DATA CENTER SOLUTIONS

DESIGN FOR WHAT'S NEXT
BECAUSE IT'S ALREADY HERE

Identifying the trends taking the industry by storm and actions necessary to be competitive

Data centers are rapidly evolving. Between the skyrocketing demand for capacity and the widespread integration of software-defined infrastructure, operators must make strategic decisions to keep pace. Below you will find a snapshot of today's data center landscape, along with key actions you can take to stay ahead of rising complexity and prepare for what's next.

Ready to act? Connect with a Honeywell representative to discuss how we can help you successfully deploy your next data center project.
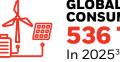
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INDUSTRY SNAPSHOT

WORKLOADS
100 kW
Typical rack density[1]
378M
AI users globally[2]

ENERGY EFFICIENCY
• Integration of renewable energy sources and energy storage solutions for lower CO_2 footprint
• AI/ML optimized cooling and energy management to boost efficiency

GLOBAL ENERGY CONSUMPTION
536 TWh
In 2025[3]

UPTIME AND RELIABILITY
• Innovative programmable logic controllers (PLCs) for stringent control and monitoring of power and cooling assets
• AI-enabled predictive maintenance (PdM) for early warning of asset degradation

CITIES WITH OVER
640 MW
growth in data center inventory in Q1 of 2025[4]
• Northern Virginia
• London
• Frankfurt
• Syndey
• Singapore

SCALABILITY
• Limited by availability of energy supply—entering the era of "bring your own power"
• Long lead times for equipment like critical assets and GPUs require unprecedented planning

HOW TO STAY AHEAD

BUILD EFFICIENTLY

Integrate on-site or grid-connected renewable infrastructure

Upgrade power and cooling infrastructure for high-density workloads

Build with modular architecture and solutions

Leverage alternative refrigerants, battery energy storage and carbon management solutions

PROMOTE RESILIENCE

Invest in AI and digital twin technologies

Start implementing software defined infrastructure

Leverage integrated, open framework solutions to improve reliability and performance

SCALE INTELLIGENTLY

Design for scalable, AI-optimized infrastructure

Train workforce to expand skills and adapt architecture and SOP to leverage remote monitoring

Accelerate design and deployment velocity through standardized blueprints

WHAT TO EXPECT TOMORROW

WORKLOADS
600+ kW
Typical rack density by 2027[5]
728M
AI users globally by 2030[2]

ENERGY EFFICIENCY
• Site location selection favors colder climates to leverage free cooling, even at the expense of increasing latency to customers
• Renewable energy and carbon neutral goals becoming baseline
• Increasing use of liquid cooling, renewable energy sources like fuel cells and nuclear power
• Tighter integration of facility-level and rack-level cooling systems

GLOBAL ENERGY CONSUMPTION
945 TWh
by 2030[6]

UPTIME AND RELIABILITY
• Increasingly autonomous data center operations, reducing chance for human error
• A simpler power chain, resulting in reduced downtime and increased efficiency

SCALABILITY
• Tight power budgets and network proximity to data sources
• Software-defined infrastructure to enable faster deployment
• Modularity reduces on-site construction time

The leading data center operators will be those who can build efficiently, promote resilience and scale intelligently. By focusing on these three areas, not only can you improve efficiency today, but you'll be better prepared for tomorrow's demands. Learn more at Honeywell.com.

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