

Design and Construction

HOW DOES AN EXPERIENCED DATA CENTER DEVELOPER MEET THE CHALLENGES OF TODAY'S DIVERSE DESIGN AND CONSTRUCTION REQUIREMENTS?

In the wake of our growing digital economy and a data center industry that's continually challenged with staying ahead of the customers' IT roadmaps, different end-users have emerged to distinguish themselves with varying data center requirements. The evolving challenge, however, is how to efficiently build data centers for various types of users.



So what's the problem?

How do data center operators design and build for a varying array of different users and ensure they are deploying the right product type to maximize their success? In short, we at Stream have found success in solving data center design and build challenges by following these simple parameters:

Keys to success:

- **Capacity** – maintain ample availability of land, space and power, to balance supply and demand.
- **Establish key performance indicators (KPIs)** – never lose sight of KPIs such as health and safety, efficiency or quality metrics.
- **Speed to market** – partner with a loyal and dependable supply chain to easily meet timing and delivery expectations.
- **Stay ahead of market needs** – keep construction-ready sites available for immediate build-to-suit or modification, so customer operators do not have to start their data center projects from scratch.

- **Listen and respond to every customer's specific concerns** – to furnish the right product at the right time, and ensure alignment across all design and construction channels.

Let's consider the differences between enterprise users and cloud providers as two examples of data center users who present contrasting challenges in design and construction requirements.

What enterprise users expect:

Fortune 1000 companies, and many more, are looking for master-planned risk-averse sites — outside of flight paths, away from rail lines and industrial uses, and outside the FEMA 500-year flood plain. Most are also looking for a higher level of site and building security, and an independent infrastructure — all located in a hardened purpose-built facility. They want a multi-level security protocol that starts with a secured site entrance and continues throughout the building with increasing security stop-gaps, all the way to the cage level.

Today, traditional enterprise users prefer a handful of specific fiber providers, are led by their corporate WAN provider — which can be delivered by the carriers utilizing a minimal footprint inside the data center. We are starting to see a trend of these users increasing

their bandwidth and expanding to other solutions, such as dark fiber and interconnection, to control costs.

The enterprise user's footprint is typically less dense, deploying less power throughout their data center, resulting in a lower kilowatts-per-cabinet ratio (typically ~ 4kW). They also often require diversity in their utility power feeds, either from two separate transformers within the same substation, or preferably two separate substations with diverse transmission feeds.

Enterprise customers typically have a moderate line of sight into their long-term deployment strategy, as their needs are tied to specific business requirements. Enterprise users generally scale into these deployments at a slower rate than cloud providers. The solution is to deploy a product that is scalable over a long period of time, in order to meet the challenges of today and tomorrow.

The hyperscale cloud provider:

Unprecedented growth and scalability needs are outpacing what typical cloud providers can produce in their existing data centers. **Hyperscale data center requirements of cloud providers** are an output of the volume at which their businesses are exploding.



Hyperscale cloud customers are usually more risk-tolerant, as they have built-in redundancy through their multi-data center locations. Proximity to abundant power is critical for them, and it often drives site selection. They are also more open to new technologies and leading-edge design options, both for speed to market and to lower initial capital and future operating costs. For instance, many utilize containerized, or modular, designs for their electrical and mechanical systems versus the conventional stick-built design. In contrast, the enterprise user may associate the containerized approach with unacceptable risk exposure.

Hyperscale cloud users may have little to no need for multiple network service providers in their building, as they are tying back to interconnection stations through their own fiber, or dark fiber from a few service providers back to key carrier hotels. If a cloud service provider, however, is taking lit services into the building, their demand for space and power for the network service provider could be very large — beyond what even the enterprise user may require.

Cloud providers require larger scale deployments and specific timelines, fast-tracked to meet immediate business expansion needs. Cloud users typically deploy their required power capacity immediately in a much denser environment than the enterprise users (typically ~ 10kW per cabinet), but like enterprise users, they want scalability options. The challenges in building hyperscale cloud centers are speed and scale done right — all to support flexibility of an ever-changing IT roadmap.

It's clear how the two examples discussed here present different design and build challenges, but meeting such variable challenges simply requires a singular focus — the customer's specific business needs.



Having a proven stable of known deliverables maintains agility, as well as the confidence of data center customers.

To resolve the challenges discussed here, we at Stream stay positioned to launch new developments by offering fully-vetted products including Hyperscale Cloud Centers, Ready-to-Fit™ Powered Shells, Private Data Cente™ suites and Build-to-Suit Data Centers. The latter option combines our proven design approach with customer-centric solutions to deliver a hybrid product that resolves all needs - and future-proofs the company's IT strategy. Our methodology makes it easy to deliver the right data center product tailored to meet all requirements. This means adhering to a consultative design process, listening to the user/customer, and staying true to solving their design and construction problems.

It's important to have great relationships with a select group of best-in-class equipment vendors that enable access to worry-free deliverability. We are loyal to those relationships, and we design around readily available equipment and materials, with a dedicated supply chain resources that meet the specified design intent, and remain readily available to maintain speed to market.

We know from experience, building credibility and trust between developers and customers is required when deploying mission-critical facilities. That's how we do business at Stream Data Centers, and believe the best way to proceed in the design and construction process is to first listen, and constantly adjust to the customer and market needs.





CHRIS KINCAID

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Chris Kincaid oversees the design and construction of Stream Data Centers' product portfolio of Hyperscale Cloud Centers, Private Data Center™ facilities, and Ready-to-Fit™ powered shells. Chris has more than 20 years' experience in project management services, with 14 of those years being focused on mission-critical data center construction and commissioning. To date, he has expertly managed a respected and experienced supply chain, with data center projects in excess of 200 megawatts. Chris is a graduate of Embry Riddle University with a bachelor's degree in Technical Management. His education includes a Bachelor of Science – Technical Management from Embry Riddle University, and a Certified Project Management Professional (PMP) designation. Chris is a member of the Project Management Institute and the 7x24 Exchange.

ABOUT STREAM DATA CENTERS

Stream Data Centers has been providing premium data center solutions and optimized value to Fortune 500 companies since 1999. To date, Stream has acquired and developed more than two million square feet of data center space nationally representing more than 200 megawatts of power.

Stream is dedicated to improving the data center experience through exceptional people and service, developing and operating highly resilient, scalable and efficient data centers. Stream's product offerings include fully-commissioned Hyperscale Data Centers, Private Data Center™ Suites, Ready-to-Fit™ Powered Shells, Build-to-Suit Infrastructure and Retail Colocation Environments—all with immediate connection to network carriers and public cloud providers. See what's new at www.streamdatacenters.com.

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