

VIRTUS Data Centres builds high density into its London colocation mix

Analyst: Penny Jones Andy Lawrence

8 Jul, 2015

For a number of years, the multi-tenant datacenter (MTDC) industry has been predicting increased demand for high-density colocation space that can sit alongside more traditional low-density offerings. The industry has typically expected density to influence new datacenter-design blueprints, with characteristics from the removal of the raised floor to incorporation of modular PODs allowing cooling requirements to be contained. Many also believe advances in the design blueprint may already allow for mixed-density deployments, due to innovations in cooling and enhanced efficiency strategies, especially in design and construction flexibility.

London MTDC provider VIRTUS Data Centres says it has carried out tests with hardware vendors, looking at the capability of modern hardware designs and how well its Hayes LONDON2 datacenter can economically offer mixed-density deployments in its data halls. We have covered VIRTUS numerous times in the last year. The wholesale and retail colocation provider has an expanding portfolio that incorporates innovative models for service delivery and datacenter operations.

As a result of recent tests that include customer engagements, VIRTUS says it is now looking to promote high- and ultra-high-density rack use alongside traditional loads at LONDON2. VIRTUS currently provides an average of 4kW per rack, and has some customers already taking up to 25kW at LONDON2. It says it can prove that an 80kW deployment can be reduced to two or three racks using the latest hardware platforms. This is being transferred into a new high-density offering based on the standard design of its LONDON2 datacenter, which is already being used by one customer that has taken 75kW in a rack.

The 451 Take

Some VIRTUS customers already see the benefit of high-density datacenter deployments, but VIRTUS admits there are disadvantages to being an early adopter in the more traditional colocation market. VIRTUS plays largely in the wholesale space, but is moving toward a retail colocation mix, and will have to spend time educating its customer base and the wider market on the advantages of cramming more into a rack. This will involve explaining that high density can be done without costly in-row cooling. VIRTUS says it is already weaving high density into its capacity planning and its sales approach. This will help ensure that profit margins and efficiency requirements are met. If done well, VIRTUS could benefit from being a first mover with a new, innovative approach to colocation that could lead to lower-priced services, especially for those companies with fluctuating – or constantly high – density demands.

Context

VIRTUS started operating in London out of a 30,000-square-foot datacenter in the London Borough of Enfield. It opened its second 65,000-square-foot (net technical) facility in Hayes, about 39 miles away, last year. It has become known in the London market for coupling custom-designed datacenter infrastructure management (DCIM) technology with flexible pricing contracts, as part of its CoLo-on-Demand offering. This offers colocation leases by the rack on a daily basis, with customers paying for the rack and whatever power is used, and a contract cancellation of one day. Flexible densities already exist for this, of 2.5kW to 10kW per rack.

VIRTUS also offers Connectivity-on-Demand, with interconnection bandwidth that can be scaled up or down on a monthly basis and an IP transit service where the customer pays only for bandwidth consumed. A new design blueprint was incorporated for VIRTUS' Hayes facility, incorporating UK cooling provider ExCool's modular free cooling units.

Both DCIM and free cooling have helped VIRTUS promote itself in a busy market. VIRTUS is currently experiencing strong levels of supply, with about 96,875 square feet of operational supply, of which about 40% is utilized. It currently holds about 4% of the UK wholesale-datacenter market, but is offering space in smaller increments with retail colocation deals. It recently announced Phase 2 of its Hayes build, six months early. It already has three halls live at LONDON2, with one hall going to a single customer.

VIRTUS says it is looking to invest in a number of innovations in the future, beyond its high-density play. This will include connectivity between its datacenters, which in future could incorporate software-defined networking or network-functions virtualization technology. It is not the only provider looking to ease bottlenecks with connectivity as the lines between retail colocation and wholesale space and power contracts blur.

VIRTUS recently partnered with Singapore-based global investor ST Telemedia, which committed a 49% stake in the company through a joint venture that will fund further expansion in the UK. ST Telemedia was the largest shareholder in Equinix in its earlier days. Level 3 is also part of the ST Telemedia portfolio. ST Telemedia will join Brockton Capital, one of VIRTUS' early supporters, which will continue its financial relationship to further help VIRTUS grow its proposition for the London market.

Designing for density

The use of ExCool's indirect free-air economizers allows VIRTUS to flood its datacenter halls with cool air. The modules supply air through a wall instead of the raised floor. This provides greater flexibility from a thermos-flow perspective, and it's what allows VIRTUS to achieve higher densities without sacrificing valuable space.

VIRTUS originally designed the Hayes facility to deliver an average of 2kW per square meter with the ability to

cool 40kW per rack. Customer use cases for VDI and processor-intensive content rendering, coupled with the latest developments in converged infrastructure (coupling servers and networking), have proven that greater densities at the rack level are required and can easily be achieved. Early discussions with IT hardware vendors allowed VIRTUS to identify needed mechanical and electrical configurations. It subsequently determined that its current cooling and space requirements could support much higher densities inside the LONDON2 datacenter, without much change to the original blueprint.

VIRTUS carried out tests on the viability of these high-density deployments with a number of hardware vendors, choosing Lenovo as the first technology partner to help educate customers on how high density can be achieved. While VIRTUS says it will not act as a reseller for Lenovo (or other vendors), it will use these partners as enablers for high-density deployments.

The benefits of high-density design go beyond the real-estate equation. Savings can be realized by reducing the equipment required at the rack level, including power and network cabling, as well as incorporating bare-metal servers designed for net-scale use. When looking at the example of a VDI use case, each high-density chassis could have 2,000 users, with six chassis fitting into a normal 42U rack. This means about 12,000 users could be accommodated in a high-density rack.

The studies VIRTUS carried out with technology vendors show that high-density deployments could offer about 36% in capex savings. The popular belief is that high-density savings at the rack are often erased by the higher opex that comes with requirements for additional cooling capacity. The ExCool process of flooding the room, however, means VIRTUS can continue to share the economic benefits with the customer, providing opex savings of about 30% for 40kW racks, and removing the need to install more costly in-row cooling units.

This is an interesting equation in a busy colocation market such as London. Most providers run out of space before they run out of power. High density could allow VIRTUS to squeeze additional capacity from its LONDON2 estate. But VIRTUS admits it will need to provide a careful balance of higher and lower kilowatt racks in each hall to ensure the space-to-power ratio works for maximum efficiency. High density, for example, could be perfect for a hall where only two rack positions remain, but a fair amount of the power allocated has yet to be consumed.

Use cases and confusion

High-density racks will most likely appeal to cloud-service-provider offerings around VDI, customers carrying out workload processing for digital media, big-data research and core telecommunications network products, as well as those needing to burst into more dense environments to run peak workloads. Vendors such as Lenovo have been looking into these use cases, and finding that in some situations, a financing model for IT hardware could allow end users to upgrade to the newest iterations of hardware as they become available. Today, however, few end users understand these new business models for IT delivery, let alone VIRTUS' changing colocation model.

VIRTUS says it understands part of its challenge will be educating the enterprise market. It says there is a widespread difference of opinion over what constitutes high-density computing and ultra-high density today. Few in the industry are putting high density at 10kW per rack, and fewer realize ultra-high density could provide more than 20kW per rack. The company is now working on proof of concepts that it hopes will challenge traditional ideas, as well as new colocation models designed to entice the right users to these more condensed workload environments.

Competition

As previously mentioned, the colocation industry has been looking into expanded options around density for quite some time. One MTDC provider offering a similar approach is IO, which just recently opened its first datacenter in the London market - not far from VIRTUS in Hayes. IO, however, looks at density with a contained approach, using its IO Anywhere modules and IO OS DCIM software that it says can act as the 'heart' of any datacenter operation.

Infinity Datacenters, also based nearby in Slough in West London, is planning to offer high-density racks at its newest datacenter. Using innovative cooling technologies (to be discussed in a forthcoming report), Infinity believes it can offer densities of 100KW a rack, and if necessary beyond that. Infinity will likely look to host HPC

applications that have very high compute and low-latency data-access needs.

You can read more about London's rapidly evolving datacenter market in our recent report on the London Multi-Tenant Datacenter and Hosting Market.

SWOT Analysis

Strengths

VIRTUS believes it has managed to get the costs down on high- and ultra-high-density colocation space to a rate that will appeal to a number of use cases.

Opportunities

With the right market education, VIRTUS has an opportunity to be seen alongside other providers, including Infinity SDC, as being an early mover in the high-density colocation market.

Weaknesses

The question is how fast the industry will come to trust the company's new high-density messaging.

Threats

Other providers are also incorporating free-cooling technology into design blueprints, and will be watching to see how fast the industry moves to new high-density contracts.

Reproduced by permission of The 451 Group; © 2015. This report was originally published within 451 Research's Market Insight Service. For additional information on 451 Research or to apply for trial access, go to: www.451research.com