



 Briefing Paper

The Demands of the New Interconnected Ecosystem

The pressures of digital transformation (DX) cause an imperative shift that's forcing businesses to retool how they operate. Yet, while 70% of businesses are pursuing DX initiatives this year, only 21% of companies feel they have completed their company's digital transformation. For IT teams, DX presents both a challenge and an opportunity to support business growth by expanding past the constraints of traditional data centre infrastructure. Modifying IT environments inherently incurs costs, time investment, demands new skills and with scaling requires more advanced power and cooling requirements. Colocation serves as a powerful lever to re-architect towards a decentralised infrastructure, giving critical access to carriers, providers and networks with turnkey solutions that can be geared for future scaling, putting IT at the helm to successfully lead the charge towards transformation.

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Challenges of traditional on-premises data centres

On-premises data centres are also referred to as private data infrastructure that companies keep in-house and are expensive to design and manage—both in terms of capital expenditures (CapEx) and operational expenditures (OpEx). However, that doesn't translate to companies ditching their on-prem data centre environments. In fact, most companies are choosing a mix of cloud, colo, and on-prem, understanding that not all workloads belong in the public cloud. A recent report by JLL indicates explosive demand for data centres with the average number of data centres per company growing from 12 and expected to grow to 17 over the next three years. For IT leaders, one key challenge will be to separate the noise from those data centre providers that can truly guide them through the complexities — and often hard-to-find IT skill sets — of digital transformation.

As a result, data centre capital and operational costs will continue to rise, an expense centre already under financial and operational pressures. And with costs rising and demands increasing, the need for training and developing IT team skillsets continues. The demand for more technical skills continues to increase, however it seems the supply remains stagnant. The State of the Data Centre survey by AFCOM found that four in five respondents stated that they are struggling to fill roles across IT security, cloud architects, IT systems, DevOps, and data centre facility technicians, engineers, or operators.

For IT teams that run most workloads on on-premises data centres, they often find themselves spending significant time dealing with day-to-day data centre management activities. An IDC study finds that 45% of IT data centre staff time is spent provisioning, configuring, monitoring, maintaining, troubleshooting, and remediation, while only 21% of their time is spent on strategy.

IT's seemingly endless conundrum

Often unable to focus on business-enabling initiatives, IT teams find themselves at a logjam. Business leaders want their IT leaders and teams spearheading initiatives such as cloud adoption, mobility, Internet of Things (IoT), among others, that transform customer experiences and drive revenue. But lacking time and resources, IT leaders struggle to have their teams expend the time necessary to tackle these initiatives. Of course, if they do find time to work on new business initiatives, they often add more constraints on the data centre.

Historically, adding more floor space and server and storage racks is what IT teams did to meet new business demands. But the exponential demand for more data centre resources and power makes it difficult to do so. Our definition of a data centre ecosystem has also evolved to go well beyond buildings that offer space and power. Data centres must be seen as innovation and technology partners.

Emergence of colocation data centres

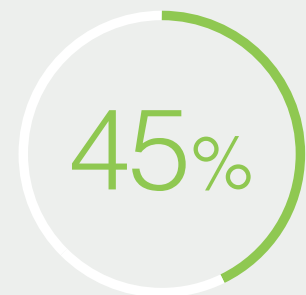
Instead of constructing new data centres or expanding existing ones, third-party colocation has become a critical part of many IT strategies. These outsourced infrastructure extensions have been around for 20 years. Gartner predicts that 80% of enterprises will have shut down their traditional data centres by 2025 (compared to 10% today)—either migrating workloads to colocation data centres or to the public cloud.

But the dynamics of colocation data centres are much different today than a few years ago. First-generation colocation data centres simply provided businesses with racks and space for servers and storage systems and were largely used by small to midsize businesses.

Second generation introduced the capabilities of fit for purpose solutions conceptually borrowed from wholesale data centres, enabling businesses of all sizes to defray the cost of building and maintaining a data centre with state-of-the-art technologies.

Third generation colocation addresses the shift to data centric architectures that require distributed data hosting, connectivity and exascale computing to be accommodated in a single datacentre campus. They also enable businesses to embrace cloud capabilities—both private and public.

Colocation providers supply the building, cooling, power, bandwidth, and physical security. They typically lease by the rack, cabinet, cage, or room but maintain ownership of hardware and software settings. By coordinating with the colocation provider, end customers can quickly and easily upgrade and downgrade space requirements and network bandwidth. The result is that the customer does not pay for space and network bandwidth that they do not need, which is often the case with on-premises data centres. More advanced colocation providers even include on-demand and scheduled services, which end customers can use for deployment, patching, incident response and event management support, and more.



45% of IT data centre staff time is spent provisioning, configuring, monitoring, maintaining, troubleshooting, and remediating while only 21% of their time is spent on strategy



"Software-Defined Infrastructure Next Critical Step In Datacentre Management." IDC Survey, sponsored by Hitachi



Business advantages of colocation

In many ways, today's third-generation colocation solutions are akin to on-demand Software-as-a-Service (SaaS) models. On-premises data centres inhibit scalability and incur significant CapEx costs—such as the building, cooling systems, and racks—and OpEx costs—such as building and maintaining the equipment and providing physical security. These responsibilities and associated costs are moved to the colocation provider.

In addition to the cost advantages, colocation affords businesses the springboard to more easily and quickly embrace the cloud and edge computing, including edge computing and Internet-of-Things (IoT) devices. Cloud adoption is rapidly growing. 86% of enterprises deploy a multi-cloud strategy, with 60% having moved mission-critical applications to the public cloud. When it comes to the network edge, market adoption is still in early phases, but that is quickly changing. As more data and applications get pushed to the network edge and more users and network traffic extend to the edge, performance challenges increase. And this directly impacts user experience and even revenue. For example, Amazon finds that every 100 milliseconds of latency translate into a 1% reduction in sales.

One of the most prevalent edge computing phenomena today is IoT, which is exploding—experiencing a compound annual growth rate (CAGR) of 34%. Gartner predicts there will be 20.4 billion IoT devices by next year—a number that is expected to hit 64 billion by 2025.

Scalable, cost-effective private clouds

For private cloud services, colocation is a cost-efficient, flexible alternative to an on-premises data centre. Security and regulatory compliance—as related to the physical environment—is overseen by the colocation provider, reducing the complexity of securing your IT environment. At the same time, with an on-demand infrastructure, the private cloud services only consume racks and space that is needed, and moreover IT leaders can scale data centre infrastructure up and down as workloads dictate. Consequently, in contrast to on-premises data centres, IT leaders only pay for infrastructure that is needed rather than paying for idle data centre space—not to mention the accompanying power consumption.

Low latency, fully optimised public clouds

Colocation also offers public cloud advantages. Performance is the top reason IT leaders cite for moving applications to the cloud. It ranks ahead of compliance and security as well as resiliency and availability. On-premises data centres lock organizations into a fixed location, which creates latency when pushing data between the data centre and public clouds. Colocation solutions allow them to place applications and data closer to the public clouds; this reduces latency.

With the workload volumes of data analytics and artificial intelligence (AI), the issue of proximity of applications and data to public clouds—in addition to bandwidth performance—is crucial. Connecting applications and data requires a rethink of the traditional data centre, and colocation solutions can offer path forward for organizations seeking to harness the full capabilities of the interconnected digital age. Organizations can distribute their digital infrastructure around the globe to meet local business requirements, while remaining in control and maintaining confidence in meeting resiliency, compliance, and security mandates.



80% of enterprises will have shut down their traditional data centres by 2025 (compared to 10% today)

Source: Moore, Susan "The Data Centre is (Almost) Dead," Gartner, August 5, 2019.

Extending to the edge

Gone are the days of simply choosing a data centre that is close to your company's headquarters. Now, companies must operate ubiquitously and on-demand across all business functions and points of business presence no matter where customers, partners, and employees are located. Therefore, Digital transformation isn't slowing down any time soon, as IT architecture needs have been pushed out beyond traditional cloud services and data centres to the edge. Edge computing places dedicated resources closer to end users and devices which can free up core architecture and valuable network assets for other mission-critical tasks. As more and more use cases emerge, enterprises will continually seek the benefit of deploying copies of applications and data within proximity of the edge for performance and regulatory purposes. Gartner predicts that, by 2022, more than 50% of enterprise-generated data will be created and processed outside the enterprise core data centre or cloud.

Similar to the law of gravitation in which all objects attract each other, data and applications can be viewed in a similar way. As the amount of data grows, it becomes more difficult to move since data and applications are attracted to one another. This can be referred to as "data gravity". The more data gravity there is, the more applications and services are forced to move closer to the data. This is not ideal for organizations who want to have more control over moving and accessing their data whenever and wherever they want. Re-architecting towards a decentralised infrastructure removes data gravity barriers to accommodate distributed workflows. It will be paramount for IT leaders to securely connect and enable a pervasive data centre platform that brings users, networks, applications, and cloud systems closer to the data.

Colocation solutions, coupled with a platform to connect environments to the networks, enterprise, content providers and cloud and IT providers needed in a business ecosystem, give businesses the flexibility to locate data centre workload capabilities near the computing edge. This reduces latency, improves availability and reliability, and decreases costs. In a nutshell, whether data analytics, AI-enabled applications, high-performance applications, or IoT devices, colocation shrinks the distance and business requirements between computing resources and the edge.



By 2022 more than 50% of enterprise-generated data will be created and processed outside the enterprise core data centre or cloud

Source: Kelyman, Bill, "Be Aware of These 5 Data Centre Trends in 2018." Data Centre Knowledge, January 17, 2018.



About Interxion

Interxion: A Digital Realty Company, is a leading provider of carrier- and cloud-neutral data centre services across EMEA. With more than 700 connectivity providers in over 100 data centres across 12 European countries, Interxion has created connected communities of connectivity, cloud and content hubs. As part of Digital Realty, customers now have access to 44 metros across six continents.

For more information, please visit www.interxion.com

Colocation Brings the Cloud and Edge to the Data

Now, end users have access to applications and data—at the speed of milliseconds—that were only a pipe dream a few years ago. Business leaders can capture intelligence using IoT sensors and analyse that information in near real time that enable them to tap into new markets, optimise operations, and deliver unparalleled customer experiences.

This requires a decentralised infrastructure that allows IT leaders to embrace the possibilities of everything from multi-cloud deployments to edge capabilities such as IoT. The traditional on-premises data centre simply cannot deliver to the speeds and cost this new interconnected ecosystem demands. The third-generation of colocation services offers IT leaders the agile, cost-effective means to capitalise on these requirements. And with 65% of workloads still residing in on-premises data centres (versus the public cloud or in colocation facilities), much work is left to be done. Solving for the placement and housing of distributed data footprints combined with exascale computing between the cloud and the edge is of critical importance.



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Cofounder: Uptime Institute EMEA chapter, **Founding member:** European Data Centre Association, **Patron:** European Internet Exchange Association, **Member:** The Green Grid, with role on Advisory Council and Technical Committee, **Contributor:** EC Joint Research Centre on Sustainability, **Member:** EuroCloud.

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