4th Annual Conference, Exhibition & Networking Forum

UtiliNet Europe 2018

Futureproofing utility telecom networks to support high-reliability high-security smart grid applications and services

3-Day Conference, Exhibition & Networking Forum

15-17 May 2018 | Hotel Metropole, Brussels, Belgium

Hear In-depth Insights on:

- ✓ **Migration timescales:** planning the migration to all-IP networks to ensure effective support for new services whilst maintaining current levels of service reliability and security
- ✓ **Technology Mix:** Determining the optimum mix to minimise capex and opex for the long term in support of new IP services (SDH, IP, IP-MPLS, MPLS-TP)
- ✓ **Teleprotection & Substation Automation:** Understanding how utilities are matching SDH standards availability and reliability with IP networking
- ✓ **Integrated Telecoms Security:** Developing a comprehensive end to end security strategy to achieve high levels of cyber and physical security in the transition to the digital grid
- ✓ **New IP Enabled Services and Applications:** Enabling new IP services such as IP SCADA, PMU and IP Video surveillance
- ✓ **Network Monitoring:** Achieving a complete overview of the increasingly complex multi-vendor, multi-technology telecom network to ensure high levels of QoS and performance
- ✓ **Public and Private Infrastructure Options:** Evaluating the different options to deliver a cost-effective solution: Private, Public, MVNO, PVNO
- ✓ **Network of the Future:** Understand how future service orientated networks with intelligence at the network edge will lead the next revolution in utility telecoms networks

14+ Utility Case Studies From:

Andreas Breuer
Vice President of New Technologies and Projects & Chairman
Innogy & EUTC

Alberto Sendin
Head of Telecommunications
Iberdrola

Jürgen Tusch
Head of Telecoms
Innogy

Frank Visser
Telecommunications Architect
Alliander

Cormac Long
IP Technical Lead, Telecom Services
ESB Networks

Lhoussain Lhassani
Senior Specialist Asset Management
Stedin

Indrek Künnapuu
Chief Telecommunications Specialist
Elektrilevi OÜ

Wolfgang Zeitler
Communications Architect
Bayernwerk

Zarko Veličković
Telecommunication Network Management System Unit Manager
Elektromreža Srbije

Erik Moll
Telecom Policy Advisor
Utility Connect

Luis Matias
Associate Director, Digital Grid, Networks' Digital Platform
EDP Distribuição

Sérgio Ramos Pinto
Assistant Director, Networks Digital Platform
EDP Distribuição

Expert Advice From:

Stephen Colgan
Global Business Development Leader
Vodafone Global Enterprise

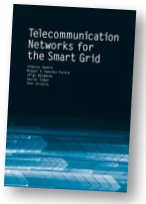
Steven Blair
Research Fellow
University of Strathclyde

Prof. Antonello Monti
Director of the Institute for Automation of Complex Power Systems
E.ON Energy Research Centre

Daniel Schollhorn
Consultant
TUV Rheinland

Choice of Two ½ Day Workshops:
Workshop A: Cyber-Security
Workshop B: Teleprotection
See inside pages for more details!

Book Offer!



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Produced By: Phoenix FORUMS

Dear Colleague,

Welcome to the **4th annual UtiliNet Europe 2018**, the utility packet telecom conference of the year. This year's programme draws together 100+ utility telecom and cyber-security professionals for 3 intensive days of packet telecom implementation reviews.

14+ case studies reveal how European TSOs and DSOs are future-proofing their telecom networks to ensure high levels of reliability and cyber security as the migration from SDH to IP-MPLS and MPLS-TP takes hold.

Benefits of this year's programme includes:

- ✓ **Case-study programme** – gain in-depth insights into the smart grid telecom implementation experiences of 14+ pioneering European utilities and understand how technology choices are being made in the context of organisational objectives and pressures
- ✓ **Technology innovation panel** – quiz the telecom technology innovators on the strength of their current product offerings, their R&D pipelines and their vision for the future of smart grid telecommunications
- ✓ **Roundtable discussions** – bring your specific smart grid telecommunication challenges to the table and brainstorm and problem solve intensively with the entire utility telecom technical community
- ✓ **Live Demo Labs** – through a dedicated 1:1 session gain hands-on experience of the most advanced and forward-looking smart grid communications technologies and tools on to the market
- ✓ **Solution zone** - get up to speed with the latest smart grid telecommunications systems and solutions on the market, discuss your specific smart grid development telecommunication challenges and get tailored advice to help propel your implementation plans to the next level
- ✓ **Networking reception** - relax and unwind after an intensive day of presentations and panel discussions, meet with colleagues from across the European utility telecom community, allow new ideas to cement and new partnership opportunities to emerge

We look forward to welcoming you to the event in May 2018!

Kind Regards,

Mandana white
Director | **Phoenix Forums**

PS: Very Early Bird Rates - Save €400 on delegate places by booking before Friday 23rd February 2018!

PS: PS: Group Booking Discounts – Save a further 10% on 3+ delegates booked from the same organisation at the same time - Call us on +44 (0)20 8349 6360 to arrange!

Sponsorship & Exhibition Opportunities

Would you like the opportunity to raise your brand profile, demonstrate your products and services, and share your expertise with a highly concentrated and influential group of utility telecom implementation leaders and decision makers? Our adjoining exhibition area provides the perfect platform for you to do this and more! Capped at 10 stands we ensure a focused and relevant display of the latest digital substation systems and solutions for our audience and maximum visibility for each exhibitor.

To find out more about the various sponsorship and exhibition opportunities:

Call: +44 (0)20 8349 6360 |
Email: registration@phoenix-forums.com
Download: Exhibition Opportunities Brochure

Silver Sponsors

OTN Systems

OTN Systems contributes to the success of utility companies in controlling and anticipating the growing demands of their communications network; challenges that come with integrating new elements into the smart grid. OTN System has installations worldwide and a record of accomplishments that goes back to the eighties. The XTran backbone technology is based on the worldwide-recognized standard MPLS-TP and is fine-tuned for the electric power industry. It allows migration toward Packet Networks with simplicity and manageability. XTran assures on time delivery of teleprotection traffic over a packet network, it guarantees security and dependability for critical communications.

For more information visit www.otnsystems.com

NOKIA

Nokia is a global leader innovating the technologies at the heart of our connected world. Powered by the research and innovation of Nokia Bell Labs, we serve utilities with the industry's most complete, end-to-end portfolio of communications products, services and solutions to enable critical connections for automation for a safe, reliable and efficient grid and business model transformation. We create the technology to connect the world.

For more information visit www.nokia.com

"Excellent forum to meet peers from the DSO scene in Europe for the exchange of ideas, experiences and best practices in the field of telecommunications for power distribution grids."

Jürgen Tusch
Head of Telecoms
Innogy

"A great opportunity to meet utilities from all over Europe, and to hear about their plans to upgrade their networks to support packet-based services. Interesting to see different migration strategies and how utilities adapted to that. The conference was very well organized. Exactly according to plan. High quality presentations which fully covered the different challenges in the industry."

Børre Jensen
Manager of Network Department
BKK Fibre

Conference Day One | Tuesday 15th May 2018

08:00 Registration & refreshments

08:50 Welcome address from the Chair

09:00 **Migration Timescales: Planning the migration to all-IP networks to ensure effective support for new services whilst maintaining current levels of service reliability and security**

- Setting the criteria to determine when to start migrating different parts of the network
- Which new IP services should you plan to support and what are their IP networking requirements?
- How long can current SDH and PDH network components continue to be supported in an economic and viable way?
- Cost balancing capex investment of all-IP networks and the opex of maintaining TDM technology as it becomes obsolete
- Managing the RFI/P process to effectively evaluate the different vendor proposals to ensure a collaborative partnership and scope for future proofing the network
- Developing a network migration strategy for the core network, critical services, and edge network substations
- Developing a phased roll-out plan to ensure that the network delivers the full required functionality throughout the migration process

Andreas Breuer, *Vice President of New Technologies & Projects* – **Innogy,** *& Chairman* – **EUTC**

Determining the optimum technology mix for your network – for the immediate and long term

09:30 **Technology Mix: Determining the optimum technology mix to minimise capex and opex for the long term whilst maintaining current levels of network availability, reliability and security to support new IP services**

- Making the case for a multi technology network to serve the differing needs of the ends to end network; combining TDM and Packet switching in one network topology
- Matching your current and future networking requirements in various parts of the network to the different technology options; SDH, Carrier Ethernet, pure IP, IP MPLS, MPLS-TP
- Optimising the test environment to effectively reveal any shortfalls in reliability and security
- Future proofing the network by defining SDN (Software Defined Networking), outlining the benefits and determining optimum timescales for introduction to the network
- Comparing the relative benefits of deploying interim technologies or leap frogging to SDN to minimise capex and speed progress towards the target architecture

Alberto Sendin, *Telecommunications Projector Manager* – **Iberdrola**

10:00 **Sweating Current Assets: Meeting the challenges of supporting new IP services on legacy SDH and PDH networks**

- Making the case for extending the life of SDH networks to ensure immediate support for serial P2P services and build up skill-sets and procedures in the organisation to support IP networking
- Outlining and addressing the challenges of operating a dual network supporting SDH and Ethernet/IP traffic
- Evaluating Next Generation SDH systems and Multi-Service Provisioning Platforms (MSPP) to maintain high availability, comprehensive manageability, and monitoring
- Effectively managing multiple conversions and interfaces needed to support IP and Ethernet traffic

Zarko Veličković, *Telecommunication Network Management System Unit Manager* – **Elektromreža Srbije**

10:30 Morning refreshments, exhibits & networking

11:00 **MPLS-TP: Deploying MPLS-TP as part of the overall network strategy to enable support for new IP services and legacy SDH services**

- Analysing network traffic in the current and long term and determining the optimum network mix
- Making the business case for deploying MPLS-TP to enable support for established utility assets and interconnect easily with legacy SDH
- Ensuring vendor support for network management across SDH and MPLS-TP networks
- Addressing the challenge of maintaining full protection across both networks
- Ensuring effective on-going support for low rate interfaces (2gbits/s) from substation communication and PDH narrowband
- Taking into account the cost and downtime required for regular upgrading of the network routers

(Speaker to be confirmed)

11:30 **IP-MPLS: How layer 3 IP/MPLS can offer cost effective service support for both deterministic and non-deterministic traffic types along with legacy integration**

- IP/MPLS or MPLS-TP? Understanding and evaluating the decision drivers
- Determining which parts of the network to migrate first to deliver optimum ROI and performance with respect to the core network and edge networks
- Meeting the stringent needs of latency-sensitive tele-protection in an IP/MPLS network using traffic engineering and QOS configuration
- Effectively ensuring reliability for legacy services such as teleprotection and legacy SCADA with emulated P2P
- Continuing to assess the MPLS-TP alternative for different parts of the network and the potential interworking required

Cormac Long, *IP Technical Lead, Telecom Services* – **ESB Networks**

12:00 **TCP/IP: Deploying TCP/IP as part of the network mix to future proof the network for the long term – matching the reliability and availability of P2P networking**

- Making the business case for deploying a TCP/IP based network and managing traffic at layer 3 rather than layer 2
- Keeping up with the telco standards as new protocols develop and ensuring interoperability of the different technologies in the WAN
- Ensuring that IP networking can match the reliability and availability of P2P networking; monitoring and communicating message sequence failure
- Effectively interfacing IEC protocols with TCP IP to ensure substation communication
- Planning for IP networking support for tele protection; establishing timescales for migration from SDH support
- Planning the overall network migration; combining migration with substation refurbishment

(Speaker to be confirmed)

12:30 Lunch, exhibits & networking

Network Management & Monitoring

14:00 **Cyber-Security: Understanding and mitigating the increased security risks represented by IP telecoms networks for utilities**

- Quantifying the increased risk of network intrusion, DoS (Denial of Service Attacks), traffic interception and other breaches
- Evaluating the different means of ensuring the security of IP traffic in the network; firewalls / VPNs/ IPSec
- Building security considerations into the network design and network management
- Identifying points of network vulnerability, ensuring router security and determining optimum IP-VPNs
- Monitoring network assets and detecting alerts in real-time to identify and address security threats as they occur

Jaco Jacobs, *Cyber Defense Domain Lead NL* – **Accenture**

14:30 **Network Monitoring: Achieving a complete overview of an increasingly complex multi-vendor, multi technology telecom network to ensure high levels of QoS and performance**

- Examining the different means of achieving an integrated view of the network to monitor performance, comparing with in-house and third-party solutions
- Meeting the challenges of effectively monitoring non-deterministic IP traffic
- Providing comprehensive inventory management to enable fast identification of network issues and maintain QoS in an increasingly complex network
- Evaluating the business case for investing in third party network management and monitoring software

(Speaker to be confirmed)

15:00 **IP SCADA: Outlining the telecoms networking required to maintain security in the transition from traditional SCADA systems with serial based RTU's to IP/Ethernet based systems**

- Determining the potential benefits of deploying SCADA functionalities over IP/Ethernet and how best to leverage these
- Quantifying and addressing the increased security risks of IP based SCADA
- Ensuring separation of the SCADA and control systems network from the IT network, comparing VLANs at different network layers
- Examining the effectiveness of firewalls, IPS, DPS and other security techniques within the SCADA environment to safeguard system vulnerability
- Addressing the challenges of deploying (Simple Network Management Protocol) to monitor the health and performance of the IP devices in the network

Lhoussain Lhassani, *Senior Specialist Asset Management* – **Stedin**

15:30 **Afternoon refreshments, exhibits & networking**

16:00 **IP in MV/LV: Expanding IP services to the medium and low voltage layers of the distribution grid**

- Outlining the changing requirement of the distribution grid as renewable energy is fed in at medium and low voltage layers
- Understanding the growing importance of telecommunication services to control the grid
- Assessing the different practical solutions for telecommunications to support expanded IP services
- Examining the relevance of blackout resilience of the telecommunication services
- Utilizing state of the art ICT security solutions

Jürgen Tusch, *Head of Telecoms* – **Innogy**

16:30 **PMU: Enabling wide-area Phasor Measurement Unit (PMU) technology with IP networks to improve state estimation of the distribution system and improve accuracy of monitoring power quality**

- Understanding the business case for deploying synchrophasors to enable near realtime monitoring of power system components
- Comparing the synchronisation networking requirements to support SCADA applications and synchrophasors
- Meeting synchrophasor requirements with IP multicasting on IP networks
- Comparing IP multicasting with other means of supporting synchrophasors in the network

(Speaker to be confirmed)

17:00 **PLC: Standardization of Broadband Powerline Systems for smart grid applications in low voltage Networks**

- Outlining the use of PLC in the evolving smart grid ICT network
- Examining the benefits of using PLC for smart metering communications in terms of infrastructure investment and comparing with other options
- Evaluating how different PLC options can be used for smart grid deployments:
- PLC in the low voltage grid and in-home for smart metering and home area network
- PLC in medium voltage for smart grid backbone transport and telecontrol applications
- Outlining the latest updates in standardising PLC for smart grid applications in low voltage networks
- Integrating PLC with other telecommunication private network or public commercial services

Wolfgang Zeitler, *Engineer* – **Bayernwerk**

17:30 **Roundtable discussions -** during this session the audience breaks out into several smaller groups, each focused on a specific theme that arose during the day's presentations. Each working group will comprise of representatives of the entire utility telecom technical community to ensure a well-rounded and holistic discussion. Key issues raised, and solutions proposed will be collated for presentation to the wider group at the end of the session.

19:30 **Networking Reception -** time to relax and unwind after an intensive day of presentations and discussion! All participants are invited to join this networking reception where you will have the opportunity to enjoy the company of colleagues from across the European utility telecom technical community.

Conference Day Two | Wednesday 16th May 2018

08:00 Registration and refreshments

08:45 Welcome back from the chair

Matching SDH standards of teleprotection & substation automation communication with IP networking

09:00 **Teleprotection: Ensuring the reliability of teleprotection and differential protection services in the migration to next generation communication networks**

- Outlining the requirements of mission critical teleprotection and power system protection services in terms of enabling realtime communications with minimal latency, jitter and path asymmetry
- Meeting the end to end dedicated channel requirements of:
- Backup paths and redundancy
- Encryption and authentication
- Leveraging advanced packet-based engineering match current standards of latency and jitter
- Making the case for MPLS based circuit emulation to ensure SDH levels of accuracy, reliability and traffic prioritisation
- Determining timescales for continuing support of TDM networks for teleprotection and differential protection services in a mixed network in the short term

Steven Blair, *Research Fellow* - **University of Strathclyde**

09:30 **Substation Communication: Effectively integrating IP telecommunication networks with infrastructures and protocols for IEC 61850-based substation automation communications**

- Meeting the synchronisation needs of substation automation communications with IP networks
- Making the case for maintaining SDH to ensure serial P2P connections between RTUs and the SCADA and interfacing with the wider IP network
- Managing the interface of legacy RTUs with IP communications networks via protocol convertors
- Determining a long-term upgrade strategy for legacy substation RTUs which enable full IP networking
- Migrating legacy telecontrol systems to 100% IP-based communications

Indrek Künnapuu, *Chief Telecommunications Specialist* - **Elektrilevi**

Public and private telecoms infrastructure options

10:00 **Telco Partnerships: Determining the key criteria for telcos to meet in order to deliver the service level requirements of utility telecoms networks in the immediate and long term**

- Evaluating the different options for working with public telecoms operators and their vitality in the long term: dark fibre, leased lines, full service offerings
- Evaluating the benefits for partnering with telecoms networks in terms of capex and opex
- Examining the Energise ICT-Decision making toolkit; an approach for strategic planning based on case studies
- Addressing the current reliability and security limitations of packet based public telecoms networks for utilities
- Outlining the necessary steps to improve the collaboration between energy and telco-sector on a company and regulatory level

Daniel Schollhorn, *Consultant* - **TUV Rheinland & ENERGISE** (*European Commission Funded Project,* **DG Connect**)

10:30 Morning refreshments, exhibits & networking

11:00 **Technology Innovation Panel:** During this session 3-4 packet telecom technology innovators will share their experiences in applying IP telecom solutions in the utility telecom environment as well as their vision for how this market is evolving, what technologies and support utilities need, to ensure the reliability and security of their telecom networks today and in the longer term. Each speaker will present for 15 minutes and there will be 30 minutes at the end for panel discussion and Q&A.
(Speakers to be confirmed)

12:30 Lunch, exhibits & networking

"Once again Phoenix Forums presented a high-quality conference focused on one of the most important challenges for utilities. Throughout, an excellent blend of conference, workshops, exhibitions and networking, that were highly successfully driven, forward looking, with open discussions participated by all participants."

Aurelio Blanquet
Director, Division of Automation & Telecommunication
EDP Distribution

14:00 **Utility & Telco Collaboration: Examining the success of Vodafone's collaboration with Iberdrola and Scottish Power to enable the communications control infrastructure for the smart grid**

- Understanding and meeting specific utility needs in terms of: High availability, coverage, battery duration, network availability, QoS
- Outlining the deployment of fibre, next generation IP services and smart grid network infrastructure
- Delivering critical services
- Detailing some specifics of the Iberdrola and Scottish Power collaborations
- Addressing concerns about telcos' ability to meet guaranteed levels of service and support differentiated levels of services for mission critical utility telecoms

Stephen Colgan, *Global Business Development Leader* - **Vodafone Global Enterprise**

14:30 **Wireless: Opportunities for utilities offered by dedicated wireless 450 MHz telecoms networks**

- Determining the benefits of having a dedicated 450 MHz network for utility applications; considering examples from around Europe including the Utility Connect network
- Determining the benefits of operating at lower frequencies
- Outlining and addressing the different business set-up requirements for 450 MHz
- Outlining the work of the 450 MHz Alliance in furthering 450 MHz deployments for utilities

Erik Moll, *Telecom Policy Advisor* - **Utility Connect** (Representing **the 450 MHz Alliance**)

15:00 **IP Mobile Networks: Ensuring reliable and secure IP mobile networks for FAN (Field Area Networks) and IoT communications**

- Meeting the need for a unified secure and reliable IP wireless data network to interconnect all distribution applications
- Ensuring critical traffic prioritization and high network reliability
- Comparing own, lease, share network models for broadband and LTE solutions
- Assessing LTE capabilities for the FAN and IoT and M2M deployments and establishing how utility requirements differ

Frank Visser, *Telecommunications Architect* - **Alliander**

15:30 Afternoon refreshments, exhibits & networking

16:00 **Service Oriented Grid for the Network of the Future: Enabling near real-time control of the distributed energy network with innovative 5G telecoms networks and intelligence at the network edge**

- Examining the advantages for utilities of deploying 5G at the network edge in terms of network investment costs in the immediate and long term
- Exploiting SDN and NFV to shift network intelligence to the cloud at the edge of the network
- Understanding how network sectioning would enable a virtual network within a network to meet availability, reliability and security requirements
- Future proofing the network with a move to a service orientated grid rather than investment in technology which will become outdated
- Evaluating the different models for delivering such services: private or public networks
- Making the case for telcos offering substation automation communication as a service to utilities

Prof. Antonello Monti, *Director of the Institute for Automation of Complex Power Systems* - **E.ON Energy Research Centre**

Outlining EDP's Connect Program placing telecoms at the centre of the smart grid evolution

16:30 **Future Proofing Utility Telecoms: Placing telecoms at the heart of the smart grid evolution**

- Why the utility already calls for such a transformational program
- What main pillars to look for; the core network, the FAN, the NAN and the integrated supervision centre
- Which challenges should one be aware of while migrating from TDM to a new IP MPLS core network?
- How to envision a new FAN to tackle the new challenges while capturing possible synergies
- What are the alternative options for the future NAN when building an optional connectivity portfolio?
- Why the new paradigm demands a different operational approach; holistic value extraction through integrated supervision

Luis Matias, Associate Director, *Digital Grid, Networks' Digital Platform* - **EDP Distribuição**
Sérgio Ramos Pinto, *Assistant Director, Networks Digital Platform* - **EDP Distribuição**

17:30 Closing remarks from the chair and end of day two

Cyber-Security Workshop
Thursday 17th May 2018

Workshop Format

Through a series of presentations, break-out sessions and group exercises, these two separately bookable hands-on interactive workshops uncover the most critical issues facing utility telecom professionals in the areas of cyber security and teleprotection services and provide practical implementable strategies to help you stay one step ahead emerging challenges as the migration toward packet telecoms gains momentum.

Workshop A: Cyber-Security for Utility Packet Telecom Networks

Registration: 08:00 | Programme begins: 09:00 | Programme ends: 12:30

Workshop Leader

Prof. Antonello Monti
Director of the Institute for Automation of Complex Power Systems
E.ON Energy Research Centre

Antonello Monti started his career in Industry and then held academic positions in Italy and USA. Since 2008 he is the director of the Institute for Automation of Complex Power System within the E.ON Energy Research Center at RWTH Aachen University. During his tenure at RWTH, Prof. Monti has been involved in several EU Projects at the boarder between ICT and Energy. Currently he serves as coordinator of the H2020 FTI project ADMS and as Technical Manager of the two projects H2020 success and H2020 RE-SERVE..Dr. Monti is author or co-author of more than 300 peer-reviewed papers published in international Journals and in the proceedings of International conferences. He is a Senior Member of IEEE, Associate Editor of the IEEE System Journal and Associate Editor of IEEE Electrification Magazine. Dr. Monti is the recipient of the 2017 IEEE Innovation in Societal Infrastructure Award.

Workshop Speakers

Fiona Williams, *Research Director* - **Ericsson**
Gianluca Lipari, *Team Leader Cyber - Physical Energy Systems Management* - **RWTH Aachen**
Dhruvin Patel, *Researcher* - **Ericsson**
Michael Simonov, *Advanced Computing and Electromagnetics* - **ISMB**
Christian Hille, *Managing Director* - **P3 Energy**
Gyorgy Dan, *Professor Teletraffic Systems* - **KTH**
Ezzeldin Shereen, *PHD Candidate* - **KTH**

Workshop Programme

Telecoms network security is of key importance to the integrity of the gird and attacks on telecoms devices monitoring and controlling the grid can have severe consequences for this critical infrastructure. Therefore, high levels of network security are required. This in-depth interactive workshop will examine how telecoms network design can also a key factor in ensuring security; evaluating the different protocols and architectures and their susceptibility to security threats.

Session 1: **Introduction: overview of the cyber-security challenges of utility telecom networks as the migration to packet networks gains momentum**

Session 2: **Security by Design: establishing a new paradigm in ICT design for utilities to ensure security, resilience and survivability by design**

Session 3: **Time Synchronization: embedding time synchronization at the heart of security by design**

Session 4: **5G as a Game Changer: understanding the potential of new security solutions based on next generation wireless networks**

Session 5: **Customer Involvement: a critical analysis of smart meter infrastructure and the potential for new threats**

Session 6: **EV Charging: mapping out the Cyber security threats and solutions for grids and charging infrastructure**

Workshop A: Teleprotection over Utility Packet Telecom Networks

Registration: 12:30 | Programme begins: 13:30 | Programme ends: 17:00

Workshop Leader

Steven Blair
Research Fellow
University of Strathclyde

Steven Blair is a Research Fellow at the University of Strathclyde, Glasgow, UK. He received the MEng degree in Computer and Electronic Systems in 2008, and the PhD degree in Electrical Engineering in 2013, both from the University of Strathclyde. His research interests include power system protection, fault current limitation, communications, power quality, power system metrology, phasor measurement units, and real-time simulation. In particular, Steven specialises in the application of critical protection services over modern packet-based communications infrastructure. He is a member of IEC Technical Committee 57 Working Group 10 and CIGRE Task Force B5.02.

Workshop Speakers

Roel de Vries, *EMEA Business Development Manager,* **Arbiter Systems**
Dominique Verhulst, *Director of Sales Engineering - Vertical Markets* - **Nokia**

Workshop Programme

Telecoms network security is of key importance to the integrity of the gird and attacks on telecoms devices monitoring and controlling the grid can have severe consequences for this critical infrastructure. Therefore, high levels of network security are required. This in-depth interactive workshop will examine how telecoms network design can also a key factor in ensuring security; evaluating the different protocols and architectures and their susceptibility to security threats.

Session 1: **Facilitating legacy teleprotection services over packet-based networks**
- Addressing utility requirements for latency, jitter, asymmetry, and backup paths
- Methods for testing legacy and modern technologies in realistic conditions

Session 2: **Establishing stable and secure protection services**
- Cybersecurity provisions for protection services
- Service assurance and QoS models for legacy and packet-based protection services
- Managing complexity and configuration of IP/MPLS

Session 3: **Applying new methods to overcome the time synchronization challenges in utility systems**
- Required timing accuracies and reliability levels for advanced protection and control applications
- Standards and approaches to synchronization and time distribution in circuit- and packet-based communications: physical layer synchronization, Synchronous Ethernet, and more
- Principles for reliable time synchronization and distribution, including multiple clock sources and redundancy mechanisms

Session 4: **Future outlook: opportunities for modern native-packet protection services**
- Impact of synchrophasor-based protection systems
- Wide area protection systems: opportunities for high-speed backup protection systems

Speaker Biographies

Andreas Breuer
Vice President of New Technologies and Projects & Chairman
Innogy & EUTC

Dr. Andreas Breuer has been the Vice President of New Technologies / Projects at innogy S.E. in Essen since September 2009. His responsibilities include operational research and development work on distribution grids for the RWE Group (e.g. future energy grids, super-conducting cables, broadband cable networks), group-wide pooling of activities related to Smart Grids, metering services (e.g. Smart Metering), application technology (technology assessment, micro-CHP, virtual power plant), system assessments, and decentral energy solutions. Andreas Breuer's division identifies and evaluates technology trends, and he is in charge of development activities, and ensures implementation and/or introduction of new technologies. innogy S.E's position on the subject of the energy transition and how it is to be designed is represented by Andreas Breuer's division in numerous national and international bodies and associations. In addition, system assessments are performed with a view to strategic questions, in particular for the European electricity transmission system. Before joining the RWE Group in 2003, Dr. Breuer was a product manager in the Consulting division of ABB AG with a focus on maintenance strategies. Subsequently, he was the Managing Director of Süwag Erneuerbare Energien GmbH and Head of Concession Contract Management at Süwag Energie AG, a regional company of the RWE Group based in Frankfurt/Main.

Alberto Sendin
Telecommunications Projector Manager
Iberdrola

Dr Alberto Sendin received his M. Sc. in Telecommunication in 1996 and his Ph.D. in 2013 from the University of the Basque Country, Spain. He holds a M.A. (2001) in Management for Business Competitiveness (GECEM) from the same university. Since 1998 he has been working for Iberdrola transforming its telecommunication network, and he is now Head of Telecommunications in Iberdrola Spain. Dr Sendin recently authored, together with other colleagues at Iberdrola, the book "Telecommunication Networks for the Smart Grid" published by Artech House, now a best seller.

Jürgen Tusch
Head of Telecoms
Innogy

Dr. Jürgen Tusch is Head of Telecommunication at innogy SE, the asset owner of Germany's largest DSO. In this function he is responsible for the development and implementation of telecommunication services to control and manage the distribution grid. Jürgen joined RWE in 2002 and since then he held various management positions in the field of IT infrastructure and telecommunications. Since 2011 he has been working for RWE Deutschland AG initially as a senior project manager playing an active role in smart grid projects including Smart Operator, ADVANCED and EDeMa. Jürgen holds a Ph.D degree in Electrical Engineering from RWTH Aachen University.

Wolfgang Zeitler
Engineer
Bayernwerk

Bayernwerk is a Distribution System Operator in the south of Germany and a subsidiary of E.ON. E.ON is serving 6 Million Customers in Germany with Electricity and Gas. Wolfgang is working since 1993 for the energy industry in different roles. He was studying telecommunication technologies in Regensburg. Currently he is responsible for the implementation and standardization of the Broadband Powerline Networks in Germany. Moreover he is representing E.ON in different national and international committees.

Indrek Künnapuu
Chief Telecommunications Specialist
Elektrilevi OÜ

Indrek Künnapuu has a background in Estonian Defence Forces and seven years of experience in information technology and cybersecurity, with in-depth knowledge in implementing and maintaining communication infrastructure in critical services. He is currently the Chief Telecommunication Specialist in Elektrilevi. Elektrilevi is the most significant distribution network operator in Estonia. He is also a technical advisor on cybersecurity matters involving large-scale IT projects and daily operations. Indrek holds a Bachelor of Arts Degree in Social Sciences and Business Administration from Estonian Business School. Currently, he is obtaining a Master's degree in Cybersecurity from a joint program between Tallinn Technical University and the University of Tartu.

Stephen Colgan
Global Business Development Leader
Vodafone Global Enterprise

Stephen has a passion and capability for Sales & Technology which has taken him on a journey from beginning his career as a Sales Representative at Bass, to Telecoms with Eircom, to leading the Sales operation for Cable&Wireless in Ireland and part of Europe and now to closing £100m+ contracts for Vodafone Global Enterprise. He has run Multi country P&L businesses, providing turnaround transformations and significant pipeline growth. Stephen is enthusiastic about people and the insights they can provide to how we organise, sell and respond to the radical changes that are underway in our world. At Vodafone, he leads a large team that provides services into a global Utility since 2014, across our complete portfolio including mobile, fixed, WAN, outsourcing, unified communications and our new solutions in agile working, workforce mobility management and cloud and hosting. Stephen now works in an environment where, as a problem solver and challenger, he gets to engage with some of the smartest people in telecoms. Stephen is married with three young children, which keeps him very busy! His spare time is spent with the kids, coaching GAA sports and going to the gym!

Cormac Long
IP Technical Lead, Telecom Services
ESB Networks

Cormac Long is an IP technical consultant with over 25 years' experience and is the author of three books on IP Technology. He has provided design, implementation, strategic analysis and support services to numerous private and state organizations in Europe and the United States. He has also acted as a security consultant to a number of European aviation authorities. His main specialties include IP/MPLS and cybersecurity. He is Europe's representative on the EUTC Packet Network Working Group. Currently he is technical lead for the design and implementation of an IP/MPLS network for ESB Ireland. He holds a B.E. in Electronic Engineering and a Master's Degree in Telecommunications.

Lhoussain Lhassani
Senior Specialist Asset Management
Stedin

Lhoussain Lhassani received his Ph.D. degree from the Sorbonne University – Pierre and Marie Curie, Paris in Energy Engineering & Technology. He is currently Information Security Officer within Stedin, that is the grid operator in the west and centre of the Netherlands. His main focus lies in communications, networking and cybersecurity in Critical Infrastructures such as Utilities, Oil and Gas. He is interested in development and deployment of secure networks and security architecture for industrial automation, Smart Grids and Industial IoT. One of his challenges is the further optimization using a secure All-IP for the communication in the world of Critical Infrastructures (telemetry, telecommand and teleprotection). Another interest is an optimal deployment of the IT/OT-technology to support the business requirements. He has contributed to Cigré D2 Study Committee on different aspects of operational telecoms and cybersecurity in electrical power utilities and has been recipient of the Cigré Technical Committee

Speaker Biographies

award. He is chair of the Cigré Advisory Group ADG2.01: "Core Business Information Systems and Services".

Erik Moll
Telecom Policy Advisor
Utility Connect (Representing the 450 MHz Alliance)

Erik Moll is telecom policy advisor with wireless M2M operator Utility Connect in the Netherlands. Utility Connect is a subsidiary of Dutch Energy Grid operators Stedin and Alliander. As Telecom Policy Advisor Erik provides guidance on the relevant strategic, regulatory and policy developments. Previously Erik worked for the European Commission and the Dutch Ministry of Economic Affairs where he was responsible for the development of telecommunication policies and the related regulations. Utility Connect is a member of the 450 MHz Alliance. The 450 MHz Alliance is an industry association representing the interests of 450 MHz spectrum stakeholders. It's members include wireless industry companies such as wireless carriers and equipment manufacturers, as well as companies representing various vertical markets for machine-to-machine communication.

Frank Visser
Telecommunications Architect
Alliander

Frank received his MSc in Electrical Engineering with specialization in Telecommunications in 2007 from the Delft University of Technology, The Netherlands. After graduation he joined Liandon as Technical Consultant in the field of telecommunication for substation automation and protection. In 2013 He joined Alliander Telecom as Telecommunication Architect. Frank is responsible for the architecture of the fixed network and the wireless telecommunication services of Alliander. Alliander Telecom is part of Alliander, which is the largest distribution systems operator of the Netherlands.

Zarko Veličković
Telecommunication Network Management System Unit Manager
Elektromreža Srbije

Žarko Veličković received a M.S. degree in Electronic and Telecommunication at the Faculty of Electronic Engineering in 1998. In career he has been working in EPS – Electric Power Industry of Serbia as an OAM engineer for telecommunication transmission systems. After the unbundling and setting up EMS – Serbian TSO in 2005, he joined the company as Head of telecommunication OAM unit and from 2008 working as a Head of TNMS unit. From 2015. he is working as a Telecommunication Department Manager. Member of Serbian Chamber of Engineers (License for responsible designer of telecommunicationsnetworks and systems) and Study Committee No. D2 – Information technology and telecommunication, Serbian National Committee CIGRE. From 2006. have CCNA certificate.

Luis Matias
Associate Director, Digital Grid, Networks' Digital Platform
EDP Distribuição

Luís Matias holds a Licenciatura degree (2001) and a Master degree (2008) in Electrical Engineering and Computer Science from the Technical University of Lisbon. He is now contributing for the development of the Digital Grid, the new paradigm, at EDP Distribuição, the main DSO in Portugal. Just before he was part of the task force defining InovGrid, the Smart Grid project, the one brought him into the energy industry, and to EDP Group, in 2013. His past professional experience spans across different geographies, companies and sectors (Education, Consulting, Telecommunications, Microelectronics and Semiconductors), while encompassing a broad range of functions from the technical domain till the business counterpart (Junior Assistant Professor, Systems Engineer, Field Application Engineer, Business Analyst, Business Developer).

Steven Blair
Research Fellow
University of Strathclyde

Steven Blair is a Research Fellow at the University of Strathclyde, Glasgow, UK. He received the MEng degree in Computer and Electronic Systems in 2008, and the PhD degree in Electrical Engineering in 2013, both from the University of Strathclyde. His research interests include power system protection, communications, power quality, phasor measurement units, and real-time simulation. He is a member of IEC Technical Committee 57 Working Group 10 and CIGRE Working Group B5.64.

Daniel Schollhorn
Consultant
TUV Rheinland & ENERGISE
(European Commission Funded Project, DG Connect)

Daniel is currently responsible for project management and consulting for both the public and private sectors. His responsibilities include analysis of synergies and dependencies between energy and telecommunication networks, consultation for smart grid deployment, EU project management: EU research project for synergy potential Smart Grid Infrastructure-ENERGISE, coordinating working groups within the department such as 5G and energy infrastructure (IoT networks, e-mobility charging infrastructure).

Prof. Antonello Monti
Director of the Institute for Automation of Complex Power Systems
E.ON Energy Research Centre

Antonello Monti received his M.Sc degree (summa cum laude) and his PhD in Electrical Engineering from Politecnico di Milano, Italy in 1989 and 1994 respectively. He started his career in Ansaldo Industria and then moved in 1995 to Politecnico di Milano as Assistant Professor. In 2000 he joined the Department of Electrical Engineering of the University of South Carolina (USA) as Associate and then Full Professor. Since 2008 he is the director of the Institute for Automation of Complex Power System within the E.ON Energy Research Center at RWTH Aachen University. Dr. Monti is author or co-author of more than 300 peer-reviewed papers published in international Journals and in the proceedings of International conferences. He is a Senior Member of IEEE, Associate Editor of the IEEE System Journal, Associate Editor of IEEE Electrification Magazine, Member of the Editorial Board of the Elsevier Journal SEGAN and member of the founding board of the Springer Journal "Energy Informatics". Dr. Monti is the recipient of the 2017 IEEE Innovation in Societal Infrastructure Award.

Sérgio Ramos Pinto
Assistant Director, Networks Digital Platform
EDP Distribuição

Sérgio Pinto holds a degree in Electrical Engineering and Computer Science from the University of Porto and an Executive-MBA from INDEG-ISCTE. He began his professional activity in EDP planning and deploying Radio and PLC networks for SCADA connectivity, he then joined the management team that founded a new Telecom Operator (ONI), where he developed a great technical team, building and operating nationwide telco infrastructures, leading in wireless access, IP-MPLS, VOIP and convergence for enterprise and carrier markets, implementing and certifying E2E managed solutions, developing cross-functional managerial experience by holding directive positions in Engineering, Operations and Customer Care, leading to is latter position as the company's CTO. Now in EDP Distribuição's team since 2014, he is actively involved in the transformation of the digital platform for mission critical services, focused on evolution strategy, procurement, implementation and to establish an Assurance framework for service and security.

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Terms & Conditions

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not been received by the first day of the conference then credit card details will be requested onsite and payment will be taken before entry to the conference. Bookings made within 14 days of the conference require payment by credit card on booking.

Delegate Inclusions: the delegate fee covers attendance of conference sessions, speaker presentation materials, lunch and refreshments during the course of the conference, and the networking canal cruise. It does not cover the cost of flights, hotel rooms, room service or evening meals. If after booking your place you are unable to attend you may nominate, in writing, another delegate to take your place at any time prior to the start of the conference. Two or more delegates may not 'share' a place at the conference. Please make separate bookings for each delegate.

Exhibitors: the exhibition is located in the networking and catering area alongside the conference room to ensure maximum footfall and visibility for all exhibitors. Each exhibitor will be allocated a 3m x 2m space with table, 2 chairs, power sockets and WiFi access. The exact location of each exhibitor will be determined 4 weeks Terms & Conditions prior to the conference.

Exhibitor set-up commences at 7am on the first day of the conference, and break-down takes place after 4pm on the last day of the conference. Exhibitor packages include 2 conference passes. Additional passes may be purchased at 10% discount on the published rates.

Cancellations: regretfully cancellations cannot be facilitated but transfer to a future conference is permissible. We will provide the speaker presentation materials to any delegate who has paid but is unable toattend for any reason. If we have to cancel an event for any reason, we will make a full refund immediately, but disclaim any further liability.

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