



Infrastructure Planning Report

# EMEA – Amsterdam



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Iron Mountain Data Centers (IMDC) has compiled this Infrastructure Planner to give you a balanced overview of key colocation markets - their strengths and weaknesses, and the latest issues and opportunities.

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2023  
to 2030

European  
colocation  
forecast  
CAGR 15.2%

MARKET  
VALUE 2023  
= \$17.9 BN

29% of total global  
colo spend in 2023  
= \$48.6 BN

# European Infrastructure

The 5GW+ European data center colocation market was worth around \$16 billion in 2022 and is expected to expand at a compound annual growth rate of 15.2% from 2023-2030. Grand View Research estimates take-up of as much as 400 MW of new space in 2023.

## FLAPD & Beyond

Frankfurt, London, Amsterdam, Paris and Dublin - the FLAPD markets - continue to account for over half of the colocation space in Europe. They are each forecast to continue to grow strongly and are critical locations for market entry. But with power and planning constraints emerging in these more mature markets, and more distributed architectures being built to power cloud availability zones, new Tier 2 data center hotspots are emerging. Well-connected locations like Milan, Madrid, Berlin, Zurich, Warsaw, Prague, and Vienna are on the rise. Nordic markets such as Oslo and Reykjavik are also increasingly popular due to the cheap renewable energy they can offer.

## Hyperdrive

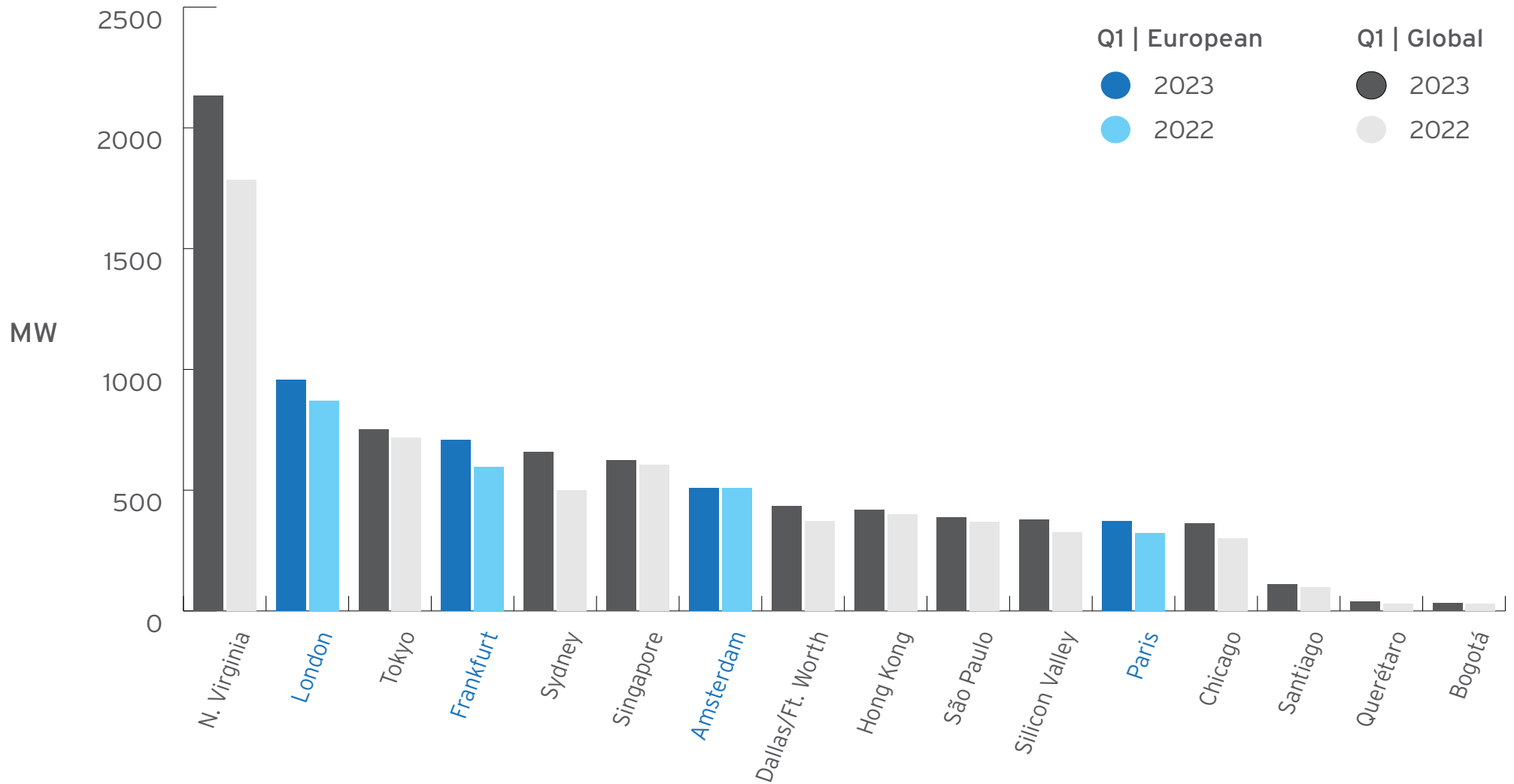
Strong demand in key European markets is reflected in dropping vacancy rates. Average vacancy rates fell 4.3% from 17% in Q1 2022 to 12.7% in Q1 2023. While many more data centers are coming online and in the pipeline, these vacancy rates are forecast to remain low. Pricing has increased in line with rising demand, limited availability and higher build and operational costs, with the highest rates in Frankfurt and London. Demand from hyperscalers is exceptionally high, and in 2022 they were responsible for a phenomenal 80% of take-up, with this large-scale demand driving up the size of individual deals.

## Key Drivers

Digital infrastructure and advanced cloud solutions are widely available across the market. The major factors driving colocation growth include

- ▶ expanding public cloud availability zones
- ▶ generative AI first-phase investment
- ▶ growing demand for interconnection bandwidth
- ▶ rising levels of data traffic for 5G, IoT, AI and ML higher capacity networks for edge apps
- ▶ multi-location hybrid data architectures

# European v Global Capacity



Figures and data for North American markets include only wholesale colocation facilities. In Europe, Latin America, and Asia-Pacific, total inventory includes both wholesale and retail colocation facilities.

Source: CBRE Data Center Solutions

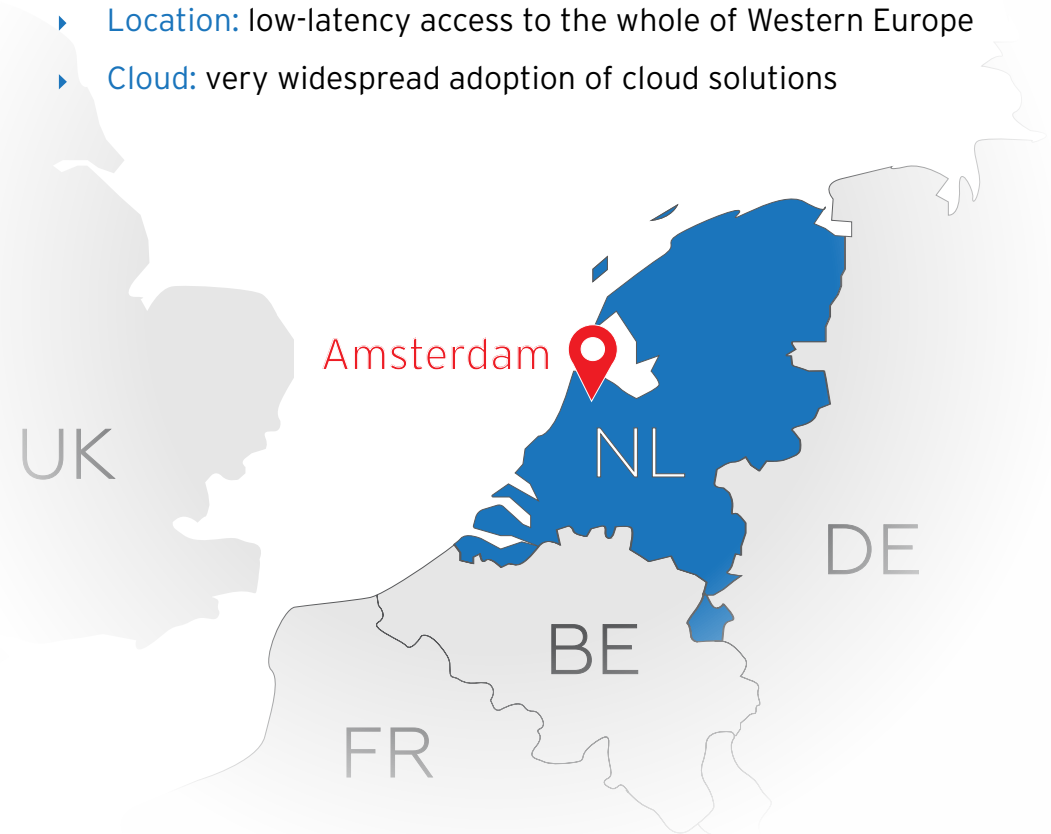
# The Amsterdam Market

The Netherlands contains 189 colocation data centers, and most of them (72%) have been built in and around the Amsterdam Metropolitan Region, making it Europe's third largest market. The Amsterdam region is a dynamic blend of old and new. Home to the AMS-IX and NL-ix Internet Exchanges, with a highly-educated, tech-savvy English-speaking workforce, Amsterdam offers customers excellent local access to the Benelux market. It is also a perfect data entry point for Western Europe, providing low-latency backbone connectivity to France in the south, the Atlantic/UK to the west, and the Nordics and Germany to the northeast and east.

Despite restrictions on new power contracts in some areas, and a recent moratorium on hyperscale data center builds, this mature, densely populated and highly interconnected market is forecast to grow strongly over the next few years, if not at quite the same speed as London, Frankfurt and Paris. Pricing as a whole is rising across Europe, but Amsterdam is still more cost-competitive than other key European markets, with prices similar to those in Northern Virginia. The supply pipeline is also still considerable. Vacancy rates are dropping, but not too steeply, to just below 20%.

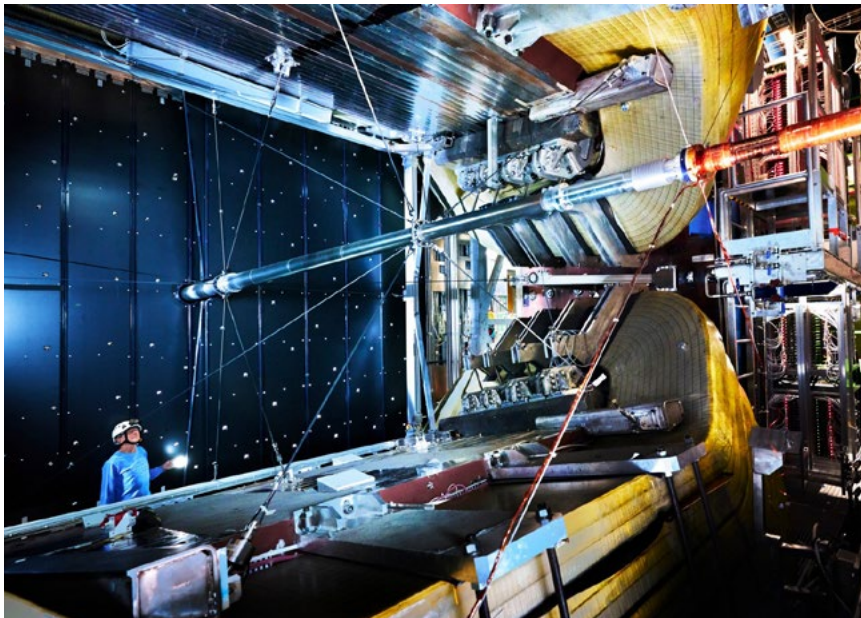
## Key Drivers

- ▶ **Connectivity:** one of the world's densest Internet traffic intersections
- ▶ **Price:** pricing competitive compared to other European markets
- ▶ **Hyperscalers:** growing availability zones and AI investment
- ▶ **Competition:** broad selection of colocation and cloud offerings.
- ▶ **Location:** low-latency access to the whole of Western Europe
- ▶ **Cloud:** very widespread adoption of cloud solutions

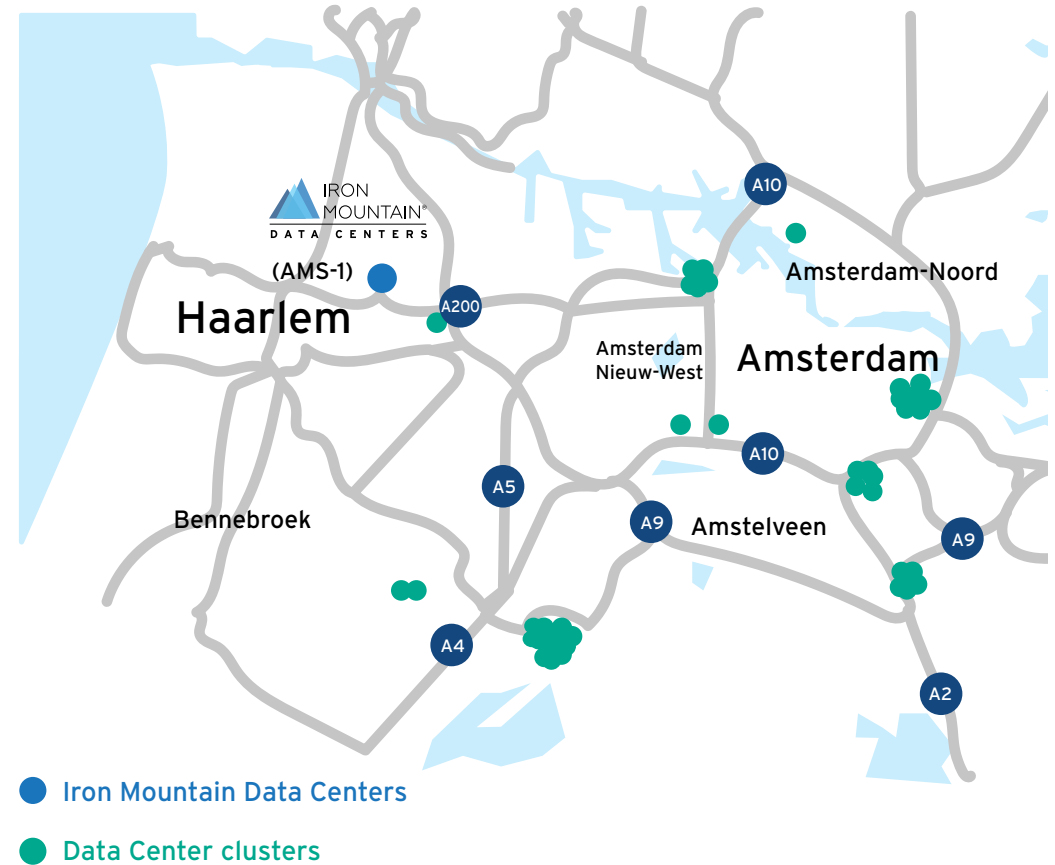


# Geography

The earliest data centers were built in the east of the city center in Amsterdam Science Park. Many new facilities were then built further south in Amsterdam-Zuidoost and Schiphol-Rijk, near Amsterdam international airport. There are also a growing number of facilities on the edge of the city, in areas such as Almere and Haarlem. Google's largest European data center is in Eemshaven, and Microsoft has a data center in Middenmeer, both to the north of Amsterdam.



Nikhef, the National Institute for Subatomic Physics was Amsterdam's first data center. To facilitate research with CERN, where the World Wide Web was invented, it set up the third website in the world in 1992.



# Opportunities & Issues

Like Northern Virginia, Frankfurt and Singapore, Amsterdam offers both the advantages and disadvantages of a mature and highly successful market.

## Data Density

Hyperscale and colocation data centers have sprung up and clustered in the area, partly due to its strategic location, but also due to the quality of the workforce, the deep Internet penetration (currently 96%+), a dynamic ICT sector, easy access to a huge range of international businesses, and the massive traffic volumes swapped on AMS-IX and other peering exchanges. These factors will continue to draw digital businesses to Amsterdam for the foreseeable future.

## Sustainability

Power infrastructure has also been a positive factor, with widespread availability (from NL

and beyond) of renewable energy and major new projects (mainly wind) in the pipeline. This has enabled Dutch data centers to lead the world in sustainability. The Netherlands is acknowledged to be a global center of excellence for sustainable data center construction and operation. Nearly 100% of operational power is renewable, and according to the Dutch Data Center Association, 39% of residual heat from facilities is now stored or reused.

## Planning

Steep growth rates, major builds and growing power consumption in a space-constrained and environmentally-conscious country like the Netherlands have inevitably created challenges, which the industry is still working around. Some construction delays due to new regulations have been taking place since 2020, and in 2022 the Dutch Ministry of the

Interior imposed a nine-month moratorium on new hyperscale data centers (defined as >70 MW IT load) in much of the country while new regulations were developed. New hyperscale-friendly zones in Almere and Zeewolde are now having their infrastructure upgraded to cope.

Over a quarter of GDP in the Netherlands depends on data centers, connectivity and cloud providers, and there is strong support for the industry and its importance to innovation. However, new zones and regulatory constraints will make the planning of new facilities more complex.



# Power

Data center power requirements will continue to increase, particularly with the current growth in power-hungry generative AI. Campuses with pre-existing phased power agreements offer the best prospects for customers with plans to scale up in the region..

## Public awareness

While data centers in the Amsterdam area are investing heavily in growing the renewables grid, there is a limit to the rate of this growth, and the public are concerned over the electricity demands of the digital economy.

## Schiphol-Rijk

As in many mature European markets, power is increasingly hard to come by in Amsterdam. This is particularly true in Schiphol-Rijk, the heavily-developed area around the international airport in Schiphol. The Liander electricity substation upgrade, which was scheduled for completion in 2025, is now believed to be significantly behind schedule, which is likely to cause problems for expansion in this area.

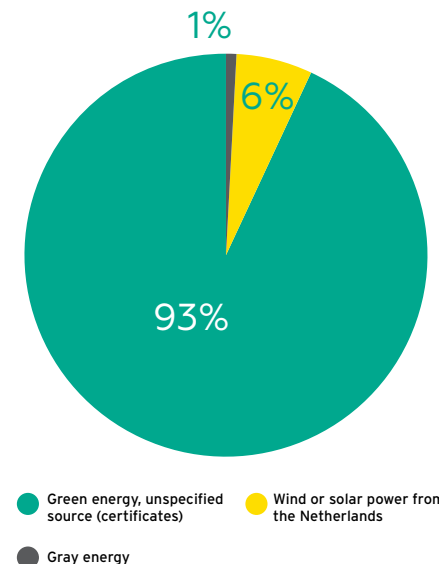
## Carbon-free Collaborations

New large-scale builds are increasingly being tied to major new renewables projects to reduce potential impact on the national power grid and provide a base for zero-carbon operation.



In a step towards complete decarbonization, Iron Mountain Data Centers recently signed a solar Power Purchase Agreement with Sunrock, who are expanding a 4MW solar rooftop array on warehouses in the Port of Rotterdam: [watch video here](#)

## Dutch Data Center Power



According to the Dutch Data Center Association, 99% of all energy consumed in 2023 by Dutch colocation data centers came from renewable sources, a strong improvement on 90% in 2022. 6% of this comes directly from local wind and solar and 93% is in the form of renewable energy certificates from Virtual Power Purchase Agreements.



# Connectivity

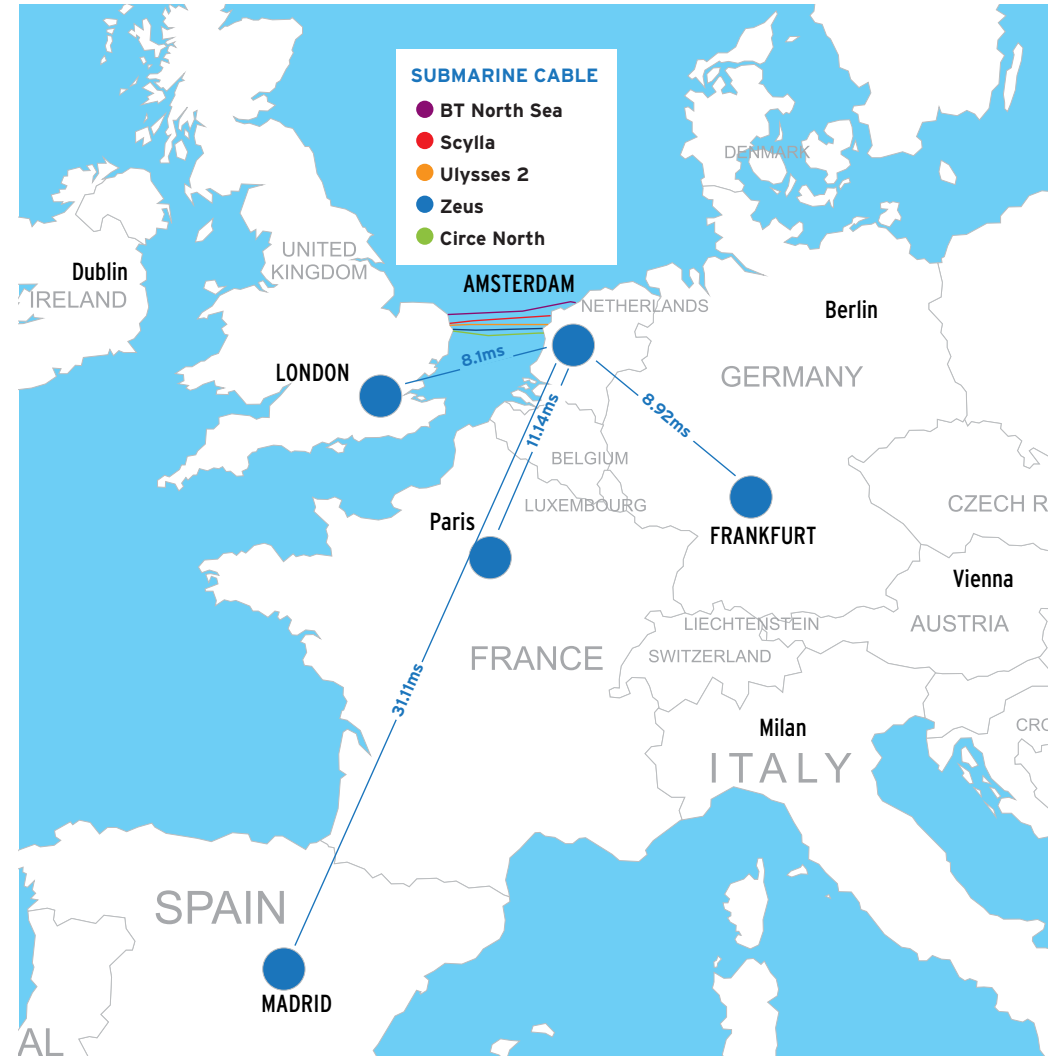
Frequently referred to as the 'Digital Gateway to Europe', Amsterdam is one of the world's leading Internet communications hubs. Since the first connection to the American Internet was set up here in 1988, there have been huge ongoing investments in fiber-optic networks and undersea cables that connect to the eastern seaboard of the United States, London, and other major cities across the Atlantic.

Amsterdam is home to the second and fifth largest Internet Exchanges in the world - AMS-IX and NL-ix, with hundreds of members, many of them running 100 Gps ports, and peak traffic levels of 11.6 Tbit/s and 5.5 Tbit/s respectively

## Latency

To the north, south and east data can reach 80% of European customers from Amsterdam in less than 50 ms. The fastest transatlantic route is 67.83 ms to New Jersey.

The market provides low-latency reach to southern markets, with 4.92 ms latency to Brussels, 11.14 ms to Paris, 31.11 to Madrid and 24.68 ms to Milan. To the west, London is just 8.1 ms and to the east the world's largest Internet Exchange in Frankfurt, Germany is just 8.92 ms.



# Iron Mountain Data Centers in Amsterdam



IMDC's AMS-1 facility is one of Europe's busiest, best-connected, most scalable and sustainable data centers. Situated on a large site with ample power in Haarlem to the west of Amsterdam, the first data hall was constructed in 2007 and the facility was the first in the Netherlands to use 100% renewable power back in 2017.

Since then the data center has proved extremely popular, particularly with connectivity and managed service providers. The facility currently contains seven data halls, and halls 8 and 9 will add 10 MW and 20 MW respectively.

- ▶ Location: AMS-1 is located in Haarlem, 22 km west of Amsterdam and just 17 km from Schiphol International Airport
- ▶ Scalability: The 17,000 m<sup>2</sup> (190,000 ft<sup>2</sup>) 22.7 MW facility is growing fast on a 9.3 hectare (23-acre) site with scalability to 40,000 m<sup>2</sup> and 60 MW of power
- ▶ Ecosystems: AMS-1 offers customers connectivity via over 50 carriers and has hyperscale clouds, SDN exchanges, AMS-IX, NL-ix and several other exchanges on-site
- ▶ Sustainability: PUE in the latest halls is as low as 1.2, and 100% of the power used by us and our customers is renewable, with new local renewables being added in order to achieve 24/7 carbon-free energy.



## About Iron Mountain Data Centers

Iron Mountain Data Centers operates a global colocation platform that enables customers to build tailored, sustainable, carrier and cloud-neutral data solutions. As a proud part of Iron Mountain Inc., a world leader in the secure management of data and assets trusted by 95% of the Fortune 1000, we are uniquely positioned to protect, connect and activate high-value customer data. We lead the data center industry in highly regulated compliance, environmental sustainability, physical security and business continuity. We collaborate with our 1,300+ customers in order to build and support their long-term digital transformations across our global footprint, which spans three continents.

[IRONMOUNTAIN.COM/DATA-CENTERS](https://www.ironmountain.com/data-centers)

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