INTELLIGENCE RESOURCE

Uptime Intelligence 2024 Research Reports

Douglas Donnellan 1 Jan 2025

As a quick reference, we have provided links below to all the research reports published by Uptime Intelligence in 2024, by month. Research areas focused on 1) power generation, distribution, energy storage; 2) data center management software; 3) sustainability, energy efficiency; 4) silicon and systems; 5) resiliency: outages, topology, climate risks; 6) cooling and heat rejection; 7) staffing and skills; 8) security and human risk

January 2024

Tools to improve power use by IT are underused

Tracking of IT equipment varies widely and often fall short

EU's EED: proposed reporting revisions

Five data center predictions for 2024

How server power management works

Colocation and public cloud growth masks enterprise expansion

Resiliency versus low PUE: regulators a catalyst for innovation

What does embedded carbon of IT really represent?

AI startups innovate in cooling and IT operations

Uptime's predictions 2022 to 2024 — relevant and actionable?

Air-assisted direct liquid cooling

February 2024

Most operators plan to spend more on rising demand

Critical role for EU data center code of conduct

The role of AI in digital infrastructure management

Managing server performance for power: a missed opportunity

EU battery regulations: what do the new rules mean?

Long shifts in data centers — time to reconsider?

UK prepares resiliency, cybersecurity legislation for colocation

March 2024

Annual outage analysis 2024

Ineffective cyber policies increase corporate risk

Data collection for IT metrics: is the industry ready?

Capacity expands rapidly, but complexity is challenging

Sustainability data exchange in colo and cloud contracts

Cloud outage insurance: assessing policy option

US mandates crypto energy reporting: will data centers be next?

Generative AI and global power consumption: high, but not that high

Confusion reigns over EED May 15 reporting deadline

EED delegated regulation is finally final

April 2024

Sustainability strategies face greater pressure in 2024

Tutorial 1: Scoping data center cybersecurity

Equipment prices rise despite supply chain improvements

Increased requirements for Scope 3 reporting and energy certificates

Underwater data centers: lessons from the deep

Next-gen refrigerants: another environmental plight?

Time to collaborate on contracts for sustainability

OT protection — is air-gapping the answer?

The threat to data center security from state-sponsored hackers

Scope 3 accounting: once is not enough

Uncertain power demand figures will lead to poor decisions

DLC momentum rises, but operators remain cautious

Maturity model for sustainability downplays site-level resiliency

May 2024

The impact of AI on data center operations (Part I)

Data center sustainability standards (updated)

Uptime Institute Cooling Systems Survey 2024: Direct liquid cooling

A deep dive into certificates for carbon-free energy

Capacity planning for liquid-cooled data centers

Operators are pushing net-zero targets beyond 2030

Anatomy of a thermal runaway

Why DC racks are still rarely used outside of hyperscalers

Is this air cooling's last gasp?

High-impact outages highlight ongoing resiliency challenges

iPDUs: a critical step for next generation efficiency

Complexity versus cybersecurity in the data center

June 2024

The long journey to concrete and steel decarbonization

Tutorial 2: Identifying and addressing data center cybersecurity threats

Operators boost cybersecurity efforts, but more work is needed

Effective EOPs: how cognitive science can help

EED reporting deadlines are clarified

Ignore Li-ion fire risks at your peril

Mitigating OT risk from third-party requests

Air cooling's third win

DCIM past and present: what's changed?

Immersion fluids hold promise, but fire risk a concern

Targeted recruitment could widen the talent pool

July 2024

Using optimization software for cooling and capacity gains

Uptime Institute Global Data Center Survey 2024

Tutorial 3: Effective data center governance for cybersecurity

Interest in two-phase cooling warms up

European legislation prompts greater environmental action

Six AI infrastructure conundrums

Europe taxes waste heat recovery: can data centers make it work?

Global IT disruption highlights concentration, third-party risk

Digital EOPs: the appliance of science

Water cold plates take a big lead in the small world of DLC

August 2024

Tutorial 4: Roles and responsibilities in data center cybersecurity governance

Water is a local issue: site selection and facility design

Hydrogen in data centers: an introduction

Hardware for AI: what makes it different?

Sustainability teams: key players and crucial collaborations

Shaky start for Europe's EED legislation

Global IT outages raise the question: who bears responsibility?

Grid growth and decarbonization: an unhappy couple

Building trust: working with AI-based tools

Rack densification: is it really happening this time?

UPS component failures: what are the leading issues?

Nature laws to play key role in planning and building facilities

September 2024

Tutorial 5: Risk management in data center cybersecurity

Considerations of raised supply air temperatures

Uptime Institute Global Data Center Survey 2024: supplier view

Data center management and control: an overview

Uptime Institute Global Data Center Survey 2024: regional view

Pulling IT power data with software

AI has a weight problem

EED reporting limps out of the gate

Will legislation change how finance uses public cloud?

Bridging the skills gap: lessons from China

Erratic power profiles of AI clusters: the root causes

October 2024

Tutorial 6: Developing data center cybersecurity policies and procedures

Cooling systems: balancing cost, energy and water use

How generative AI learns and creates using GPUs

Why regulation on temperature can be counterproductive

Weak security processes can increase impact of failures

How much capacity is in aging data centers?

On-site natural gas: why some sites need it

Critical national infrastructure status: what does it mean?

Netherlands enforces efficiency mandates

Schneider acquisition signals liquid cooling to go mainstream

New quantum cloud region signals increased commercial focus

Should data centers sell their heat?

AI adoption in data centers: an insight into job displacement

November 2024

Tutorial 7: Using frameworks to structure data center cybersecurity

Operators struggle to retain staff and fill vacant positions

Cyber incidents are common and often significant

Hydrogen fuel cells: a niche option for standby power

Why didn't data center operators notice the 2024 solar storms?

What is the outlook for GPU cloud providers?

Record investment masks a related trend: rising costs

Understanding AI deployment methods and locations

Hyperscale data center plans at unsustainable levels

Maximizing server efficiency is becoming more difficult

Extended reality offers new training capabilities

Why technology business management does more than FinOps

UN body's data center guidelines cause concern

AI: enterprises are active, but cautious

Why bigger is not better: gen AI models are shrinking

Immersion cooling evolves in response to IT power density

December 2024

Tutorial 8: Addressing supply chain risk in data center cybersecurity

Most AI models will be trained in the cloud

How tagging provides better management of cloud costs

Data center management software: optimizing the IT

Nvidia's vision for data center may be a false prophecy

Why AWS's AI strategy is a sprint

Grid demand will require active participation from data centers

AI to trigger radical overhaul of data center electrification

Data center resource use will raise deep questions, and opposition

ABOUT THE AUTHOR

Douglas Donnellan
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Douglas is a Research Analyst at Uptime Institute covering sustainability in data centers. His background includes environmental research and communications, with a strong focus on education.
ddonnellan@uptimeinstitute.com

About Uptime Institute

Uptime Institute is the Global Digital Infrastructure Authority. With over 4,000 awards issued in over 122 countries around the globe, and over 1,100 currently active projects in 80+ countries, Uptime has helped tens of thousands of companies optimize critical IT assets while managing costs, resources, and efficiency. For over 30 years, the company has established industry-leading benchmarks for data center performance, resilience, sustainability, and efficiency, which provide customers assurance that their digital infrastructure can perform across a wide array of operating conditions at a level consistent with their individual business needs. Uptime's Tier Standard is the IT industry's most trusted and adopted global standard for the design, construction, and operation of data centers.

Offerings include the organization's Tier Standard and Certifications, Management & Operations reviews and assessments including SCIRA-FSI financial sector risk assessment, the Sustainability Assessment, and a broad range of additional risk management, performance, availability, and related offerings. Uptime Education training programs have been successfully completed by over 100,000 data center professionals, such as the much-valued ATD (Accredited Tier Designer) and AOS (Accredited Operations Specialist). The Uptime Education curriculum has been expanded by the acquisition of CNet Training Ltd. In 2023.

Uptime Institute is headquartered in New York, NY, with offices in London, Sao Paulo, Dubai, Riyadh, and Singapore, and full-time Uptime professionals based in over thirty-four countries around the world.

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