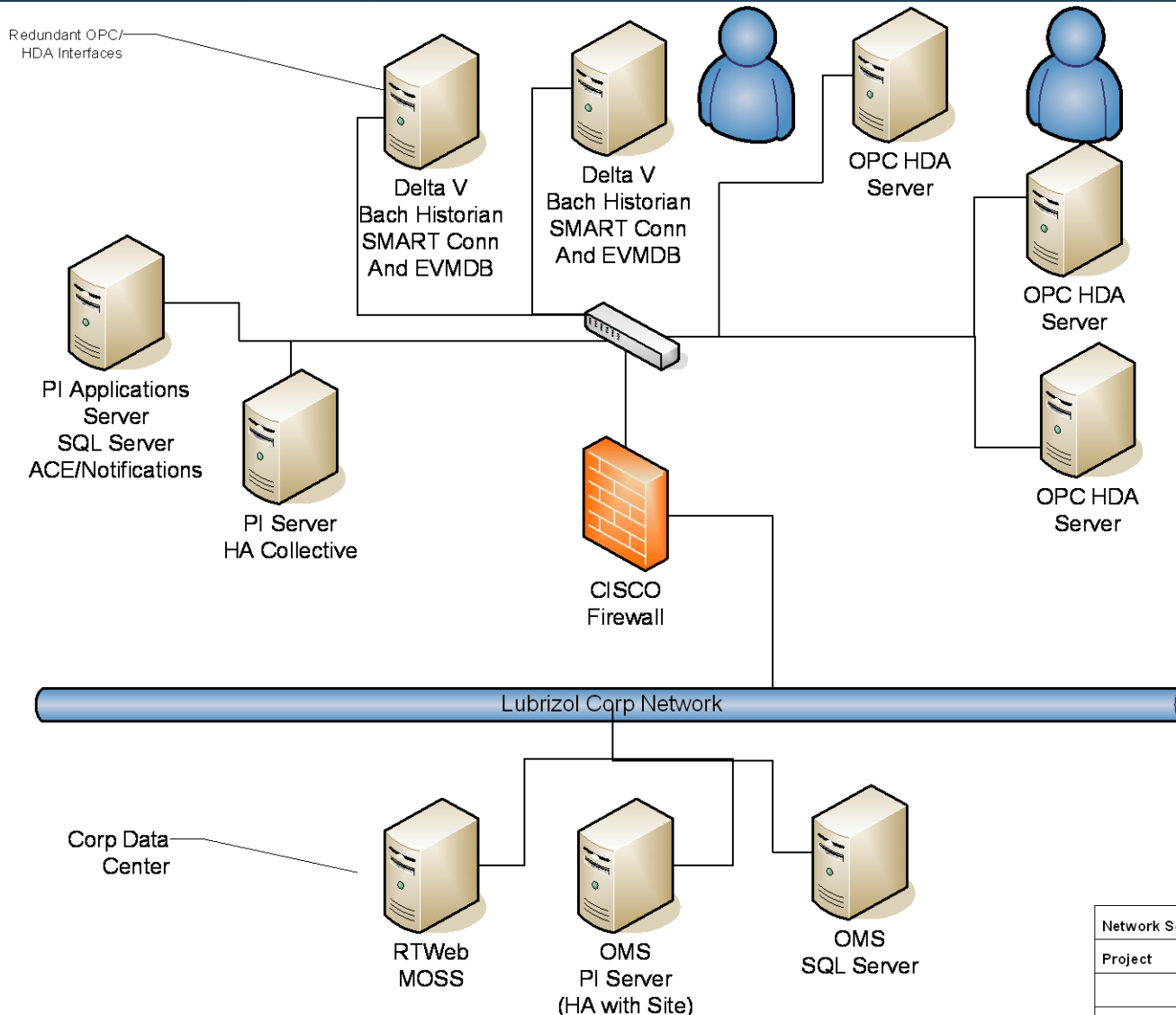   - Oracle to PI Batch
    - Alarm/Events

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Implementation –LZA Updates

- PI Server updates (3-6 Months)
- Monthly/Quarterly IT Operating System Updates
- SMS Team testing of new PI Client
- PI Batch deployed
- PI Smart Connectors deployed on all Emerson Delta V®

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- OPC Alarm and Events
- Smart Connectors on Emerson Delta V®
- PIWebParts upgrade to MOSS?
- Notifications for all
- PI 3.4.380 and Active Directory/Single Login
- PIHA Architecture
- Redundant OPC-DA and HDA Servers

- Both Divisions now participate in OMS planning

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- Looking to support common technologies
  - OSISoft
    - PIHA
    - Batch
    - Client Products
  - Emerson®/ABB®
    - SMART Connectors
    - OPC DA/HDA
    - Alarm/Events
  - Microsoft®
    - Operating Systems
    - SQL Server®
    - Sharepoint®

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LZ Architecture

PI Applications
Server
SQL Server
ACE/Notifications

ACE running in DotNet 2008 environment

SQL Server would host both PI Batch data records and
OPC Alarm/Event Data.

Single queries from user desktop and/or Webservice
Would be able to get PI and SQL Data

Lubrizol shares resources with Site Operations so a single
SQL Server instance may contain PI Data, Emerson Batch
And Alarm/Event Data, Weather Data and
Leak Detection and Environmental Reporting Data

Network Security and Historian
Project
2010 and beyond

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LZ Architecture

PI Server
HA Collective at Site

PI Server
HA Collective at Site 2

PI Server
HA Collective at Site 3

OMS
PI Server
(HA with Site or Sites)
aka – Federated Server

Data center based repository but not limited
To a single site. Pulls required data for OMS
From multiple sites.

| Network Security and Historian |
| Project |
| |
| 2010 and beyond |
| |

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- EA Status
- Metrics for Success
  - Did we save any money or reduce cost?
  - Are we showing ROI?
  - Did we meet corporate and site objectives?
  - Can we determine the value of the EA?
  - Can we continue to meet/exceed or exceed requirements of the business?

Thank you