

# Uptime Institute Cooling Systems Survey 2024: Direct liquid cooling

UII DATA REPORT 139 | MAY 2024

## SUMMARY

Direct liquid cooling (DLC) remains a hot topic for most data center owner /operators – and results from Uptime Institute’s Cooling Systems Survey 2024 show 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.

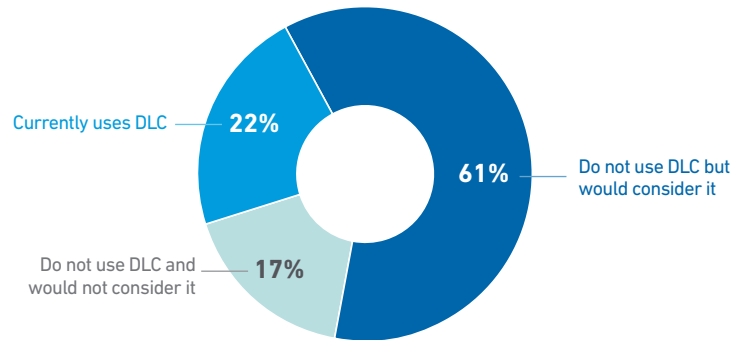
Nearly half of DLC users report that less than 10% of their organization’s IT racks currently utilize DLC. Therefore, while most DLC use is limited to a relatively small portion of servers and IT racks, interest remains high.

### ABOUT THIS SURVEY

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

## More than one in five currently use DLC

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

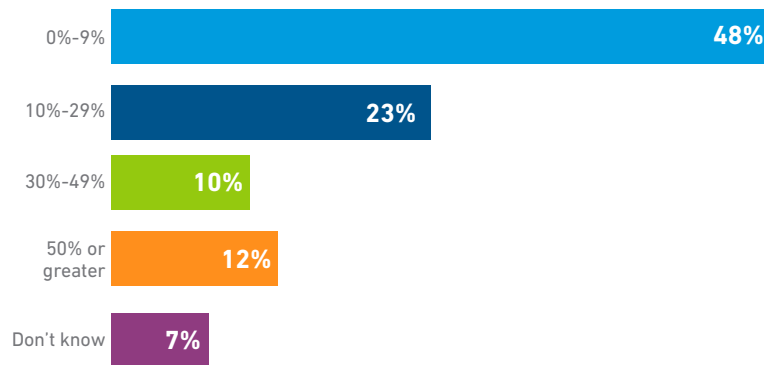


UPTIME INSTITUTE COOLING SYSTEMS SURVEY 2024



## Most DLC users deploy a small share of IT

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

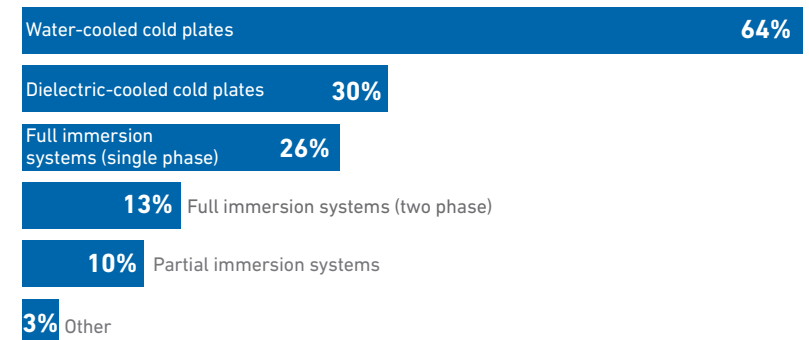


UPTIME INSTITUTE COOLING SYSTEMS SURVEY 2024



## Water cold plates lead in existing DLC installations

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

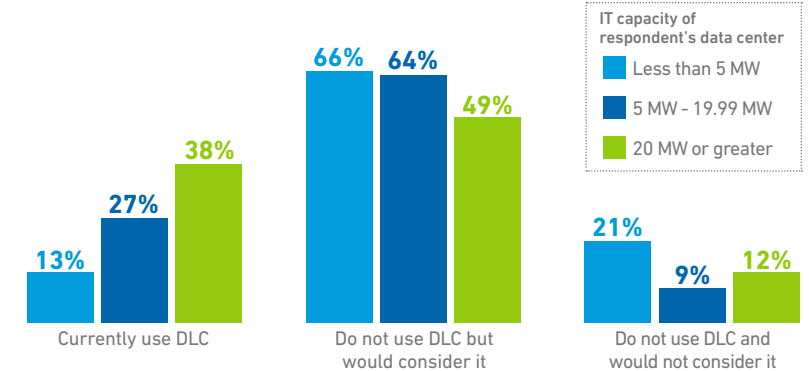


UPTIME INSTITUTE COOLING SYSTEMS SURVEY 2024



## Larger facilities are more likely to use DLC

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

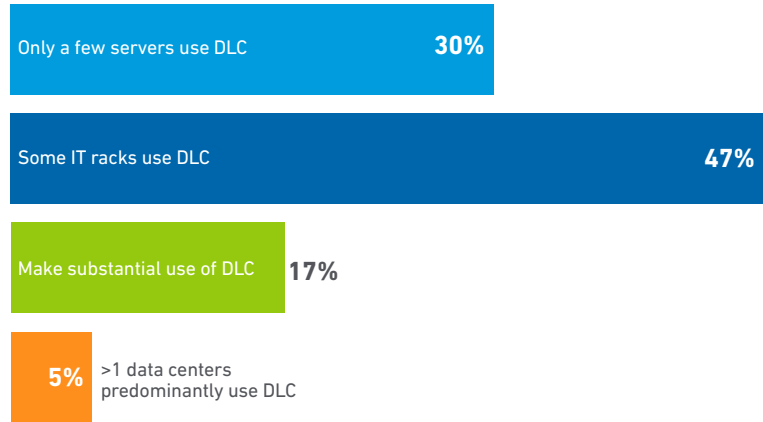


UPTIME INSTITUTE COOLING SYSTEMS SURVEY 2024



## Only one in five DLC users deploy it extensively

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

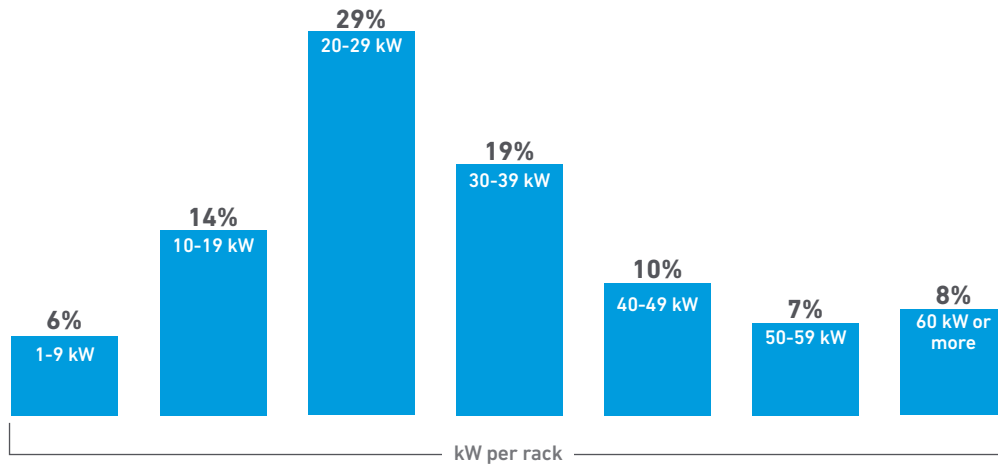


UPTIME INSTITUTE COOLING SYSTEMS SURVEY 2024



## Most estimate DLC is needed for densities over 20 kW

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)

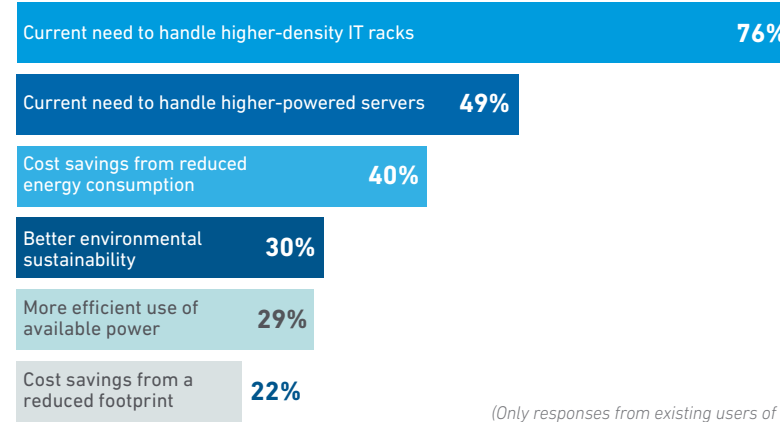


UPTIME INSTITUTE COOLING SYSTEMS SURVEY 2024



## Rack density and server power drive DLC adoption

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)



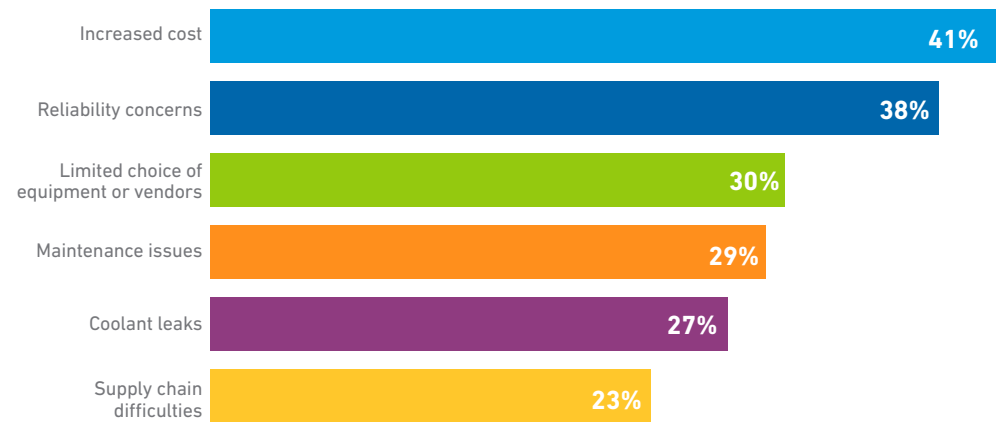
(Only responses from existing users of direct liquid cooling are shown.)

UPTIME INSTITUTE COOLING SYSTEMS SURVEY 2024



## DLC users name cost and reliability as top concerns

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)



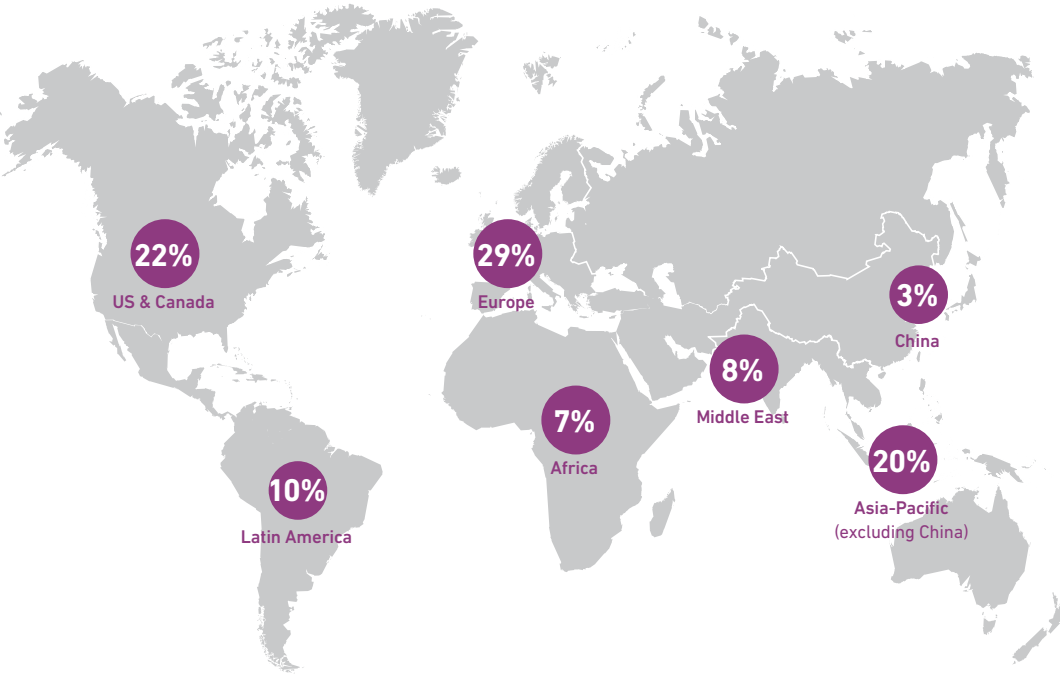
(Only responses from existing users of direct liquid cooling are shown.)

UPTIME INSTITUTE COOLING SYSTEMS SURVEY 2024

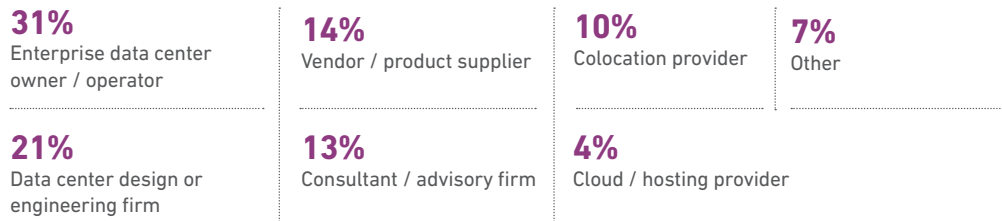


## Demographics

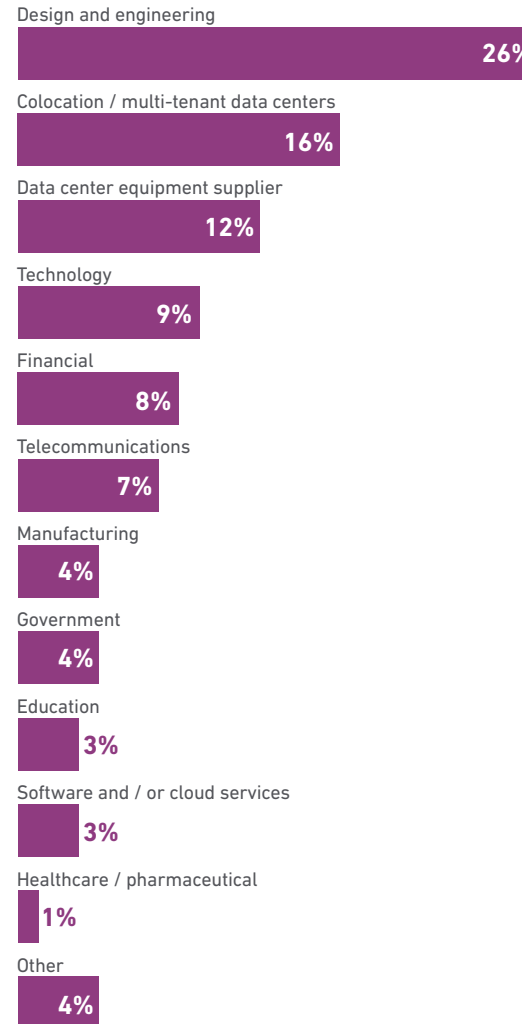
Respondents' location (n=963)



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](http://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](mailto:info@uptimeinstitute.com)