



Data Centers in the **Multi-Cloud Era**

Planning Considerations for your Modern Data Centers

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How can your data centers deliver cloud outcomes?

Data centers play a vital role in your hybrid cloud strategy, but they need to change.

With the rise of public and hybrid clouds, as well as the rapid adoption of new technologies, such as containers, some industry commentators believe the days of traditional data centers are numbered. Not so fast. The amount of data has been continually building over multiple decades. It's being generated by scores of new apps residing on an ever-increasing number of new platforms.

In addition, the amounts of information being generated by more and newer devices continues to grow. All this information must physically reside somewhere, and enterprises are realizing that even public cloud can't handle all of it. In fact, enterprises are continuing to invest in their data centers, even increasing them in some cases. [What does this mean?](#) Enterprise data centers will continue, but their purpose will change. Instead of being viewed only as a facility or static depository of transaction data, your data centers must deliver cloud solutions in the form of easy to consume and easy to operate services for your evolving digital business requirements.

How Important are Your Data Centers?



What is the best combination of private and public clouds, edge and colocation for you?

In the digital business era, aligning the services your data centers deliver with your business and technology objectives is more important now than ever. However, many data centers struggle to achieve cloud services because of aging facilities or overburdened infrastructure.

One way that IT organizations are achieving more cloud-like consumption is to use [colocation](#) service providers. This allows them to not directly own or manage the facilities, power, cooling and networking services as an operating expense. Many businesses find this a convenient way to gain some of the advantages of cloud while still maintaining control of systems and applications.

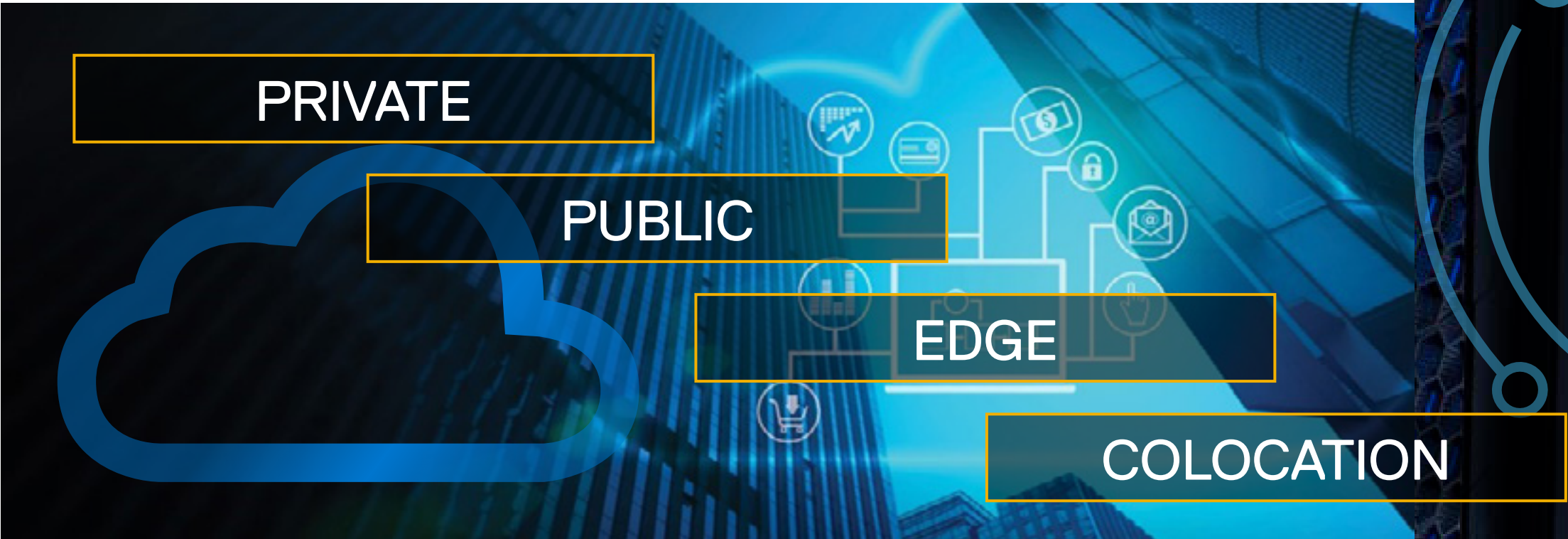
What stands in the way of businesses achieving full cloud benefits? Some IT organizations are struggling to integrate IT infrastructure and data centers from a merger or acquisition, while others have been preoccupied with day-to-day operational concerns, and haven't recently evaluated their data center strategy. Others are trying to figure out how to address emerging requirements such as edge computing for Internet of Things (IoT) scenarios or containers-as-a-service.

Many IT organizations find that turning to an experienced partner accelerates the development of a data center strategy that addresses their cloud, co-location and edge computing requirements.



Getting the Right Data Center Mix

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Getting a strategy to optimize your data centers

Engaging your business stakeholders in evaluating strategic data center alternatives

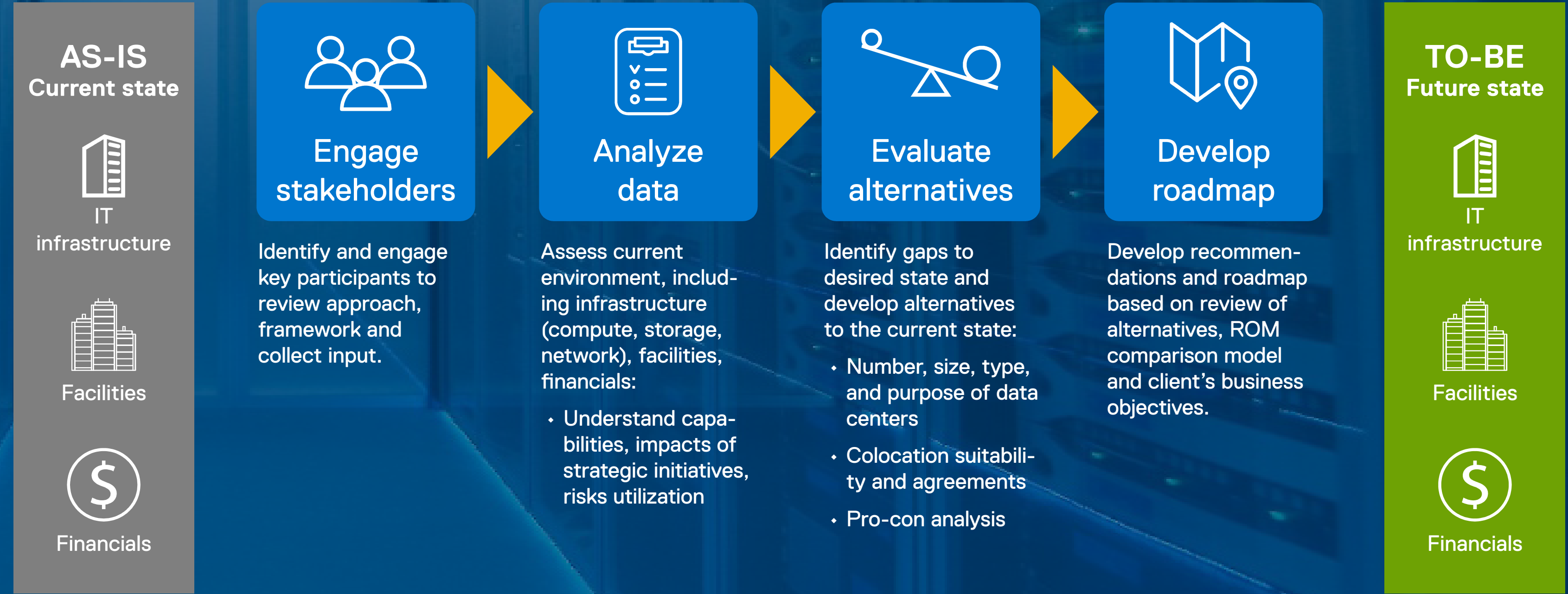
With so many data center options available, how do you narrow the possibilities down to meaningful alternatives on which your key business stakeholders can agree? With our Data Center Strategy service, you can jumpstart your data center transformation initiatives and more quickly realize cost and agility benefits. With our [proven approach](#), you can realize a robust data center strategy that is aligned to your business objectives and cloud goals:

What's the Best Combination?

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1. First, we work with you to identify and **engage key IT and business stakeholders** in order to develop a holistic view on the strategic and financial objectives of the business.
2. Next, we analyze your environment, **assessing your current state** IT infrastructure, facilities and financial metrics.
3. We **evaluate alternatives** using your information, to identify gaps to craft your individual future state. We develop a short list of alternatives, often including a mix of your data centers with appropriate colocation partners.
4. Finally, we **develop a roadmap** for the preferred alternative, identifying the investments and activities required to achieve your recommended future state.

Dell Technologies data center strategy approach

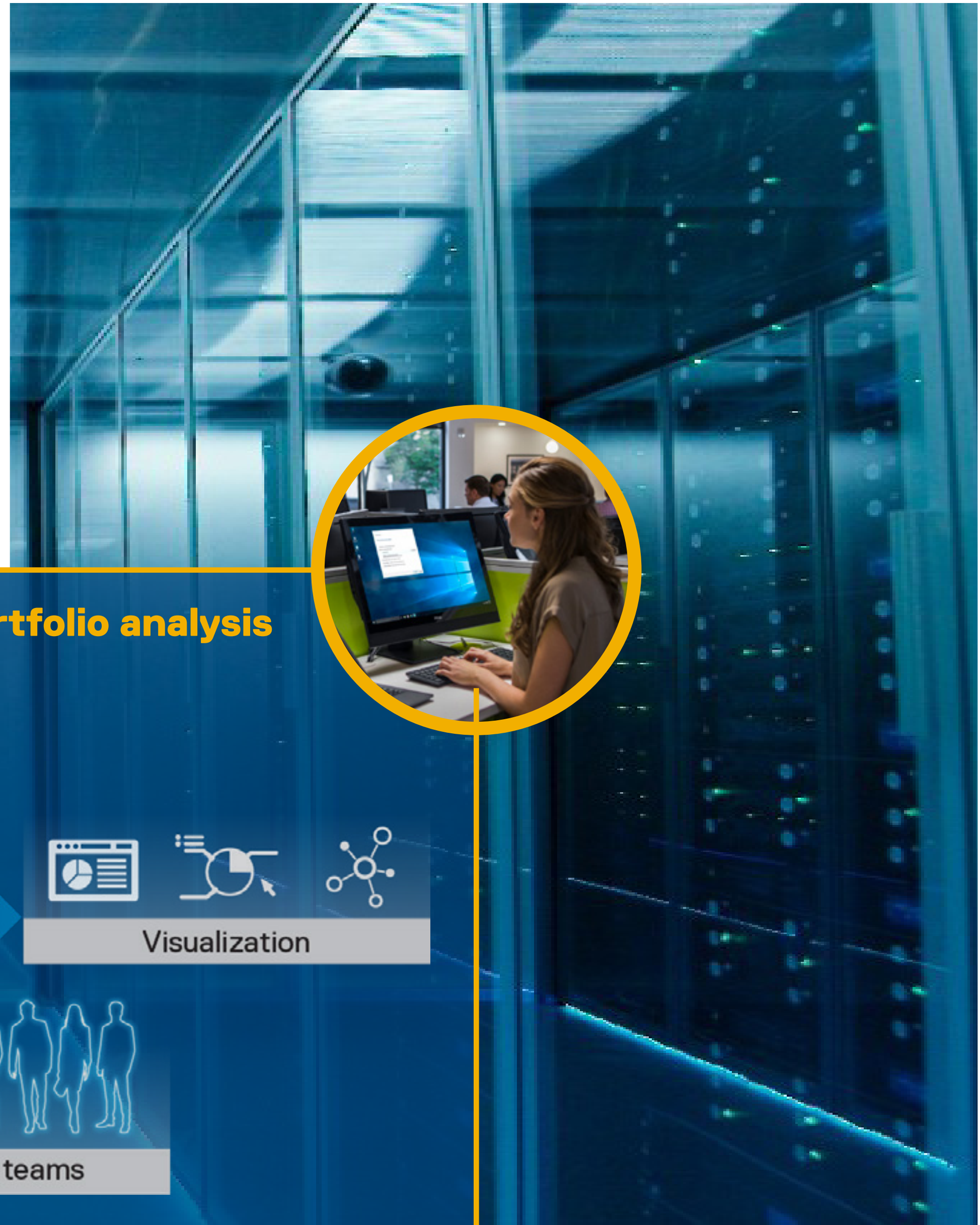


Making your data center strategy real

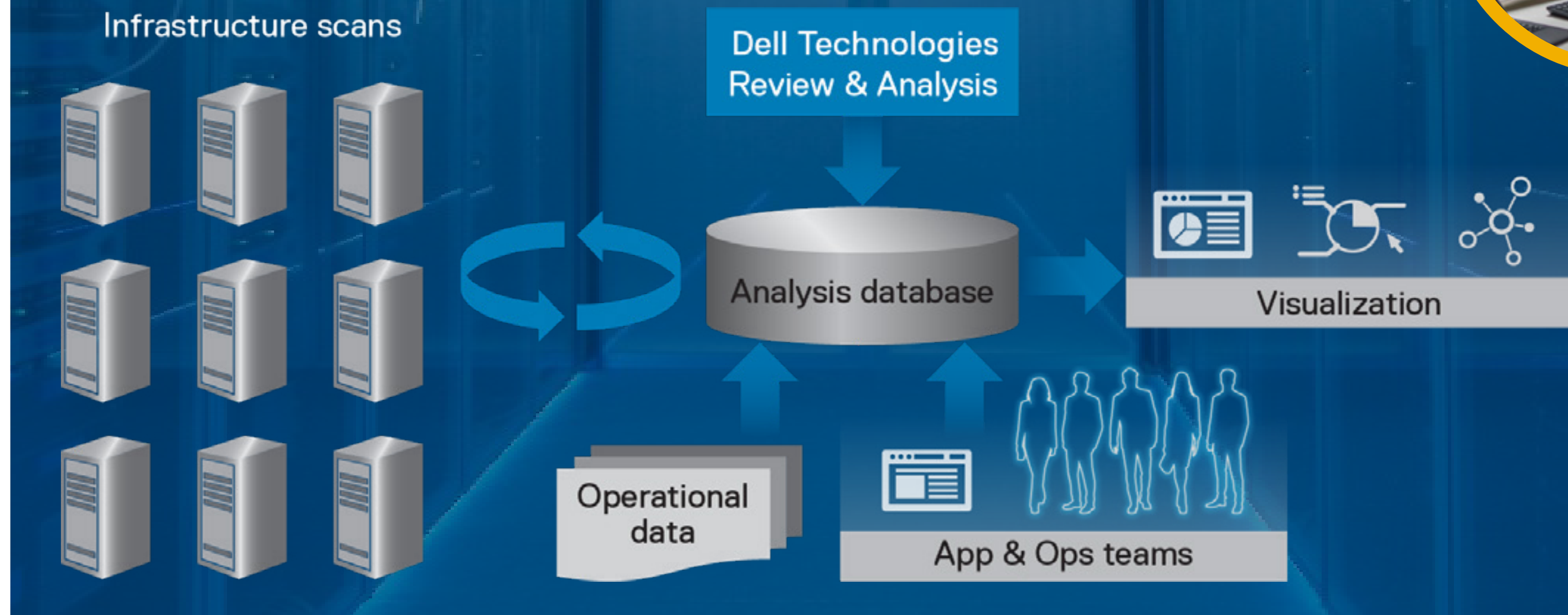
It all starts with your applications

To implement your cloud-aligned data center strategy, you may find it necessary to either consolidate or migrate data and applications from existing data centers into a new consolidated data center, which may include private or public clouds.

When consolidating your data centers, the first thought of many IT teams is to start migrating workloads. But this blanket approach without research may mean that you're migrating applications that no longer matter to the business. Or you may run the risk of migrating to the wrong place if the business wants to take a public cloud approach for an application. And you may miss some low-cost opportunities for upgrading applications and their enviro along the way. Before you start migrating, we suggest that you [analyze your application portfolio](#) to determine which applications are most suitable for private or public clouds and which should be retired because they are no longer important to the business.



Dell Technologies methodology for application portfolio analysis



Minimizing risk for data center migrations

Take an application-focused approach

With a clear picture of the applications that will be migrated to the new data center, what is the best way to move them and the infrastructure?

To minimize downtime, we migrate inter-dependent applications and the infrastructure together. This assures that you can quickly return your applications to production once they're migrated, because they have all the infrastructure and database resources at hand that they need. We call these groupings of inter-dependent applications, databases, serv-

ers and storage devices move packages. This same approach also allows you to recover more quickly should something go wrong during a migration.

Another important migration question concerns the schedule. Most businesses have regularly-scheduled downtime windows for application or infrastructure updates and maintenance. Businesses will often choose to dedicate a series of these downtime windows for migration purposes. Grouping move packages into move events is the principal task of migration planning. Grouping and scheduling of move packages is called a migration event.

Dell Technologies pioneered this approach to [data center consolidation and migration](#); check out this [white paper](#) for more details on how this approach works.

Dell Technologies approach to forming move events from groups of move packages

Move package #1

Move package #2

Move events

#1 #2

#3 #4

#5 #6

The diagram illustrates the process of grouping move packages into migration events. On the left, two groups of move packages, labeled 'Move package #1' and 'Move package #2', are shown as clusters of blue, green, and grey cylinders. A large white arrow points from these packages towards a central circular graphic with concentric blue rings. To the right of this graphic, six distinct migration events are shown, labeled '#1' through '#6'. Each event is enclosed in a dashed white box and contains a 3x3 grid of cylinders. The cylinders in each event are a mix of blue, green, and grey, representing the components of the original move packages. This visualizes how individual packages are combined into larger, scheduled migration events.

Accelerating your migration program

Maximize automation to gain speed and reduce errors

We've learned through hundreds of data center migrations that specialized tools make a big difference in speeding execution and reducing the risk of failures and unplanned outages. We've developed a dedicated toolset for data center migrations, called Dell Technologies DTM Assist, that automates many migration tasks while providing you with a range of capabilities to more effectively manage and monitor your migration program.

DTM Assist simplifies migration planning by mapping out the relationships of your applications and supporting infrastructure, leveraging sources such as your configuration management database (CMDB) or specialized IT discovery tools. These tools provide a good portion of the dependency information, which we typically supplement with interviews and additional listings of application or infrastructure stakeholders.

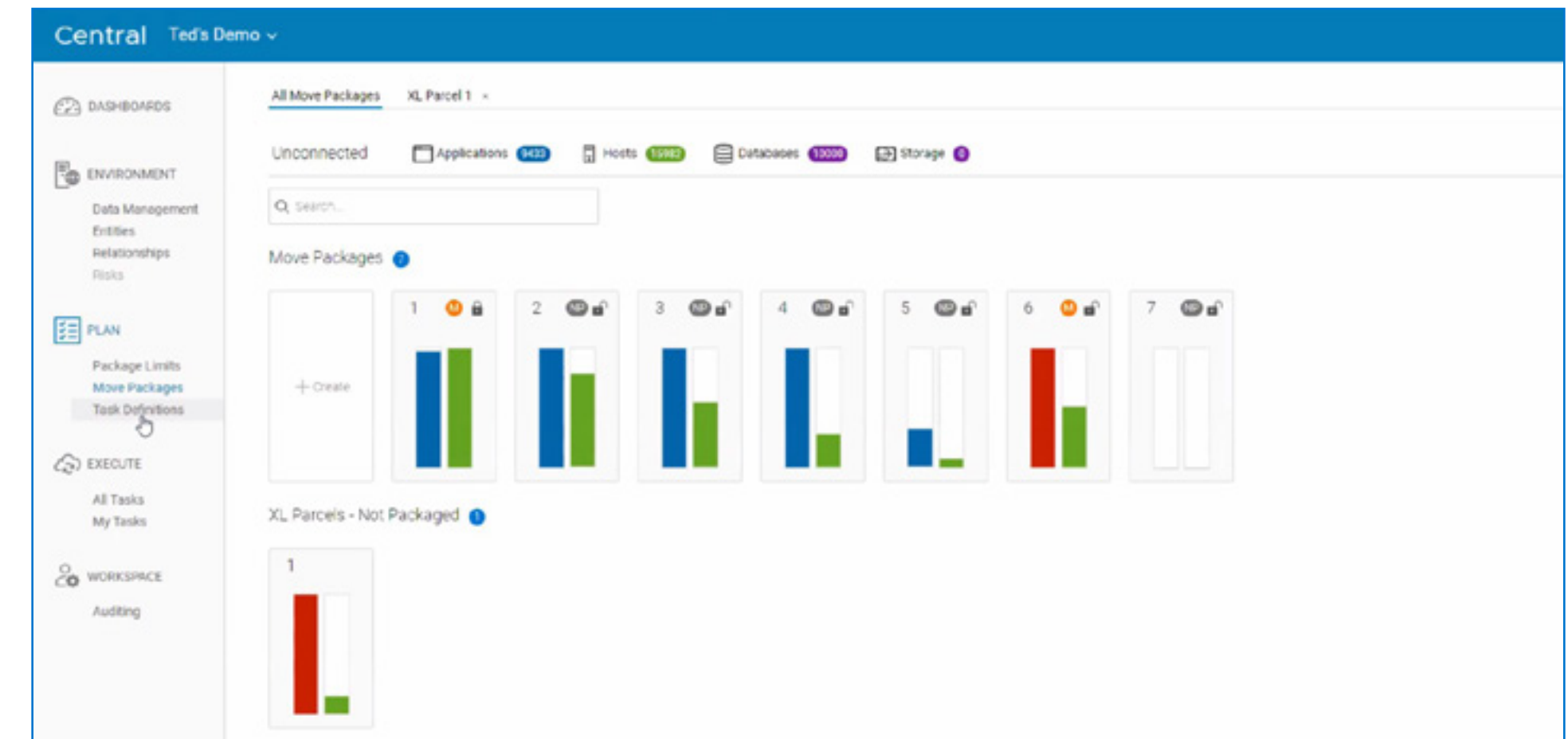
Migration managers can quickly group your inter-dependent applications and infrastructure into move packages by leveraging the powerful capabilities of DTM Assist to automatically generate move packages and assist with the packaging process for large or highly interdependent applications and infrastructure. DTM Assist even automates one of the most challenging tasks by recommending ways to break down large or highly-dependent applications and infrastructure with "Smart Split" capability.



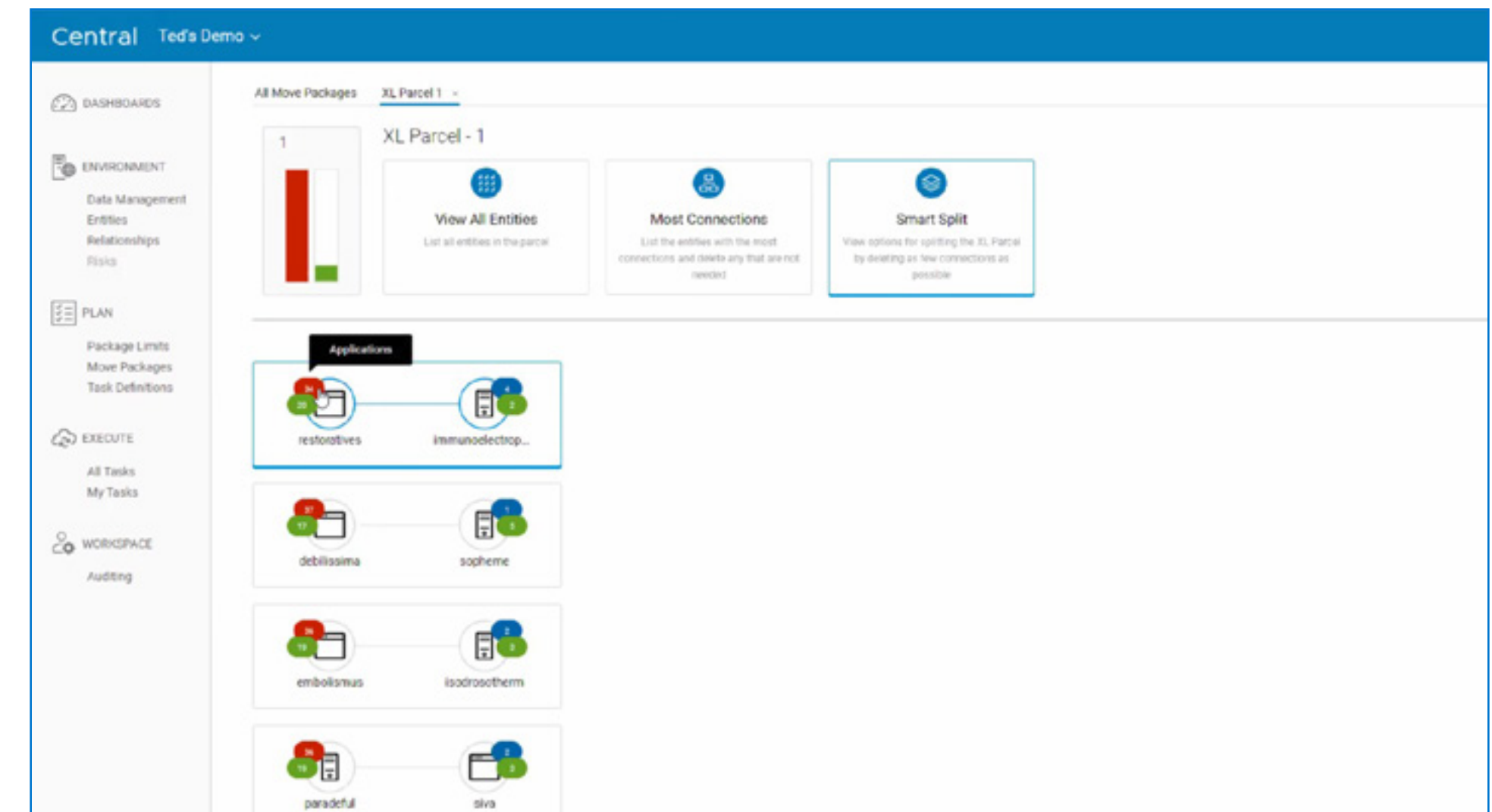
Accelerating Your Data Center Consolidation

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Automatically generated move packages with Dell Technologies DTM Assist toolset



DTM Assist "Smart Split" automated suggestions for breaking down an oversized move package



Tracking and reporting your migration progress

Simplify migration program management and governance

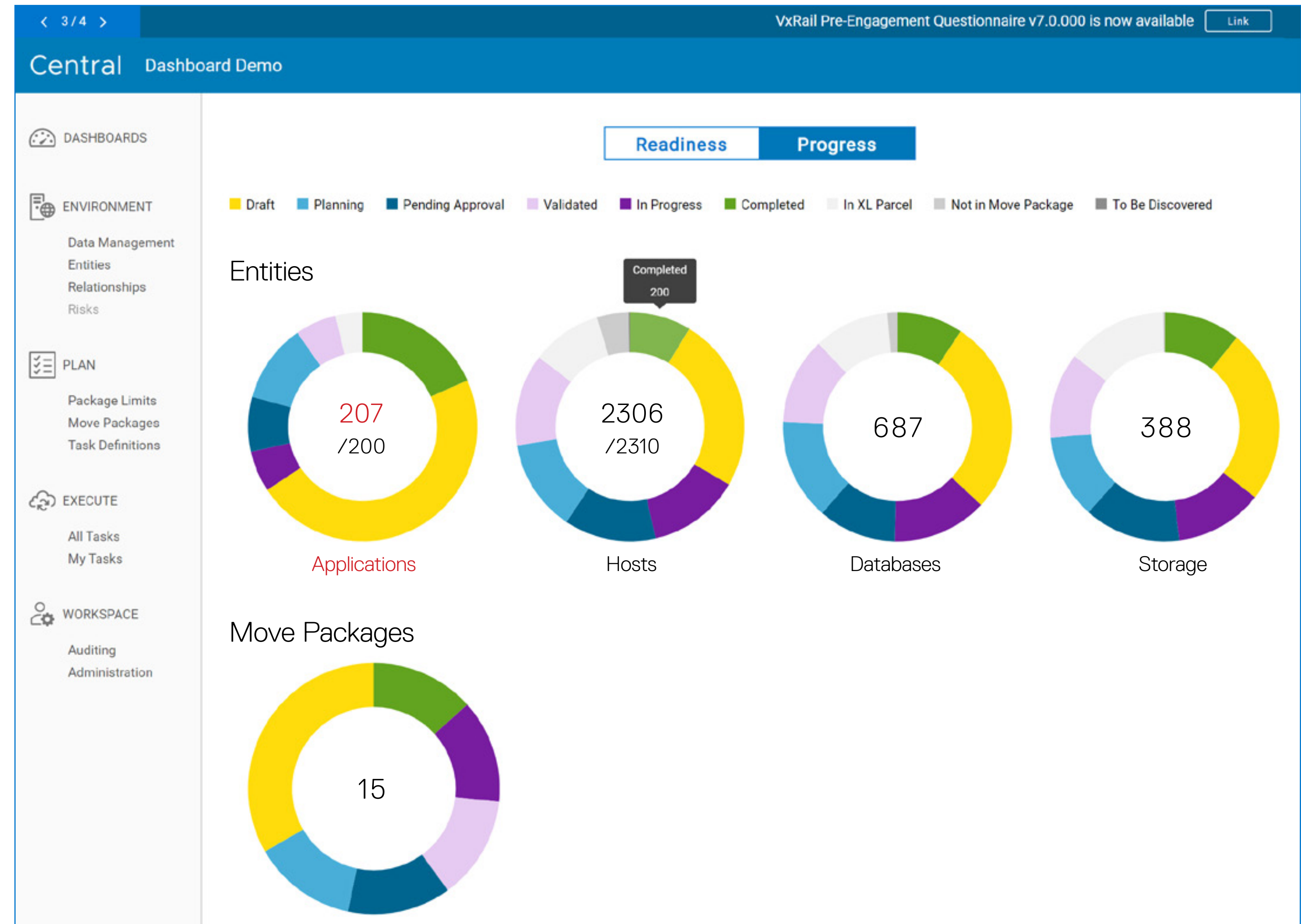
Since migrations touch nearly all applications and IT infrastructure components, IT management and business stakeholders are naturally interested in how well things are progressing.

[DTM Assist](#) simplifies reporting to your stakeholders with dashboards that automatically and dynamically show the progress of your migration program.

There's a readiness dashboard that shows your teams the percentage of applications and server hosts which have already been migrated, those which are ready to migrate, those currently being migrated, those remaining to migrate, as well as any that failed to migrate. You can also drill down to understand more about current reported progress or failures.

All changes to the environment are logged by DTM Assist, allowing for review in case any unforeseen event occurs.

Migration dashboard from DTM Assist reporting migration progress



Accelerating Your Data Center Consolidation

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Making operations faster and more reliable

Automate routine management tasks and application transformation

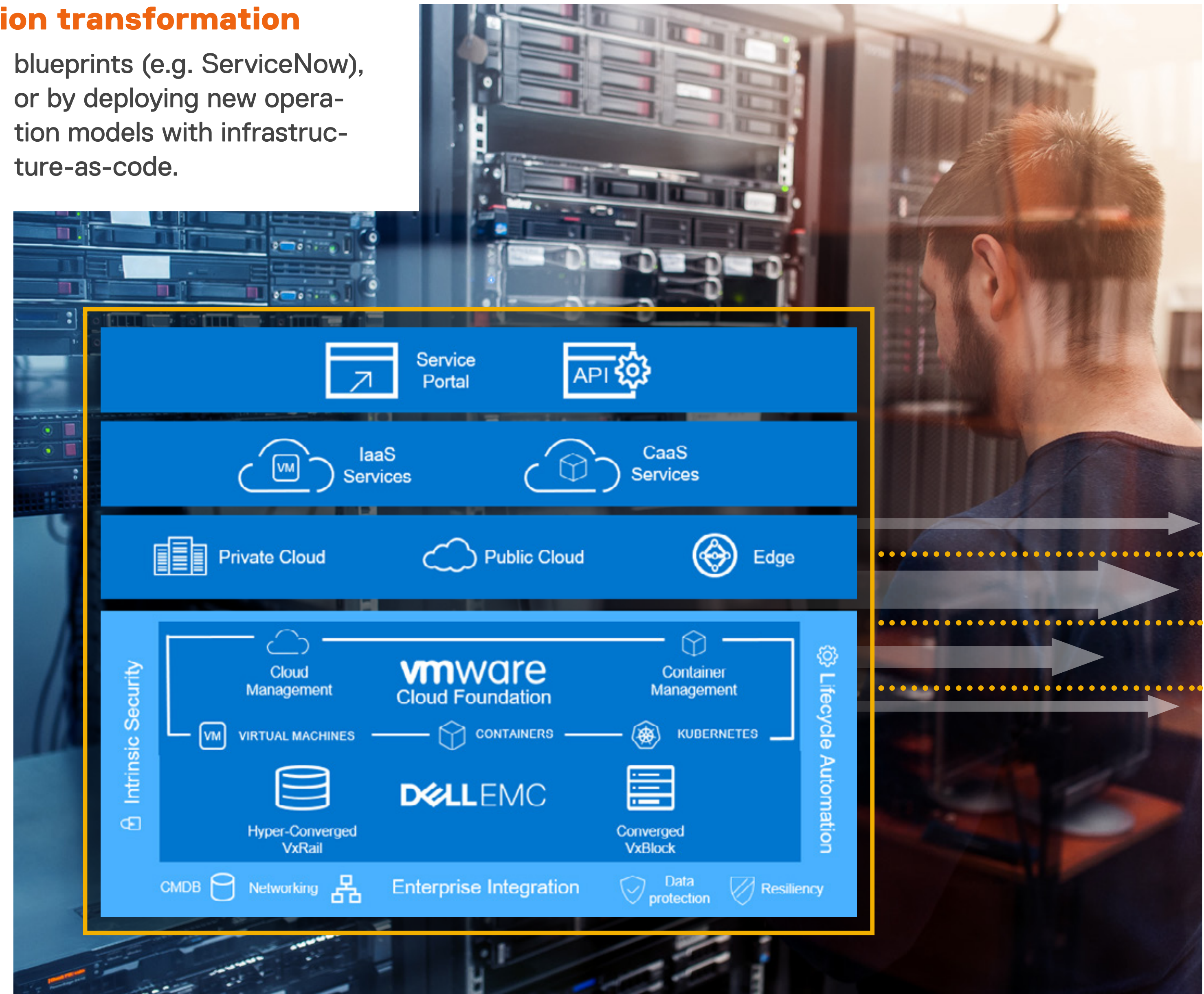
To get more cloud-like speed and flexibility from your data centers means making sure that the applications are aligned with your cloud-based objectives. You also need to re-examine how you are operating these environments. Many clients take advantage of data center migration efforts to modernize the infrastructure to attain a more automated and cloud-like operational model. The Dell Technologies Cloud Platform integrates modern Dell EMC converged and hyper-converged infrastructure with VMware's market-leading cloud manage-

ment software to deliver this cloud operational model.

During this time of change, there's often another force disrupting IT operations: the disruption of application development. Often described as DevOps, this transformation of application development automates many traditional application development tasks, including building, testing, packaging, releasing, configuring and monitoring code. Even some portions of infrastructure can be considered code that can be automatically deployed under program control. Infrastructure-as-code dramatically changes the role of IT operations from infrastructure builders to infrastructure managers.

blueprints (e.g. ServiceNow), or by deploying new operation models with infrastructure-as-code.

[Dell Technologies Services](#) can help your IT teams harness the power of these innovations by developing service automation



Realize data center savings faster with Dell Technologies services

Gain up to 81% ROI, with benefits realized 2 years sooner

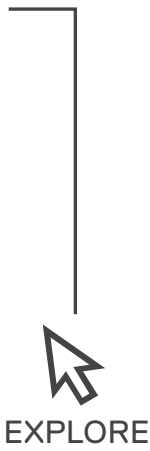
With many competing priorities, many IT organizations struggle to execute data center strategy and migration initiatives. Is it worth it to pay an external provider for these services?

Forrester Consulting studied the return on investment using Dell Technologies Consulting to help with data center initiatives. The results show that using an experienced profes-

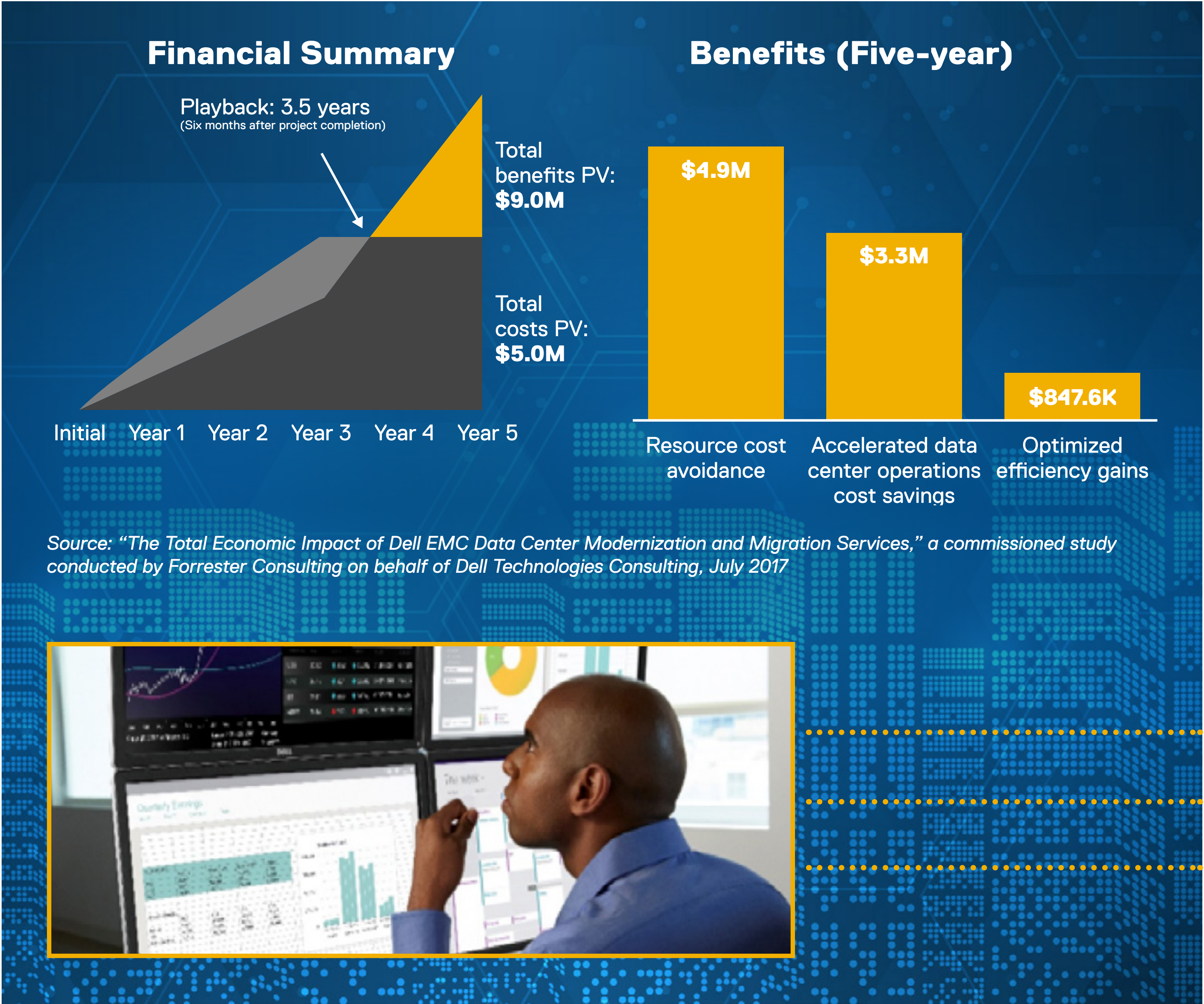
sional can help you more quickly and accurately achieve complex data center endeavors.

Dell Technologies' automated process was shown to increase ROI, optimize efficiency gains, lower monthly costs and decrease migration times. When comparing a Dell Technologies project and an in-house project, the in-house project required more time to be completed.

Forrester Consulting's study found that over a five-year period, Dell Technologies data center projects realized an average ROI of 81% and achieved optimized resource efficiency two years sooner.



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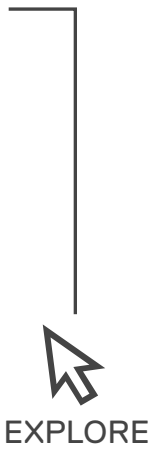
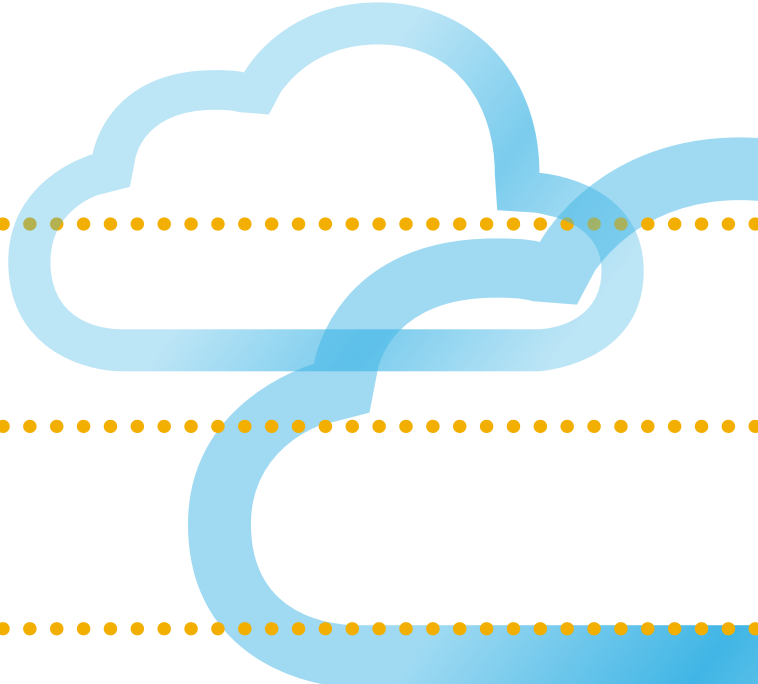


What's next?

With rising public and private cloud consumption, is it time for you to take a serious look at the role of your data centers? Or are you trying to ascertain the impact of emerging technologies, such as edge computing and containers, on your data center services?

Let our years of data experience guide your approach. We can advise you on the best way to achieve your business objectives with a more fact-based data center strategy. By leveraging our tools and expert consultants, we help you quickly realize your strategy and the cost and agility benefits from a cloud-aligned data center vision.

Contact your [Dell Technologies Sales Representative](#) to learn more about how our [expertise](#) can help you with your data center challenges.



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