The value of collaboration in data center construction

The processes for designing and building data centers are themselves undergoing a redesign, as traditional methods give way to speedier, more cost-efficient approaches. Traditionally, the data center owner has sought bids from architecture/engineering firms and has hired an engineer to work with him on designing the facility. Together they decide on its location, size, capacity, power and—for colocation sites—the varying requirements of tenants.

With the technical and architectural design prepared, the engineer begins the process of hiring a contractor. He may bid the project to five or 10 general contractors, who then bid pieces of the project out to subcontractors, including equipment manufacturers, electricians, plumbers, carpenters and others.

However, without purposeful collaboration, this team composed of owner, engineer, contractor and subcontractors can offer no upfront assurance of a successful project. Because the project relies on many different supply chains, the parties involved may have different approaches to IT and building systems that cause conflict, and the team members may have dramatically different levels of experience in the type of data center the owner really wants. The result of a “silo” approach to construction may be a slow, difficult and costly project that fails to live up to the promise that was suggested by the past successes of the individual suppliers involved.

The design/build model

Today’s data center owners cannot afford faulty integration of systems, delays caused by supply chain issues or disputes within construction teams. The pace of the era of big data demands that data centers be assembled faster than ever, with more capability, reliability and availability. To meet this need for speed, many owners are moving to a design/build game plan that emphasizes collaboration among all the parties involved. In this situation a general contractor may propose a design that has been stamped by an electrical engineer. The whole bidding process for contractors and engineers is eliminated.

A much greater onus falls on the general contractor in this instance, because he serves as the project originator and leader. It is his plan and his team's design, so he must be carefully attuned to the desires of the company for which he is building the facility and even more aware of the capabilities and special knowledge among his suppliers.

The collaborative approach

While the various methods of building data centers may reflect different techniques and timelines, all of them depend in one way or another on a highly skilled, highly available chain of suppliers. Within each type of project are points where key suppliers can make exceptional contributions to schedule, cost efficiency, data center performance and—most important—ensuring that everything is compatible and meets all specifications.

The most effective approach, therefore, often is for owners and contractors to go beyond merely seeking bids from suppliers and to participate in a true collaborative partnership with them. ABB Global Head of Data Center Technology Dave Sterlace says the best collaborative efforts show these characteristics:

- The team knows the owner's industry and company well, the result of many years of experience in building industrial and high-tech facilities for major corporations and demonstrating agility, speed and knowhow.
- The suppliers also know each other well, and understand how to work with one another, their project management methods, schedules, tools and special talents.
- The suppliers have the ability to collaborate across the globe with their own colleagues, with other suppliers and with the industries for which they build data centers. "The best suppliers have people positioned strategically all across the globe so that they can manufacture and service products locally in scores of countries, products that give the contractor confidence in their consistently high quality and performance," Sterlace advises. "The availability of local service, near the data center site, can be critical to maintaining uptime when resources are tight and demand is high."
- Each supplier should be adept at collaborating among its own various business units and those of its customers so that the data center owner can be certain that all the installed equipment is compatible and that monitoring and control are performed with an integrated system. "Sometimes the most difficult part of a build is working with a range of vendors who have proprietary products that may need to be modified to create the best overall infrastructure," Sterlace says. "Collaboration helps ensure that all aspects of the data center installation and operation run efficiently."
- Every supplier should offer a single team member who brings to bear all the capabilities of the supplier. This individual serves as the point person for the collaborative effort, the go-to person for anything the customer may need. This manager can find what the customer wants within the supplier company and expedite its inclusion in the project.

One of the most effective ways of using this collaborative approach is in the development of substations for data centers. Suppliers who are experienced both with a customer's needs and with local utilities around the world can capitalize on their relationships with those utilities to make everything go more smoothly.

The supplier team should provide a single, integrated design for the data center's power system and present it to the utility, laying the groundwork up front. The suppliers should know what both the customer and the utility need and, conversely, what each doesn't like. By collaborating with the utility in an ongoing fashion, the team is ready with the best plans even before it receives a customer request for a substation.

Finally, Sterlace notes, "The supplier should understand emerging technology and incorporate it to furnish a more strategic view of the project, focusing on valuable approaches that may not have been done yet. A lot can happen when suppliers collaborate on many levels."

When contractors and owners collaborate with suppliers who offer broad capabilities, consistent quality, local manufacturing and global expertise, they gain a competitive advantage that leads to higher quality and improved cost-efficiency in their data center projects.

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