

Construction / Architecture / Engineering

Delivering design excellence, faster than ever

DAR

Design consultancy DAR helps design and engineering teams run complex simulations up to 5x faster with Lenovo ThinkSystem servers featuring AMD EPYC™ processors.

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Lenovo

1

Who is DAR?

One of the world's leading consultancies, [DAR](#) delivers award-winning design, planning, engineering, project management, and sustainability services. The company is a founding member of Sidara: a global collective of the world's top planners, designers, engineers, and consultants.

Founded more than 65 years ago in Beirut, Lebanon, DAR currently employs more than 9,000 people in 54 offices across the Middle East, Africa, Asia, and Europe. Its teams have delivered over 4,500 projects, worth US\$540+ billion, for more than 950 clients worldwide.

The logo for DAR, consisting of the lowercase letters 'dar' in a teal, sans-serif font.

2

The Challenge

DAR is known for taking on some of the world's most ambitious design and engineering projects, from designing infrastructure for a multi-billion-dollar superhub airport in Poland to supporting the largest renewable energy intervention program in Sub-Saharan Africa.

To deliver this work, DAR relies heavily on 3D design and engineering simulation software (ANSYS), which comes with incredibly high computational demands. As the group continued to win more clients and more complex projects, DAR's existing server infrastructure—already in use for close to a decade—was coming up against the limits of its performance and capacity.

The group knew that, in order to keep delivering the best for its clients, it needed to make a major hardware refresh.

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“The computational requirements of our work have increased dramatically, while delivery timelines are getting shorter and shorter. When I first started working on simulations about 15 years ago, it wasn't unusual for a job to take up to a week to complete. Today, a typical simulation is 10 times larger, and we need to finish it overnight. That's why we wanted to upgrade to the latest, state-of-the-art servers, so we could deliver more in less time.”

Adnan Akhdar

Head of CFD Specialist, Mechanical Engineering, DAR, a Sidara Company

Finding the perfect fit

After capturing DAR's requirements in detail, Lenovo designed a high-performance computing (HPC) cluster based on four Lenovo ThinkSystem SR655 V3 servers. Each Lenovo server includes two 4th Gen AMD EPYC™ 9554 processors, with 64 cores per processor, providing exceptional memory bandwidth and capacity.

Lenovo worked with DAR to deploy the new HPC infrastructure at the group's central data center in London. Up and running after one month, the Lenovo cluster is currently used by CFD/ANSYS teams throughout DAR's global business.

Hardware

Lenovo ThinkSystem SR655 V3 servers
AMD EPYC™ 9554 processors

Software

Lenovo XClarity Controller

Services

Lenovo Premier Support

Engineering an **ideal** **solution**

With design and engineering teams from some eight different time zones connecting to the HPC cluster, it's no stretch to say that the Lenovo-AMD solution runs around the clock.

Lenovo made sure to design DAR's new HPC infrastructure with this high, near-constant utilization in mind. With 128 AMD EPYC™ CPU cores per server node, DAR can now support even the most demanding, compute-intensive workloads with ease.

For server management, DAR makes use of the Lenovo XClarity Controller. This gives the IT team a central point for receiving alerts about possible failures, checking server availability and utilization, configuring settings, and controlling server power—all of which can be done remotely.

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“The deployment went off without a hitch and our AMD-powered Lenovo servers have been running smoothly ever since. I’m in touch with our design teams daily, and they only ever have good things to say about the new environment.”

Mohammad Badran

Senior Systems Engineer, Information Technology, DAR, a Sidara Company

3

Results

Ultra-efficient AMD EPYC™ processors have helped DAR achieve a 3-5x increase in processing speed, in a much smaller server footprint. While the group originally quoted for eight servers, Lenovo was able to meet and exceed DAR's performance requirements with just four ThinkSystem servers.

The new HPC cluster is also cost-effective. DAR estimates that, if it used a comparable cloud-hosted infrastructure, it would have to spend at least twice as much to get the same performance as its on-premises setup.



3-5x performance acceleration



50% smaller-than-expected server footprint



50% more cost-efficient than comparable cloud infrastructure

Elevating efficiency

Thanks to Lenovo and AMD, computing capacity is no longer an obstacle to design creativity at DAR. Teams can run more complex simulations in less time, ensuring fast turnaround times.

“Everyone is happy about the performance acceleration—both our teams and clients,” says Adnan Akhdar, Head of CFD Specialist, Mechanical Engineering, DAR. “Before, certain models would take so long to complete that people had to check them outside of normal working hours. Now, we can count on models completing much faster, which makes life much easier and allows us to get back to clients with new iterations sooner.”

Increased computing throughput also means that teams now have the luxury of performing more design iterations and tests. This allows them to investigate a wider array of design options and bring greater rigor to the process—ensuring that DAR’s projects always live up to the highest standards.

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“With our old servers we often had to make compromises, like running smaller models or ones with lower resolution, in order to make sure jobs completed on time. With Lenovo and AMD, there are fewer limits: we can run simulations without compromise and get results much faster than before.”

Adnan Akhdar

Head of CFD Specialist, Mechanical Engineering, DAR, a Sidara Company

Why **Lenovo**?

Lenovo went above and beyond to design a solution that exceeded DAR's requirements. Mohammad Badran, Senior Systems Engineer, Information Technology, DAR, recalls: "Lenovo paid very close attention to the details, giving us very high performance and memory bandwidth in a dense footprint, effectively reducing the number of servers we needed by half. This led us to select the most efficient hardware specifications based on the ANSYS application requirements."

Lenovo was also the only vendor capable of delivering the promised solution in DAR's required timeframe.

Mohammad Badran comments: "The AMD EPYC™ 9004 Series processors had just been released, and Lenovo was the only vendor who was able to guarantee delivery. It was the right solution, at the right price and at the right time."



How do you render complex designs in less time?

DAR helps design and engineering teams run complex simulations up to 5x faster with ultra-efficient Lenovo and AMD technology.

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