

Uptime Institute 2024 Cooling Systems Survey: Direct Liquid Cooling Results

MAY 2024

SUMMARY

Direct liquid cooling (DLC) remains a hot topic among data center owner/operators – and results from Uptime Institute’s 2024 Cooling Systems Survey (n=964) provide evidence why.

A total of 22% of respondents report their organization is making some use of DLC in their facilities. Three in five (61%) say they are not currently using DLC, but would consider doing so in the future.

Nearly half of DLC users report that less than 10% of their organization’s IT racks currently utilize DLC. Thus, while most DLC use is limited to a relatively small portion of servers and IT racks, interest remains high.

In a related finding, 30% of DLC users report their organization is using it in “only a few of their servers,” while 47% say DLC is being used in “some IT racks.”

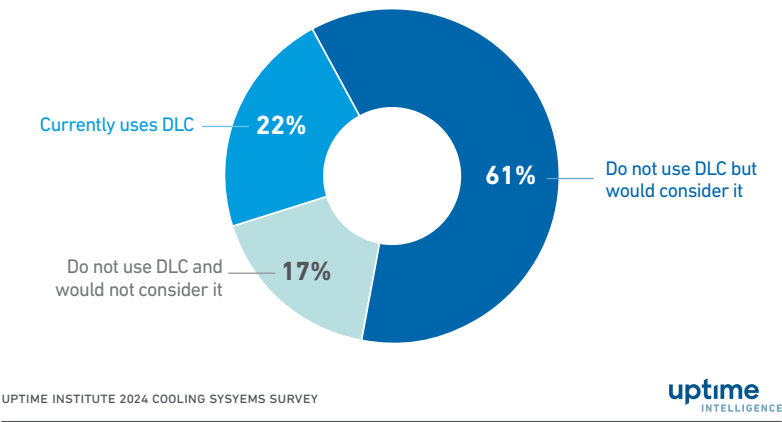
ABOUT THIS SURVEY

Uptime Institute’s 2024 Data Center Cooling Systems Survey was conducted between February 8, 2024 and March 13, 2024 and had a total of 964 data center industry respondents.

The questions in this report were answered by data center owner/operators, with the exception of question VII which was answered by both owner/operators and vendors/product providers.

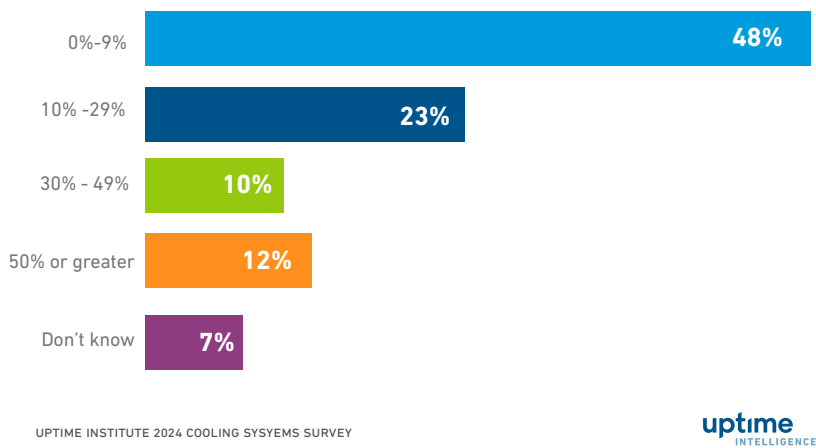
2024 use of direct liquid cooling

I. Do you currently use, or are you considering using, any direct liquid cooling technology in your owned data centers? (n=453)



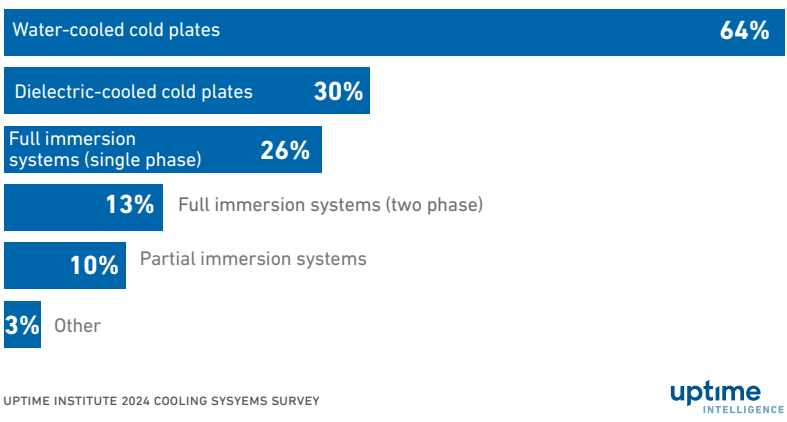
Percentage of IT racks incorporating direct liquid cooling

III. What percentage of your organization’s IT racks would you say incorporate direct liquid cooling? (n=94)



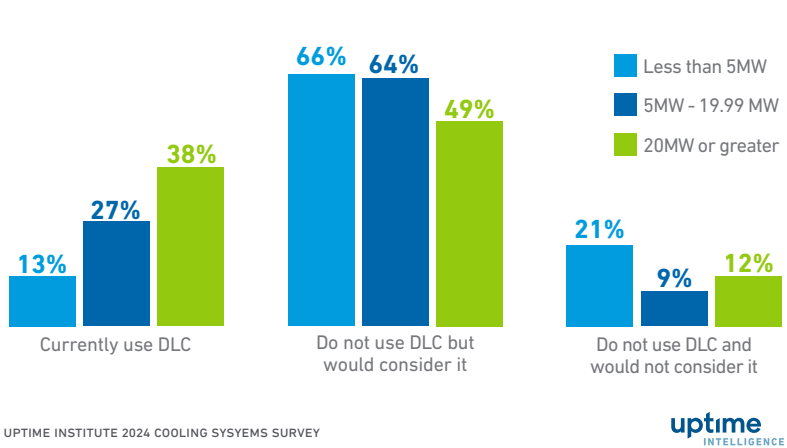
Types of direct liquid cooling being used

II. Which types of direct liquid cooling are currently used in your data center / colocation facilities? Choose all that apply. (n=94)



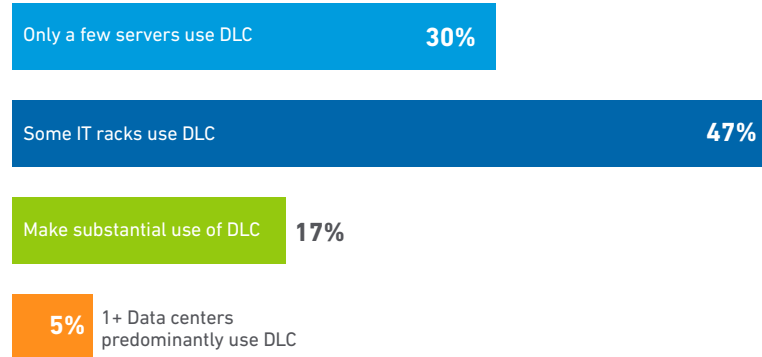
2024 use of direct liquid cooling (by size of largest data center)

IV. Do you currently use, or are you considering using, any direct liquid cooling technology in your owned data centers? (n=397)



Overall level of direct liquid cooling adoption in data centers

V. Regarding your owned data centers, which of these best describes your current use of direct liquid cooling? (n=93)

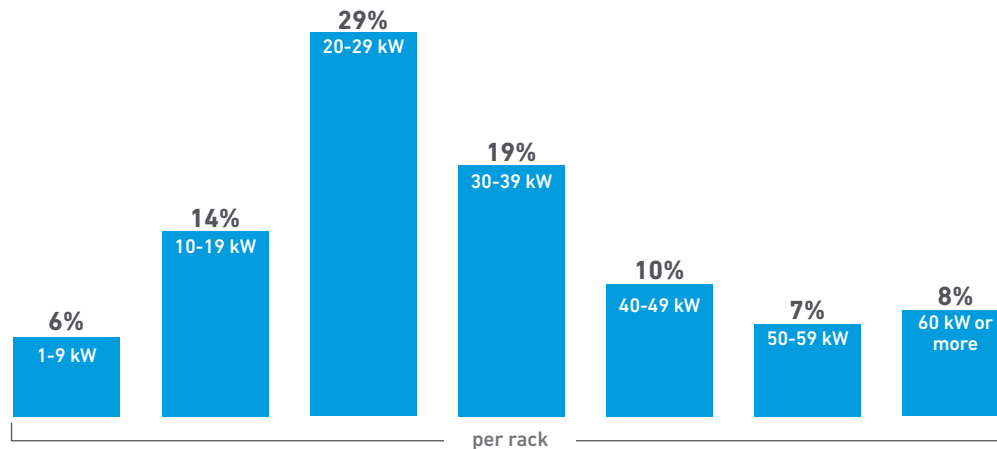


UPTIME INSTITUTE 2024 COOLING SYSEMS SURVEY

uptime
INTELLIGENCE

Threshold for implementing direct liquid cooling based on IT rack power density

VII. At what IT rack power density do you think air cooling is so costly (or unable to meet cooling requirements) that the use of direct liquid cooling becomes necessary? (n=820)

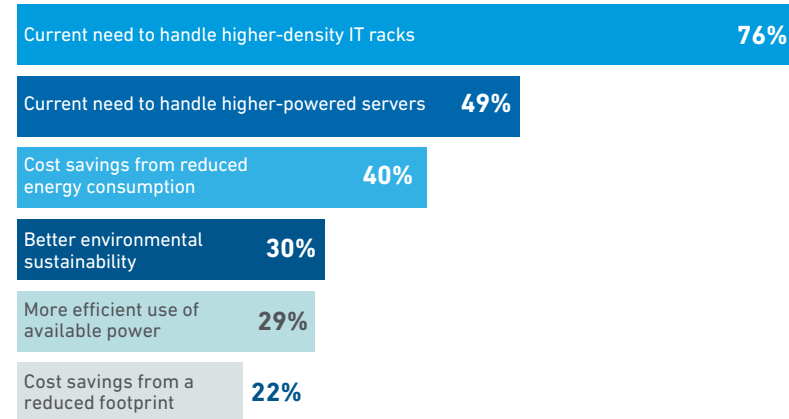


UPTIME INSTITUTE 2024 COOLING SYSEMS SURVEY

uptime
INTELLIGENCE

Key benefits of data center direct liquid cooling

VI. Which of the following benefits would most likely convince your organization to increase the use of direct liquid cooling for your owned data center(s)? Choose all that apply. (n=86)

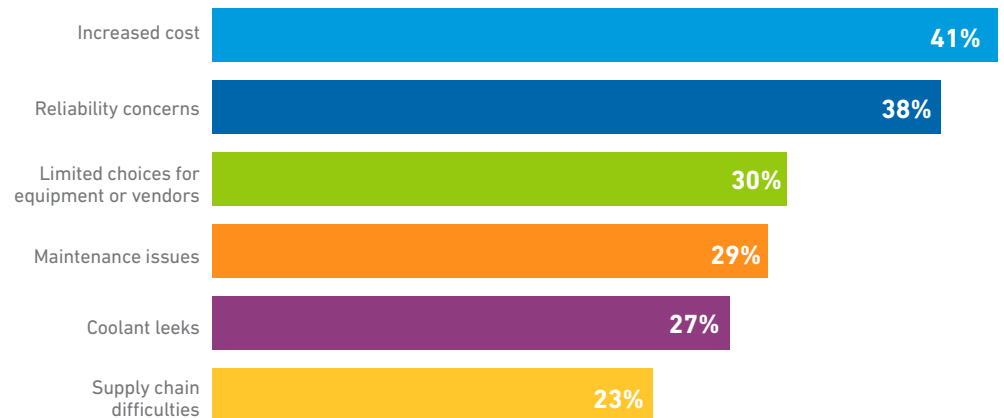


UPTIME INSTITUTE 2024 COOLING SYSEMS SURVEY

uptime
INTELLIGENCE

Major barriers of data center direct liquid cooling

VIII. Which of the following does your organization consider major barriers in deploying direct liquid cooling in your data centers? Choose no more than three. (n=86)

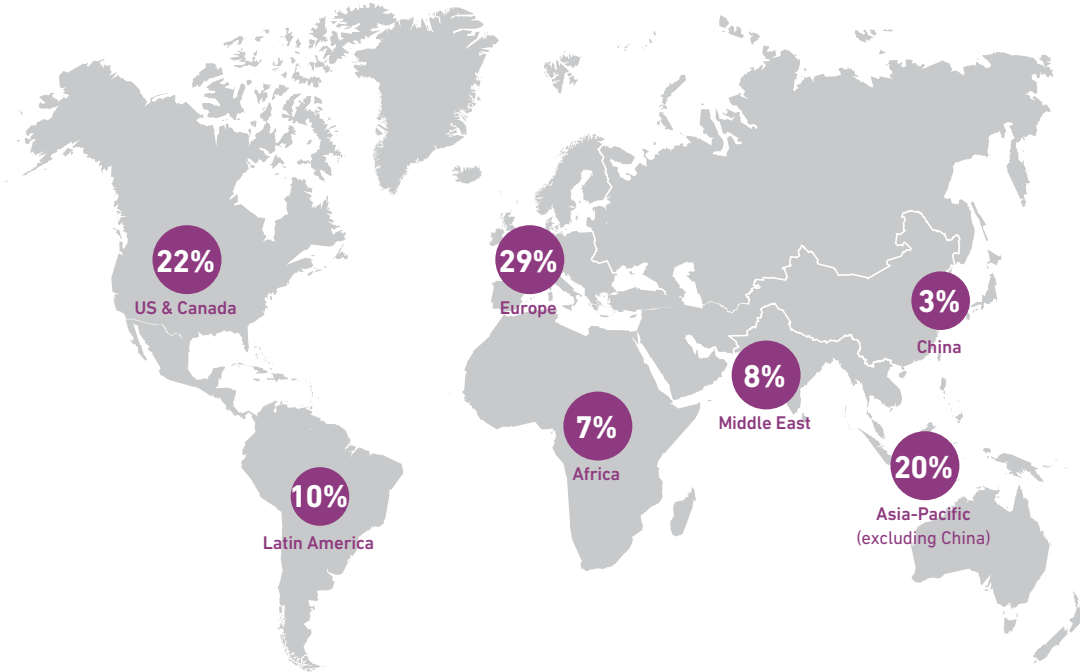


UPTIME INSTITUTE 2024 COOLING SYSEMS SURVEY

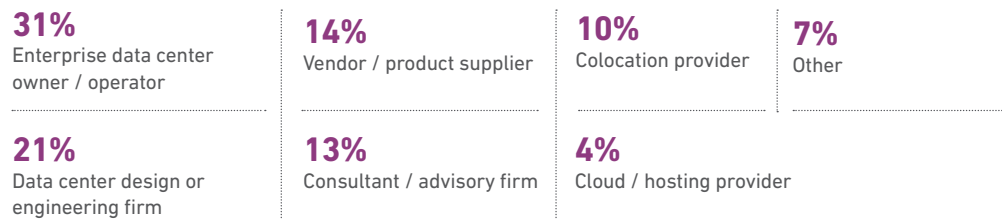
uptime
INTELLIGENCE

Demographics

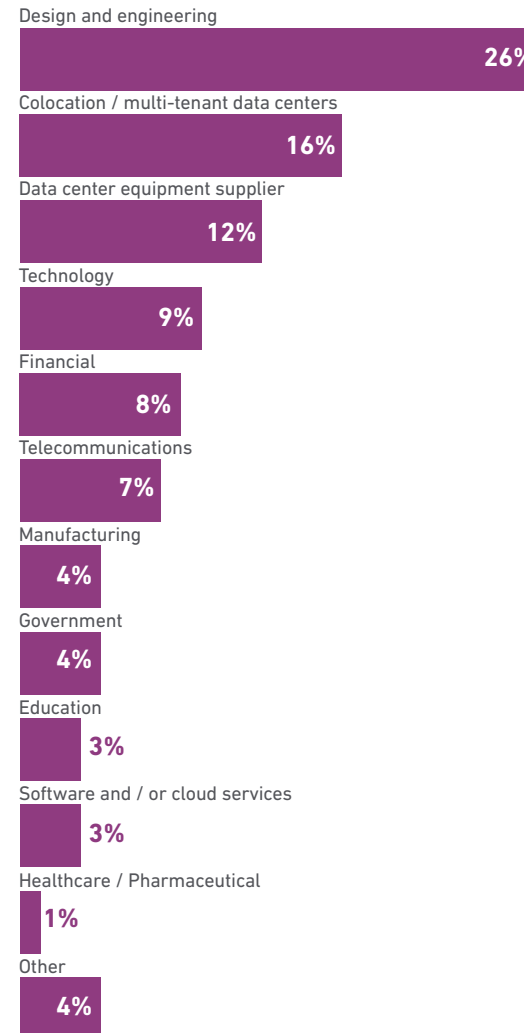
Respondents' location (n=963)



Digital infrastructure environment (n=964)



Verticals (n=789)



Authors

Anthony Sbarra,
Senior Survey Manager

Laurie Williams,
Survey Associate

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.

Uptime Institute is headquartered in New York, NY, with offices in Seattle, London, Sao Paulo, Dubai, Singapore, and Taipei. For more information, please visit www.uptimeinstitute.com

All general queries:

Uptime Institute
405 Lexington Avenue,
9th Floor, New York,
NY 10174, USA
+1 212 505 3030

info@uptimeinstitute.com