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***Data Center Technology & Challenges for the Power Grid***

**Date: THURSDAY, FEBRUARY 25TH, 2021**

**Place: WEB - ON-LINE TECHNICAL SEMINAR – See Link on Page 2**

**Topic:**

With the proliferation of search engines, social media, cloud services, etc., data centers have become some of the most critical infrastructure of modern society. There are about 3 million data centers in the United States and energy use by data centers has grown rapidly in recent years. In this seminar, the industry experts are invited to present various topics on data centers as well as the challenges faced by utilities to accommodate the ever-increasing need for data centers.

**Seminar Outline:**

9:00 am to 9:10 am           Opening Remarks

9:10 am to 10:10 am Which data center is right for you?

10:10 am to 11:10 am         Where Can You Plug-In Your Datacenter?  
11:10 am to 11:30 am         Chapter Announcements

**Instructors:**

* John Kazantzidis, Digital Realty, USA
* David Burnam, Dominion Energy, USA

**Seminar Cost: Free**IEEE membership is not required to attend this seminar.

**Registration:** Please Register on the IEEE Website at the link below. This allows us to inform speakers ahead of time what sort of participation they may expect. It also helps us report IEEE membership participation and lets us know who to contact in case of any last-minute issues. As we all know, technology can be fickle when we need it most!

[**https://events.vtools.ieee.org/m/261969**](https://events.vtools.ieee.org/m/261969)

**PDH Certificate:** A PDF Certificate will be sent out for all attendees following the seminar.

**PDHs: 2** professional development hours (PDHs) may be issued to those completing this course.

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| **Questions? Contact the following:** |
| [PESRichmond@ieee.org](mailto:PESRichmond@ieee.org)  alan.ott@dominionenergy.com |
| |  | | --- | | **Webex Meeting Link:** | |  | |

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| Meeting number (access code): 179 857 4510 |
| Meeting password: 2WmcKpXTS42 |
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**Tap to join from a mobile device (attendees only)**    
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You can also dial 173.243.2.68 and enter your meeting number.

**Instructor Bios and Abstracts:**

**John Kazantzidis** is currently the Director of Solutions Engineering for Digital Realty in Ashburn where he has supported more than 1 GW and 4,000,000 sq ft of customer data center deployments including high density, disaster recovery, liquid cooling, and modular applications. He is also part of Digital Realty’s Sustainability and Data Center Controls groups. Prior to Digital Realty, John was an Engineering Manager at Schneider Electric for engineering monitoring and controls solutions where his team implemented over 300 MW of data center deployments.

**Abstract**: Which data center is right for you?   
Success in the datacenter industry hinges on uptime. How do datacenter providers achieve the highest levels of uptime anywhere? It’s a combination of stable utility grid, lack of natural disasters, and solid operational and design fundamentals. There are many different variations on a few different data center topologies, but which works best?

This presentation will explore a few different basic topologies as well as their advantages and disadvantages.

**David M. Burnam, P.E.**  David works on the Datacenter Planning Team in the Electric Distribution Grid Planning group at Dominion Energy. This team coordinates with other internal work teams to connect new datacenter projects to the grid throughout Dominion Energy’s service territory. He has been in the Distribution Planning organization for 22 years, the majority of which was planning for Loudoun County, VA coincident with the development of the datacenter industry in Ashburn, VA. He has been with Dominion Energy for 30 years.

The Distribution Grid Planning group is responsible for monitoring existing system load, forecasting future load, comparing distribution system components capacity to their existing and projected loading, and identifying and launching system improvement projects to prevent overload of any system component. The zone of responsibility is from the high side of substation transformers, through the distribution system, and to each customer meter.

Prior to Distribution Grid Planning, David worked in the company’s Energy Efficiency organization and in the Nuclear Department where he was an engineer and then an instructor in the Nuclear Training department training fellow engineers.

While not qualified as a rocket scientist per se, he did work in a rocket factory before coming to Dominion Energy. In the late 1980 he worked for NASA in New Orleans in a plant that built the external fuel tanks for the space shuttles. Prior to that, he worked for an engineering consulting firm in Richmond.

David is a licensed Professional Engineer in Virginia and has been an IEEE member since college. He graduated with a BS in Electrical Engineering from Virginia Tech in 1985. He lives in Richmond for and enjoys DYI projects and mountain biking in downtown Richmond.

**Abstract**: Where Can You Plug-In Your Datacenter?

Ashburn Virginia, in Loudoun County, is the internet capital of the planet. Datacenters in “Datacenter Alley” in Ashburn host the servers and interconnect equipment that creates the web we call the internet. These servers need power. The rows and rows of racks of servers that are housed inside a datacenter building add up to a very large block load. Add to that the electricity required to provide the cooling and axillary systems in the building, and the total utility power needs can be 40, 50, or even 60MVA per building. Put multiple datacenter buildings on a campus, and now the campus power needs can be 250 to 300+ MVA. Cluster a lot of datacenter campuses into a very tight geographic area, and one can appreciate the challenges of an electric utility to provide the necessary power to multiple datacenters.

This presentation will describe the power needs of a datacenter by exploring a typical Load Letter requesting power and how Dominion Energy creates a power plan to serve that request. We’ll explore the options available to power datacenter customers. Through a realistic datacenter project request, we’ll step through the process of building a power plan by taking a phased approach to delivering projects.