



Cooling the future

How high-density data centers are **powering AI, sustainability, and growth**



The capacity challenge: Meeting AI demand

The new reality for IT leaders.

As AI and machine learning take center stage in business strategy, the demand for data center capacity has never been higher. Companies everywhere are feeling the squeeze, from skyrocketing GPU workloads to tightening power and space in core markets.

Capacity is becoming a moving target. The growth of AI isn't slowing down, and the pressure to plan ahead is hitting IT teams across every industry. In major hubs like Atlanta, data center growth has reached record levels, but even these markets are struggling to keep up. On top of that, customers and regulators expect every move to be sustainable.

Sustainability is more than a buzzword. For organizations focused on AI, the environment, and business growth, balancing high performance with responsibility is non-negotiable. Providers like Flexential are being called to deliver cost-effective, energy-efficient solutions that are ready for what's next.

The choices you make today about capacity and cooling will shape your ability to innovate, compete, and scale for years to come.

**"The demand for data center capacity is at an all-time high.
Sustainability is a big thing for customers and for us at Flexential."**

– Craig Cook, Flexential

Insights from our team:

This guide draws on a conversation between **Craig Cook**, VP of Solutions Architecture & Engineering, and **Sherri Harrell**, SVP of Product Management at Flexential.



Balancing the needs: Traditional vs. next-gen workloads

Think your data center strategy is already complex? AI just raised the stakes. Suddenly, you're not only keeping traditional business applications running, you're also making room for high-powered, high-density workloads that put your infrastructure to the test.

The tricky part? Not every workload plays by the same rules. Training massive AI models eats up power and can usually be done anywhere there's space and electricity. But AI inference—the real-time, user-facing side—works best when it happens close to your people, so location matters.

You have to be thoughtful about what goes where.

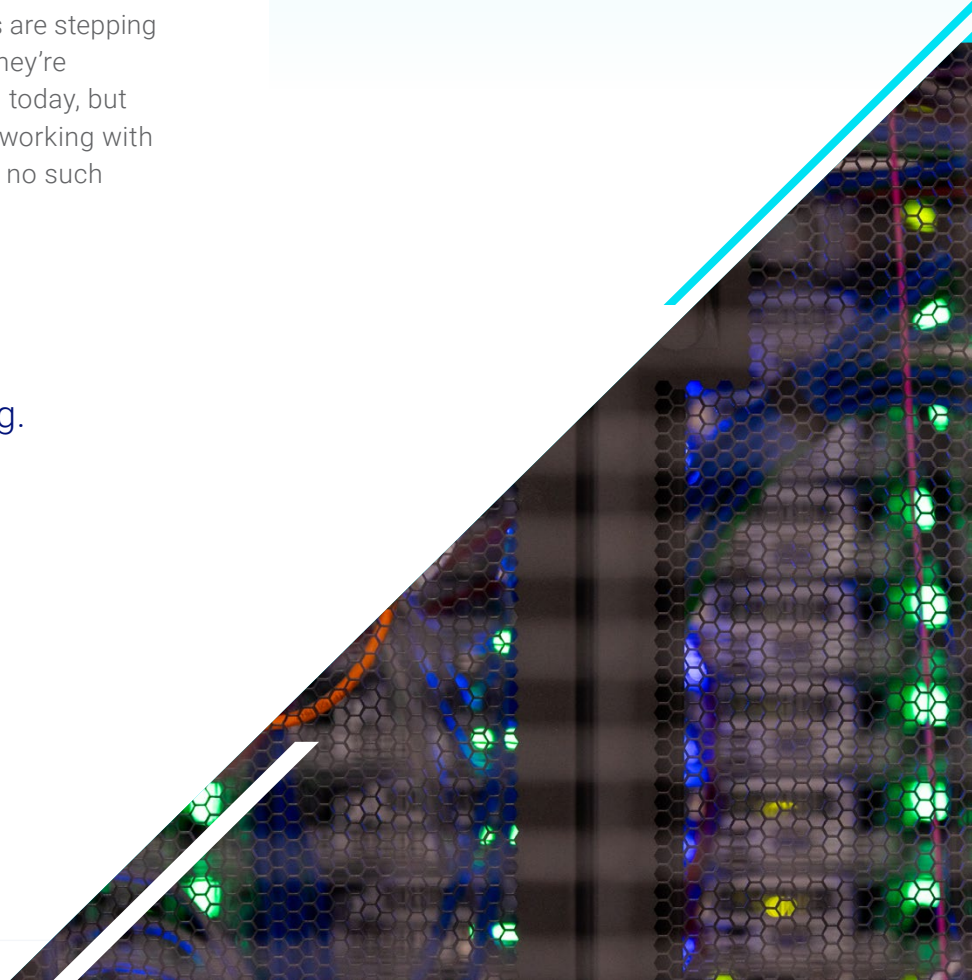
We're seeing this play out everywhere, from trading floors that can't afford a split-second delay, to researchers sequencing DNA and crunching huge data sets. Everyone's workloads are growing heavier, hotter, and hungrier for more power and cooling than ever before.

That's why the smartest IT teams are stepping back to look at the full picture. They're mapping not just what they need today, but what's coming next. And they're working with partners who understand there's no such thing as "standard" anymore.

"Let the workload dictate the solution."

– Craig Cook, Flexential

Racks can now pull up to 50kW of power using just air cooling.
Some GPU super pods can top 25,000 pounds each



Cooling and energy innovation: Air, liquid, and what's next

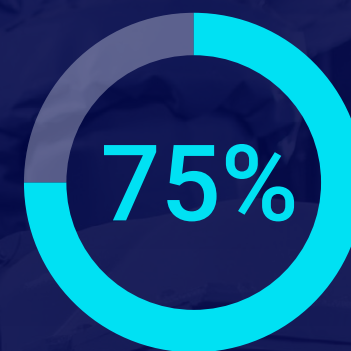
If there's one thing every IT leader can agree on, it's this: cooling is no longer an afterthought. The latest GPU-powered workloads are hotter, denser, and more demanding than anything most data centers were built for. Keeping up means rethinking how to keep everything running smoothly and sustainably.

Traditional air cooling still has its place, especially when you're working with up to 50kW per rack. Techniques like hot aisle and cold aisle containment, plus simple tweaks to how you load your cabinets, can make a big difference in efficiency and energy use. But for those next-level workloads, sometimes air just isn't enough.

That's where liquid cooling steps in. More of our customers are asking about it every month, and for good reason. Liquid-to-chip systems circulate coolant right where it's needed most, pulling heat away from the processors and sending it back out to be reused. Rear-door heat exchangers and other new methods are quickly gaining traction, too.

And while immersion cooling isn't mainstream yet, it's definitely on the horizon. Some are experimenting with submerging entire systems in special fluid. For now, though, most businesses are looking for practical solutions that can be deployed today without turning their data centers into science experiments.

At Flexential, we're ready for it all. More than 75% of our data centers can support liquid cooling, and we're always working to help customers match the right cooling method to each unique workload.



75% of Flexential data centers are ready to enable liquid cooling for high-density workloads.

“

Liquid cooling is moving from niche to mainstream, especially for next-generation AI deployments.”

– Sherri Harrell, Flexential

Rethinking your data center strategy

AI and high-density computing are shaping real decisions about infrastructure, budgets, and what's possible for your business. As these trends accelerate, the old “set it and forget it” approach no longer works.

Now's the time to pause and ask: Are we ready for what's next? The answer depends on more than just capacity. It's about planning for growth, power needs, sustainability, and the flexibility to pivot as new workloads emerge.

At Flexential, we see firsthand how quickly the ground is shifting. Customers who once managed everything in-house are now looking for ways to future-proof their environments without locking themselves into yesterday's

solutions. Sometimes that means retrofitting legacy data centers. Other times, it's about building new, high-density environments that can adapt over time.

Whatever your path, don't let today's challenges become tomorrow's roadblocks. The right partner will help you ask the tough questions, weigh your options, and keep you out in front.

“As companies adopt AI, those operating their own data centers will likely need to re-evaluate their strategy and decisions moving forward.”

– Craig Cook, Flexential

AI and large language models are driving demand in both primary and secondary markets—**don't get left behind.**



Ready to plan for what's next?

The world of high-density data centers is moving fast. Cooling, energy, and sustainability challenges can feel overwhelming, but you don't have to figure it out alone.

At Flexential, we help IT teams tackle the demands of AI, machine learning, and high-performance workloads with practical solutions and future-ready infrastructure.

Whether you're updating legacy systems or planning a new deployment, **we're here to help you make sense of the options and set your business up for growth.**

More resources:

Want to talk through your unique challenges or see what a customized solution might look like? [Reach out to our team](#) or visit flexential.com to learn more.

Curious what's possible for your organization?

Don't miss the full conversation and get real-world insights straight from our experts.

Watch the Webinar

