Gaining a Competitive Edge

How to make your colocation data center more competitive through standardization and modularization.

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Market overview

The data center industry is experiencing unprecedented growth. There are currently 2.5 quintillion bytes of data created each day. With the Internet of Things (IoT), this growth is accelerating so rapidly that, by the year 2020, IoT will comprise more than 30 billion connected devices[1].

But the market has not by any means reached its full capacity.

The global rollout of 5G will put the growth of digital data into overdrive with firms such as Cisco predicting that we will soon enter the "mobile zettabyte era".

This demand for data will require ever greater energy-management and operational efficiencies for data centers of the future.

As a result, we predict the growth of colocation and multi-tenant data centers as more and more enterprises increase their need for SaaS (Software as a Service) and IaaS (Information as a Service) applications and infrastructure services.

Several large-scale enterprises are choosing colocation to reduce maintenance and operational hardware cost, while others choose colocation for regulatory compliance and security in times of power outages and disaster recovery.

By 2022, the colocation market is expected to reach USD 62.30 billion, with demand for power and reduced overall IT expenditure being the major drivers of growth in the market.[2]

North America, Europe and Asia continue to be the strongest players in the retail and wholesale colocation segment. But emerging markets such as India are now offering viable and alternative locations for providers as space, rising costs and reliable power are at a premium in developed markets.

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So, how can today's colocation companies remain competitive? How can we ensure the integrity of our data center network as contractors are pushed to complete projects in record time? How can colocation data centers be built efficiently and safely while meeting enterprise demand?

We are all depending more and more on data, computing power and connectivity.

Data centers are at the heart of our connected world and it has never been more important that they are built and run efficiently to maximize value for customers.

We hope you enjoy this whitepaper and welcome your insight and comments.

Ciaran Flanagan,
Global Segment Leader Data Centers, ABB.

(1) Internet of Things (IoT) Data Continues to Explode Exponentially. Who Is Using That Data and How?" Cisco Blogs, Cisco, 5 Feb. 2018, https://blogs.cisco.com/datacenter/internet-of-things-iot-data-continues-to-explode-exponentially-who-is-using-that-data-and-how

(2) "Data Center Construction Market Due to Grow with a CAGR of Almost 9% During the Forecast Period, 2019–2023 – ResearchAndMarkets.com." Business Wire, Research and Markets, 10 Oct. 2019, Stack, Tim, and Ian Griffin. https://www.businesswire.com/news/home/20191010005553/en/Data-Center-Construction-Market-Due-Grow-CAGR

(3) "Data Center Colocation Market." Market Research Firm, MarketsAndMarkets, 11 Aug. 2019, https://www.marketsandmarkets.com/Market-Reports/colocation-market-1252.html?gclid=CjwKCAjw9L_tBRBXEiwAOWVVCaN1kpU-0vKt0TQrLH8SfrE8DOmD34qGZPn3TwEuhp6lm2v4GeuQecxoC0vEQAvD_BwE

“In a world which demands faster, leaner and fitter data center operations, the demand for colocation offers multiple advantages.”

RHONDA ASCIERTO,
VP OF RESEARCH,
UPTIME INSTITUTE

$38.8 billion

global spend on colocation services by 2023 (IHS Markit)

$120 billion

The BIG 4 (Apple, Amazon, Microsoft and Facebook) to invest $120 billion on building new and expanding centers (cisco.com)[2]

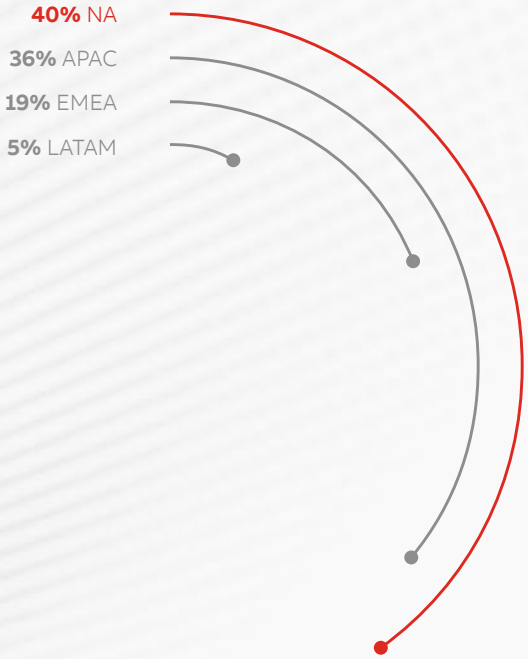
2%

Colocation firms AKA Multi-Tenant Datacenters (MTDCs) achieved 5% growth in 2018 (451 Group)

9%

Data Center construction market to grow with a CAGR of almost 9% during the forecast period, 2019–2023 (ResearchAndMarkets.com)[3]

2018 Global MTDC Revenue Percentages by Region.
Source: 451 Research’s Datacenter KnowledgeBase, 2018



Exploring the Key Trends

In this whitepaper we explore key trends which focus on enabling simpler and faster colocation data center deployments and expansions to future proof and maintain quality deployments such as:

- **Modularization** – speed-up time to market for colocation providers to increase scalability and flexibility, while providing a cost-efficient build alternative
- **Utilization** of assets to lower CapEx resulting in a more competitive design
- **Digitalization** – as complexity grows simplicity and versatility are key drivers in managing the data center environment and driving efficiencies through greater automation
- **Sizing of systems** – with holistic design and building systems off site you can minimize upfront CAPEX and improve onsite resource management, while still having the elasticity and flexibility to scale-up when the time comes

A New Design Standard

Colocators need to build and scale data centers efficiently. Quicker and leaner lead times from enterprise contracts mean that even if a colocation data center wants to expand their current operations by 50/80 MW load capacity, they need to guarantee that the facility will be ready on time and within budget.

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Christopher McLean from M.C. Dean, PE, which designs, builds, operates and maintains cyber-physical solutions for mission-critical environments, said: “With constrained labor markets and increasing pressure to protect the bottom line, colocators looking to reduce time to market need to consider modularization and work with contractors at the onboarding stage to ensure that key objectives are met to mitigate medium and long term risks.”

It is essential that today’s colocation data centers and hyperscalers design with elasticity in mind, from concept and design phase, through to installation, control and management.

Complete electrification portfolios, such as that offered by ABB, can design for scalability and standardization. Turnkey solutions enable colocation data center companies to:

- Improve power utilization and reduce CO_2 footprint
- Design the system for scalability, so it grows when its needed to
- Reduce engineering and delivery times with standardized designs
- Optimize layouts through modular design and leverage skidding and eHouse technologies to reduce footprint and cost.

The Need for Speed

Switched on data center owners are now looking to achieve build cycles of between six to nine months for new state of the art data centers, compared to traditional cycles of 12 to 18 months. As such, modular and scalable builds help owners to achieve time to market more efficiently.

Rhonda Ascierto, VP of Research from the Uptime Institute reports how the demand for modularization is being seen globally, as colocation companies need to construct and expand their operations quickly and more leanly:

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"In developing markets such as Asia we have seen modularization increase as operators need to build more cost effectively and reduce install and commissioning time. The shortage, and in some cases absence, of technical experts to build in these territories is also driving the need for colocation data centers that deliver reliability and meet industry standards. In developed markets, demand for modular builds are and will be different. It is anticipated that this could grow with our ageing workforce and reduced skills base, along with land and space scalability being a challenge."

With complicated data center projects that have short delivery timeframes, a pre-engineered product package or prefabricated skid solution, built in an offsite facility can present a viable alternative.

Here are the key strategies which colocators need to consider to ramp-up deployment speed and get the site operating efficiently:

Modular solutions

Modular system solutions, which feature prefabricated eHouses and skid-mounted unit substations which include switchgear, transformers, ancillaries and other electrification components in one, offer flexibility, a higher level of safety and integration of intelligent technology, and importantly greater reliability.

Through scalable, modular solutions and a standardized power infrastructure, which are often designed and built in a controlled offsite facility, colocation developers can optimize the grid connection and electrification of the site phase.

Because the pre-assembly and pre-testing happen offsite and often takes place in parallel to other works, this model decreases project cycle-times, reduces the need for onsite work and limits risk for quality issues on site.

Building blocks for success

Colocation companies looking to generate return on investment quickly, should also consider pre-engineered building block solution architecture.

These building block systems leverage the benefits of modular solutions together with proven pre-engineered designs to reduce project cycle times, meeting the need for speed and reliability of today's colocation market.

This is a shift from a traditional "system plus system" approach to an optimized design which provides better economic value through higher utilization of assets while maintaining the required system reliability. The designs have been proven and developed from complex custom solution architectures previously delivered and deployed. ABB recently deployed one in Mooresville, NC for GIGA Data Centers.

These pre-engineered building blocks can be assembled in a multitude of ways creating a proven and safe pre-engineered solution for colocation customers. The proven design reduces engineering time by up to 80%, and standard designs deliver manufacturing efficiencies which reduce testing and manufacturing time as well as late delivery risk.

Pre-engineered solutions are building blocks for success because colocation companies can build facilities quicker and get their return on investment even faster.

Manage skills and labour

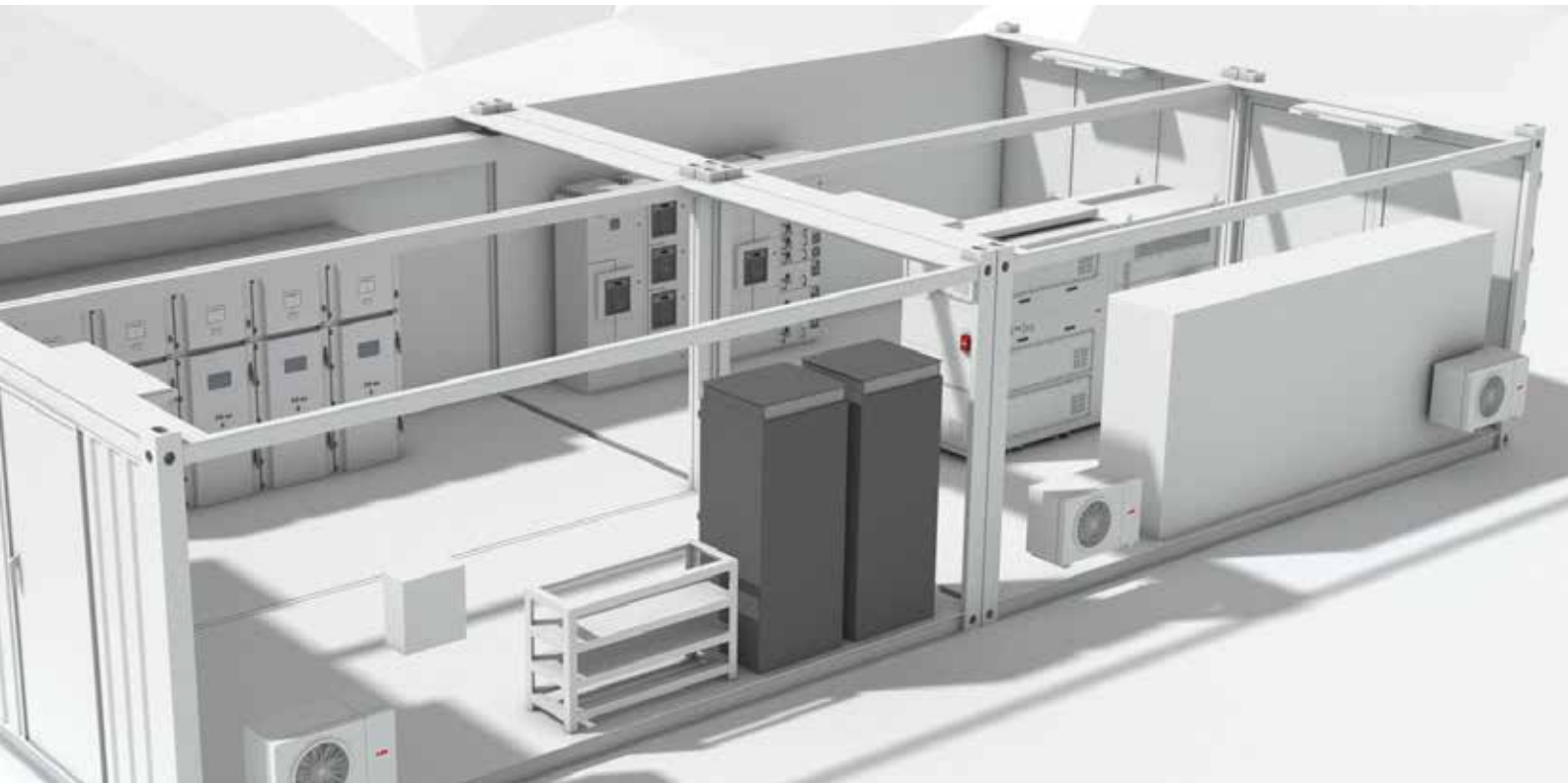
We all know that most build projects become costly and competitive when there is more than one vendor and multiple trades present onsite. Complexities arise at different stages of the build and resources are wasted by people mismanagement.

Onboarding the right suppliers, at the right time, with a coordinated system through one supplier can reduce lead times and simplify the process.

Modularization takes the build and pre-commissioning work away from a construction site, where most traditional builds and testing takes place. Construction takes place in a controlled factory environment, which can fast track projects, reduce risk and manage onsite trades more effectively.

Offsite testing in a focused and controlled environment also protects the system integrity and provide peace of mind for operators while offering the same level of rigor, consistency and quality as achieved in a traditional data center build. Costly delays are prevented through parallel stage builds instead of sequential build procedures.

So, modularization can decrease cycle time, increase reliability (through proven designs), guarantee a smooth startup and operation, and goes some way to mitigating quality and safety risks associated with products not working and hosting large teams on site during the build phase.



Conclusion

There is no doubt that the need for speed will continue to shape colocation data center development as demand for enterprise data and adoption of 5G.

The pace of change is not going to slow down – in fact, it is going to accelerate as more and more enterprises chose retail and wholesale colocation providers to reduce the overall cost of IT and move from on premise data centers to rent space, racks and cages, or entire rooms and facilities for their IT equipment.

To stay ahead of the curve, operators need to review alternative options in the design, build and management of colocation projects. Changing the mind set and switching up their design and build strategy to adopt a holistic and modular approach can reduce time to market, maximize customer value and improve ROI.

Partnering with experienced contractors is important to evaluate your business needs and specify the high-quality procedure with the same high level of build skills across the architecture. This together with incorporating digitalization and smart power capabilities, can deliver safe, robust and modular data centers which flex and grow with demand, while also delivering faster return on investment for colocation data centers.

To find out more and see how you can react quickly to create a data center that is fit for the future, speak to a member of the ABB team or visit https://new.abb.com/data-centers

Contributors

About M.C. Dean
M.C. Dean designs, builds, operates and maintains cyber-physical solutions for mission-critical environments, large-scale infrastructure, and global enterprises. The company's capabilities include electrical, electronic security, telecommunications, life-safety, instrumentation and control, and command and control systems.

M.C. Dean is headquartered in Tysons, Virginia and employs more than 3,500 professionals who engineer and deploy automated, secure and resilient power and technology systems; and deliver the management platforms essential for long-term system sustainability.

About Uptime Institute
Uptime Institute is an unbiased advisory organization focused on improving the performance, efficiency, and reliability of business-critical infrastructure through innovation, collaboration, and independent certifications.

Through our globally respected Tier Standards, and other program offerings, we've helped enterprise and vendor organizations around the globe build and maintain business-critical infrastructure to optimize performance, reliability, and efficiency. We have awarded over 1000 Tier Certifications in over 80 countries and trained thousands of professionals with our Accredited Tier Training programs.

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