

Major Drivers for Micro Data Centers

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A micro data center is a self-sufficient computing platform that can enable all critical functions of a data center like the storage, data processing, and networking required to run the customer's applications.

It is a modular and mostly self sufficient single rack solution. All required IT functionalities are contained in the micro data center, designed to handle your specific requirements at distributed locations either as a self sufficient unit or multiple units managed from a larger data center.

It is a plug&play solution featuring all the major requirements like cooling, remote monitoring, power back-up, fire suppression and access security found in a large scale data centers.

Micro data centers are mostly located in the telecommunications room or telecommunications closet which is defined as the gateway that acts as the common access point between backbone and horizontal distribution pathways.



Major driving factors of micro datacenters

Shift from Cloud to the Edge

Edge computing describes a computing topology in which information processing and content collection and delivery are placed closer to the sources of this information. Connectivity and latency challenges, bandwidth constraints and greater functionality embedded at the edge favours distributed models. Enterprises should begin using edge design patterns in their infrastructure architectures particularly for those with significant IoT elements. Edge computing is a computing topology that places content, computing and processing closer to the user/things or “edge” of the networking.

Rise of Internet of things (IoT)

It is expected that 8.4 billion connected things will be in use worldwide in 2018. That’s up 31 percent from the year before, according to Gartner Research. The internet of things boom is making edge computing an even more vital part of your business. Thus there will be a lot more applications that require computing closer to the source of data creation. This increase of information sharing and gathering, latency requirements and ever growing bandwidth demands are the main reasons that your customers will want to run IoT applications on the local edge instead of in the cloud.

Rise of data traffic

The backhauling costs associated with that consumer demand, combined with data for enterprise wireless devices like Internet of Things (IoT) sensors, is getting higher every month. Therefore those requirements would grow significantly in coming years with the data demands of:

- Upcoming Industry 4 revolution and fully automated manufacturing environments
- Virtual/augmented reality applications that consumers will use on their phones.
- Billions of IoT devices as more companies start to make large-scale deployments and rise of IoT devices in home environment
- The sheer number of mobile devices now connected to the internet, machine to machine communication (M2M) which require data-heavy streaming video.
- Self-driving cars that will rely on wireless networks.

As consumers and enterprise customers want to access more and more of that on LTE mobile devices, it costs more and more for operators and ISP’s to deliver that from the centralized data center infrastructure that exists today.

The latency expected in centralized data center infrastructure will be the major problem for end-user dissatisfaction. Latency is unavoidable when a data packet needs to travel thousands of miles through a long line of switches and gateways each adding milliseconds of delay that add up to a frustrating experience for consumers and poor performance for enterprise devices that rely on low-latency connectivity.

Thus we should move the content closer to end users in ways that reduce backhauling costs, reduce latency, increase end-user satisfaction. Thus deploying micro DC systems closer to end users will be the right choice for operators and ISP’s

Advantages of Micro DC solutions

- A micro data center minimizes the physical footprint and energy consumption compared to traditional systems
- It is the most suitable medium for edge computing and other connected devices to collect and analyze IoT data locally, alleviating the dependence on cloud or internet connectivity in specific situations where information needs to be processed quickly, reliably and securely.
- Plug& Play solution which eliminates the needs for system integration and installation support
- Single source of supply of all required features like cooling, monitoring, power back-up, fire suppression and security. Therefore you don't need to deal with multiple vendors.
- Edge computing demands more sophisticated monitoring solutions at the rack and PDU level; because edge compute sites are not adjacent to the core data center facility. Lack of proximity means that there is an increased reliance on the ability to monitor power and cooling conditions remotely, as well as the ability to control and reboot single outlets of IP-PDU's. Micro DC systems provide the right solution for these demanding requirements.
- Increase speed of deployment as a combined self-sufficient solution (plug&play)
- Less Latency: Micro data centers reduce latency between centralized data centers (e.g. cloud) and customer applications side
- Less CAPEX and OPEX Costs: Eliminates unnecessary installation costs and provides significant energy savings since we make cooling on the rack level not room level (Green IT)
- As a back-up unit for disaster recovery

Micro Data Center Verticals

- **SME's:** Small and Medium Size Enterprises
- **BFSI:** Branch offices of financial institutions (Banks, Insurance companies)
- **Logistics:** Warehouses and branch offices of logistics companies
- **Utility & Government:** Branch offices of government institutions and utilities (Police, Army, Schools, Electricity, Water companies etc)
- **Retail Sector:** Supermarkets & IT retail shops & Fast food and Fashion retail chains
- **Oil&Gas:** Gas stations
- **Hospitality:** Hotels & hostels
- **Education:** Schools, Universities
- **Telecom & ISP's:** Exchange offices & Hubs of Telco's, ISP's and GSM companies for EDGE computing
- **Manufacturing Industry:** Manufacturing companies for automation control and IT services-Industry 4
- **Mining Industry:** Remote locations where there is no dedicated IT personnel available
- **Healthcare:** Hospitals and clinics
- **Server & Storage manufacturers:** OEM compact solution for server and storage devices
- Disaster recovery