DELLTechnologies

Driving a Modern Applications Strategy

Four ways to accelerate modern applications initiatives

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Executive summary

In this age of digital services, applications and data are core enablers for every organization. The value of Agile and DevOps—including faster delivery and better service levels—is widely recognized, and that is being enabled by a rapid evolution of the IT architectures in organizations today. The pace of innovation continues to accelerate. To keep up, many organizations have begun developing their applications using cloud-native techniques. Cloud-native applications are architected as a set of microservices that can be independently scaled and quickly updated. These are usually delivered as containers and orchestrated with Kubernetes.

Most organizations have existing applications with business-critical functionality that can't be abandoned. Often these are monolithic packages running in a virtualized environment. In order to thrive and grow, organizations must adopt a modern applications approach. A modern applications approach leverages distributed services exposed as APIs running in a multi-cloud environment. It assumes the collaboration of existing services implemented in today's monolithic architectures along with new services that leverage cloud-native techniques.

Dell Technologies has proven expertise in helping organizations establish a strategic plan for their adoption of modern applications. This eBook will start by summarizing the benefits customers have realized from transitioning to a modern applications approach. Then, it will articulate four techniques for accelerating modern applications initiatives.

Benefits of modern applications
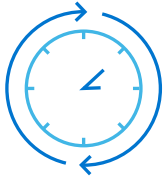
Faster response and innovation

Updating monolithic applications requires rebuilding the entire package – even for a minor change. Because modern applications comprise a series of modular services that communicate via APIs, developers can quickly add innovative new features and update existing capabilities independently.

Greater scalability and change tolerance

Because the services underlying modern applications are loosely coupled, they can be stopped and started and scaled up and down independently. This makes them more reliable and resilient to changes in the service levels of the infrastructure where they are running. It also means they can be scaled out across multiple clouds if needed without disruption.

Reduced risk and improved productivity

Automation is an integral part of the modern applications approach. Tools that enforce policy and reduce manual steps create repeatable processes that eliminate opportunities for errors and reduce effort required for implementing and operating underlying infrastructure.
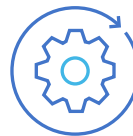
Four ways to accelerate modern applications success

Don't try to re-invent the wheel
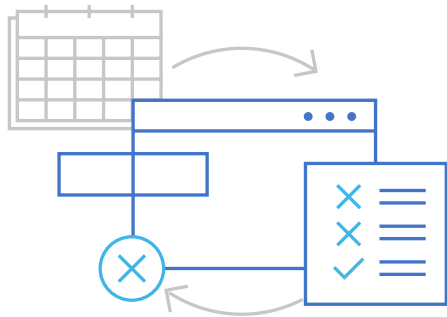
Optimize day 2 operations

Tech estate: Leverage existing investments

Architect for consistency

In the next section, we will dive deeper on each of these recommendations and how to put it into practice.

Don't try to re-invent the wheel

THE CHALLENGE

Building your own modern application stack almost never creates differentiated value

The modern application ecosystem is complex; a modern applications platform requires underlying infrastructure components that implement core capabilities including orchestration, image registry, persistence, networking, monitoring, security, and more. You must choose a commercial implementation for each component and integrate them to work seamlessly with the others. Most IT staff is unfamiliar with cloud-native technologies, further increasing the challenge. Selecting and integrating those components to assemble a production-ready platform very rarely adds any unique value. Most organizations that attempt to build a custom cloud-native platform end up with snowflake configurations that are very difficult to sustain and scale to production.
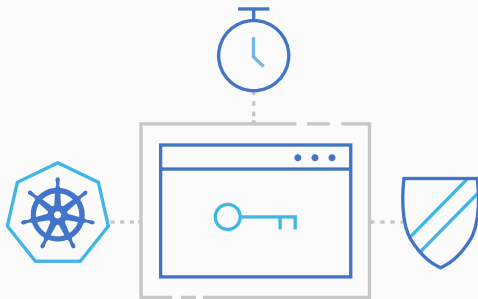
THE SOLUTION

Turnkey solutions for modern application infrastructure

To get modern applications to production faster and enable them to scale, organizations need to streamline the procurement and configuration of their modern applications infrastructure. By selecting a turnkey, production-ready platform, they can focus on the strategic outcomes that modern applications drive instead of sourcing and configuring components. Leveraging a standardized architecture that is pre-configured speeds time to production and ensures the ability to go from development to production at scale.

Tech estate: Leverage existing investments
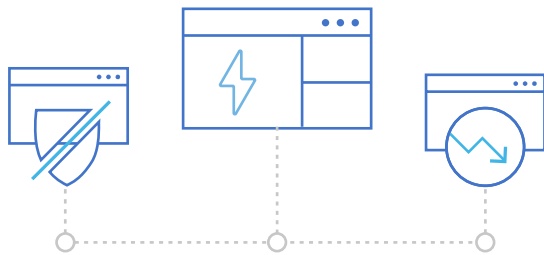
THE CHALLENGE

Incompatible environments cause disruption and raise costs

Few organizations can afford to start from scratch and walk away from existing investments in infrastructure and staff. For your modern applications approach to be successful, traditional and cloud-native approaches must co-exist pragmatically. While many cloud-native stacks excel at delivering new functionality in containerized microservices, they neglect valuable legacy applications that run the business. If existing infrastructure and current skills are not extended into your modern applications practice, DevOps process flows will be inherently disjointed and cause your architecture to be unsustainable.
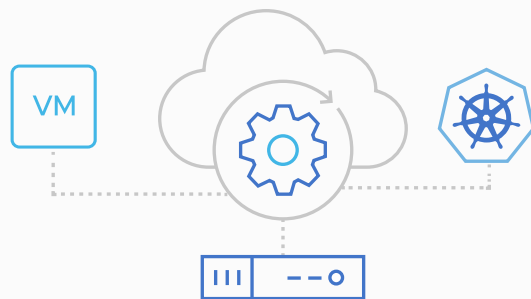
THE SOLUTION

Add cloud-native capabilities incrementally to your existing operation now

The pragmatic approach is to enhance infrastructure and staff that are currently supporting virtualized apps and Infrastructure-as-a-Service (IaaS) in a way that adds support for containers and Kubernetes orchestration. Modern applications will combine services from both traditional monolithic apps and emerging containerized apps, and it makes sense to have those applications be supported on the same infrastructure. Cloud-native skills are at a premium and staff with knowledge of legacy systems are valuable in their own right. You can ensure that you maximize the value you derive from both by equipping staff with tools that allow them to support cloud-native capabilities with their existing skill set.

Optimize day 2 operations
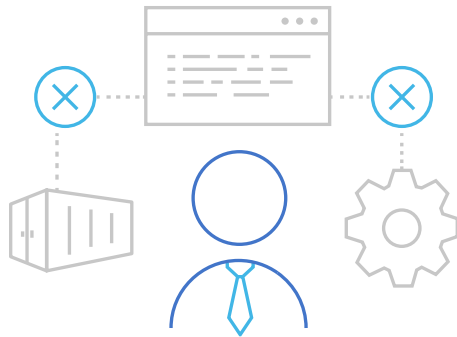
THE CHALLENGE

Risk of downtime and data loss

With so many components in a modern application stack, lifecycle management can become overwhelming quickly. Feature enhancements and security patches require regular updates to the platform. Failure to apply patches and updates comes with the risk of downtime, and security incidents. Developers and operators can end up spending their time maintaining the integrity of the stack instead of deploying features that differentiate the business. Modern applications are being used for more business-critical systems. This drives the need for the right business continuity and disaster solution to avoid the risk of data loss.
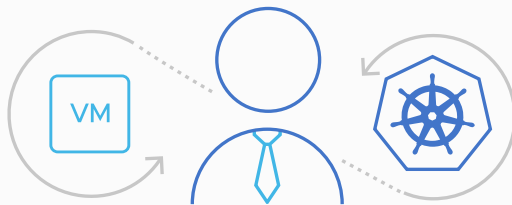
THE SOLUTION

Maintain and scale the right service levels

By adopting a platform that automates patching and updating to new releases, organizations can ensure the stability and security of their modern applications architecture while keeping developers focused on innovation. This capability allows verified updates to be downloaded automatically, which takes the underlying infrastructure from one known good state to the next, non-disruptively. It removes the barriers to keeping the platform current so that new features and security enhancements can be accessed as soon as they are available. This, in turn, frees up staff to focus on tasks that add value to the operation. The right business continuity and disaster recovery solution will include the ability to protect both virtual machines and containers.

Architect for consistency

THE CHALLENGE

Multi-cloud deployments suffer from inconsistent infrastructure and operations

Modern applications run in the era of cloud operations. Whether on-premises in a private cloud or in hyperscaler public clouds, most organizations must plan to support multiple cloud deployment options for their applications. When applications are not compatible across cloud deployment options, IT loses the flexibility to place workloads on the cloud that best aligns to their needs. Governance and compliance are greatly complicated in a multi-cloud world because of variations in operational procedures, management interfaces, security policies, and monitoring tools from private to different public deployment options.
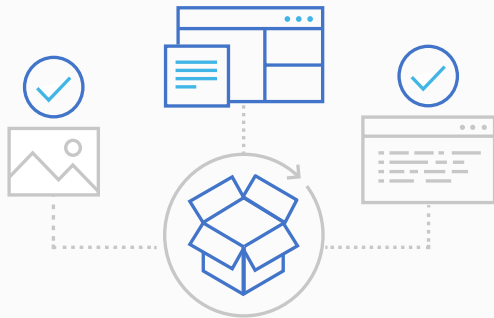
THE SOLUTION

Streamline operations with hybrid cloud consistency

Where applications are run should be driven by business, technical, operational, and financial considerations—not compatibility limitations. The right approach allows the same VM or container to be moved unchanged, so developers and IT can create alignment between application needs and infrastructure options. A consistent operational framework that spans all environments is key to maintaining governance, security, and compliance as well as enhancing DevOps productivity. A consistent hybrid cloud should extend across all environments, including on-premises data centers, edge locations, and public cloud. This enables policies and processes to be instituted in a way that limits operational silos increasing efficiency and reducing risk.

Modern applications:
The Dell Technologies solutions

VMware vSphere® with Tanzu™ now includes Kubernetes. Dell Technologies works closely with VMware to deliver solutions and services for Tanzu. These solutions enable a pragmatic approach to adoption of cloud-native patterns by adding them incrementally and non-disruptively to your existing operations. This simplifies and accelerates the ability of organizations to transform their application portfolio and be ready for what's next.

Dell Technologies Tanzu Advantage is our full portfolio of solutions that incorporate the best of our industry-leading infrastructure with VMware's industry-leading software. Each organization and sometimes each product delivered by your organization may have different requirements for the platform where you will run your applications. We call this Implement Tanzu on Your Terms.

Best-of-breed components featuring PowerEdge servers and even purpose-built storage such as PowerMax or PowerStore offer the highest level of configuration and control. Turnkey options based on VxRail are pre-configured and highly integrated for rapid, worry-free stand-up and automated day 2 operations. As-a-Service approaches such as APEX Cloud Services and VMware Cloud on Dell EMC provide flexible consumption, bundled delivery, and implementation services, and even fully managed services should they be needed.

Dell Technologies has collaborated with VMware and the open-source community on project Velero to provide enterprise-grade data protection for Kubernetes environments. Dell EMC PowerProtect software builds on those capabilities to enable you to set protection policies, backup and recover, deduplicate and tier applications, containers, and VMware VMs to protection storage.

Modern applications: The Dell Technologies solutions

Implement VMware Tanzu with APEX Cloud Services

APEX Cloud Services deliver multiple options to automate the deployment of modern application infrastructure with Tanzu to provide a production-ready Kubernetes environment. This enables you to leverage a consistent infrastructure operational model across your Kubernetes deployments, so you can accelerate time to cloud-native application development. With support for both traditional and cloud-native applications on the same infrastructure, you can now capitalize on the next evolution in enterprise applications.
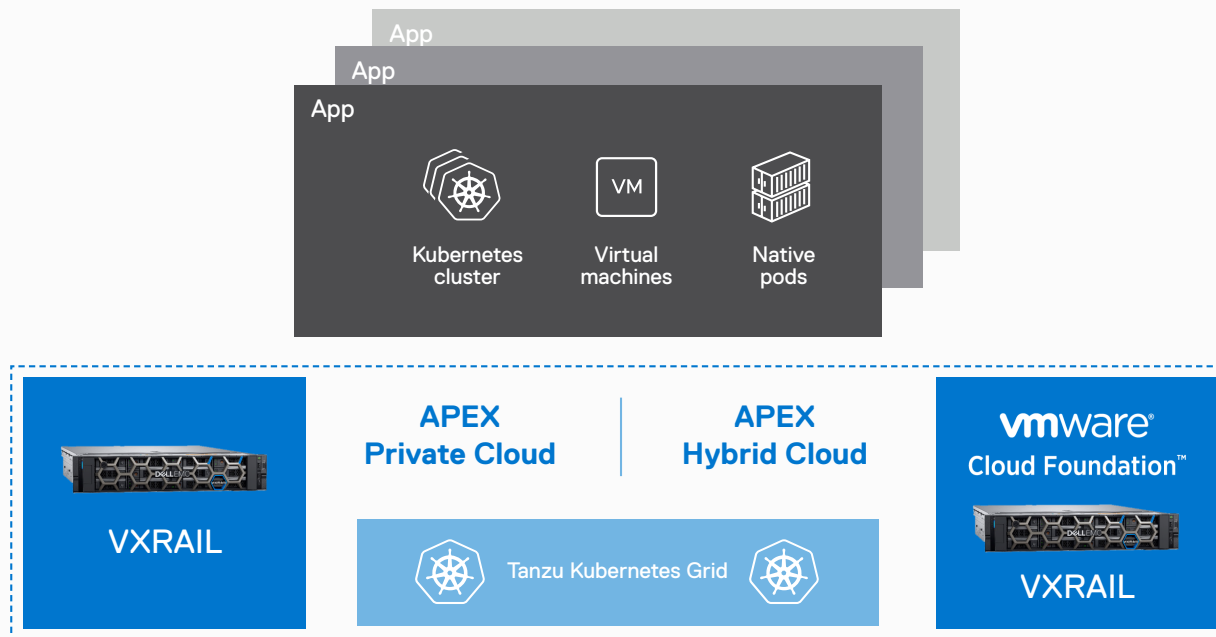
Dell Technologies can help you embrace modern applications with confidence

Modern applications are at the heart of delivering innovative products and services in every organization. A modern applications approach leverages existing and new applications across private cloud, public cloud, and edge deployment options. Organizations that embrace this approach have more agile and scalable IT and experience reduced TCO as well as improved service levels.

The changing information technology landscape can be challenging to navigate. Dell Technologies has helped our customers establish an enterprise architecture that embraces modern applications in a pragmatic way. This approach protects existing investments while scaling from pilot to production. We have experience with establishing a sustainable approach that leverages automation and a consistency across multiple cloud deployment options.

The Dell Technologies Tanzu Advantage is built on proven components from Dell EMC and VMware. We have co-engineered unique integrations that streamline the entire ownership experience from design, to implementation, and to maintenance. It is backed by our service professionals and service provider partners who can help with all aspects of how to incorporate cloud-native technologies and Kubernetes orchestration from architecture, to education, to managed services, and hosting. The result is a modern applications approach that can enable efficient, agile IT that is practical and aligned with the needs of your organization.

Contact us to get started today.

Learn more about the Dell Technologies Tanzu Advantage.

intel. The Dell Technologies Tanzu Advantage is a set of cloud infrastructure solutions built on Intel® architectures and are supported by the industry's broadest ecosystem. This provides trusted cloud computing and enhanced security, along with workload-optimized and scalable performance across public clouds, private clouds, and edge locations.