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Navigating your software-defined networking journey

Deploy SDN to help meet agility, efficiency and security business goals

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01 Evolution of software-defined networking (SDN)

By now, most people are aware of what software-defined networking (SDN) is, and how this solution can help drive better business results. But many organizations that want to take advantage of the benefits of SDN as a part of their digital transformation are unsure where to start.

Some teams make the mistake of selecting a solution at the beginning of their SDN journey. But most successful SDN implementations consider business drivers first and choose a solution based on those goals.

A trusted SDN implementation business partner can help you focus on those drivers to help find a solution and deployment strategy that meets your unique business goals. Known for revolutionizing the way networks are conceptualized, deployed and managed, SDN can meet your networking needs that are being poorly addressed by existing networks.

As digital transformation efforts continue, enterprise applications are becoming more complex, dynamic, distributed and resource-intensive. In addition to becoming cloud-native, modern applications are containerized for speed and agility when developing new services. But deploying containers in a scalable, manageable and secure way that provides an underlying network infrastructure is a challenge.

With the continued evolution of SDN technology, it's possible to provide seamless connectivity and security services for all types of end-points. From virtual machines to containers and bare metal machines, you can use use a single network overlay, abstraction and unified policy framework, whether your technology resides in a data center, remote office, branch or in the cloud.

Organizations choose to pursue SDN for a number of different reasons. These business drivers typically fall into one of **four main areas**:

Efficiency

SDN business drivers

Agility

Security

Hybrid cloud integration

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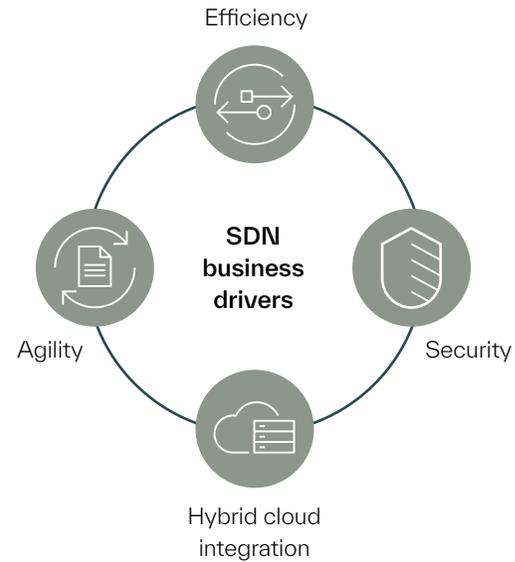
02 Business drivers for SDN

Agility

Many organizations have already dedicated significant time and resources to creating agile compute and storage environments, but have failed to modernize their network environments in the same way. This approach is a mistake because the network forms the foundation of the entire IT infrastructure. Automating storage and compute environments without the network creates an agility bottleneck and prevents IT infrastructure from performing at optimal levels. By adopting SDN, you can get the agility they need to respond quickly to change and capitalize on modern innovation opportunities.

Efficiency

Traditional network services are difficult and time consuming to manage, frequently requiring error-prone manual processes that can prevent your organization from being as efficient as possible.

Transitioning to SDN can help organizations use their resources as efficiently as possible, freeing up funding to invest in innovation and digital transformation opportunities. In addition, automating manual processes allows employees to spend more of their time on high-value work.

Security

The risks of inadequate digital asset protection are clear: falling victim to a breach or failing to comply with regulations such as the General Data Protection Regulation (GDPR) could cost millions and permanently damage your organization's reputation.

In many ways, an IT environment is only as secure as the network that underpins it. With SDN, there are various use cases that can help make your network more secure.

Hybrid cloud integration

With hybrid cloud, organizations can bring together the best of both worlds: gaining the flexibility and scalability of cloud services in some areas of the business, while maintaining the customization and control of on-premises operations in others. Designed to simplify and streamline your overall environment, you can use a hybrid cloud approach to apply common policies across cloud and on-premises environments.

Adopting SDN can put you in a position to make the most of hybrid cloud for IT as a service (ITaaS) offerings. Rather than building out the new services yourself, you can simply turn off and on new cloud services when they are needed. This flexibility can enable you to replace large up-front capital expenses with manageable operating expenses.

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03 SDN use cases

There are various uses cases organizations can explore when they consider SDN. Again, the use cases an organization selects should be based on the unique needs of the business. Use cases the organization does not need can be left out of their SDN roadmap.

These are **four critical use cases** that should typically be included in a SDN roadmap:

Software-defined environment (SDE) integration

Network management and provisioning

Microsegmentation and zero-trust policies

Network service chaining

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03 SDN use cases

We no longer live in a world where organizations can look at different elements of their IT infrastructure as distinct and separate silos. To pursue ITaaS for hybrid cloud interconnectivity is imperative, since you'll need a fully integrated SDE in order to meet your goals. But many organizations with this goal don't have a modernized network environment.

In a traditional IT environment, resources are assigned manually. Not only does this make it more difficult for the organization to adapt to change, it also creates a time-consuming task for employees whose efforts would be better spent elsewhere.
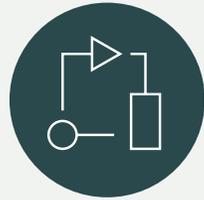
With SDE integration, IT administrators can manage the entire IT environment from a centralized orchestrator. The use of a centralized orchestrator can deliver greater agility and efficiency, as the distribution of resources throughout the IT environment can be automated. SDE helps the organization respond to changing priorities quickly.

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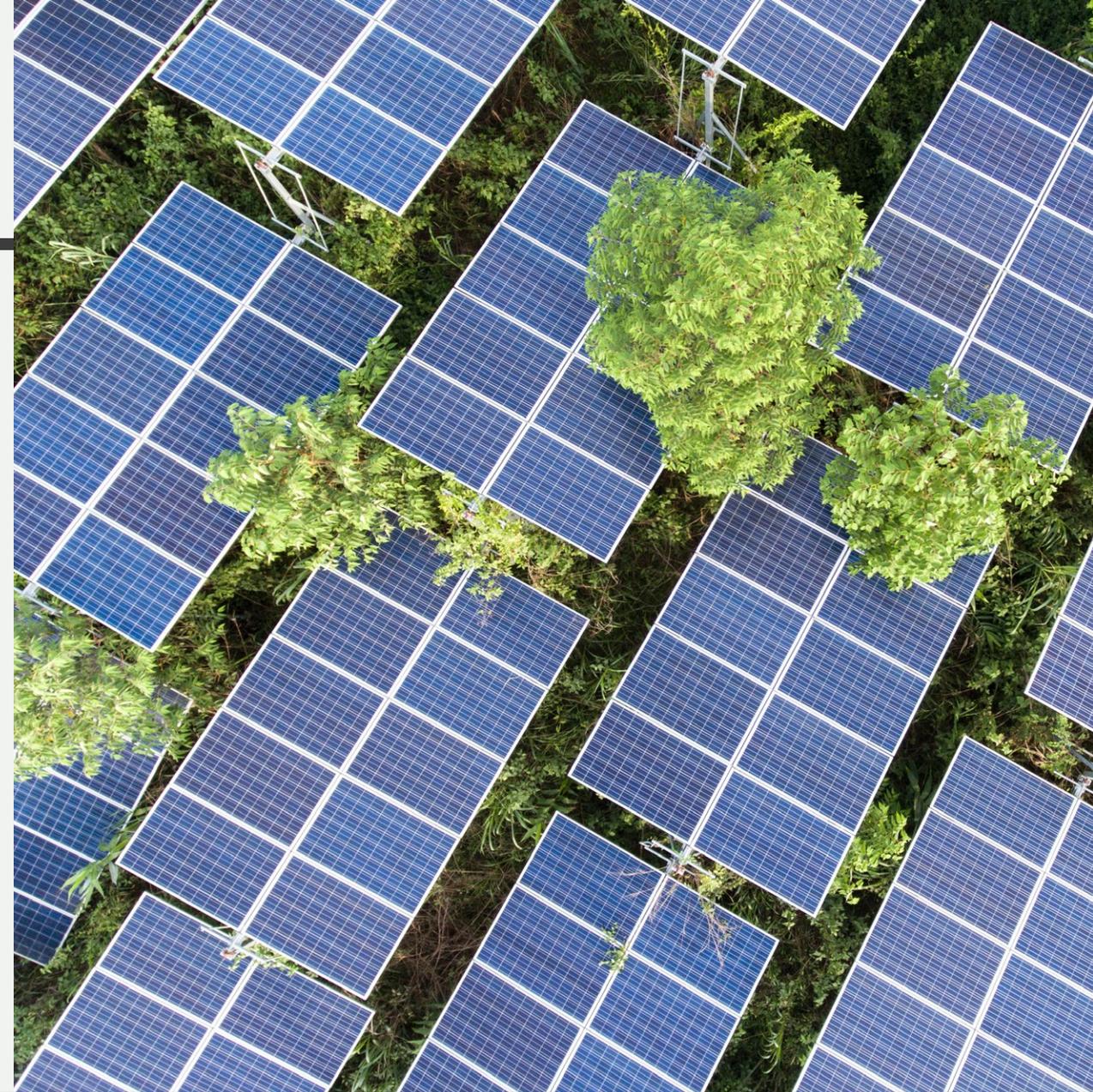
03 SDN use cases

SDN can provide you with advanced network management capabilities, allowing for greater programmability and visibility throughout the entire network. You can also use SDN to efficiently deploy analytics that help identify potential network issues before they negatively impact performance.

SDN empowers you to quickly provision new business apps whenever they are needed, helping support greater agility throughout the organization.

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03 SDN use cases

SDN enables microsegmentation to support greater application by assigning unique, granular security policies to each application. This approach helps ensure that appropriate levels of security, are applied across the entire network. For example you could implement zero-trust policies in which the network assumes that all users and access requests are not trustworthy until it establishes otherwise. This approach helps limit the damage caused by data breaches, since a vulnerability in one application will not spread throughout the network.

While microsegmentation has clear security benefits, it can also dramatically increase the complexity and cost of managing the network. But SDN enables microsegmentation with virtually none of the potential drawbacks by maintaining a centralized topology view that can provide visibility and management capabilities across the environment.

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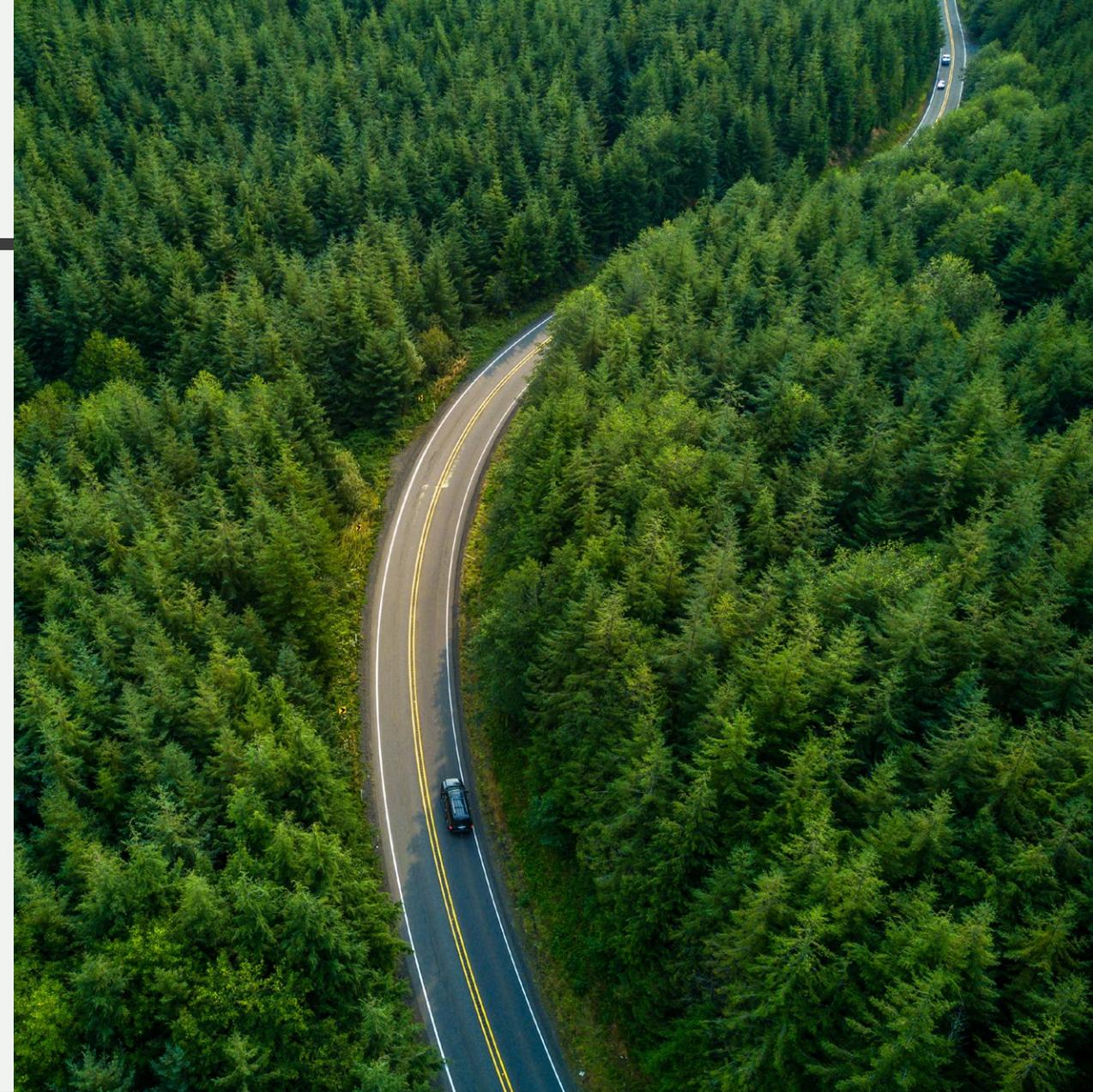
03 SDN use cases

Network service chaining is not a new idea, but SDN offers a different and better way to make it happen. Traditionally, building a chain of network services has been a very time-consuming and inefficient process. Building a chain of network services used to rely upon IT teams to manually cable network devices together in a certain sequence, and then configure a dedicated hardware device to support the chain.

In addition, the entire chain would have to be reconfigured to increase capacity every time there was an increase in application loads. Businesses experiencing fluctuating levels of demand throughout the year would have to build enough capacity to handle the maximum level of demand, and therefore pay for capacity they do not need during the rest of the year.

With SDN, you can use the controller to configure and reconfigure service chains quickly and easily, without the manual processes. Service chaining allows you to adjust capacity up and down as demand fluctuates, so you're not stuck paying for unneeded capacity. In addition, network function virtualization allows your organization to run functions on more affordable commodity hardware, rather than requiring a dedicated hardware device.

04 Identifying an SDN business partner

Due to numerous approaches towards adoption of SDN, architectures, evolution of standards and its implementation, as well as a range of products from traditional vendors and new entrants, today's environments are extremely complex. In order to make sure your SDN initiative ends up meeting your business requirements, it is important to work with a trusted partner.

Identify the right product for you, based on the requirements of your organization

Provide unbiased advice and have good working relationships with the leading vendors in the space

Demonstrate a trusted reference architecture and have experience deploying SDN products based on business drivers

Integrate networking, compute and storage in a single integrated environment to help your organization create a business case for ITaaS offerings and capitalize on the potential of cloud services

Offer you the opportunity to experience the technology first-hand before adoption

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05 Why Kyndryl?

Kyndryl has deep expertise in designing, running and managing the most modern, efficient and reliable technology infrastructure that the world depends on every day. We are deeply committed to advancing the critical infrastructure that powers human progress.

We're building on our foundation of excellence by creating systems in new ways: bringing in the right partners, investing in our business, and working side-by-side with our customers to unlock potential.

For more information

To learn more about Kyndryl software-defined networking, contact your Kyndryl representative or visit us at kyndryl.com

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