During digital transformations, midmarket IT organizations will be leveraging hybrid cloud strategies to maximize their opportunities for optimal workload placement. Modern infrastructure comprising of best-of-breed solutions will be the foundation for such transformations.

**Digital Transformations for the Midmarket Through Modern Infrastructure Platforms**

**How midmarket organizations can enhance end-to-end security and application performance by leveraging hybrid cloud solutions**

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**Introduction**

Many businesses are pursuing digital transformation (DX) — the adoption of technology-driven, data-centric business models — to outperform the competition. The result? Faster release of new products and services, new business models, and improved customer experiences. Cloud-based infrastructure is the key enabler of such digital transformations. In a recent survey of 900 IT executives and practitioners, sponsored by Dell Technologies, Intel, and VMware, IDC found that about 87% of the respondents from midmarket organizations (henceforth referred to as "respondents" unless otherwise mentioned) considered infrastructure modernization to be a "very important" or an "extremely important" determinant of DX success. About 95% of them have an executive mandate to move to cloud-based environments, with more than 87% of them having plans to install on-premises private cloud infrastructure in the next 12 months.

In this survey, respondents identified IT infrastructure applications, collaborative applications, and business applications as critical to their business success, requiring four-nines or greater availability. They also rated security, performance, and ease of management as primary drivers for placing workloads between traditional IT, private, or public cloud environments.

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**AT A GLANCE**

**KEY STATS**

According to a recent IDC survey of 900 IT executives and practitioners:

» About 95% have an executive mandate to move to cloud-based environments, with 46.8% targeting hybrid cloud environments.

**WHAT'S IMPORTANT**

Strategic workloads drive competitive differentiation for DX. The workloads need to run on appropriate infrastructure that provides consistent service quality.

**KEY TAKEAWAY**

The top considerations for workloads placement are security, performance, and ease of management.
In this survey, 55.1% of the respondents from midmarket organizations indicated that they have an executive mandate to target multicloud environments, compared with 57% of all survey respondents. In addition, 46.8% of midmarket respondents indicated targeting hybrid cloud environments, as opposed to about 54% of all survey respondents. Hybrid cloud environments provide businesses the choice of the right infrastructure and flexibility of deployment location while enabling ease of management. IDC recommends leveraging a hybrid cloud strategy consisting of traditional IT infrastructure, private cloud, and public cloud infrastructure environments for strategic workload placement and management. More respondents from midmarket organizations (39.8%) preferred on-premises environments than respondents from large enterprises (35.7%).

About 61% of the respondents rated cybersecurity as the most desired technology for infrastructure modernization, followed by cloud-based data protection capabilities (48.2%) and accelerated compute capabilities (44.1%). Respondents from large enterprise organizations also rated these three technologies as the most desired, with slightly higher response rates. The top 3 criteria that both midmarket and all respondents use to determine workload placement are better security, performance, and ease of management:

- **Security.** More than 73% of midmarket respondents (compared with 76.4% of all respondents) cited security as the primary criterion deciding workload placement across on-premises and off-premises locations. Security requirements span compute and storage and include authorization and authentication, BIOS-level protection, data encryption, cybersecurity, and protection against DDoS and ransomware.

- **Performance.** About 64% of midmarket respondents (compared with 70% of all respondents) rated performance as the primary criterion for strategic workload placement. Performance requirements manifest differently for compute (high-density cores, accelerated compute, or high-performance computing) and storage (NVMe-based all-flash arrays or SSDs, large data sets, tiering).

- **Ease of management.** More than 57% of midmarket respondents (compared with 62.4% of all respondents) rated ease of management as the primary criterion for workload placement. They want a consistent operational experience across heterogeneous environments and a simple mechanism to place workloads across these environments.

Various IDC studies also show that midmarket organizations are leveraging cloud infrastructure for backup, data protection, and disaster recovery capabilities. They are looking for ease of management and consistent operational experience across heterogeneous environments. Hybrid cloud platforms provide such consistent experience, which enables optimal placement of workloads across traditional IT, private cloud, and public cloud environments.
**Determining Optimal Workload Placement**

IDC observes that cloud-born midmarket organizations are ahead in their cloud adoption maturity and leverage public cloud infrastructure for data protection, backup, and disaster recovery needs. Many midmarket businesses have smaller datacenter footprints and hence can adopt cloud-based IT infrastructure efficiently. They can also extend the security and trust of on-premises infrastructure into the public cloud through hybrid cloud platforms. Hybrid cloud platforms enable strategic placement of workloads on traditional IT infrastructure, private cloud, or public cloud environments. According to the survey, key criteria that all respondents consider when determining workload placement are security, performance, ease of management, and cost (see Figure 1).

**FIGURE 1: Criteria Determining Workload Placement**

- **Security.** Security is not an afterthought during digital transformations — a comprehensive security strategy spanning all aspects of IT infrastructure resources (compute, storage, networking, and applications) is required. Midmarket organizations look to extend the security capabilities their on-premises environments enable, such as BIOS-level protection to a cloud-enabled datacenter. They are also looking to leverage cybersecurity and cloud-based data protection capabilities for cloud-based workloads. Further, midmarket organizations look to extend security beyond cloud-enabled datacenters across connected storage, hyperconverged infrastructure (HCI), and data protection appliances, and prefer solutions that enable them to do so.

- **Ease of management.** With growing complexity and heterogeneity of infrastructure environments, organizations often face complexity and confusion in managing such environments. They also face difficulty in moving workloads across these environments. They are looking for solutions that enable easier management of infrastructure environments and consistent operational experience while placing workloads. Integration capabilities can enable midmarket organizations to extend datacenter virtualization to manage public, private, and hybrid cloud environments. Integration offerings can also enable workplace mobility outside of the datacenter.
Performance. More than 43% of the respondents indicated using blade or multinode servers, and more than 19% of the respondents indicated a preference for CI/HCI toward compute requirements for their strategic workloads. Respondents from midmarket organizations indicated a higher preference for blade or multinode servers and lower preference for CI/HCI than respondents from large enterprises, indicating a preference for a conservative price-to-performance ratio. About 75% of the respondents indicated usage of structured (block) storage for strategic workloads.

IDC recommends taking a workload-centric approach to select the optimal placement of workloads across traditional IT, private, or public cloud infrastructure environments. Midmarket organizations must leverage hybrid cloud infrastructure for infrastructure modernization across server, storage, data protection, CI/HCI, and networking infrastructure and for optimal workload placement across traditional IT, private cloud, and public cloud infrastructure.

Drivers of Technology Refresh
Respondents were unequivocal about the role of technology refresh as a critical driver of DX success, with about 87% of the respondents rating it "very important" or "extremely important."

- Top drivers for server refresh included increased availability and reliability, increased data reliability, and increased datacenter density.
- Top drivers for storage refresh included the desire to move to higher-density solutions (i.e., to lower energy and floor space costs, improve ease of management, and improve operational efficiency), new functional requirements, and change in data requirements.
- Top drivers for data protection refresh included data growth, evolving availability requirements, and the need to accommodate new application deployment models.
- Top drivers for CI refresh included improved IT staff productivity, datacenter consolidation, and improved resource utilization.
- Top drivers for HCI refresh included datacenter consolidation, improved IT staff productivity, and improved backup/recovery.

Modernizing Infrastructure with the Dell Technologies Portfolio
The Dell Technologies portfolio includes a wide range of midrange solutions and services that midmarket organizations can leverage toward modernizing their IT infrastructure.

The Dell Technologies portfolio has a variety of solutions, including rackmounted PowerEdge servers, VxRail-based HCI offerings, and Unity XT storage solutions that meet the performance requirements of midmarket organizations. Dell EMC server solutions are based on PowerEdge server platforms and feature either Intel or AMD processors. Intel-based PowerEdge solutions can make use of features such as the Intel Quick Assist Technology (QAT), which is a bundled coprocessor with the newer Intel Xeon Scalable processors that can provide hardware assist for compression, encryption, and other data services. Dell EMC PowerEdge servers are available in rackmount, modular, and tower models as well as both compute- and storage-intensive configurations. Rackmount configurations, such as PowerEdge R540, provide midmarket organizations the flexibility and performance to handle their business workload requirements. Systems management software offerings cover datacenter virtualization, cloud management platforms, and desktop and application virtualization. PowerEdge offers BIOS-level
protection and layered security that extends across datacenter (infrastructure) via integration and architecture sharing with storage, HCI, and data protection appliances.

Dell EMC’s primary midmarket storage offerings include Unity XT (midrange) to store structured data. Midmarket organizations can also leverage PowerScale for file storage and Elastic Cloud Storage (ECS) for object storage. Security is built into these systems with AES 256-bit data-at-rest encryption, configurable network port security, and data-in-flight encryption for models supporting replication. Unity XT systems, which are widely popular with federal government customers, are certified for FIPS 140-2 compliance as well. All systems include a range of data services with the base purchase and include hot-plug components, hardware redundancies, and transparent path, controller, and disk failover.

The midrange systems include a comprehensive set of enterprise-class data services, such as RAID or erasure coding; thin provisioning; compression; deduplication; tiering; snapshots; quality of service (QoS); support for APIs such as VVol, VAAI, VADP, and CSI; replication; air gap protection against ransomware; and public cloud integration. Unstructured data platforms such as PowerScale and ECS include many of these features (where relevant) as well as others specific to unstructured data types such as file- and/or object-level replication, NDMP support, multiple access protocols, and immutability (for files). Many systems feature extensive VMware integration, have VMware vCenter plug-ins, support VMware storage policy-based management, and can be managed as part of VMware Cloud Foundation (VCF). In addition, many of them feature artificial intelligence/machine learning (AI/ML)–driven monitoring and management through cloud-based platforms such as Dell EMC’s CloudIQ.

Dell Technologies offers a variety of converged infrastructure configurations that leverage Dell EMC PowerEdge rackmount servers and feature various storage options from Dell EMC and either Cisco or VMware networking. Hyperconverged infrastructure offerings are also based on Dell EMC PowerEdge servers; support all-flash, hybrid, NVMe, and HDD-based configurations; and can be configured with VMware vSphere or Microsoft Azure software-defined infrastructure software stack. Additionally, Dell Technologies offers value-added software that delivers automation, life-cycle management, and cloud extensibility through offerings such as Dell EMC VxRail, which are attractive to midmarket organizations.

Dell Technologies HCI offerings allow organizations to replicate the server-based, software-defined public cloud–based designs most closely in their on-premises infrastructure. Available through appliance, integrated rack, and software-only deployment models (with or without integrated cloud management software), and purchasable either outright or through subscription-based models, this portfolio offers significant flexibility to allow organizations to purchase and deploy these solutions in the manner that best meets their needs. Available as appliances or integrated racks, Dell EMC VxRail HCI systems are the industry’s only hyperconverged infrastructure solutions that are jointly engineered with VMware, providing a turnkey user experience with full-stack life-cycle management. VxRail is the first hyperconverged system fully integrated with VMware Cloud Foundation SDDC Manager. The Dell Technologies Cloud Platform, VCF on VxRail, delivers a direct and straightforward path to the hybrid cloud with one complete, automated platform and consistent operations across VMware clouds.

Dell EMC’s data protection portfolio includes data protection and backup appliances (referred to as purpose-built backup appliances [PBBAs]) and data protection and backup software that allows organizations to protect and recover their data across edge, core, and cloud-based infrastructure as well as address the needs of container backup. Backup appliance
offerings include the PowerProtect DD Series, and Integrated Data Protection Appliances (IDPAs). Dell EMC Data Protection solutions are fully integrated with vSphere to enable VM administrators to manage data protection directly from the native vSphere UI. With Dell EMC’s advanced VMware integration, VMware administrators are empowered to more efficiently control their data protection, resulting in faster backups and restores for virtualized mission-critical applications.

Dell Technologies Services (DTS) offer strategic guidance and proven practical capabilities that midmarket organizations can leverage to accelerate transformational initiatives. DTS can help organizations deploy, manage, and support modern infrastructure and help create a strategy to optimize workload placement based on business and IT objectives and requirements for security, performance, and agility.

Midmarket organizations can leverage various deployment models offered by Dell Technologies: appliances, software only, converged and hyperconverged infrastructure, and cloud. For example, Unity XT, PowerScale, and ECS are available as appliances. ECS is a software-defined storage platform, and Unity XT and PowerScale are also available as software-only products that can be run in the public cloud (Amazon and Google). CI/HCI offerings can also be based on a variety of different Dell EMC storage system types. Data protection solutions are available as integrated appliances, software only, hardware only, or comprehensive bundles that have the integrated features and technologies organizations need to satisfy the top drivers of data protection refresh.

**Challenges**

Midmarket businesses are more susceptible to market changes and economic downturns and are generally conservative in their capex investments. While adopting cloud-based services, they prefer end-to-end solutions such as analytics services to core infrastructure capabilities such as virtual servers and virtual storage.

Various IDC research also shows that they tend to maximize on-premises investments, prefer solution providers that meet their needs in terms of price versus performance, and look to extend capabilities available on premises while adopting public cloud infrastructure.

**Conclusion**

An on-premises-based hybrid cloud infrastructure platform that integrates traditional IT, private cloud, and public cloud infrastructure is central to modern infrastructure. IDC recommends that midmarket organizations leverage Dell Technologies’ hybrid cloud infrastructure offerings to accelerate their digital transformation journey, future proof their business, and gain competitive differentiation. Midmarket organizations can also place their workloads across these environments confidently to leverage the best infrastructure option for specific workloads.

With its broad IT infrastructure portfolio, Dell Technologies has much to offer not only IT organizations looking to modernize their server and storage infrastructure but also those looking to build a strategic partnership with a single supplier. Along with a wide range of solutions priced for the midmarket, Dell Technologies also offers midmarket-friendly financial options to meet that...
segment's needs in terms of price versus performance. IT organizations of all sizes and midmarket organizations in particular will find hybrid cloud infrastructure solutions from Dell Technologies to meet their requirements for DX and can choose them with confidence knowing that Dell Technologies can assist them in leveraging cloud-based operational efficiencies by enabling a consistent hybrid cloud experience.

About the Analyst

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Sriram Subramanian is a Research Director within IDC's Infrastructure Systems, Platforms, and Technologies Group (ISPTG), covering three focus areas — Infrastructure for Enterprise Workloads, Operating Systems and Environments, and Artificial Intelligence (AI) for Enterprise Workloads. Mr. Subramanian's coverage on Infrastructure for Enterprise Workloads includes the intersection of modern applications and modern infrastructures and how they impact each other.