



Resurgence of Captive Datacenters: A Contrarian View

The upward trend of virtualization and higher power densities with improved thermal efficient datacenter architectures and technologies will further reduce costs of owning a captive datacenter

Conventional wisdom says that cloud and economies of scale will drive away the smaller to mid-sized captive datacenters. While without doubt, the trend of building and operating extremely large multi-tenant datacenters (MTDCs) will continue, there are solid indicators to show that the mid-sized captive datacenter is not likely to vanish any time soon. In fact, they would flourish, co-exist, and collaborate with the MTDCs, much like a supply chain of large and smaller players in a distribution chain.

First, some definitions are in order. We are referring here to smaller and mid-sized captive datacenters in the Indian context, which typically would be less than 2,000 sq ft of

white space having up to 50 racks and 1,000 servers. With that, let us examine the arguments behind the migration from captive to a MTDC.

Running a datacenter is not a core competency of the enterprise.

Upgrading a legacy or building a new datacenter is time consuming and expensive. A tier-3 compliant datacenter costs ₹40,000 per sq ft to build. Rather than incur a capital expenditure of ₹8 crore for a 2,000 sq ft datacenter that would take six months to build, management may prefer an opex model of ₹6 lakhs per annum per rack at a MTDC.

Beyond the build cost, there will be capital costs to procure critical infrastructure like power back up units,

HVAC, transformers, switchgears, fire control systems as well as operating costs like power, maintenance and personnel to maintain them. The rental payments to a MTDC include all that, plus the comfort of a Services Level Agreement (SLA) that assures 99% uptime.

The kind of investments that a MTDC makes to provide robustness, resiliency and redundancies with full Disaster Recovery (DR) capabilities is difficult for an enterprise to make for in-house datacenters without incurring huge capital costs.

These are compelling arguments for migrating to a MTDC, particularly if the operations fall within our definitions of datacenter size. However, let's look at trends that offer a contrarian view.

A FEW TRENDS

Some verticals like banking and healthcare have increasing concerns about data privacy and security. While they wish to stick to core competency thesis, they continue to maintain in-house datacenters, operated and maintained by a managed services provider.

Tier-3 compliant redundancies and fail-safe operations are required for only a minor set of applications in most verticals. Many enterprises are adopting a hybrid model where mission critical applications are hosted out of MTDCs, and non-mission critical applications and test and development environments are maintained out of captive datacenters.

Higher computing capacities, lower footprint size of blade servers and highly virtualized infrastructures combined with increasing power densities of racks require lower area size of datacenters. Hence, the 2,000 sq ft built-up area can now be done with half the size for same compute capacity, thereby changing the cost equations. The upward trend of virtualization and higher power densities with improved thermal efficient datacenter architectures and technologies will further reduce costs of owning a captive datacenter.

For the environment-conscious side of argument that renewable and non-conventional energy options can be economically viable only for mega datacenters requiring 7MW+ power requirements, we can expect policy changes that would encourage emergence of micro-grids built with solar, wind and natural gas that can support multiple

datacenters within a special zone created for datacenters. With ubiquitous and high quality Internet connectivity, there is little need for captive datacenters to be set up at HQ operations of the enterprise. Special datacenter zones can be created in suburban areas where rentals will be lower and micro-grids with renewable and non-conventional energy options can be set up. This would go a long way towards greener datacenters.

DATACENTERS IN INDIA

I would like to bring to attention an important area of skill development that would help to support the cause of moving datacenters beyond metropolitan areas, provide economic and employment boost in the country, besides making India an attractive option for global players to have

datacenters in India. Datacenter has emerged as a new industry, growing worldwide at nearly 4% pa and is now over \$150 bn industry. Unfortunately, India has not been able to capitalize on this opportunity. The APAC regions enjoying this growth are China, Singapore, Korea and Australia. The main reasons are poor infrastructure, including power and inadequately trained non-IT staff who are required to maintain the health of datacenters.

While there is a lot of focus on IT skills in India, datacenters need a lot of electricians and other non-IT personnel. Through the aegis of NSDC, Department of IT

should evolve a structured training program at it is and Polytechnics. This would provide the required impetus for datacenter growth in India as well as employability of trained electricians and other non-IT staff, besides bringing hi-tech and economic development outside the traditional IT zones of the country.

Special economic zones for datacenters supporting extreme energy efficient and sustainable datacenter operations with high skilled manpower operating at low rental costs would enable cascading benefits for the country as well as easier collaborations between captive and MTDCs. IT and ITES industry is a core competence that India has built. With a contrarian approach, we can build the datacenter industry – both captives and MTDCs— and establish a strong presence in the region.



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