

technology

DUG Nomad: HIGH PERFORMANCE COMPUTING, ANYWHERE

Harry McHugh, DUG chief information officer, shares insights into the company's latest edge-computing innovation and how Middle Eastern operators can benefit from it.



Nomad is designed to thrive in the hot and arid conditions of the Middle East.

Oil Review Middle East (ORME): We're all familiar with DUG's expertise in seismic data processing and software, especially their groundbreaking elastic multi-parameter FWI imaging solution. But lately, there's been a lot of buzz around DUG Nomad. Can you give us an overview of what it is?

Harry McHugh (HM): DUG

Nomad is our innovative edge-computing solution that brings high-performance computing (HPC) and AI capabilities to virtually any location on Earth – right where your data is generated. At its core is DUG Cool, our patented immersion-cooling technology that delivers reliable, energy-efficient compute and storage in even the most remote or

Image Credit: DUG

challenging environments.

Nomad combines proven hardware, software and infrastructure in a rugged enclosure engineered for durability, rapid deployment and minimal setup.

The range spans from the Nomad 10 – a compact 10-foot container with a single immersion tank and integrated chiller – to the Nomad 40, a full-scale 40-foot version with 12 tanks, delivering nearly 1 MW of HPC. Whether used as a standalone solution or integrated with existing infrastructure, every Nomad arrives plug-and-play ready – making deployment as simple as placing the unit.

Clients can choose a Nomad pre-equipped with IT hardware or install their own.

ORME: You mentioned DUG Cool. How is immersion cooling integrated into the DUG Nomad solution, and what benefits does it deliver?

HM: Nomad is built around our proprietary, industrial-scale immersion cooling system – refined over more than a decade of real-world deployment. It's the same proven technology used in our data centres – some of the largest immersion-cooled facilities globally. It's also now exclusively licensed to global cooling leader Baltimore Aircoil Company.

Our single-phase immersion cooling efficiently absorbs heat and transfers it to a heat exchanger, reducing power

Image Credit: DUG



Harry McHugh, DUG chief information officer.

consumption in our data centres by up to 51% compared to traditional air-cooled setups, while cutting water usage by up to 25%.

The cooling fluid is non-flammable, non-conductive and biodegradable. It also extends hardware lifespan by maintaining stable temperatures and shielding components from dust and oxidation.

For Nomad, immersion cooling is a game-changer. It enables high-density computing within a compact footprint – ideal for

mobile data centres. It also delivers robust thermal management, quieter operation and greater resilience in harsh or fluctuating conditions, where air-cooled systems can struggle with temperature and humidity shifts.

ORME: When it comes to high-density computing, how does DUG Nomad support flexibility and scalability? What configuration options are available?

HM: DUG Nomad is designed for scalability and flexibility, with configurations tailored to each client's needs. Whether starting small or scaling up, Nomad adapts accordingly.

The Nomad 10 is compact enough for rapid deployment, yet powerful enough to house over 72 NVIDIA H100 GPUs for example – ideal for HPC and AI workloads.

Nomad is built around our proprietary, industrial-scale immersion cooling system.

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This is particularly valuable in industries like oil and gas, where AI-driven analytics are transforming exploration, drilling and production. These operations generate massive volumes of seismic, well-log and sensor data that require real-time processing. But with many sites in remote regions with limited cloud connectivity, a robust on-site solution like Nomad 10 is essential for subsurface analysis, predictive maintenance and operational efficiency at the Edge.

At the other end of the spectrum is the Nomad 40 – a fully-fledged, high-density data centre with 12 immersion-cooling tanks. It's ideal for clients who require data sovereignty.

Both models have short lead times of just three months, offering a timely solution for fast-evolving requirements. We collaborate closely with clients to design and deliver HPC solutions tailored to their workloads – no matter where they operate.

ORME: So how does DUG Nomad address the computing needs and operational challenges facing operators in the Middle East?

HM: The hot, arid conditions of the Middle East pose significant challenges for traditional cooling. Air-based systems depend on chilled water and consume large amounts of energy. Nomad is purpose-built to thrive in these environments. Its rugged enclosure withstands harsh



DUG Nomad is deployable anywhere.

conditions, and the integrated cooling system in the Nomad 10 eliminates the need for conventional HVAC infrastructure.

DUG Nomad enables oil and gas operators to run compute-intensive workloads – such as seismic processing and imaging, as mentioned earlier – directly on-site. By bringing compute closer to where data is generated, closer to

the edge, DUG Nomad enables faster decision-making and reduces dependence on centralised data centres.

DUG Nomad – mobile HPC that gives you the edge

Deployable anywhere – all components are contained within a single robust infrastructure able to withstand the harshest environments

Hassle-free operation – DUG's proprietary immersion-cooling design means less power, less water and less maintenance

Work with experts to architect the HPC solution you need, housed entirely in a 10, 20 or 40 ft container

Elegantly simple, scalable and safe, DUG Nomad is built to deliver. ■

Nomad enables oil and gas operators to run compute-intensive workloads directly on-site.

Image Credit: DUG