



High Performance Computing

IO.Anywhere[®]

Software-defined modular data center infrastructure supports

high performance computing applications.

Current State

In high performance computing (HPC), users leverage aggregated computing power – computing servers and clusters – to solve problems that are computationally intensive or data intensive. Demand for HPC comes from both enterprise and government clients, who use high performance computing for such work as computational fluid dynamics, molecular dynamics simulation, earth modeling, high-frequency trading, Big Data analytics, and computer-aided engineering.

The Challenge

High performance computing equipment typically operates at a higher density per rack than less computationally intense equipment. These high density requirements can strain existing power and cooling infrastructure. Most legacy data centers are not equipped to handle increasingly intense power and cooling requirements.

According to **Forrester**, “[IT infrastructure and operations] pros have told Forrester on several occasions that converged infrastructure offerings are more power-intensive and require more cooling than their data center is

prepared to handle.”

The Solution: IO.Anywhere[®]

IO.Anywhere is manufactured, factory-tested, UL-listed, and software-defined data center infrastructure that is engineered specifically to accommodate high density requirements.



Most traditional raised floor data center environments typically cannot accommodate densities greater than 150 watts per square foot. In contrast, IO.Anywhere data modules can generally accommodate greater than 600 watts per square foot in an active power configuration.

That benefit of the modular data center infrastructure is recognized by **451 Research**: "Prefabricated [modular] designs suit high densities. Prefabrication has inherent design and scalability advantages in supporting high rack densities cost-effectively and in an energy-efficient fashion. Investments in advanced aerodynamic optimizations, granular scalability and dynamically regulated multimode cooling systems – all integrated into the design – help PFM data centers to gain an edge over traditional builds."

Agile

IO.Anywhere modules can be deployed at one of IO's global data centers or on your premise. For example, a university research lab can deploy an **IO.Anywhere data module** on their campus and have the infrastructure they need to support their genome sequencing computing equipment in as little as 120 days.



Secure

In most traditional raised-floor data center environments, high performance computing applications may share the same space, power, and cooling infrastructure as the organization's other IT applications, such as email or back-up storage. This multi-application environment can present a security challenge if the HPC application uses sensitive data.

In this scenario, IO.Anywhere modules can be

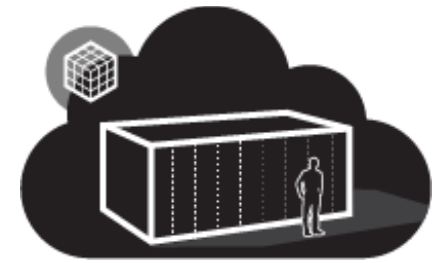


discretely provisioned to support individual applications and physically segregated from the rest of the data center. And because the module is built using a compartmentalized architecture, access to the IT equipment can be restricted to authorized personnel, further protecting the HPC application.

Sustainable

IO.Anywhere provides the flexibility to scale without having to build out new space or make major renovations to existing infrastructure. IO's software-defined, modular approach helps "future-proof" the data center and supports density growth within the same physical footprint.

As the program manager for **Lawrence Livermore National Laboratory's high-performance computing facility** explains, "We want to get out of doing construction over and over, and just build what we need when we need it...so as the HPC technology changes, we can adapt.





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