

INTELLIGENCE UPDATE

Uptime Intelligence Research Agenda



Douglas Donnellan 1 Jan 2025

The Uptime Intelligence research agenda includes a list of published and planned research reports for 2025, and is focused on Uptime Intelligence primary coverage areas: 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 2025

[Five data center predictions for 2025](#)

[Enterprise and colocation operators face rising costs in 2025](#)

[Are data centers on top of NIS 2 cyber compliance?](#)

[Labor shortages put some large campuses at risk of outages](#)

[Sweat dedicated GPU clusters to beat cloud on cost](#)

[AI embraces liquid cooling, but enterprise IT is slow to follow](#)

[Uptime's predictions for 2025: an overview](#)

[UNEP specs for IT equipment efficiency: more work required](#)

[How AWS's own silicon and software deliver cloud scalability](#)

[IT efficiency: an untapped power resource](#)

[Data center management software: the evolving role of DCIM](#)

[AI supremacy: how will the new US GPU export controls work?](#)

[Neoclouds: a cost-effective AI infrastructure alternative](#)

[More scrutiny and obligations as governments back data centers](#)

February 2025

[Low-carbon hydrogen: not yet viable as primary power source](#)

[Cloud repatriation is overstated](#)

[Build resilient apps: do not rely solely on cloud infrastructure](#)

[AI adds to rising demand for capacity](#)

[AI and cooling: methods and capacities](#)

[Cloud a viable choice amidst uncertain AI returns](#)

[US state drafts plan for data center regulations](#)

[AI infrastructure ambitions will be cut down to size](#)

[The DeepSeek paradox: more efficiency, more infrastructure?](#)

[EED delegated report due early May — what's the rush?](#)

[Remaining EED reporting deficiencies need immediate attention](#)

[Agentic AI shows promise — but also carries risk](#)

[Small modular reactors: building critical mass](#)

[Outage data shows cloud apps must be designed for failure](#)

March 2025

[Sustainability requirements rise as climate risks intensify](#)

[Are data centers to blame for power quality issues?](#)

[Deconstructing NIMBY: how to avoid planning conflicts](#)

[Hardware for AI: options and directions](#)

[AI load and chiller systems: key considerations](#)

[Cloud and cost savings depend on application design](#)

[Should operators continue climate risk reporting?](#)

[The operational cost of AI training failures](#)

[Are data center workplace initiatives effective?](#)

[Density choices for AI training are increasingly complex](#)

[DeepSeek government bans: implications for operators](#)

[Water is local: generalities do not apply](#)

[Publicly reported outages see increase in deliberate attacks](#)

April 2025

[EU climate reporting: simplification is not simple](#)

[Data center AI strategies are mixed in early 2025](#)

[Cloud availability comes at a price](#)

[Quantum's quandary: racing toward reality or stuck in hyperbole?](#)

[For a grid connection, form a disorderly line](#)

['Reasoning' will increase the infrastructure footprint of AI](#)

[AI and cooling: limits on efficiency gains and heat reuse \(part 3\)](#)

[The booming data center sector grapples with tariff chaos](#)

[Tariff tensions undermine trust in cloud hyperscalers](#)

[DORA update: what the EU act means for data centers](#)

[Digital twins: reshaping AI infrastructure planning](#)

[On-premises clouds: not so plane and simple](#)

[Mentorships: practical strategies for retaining new employees](#)

May 2025

[Annual outage analysis 2025: keynote report](#)

[Calculating work capacity for server and storage products](#)

[Data center sustainability standards 2025](#)

[GPU utilization is a confusing metric](#)

[In the US, data center pushback is all about power](#)

[Cloud: when high availability hurts sustainability](#)

[Data centers weather grid failures — but utilities want change](#)

[Uncertainty and doubt as US changes GPU export rules again](#)

[The two sides of a sustainability strategy](#)

[Error-proof emergency communications for facility teams](#)

[Data center sustainability standards grow globally](#)

[Cloud AI needs cost discipline now](#)

[Gen AI power consumption surges higher faster](#)

June 2025

[Seven fallacies of data center cybersecurity](#)

[Enhanced geothermal: long-term clean power — for some](#)

[GPU power management is a work in progress](#)

[AI and cooling: chilled water system topologies](#)

[Cybersecurity and the cost of human error](#)

[Will power shortages drive an on-prem renaissance?](#)

[Enterprises are still a key venue for corporate workloads](#)

[EU plans introduction of DC rating system](#)

[Hold the line: liquid cooling's division of labor](#)

[Is this the data center metric for the 2030s?](#)

[EED status update: implications for data centers](#)

[Are EU data center performance values creating chaos](#)

[Electrical considerations with large AI compute](#)

July 2025

[Uptime Institute Global Data Center Survey 2025](#)

[Unraveling the cost complexity of serverless containers](#)

[DLC adoption remains slow and steady](#)

[Ransomware incidents on OT equipment surge](#)

[Europe will not abandon the hyperscalers](#)

[Malaysia manages data center growth with regulations](#)

[EU energy efficiency package may slow digital growth](#)

[Self-contained liquid cooling: the low-friction option](#)

[State governments act to control power demand](#)

[Retail vs wholesale: finding the right colo pricing model](#)

[EU EED labeling scheme: Uptime feedback](#)

[Digital twins: the role of simulations](#)

[AI power fluctuations strain both budgets and hardware](#)

[AI super-densification: how far will it really go?](#)

August 2025

[Data center growth can improve sustainability performance](#)

[Uptime Institute Global Data Center Survey 2025: regional view](#)

[Crypto mines are turning into AI factories](#)

[GPU breakthroughs bring real-time CFD analysis closer](#)

[Cloud AI price cuts challenge dedicated deployments](#)

[EU maturity model set to replace Code of Conduct](#)

[Consensus weakens on rack density tipping point for DLC](#)

[Power companies act to stop data center-induced blackouts](#)

[Operators warming up to dielectric cold plates](#)

[Data shows scale of hyperscale colocation demand](#)

[The intelligent loop: AI and chilled water systems](#)

[DCIM vulnerabilities increase threat of cyberattacks](#)

[Emerging tech 1: Superconductivity for power delivery](#)

September 2025

[Uptime Institute Global Data Center Survey 2025: supplier view](#)

[Lack of trust will hinder adoption of AI-based controls](#)

[AI-generated operating procedures carry a safety risk](#)

[Emerging tech 2: low-carbon hydrogen](#)

[Guiding questions for liquid-cooled colocation planning](#)

[In cloud and colo, whose laws rule the data?](#)

[Cybersecurity incidents grow costlier amid persistent complexity](#)

[Intel makes major play in server efficiency](#)

[Incomplete data threatens effectiveness of EED](#)

[OT security: rising critical vulnerabilities, widespread risks](#)

October 2025

[Data center labels: a very public appraisal](#)

[Staffing crisis persists as colos struggle to retain junior operators](#)

[Battery options fizzle as sodium-ion startup shuts](#)

[French data center policies affecting sustainability](#)

[Neoclouds: AI's shock absorbers](#)

[Why are operators collecting less sustainability data?](#)

[Key players: cloud control and the colo advantage](#)

[AI's growth calls for useful IT efficiency metrics](#)

[Mapping PUE trends by data center region, age and size](#)

[Liquid-to-air eases DLC rollout, but mind the setpoints](#)

[AI and cooling: toward more automation](#)

[Emerging technology: neuromorphic computing](#)

[AWS outage: what are the lessons for enterprises?](#)

[Emerging technology: superconductivity in the facility](#)

[AI uncertainty: More adoption, more caution](#)

[AI uncertainty: Bubble trouble brewing](#)

November 2025

[Scope 2 Guidance update: impact on climate disclosure](#)

[How financial institutions are using AI and cloud today](#)

[South Korean data center fire sparks a stark reminder](#)

[What the Azure outage revealed about internet fragility](#)

[Fewer operators cite sustainability as DLC driver](#)

[China: centralized rules for data center efficiency](#)

[Integrated cold plates will help realize free cooling](#)

[AI in facility operations: three applications to watch](#)

[Investments signal a heated liquid cooling race](#)

[EU makes more cuts to environmental reporting](#)

[EU label and performance value proposals move ahead](#)

[Emerging tech 3: enhanced geothermal](#)

December 2025

[Supply chains show signs of stability, but delays persist](#)

[Enterprise and colo spending strategies for 2026 vary](#)

[Do data centers reserve too much grid power?](#)

[Validating the use of high-density DLC](#)

[Gen AI power consumption set to double in 2026](#)

[AI in data: sorting reality from hallucination](#)

[Runaway success of Li-ion raises bar for battery innovators](#)

[Late change reinstates some EU reporting rules](#)

[Japan joins the push for data center regulation](#)

Many giant data center projects advance, despite risks

The power crunch is eternal

Colo vs enterprise data center cost comparison

Staffing: Advanced will be the new basic

Electrification overhaul

DGX-ready data center: what does that mean?

The Top 3 Findings from the 2025 Cybersecurity Survey

Flexible load connections coming to a TSO near you

A look back at 2025 predictions

Uptime guidance for liquid cooling redundancy

January 2026

Five data center predictions for 2026: keynote report

Five data center predictions for 2026: an overview

Uptime Institute Sustainability and Climate Change Survey 2025: field report

Uptime Institute Sustainability and Climate Change Survey 2025: an overview

(Titles, dates and descriptions are subject to change. Further details and extra reports and updates will be added to further iterations of this sheet as needed and will be available closer to the date of publication.)

ABOUT THE AUTHOR



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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.

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About Uptime Institute

Uptime Institute is the Global Digital Infrastructure Authority. Its Tier Standard is the IT industry's most trusted and adopted global standard for the proper design, construction, and operation of data centers – the backbone of the digital economy. For over 25 years, the company has served as the standard for data center reliability, sustainability, and efficiency, providing customers assurance that their digital infrastructure can perform at a level that is consistent with their business needs across a wide array of operating conditions.

With its data center Tier Standard & Certifications, Management & Operations reviews, broad range of related risk and performance assessments, and accredited educational curriculum completed by over 10,000 data center professionals, Uptime Institute has helped thousands of companies, in over 100 countries to optimize critical IT assets while managing costs, resources, and efficiency.