

# REMOTE MONITORING & CONTROL TECHNOLOGIES CONFERENCE

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Featuring:  
**Keynote Speaker**  
**ANDREW WEST**  
Chairman, DNP Users Group  
Technical Committee  
Co-author of several Australian  
SCADA & IEEE Standards  
Spokesperson, IEC TC57 WG03  
SCADA Design Consultant,  
Invensys Process Systems

## WHAT YOU WILL GAIN FROM THIS CONFERENCE:

- Learn about new standards and technologies and how they impact on your systems
- Learn how to select the best remote monitoring and control system for your application
- Adapt your existing systems to take advantage of these new remote technologies
- Identify new approaches and technologies to solve your challenges
- Save \$\$ by undertaking these new approaches
- Optimise use of your customer's equipment

## WHO SHOULD ATTEND:

- Communications and SCADA engineers and technicians
- IT managers
- Industrial Automation and Process Control engineers and technicians
- Managers of remote sites and equipment
- System designers and integrators
- Electrical, Instrumentation Engineers & Technicians

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## Perth Australia

CONFERENCE:

**11 & 12 August  
2010**

PRE-CONFERENCE WORKSHOPS:

**10 August 2010**

*Workshop 1: Remote Monitoring,  
Control and Substation Automation  
using IEC 61850*

*Workshop 2: DNP3 in the Real World  
Presented by Andrew West*

VENUE:

**Hyatt Regency, Perth**

## FOR MORE INFORMATION:

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# INTRODUCTION TO REMOTE TECHNOLOGIES

Remote management, monitoring and control of distributed assets and equipment is a fast developing area of engineering and technology and is becoming a key strategic tool. Remote applications vary from offering technical support to a customer with automated systems thousands of kms away to remote control of vehicles to military bomb disposal units. With increasing industry competition, the use of remote diagnostics has become a customer-driven requirement. Utilising remote technologies can reduce service response times and allow companies to resolve customer issues remotely while still maintaining a close relationship. This

is considerably more than simply a SCADA system and encompasses industrial automation and data communications to the remote device with a focus on unmanned installations. This conference seeks to inform delegates about the advancements in remote technology in Australia and worldwide and explore how this technology can be used to enhance workplace efficiency and reduce costs when dealing with remote locations. Delegates will learn how to properly design remote service systems for their customers and protect them.

## CONFERENCE DAY 1 - 11th August 2010

8.00am	<b>Registration</b>		
8.15am	<b>Opening Address</b>		
8.30am	<b>State of the Art Remote Technologies and the Power Industry</b>		
Session 1	<b>Andrew West</b> - SCADA Design Consultant, Invensys Process Systems		
<b>KEY NOTE</b>	A review of the current direction of Smart Grid development and standardisation in North America. This presentation reviews the EPRI Smart Grid Roadmap, the NIST Priority Action Plans to implement that roadmap and the NIST-sponsored review of security for the Smart Grid developments. It looks at the expected outcomes of Smart Grid adoption in the medium and long terms and considers the implications of this integration of technologies.		
9.30am	<b>Standardised Remote Control &amp; Data Acquisition for the Water Industry using DNP3</b>		
Session 2	<b>Jim Baker</b> - Principal SCADA Engineer, Water Corporation		
	In 2003, thirty one Water Management Organisations in the UK agreed to establish a group to look at telemetry standards with the view to defining common functionality for telemetry within UK's water industry. The first project was to standardise a protocol. DNP3 was chosen and its use, specific to the water industry, was defined. The WITS-DNP3 was released on 18th March 2010 and contains enhancements that, whilst not changing DNP3, establish a standardised use of some of its features.		
	<b>Morning Tea - 10.15am</b>		
10.45am	<b>Remote Operations Centre Site Enablement</b>		
Session 3	<b>Gerrard Simeons</b> - Project Manager ICIT, Calibre Controls		
	The concept of remote consolidated mine and port operations is a relatively new and exciting concept with a multitude of benefits and challenges. It is critical when establishing a purpose-built operations centre, that careful consideration is given to ensure the remote site (which may be thousands of kilometres away) is adequately prepared for remote operations. This presentation will focus on the key enabling drivers for setting up a remote operations site. Areas that will be covered in the presentation include, but are not limited to, the following; Site Network Architecture - A new architecture to support critical production services; Re-modelling traditional IT and production networks on site and Infrastructure installation considerations for remote sites.		
11.30am	<b>Remote Interrogation of Cable Feeders in the Perth CBD</b>		
Session 4	<b>Wayne Proud</b> - Technical Networks Officer, Western Power		
<b>CASE STUDY</b>	The reasons why a significant investment was made to remotely/continuously monitor two Substations in the CBD of Perth Western Australia will be discussed in this fascinating topic. The importance of testing will be covered and how testing can predict and reduce cable failures. Also explored will be fault development, interrogation of remote devices and the technologies used to remotely monitor substations such as partial discharge detectors. This new technology has the potential to flag early faults giving the Asset Manager an extra tool to manage his assets. This can lead to improvements in key performance indicators within the business.		
	<b>Lunch - 12.15pm</b>		
1.15pm	<b>Proactive Remote Service Support</b>		
Session 5	<b>SR Subramani, Mark Portlock and Richard Dodd</b> - ABB Australia		
	We explain how high equipment availability can be achieved by the proactive, remote management of multiple asset classes and how the use of		
			site-based asset monitors improves the degree of predictive maintenance. Details will be provided of how security issues have been addressed and the logging of activity when access is made remotely. Support case management will be discussed, for ad-hoc, scheduled and predictive situations. Additionally, remote technologies can also be employed for projects and suggestions will be given of how project execution can be made faster and at a lower cost by the use of remote technologies at the commissioning stage.
		2.00pm	<b>Remote Monitoring with Virtual (fibre optic based) Geotechnical Instrumentation</b>
		Session 6	<b>Matej Kranjc</b> - Regional Director, National Instruments
			This novel application shows how we set up virtual geotechnical instrumentation at various distant survey sites over a remote link. An added feature is the use of fiber optic sensors which are especially important in the harsher environments of many remote sites. These are easy to install, have high corrosion resistance, immunity to lightning and surges and electromagnetic interference. The added benefit of virtual instrumentation at remote sites made it easy to create user-defined on-the-fly configurations (through software) as opposed to the traditional proprietary, fixed functionality of traditional instruments. This presentation will be concluded with some of the issues in configuring a system such as this, with an interesting summary of the choices between electrical and optical sensors, with a list of the top optical sensing technologies.
			<b>Afternoon Tea - 2.45pm</b>
		3.15pm	<b>Creating Redundant Connections for Large Scale Networks: A West Australian Case Study</b>
		Session 7	<b>Robert Blackburn</b> - Ind. Engineering Consultant, Motherwell Automation
		<b>CASE STUDY</b>	Details will be provided of the use of an innovative new Ethernet technology for the creation of multiple redundant Ethernet networks that go beyond the current limitations of redundant technologies. It will showcase how this new technology can be implemented to provide reliable and flexible communications to remote and centralised monitoring and control platforms using a Ethernet. A West Australian based, minerals and resources orientated case study will be used to demonstrate the flexibility, scalability and cost efficiency of this innovative technology. It will also highlight the short coming of previous technologies that set this new redundant networking technology in a class of its own. The case study will show the necessity for reliability and fast fault recovery redundant communications in remote areas providing monitoring and control.
		4.00pm	<b>"Add at Will" - The Business Case for Plant wide Industrial WirelessHART Networking</b>
		Session 8	<b>Venkat Bahl</b> - Director, Global Wireless - Emerson Process Management
			Wireless in the industrial world is growing at an exponential rate. With increasing pressure on operating margins, aging assets, and ever increasing environmental and safety concerns, wireless is unlocking access to data that was previously unobtainable, or economically prohibitive to acquire. Explore with us what one of the "Big Oil" companies did to solve their need to add remote monitoring points "at will", and reduce their cost of deployment of monitoring devices by half, by deploying the world's first plant wide, standards based wireless network. Start small and scale, or go site wide, based on your application needs.
			<b>Closing - 4.45pm</b>

**REGISTER NOW:**

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## Sponsorship Opportunities

Representing your business at the 2010 Remote Technologies Conference will provide you the opportunity to reach key decision makers from a multitude of industries.

For more information on sponsorship and exhibition opportunities please contact Sarah Montgomery via email [sarah.montgomery@idc-online.com](mailto:sarah.montgomery@idc-online.com)

## CONFERENCE DAY 2 - 12th August 2010

### 8.30am **Standardising Security for SCADA Systems, Wide Area Networks and Protocols**

**Session 9** **Andrew West** - SCADA Design Consultant, Invensys Process Systems

This topic will be identifying security risks on SCADA communication networks, securing DNP3 using internal and external mechanisms and dealing with the impact on bandwidth and polling times. Also explored will be the development of a standardised approach to SCADA security across vendors and the application of IEC 62351-5 and AGA12-2 techniques to securing DNP3, Modbus and IEC 60870-5 series protocols.

### 9.15am **Redefining the Cowboy: Precision Pastoral Decision Making from Remote Monitoring and Control of Cattle**

**Session 10** **AJ Bubb** - Northern Territory Government; **TK Driver** - CAWD Engineering; **CD James** - Desert Knowledge Cooperative Research Centre

**CASE STUDY**

Automated technologies for monitoring and managing livestock hold the key to reining in costs and increasing profits on large (>3000km<sup>2</sup>) pastoral stations across Australia. Production costs can be reduced using technologies that passively muster stock, collect data and transmit it to another location for processing and decision making. Profits are increased through better management and marketing via information on individual animal performance on a daily basis. We present on the development and performance of a Remote Livestock Management System that achieves these benefits and has application on pastoral enterprises owned by mining companies.

### Morning Tea - 10.00am

### 10.30am **Telemetry, Tracking, Control & Monitoring in an Isolated Environment**

**Session 11** **Kevin Fairman** - Technical Director, Fastwave Communications

The application of high reliability electronics combined with the use of Iridium's Short Burst Data (SBD) service, means that any asset located literally anywhere (land, sea or air) can be managed in near real time. The Iridium network of 66 satellites provides global coverage for voice and data communication. The system provides users with an extremely robust, error free and reliable network, enabling the monitoring, control and tracking of assets where no other communication system is available or practical. The presentation will show how the Iridium network operates, typical applications that SBD can be used for, examples of where such systems are already employed and future innovation.

### 11.15am **Remote Configuration and Testing of Industrial Automation Systems**

**Session 12** **Steve Mackay** - Engineering Manager, IDC Technologies

There is growing demand for remote configuration and testing of industrial automation systems often performed by teams of engineering professionals collaborating virtually whilst scattered at geographically remote locations. Besides the typical technical challenges of remote control and monitoring on a real-time basis, there is a heightened risk of security breaches with catastrophic consequences for an automation project. Over the past three years, we have put together a software package and novel methodology for performing this function. A case study of a team of engineering professionals collaborating whilst based in Western Australia/ South Africa and Europe in a process control project is used to demonstrate the key issues. The paper is concluded with a toolbox of skills you can apply to your next collaborative remote project.

### Lunch - 12.00pm

### 1.00pm **Remote Monitoring and its Application to Distribution Systems**

**Session 13** **B T Phung, Z Liu and T R Blackburn** - School of Electrical Engineering, University of New South Wales

The rapid developments over the last decade in the computing, signal processing and communications area provided the basis for development and realization of the much-vaunted "Smart Grid". While most discussion of the smart grid has concentrated on its potential for improved revenue metering, demand management and similar customer-utility benefits, there is another side that is just as important, that is in the operational management and diagnostic assessment of the distribution grid and its major capital plant. This paper will discuss remote monitoring of diagnostic aspects that are available with the modern grid. Two particular facets will be discussed: the monitoring of system (and transformer) losses and a detailed case study of a remote monitoring system that has been used in a number of cases for partial discharge assessment of HV cables and geographical information systems.

### 1.45pm **Setting Safety Integrity Levels (SIL) for Remote Monitoring and Control**

**Session 14** **Kevin Anderson** - Associate Technical Director, Risk Reliability & Resilience, Hyder Consulting

The Functional Safety Standard IEC 61508 has long been a benchmark for safety-critical applications including train control and tunnel Operations Management and Control Systems (OMCS). The forthcoming Edition 2 will extend the scope to embrace security and economic considerations as well as safety. The paper describes the unique combination of energy-damage and time-sequence concepts to set safety integrity levels (SIL) for SCADA systems. In addition to meeting the technical content of the numerous measures and techniques referenced by the standard, the analysis embodies the due diligence principles of causation, the ability to foresee, preventability and reasonableness. This will be demonstrated with a case study of a road tunnel OMCS with further references to train control, airspace risk, maximum security laboratories and even a theatrical scenery handling system.

### Afternoon Tea - 2.30pm

### 3.00pm **Virtual Presence - A Vital Element in Remote Monitoring in Security, Safety and Managing Risk Laden Processes**

**Session 15** **Ollencio D'Souza** - Director, TechnologyCare

Communications technology, especially in telecommunications, has progressed to the point where remote monitoring clients can be situated reliably anywhere within a network coverage area. In security, safety and other risk laden processes the response to events has to be quick and precise and this is where virtual presence (VP) based technology can be utilised. VP includes appropriate networked control, visual, aural and communications technologies, applications to improve situational awareness and to ensure that the delivery of a timely response is both efficient and cost effective. Examples of successful VP technology applications in the industrial domain will be outlined. One of the studies is that of a passenger safety system. In conclusion, industries that can effectively use interactive VP technologies will be examined.

### 3.45pm **DISCUSSION PANEL**

**Session 16** This session will provide delegates with the opportunity to ask our speakers questions and to discuss remote technologies used in their workplaces, covering typical problems and possible solutions.

### Closing - 4.30pm

All forum papers are reviewed and selected for their high quality and technical value by our panel of specialists experienced in the theory and practice of remote monitoring and control technologies.

**WORKSHOP 1 8.30am - 12.30pm**

**Remote Monitoring, Control and Sub-station Automation using IEC 61850**

This workshop will explore a wide selection of the new remote monitoring, control and substation automation protocol IEC 61850 related topics including:

- Introduction to Substation Automation
- The IEC 61850 standard
- Information Models (IEC 61850 Part 7-4 and 7-3)
- Communication Mappings
- Engineering and Configuration of Systems
- Conformance Testing

The IEC 61850 standard is being rapidly implemented throughout the world for substations and many other areas such as power quality, substation control centres, condition monitoring, and power generation.

**WORKSHOP 2 1.30pm - 5.00pm**

**DNP3 in the Real World**

**Co-presenter: JIM BAKER** - Water Corporation

This DNP Tutorial will be conducted by two members of the DNP Technical Committee and is designed for anyone working with or desiring to understand DNP3 and who have knowledge of DNP3 fundamentals.

The course provides an in-depth look at configuring and using DNP3 in real-world applications. Case studies of successful and problematic installations are reviewed to illustrate correct DNP3 implementations. The course will also cover topics such as configuration requirements to achieve optimum interoperability and how to maximize efficiency of operation.

Attendees are encouraged to submit "real world" scenarios (success stories and/or problematic installations) for discussion.

**Workshop Presenter: ANDREW WEST**

SCADA Design Consultant, Invensys Process Systems

Andrew began his professional career with the former Queensland Electricity Commission as a software engineer working on SCADA master stations and on substation automation equipment. He was firmware architect for Leeds & Northrup's RTU products; a firmware design engineer with SCADA communication protocol stack vendor Triangle MicroWorks, and is now a SCADA Design Consultant with Invensys Process Systems. Andrew has over 30 years experience with SCADA systems and has actively participated in SCADA protocol standardization activities since 1996. He is co-author of two Australian SCADA Standards and two IEEE standards for substation communications protocols and equipment. He is currently a member of two Standards Australia working groups and three IEC working groups on Power System Control and Communication and Wind Farm Control Systems. He is Chair of the DNP Users Group Technical Committee and Spokesperson for the IEC TC57 WG03 which is responsible for IEC 60870. His interests span all areas of SCADA System integrity assurance.

**REGISTRATION FORM: Remote Monitoring & Control Technologies Conference**

Simply complete this registration form online or return by fax or email

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**EARLY BIRD OFFER:**

20% off the conference fee for registrations received before 9 July 2010 - SAVE \$329

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Register 3 delegates and only pay for 2 - SAVE \$1645

**2. REGISTRATION & PAYMENT DETAILS**

Prices shown are inclusive of GST

**10 AUGUST 2010 - 2 x Half-Day Pre-Conference Workshops** Presented by: **Andrew West**  
(NO discounts for pre-conference workshops)

Workshop 1: Remote Monitoring, control and Substation Automation using IEC 61850

\$350 x \_\_\_\_\_ delegates = \$ \_\_\_\_\_

Workshop 2: DNP3 in the Real World

\$350 x \_\_\_\_\_ delegates = \$ \_\_\_\_\_

**11TH & 12TH AUGUST 2010 - REMOTE TECHNOLOGIES CONFERENCE**

**OPTION 1: Early Bird Discount 20%** - Book before July 9th (SAVE \$329) \$1316 x \_\_\_\_\_ delegates = \$ \_\_\_\_\_

**OPTION 2: NO Early Bird Discount** - Book after July 9th \$1645 x \_\_\_\_\_ delegates = \$ \_\_\_\_\_

**OPTION 3: 3 for 2 Offer (SAVE \$1645)** 3 x delegates **2 x \$1645 = \$ 3290**

**Additional delegates:** Corporate packages available upon request

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For Online Registrations: [www.idc-online.com](http://www.idc-online.com) • Early Bird Discount Code - CF888 • 3 for 2 Discount Code - CF345

**PLEASE NOTE: Full payment is required prior to the commencement of the conference.**

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**GENERAL INFORMATION**

**Confirmation Details**

A confirmation & information letter will be sent to all delegates approximately 10 days prior to the conference. Please ensure that you provide both your mailing address and email address on the booking form.

**Cancellation Policy**

Full reimbursement will be accepted if written notification of cancellation is received by IDC Technologies on or before 22nd July 2010. A fee of 20% will apply to any cancellations received between 23rd July and 3rd August 2010. No cancellation requests can be accepted after 4th August 2010 however from this date substitute delegates are welcome.

**Venue**

Hyatt Regency  
99 Adelaide Terrace  
Perth, WA, 6000 AUSTRALIA  
Phone: 08 9225 1234

**Accommodation**

The conference venue has accommodation available. Contact directly on 08 9225 1234 to make a booking. For alternative local accommodation, contact IDC on 1300 138 522

**Food and Beverages**

All lunches, morning and afternoon refreshments are included.

**Unable to Attend**

If you are unable to attend the full conference program, contact us for details to attend individual sessions or to purchase the Conference Resource Kit.

**Enquiries**

Phone: 1300 138 522

**REGISTRATIONS**

We encourage you to register early, as spaces are limited. Your payment must accompany the registration form in order for it to be processed and confirmed.

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