

Empowering the future:

Insights from a DCD>Academy Trainer

Navid Golshani discusses his journey from service engineer to electrical project technical lead at Stantec, emphasizing key industry trends, challenges, and the critical role of continuous learning in shaping the future of data centers



Navid Golshani
*Project Technical Lead
at Stantec*



Overview of professional background and path to current field

My professional journey in the data center industry began as a service engineer, where I installed and commissioned Uninterruptible Power Supply (UPS) systems in data centers. This foundational experience gave me a practical understanding of the critical nature of reliable power systems and sparked a deep interest in the data center sector. Motivated by this passion, I pursued further education and training to transition into the design side of the industry, where I could have a greater impact on overall infrastructure efficiency and reliability.

I have had the opportunity to work on various stages of data center projects, from conception to completion, including roles on both the consultant and contractor sides, and even for a short while in operations on the client side. This diverse experience has given me a comprehensive view of the data center lifecycle, allowing me to understand the unique challenges and requirements at each phase.

Today, I work at Stantec as an Electrical Project Technical Lead, specializing in mission-critical services for the data center industry. In this role, I lead projects from a technical standpoint, ensuring that our designs meet the highest standards of performance and resilience. My role involves working closely with multidisciplinary teams to develop innovative solutions that align with the evolving demands of digital infrastructure. Additionally, I am an instructor at DCD



Academy, where I enjoy sharing my knowledge and experience with the next generation of data center professionals.

The current state of the data center industry

The data center industry is experiencing a period of significant growth and transformation. We're seeing a shift towards edge computing, which allows data to be processed closer to its source, reducing latency and improving speed. There's also a major push towards

sustainability, with innovations in cooling technology and power management that reduce energy consumption and carbon footprint. From my perspective, one of the most exciting developments is the integration of AI and machine learning, which is being used to optimize data center operations, predict maintenance needs, and improve overall efficiency.

Additionally, the explosive growth in artificial intelligence (AI) applications has driven a trend towards larger hyperscale data centers. As AI requires

substantial computational power, hyperscalers are expanding their facilities to accommodate the increased workload, leading to bigger and more complex data center environments. This trend is pushing the boundaries of design and operational efficiency, with a strong emphasis on scalability, power management, and innovative cooling solutions.

Anticipated significant changes in the industry

Over the next 5-10 years, I anticipate a strong emphasis on sustainability in the data center industry. This could potentially involve the adoption of innovative energy sources like Small Modular Reactors (SMRs), which offer a low-carbon, reliable power supply. As one of the lowest carbon footprint energy options available, SMRs can help data centers achieve their sustainability goals, particularly in regions where renewable energy is less accessible or grid stability is a concern.

Another key development will be the shift from traditional air cooling methods to more efficient liquid cooling techniques, such as direct-to-chip cooling and liquid immersion cooling. These methods are significantly more effective at removing heat from servers, reducing overall energy consumption, and improving Power Usage Effectiveness (PUE).

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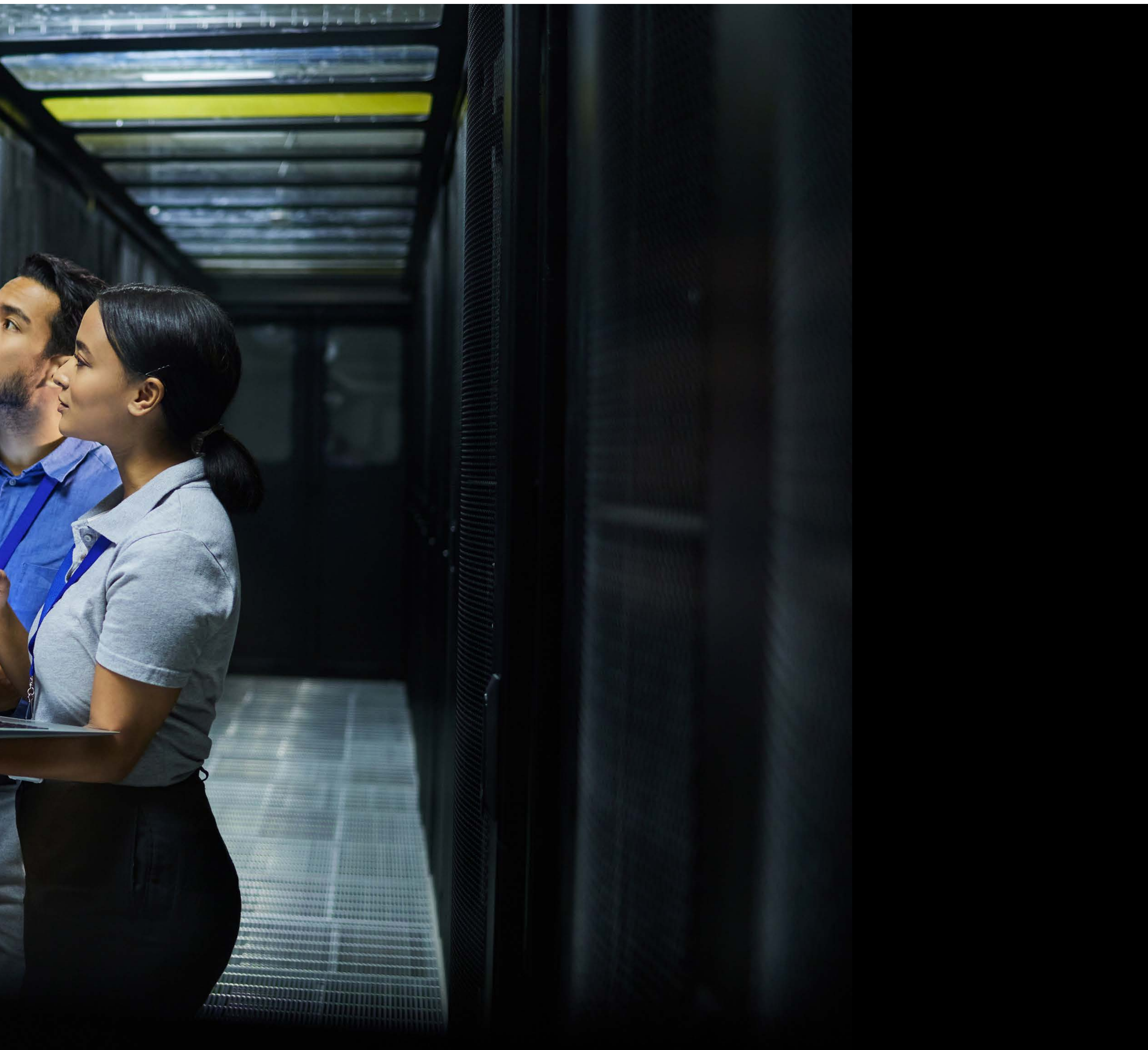
By enhancing cooling efficiency, data centers can operate at higher densities and reduce their environmental impact, making these technologies critical for future sustainability.

We will also see continual growth in modular and prefabricated data centers, particularly for edge computing in regional areas and standard data centers. These solutions provide rapid deployment, scalability, and flexibility, enabling operators to respond quickly to changing demands

and expand capacity where needed. Prefabricated data centers will also support the increased need for localized data processing brought about by IoT devices and AI applications, further reinforcing their importance in the evolving landscape.

Challenges facing industry professionals today, and the data center skills shortage

One of the critical challenges in the data center industry today is managing the skills gap. As we move towards more complex, high-density data centers, there's a demand for professionals who understand not just electrical and mechanical engineering but also the nuances of digital infrastructure, sustainability practices, and advanced cooling



techniques. Attracting and retaining talent is particularly challenging in a competitive market, and there is a need for continuous training to keep up with rapidly evolving technologies and regulations. Another challenge is balancing the increasing demand for data processing power with sustainability goals, particularly in regions with stringent energy efficiency regulations.

The importance of training and upskilling

Training and upskilling are fundamental to overcoming these challenges. As a DCD Academy Instructor, I emphasize the importance of both technical and soft skills development. For instance, I focus on bridging the gap between theoretical knowledge and practical application by providing

hands-on training and real-world scenarios. I encourage professionals to pursue certifications and stay current with the latest technological trends and industry best practices. Upskilling is not just about acquiring new knowledge; it's about being agile and ready to adapt to new challenges and opportunities as they arise.

Cross-collaboration

Collaboration is key to the successful delivery of data center projects. I typically work closely with multidisciplinary teams, including mechanical engineers, architects, and project managers, to ensure a holistic approach to design and implementation. Open communication, regular coordination meetings, and the use of collaborative tools are essential for aligning goals,

mitigating risks, and ensuring seamless project execution. I also believe in fostering strong relationships with clients and stakeholders to fully understand their needs and deliver solutions that meet their expectations.

Key messages for this eBook, the data center industry, and beyond

The data center industry is experiencing unprecedented growth, particularly driven by the increasing demand for higher power-dense data centers to support artificial intelligence (AI) applications. AI workloads require substantial computational power, leading to a need for data centers that can accommodate high-density servers and specialized hardware like GPUs and AI accelerators. This trend is pushing the limits of traditional infrastructure, necessitating innovative design and cooling strategies, more efficient power management, and advanced energy solutions to handle the increased heat output and power consumption.

The industry must evolve rapidly to meet these challenges, focusing on scalability, sustainability, and operational efficiency. As a professional in this field, I aim to highlight the importance of continuous learning, development, and adaptability in navigating these changes. It is essential for those in the industry to embrace new technologies, upskill regularly, and work collaboratively to design solutions that not only meet current demands but are also future-proof.

Ultimately, my message is clear: the future of the data center industry will be shaped by those who are prepared to adapt, learn, and drive forward with purpose and passion. ■