Intellectual Property Protection Practices when Exchanging Data

Brian Schouten PROSTEP Inc
• **Take Away Topics**
  • An awareness of various ways that data may be leaking from your organization
  • Simple and affordable steps to increase the utilization of secure data exchange
  • Options for deeper supplier integration scenarios
Protecting trade secrets is a challenge in a global economy

Commentary: Governments have a role to play through national laws and international treaties.

WASHINGTON DC—The emergence of the global economy has given rise to a persistent struggle to protect intellectual property against theft, leading over time to a framework for the protection of trademarks, copyrights and patents.

However, these laws and norms do little to safeguard company trade secrets, those increasingly valuable intellectual property assets that include market data, formulas, research, strategic plans and customer lists.
Data Exchange / Collaboration

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- Getting the Right Information
  - Correct Version / Iteration
  - Appropriate IP exposure
  - Correct Configuration
- To the Right Person
  - Controlled Access
  - Audit Reports
- At the Right Time
  - Minimal Lag Time
  - In the Field Updates
- In the Right Format
  - Purpose Driven
- Globally Accessible
  - Via Internet, OFTP, or other standards based protocols
Typical Challenges

- Large Documents
- IP (Intellectual Property) Protection
- Traceability / Audits / Reports
- Encryption / Compression
- Collaboration Web Spaces
- Ease of Use
- Outlook Integration
- Back End Systems Integration (like PLM)
- Mobile Integration (like IPhone)
- Distributed Data Vaults
- LDAP / Other Authentication
Today’s Methods
Audience Survey

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Poll - What Data Exchange Methods are used Today

- Email
- FTP
- EDI
- CD/DVD
- Tape
- External Drive / USB
- File Shares (VPN)
- External Application (eg Dropbox)
- Industry Portals (eg Government)
- HomeGrown Portal
- Odette OFTP
- Modems
- Smoke Signals / Morse Code
Data Exchange / IP Protection

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Email & FTP – Really?
How old are your protocols?

• **Simple Mail Transfer Protocol (SMTP)** is an Internet standard for electronic mail (e-mail) transmission across Internet Protocol (IP) networks. SMTP was first defined by RFC 821 in **1982** and grew out of standards developed during the 1970s.

• **File Transfer Protocol (FTP)** is a standard network protocol used to transfer files from one host to another host over a TCP-based network, such as the Internet. FTP is built on a client-server architecture and uses separate control and data connections between the client and the server typically with **clear text authentication** and published as RFC 114 in **1971**

Why do we keep doing it?

“increasing convenience almost always reduces security”

…. but does it really have to be that way?
**Standalone “Simple” Portal Solutions**

- Quick / Easy to Deploy
- Simple Administration
- Affordable (sometimes free)
- Good Basic Security (outside of email)
- Often Hosted outside of company *

*Not Integrated (Swivel Chair) Solution – Less Convenience (must be logged in and online) – Can be hard to customize –*  
*Monthly Fees for users / volume add up quickly –*
**Advanced Portal Concepts**

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Automated Processes
- Upload and download with Agent, installed at the user's desktop

Manual Processes
- User sign on over WEB-Browser and up- or download data manually, interactively

Advanced Portal Solutions

- Deeply integrated into systems and processes
- Fully automated and work behind the scenes
- Installed in the enterprise or the cloud
- Centralized or Distributed
- Designed for customization

Batch Mode
- Data are temporarily stored quickly in local network drive
- Transfer of data to run completely in a batch mode

Remote Data Vaults
- Supplier signs in over WEB-Browser
- Data is uploaded from a data vault close to the end user

Advanced Functionality
- Encryption
- Local File Vaults
- Local conversion of data

System to System
- Automated / Integrated

Upfront Infrastructure Costs – Upfront Planning Requirement – Administrative Overhead –
Convenient and Secure?

Secure exchange needs to start as close possible to the end users daily working environment
  • Desktop Integration
  • Email Integration
  • PLM Integration
  • Purchasing / Bid Systems
If users have to leave their default working environment to send secure information, they are less likely to use the approved solution.
Access from anywhere / any system

Common Secure Portal Solution

Outlook Integration

Web-Browser GUI

AGENTS (semi-automatic)

ROBOTS

OFTP/ENGDAT

Access from anywhere / any system

Windows Desktop Plug-In (“Send To”)

Windows Explorer Integration

PDM System Plug-in

Mobile Apps
Email Secure Send Demo

Email (Outlook) Secure DX Integration Demo
• Internal User Initiates an email in Outlook
• Size / Type of Data trips a switch this is secure / large data
• Data is sent to Secure DX Server (not the exchange server)

THE END USER HAS NOT CHANGED ANY PRACTICES
• ZERO TRAINING
• POLICIES ARE 100% ENFORCED WITH POLICIES
• STOPS EMAIL IP LEAKAGE!

Audit Logs are kept separate from Clients and Mail Servers
Data is always encrypted before transport outside of enterprise
No data Load on Mail Server
Email Secure Receive

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• **Email (Outlook) Secure DX Integration Demo**
  • External user Receives an Outlook Email
  • User Clicks on Download Data
• **Secure DX Link is invoked**
  • Data is downloaded from the DX Portal (not Exchange)
  • and decrypted for the recipient all from within Outlook
• **The end user has only one minor obvious change**
  • Zero (0.01%) self training
Desktop Integration (Drop Zones)
Scaling up Complexity with back end systems integration and automation

• Dealing with Engineering Data (of course) plus
  • ERP Data
  • MRP Data
  • Bids
  • Financials
  • More
• Centralized Reporting on all confidential Information
Integrated Solutions

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PLM

ERP

Purchasing

Requirements

Other

Quality Check

CAD Translation

Input native CAD data
Vendor specific parameter
Vendor specific output format

OPENPDM

OPENDXM

Elysis

Northrop Grumman

Boeing

Parker

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Purpose Driven DX

- You don’t have to give away the corporate jewels

- Systematic and Automatic processes can transform your data prior to data exchange to allow only the minimal information required for the recipient to do their job.

- Data can be “dumbed down” with history, features and other IP related elements removed.

- Each recipient can have a “data profile” that determines what they can receive.

- Neutral formats can be created, on the fly
  - NX
  - JT
  - STEP
  - 3DPDF
  - Etc
DRM Controlled Documents

- DRM Protected Documents
  - Limit Access to named users
  - Revoke Rights in the field
  - Force Updates to Latest Document Versions
  - Authentic via PKI, AD, LDAP, RSA, Others

- Limit Document Features
  - Read Only
  - Save
  - Print
  - Copy
  - Measure
  - Cross Sections
  - Etc

- Traceability Logs by Document
Windchill – External Demo

- Windchill Demo External
  - Starts in Windchill
  - 3D PDF / Design Review Template Created
  - PDF uploaded to secure encrypted portal
  - PDF is Modified
  - PDF is Uploaded back to Secure Portal
  - File is uploaded to Windchill and Attributes populated
• SmarTeam to Windchill Demo (PDM to PDM DX)
Final Advice From the Field

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• Start Today
• Use Free Trials to get a feeling for what does and does not work for your enterprise
• Look for a mix of Hosted or Self Installed Options
• Look for technology that integrates not only front end applications (Outlook, Desktop, Mobile) but back end applications like PLM, ERP, Etc
• Low Hanging Fruit to go after for DX Security
  • Outlook
  • Desktop
  • Web Based
• Don’t forget about protecting your data once it leaves your enterprise. Getting it there is only part of the equation.
  • Strip unneeded IP
  • Consider DRM solutions for when your data is in the wild.
• CONSIDER PRESENTATION 3173 at 11:40am Room 3, for a detailed use case example from The Nordam Group (Aerospace Supplier).
Company Overview

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A vendor neutral / independent engineering services and software company since 1993

Over 22 years experience with engineering interoperability, migration, intelligent documents, benchmarking, more

Approximately 250 employees and consultants based from international locations throughout Europe and in North America

More than 500 Customers that are leading companies across most industries

Shareholders

infocenter@prostep.com / 8-PROSTEP
Our Customers

Automotive OEMs
- Daimler
- Navistar
- PSA Peugeot Citroën
- Porsche
- Renault
- Audi
- BMW
- MAN
- Ford
- Toyota
- Tesla Motors

Automotive Suppliers
- Magna Steyr
- Continental
- Delphi
- Webasto
- Röchling Automotive
- Mahle
- Valeo
- ZF
- Sachs
- TRW
- BOSCH
- Brose
- Knorr-Bremse
- Valeo
- Johnson Controls
- Tecmo
- NOKIA
- TAKATA
- BorgWarner
- Hella
- CRH

Electrical/Electronics
- Siemens
- Nokia
- Motorola
- Miele
- Tyco

Aerospace Industry
- Airbus
- Northrop Grumman
- EATON
- Heathteca
- ZODIAC Aerospace
- Mitsubishi
- Panasonic
- Airbus
- Eurocopter
- Dassault Aviation
- PFW
- Embraer
- Labinal

Shipbuilding
- Meyer Werft
- EWD
- Neptun Werft
- Aselsan

Engineering, Plant Construction
- MAN Roland
- Bombardier
- KBA
- Alstom
- Siemens
- Deutz
- KSB
- Rexroth Bosch Group
- Hydac
- Wilo
- Heidelberg
- John Deere
- Stihl
- Claas
- HAHN
- Freudenberg
- Enereco
- Daimler

Other Sectors
- GSI
- IBM
- Siemens
- VDA
- Stina
- DiVib
- ProSTEP ivip
- SAP
- STRONG
Questions:
Thank you!