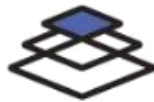


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## Tier1Research

### Colt unveils modular datacenter - all-inclusive and no containers to be seen

Datcenters and Colocation

by Jason Schafer

July 9, 2010

Modular, pre-fabricated datacenters are a hot topic lately, with different products popping up every week or two, it seems. Lately, there have been two notable manufacturers that have taken things a bit further than the traditional server companies – namely **GreenEdge Data** and **BladeRoom Group** (based in Australia and the United Kingdom, respectively). These have been closer to what we perceive as the true modular datacenter, but have lacked in certain respects (whether it be the look/feel or the inclusion of proprietary equipment). One of the challenges for modular datacenter adoption is to ensure that the end product is not viewed as too new and therefore unproven. Proprietary equipment, extremely unconventional design or simply taking too much of a leap in terms of feel all hinder acceptance.

Colt, however, recently disclosed its modular datacenter product (devoid of ISO containers) that T1R found very impressive – and having historically been mainly a managed services and network/communications provider, it's actually a bit unexpected coming from them. We expected to see this kind of innovation come from traditional equipment manufacturers (UPSs, switchgear, cooling equipment providers, etc.) or design/build/engineering companies that normally do the actual datacenter construction for these types of providers.

Colt's modular datacenter is available at an existing Colt site for customers or if they prefer, the modular datacenter can be delivered and constructed at a site of the customer's choosing, although Colt indicated that plans are to make its modular datacenter available in Europe only. Colt also revealed that one year of maintenance and operation would be included (which is probably part of the reason the plan is to only have it available in Europe), during which time the Colt staff would train on-site staff to continue operations past the one-year point should the customer desire. We think included maintenance and operation will be a competitive differentiator for other such modular datacenter products that we'll likely see over the next few years.

#### The specs

Colt mentioned that the modular datacenter comes in 500-square-meter increments with 2N design on all aspects except cooling, which is configured to N+2. The data halls are configured with a power density of 1,500 watts per square meter (equivalent to roughly 140 watts per square foot or around 4.5kW/rack). The cooling leverages direct and indirect free-cooling as well as having the capability to run completely independent of outside air. Through testing and in the environments in which Colt has a presence or preliminary installation, with the use of outside air it yields an average yearly PUE (at full design load) of 1.21 (and interestingly, with complete DX cooling, 1.4).

Proprietary equipment has been a common element in the modular (and server manufacturer containers) datacenters seen to date. While we are unable to disclose the manufacturers found within Colt's design, the point that we feel is important is that Colt uses proven, already-existing back-end infrastructure in all elements but the cooling system. The cooling units are proprietary to Colt, but have a 10-year operational history and are therefore far from unproven. While the design does include equipment from various manufacturers, Colt did reveal that it is not tied to any particular manufacturer for any piece and the design actually allows for flexibility and choice, should there be a customer preference.

#### Time

One of the benefits of datacenter modularity is speed to market. This is good from a capital perspective, allowing for smaller phases and generally higher utilization of each phase before the next one is brought online. There is also an advantage in the way of labor time, not to mention realizing service/production revenue earlier. Colt indicated that the modular datacenter could be delivered, constructed, commissioned and ready to go in roughly four months.

#### Cost

So we've got design methodology covered, speed to market covered – how about price? How much is all of this going to run? Unfortunately, Colt declined at this time to disclose pricing information beyond the fact that it is likely to be priced on a per-kW basis. This is comforting to us, as we dream of the day the square foot/square meter price is no longer common. The cost for traditional datacenter construction tends to run approximately \$5,000 - \$7,500 per critical kW (\$1,000 to \$1,200 per square foot) depending on many variables in the design and construction process. We think, to be competitive, Colt shouldn't be much higher than the top end of that range if it's higher at all.

#### T1R take

Hats off to Colt for its modular datacenter. So far we haven't seen anyone get anywhere close to a truly, all-inclusive, modular datacenter design that solves most (if not all) of the challenges associated with datacenter construction through the supply chain and pre-fabrication.

T1R also thinks the power density of this modular datacenter is basically in the sweet spot, especially for the multi-tenant datacenter folks. In most cases, 10-15kW per rack (or higher) that are generally seen from server manufacturers' datacenter 'containers' (that are trying to sell IT equipment) are beyond the needs for the average (or even above average) users. These higher densities are generally used as justification for higher overall prices; and while we do prefer a per-kW approach, there is still a ceiling of usability around the 8-10kW per rack range.

Speed, flexibility, and scalability seem to be addressed with Colt's modular datacenter. The unknown at this point is price; and while there are many factors associated with datacenter build costs, T1R thinks Colt should be at or below the high end of traditional construction costs. Capex is still a sticking point for many construction projects and the easier to swallow that Colt makes the price, the better.

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