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Delta Ottawa City Centre | Nov. 14-16 | Ontario, Canada

UTC Canadian Industrial IoT Workshop
November 14-16, 2018
Delta Hotel • Ottawa • Canada

Wednesday, November 14, 2018

8:00 AM – 5:00 PM **Canadian Electricity Association (CEA) TTG Meeting with ISED Spectrum Engineering and Planning Directorate - Delta Hotel Capitale Room**

This meeting is for CEA TTG utility members and their invited guests only.

Email kent@electricity.ca to request an invitation.

Discussion of current electric industry spectrum needs and opportunities.

5:00 – 6:30 PM **Opening Reception**

Thursday, November 15, 2018

7:00 AM - 5:00 PM **Meeting Registration**

7:00 - 8:00 AM **Attendee Breakfast**

8:00 – 8:15 AM **Welcome Remarks**

8:15 – 9:30 AM **Utility Updates (In-progress and planned ICT initiatives)**

This ice-breaking session will provide each utility representative an opportunity to share with their peers the current and planned ICT initiatives at their companies. The information shared will provide opportunities for further discussion throughout the remainder of the workshop.

Presenters: **Each Attending Utility**

9:30 – 9:45 AM **Networking Break**

9:45 AM – 10:45 AM **Federal PSBN Task Team Progress Update**

In May 2018, Federal-Provincial-Territorial (FPT) Ministers responsible for emergency management collectively acknowledged the benefits of a potential Public Safety Broadband Network (PSBN) and endorsed the standing-up of a Temporary National Coordination Office (TNCO) to guide the work on a PSBN for the next two years. The TNCO is comprised of team members from Public Safety Canada, FPT jurisdictions, Tri-Services (police, paramedics and firefighters) associations, and other potential PSBN user groups. The TNCO has been mandated to develop national options and recommendations on a potential PSBN for Canada, supported by research, analysis and engagement with PSBN stakeholders.

This session will provide participants an update on the TNCO's progress to date and future plans in the advancement of a national and interoperable PSBN for Canada.

Presenter: Rob MacDonald, Policy Manager of the Temporary National Coordination Office (TNCO) on PSBN, Public Safety Canada

10:45 – 11:30 AM **Canada's 5G Path**

The 5G Canada Council, a cross-sector consortium that supports Canada's 5G innovation agenda and facilitates collaboration on 5G issues, was established to identify and discuss the benefits, challenges and priorities related to the development and implementation of 5G networks in Canada. The 5G Canada Council representative will provide session participants an understanding of:

- 5G technology – Fact and Fiction – what it promises to do and what it is likely to do for consumers
- Worldwide network deployments and how Canada compares (timeline/scope/functionality/features)
- Barriers to Canadian 5G deployments (regulatory/ spectrum/technology)

Presenter: Eric Smith, VP, Regulartory Affairs - CWTA

11:30 – 1:15 PM **Networking lunch with Sponsors**

1:15 – 2:45 PM **Carriers' Market Roadmap for 5G and IoT**

As Canadian Utilities strive to meet customer demands for more reliable energy and customer energy requested data (flexible use cost and use of clean energy), the availability and cost of communication systems required to meet the customer demands is a growing concern. This panel discussion session with three of the leading Canadian carriers will provide a platform for the audience to hear the carriers' communication roadmap around the IoT and 5G and how this roadmap will help utilities meet their future communication needs.

Presenters:

-Damian Poltz, VP, Technical Strategy & Networks – Shaw – Freedom Mobile
-Christopher Emery, Sr. Director, Technology Strategy – (Network – 5G) Rogers Communications
-Luc Boucher, Senior Product Manager (IoT Networks) -- Telus

2:45 – 3:00 PM **Break**

3:00 – 4:00 PM **Industrial IoT**

BC Hydro Case Study for IoT Enabled Dam Safety
BC Hydro uses thousands of instruments and devices to collect and report automatically on the performance of our dams. Our dam safety program—which is based on provincial regulations, guidelines published by the Canadian Dam Association and international best practices—has been modelled by other jurisdictions in North America and around the world.

Sol Lancashire will describe an ongoing program to further enhance BC Hydro's Dam Safety Program by introducing IIoT technology.

Leveraging GIS for IoT
Today, even without considering smart meters, electric utilities have a huge number Intelligent Electronic Devices deployed on their systems. They know that value lies in the vast quantity of data available and the most competitive organizations are transforming their asset performance monitoring, decision making, and operation capabilities by taking advantage of emerging IIoT, GIS, and analytics technology.

Brian Bell will discuss opportunities to leverage the big data, spatial and temporal capabilities of Geographic Information Systems they already have to gain business insights from these immense data sources.

IIoT Projects to Watch
The session will wrap up with quick overview of recent and present IIoT projects that electric utility technology pioneers should know about.

Presenters: Brian Bell, Director, Utilities - ESRI Canada
Sol Lancashire, Specialist Engineer - BC Hydro
Wim D'Hondt Partner, Partner – Advisory - Momenta Partners

4:00 – 4:30 PM **Security Networks supporting Industrial IoT-Utility Case Study on Security Design IoT Telecom Architecture**

In the new context of Smart Grid, utilities must learn to balance the need for performance, cost reduction, flexibility, fast deployment and ubiquity in an environment that is facing growing cybersecurity threats. This session provides a vision utilities should consider in their security design for IoT telecom architecture.

Presenters: Barmak Khosravi, Telecom Engineer - Hydro-Québec
Sylvain Riendeau, Research Engineer - Hydro-Québec

4:30 – 5:00 PM **Meeting Cyber Challenges with Optical Bulk Encryption**

Power utilities face elevated cyber challenges since they are considered critical national infrastructure. Many utility CIOs do not fully appreciate the fact that, once data leaves the substation or datacenter, it is basically outside of their control. This presentation will cover how a Layer 1, optical bulk encryption approach renders all utility data and meta-data undecipherable to any hacker that taps into the fiber strand and leverages flexible bandwidth offerings with protocol-agnostic 10G, 100G, or 200G wire-speed encryption without impact on utility application performance.

Presenter: Mitch Simcoe, Senior Advisor, Industry Marketing - Utilities/Transportation - Ciena

5:00 – 5:45 PM **Securing the Digital Utility Transformation: Opportunities and the Way Forward**

The digitalization of utility promises to optimize the supply and demand of electricity, manage the increasing number of renewable sources of energy and micro grids while offering efficiency improvements for consumers. Further, the introduction of smart meters and the proliferation of Industrial Internet of Things (IIoT) will contribute to a huge increase in data, which when processed by predictive analytics will allow utilities to transition to a proactive mode of asset management. Such a far-reaching digital transformation comes with many challenges for critical infrastructure, with cybersecurity near the top of the list.

The widespread use of IIoT along with distributed energy resources will drastically increase the attack surface, which will expose utilities to new threats. Being compliant to NERC CIP is simply not enough. So what is the solution to keep the risks to an acceptable level? In his presentation, Gaétan Houle, Principal Security Architect at SNC Lavalin, will share with us some lessons learned and practical tips.

Presenter: Gaétan Houle, Principal Security Architect, SNC-LAVALIN

5:45 – 7:00 PM **Networking Reception with Sponsors**

Friday, November 16, 2018

7:00 – 11:00 AM **Meeting Registration**

7:00 - 8:00 AM **Attendee Breakfast**

8:00 – 8:15 AM **Opening Remarks**

8:15 – 9:15 AM **Spectrum / Regulatory Update**

This session is devoted to conveying the current and forthcoming regulatory and spectrum changes occurring in Canada and how they might directly, or indirectly, impact Canadian utilities.

Presenter: Laurence Dunbar, Partner - Fasken Martineau

9:15 – 10:15 AM **Use Cases and Performance Metrics for IoT Communications Systems**

A common error made by utility companies when evaluating a wireless technology is to rely upon manufacturer supplied specifications to rank across multiple vendors. Many of the metrics that manufacturers have traditionally provided for wireless performance have little bearing upon real-world performance of the SCADA/ DA system. In our presentation we will discuss what measures are relevant to SCADA system performance and how a utility can test or validate manufacturer claims and extrapolate those results to how the SCADA/DA system will behave. Some oft-given specifications are aggregate bandwidth, transmitter power or receiver sensitivity. These are the radio-world equivalents of 0-60 or ¼ mile times for cars on a test track. They may sound impressive but only have a partial relationship to how a vehicle may be as a daily-driver. The world of wireless specifications is filled with similar analogies.

We will briefly discuss some of the commonly used SCADA protocols (DNP3 and MODBUS) and what SCADA traffic contains. This will also serve as a guide for the utility in determining data message sizes, rates, timeout values and expected SCADA performance. In our presentation we will present some ideas how to test a wireless system in an environment that mimics SCADA system performance. Many of the software tools presented are available at no cost and can be used by SCADA engineers or IT personnel in a lab environment or in a pilot deployment.

Presenter: Tisha Hayes, Senior Engineer - 4RF

10:15 – 10:30 AM **Networking Break**

10:30 AM – 12:30 PM **Canadian Utilities Next Steps – Report from CEA/TTG, discussion on next steps from workshop presentations and discussions**

The CEA Telecommunications Task Group will share with the audience their current programme of work and then workshop attendees will participate in the development of a complimentary UTC-based programme of work.

Presenters:
-Sol Lancashire, Specialist Engineer - BC Hydro
-Geoffrey Trofimuk, Mgr – Field Operations, Intelligent Networks, Technology & Security

12:30 PM **Round Table Discussion & Wrap-up**

1:00 – 3:30 PM **Ciena Facilities Tour – Invitation Only**

Ciena will provide a tour of their facilities and invite some of their head product engineering folks to speak about Ciena present and future products and answer questions from the tour attendees.

Ciena will provide transportation to the facility and a meal at the facility for the utility members.