

Aligned Ashburn Data Center Campus

Velocity Is in Our DNA and in Ashburn, We Delivered

CASE STUDY



One of the Fastest Building Permit-to-Vertical Construction in the History of Ashburn's Critical Infrastructure

Ashburn, Virginia, located approximately 30 minutes from the U.S. capital, is the largest data center market in North America. Aligned sought to build a new flagship data center campus in Ashburn that would address the needs of hyperscalers, Platform-as-a-Service (PaaS) and cloud service providers that demand a highly dynamic, scalable, and future-proof data center solution. Leveraging a standardized supply chain methodology; an inventory of proprietary prefabricated, factory-built and tested power and cooling equipment; and best-in-class partners, Aligned constructed a 370,000 square-foot data center and built out the first fully-commissioned 12 MW of data center space, expandable to 60 MW, in less than six months. This accomplishment is one of the fastest building permit-to-vertical project timelines in the history of critical infrastructure in Ashburn.

When complete, the 26-acre, 180 MW masterplanned data center campus will ultimately draw redundant critical power from two diverse 230kV Dominion substations. Aligned's hyperscale data center campus meets the growing need for high-density, highly efficient and scalable solutions in Ashburn.

BACKGROUND

Why Aligned Is Making History in Ashburn

With the world's largest concentration of cloud computing infrastructure, Northern Virginia has been referred to as "Data Center Alley" and the "Home of the Hyperscalers."

To look at Ashburn, Virginia, and its desirability as a location for Aligned's flagship data center campus is to anticipate how the history of the Fourth Industrial Revolution will one day be written. Yes, it will document many technological milestones such as the internet, the PC, data centers and cloud computing. However, it will also be highlighted by some very specific places that even today are among the most significant plots of land on the planet. Among these, Ashburn.

A Brief History of the Internet

After Congress passed the High-Performance Computing Act of 1991 (HPCA), early pioneers took the initiative to connect their networks together to create the internetwork architecture we now know as the internet. The first place this connection point happened, allowing traffic to flow from more providers' infrastructure to the other, was a small office in Tysons Corner, VA. This first Internet Exchange Point (IXP), called MAE-East, soon outgrew the office space as well as its overflow – a converted parking garage, and was relocated to UUNET's newly built Ashburn campus. This 590 acres of freshly developed Northern Virginia farmland soon became the most connected place on the planet, the largest Point of Presence (PoP) and internet on-ramp connecting the U.S. to EMEA, and with it, the catalyst for growth and investment in Loudoun County. Now known as "Data Center Alley."

“...less than 800 feet from the original UUNET-managed MAE-East Exchange...”

In purchasing and locating its new flagship Ashburn data center campus less than 800 feet from the original UUNET-managed MAE-East Exchange, Aligned is at once becoming part of, and making, history. At a time when humankind is embarking upon the Fourth Industrial Revolution, Aligned’s data center campus will help service the exponential demands of our increasingly connected civilization—now and well into the future.

Concept to Commissioning - In Record Time

CHALLENGES

Building Data Center Capacity Where and When It’s Needed

Speed-to-market, flexibility, scalability, reliability, and predictability have become business-critical success factors for hyperscalers, cloud and platform providers looking to expand into new or existing markets. These organizations, along with enterprises deploying high-density compute, very often require large-scale infrastructure deployments delivered against rigorous and exacting timelines. Building for an unprecedented demand curve, with a focus on cost, sustainability and the requirement to scale as needed without stranding capital, these highly sophisticated customers are looking for a data center partner who not only shares their corporate ethos, but can deliver against an accelerated timeline.

SOLUTION

Laser-Focused on Velocity of Delivery

VSAS™ – Velocity, Scalability, Adaptability, and Sustainability – is a term that encompasses:



- Aligned’s advanced, standardized supply chain methodology that streamlines delivery;
- Its patented Delta³ and patent pending DeltaFlow~ cooling technology that enables scale and efficiency without added CapEx
- An intelligent and adaptable infrastructure that allows customers to truly future-proof their IT environments
- A platform that is focused on helping companies deliver greater business value with less costly energy and infrastructure resources

Through its leadership team and their experience on major projects globally, velocity of delivery is something that Aligned has been working on for over a decade.

Aligned provides hyperscale, cloud and platform providers with a simple and repeatable model for expansion in new or existing markets. Its unique funding model and long-range commitments have secured pre-allocated manufacturing cycles with industry-leading infrastructure partners to create a rolling pool of dedicated inventory. This pool feeds into Aligned’s patented, revolutionary, factory-based construction of mechanical and electrical plant modular containers. Pre-certified by Underwriters Laboratory (UL), these modules are then deployed and delivered, enabling accelerated scalability and commissioning at timeframes never before seen in the data center critical infrastructure business.

Aligned’s ExpandOnDemand™ designs offer customers the flexibility to seamlessly pivot and scale to support shifting computing environments—no matter the application, density requirement, or cooling solution. With Aligned’s DeltaFlow~™ and Delta³™ cooling technologies, we’ve made it easier than ever for customers to make the move from air-cooled to liquid-cooled systems, or to deploy hybrid cooling systems—combining both air and liquid—in the same data hall.



ADAPTABLE

Aligned’s adaptable, intelligent and dynamic infrastructure encompasses its award-winning data center cooling technologies. Delta³ and DeltaFlow~ are purpose-built to support high, mixed, and variable power densities of 1-300 kW per cabinet in the same footprint.



SCALABLE

Customers’ workload densities can scale in place without having to reconfigure existing infrastructure, disperse equipment, or require large-scale investments. Customers can initiate at one density profile and scale up to 300 kW per rack without disruption, all while maintaining industry-leading PUE. Aligned’s design accommodates air, hybrid and liquid cooling.



SUSTAINABLE

Aligned offers multiple alternative electricity/renewable energy options at each of our data center locations. Our award winning cooling technologies are ultra-efficient and sustainable. They support standard and high power densities and offer an industry-leading PUE.



RESULTS

Building Permit to Phase I Commissioning in Less Than Six Months

To support the growth of hyperscale and large enterprise customers, Aligned developed a 26-acre, 180 MW master-planned data center campus in Ashburn, Virginia. Leveraging its standardized supply chain methodology, an inventory of prefabricated, factory-built and tested power and cooling equipment, and best-of-breed and trusted partners. Aligned constructed a 370,000 square foot facility and built out the first 12 MW of data center space in less than six months.

Once the initial build was finalized, there was no drywall used during construction. This is significant for worksite safety because drywall installers are commonly at risk for back injuries, falls and respiratory exposure to dust, including silica. In fact, due to Aligned's standardized design, the company was able to achieve the highest industry safety standards concerning dust and particulate matter.

In order to begin construction of the building, Aligned had to first relocate critical utility and private power feeds. Additionally, critical water and gas utility sources had to be relocated to begin construction of the infrastructure yard.

The campus' initial 370,000-square-foot, 60 MW facility, IAD-01, followed by a 513,000-square-foot, 120 MW development, IAD-02, sit atop major fiber and conduit routes, providing access to more than 50 carriers in the immediate area. Both facilities feature Aligned's on-demand adaptable and intelligent, dynamic infrastructure, complete with its patented, award-winning data center cooling technology.

Aligned's Ashburn data center campus addresses the needs of hyperscalers, cloud and platform providers, and large enterprise customers that demand a highly dynamic, scalable and future-proof data center solution in the country's largest data center market.

"Accomplishing one of the fastest building permit-to-vertical construction timelines in the history of critical infrastructure in Ashburn is proof positive of Aligned's commitment to velocity of delivery"

ABOUT ALIGNED

Aligned Data Centers is a leading technology infrastructure company offering innovative, sustainable, and adaptive Scale Data Centers and Build-to-Scale solutions for global hyperscale and enterprise customers across the Americas. Our intelligent infrastructure allows densification and vertical growth within the same footprint, enabling customers to scale up without disruption, all while maintaining industry-leading Power Usage Effectiveness (PUE). By reducing the energy, water and space needed to operate, our data center solutions, combined with our patented cooling technology, offer businesses a competitive advantage by improving sustainability, reliability, and their bottom line. For more information, visit www.aligneddc.com and connect with us on [X](#), [LinkedIn](#) and [Facebook](#).

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