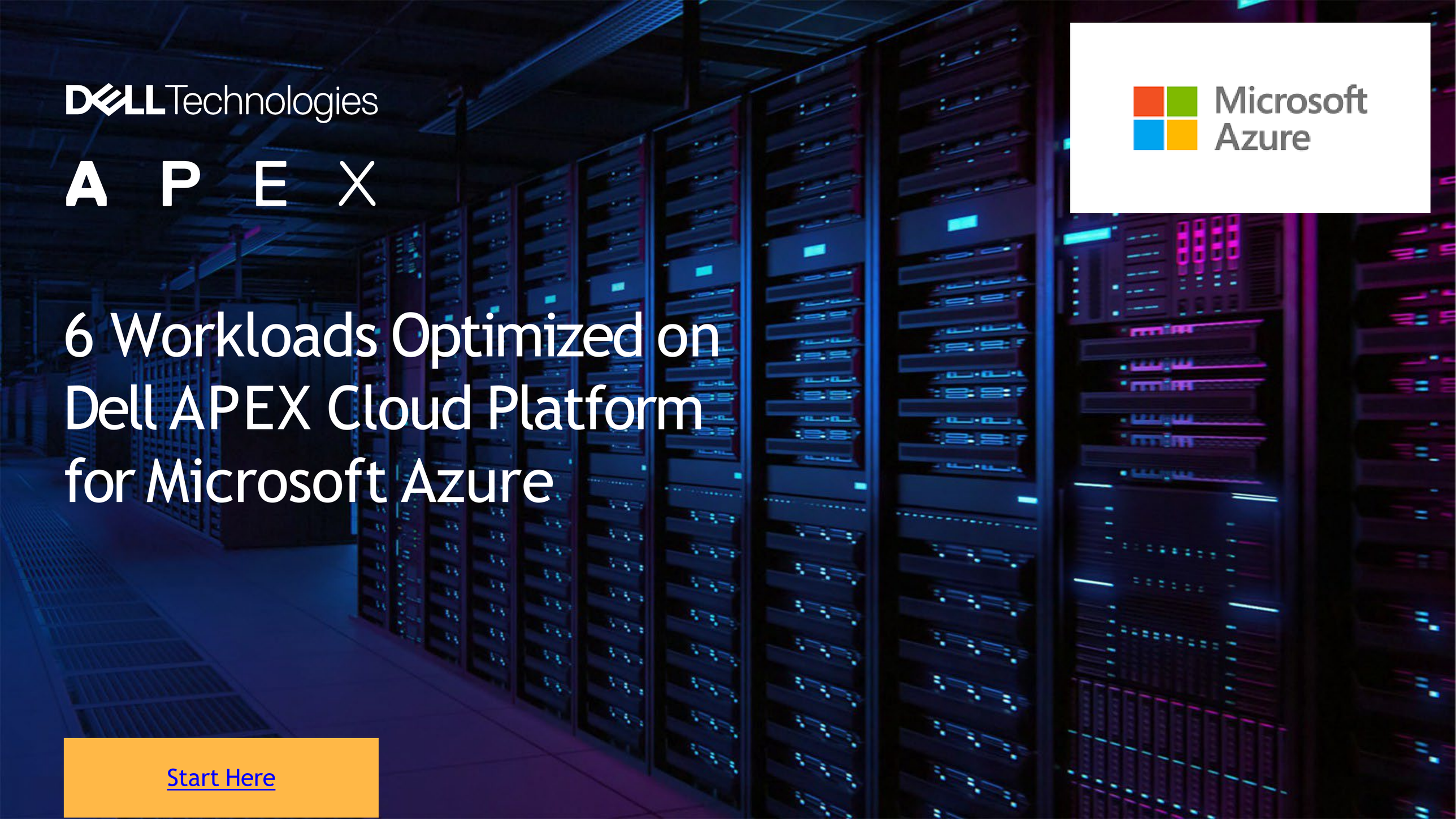
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APEX
Microsoft Azure
6 Workloads Optimized on Dell APEX Cloud Platform for Microsoft Azure
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6 Workloads Optimized on Dell APEX Cloud Platform for Microsoft Azure

This book is about running diverse workloads on the APEX Cloud Platform for Microsoft Azure. More specifically, how those workloads are optimized both in the cloud and on-premises, empowering organizations to unlock innovation with a consistent Azure experience across their IT environments.

Who This eBook Is For

This eBook was created for IT decision-makers, platform engineers and administrators, and developers who use Microsoft Azure. It's also for anyone across the IT organization who benefits from an infrastructure that unifies compute and storage into a single, simplified turnkey experience.

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Find out about operating in a multicloud world →

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It's a Multicloud World

You require a platform that meets tomorrow's needs, whatever they may be

The current application landscape is increasingly decentralized, with the majority of organizations anticipating further distribution in the next two years.

88% of organizations agree that leveraging multiple public cloud providers delivers strategic benefits[1].

87% of organizations expect their application environment to become distributed across even more locations over the next 2 years[1].

82% of organizations struggle to properly size workloads for the optimal infrastructure environment (on or off premises)[1].

[What are some barriers to multicloud?](#) →

[1]Source: Enterprise Strategy Group Report, Unlocking the Power of Multicloud with Workload Optimization, published May 2023.

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Barriers to Multicloud

Barriers to cloud deployment underscore important justifications for on-premises infrastructure

Even organizations prioritizing cloud adoption opt for on-premises solutions for new applications due to various requirements including regulatory compliance, data governance, proximity to existing legacy applications and data, and total cost of ownership considerations.

45%
stated they've deployed a net-new application on premises despite having a cloud-first application deployment policy due to application owner or developer preference.[1]

Other causes of exceptions to cloud-first policies included:

42%
stated data governance or sovereignty considerations[1]

42%
stated Total Cost of Ownership (TCO)[1]

Organizations find it challenging to determine the optimal placement for applications and data, despite recognizing their critical importance. These challenges include the cost, complexity, and risk associated with refactoring or replatforming applications for the cloud.

81%
of organizations reported that they face challenges with application and data portability across locations (including data center, public cloud, and edge)[1].

How do you extend and optimize Azure everywhere? →

[1]Source: Enterprise Strategy Group Report, Unlocking the Power of Multicloud with Workload Optimization, published May 2023.

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Dell APEX Cloud Platform for Microsoft Azure

Extend and optimize your Azure experience everywhere

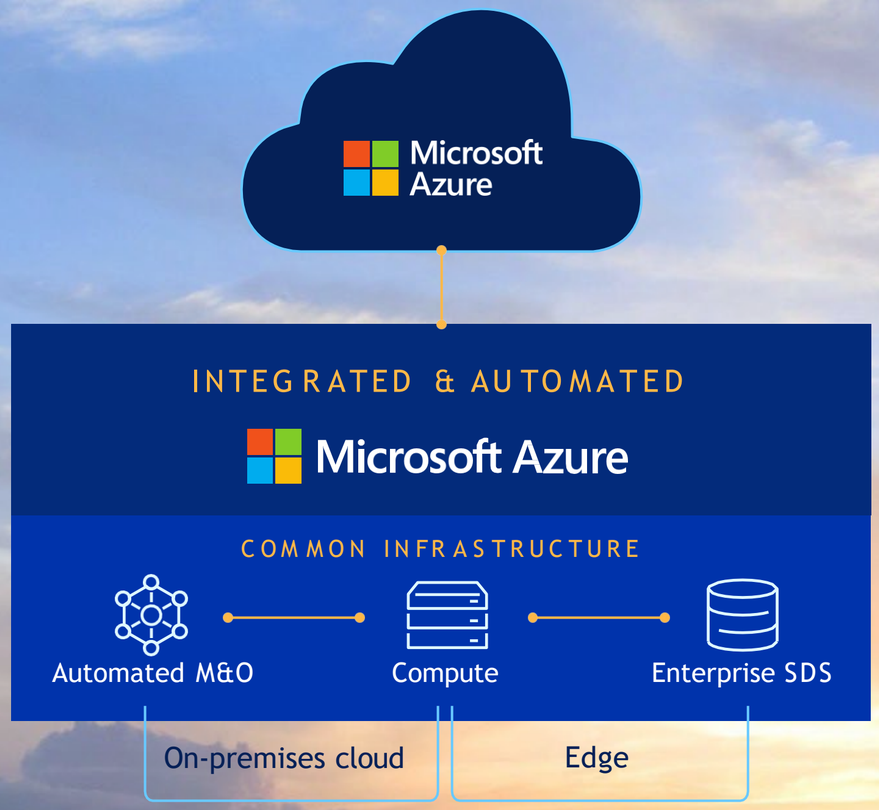
Multicloud presents both strategic advantages and obstacles. Organizations must collaborate with a vendor capable of assisting them in aligning workloads based on business requirements, rather than technological constraints.

With Dell APEX Cloud Platform for Microsoft Azure, you can optimize workload placement for your Microsoft Azure environment with a turnkey hybrid cloud that is designed extend and optimize your Azure experience everywhere.

APEX Cloud Platform is the first offer in the Premier Solutions for Microsoft Azure Stack HCI. Collaboratively engineered with Microsoft, the platform optimizes Azure hybrid cloud deployments and Azure-focused workloads. It empowers organizations to unlock innovation with a consistent Azure experience across their IT environments. Through extensive integrations and automation, APEX Cloud Platform enables IT organizations to simplify app modernization and accelerate DevOps.

[What makes this offer unique?](#) →

The platform enhances Azure operations by providing consistent management and operations with centralized Azure tools, while mitigating security and compliance risks with an intrinsic approach to security that extends Azure governance across all deployment environments.



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APEX Cloud Platform for Azure delivers substantial cost savings and benefits

85%
lower costs of testing

80%
reduction in business issues

50%
reduction in availability issues

50%
improvement in administrator productivity

*Source: ESG Economic Validation, sponsored by Dell Technologies and Microsoft "Analyzing the Economic Advantages of APEX Cloud Platform for Azure." May 2024. Actual results may vary.

Why does workload optimization matter? →

Bringing the best of Dell innovation to Microsoft Azure

APEX Cloud Platform for Azure is intelligently designed and deliberately configured with high-performing, secure, and reliable components. It combines Dell's latest generation PowerEdge servers, proven automated management and orchestration (M&O) software, and enterprise class software-defined storage that delivers linear scalability and resilience. Deep integrations and intelligent automation simplify initial deployments and cluster creation, in addition to ongoing operations across the complete technology stack. IT admins can use familiar tools, such as Windows Admin Center and the Azure Portal, for a simple, consistent, and centralized way of operating dispersed Azure deployments.

Updates in as Little as Four Hours

Dell and Microsoft engineers use robust CI/CD pipelines in their respective labs to comprehensively and continuously validate the entire solution. Functional and lifecycle management testing includes the full stack – hardware, operating system, software-defined infrastructure, APEX Cloud Platform Foundation Software, and Azure Arc Resource Bridge. Dell and Microsoft collaboratively test all updates and ensure that even critical, zero-day security patches are available to apply within just four hours using the full stack lifecycle management feature in the APEX Cloud Platform Foundation Software. Both organizations also thoroughly validate baseline upgrades to the platform and remediate any defects prior to each release, thus ensuring the reliability of every upgrade.

*Based on continuous joint CI/CD testing with Microsoft. Results may vary. September 2023.

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Designed with storage flexibility in mind

APEX Cloud Platform for Azure comes with Microsoft Storage Spaces Direct. Users can extend their storage fabric to include Dell software-defined storage (SDS), available today with Dell PowerFlex.

With a shared, universal storage layer based on Dell's SDS across on-premises and public cloud locations, the APEX Cloud Platform for Azure simplifies workload mobility, giving you control over where your applications and data reside. APEX Cloud Platform for Azure is the only offer in Microsoft Premier Solutions for Azure Stack HCI that supports linear scaling of storage resources independently from Azure Stack HCI compute and S2D.

APEX Cloud Platform for Azure integrated with Dell PowerFlex SDS currently provides block storage. Using Dell's enterprise-class storage solution to extend the Azure Stack HCI storage fabric enables new use cases and provides many benefits:

- Run a highly diverse set of workloads – including mission-critical databases and applications that require significantly low latency and high transactional performance at large scale beyond S2D's default capability.
- Deliver consistent I/O performance for streaming, ingestion, and reporting transactions within AI and data analytics applications.
- Achieve 99.9999% availability with extremely fast rebuild and rebalance operations.
- Address exponential data growth with a modular scale-out architecture.

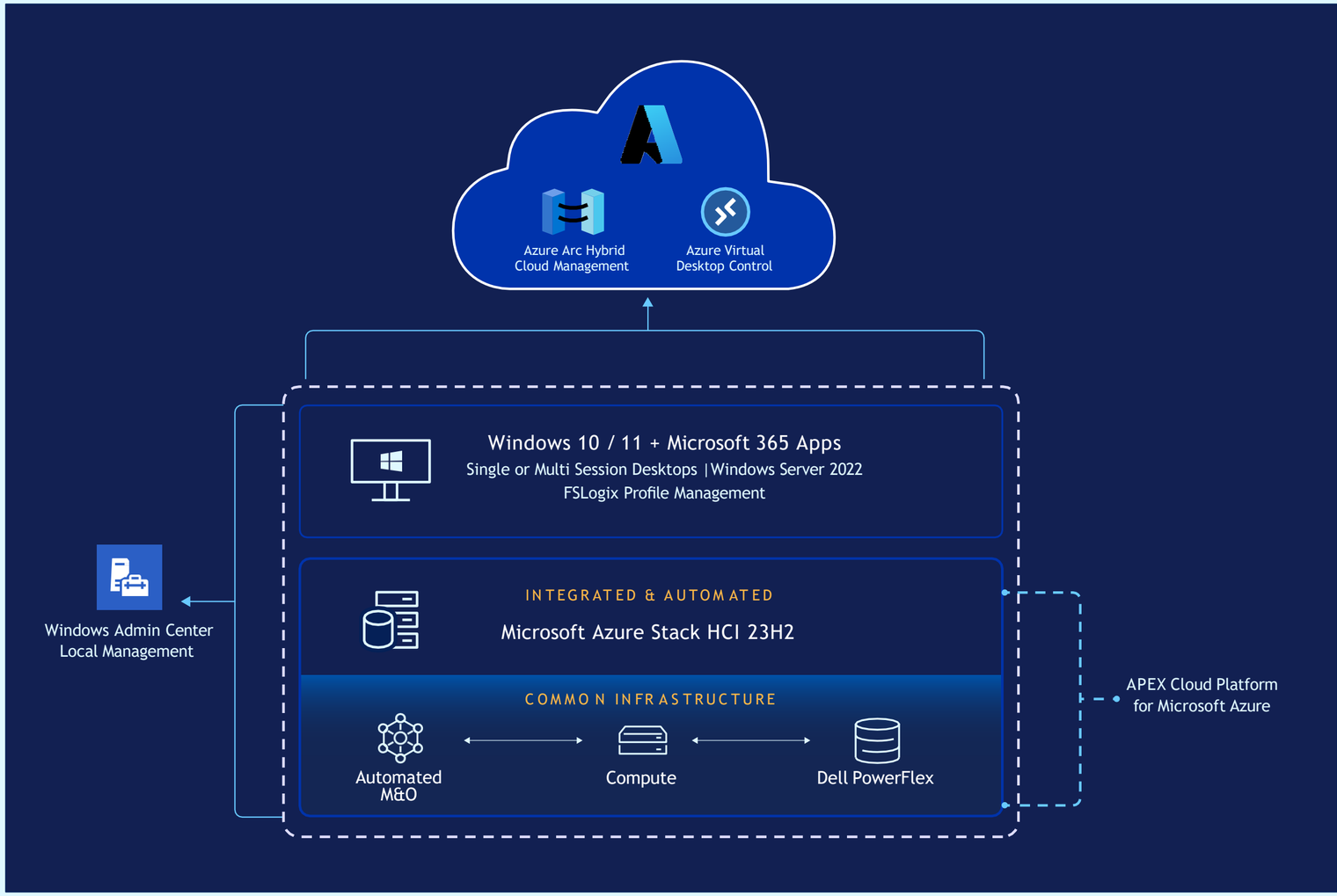
[What workloads can you optimize? →]

Workload Optimization: Azure Virtual Desktop

Deploy virtual desktops in a Microsoft hybrid cloud environment

While remote users enjoy working and learning from anywhere, it presents IT with unique challenges, including cybersecurity vulnerabilities that can pose significant financial and brand risk.

To address these challenges, IT is turning to Microsoft's Azure Virtual Desktop (AVD), a leading desktop and application virtualization solution, operating in both Azure public cloud and on-premises with Azure Stack HCI. It empowers IT teams with precise controls and simplified management, while delivering a rich experience for Windows and Microsoft 365 users.



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Workload Optimization: Azure Virtual Desktop

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APEX Cloud Platform for Azure further optimizes AVD deployments. Here are six reasons why its the premier choice to enhance AVD:

More productive IT.

Deep integrations and automation simplify deployment, management and operations. IT amins can use familiar tools, including Windows Admin Center and the Azure Portal, to manage the entire solution.

Consistent experience.

APEX Cloud Platform for Azure delivers a consistent operational experience between on-prem and Azure public cloud, enabling Azure Virtual Desktop to be deployed where it makes sense or your organizational-specific requirements.

Cost-effective capabilities.

Multi-session capability helps reduce costs, allowing organizations to scale virtual desktops on demand and pay only for the resources they use.

Configure for your unique requirements.

Diverse selection of 1U and 2U rackmount servers with customizable CPU, memory, storage, and GPU configurations, facilitating seamless scalability to match the precise performance requirements of organizations.

Intrinsic security and improved compliance.

Security embedded throughout the integrated hardware and software stack enhances AVD's built-in security. Azure Stack HCI is a secure-by-default product and has more than 300 security settings enabled out-of-the-box. These settings provide a consistent security baseline and ensure that the device always starts in a known good state.

Ensure the latest updates.

Comprehensive full stack lifecycle management, ensuring prompt integration of the latest security, functionality, and performance enhancements into the on-premises platform hosting the AVD environment.

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Workload Optimization: Azure AI Services

Implement AI solutions in a Microsoft hybrid cloud environment

Artificial Intelligence (AI) and the innovation it can bring has driven immense excitement, but with these opportunities also come implementation challenges and unforeseen risk. It is why 82% of IT decision makers prefer an on-prem or hybrid model for GenAI as it provides a flexible hybrid cloud architecture that maximizes the value of data while minimizing complexity.

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Together Microsoft and Dell are helping customers overcome these obstacles and focus on delivering valuable business insights. By pairing Azure AI services with Dell APEX Cloud Platform for Microsoft Azure, organizations can leverage the value of Azure AI's suite on-premises with APEX Cloud Platform, which is fully integrated with Microsoft Azure to automate deployment and operations for a turnkey solution.

Azure AI services

Azure AI services provides containers that let you use the same APIs that are available in Azure, on-premises. Using these containers gives you the flexibility to bring Azure AI services like language, translation, speech, document intelligence, and vision closer to your data for:

Control over data.
Choose where your data gets processed by Azure AI services. This can be essential if you can't send data to the cloud but need access to Azure AI services APIs.

Control over model updates.
Flexibility in versioning and updating of models deployed in their solutions.

Portable architecture.
Enables the creation of a portable application architecture that can be deployed on Azure, on-premises and the edge.

High throughput / low latency.
Provide customers the ability to scale for high throughput and low latency requirements by enabling Azure AI services to run physically close to their application logic and data.

*Dell Technologies Generative AI Pulse Survey, August and September 2023, www.dell.com/GenAIPulse

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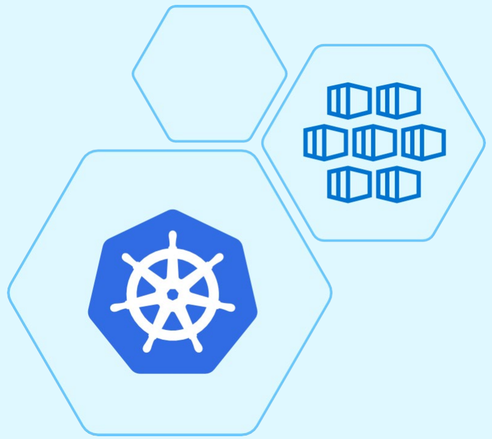
Workload Optimization: Azure Kubernetes Services (AKS)

Optimize delivery of AKS on-premises



Azure Kubernetes Services (AKS) is a platform that simplifies deploying and operating Kubernetes clusters in Azure. It empowers organizations to manage their containerized applications at scale using the powerful features of Kubernetes. With AKS, you can focus on your containers while Azure handles the complex parts of running Kubernetes.

AKS, enabled by Azure Arc, delivers a developer experience that is consistent with the hyperscale optimized and fully managed AKS to APEX Cloud Platform for Azure. This can significantly accelerate application modernization and DevOps initiatives. APEX Cloud Platform for Azure enables you to run both your traditional virtualized applications in virtual machines and your cloud-native applications in AKS enabled by Azure Arc on the same infrastructure. With AKS enabled by Azure Arc running on APEX Cloud Platform for Azure, you can also install a variety of Azure Arc-enabled application and data services on-premises. Some of these services include Arc-enabled SQL Managed Instance, PostgreSQL Hyperscale, App Services, Functions, Logic Apps, and machine learning. Running these Azure services on-premises is beneficial to address application requirements involving data locality, regulatory compliance, performance, dependencies on existing on-premises applications, etc.

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Workload Optimization: Azure Kubernetes Services (AKS)

Other benefits of AKS enabled by Azure Arc include:

- Ease of deployment – Beginning with Azure Stack HCI version 23H2, you can provision AKS workload clusters on APEX Cloud Platform for Azure from Azure using the Azure portal, Azure CLI, and ARM templates. This is made possible by Azure Arc Resource Bridge.
- Provides best in class support for Linux and Windows-based containers, which can run side-by-side on the same platform.
- Delivers flexibility to leverage the broad ecosystem of Kubernetes Open Source Software (OSS).
- View all your AKS workload clusters running inside and outside of Azure in one place for inventory, grouping, and tagging.
- Manage access to your clusters using Azure role-based access controls (RBAC), and connect to your clusters from anywhere.

Leverage other Azure management and governance services like Azure Monitor for containers, Microsoft Defender for Kubernetes, Azure Policy for Kubernetes, and more.

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Workload Optimization: Edge deployments

Extend Azure to the edge with small-footprint, specialized nodes.

Operating at the edge in space-constrained, remote, and sometimes harsh surroundings demands resilient infrastructure that can adapt to unpredictable conditions. Consider scenarios like the back office of a bustling retail store, where inventory boxes vie for space, or a dynamic manufacturing floor teeming with people and machinery. Picture a telecommunication tower standing tall in the scorching desert heat. In all these contexts, robustness and flexibility are paramount.

Available in late 2024, APEX Cloud Platform for Azure will be available on our deliberately configured MC4000, which is based on the PowerEdge XR4000 platform for Edge and ROBO (remote office/back office) computing. The MC4000 is designed around a unique chassis and compute sled(s) concept. The chassis consists of two 14”-depth chassis form factors, referred to as “rackable” and “stackable.” The actual compute resides in modular sleds coming in 1U or 2U form factors with power being the only shared component between the sleds.

These nodes will be designed to withstand unpredictable and often challenging deployment environments found in non-data-center locations. Whether it’s the space constrained back offices or retail locations, or directly next to heavy machinery on a manufacturing floor, the nodes are being built to reduce complexity, as well as minimize footprint, cost and energy savings at edge locations.

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Workload Optimization: Hybrid Database-as-a-Service (DBaaS)

Optimize data architecture through a consistent platform

Between data architecture complexities and growing business demands, Database Administrators (DBAs), IT administrators, and software developers carry a heavy burden when it comes to addressing database workload requirements. Managing this data across private cloud, public cloud, and edge requires mature and automated processes and technologies. IT staff struggling with technical debt and budget constraints are often too overwhelmed by operational complexity to stay current with emerging trends.

To address these challenges, APEX Cloud Platform for Azure provides a consistent platform to implement a Database-as-a-Service (DBaaS) architecture.

Adapting a DBaaS platform enables the creation of modern, cloud-native applications, minimizing the operational burden, and optimizing cross-functional productivity for DBAs, IT admins, and software developers.

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Workload Optimization: Hybrid Database-as-a-Service (DBaaS)

Microsoft and Dell Technologies have created a modular, integrated solution that:

- Delivers advanced lifecycle management capabilities to ensure the full technology stack is compliant and up to date
- Automates common administrative tasks
- Leverages Microsoft Azure platform services
- Increases platform resiliency
- Ensures performance to meet defined SLAs

Hybrid DBaaS with APEX Cloud Platform for Azure helps IT and database admins, and software developers by providing:

- Simplified management experience to enable faster and more efficient database provisioning
- Elastic resource scalability to enable dynamic and flexible allocation of resources to meet changing workload demands
- Updates in just four hours to ensure always-up-to-date feature set
- Reduction in operational and management costs achieved through optimized resource utilization, automating tasks, and improving overall efficiency
- Flexible consumption models
- Consistent hybrid management experience with Windows Admin Center for in-depth, cluster-level detail and Azure Arc-enabled management and governance services for fleet management at-scale.
- Platform resiliency and performance to meet defined SLAs to ensure continuous availability, data integrity and optimal performance

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Workload Optimization: Traditional Virtualized Workloads

Get support for tried-and-true virtualized applications

APEX Cloud Platform for Azure delivers a turnkey platform, seamlessly blending traditional workloads with Azure's hybrid capabilities. Organizations that rely on legacy applications and systems can run their traditional workloads alongside modern, containerized applications.

Since the platform is among the first Microsoft solutions to make Azure Stack HCI 23H2 available, users can take advantage of the latest features and innovations. With Azure Arc Resource Bridge, users can effortlessly provision and manage new virtual machines directly from Azure, streamlining operations and enhancing productivity. Furthermore, APEX Cloud Platform for Azure can help simplify the migration process by leveraging Azure Migrate (currently in preview), enabling users to seamlessly transfer virtual machines from existing Hyper-V environments to Azure Stack HCI 23H2. All data transfers occur securely on-premises, ensuring confidentiality and compliance.

The platform provides a modern home for legacy Microsoft workloads like Windows Server 2012 and SQL Server 2012, ensuring their continued security. As a bonus, users get three years of extended security updates included with their purchase. This means they can rehost and safeguard Windows Server 2012 or SQL Server 2012 without additional costs and data security risks.

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Summary

Dell APEX Cloud Platform for Microsoft Azure simplifies and optimizes running Azure-based workloads anywhere.

The platform tackles IT complexity and accelerates time-to-value by offering deep integrations and intelligent automation between the layers of the Dell Technologies and Microsoft technology stack. Centralized app, data, management and governance services delivered via Azure Portal simplify app environments while delivering consistent management and governance across locations.

By combining Dell's expertise in delivering enterprise software-defined storage and sofware-driven management and orchestration with Microsoft's leadership related to cloud-based services, APEX Cloud Platform for Azure provides a seamless, simplified experience for organizations running both traditional and diverse workloads. It’s a classic “better together” story that delivers a collaboratively-engineered, deeply integrated solution optimized for a variety of use cases.