



RasGas Use Case: Owl DualDiode® Solution



Presented by **Dennis Lanahan**
Owl Computing Technologies

Mayan Shah
RasGas Company Limited




Agenda

- Webinar Series and Partner Solution Showcase
- Introduction
- RasGas Struck by Attack: The urgent security need
- OSIsoft® PI System Secure Transfer Support
- Benefits of OSIsoft PI System Infrastructure
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- Seamless Installation
- Questions
- Conclusion and Thank You



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Owl Secure Transfer for Use with the OSIsoft™ PI System™

The Owl-designed software connector replicates data from the control network PI Server across the Owl DualDiode® to a PI Server located on the corporate network. The hardware enforced one-way data flow and non-routable protocol break ensures network separation of critical digital/cyber assets from cyber attacks outside the secure network.



Owl Computing Technologies®, Inc.





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Features & Benefits

- o Simple, secure, one-way replication of control network PI Server data to Business Network PI Server
- o "Single Box" installation - no additional flanking servers & associated maintenance, no additional software installation
- o Control network data source cannot be compromised across hardware enforced one-way data flow and non-routable protocol break
- o Linux OS eliminates Windows vulnerabilities

Industry

Oil & Gas
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Pharmaceuticals, Food & Life Sciences
Power & Utilities
Critical Facilities, Data Centers & IT
Other

Solution Area

PI System Utilities
Security

Region Sold

Africa
Asia
Australia
Europe





“Our mission is to maximize the Value our customers get from our product and services”



1500+ Security Solutions Deployed.



Supplies LNG from Qatar to countries across Asia, Europe and the Americas.



Presenters

- Mayan Shah
 - Advisor Applications Engineering
 - RasGas Company Limited
- Dennis Lanahan
 - Manager, Sales & Customer Service
 - Owl Computing Technologies
- Erika Ferguson
 - Partner Principal
 - OSIsoft



RasGas



RasGas has a capacity of 27.1 million tonnes of LNG per year.*

Oversees and manages all operations associated with seven liquefied natural gas trains, two liquefied natural gas production facilities, major shipping contracts and global commercial partnerships.



Supplies LNG from Qatar to countries across Asia, Europe and the Americas.

Annual export quote of 27.1 million tonnes of liquefied natural gas.

*Source: <http://www.rasgas.com>

RasGas Struck by Attack: *The Urgent Security Need*

Cause: Struck by Attack

Effect: Disconnected Plant Process Network from Business Network



August 2012: RasGas office computer systems were struck by an unknown virus attack that caused the company to disconnect its plant automation systems from the corporate network.*

*Source: http://www.rasgas.com/Media/press_it.html

Network disconnection
is the best defense, but
impedes efficient operations.

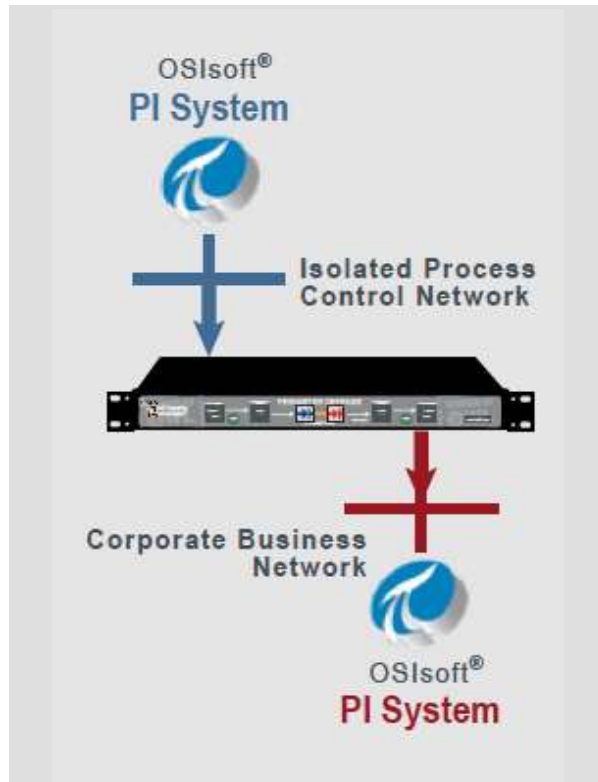
OSIsoft PI System™

Secure Transfer Support

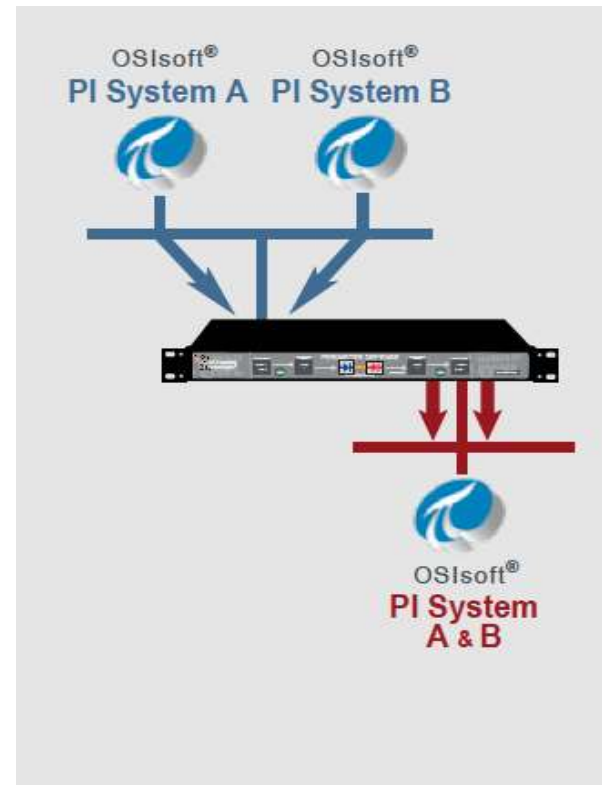
OSIsoft PI System Secure Transfer Support



Secure Data Historian Replication



Distributed PI System Support





Benefits of OSIsoft PI System Infrastructure

- Dedicated PI System platform for critical application support
- Integrated platform functionality minimizes changes to legacy networks
- Minimal admin & maintenance costs reduces total cost of ownership

Easy to use:

The Owl software connector transfers OSIsoft PI System database points, snapshot data, historical records, and PI digital state tables -- all with minimal startup configuration and administrator access. If the customer selects pre-configuration (supplying Owl with a copy of point records, and a network configuration), the transfer system is truly "plug-and-play."

Challenges: Overcome



RasGas Challenge

Owl Solution

Remote access to control system for IT, Eng & Op support complicated by one way interface.



- Owl Virtual Screen View Service (OV2S): Provides views of in plant HMI to external support resources.
- Owl Performance Management Service (OPMS): Provides continuous visibility of network operations.

Increases local responsibilities for both site and corporate support.



Seamless replication of enterprise historians to enable engineering and corporate resources to support efficient plant operations.

Verifying data integrity – verifying applications can co-exist with one-way interfaces.



Seamless interfaces for files, historians and alarms using certified and compliant hardware for efficient data sharing from plant system.

Footprint of solution requires planning.



Enterprise level server systems with failover protection and redundant data flow paths.

Bandwidth needed at the ESP requires planning.



Enterprise system moves 7 trains of information at under 10% installed Owl EPDS capacity providing room for planned data flow growth.

Benefits of OSIsoft PI System Infrastructure

Supports a range of PI System deployment configurations including:

- Single data historian replication
- Distributed PI System

Features:

- Over 50,000 values transferred per second
- Transfer of point records, snapshot data, historical records, digital state tables
- Linux operating system for transfer security & reliability
- Auto-build of database configurations; auto-discovery of adds/deletes/changes
- Non-routable protocol separation of networks with built-in fiber optic isolation
- Single 1U 19-inch chassis or industrial standard services
- Simple and speedy configuration & operation

One-Way Transfer:

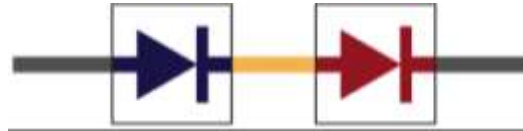
Owl DualDiode® Technology

Owl Computing Technologies, Inc.



US Owned & Operated

- US based controlled supply chain
- US based R&D, manufacturing, sales & service
- In business for over 13 years



Product Suite

- Owl Perimeter Defense Solution
- One-way transfer systems
- Configuration management & life cycle support

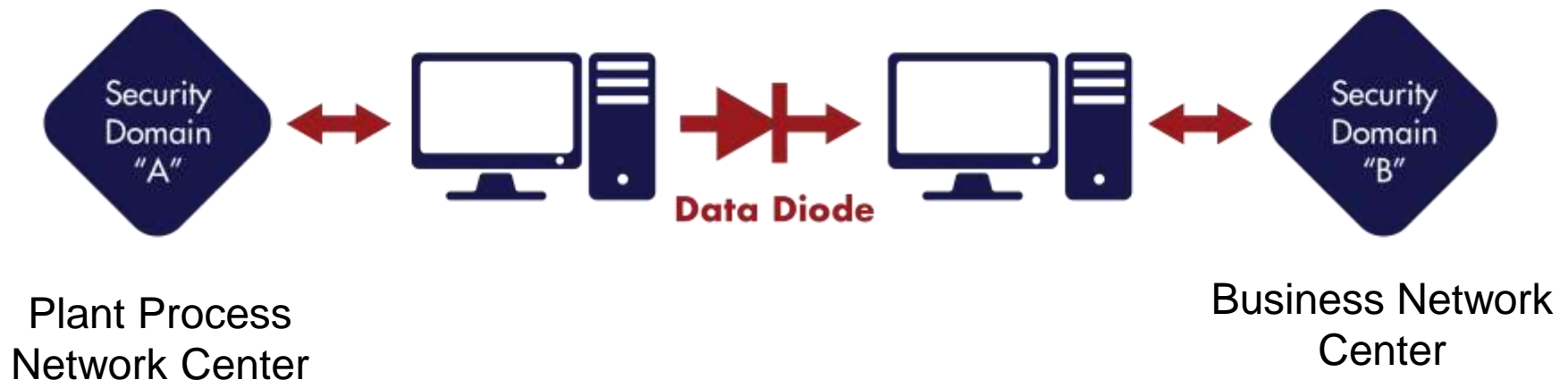


1500+ Security Solutions Deployed

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- US National Intelligence Community
- Department of Defense
- Telecommunications
- European & Asian Ministries of Defense

What is a Data Diode?

Data Diode: An appliance or device that creates a one-way communication link to ensure that data travels securely in only one direction.



Owl DualDiode® Features

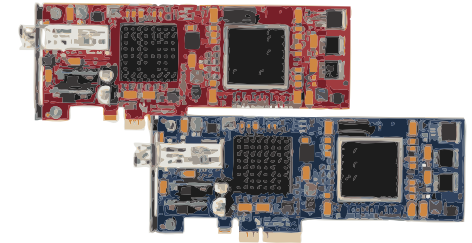


Owl DualDiode® Technology is NERC compliant.

- Provides non-routable point-to-point (P2P) communications across the ESP
- P2P hardware channels without source/destination addressing (no MAC)
- Dedicated channels enforce non-routable communications
- Supports IP hardware level protocol break across the ESP (ATM not UDP), One-Way Link policy in hardware & multiple data integrity checks at both hardware and software levels

Types of data transfers

DualDiode® Technology seamlessly enables the one-way transfer of all data types with common transport protocols: TCP/IP, UDP, files and directory structures. In addition, application connectors have been developed to proxy protocols such as MODBUS, OPC and popular historians such as OSIsoft, Archestra, Sciencetech etc.



Owl 1250 v6

Key Proxy Interfaces

- TCP/IP, UDP, Files & Directories
- MODBUS
- OPC
- OSIsoft®
- Archestra
- Sciencetech

Owl DualDiode® Benefits



1. Provides absolute defense against unauthorized access or commands originating from outside networks
2. Guarantee of one-way transfer of necessary operational information out of control system network
3. No connection to outside network via routable protocol (no MAC or IP address)
4. SE Linux Security Policies to harden server operating systems of Owl solutions
5. Center for Internet Security compliant security policies
 1. Role based access control menus for administration
 2. Peace of mind: password vulnerabilities non-existent

Owl Performance Management Service (OPMS)



Global view of monitored systems status

- Monitor individual & multiple boundary crossings
- Status of individual one-way link connections

Log file monitor of Owl applications

- Errors noted from send-only & receive only log files
- Detailed monitoring of the Owl solutions

Applications support

- Monitor all Owl applications
- Custom application log files
- Monitor 3rd Party applications

Browser-based monitoring system

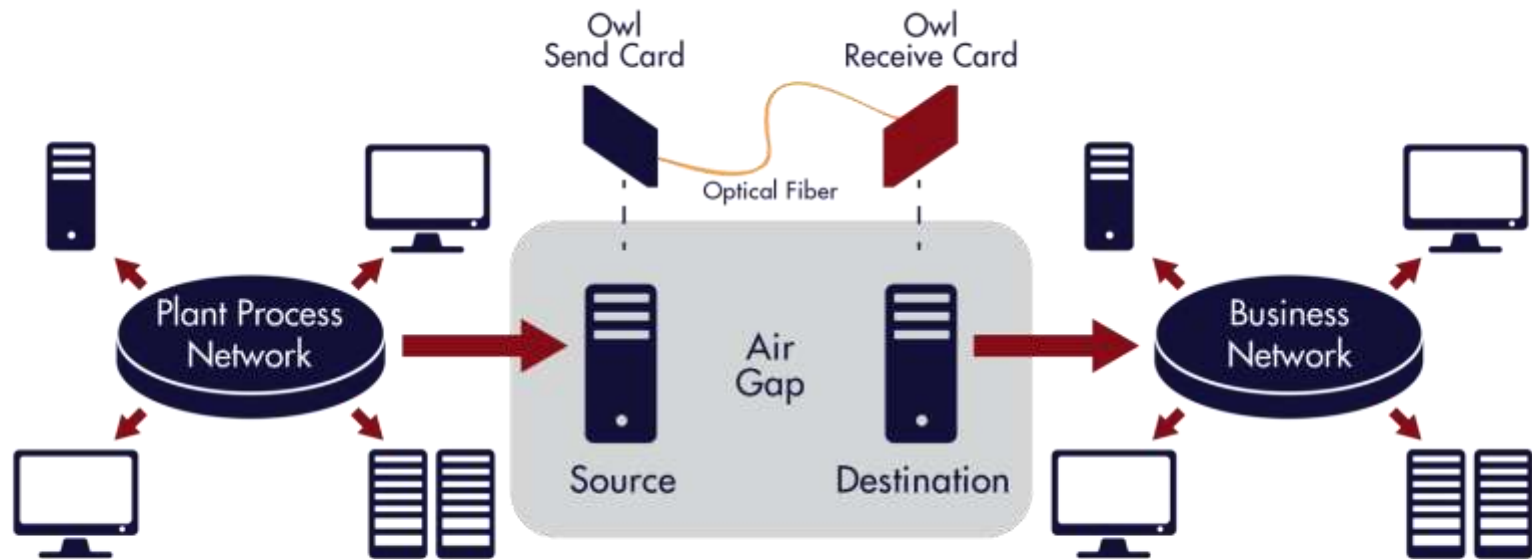
- Supports Internet Explorer 6+, Mozilla Firefox
- Role-based user authentication, data encryption

RasGas Installation

Owl Enterprise Perimeter Defense Solution (EPDS)

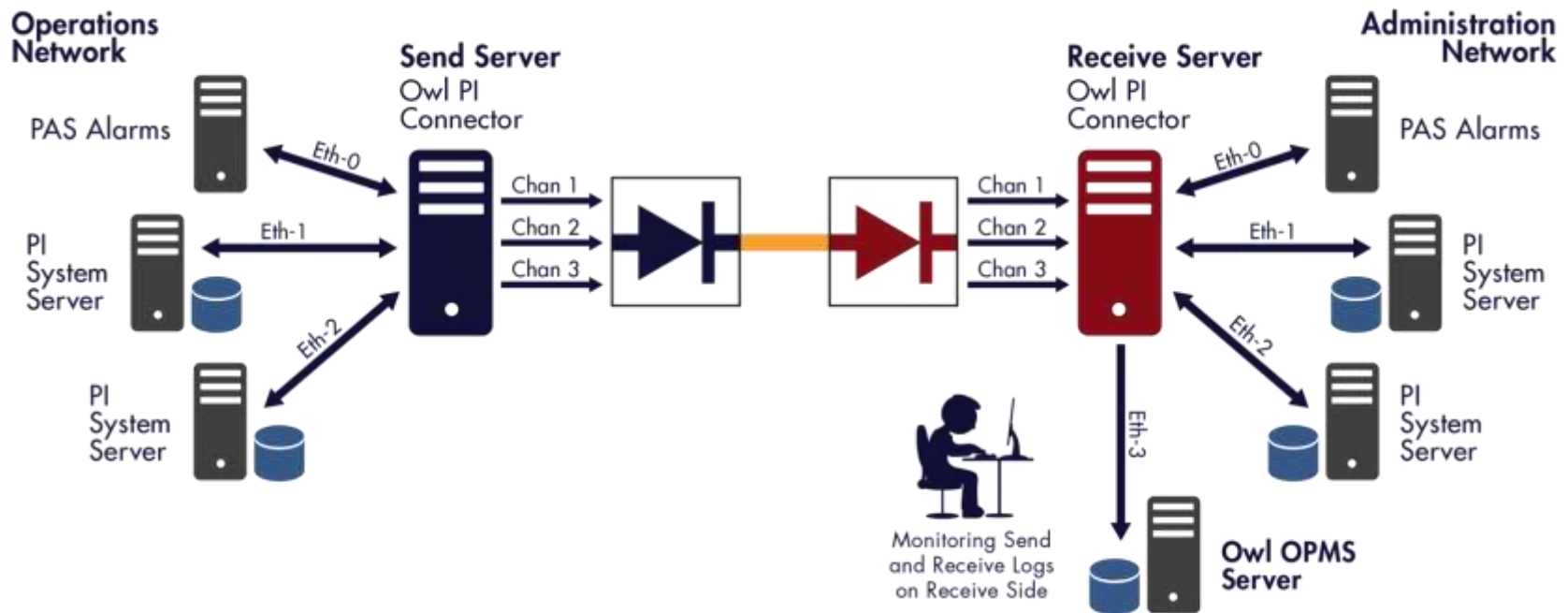


Controlled Network Security Solution bridging the air gap between the plant process network and the business network.



RasGas EPDS Installation: Seamless Integration

The Owl DualDiode® provides multiple independent point-to-point channels within the controlled Network Security Solution.



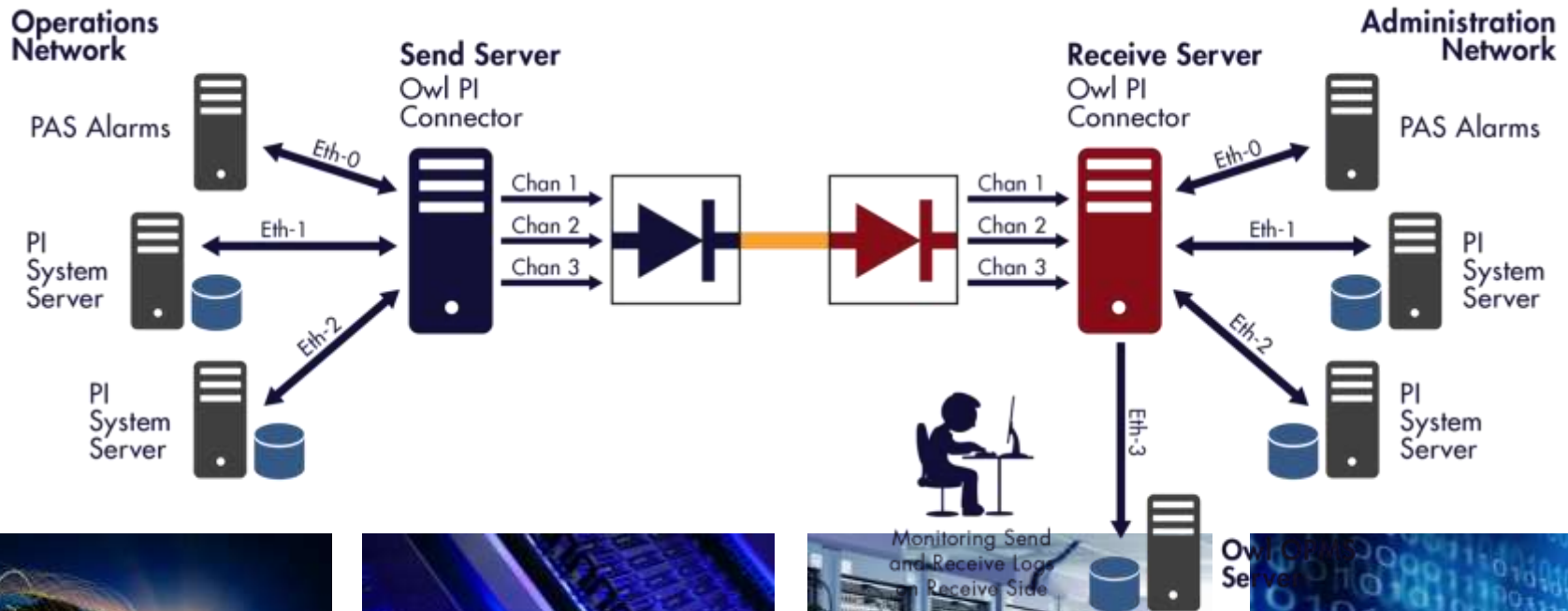
Summary

Mitigating cyber risk while maintaining efficient business and plant operations requires a secure network connection via a Data Diode.

RasGas Controlled Network Security Solution (Data Diode) was successfully deployed utilizing Owl technology.

- Security breach called for urgent need to secure the plant process and business network
- Challenges proposed by RasGas were effectively solved by Owl
- Seamless integration with ease of operation
- Remote role-based user authentication monitoring & management

Questions?



Contacts – Follow up

Need to secure your network?

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For OSIssoft questions please contact your representative or:

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Next Webinar – September 4

OSIsoft Partner Solution Showcase Presents: Operational Intelligence for advanced process and asset monitoring

September 4th, 2013 from 7:00 a.m. – 8:00 a.m. PDT

Participants:

Luis Yacher (Contac Ingenieros Ltda.)

Rodrigo Poredes (Endesa Chile)

OSIsoft Partner Solution Showcase Presents: Energy saving with a quick and simple EMIS solution built in top of the PI System

October 16th, 2013 from 7:00 a.m. – 8:00 a.m. PDT

Participants:

Pablo Asiron (RtTech Software Inc)

Pat Burke (Flakeboard)

OSIsoft Partner Solution Showcase Presents: The MEGLA Performance Equations Analyser

November 6th, 2013 from 7:00 a.m. – 8:00 a.m. PDT

Participants:

Dietmar Ort (MEGLA GmbH)

Julian Dohle (MEGLA GmbH)

Andre Jurich (Bayer MaterialScience)

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Thank you

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