

# 7X24 7XChange

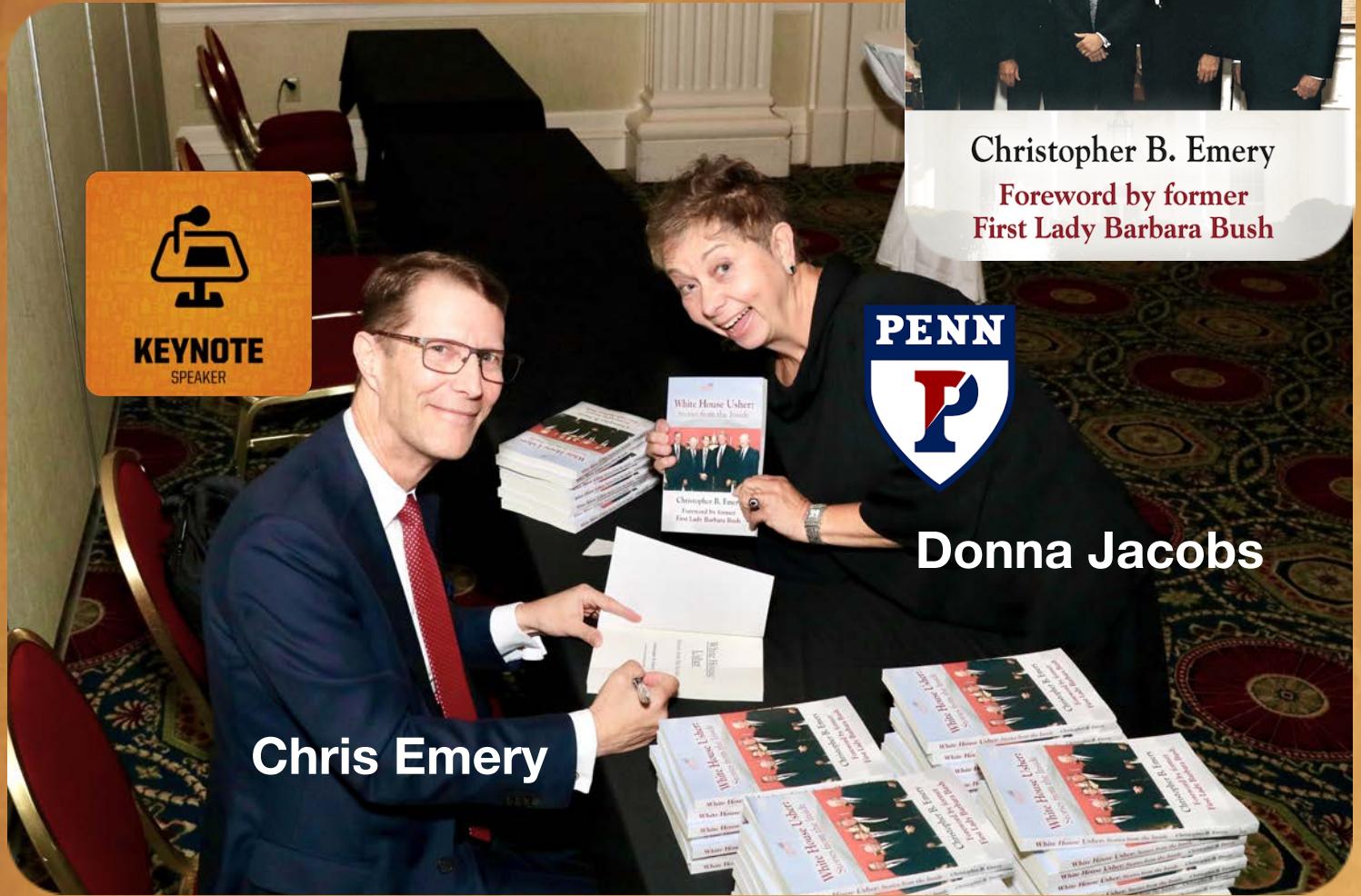
Delaware Valley Chapter



White House Usher:  
Stories from the Inside



Christopher B. Emery  
Foreword by former  
First Lady Barbara Bush



Chief Enterprise Architect  
U.S. Securities and Exchange Commission



7X24 Delaware Valley Chapter - 93rd Meeting  
September 25 - 26, 2019 - Dover Downs, DE

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THE END-TO-END RELIABILITY FORUM™



# INTERNATIONAL DATA CENTER DAY

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## CONFERENCE KEYNOTE



**Mike Massimino**

Former NASA Astronaut, Sr. Advisor for space programs for the Intrepid Museum and author of Spaceman





## White House Usher: Stories from the Inside



Christopher B. Emery

Foreword by former  
First Lady Barbara Bush



**Chris Emery** has more than 40 years of information technology experience, including 28 years with the federal government. He has been a Chief Information Officer at two agencies, a Chief Enterprise Architect at two agencies, and the head of software applications development.

Chris' Federal government career began with the Reagan White House, Office of Administration in January 1986. After eight-plus years at the White House, he returned to the private sector then later rejoined the federal government. Chris spent over five years at the US Congress Architect of the Capitol where he was head of applications development, Chief Enterprise Architect, and then CIO. He spent three years with the Department of Homeland Security in the Office of the Chief Information Officer as the Director of Portfolio Governance. In December 2012, Chris joined the Department of Justice, National Security Division (NSD), as its first CIO. Since September 2015, Chris has been the Chief Enterprise Architect for the U.S. Securities and Exchange Commission. Chris earned his Bachelor's degree in Information Systems Management from the University of Maryland. He has published articles and presented on the topics of Enterprise Architecture and Portfolio Management.

# What Does A White House Usher Do?



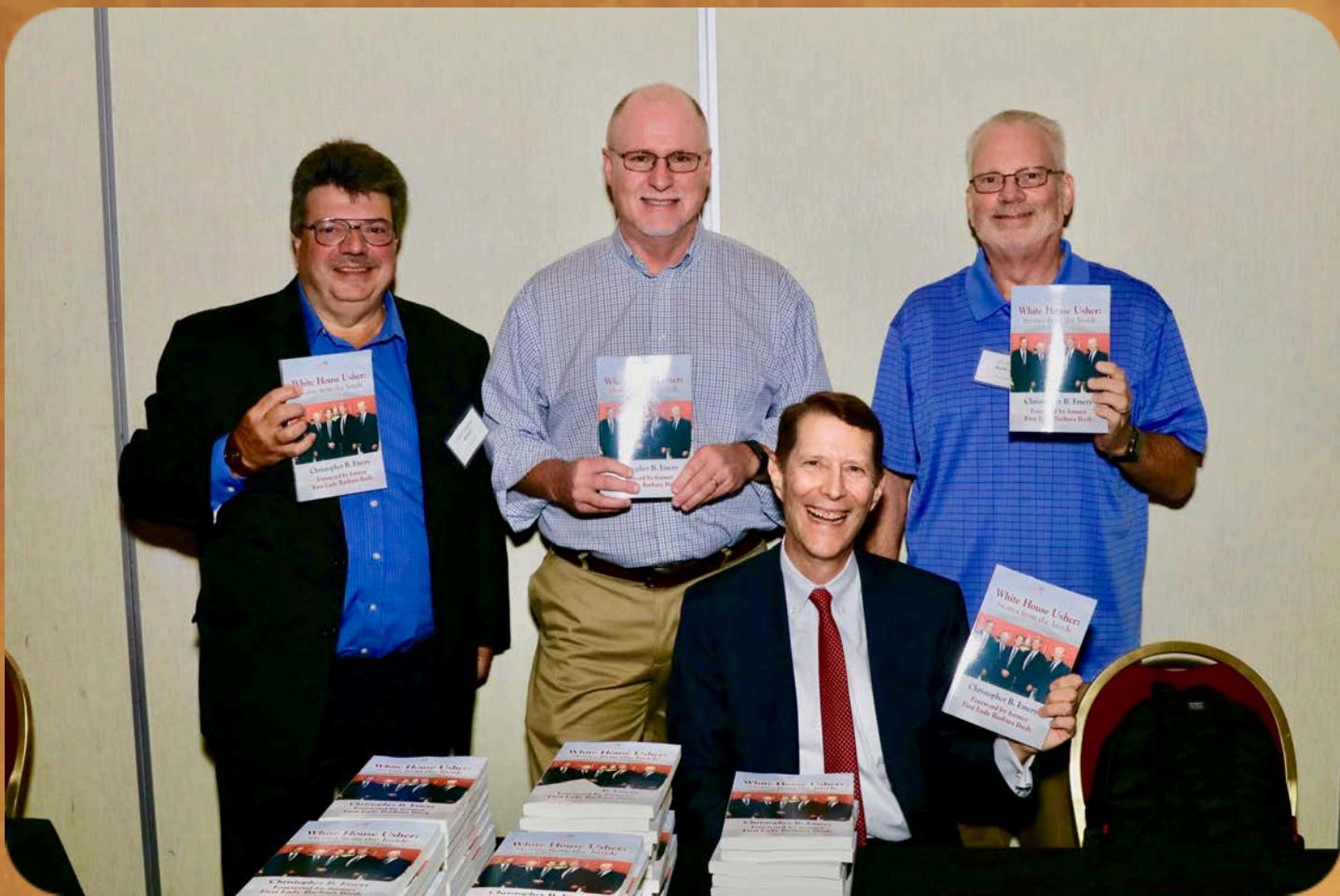
SORRY you've  
MISSSED IT



To Chris Gruen -

9-14-89

May your life be full of ringing!  
With regards, Lin Bond



## Emery – BIO

42 years of Information Technology experience,  
including 28 years with the U.S. Government.

- 
- 6. Securities and Exchange Commission
  - 5. Department of Justice
  - 4. Department of Homeland Security
  - 3. Department of the Treasury
  - 2. United States Congress
  - 1. **The White House**
- 

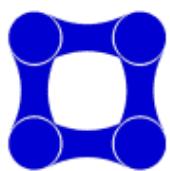
- Chief Enterprise Architect
- Chief Information Officer
- Branch Chief for Software Development
- White House Usher



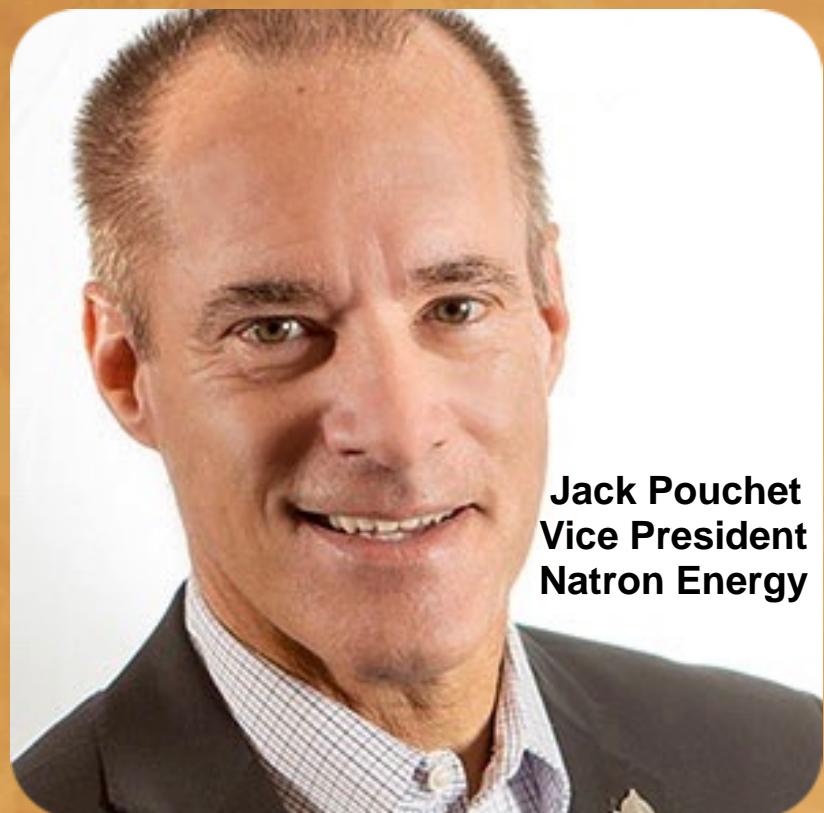
# Energy Storage Technology Trends and Implications for Mission Critical Infrastructure

**Jack Pouchet** is the Vice President of Sales for Natron Energy. Jack works closely with major OEMs, large data center owners and operators, and leading mission critical engineering firms to help define, architect, and create opportunities for advanced battery and power technologies that improve day-to-day business and operational efficiencies. Jack brings over twenty years of related OEM power supply, power generation, distribution, and power product sales and marketing experience to Natron giving him a unique end-to-end perspective of the entire AC and DC power path.

An active member of several industry and sustainability associations including the Infrastructure Masons and The Green Grid, Jack is frequently engaged with government agencies and NGOs in research and legislation centered on alternative / renewable energy as well as energy efficiency for data centers. Jack has a Bachelor's of Arts and MBA in Business Administration.



**Natron Energy**



**Jack Pouchet**  
Vice President  
Natron Energy

# Energy Storage Technology Trends and Implications for Mission Critical Infrastructure



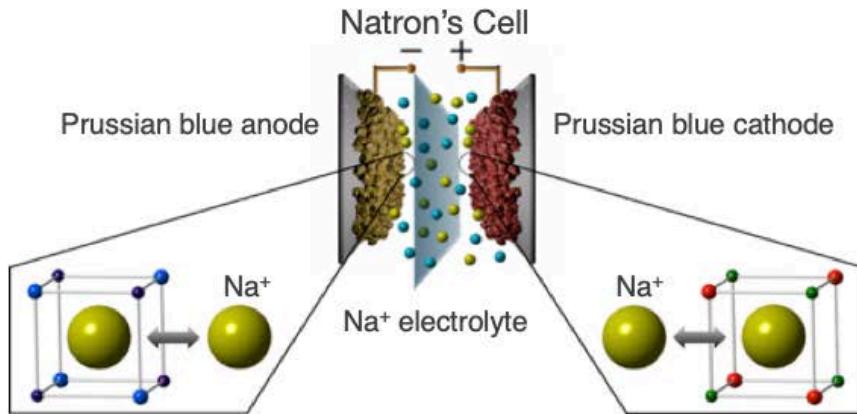
## Introduction to Natron Energy

- Company:
  - Founded in 2012 as a Stanford spin out.
  - \$38 M raised to date, from investors including Chevron, Khosla Ventures, and Prelude Ventures.
  - Won two ARPA-E grants totaling \$4.6M (3% acceptance rate).
  - 40 employees based in Santa Clara, CA.
- Product:
  - High power, long life, safe, rack mounted battery packs.
  - New cell chemistry: Prussian blue electrodes / sodium-ion electrolyte.
- Status:
  - Customer validation in Data Center markets complete, transitioning to commercial supply.
  - UL Recognition core battery cell
  - UL Listing 1U battery pending
  - December 2019 product launch
  - Large Battery Cabinet (250kW) – POC Q1 2020



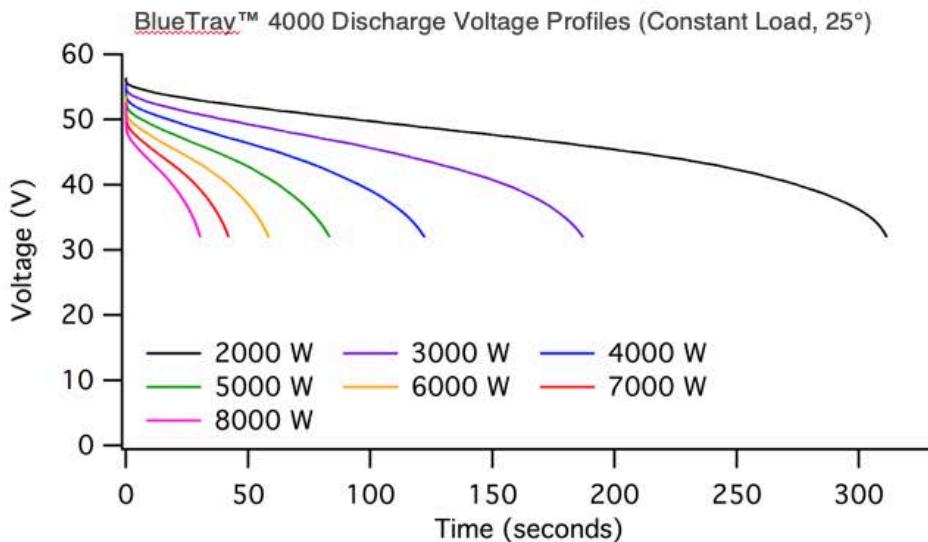
## A Unique Prussian Blue Battery Cell

- Prussian blue pigment electrodes store sodium ions.
- Zero-strain charge storage for 10x faster cycling and longer life.
- Dramatically lower cost than Li-ion materials.
- Drop-in to existing pigment plants and Li-ion manufacturing lines.



## Full Discharge As Fast As 30 Seconds

- Natron's battery has half the internal resistance per energy of lead acid.
- This allows a much higher fraction of total energy to be delivered during rapid discharge.
- 70% of rated energy is delivered during 2 minute discharge at 4kW.
- 33% of rated energy is delivered during 30 second discharge at 8kW.



## Bill Skinner Bloomberg



**Bill Skinner** has 17 Years experience in the Data Center and the Technology Infrastructure environment. Most currently managing 6 teams, 3 of which are SRE's at Bloomberg, working on automating infrastructure services for our Engineering community. His role includes helping take complex work and turn it into standardization and automation. We're the first line of defense for escalations and help build out the processes that keep the Bloomberg Engine running. We help track assets and capacity to ensure our 5,000 developers are served well and in a timely fashion.

Bloomberg R+D Mentor for leadership of the future  
Speaker at IT conferences/organization meetings  
Various Team Lead positions at Bloomberg LP  
Backup Data Center Manager Bloomberg LP.Data Center  
Infrastructure Services Manager Bloomberg LP  
President of AFCOM NYC/NJ Metro local chapter

**Bill Skinner, Operations Services Manager**

# Not Your Grandfather's Data Center Anymore

A deep dive into where we need to go  
to adapt for the future

## DCW Keynote - Fedex story

- Build a bench!
- Partnered with the local college to build a call center
- Call center was more productive when they had the part time students coming in for 4 hour shifts rather than a full 8-10 hour shift.
- Transform the way you do things, it doesn't happen overnight! We talk in years not months when we talk about this.

Bloomberg



# Delaware's Digital Future

James Collins  
Chief Information Officer  
State of Delaware



**James Collins** has a long history of leading people, driving innovation and transforming organizational culture in public and private organizations—including the software industry and, the healthcare arena—and he have consulted with numerous other businesses. He considers himself a change agent but but he prefers to plan and implement changes in a collaborative manner by engaging customers and stakeholders.



# The Unique Air Permitting Challenges of Data Centers

Three Case Studies Examining Regional Differences in Air Quality Changes



**Stephanie Friel, EIT**  
Senior Staff Engineer  
Langan Engineering



**Laura Miner, QEP**  
Senior Project Manager,  
Environmental Compliance Manager  
Langan Engineering

**Stephanie Friel** is a Senior Staff Engineer at Langan Engineering in the Philadelphia, PA office. She has a B.S. in Environmental Systems Engineering from the Pennsylvania State University. She has over four years of experience in the environmental compliance and permitting group at Langan and has worked on a variety of multimedia environmental compliance projects throughout the United States. She has a wide variety of experience in air quality regulations and permitting across several industries, including in the communications industry.

**Laura Miner** is a Qualified Environmental Professional (QEP) with over 27 years of diversified professional experience in the environmental consulting field. She is responsible for leading the environmental compliance practice and managing projects in air quality permitting, multi-media environmental compliance, water and waste management, contingency plans, audits, and environmental management systems. This experience includes working across market sectors. Ms. Miner interfaces with clients and regulatory agencies on permit applications and compliance issues and assists clients with all aspects of environmental compliance. Laura was recently appointed to the board of the New Jersey Composting Council, serves as Past-Chair on the Board of Directors for the Mid-Atlantic States Section of the Air & Waste Management Association and is a Regional Coordinator for the Institute of Professional Environmental Practice.

# The Unique Air Permitting Challenges of Data Centers

## Three Case Studies Examining Regional Differences in Air Quality Changes

Laura Miner, QEP

Stephanie Friel, EIT



# LANGAN



## Outline

- Air Permitting 101
- Data Center Air Permitting Implications
- Regional Case Studies
  - Washington State
  - Northern Virginia
  - Southeastern Pennsylvania
- Other Environmental Considerations
- Recap and Lessons Learned



Steve Wray

**ESI**ECONSULT  
SOLUTIONS INC.

**Steve Wray** is a Vice President, Strategic Initiatives, at Econult Solutions, Inc. (ESI). In this role, Steve develops, oversees and helps implement programs and projects that support ESI's vision and short- and long-term plans. He supports the work of the firm's principals and senior staff in developing new partnerships, expanding and building on existing practice areas, and integrating the firm's strengths in economic analysis and thought leadership. Mr. Wray joined ESI in 2017 as a Director and was promoted to Vice President, Strategic Initiatives in 2019.

Mr. Wray leads projects focused on regional economic competitiveness and civic strategy and policy. From 2006 to 2017, Mr. Wray was the executive director of the Economy League of Greater Philadelphia. He was one of the founding partners of Pre-K for PA, a statewide coalition focused on increasing access to high-quality pre-kindergarten, and created the Metropolitan Caucus to convene the county elected officials of Southeastern Pennsylvania.

## Key Findings

ESI modeled two growth scenarios – a Status Quo Growth Scenario under the current data center tax exemption legislation and a New Exemption Growth Scenario under the proposed legislation.

By 2024, as compared to the Status Quo Scenario, under the New Exemption Growth Scenario, PA would gain:

- Over 33,000 more total jobs, including 10,000 more jobs in the sector
- Over \$6 billion more in total output
- Over \$2 billion more in total wages
- Over \$110 million more in net tax revenues in FY 24, even after the tax exemption
- Given these estimates, even a much smaller growth rate of the industry or construction of new centers would result in a net positive revenue position for the state, along with employment and spending growth
- Pennsylvania would also return to a leadership position in the modern data center world



**Steve Wray**  
Vice President,  
Strategic Initiatives



## Table Sponsors





Tonya Zatko



Q: Can you tell me the single most important resource you have in the Data Center?



SWAG





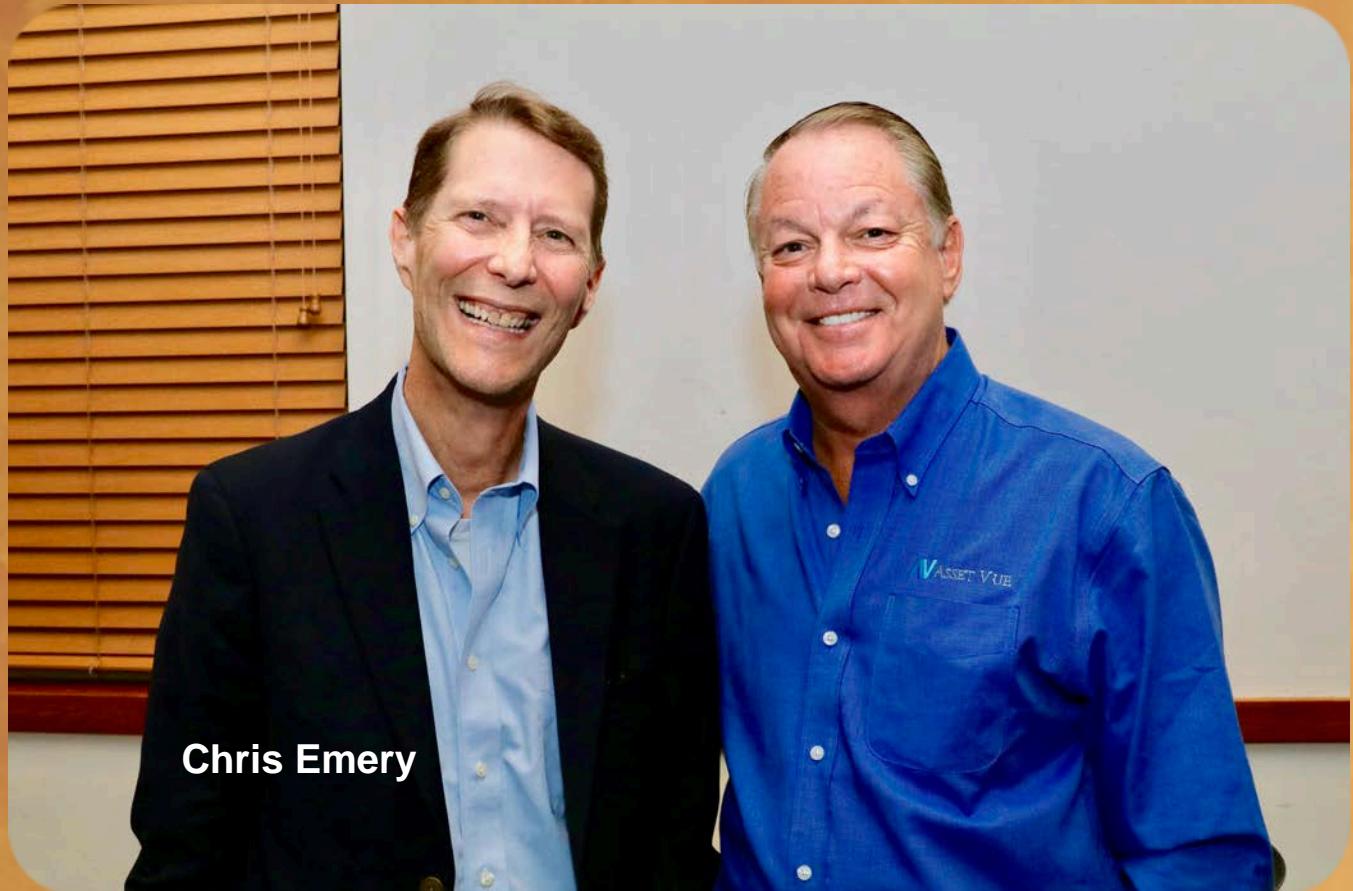




# Book the Mobile Showroom

Modified! Packed with award-winning hyper-scale data center products, the Tesla Model X is a crowd pleaser. Schedule a visit and take a ride on the future of hyper-scale data centers.





**Chris Emery**



Bloomberg

**Bill Skinner**







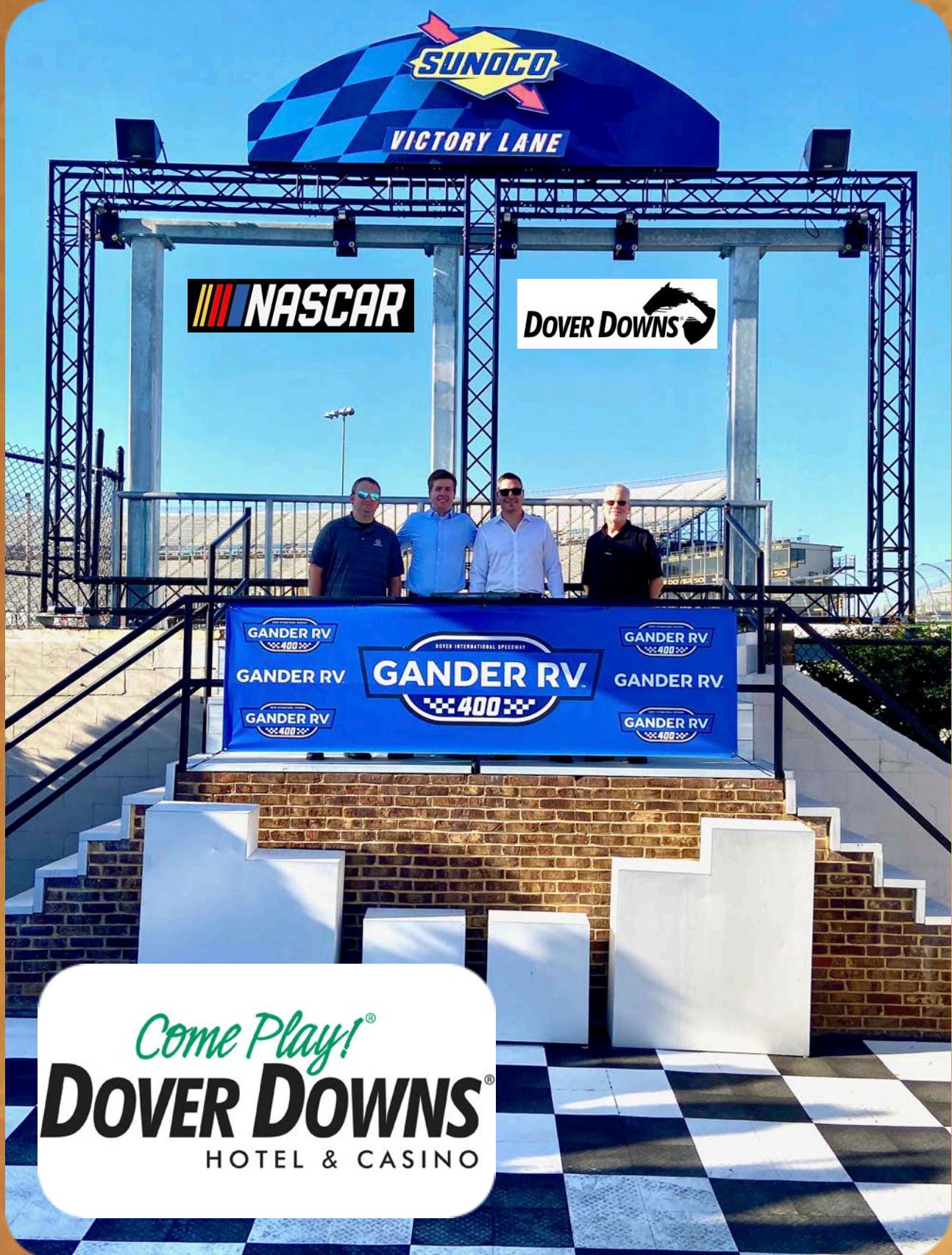












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**THANK YOU!**  
**SEE YOU NEXT YEAR!**