

Powering SAP and Oracle with Dell Technologies APEX Solutions in a Multicloud Deployment Model



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Organizational transformation achieved through multicloud simplifies the process of IT modernization and mitigates enterprise challenges related to controlling unpredictable costs, skills gaps within your IT teams, issues with data security and governance, as well as challenges to developer productivity. However, most organizations aren't yet realizing the promise of multicloud, as they find themselves in a multicloud by default world. Read on to see how we will help you create multicloud by design.



50%

of enterprise workloads will be on IaaS/PaaS of a hyperscale provider, either in public cloud, on premises or at the edge by 2025.¹

¹ The Future of Cloud. Gartner, 2021.
Milind Govekar.

Introduction

SAP® and Oracle® applications and databases have evolved. Next generation, data driven applications mature at an accelerated pace in both the consumer space and the business sphere. In addition, with the rise of emerging technologies — such as artificial intelligence (AI) and machine learning (ML), Internet of Things (IoT), digital assistants and blockchain — business applications including finance, ERP, SCM and CRM are rapidly becoming more intelligent.

Database platforms are foundational to supporting intelligent applications. For decades, the database platform has been the backbone for operational data (OLTP) and data warehousing for reporting and certain analytics (OLAP). But today, as organizations look for ways to unlock insights hidden in their structured operational data together with unstructured big data across multiple platforms and environments, relational database management (RDBM) platforms have responded with new architectures and capabilities.



49%

of businesses

are overwhelmed by complex technologies and too much choice without help navigating it.³



According to Gartner, by 2026, more than 75% of commercial supply chain management application vendors will deliver embedded advanced analytics, artificial intelligence and data science.²

Rethinking IT for SAP and Oracle deployments

Traditional application workloads are critical components of most business transformation initiatives that work with AI, analytics, ML and blockchain. For IT, this leads to disruption as business demands drive migrations, upgrades and new implementations for applications and databases that the business requires to be agile and competitive.

It should be no surprise that IT management, project leads and architects are **rethinking the way to design** the IT foundation to modernize applications and databases, deployment models, underlying data, and infrastructure services best suited for mission critical systems in the digital age.

² Gartner, Inc. Emerging and maturing supply chain technology is a major source of competitive advantage. April 2022.

³ The Breakthrough Study. A DTI deep dive, April 2022.

When designing an IT foundation, it is imperative to ensure it both supports your current state and considers your future goals and endeavors. Primary objectives should include:

- Eliminating siloed IT and operational complexity
- Supporting traditional and emerging operating profiles for applications and databases working with AI, ML and IoT
- Reinforcing mission-critical applications and data environments on sovereign IT providing for performance, availability and cybersecurity

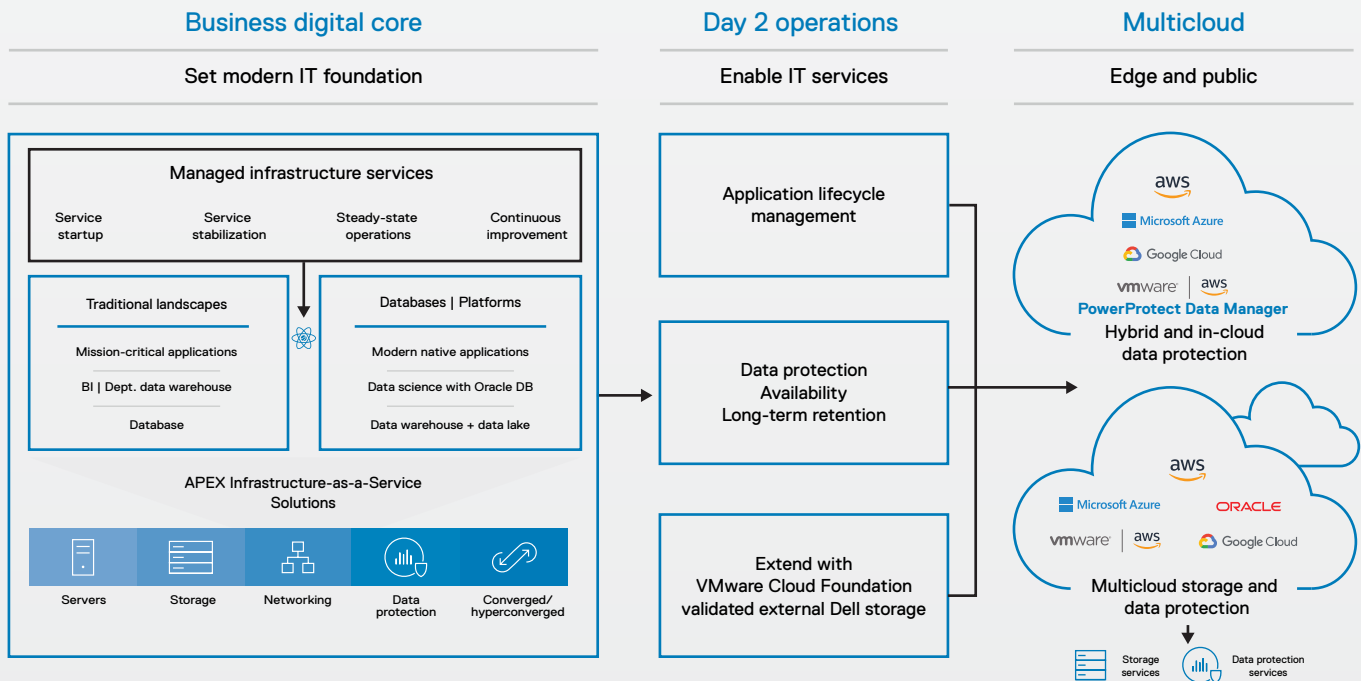
Embracing SAP and Oracle as part of a multicloud operating model

Dell Technologies recognizes that your organization is unique when it comes to the applications and databases it runs, and the paths and deployment models essential to achieving modernization. In this whitepaper, we explore how Dell Technologies partners with your IT to unlock the value of SAP and Oracle applications and platforms, IT solutions, and deployment models that reduce total cost of ownership (TCO) by simplifying complex SAP and Oracle landscapes, while running a new generation of applications and databases in a cloud operating model.



Business digital core

For the **business digital core**, IT begins with considering the behavior and service level agreement (SLA) requirements for mission critical SAP and Oracle environments (financials, ERP, supply chain management and manufacturing). These are the **backbone of core business functions**, applications, processes and business data. *If core business applications and operations are disrupted, the surrounding connected ecosystem is impacted.*





Building out from the business digital core, whether developing new applications, designing new experiences or inventing new business models, achieving optimal time to market depends on quickly connecting and integrating with new applications and innovations with the core applications, processes and business data.

As an example:

- With SAP and Oracle, core business applications and processes becoming more intelligent at working business data and non business data in various locations. IT and data services must support access to virtual and streaming data for DBAs, developers, application admins, business analysts and data scientists.
- The proximity of the business digital core to private and public clouds should also be considered. For many businesses, innovation with data — which, in many cases, results in new functional and vertical applications extensions — needs to connect with core applications and processes.
- In the digital business, it is becoming more about the interconnected business ecosystem connecting applications, data and processes. No organization is an island. To succeed, IT needs to create a fabric of connectivity that spans your company, your customers and your partners.

Day 2 operations

Once you have the right IT foundation for SAP and Oracle, make certain that you are getting your SAP admins, Oracle database administrators (DBAs) and developers the right IT services to support key objectives in maintaining, protecting and ensuring availability for mission critical landscapes, plus empowering them to innovate. Database maintenance still consumes too much of a DBA's time, which can impact competitiveness.

Gartner recommends you “expand your cloud automation strategies by incorporating new automated CSP tools and services into your I&O processes and skills.”⁴ Even with database automation and cloud resources abundantly available on the market, many DBAs still spend substantial amounts of time on low level tasks. This holds back progress and vital modernization.

79%

of IT staff time spent on routine tasks is eliminated after high level IT automation implementations.⁵

⁴ Gartner, Inc. Top Four Trends Are Shaping the Future of Public Cloud. Cecci, Henrique and Bala, Raj. June 2021.

⁵ Creating a Competitive Advantage Through IT Automation. Gartner, 2021. Heather West.

Classic and next generation IT deployment models

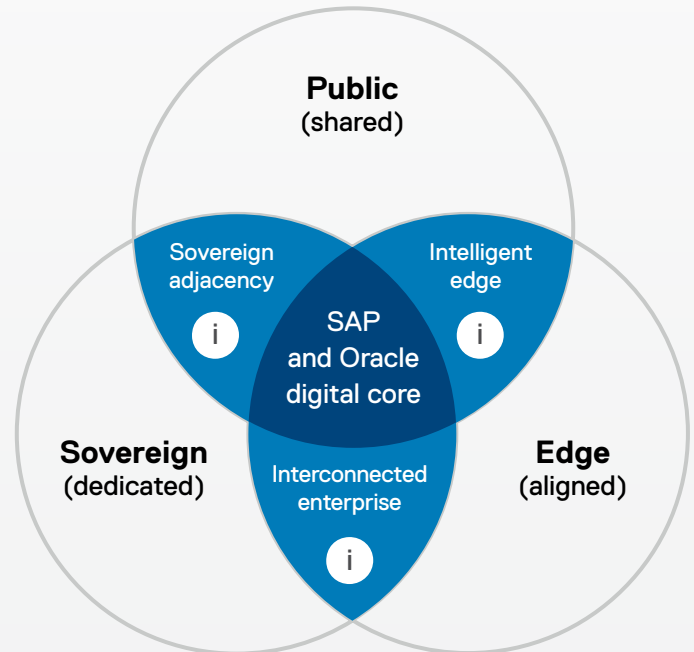
To establish a competitive advantage, IT organizations must enable the business to advance digital transformation by embracing cloud capabilities and redesigning IT environments to meet the diverse needs of SAP and Oracle applications and database environments. The diagram below helps create a context for exploring classic and next gen strategies for SAP and Oracle deployments.

Today's classic and traditional models encompass:

- **Public (shared)** for innovation and analytics working with big data leveraging purpose built databases and tools. This also includes early adopters of cloud first strategies who have moved some legacy applications to public providers.
- **Sovereign (dedicated)** IT is tailored to the businesses digital core running SAP and Oracle environments delivering performance, availability, service levels, security and compliance. It is worth noting that in some cases organizations are looking to repatriate mission critical applications back to sovereign dedicated IT, whether on premises or hosted in a colocation.
- **Distributed edge (aligned)** for branch offices, plants and remote locations working with SAP and Oracle applications and databases.

Next generation models combine and amplify classic models, essential to unlocking SAP and Oracle value in the digital business.

- **Sovereign adjacency** extends sovereign, dedicated IT to locate the digital core running SAP and Oracle to a facility, where network and cloud providers physically meet — e.g., Amazon® Web Services® (AWS), Microsoft® Azure®, Google® and Oracle Cloud.
- **Interconnected enterprise** extends sovereign adjacency, aligning IT resources where demand is greatest — across the global digital ecosystem, connecting the core business with suppliers and partners, and integrating applications, processes and data.
- **Intelligent edge** capitalizes on AI, IoT, edge processing and data streaming to deliver intelligent data for analytics and innovation, including use by SAP and Oracle applications, processes and databases running in the business digital core.



IT organizations must enable the business to advance digital transformation by embracing cloud capabilities and redesigning IT environments.

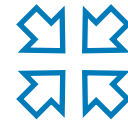


For SAP and Oracle, workload placement matters

Your organization can't see into the future. But with Dell Technologies at your side, you can trust that you'll have the technology expertise, end to end solutions, world class services, and relentless spirit to help your business be prepared for whatever comes next.

When considering how to modernize SAP and Oracle, workload placement matters. It is beneficial to have a logical view to navigate deployment models, strategy, and planning discussions across applications and infrastructure teams to deploy the most ideal deployment scenario to reach your immediate goals, as well as position your organization for the future.

The starting position is the **business digital core**. IT departments need to consider the performance, availability, service levels, security and compliance requirements for running mission critical SAP and Oracle environments.



Workload placement is a key driver of infrastructure delivery.⁶



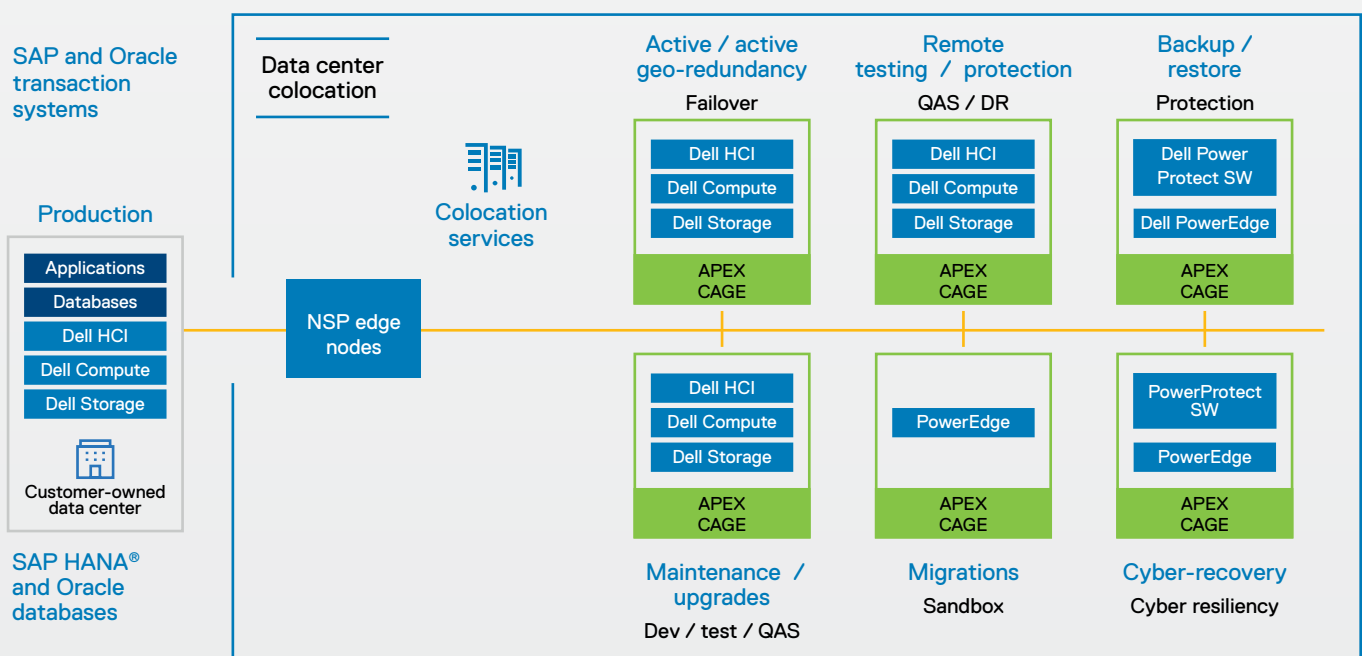
Workload placement deployment scenarios

(NOTE: Scenarios are examples only.)

Data center augmentation — SAP and Oracle applications and databases are in a customer-owned data center.

Scenario: For businesses preferring to maintain production of SAP and Oracle environments in an on premises private cloud, colocation provides a path to protecting applications and databases for high availability, disaster recovery, and data protection, as well as new projects for migrations, upgrades and maintenance.

Data center augmentation



⁶ Gartner, Inc. Common Pitfalls to Avoid When Developing Your Workload Placement Strategy. April 2022.

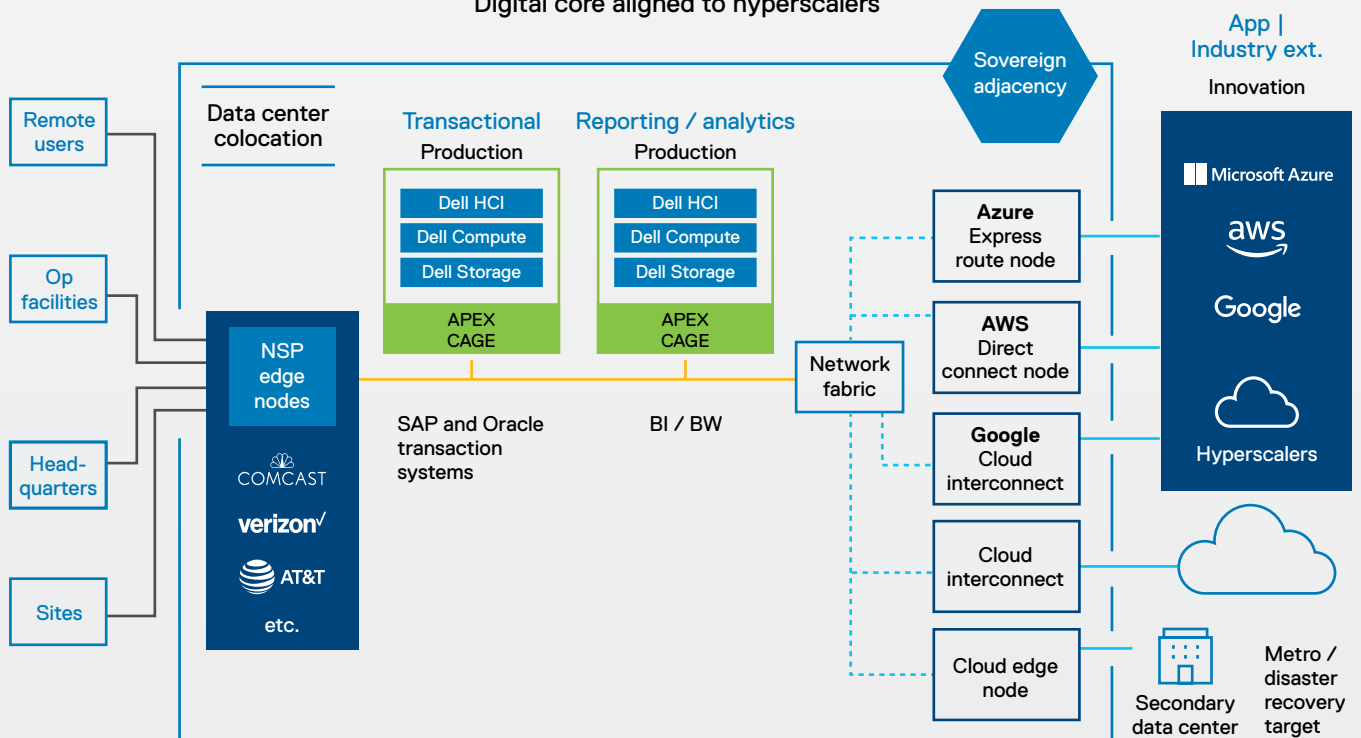


Sovereign adjacency — Business digital core running SAP and Oracle aligned to hyperscalers.

Scenario: Increasingly, with innovation, analytics, and functional and industry application extensions happening on hyperscalers and public clouds (e.g., AWS, Azure, Google, Oracle Cloud), core business applications (ERP and financial, for example) will need closer physical proximity and network connectivity to achieve significantly lower latency. In this example, Sovereign IT is extended for adjacency. SAP and Oracle applications are deployed in a hosted data center colocation on sovereign IT infrastructure with Dell Technologies delivering the performance, availability, security and services levels required for mission critical core. The physical proximity to hyperscalers and a data center’s direct network connections provide low latency and security.

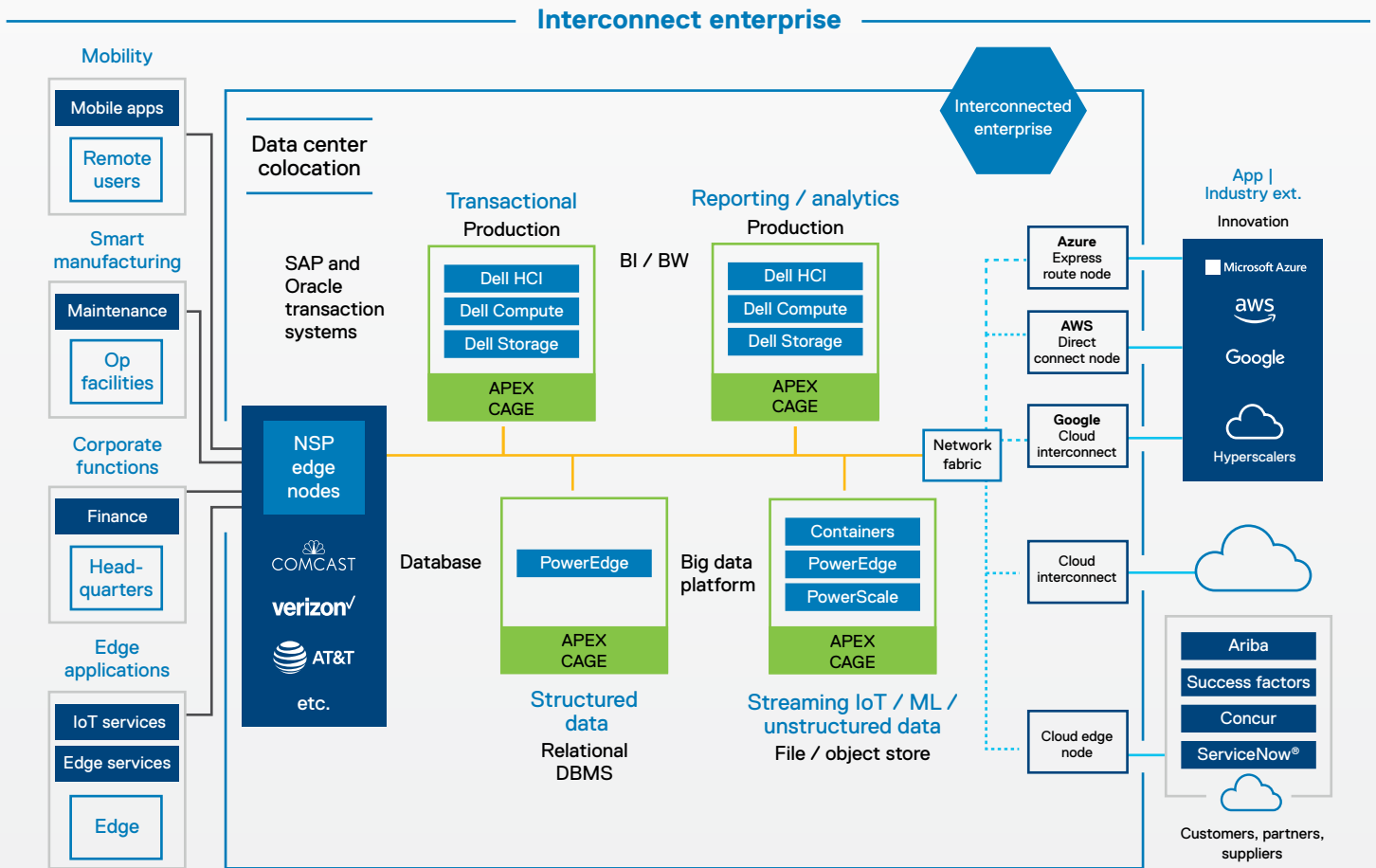
Sovereign adjacency

Digital core aligned to hyperscalers



Interconnected enterprise — SAP and Oracle digital core are running in the connected business.

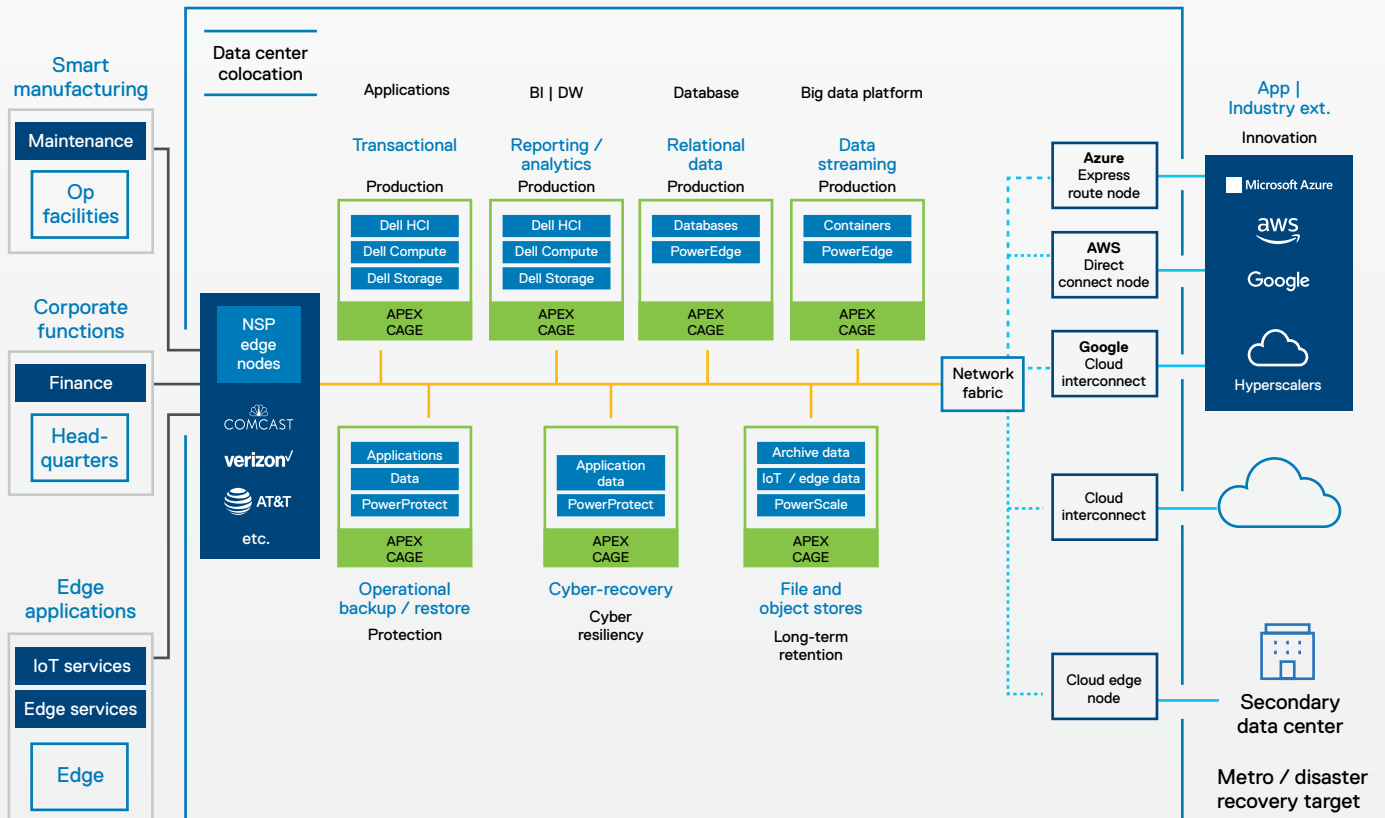
Scenario: A logical extension of sovereign adjacency is connecting the SAP and Oracle applications' core across the global ecosystem, connecting supplier, partners, and Software as a Service (SaaS) providers.



Multicloud — SAP and Oracle data protection and long term retention data protection.

Scenario: Dell Technologies solutions provide a single destination for protecting SAP and Oracle applications and data that originate with on premises and public cloud providers. Data Protection with APEX Multicloud Data Services is a managed service that provides a single target for backup and recovery for SAP and Oracle data that is on premises or in AWS, Azure and Google Cloud™ environments.

Multicloud data protection and long-term retention





Key Takeaways



Ease and speed



Scalability



Pay as you go

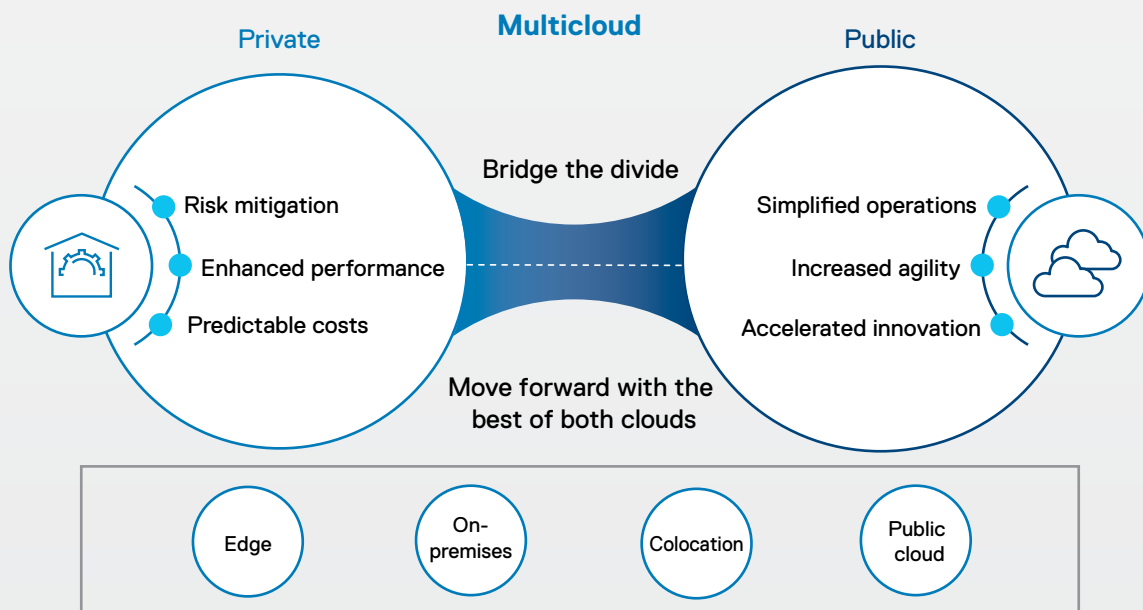
Multicloud enables innovation

Many organizations now adhere to a cloud first policy, considering cloud based technology solutions before all others. They value the ease and agility of the cloud experience, particularly being able to provision services quickly, scale resources on demand and make payments over time. As a result, most organizations now expect to be able to take advantage of these capabilities not just in a public cloud, but everywhere applications and data reside. Of course, cloud first does not mean public cloud only. Rather, a practical view includes a blend of edge, on premises, colocation, or public and multicloud.

Multicloud bridges the gap between private and public clouds. This gives businesses flexibility to choose the right path to best meet their objectives, whether it's private cloud on premises or in a hosted colocation for risk mitigation, enhanced performance, and predictable cost, public cloud for agility and accelerating innovation, or edge aligned to connect and work with applications and data located in remote locations.

Both private cloud and public cloud have their strengths, but there are trade offs. Most organizations need a solution that brings together the best of public and private cloud.

The path to digital transformation



Establish the foundation with APEX

At Dell Technologies, our goal is to underpin your application and database transformation with Infrastructure as a Service (IaaS) to enable business and IT outcomes in the current state, and ensure you will be ready to support emerging application scenarios as they arise. The simplicity of Dell APEX makes it easier to get more value from Dell Technologies innovation all delivered as a Service, so you can take advantage of cloud, where and when you need it, whether that is infrastructure, platforms, or next level solutions to ease or eliminate infrastructure management.

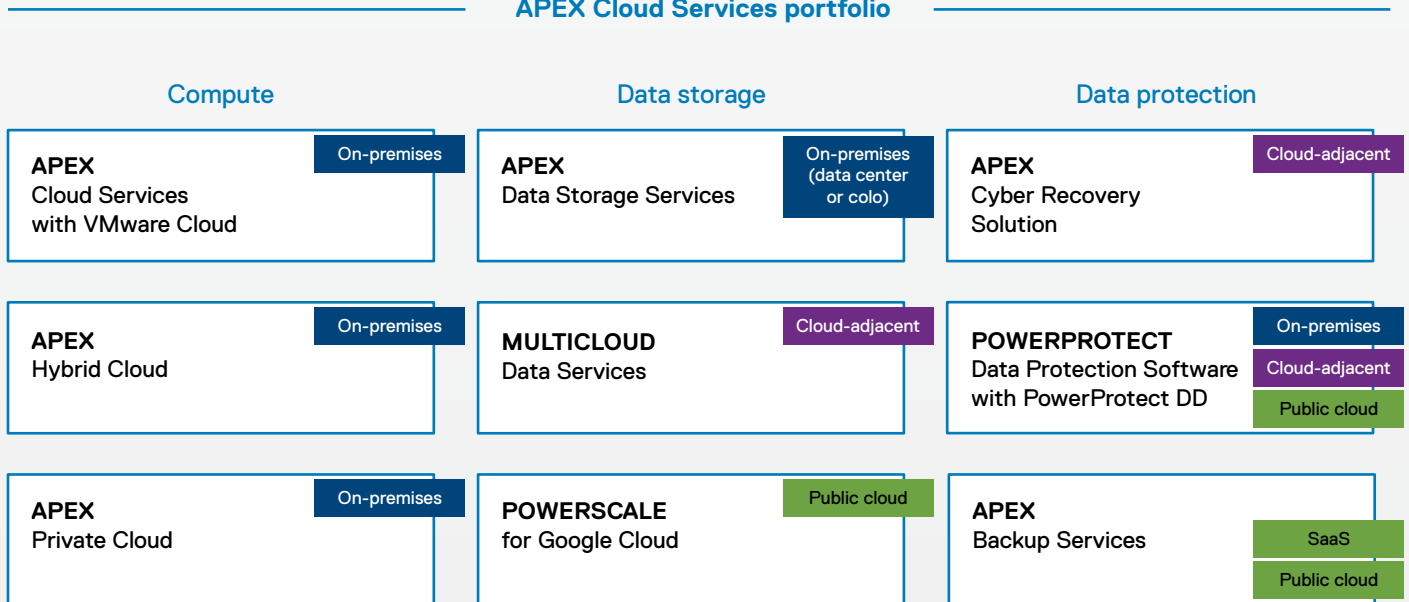
APEX delivers agility, so you can react quickly to capture new opportunities and ensure that your technology stays aligned with business needs. And with APEX, you're in full control — minimize risk and maximize performance, all on your terms.

What does this mean?

- In your data center, edge or colocation
- Operated by you, managed for you
- Scale when needed
- Self-service
- Pay-per-use

APEX as a Service offers **APEX Cloud Services** that were built to meet the challenges of multicloud, giving you a more secure and consistent experience with the best of breed capabilities and performance that your SAP and Oracle applications and databases require.

APEX Cloud Services portfolio



Easily deploy services with best-of-breed innovation — how and where you need

We deliver a simple cloud experience that fits your organization's specific needs — and that includes trusted cybersecurity. Our cloud services satisfy a range of data requirements. And cyber recovery is at the forefront of our service offerings, as opposed to being an afterthought. Adopt a modern cyber resiliency approach from a partner focused on integrity today.

In addition, **APEX Custom Solutions** enable IT to create its own on demand environment for SAP and Oracle with [APEX Flex on Demand](#), allowing you to pay for storage, data protection, hyperconverged infrastructure, servers, and Dell Professional Services as you use them with immediate access to buffer capacity. Flex on Demand provides you with a flexible option for acquiring storage and compute capacity without a large capital outlay up front, giving you the ability to avoid overprovisioning storage and compute functionality in the normal course, and to easily scale up to manage unpredictable growth, workload bursts and temporary changes in IT infrastructure requirements.


48%
 of organizations fear they'll be shut out of the hyperdistributed world because they don't have the CapEx funds to invest in the right tech.⁷

⁷ The Breakthrough Study. A DTI deep dive, April 2022.

APEX Data Center Utility aligns costs directly to usage, allowing you to maximize your scaling flexibility while only paying for what you use. It provides the market leading Dell product portfolio built with Intel® flexibility and performance coupled with professional services and support to fully manage your data center and its operations in a simple, single invoice monthly payment based on your actual usage.

For SAP and Oracle running in a multicloud operating model, increasingly, the path to digital is through an as a Service model. The preference is for a multicloud approach because business and IT leaders want the flexibility to choose the right path to best meet their objectives.

From compute to data storage, data protection with cyber resiliency, and custom solutions, all are available today in various ways and locations to fit your needs, including on premises, cloud adjacent or cloud resident environments with supplemental professional services that provide the next level integration, migration, residency and more.



Up to
39%
lower overall cost of
operations over three years⁸

Up to
64%
reduction in time required
to deploy new capacity⁸

⁸ Based on an IDC White Paper commissioned by Dell Technologies and Intel: The Business Value of APEX as a Service Solutions, August 2021. Estimates based on survey of 17 organizations using APEX as a Service Solutions, aggregated and combined into a composite organization. Actual results may vary.

Extend the value of your APEX Solution with Professional Services

Dell Technologies portfolio of value add professional services for APEX helps you optimize your operational model so you and your team can focus on innovation. Simplify your operations by:

- Keeping production workloads accessible with Dell migration
- Speed IT delivery requirement with automated provisioning
- Simplify operations by integrating workflows into an IT service portal
- Employ residency services to act alongside your team to extend your skill sets and get the most out of your APEX operations



**Drive faster
time to value**

Accelerate time to value for SAP and Oracle

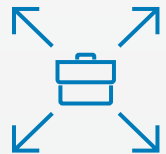
Fundamental to our solution strategy for workloads is designing offers with business and IT outcomes in mind. **Dell Technologies Validated Designs** are tested and proven configurations, designed from the start to fulfill needs for specific use cases. These integrated solutions have been stringently tested and verified by Dell Technologies engineering and our solution partners to help take the guesswork out of deploying new solutions and delivering IT modernization.

With Validated Designs for SAP and Oracle, Dell Technologies invests in integration, certifications and best practices to reduce risk and TCO while enhancing productivity, freeing admins and DBAs to focus on higher-value initiatives and innovation.

By offering flexible design choices and guidance on choosing the right components, Validated Designs shorten deployment timelines and reduce, or in some cases eliminate, the time it takes to design, test and integrate components.



**Build with
confidence**



**Enable business
without boundaries**



Multicloud by design: Modernizing with strategy


To Dell Technologies, multicloud means the cloud experience, seamlessly delivered wherever organizations have applications and data. Customers like you tell us every day: We're living in a multicloud world. Organizations love the ease and agility of as a Service models to meet the increasing acceleration of our digital world, but don't want to be locked into any one platform. They want the flexibility to choose the right path for SAP and Oracle to best meet their business objectives. Therefore, we see the mixed use of private cloud, public cloud and on premises infrastructure commonly across the globe. It takes a partner with the expertise of a hybrid cloud approach to unify your current multicloud silos as you build your digital future.

We look to provide IT the flexibility to scale and grow IT investments for SAP and Oracle with a choice blending of CapEx and OpEx models, helping IT to achieve the right cost structure for running SAP and Oracle on best in class compute, storage, networking and data protection infrastructure. With wide ranging consumption models enabled by APEX — pay for technology as you grow it, as you use it, and as a Service — Dell Technologies offers flexibility and choice, supporting the various paths IT can employ for SAP and Oracle environments.

We are helping build a multicloud-by-design world where you can:

- Easily access your data, wherever it is created and stored, in a safe and secure manner
- Consume cloud services anywhere their business needs it
- Increase your developer productivity
- Improve spend predictability and transparency

Regardless of whether you're just beginning your database transformation or are well into that journey, operating on premises or in the cloud, Dell Technologies is here to help you optimize your solution for today's needs and tomorrow's objectives.



For more information on how multicloud gives you the competitive edge, visit [APEX Use Cases](#).

