IEEE Berkshire Section Newsletter

Update: October 2025

Berkshire Consultants Network Presented: September 25

The Hidden Costs of Cloud-Powered Simulation

By
Alex Lesser Vice-President, PSSC Labs | NZO Cloud
Madhu Vellakal Senior Solutions Architect, Rescale

With simulation jobs increasing in size and complexity, the use of cloud computing is inevitable. But users could get lost in the different flavors of cloud available, ranging from hybrid (on-premise and remote) to pay-per-use to subscription.

In this LIVE roundtable, panelists discussed:

- How different cloud models work and what their benefits and limitations are
- How to pick the right model that fits your simulation workflow
- What the security implications are in different models

Alex Lesser continues to push the boundaries of high performance computing to help organizations solve the world's most complex problems. As a 25+ veteran of the HPC industry, Alex works closely with engineers and IT teams to develop cloud and on-premise advanced computing environments.

Madhu Vellakal is a seasoned Senior Solutions Architect at Rescale with a strong background in computational science and high-performance computing. He brings extensive expertise in analytics, machine learning, and cloud computing to his role. A graduate of The University of Illinois Urbana-Champaign with a Masters of Engineering, Madhu has contributed to numerous technical publications. He is passionate about helping clients across various industries adopt digital engineering solutions in the cloud.

Meeting contact: Rich Kolodziejczyk, P.E.
Guest Attendance: 1
IEEE Member Attendance: 4

The Computer and Control Chapter (C&C)
Presented: August 27

Spectrum Mastery: Real-Time Analysis, Recording, and Signal Intelligence

By
Jack Ma
Field Application Engineer, Tektronix

This webinar explored how simultaneous capture and analysis, gapless RF signal recording, and advanced software like SignalVu-PC empower engineers to demystify even the most elusive signals. It showed how to perform deep signal quality reporting, demodulation, radar pulse analysis, and pre-compliance EMC testing—backed by real-time, PC-driven architecture and high-performance hardware. Experience real-world demonstrations of spectrum capture and analysis and learn how you can apply these techniques today. It also demonstrated how to take command of RF with Tektronix cutting-edge real-time spectrum analyzer (RSA) solutions.

Jack Ma is a field application engineer for Tektronix mainly supporting the frequency domain product portfolio in the US West Coast. He has a PhD degree in Electrical Engineering from University of Southern California. During his time at Tektronix, Jack has focused primarily on RF signal processing such as signal generation and analysis for satellite, radar, WiFi, Bluetooth, and EMC pre-compliance.

Meeting contact: Rich Kolodziejczyk, P.E.
Guest Attendance: 1
IEEE Member Attendance: 1

Berkshire Consultants Network Presented: August 20

Next-Generation Microelectronics Manufacturing

By

Michael Holmes from DARPA's Microsystems Technology Office

As technologies push the limits of traditional silicon, the U.S. faces a critical challenge: how to continue delivering high-bandwidth, energy-efficient, multifunctional microelectronics essential for advanced technologies. Conventional 2D scaling is reaching physical and economic limits, and while industry is pursuing advanced packaging, the integration of mixed materials – beyond silicon – remains largely untapped. Yet this integration is essential for achieving the order-of-magnitude improvements that next-generation capabilities will require.

Michael Holmes from DARPA's Microsystems Technology Office, provided how to learn DARPA's Next Generation Microelectronics Manufacturing (NGMM). NGMM is establishing the nation's first open-access center for U.S.-based 3D heterogeneous integration (3DHI) focused on mixed materials integration to leapfrog ahead of today's state of the art. In partnership with The University of Texas at Austin and its Texas Institute for Electronics (TIE), NGMM is developing a sustainable domestic hub for R&D and pilot production, which will enable rapid prototyping and fabrication of advanced microsystems critical to future technological needs. Attendees also learn about opportunities to engage with the NGMM community at the inaugural NGMM Summit this October in Austin, Texas.

Mr. Michael Holmes is the managing director of the NGMM program. Prior to joining DARPA in September 2024, Holmes was at Sandia National Laboratories for more than 21 years. In his most recent role at Sandia, he was the senior manager of the protective technologies organization focused on specialized hardware systems security research.

Meeting contact: Rich Kolodziejczyk, P.E.
Guest Attendance: 0
IEEE Member Attendance: 1

The Power Chapter Presented a WEBINAR: June 11

Interaction Between Interconnected Grounding Systems in Solar & Wind Renewable Generation Projects

by

Gerry Callison, Electrical Engineer, Substation Studies & Design
Rich Keil, Electrical Engineer, Substation & Transmission Engineering Commonwealth Associates, Inc.

The interaction between interconnected grounding systems in solar and wind generation projects can create challenges, leading to inefficiencies and safety hazards.
This webinar provided:

- The fundamentals of ground grids and their role in renewable energy systems
- How to identify and mitigate touch and step potentials to enhance safety
- The impact of ground potential rise and split factors on system performance
- Design considerations for grounding systems in solar projects.

The opportunity was to gain valuable insights and practical knowledge that will help you navigate the challenges of grounding in renewable energy projects. Register to secure your spot and take the first step towards optimizing your renewable energy systems.

WEBINAR PRESENTERS:

Gerry Callison is a seasoned Electrical Engineer specializing in Substation Studies & Design at Commonwealth Associates, Inc. With a BSEE from the University of Wisconsin-Milwaukee and an MSEE from the University of Tennessee, Gerry is a registered Professional Engineer in Michigan. He brings over 15 years of expertise in substation design and system studies. A member of the IEEE Power & Energy Society and the IEEE Substations Committee, Gerry contributes to working groups focused on auxiliary systems and substation grounding.

Rich Keil is a veteran Electrical Engineer specializing in Substation and Transmission Engineering at Commonwealth Associates, Inc. He has over 34 years of Utility industry experience in substation design, project and construction management, outage scheduling, equipment failure analysis, and emergency response. Rich has been an IEEE PES Substations Committee member since 1976, contributing to standards and guides for substation safety, lightning protection, bus design, grounding connectors, and ground testing. He chaired the IEEE working group responsible for IEEE Std 80-2000 and IEEE Std 80-2013, the IEEE Guide for Safety in AC Substation Grounding, since 1986. Rich also chaired the IEEE Substations Committee Transmission and Distribution Substations Design Subcommittee from 2009 to 2015.

Meeting contact: Rich Kolodziejczyk, P.E.
Guest Attendance: 1
IEEE Member Attendance: 3

The Power Chapter Presented a WEBINAR: April 30

How Close Can Far-Field Be? Getting the Best out of Your Measurement Range

By

Dr. Benoit Derat,
Senior Director for Systems Developments and Project Implementations,
Rohde & Schwarz, Munich

Trends in modern wireless communications, including the use of massive MIMO and millimeter wave frequencies, have supported an increased deployment of electrically large antennas. This created technical and economic challenges as many EMC or regulatory tests require a far-field condition. This talk provided an overview of the recent findings in defining the shortest possible far-field test distance, depending on the size of the device under test, its operation frequency, the target metric and the upper bound acceptable measurement deviation. Practical ways were also described to determine the maximum antenna aperture size that can be tested in the far-field at a given frequency and for a maximum error, in an existing chamber with a defined range length.

Meeting contact: Rich Kolodziejczyk, P.E.
Guest Attendance: 0
IEEE Member Attendance: 2

Life Member Affinity Group Webinar: March 19

What Sets You Apart: Early Career Skills to Differentiate Yourself

By

Brittany Chapman, PE

Stacey Nall

In this talk, exciting webinar, "What Sets You Apart: Early Career Skills to Differentiate Yourself," presented how to discover the key to developing a well-rounded skill set beyond technical competencies in the engineering field. We learned how essential attributes such as curiosity, humility, confidence, and open-mindedness can drive your professional growth and success. Our expert presenters defined these critical skills, share real-world examples of their application in the workplace, and provided practical strategies to cultivate them. This Webinar presented an opportunity to gain valuable insights in enhancing your engineering career, setting yourself apart from your peers.

Meeting contact: Rich Kolodziejczyk, P.E.
Guest Attendance: 0
IEEE Member Attendance: 3

2025 Berkshire Section Officers:

On January 15, the EXCOM has voted new Berkshire Section Officers:

Section Chair	Rich Kolodziejcxyk
Section Vice Chair	open
Treasurer	Roger Manzolini
Secretary	Dave Rueger

The NOMINATING COMMITTEE consisted of Dave Rueger, George Haus and George Gela.