

POINT OF VIEW: MODERN DATA CENTER

An adaptive, flexible infrastructure is
fundamental to digital transformation.



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MODERN DATA CENTER

The Modern Data Center is an adaptive, flexible infrastructure that is fundamental to enable an organization's digital transformation efforts.

The evolved data center delivers the capabilities to maximize the value of existing investments, support new initiatives, and deliver a modern operations philosophy.

When referring to a modern data center, one should not just think about hardware platforms. On-premise infrastructure (compute, storage, networking, etc.) are critical components, but so are public cloud infrastructure services, or Infrastructure as a Service (IaaS) offerings. Technology leaders must also document and execute a solid strategy regarding which tools and processes are needed to support this modern environment in a secure and automated fashion.

AUTOMATED AND API-DRIVEN

The Modern Data Center often behaves as an organization's private cloud. By using an automated, API (application programming interface)-driven methodology, new technology can be acquired, configured, deployed, consumed, maintained, and sunset in a self-service manner with minimal disruption.

Imagine implementing automated software-defined policies that are enforced and implemented based on the conditions rather than manually running scripts. Instead of daily logs showing only which scripts completed successfully, the Modern Data Center reporting will show which policies were enforced to determine why configuration changes were made.

APIs have evolved over time, and now also provide additional levels of accessibility, security, and abstraction. As technology companies have standardized on RESTful interfaces, integrating systems has become more consistent and accessible. Since most APIs leverage standardized formats, they can provide more secure and automated integrations across the entire technology stack.



FULLY INSTRUMENTED FOR MONITORING AND MANAGEMENT

The Modern Data Center includes advanced instrumentation that displays what is happening within each individual technology solution and across the entire enterprise. Technology team members can make changes and adjustments in a completely virtual environment with a holistic understanding of the enterprise and the end-user experience.

The ability of team members to respond to aggregated information only scratches the surface. Comprehensive instrumentation produces vast amounts of data that can overwhelm operators, even when presented in summary format. AI systems can provide a tremendous benefit here, both in offering better insight to users and delivering meaningful data that automation can act on.

According to IDC, “50% of CIOs will accelerate robotization, automation and augmentation by 2024, making change management a formidable imperative.”¹



ADAPTABLE WITH THE ABILITY TO SCALE UP, DOWN, AND ACROSS PLATFORMS

Simply put, our modern operations philosophy is “Cloud is not a place, it is a set of disciplines.”

One of those disciplines is scalability—the ability to add or remove resources without service interruption—to scale both up and down. This allows organizations to shift their focus from individual IT components to overall capacity and capabilities.

Automated rightsizing, whether scaling up, down, or across the enterprise, is based on the concept of focusing on workflow instead of infrastructure. The Modern Data Center brings into play cost management, business justifiers, and speed.

¹ IDC FutureScape 2021: Worldwide CIO Agenda 2020 Predictions



ACCESS TO INNOVATIVE TECHNOLOGY WITH CONSUMPTION AND ASSET USAGE MODELS

The Modern Data Center can add new technologies on demand and is able to leverage new technology as it changes. These capabilities further enable infrastructure and business practice agility. The ability to adapt quickly not only applies to accessing new capabilities, but also to optimizing workload placement.

In the Modern Data Center, organizations can accurately estimate and forecast technology needs and costs, which allows leaders to understand the effects of technology changes prior to implementation. It allows organizations to take advantage of new technology as a service: a programming language or AI from cloud providers, for instance, without building and implementing a full system from the ground up. Further, it facilitates rapid, easy prototyping of innovations while providing options for production deployment that meet requirements for availability, security and performance.

COMPREHENSIVE DATA MANAGEMENT

The Modern Data Center often behaves as an organization's private cloud. By using an automated, API Data generated and consumed by business processes is a significant consideration for any organization. Because of the interaction of business processes, large data sets tend to attract smaller data sets, providing benefits when the two are in proximity.

The Modern Data Center helps an organization address data gravity—the idea that data and applications are attracted to each other.

The Modern Data Center has methods to move, protect, store, and get value from data. In addition, it is critical to move data to where it belongs, analyze the data, and scrub the data when and where needed. For example, medical patient data is needed to provide care to the individual, but a portion of that data could also be an input into the analytics of a larger population. Capabilities to ensure the appropriate data is available in the appropriate format and with the appropriate access is one of the greatest values the Modern Data Center provides.



FINANCIALLY OPTIMIZED WORKLOAD PLACEMENT

The ability to monitor, manage, and obtain metrics for workload placement gives technology teams deep insight into workflows and data movement, which helps to more precisely define the Total Cost of Ownership (TCO).

When an organization has a firm grasp of scaling, migration, and location, prudent financial decisions can be made while still optimizing operations. Leaders can understand outcomes prior to making (or deciding against) significant investments in infrastructure, aaS platforms or new toolsets.

In the Modern Data Center, technologists can tune the environment to make autonomic decisions, for instance moving stale data to the appropriate data storage location. Human decisions made in haste are always more expensive. Autonomic decisions made under the right circumstances and at the right time are far more cost effective and less prone to human error.

The Modern Data Center also allows organizations to leverage new consumption models, including consumption-based pricing, pay-per-use licensing and monthly or annual subscription services. These models allow an organization to only pay for the capacity and capabilities needed at the exact time they are needed to support their business priorities.

EDGE COMPUTING

The Modern Data Center extends past the physical data center or IaaS provider location to the edge. Edge computing is generally used to process critical time-sensitive data that requires immediate action or may be impractical or impossible to move to a traditional data center or cloud location. When available, edge computing can benefit from fast, robust network access to a centralized location. This type of access, becoming more readily available with technologies like 5G, will permit a greater flexibility as more services can be made available to act on or analyze data.

According to IDC, “within the next several years, most enterprises will find that **half** of the new infrastructure deployed in their own facilities **will be in edge locations**, not corporate datacenters.”²





EDGE COMPUTING *continued*

Organizations should leverage computing at the edge to gain new capabilities that deliver faster insights and/or responses to the business. Incorporating edge computing into management, monitoring and deployment processes already in place is an important consideration. This may impact the choice of platforms, both at the edge and elsewhere in the Modern Data Center. As within the data center, security is of utmost concern. IT security policies and tools must be expanded to include the edge, as this is a key factor to minimize risk from attacks and system vulnerabilities as well as to provide reporting for compliance purposes.

ACTION RECOMMENDATIONS

- Establish and implement an automation strategy across the organization's entire data center and IaaS environment.
- Use Modern Data Center capabilities to provide consistent operations for updated applications while paying down technical debt.
- Leverage insights to move, protect, store, and get value from data to achieve better business outcomes.
- Shift workloads to the optimal location – in the data center, to an IaaS provider, to a services provider—to drive the optimal flexibility and Total Cost of Ownership (TCO) for the organization.
- Investigate and utilize edge computing technologies to gain new capabilities that deliver faster insights and/or responses to the business.

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