Software-Defined, Multicloud Networking: The Key to an Agile Connected Enterprise

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Executive summary

Global economic instability, increasing cybersecurity threats, talent shortages, and hybrid work models are driving organizations to invest in digital infrastructure and services. Priority technology investments in cloud, machine learning/artificial intelligence, Internet of Things (IoT), and edge are aimed at growing revenue and increasing efficiencies, with the ultimate goal of attaining the status of a "Future Enterprise," the gold standard in digital transformation.

However, traditional enterprise network architectures are a bottleneck to creating an agile connected enterprise because they were neither architected for a multicloud environment nor intended to facilitate digital transformation. Moreover, hybrid cloud and cloud-first strategies have created new vulnerabilities in the enterprise environment.

IDC research shows that enterprises are prioritizing organizationwide initiatives around a centralized strategy for connecting people, processes, and applications. The desire is multi-access connected environments to unlock agility across their organizations.

This IDC InfoBrief takes a closer look at the benefits of taking a secure, software-defined networking approach and investing in next-generation technologies such as SD-WAN, virtual network services (VNS), and multicloud networking to address performance and security challenges.

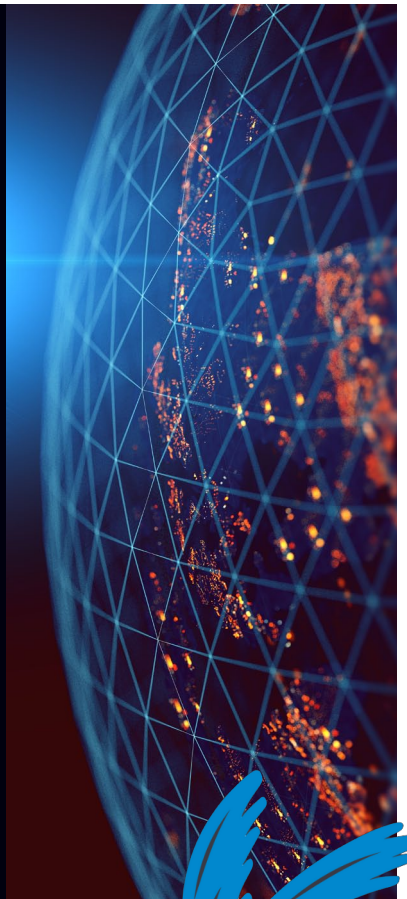
80%

of decision makers worldwide recognize that digital infrastructure is critical to creating an agile connected enterprise[1]

However, only

50%

of organizations believe that their networking environment meets the demands of a future enterprise and is a pressing matter[2]



Source:
[1] IDC FutureScape: Worldwide Future of Digital Infrastructure 2023 Predictions — Asia/Pacific (Excluding Japan) Implications
[2] IDC Asia/Pacific Connectivity and Collaboration Survey, 2022, n = 1,200

Networks and ubiquitous connectivity underpin digital transformation

Organizations' need for technology and connectivity today goes beyond linking branch offices and remote sites. They require connectivity to a multicloud, software-as-a-service (SaaS) environment, distributed datacenters, and an increasingly mobile workforce.

For many organizations, however, their existing legacy networks and information and communications technology (ICT) infrastructure continue to hamper their ability to fully achieve their goal of becoming an agile connected enterprise.

Over
49%
of Asia/Pacific enterprises surveyed feel their network is not ready for next-generation technologies such as IoT, edge, and cloud-based networks

Key challenges hampering transformation

- Uneven access to connectivity, both domestically and internationally
- Cost to acquire access to connectivity
- Difference in quality of connection depending on location, device, or carrier
- Interoperability between different networks and endpoints progress

Source: IDC Asia/Pacific Connectivity and Collaboration Survey, 2022, n = 1,200

Business impact of a disjointed cloud-network strategy

Retail

SINGAPORE

A large retail chain's new cloud-based point-of-sale system experienced slow performance due to inefficient network traffic routing.

RESULT

Snaking queues for a week and revenue declined by a third.

Manufacturing

THAILAND

A major automotive company faced intermittent network drops, resulting in inefficient communication between machines and, hence, frequent outages on the production floor.

RESULT

Drop in daily car production due to the loss in productivity at the manufacturing plant.

Hospitality

CHINA

A large hotel chain's legacy network caused poor performance of self-check-in/ check-out kiosks and other room management functions.

RESULT

Long wait times and poor guest experience.

Banking

HONG KONG

A bank experienced latency issues with inflexible traditional networks.

RESULT

Revenue leakage due to significant delays in trade execution on the trade floor.

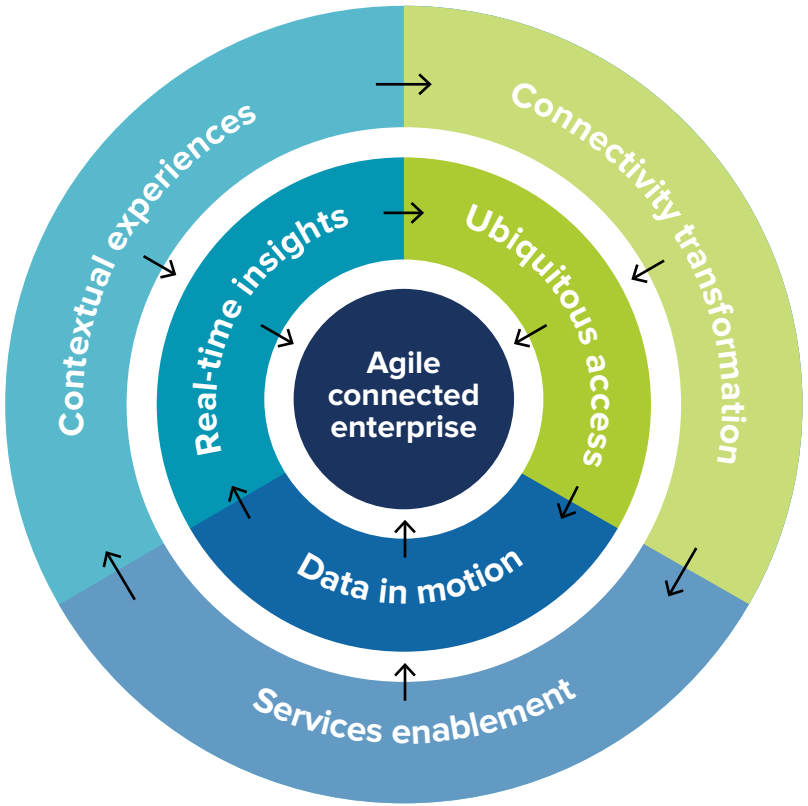
A vision and road map for the agile connected enterprise

The success of any company in the digital era depends on its connectedness, which refers to **enabling the timely movement of data across people, things, applications, and processes to create seamless digital experiences**.

Organizations that embrace connectedness as a strategy are well placed to become more agile and resilient in adapting to changing business demands and an increasingly distributed workforce.

The Future of Connectedness 2.0

IDC's Future of Connectedness 2.0 research framework provides a simplified ideology for organizations to build a networking and technology strategy for seamless connectivity, regardless of location, situation, or context. There is no actual end state to connectedness, and it is an evolutionary path that improves agility, increases business flexibility, and allows organizations to adapt to change as market or business conditions shift.



Contextual experiences

allow employees to be more productive and customers to be satisfied with the transaction or outcome, and data-intensive business processes can scale and provide real-time insights.

Connectivity transformation

enables ubiquitous access, where employees can interact with customers, business applications, and each other anytime from anywhere.

Services enablement

creates a path toward mul ss netwo cloud, and edge technol at ke in motion and guarantee s and resiliency.

Source: IDC Perspective, The Future of Connectedness 2.0: Redefined, Doc. #US50724123, June 2023

Connectedness still a goal to be reached for Asia/Pacific enterprises

Ubiquitous connectivity remains an elusive goal for many Asia/Pacific organizations, with only 4% of those surveyed at the most advanced stage in their Future of Connectedness journey.

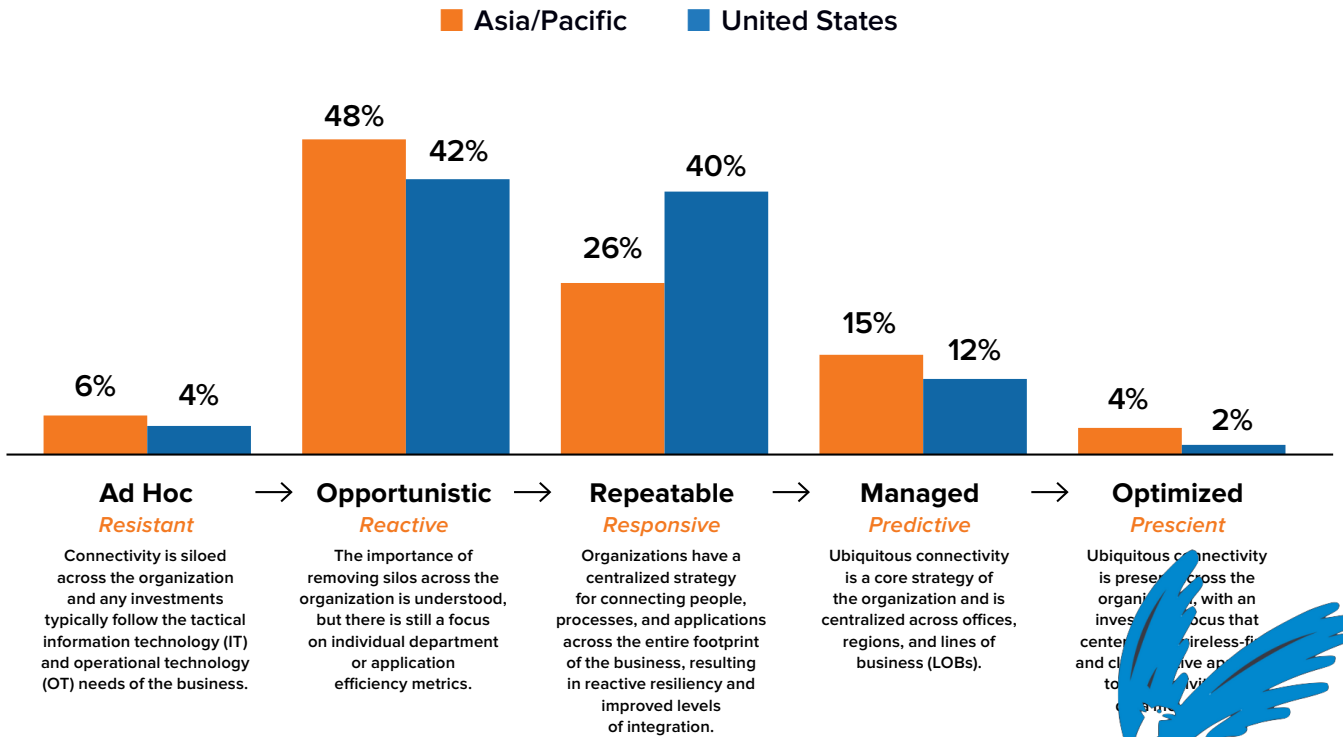
About 54% of organizations are stuck in the early stages of transformation due to various reasons, such as poor alignment with business goals and choice of technology partner. Their connected environments are either competitively neutral or a source of competitive disadvantage.

Those behind the curve must find a way to overcome the limitations and static nature of their traditional ICT and network infrastructure.

Software-defined and multicloud networking is the key to this whole journey.

Where are you on your Future of Connectedness journey?

IDC's Future of Connectedness MaturityScape benchmark maps organizations on a five-point maturity model and finds that Asia/Pacific is marginally ahead of their U.S. peers in achieving their full transformation goals.



Source: IDC Future of Connectedness MaturityScape Benchmark Survey 2022, AP n = 254

Traditional network, ICT infrastructure hampering transformation progress

Digital initiatives of a distributed enterprise put tremendous strain on legacy network infrastructure, hampering its transformation progress.

Key challenges of legacy networks

Too rigid and difficult to scale

Does not provide the business agility required to support digital transformation initiatives

Lack of security, visibility, and control

Poorly suited to security requirements associated with distributed and cloud-based applications

Inefficient multicloud access

No support for efficient branch-to-cloud traffic

Application performance issues

Overreliance on internet, which is not designed to handle the explosive growth in the dynamic bandwidth requirements of diverse user applications

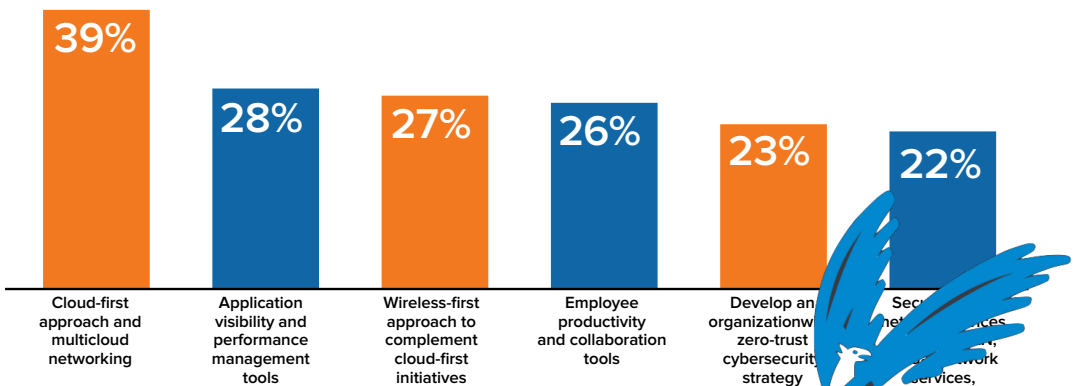
Increasing operational costs

Rising network capacity requirements to support digital initiatives resulting in higher operational costs

Modern enterprise requirements are best addressed by a **digital-native network** which adopts a software-defined networking approach. A digital-native network leverages a reliable, flexible underlay, bringing the benefits of multicloud networking and software-defined overlay such as SD-WAN and other virtual networks services.

This aligns with IDC's research, showing **multicloud networking** and **SD-WAN** among the top priority technology areas for the next 12 months.

Top investment priorities for 2023–24

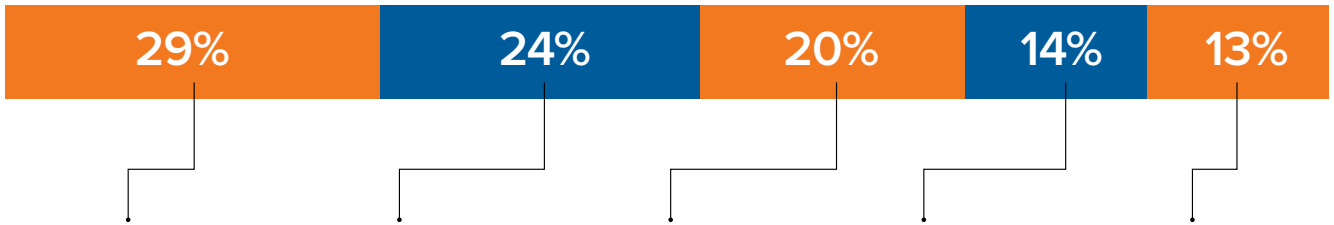


Source: IDC Asia/Pacific Connectivity and Collaboration Survey, 2022, n = 1,200

Digital-native network for ubiquitous connectedness

Transforming into an agile connected enterprise requires a digital-native network to support it — an application-centric network that delivers the right end-user experience for each application, user, and the overall partner ecosystem.

Expected benefits from a digital-native network



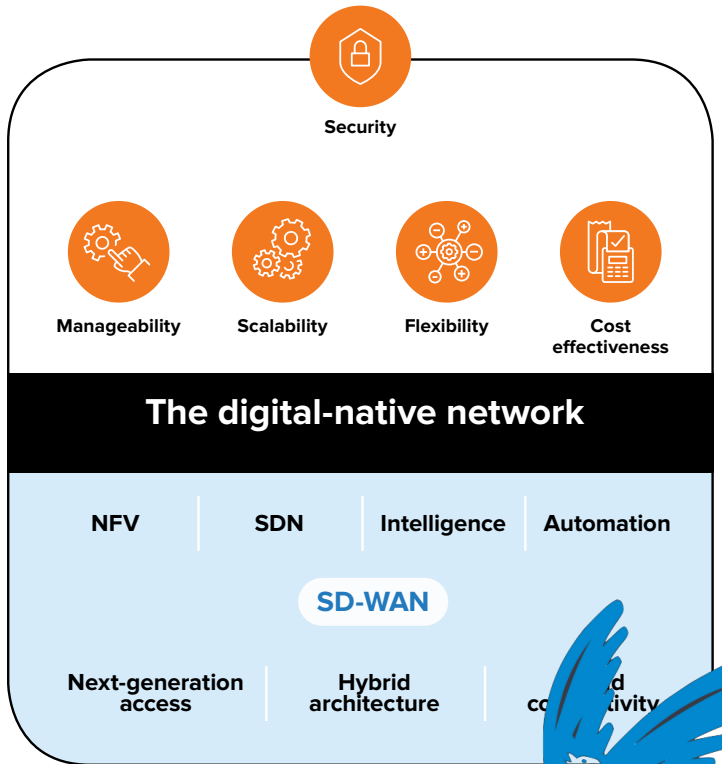
Manageability reduces complexity to provide increased visibility into network and application performance, and to allow end users to take direct action via self-service tools.

Scalability allows the network to cope with ever-increasing bandwidth needs.

Flexibility allows organizations to immediately respond to changing requirements.

Cost effectiveness enables the balancing act between growing requirements and much flatter budgets.

Security safeguards data and applications from a growing range of threats and ensures compliance.



Source: IDC Asia/Pacific Connectivity and Collaboration Survey, 2022, n = 1,200

SD-WAN — a software-defined networking approach for improved access and connectivity

To keep up with digital business needs, organizations must use a **software-defined networking approach** that combines a variety of different **underlay networks** (such as multiprotocol label switching and internet) and **SD-WAN** to better manage this combination of underlay with **integrated security**.

Most enterprises have a variety of locations worldwide, each with a different set of network needs. While some locations may have users accessing critical, time-sensitive applications hosted in the cloud, others may mostly access non-critical applications or SaaS solutions.

By 2023,

50%

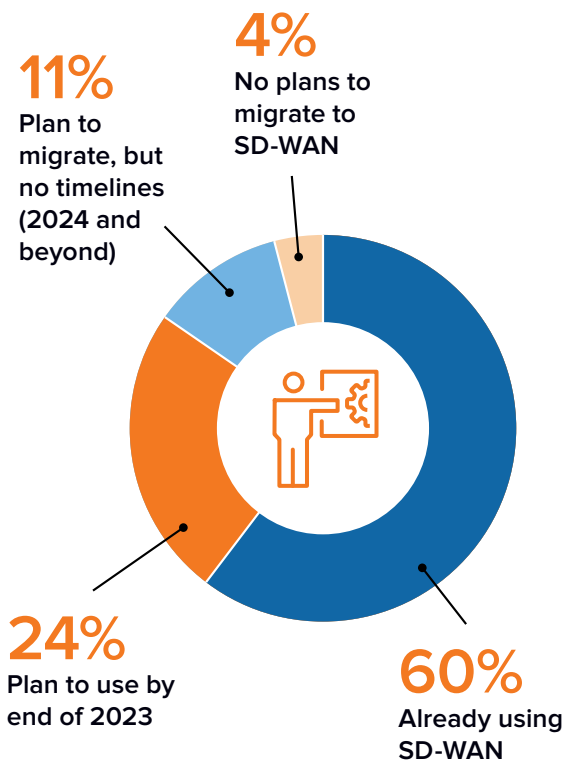
of Asia/Pacific large enterprises will benefit from optimized operational efficiency, enhanced security, and reduced network costs by leveraging SD-WAN and security for cloud-managed networking and security

Source: IDC FutureScape: Worldwide Future of Connectedness 2023 Predictions — Asia/Pacific (Excluding Japan) Implications

Asia/Pacific sees rapid growth in SD-WAN adoption

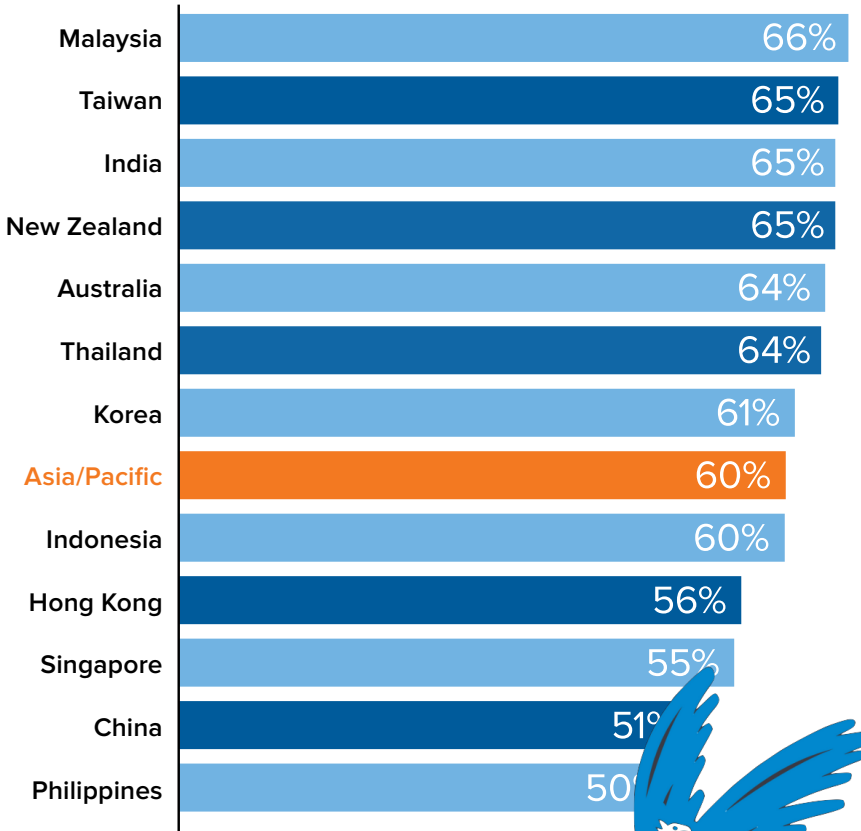
SD-WAN has become an integral part of an enterprise's Future of Connectedness strategy, with 84% of organizations having implemented or are planning to implement an SD-WAN solution by the end of 2023.

SD-WAN adoption in Asia/Pacific



The SD-WAN approach is becoming popular with organizations, but they face challenges when it comes to adoption, because of multiple flavors of SD-WAN provided by start-ups, established technology vendors, communication service providers (CSPs), and managed service providers (MSPs).

Percentage of organizations already using SD-WAN

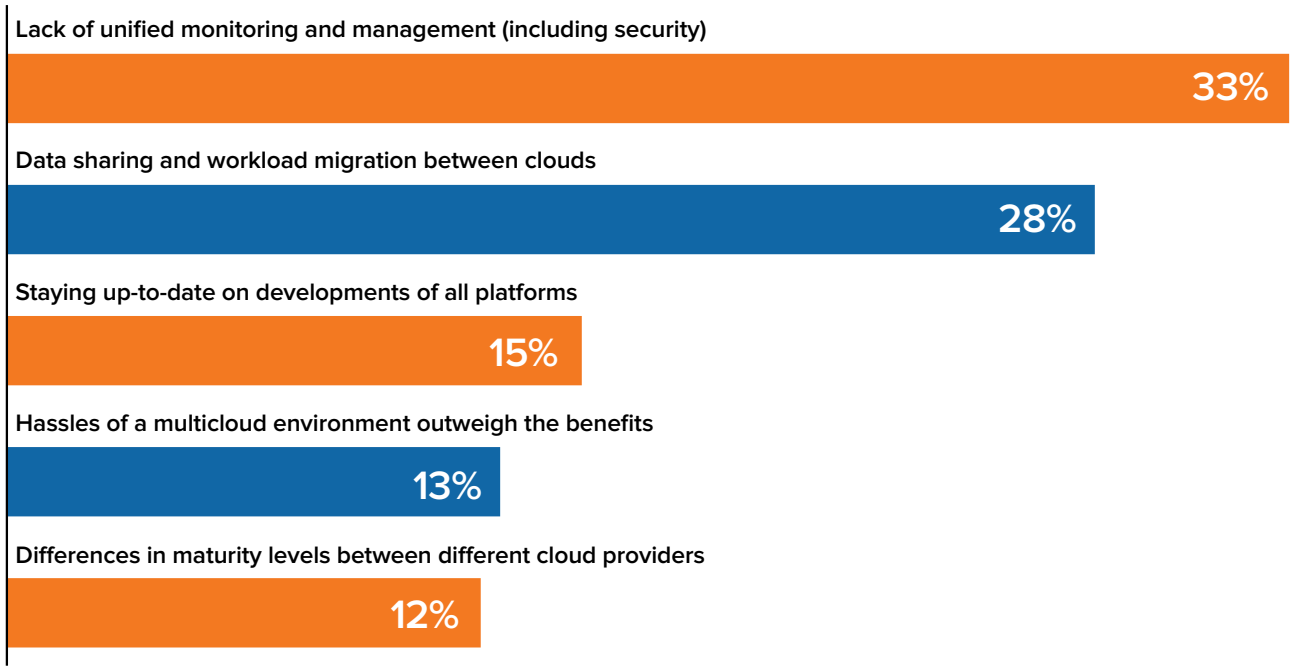


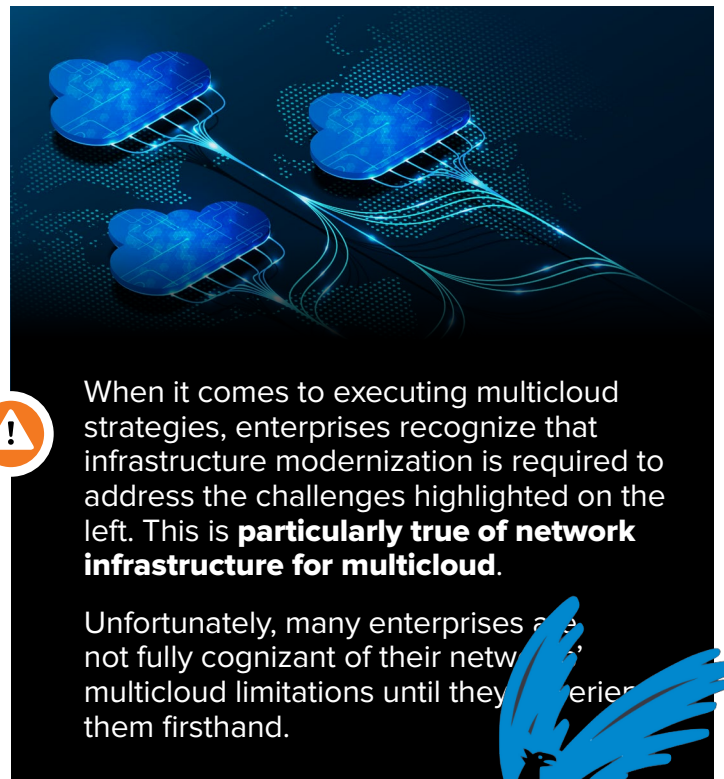
Source: IDC Asia/Pacific Connectivity and Collaboration Survey, 2022, n = 1,200

The inevitable realities of a hybrid multicloud world

Cloud has emerged as the operating model of choice for enterprises looking to accelerate and scale their transformation. However, in order to successfully realize its benefits, they must plan carefully to navigate the complexities of a hybrid and multicloud estate.

Enterprise challenges in executing a multicloud strategy





When it comes to executing multicloud strategies, enterprises recognize that infrastructure modernization is required to address the challenges highlighted on the left. This is **particularly true of network infrastructure for multicloud**.

Unfortunately, many enterprises are not fully cognizant of their network's multicloud limitations until they experience them firsthand.

Source: IDC's Asia/Pacific Cloud Survey, 2022

Multicloud networking — achieving cloud-network synergy for maximized benefits

The recent global economic upheavals and supply chain disruptions further highlight the importance of a flexible and resilient network infrastructure, driving organizations to see cloud as a critical component of their ICT strategy.

As a result, the cloud conversation has evolved beyond the question of **"whether or not cloud"** to **"how many clouds"** and **"how to manage the complexities of a multicloud environment"**.

The network, by its very nature, cannot afford to be a weak link.

Only 50% of Asia/Pacific organizations believe that their network architectures are ill-equipped to help them reap the most out of their cloud investments.

As a result, organizations are actively looking for partners to help them on their multicloud journey.

By 2027,

70%

of organizations will invest in specialized cloud-based performance-intensive computing environments to gain agility, scale, and faster business insights[1]

75%

of organizations in Asia/Pacific are using more than two public cloud providers[2]

Source:
[1] IDC FutureScape: Worldwide Cloud 2023 Predictions — Asia/Pacific (Excluding Japan) Implications
[2] IDC's Asia/Pacific Cloud Survey, 2022

Preparing for multicloud networking — challenges and risks

Multicloud networking is designed to simplify the typically complex task of providing agile, flexible, elastically scalable, and secure networking for workloads, workflows, and data spanning disparate cloud environments. But this transition is not without challenges and risks.

For example, some organizations are unfamiliar with automation and cloud. Help from their service provider partners and skills upgrades can ease the transition.

Technology description
Multicloud networking provides operational simplicity, consistency, and elastic sociability across disparate cloud environments.

Benefits
Multicloud networking delivers business and technology benefits, including greater agility, flexibility, cost savings, and efficiency.

Critical success factor
Collaboration and consultation are critical. Networking decisions must be guided by strategic considerations from CXOs, architects, and LOBs.

Adoption
Current adoption is low as a consequence of the nascent market, but growth through 2026 will be high.

Risks
While there are operation and skills-related risks in adopting multicloud networking, the risks of not doing so are greater.

Investment
Investments in a multicloud network can vary depending on multiple factors, but most enterprises would perceive it to be a medium expense.

Multicloud networking: Risk profile

Business/IT risks

Information
KEY CONCERN
Success is contingent on network and IT operations understanding application needs of the business.

Risk of not using technology
KEY CONCERN
Multicloud networking is a necessary element of digital infrastructure in a multicloud context.

Architecture & processes
KEY CONCERN
Network architecture, infrastructure, and operations must be modernized, but the benefits outweigh costs.

Security & compliance
KEY CONCERN
The solution should ensue that validated and consistent policies can be implemented across clouds.

IT talent
KEY CONCERN
Network operators must adapt t… extensive automation, declarati… and cloud models.

Source: IDC TechBrief: Future of Digital Infrastructure — Multicloud Networking, Doc. #US49692122, October 2022

Key questions to ask before embarking on a secure multicloud journey

As businesses increasingly transition to public/private clouds and SaaS environments, the need for an on-demand network that can seamlessly scale and ensure performance becomes paramount.

IDC notes that many enterprises tend to neglect or underestimate the importance of network modernization when adopting multicloud strategies. Ultimately, they realize — at significant expense — that a revamped network is critical for achieving the success of the multicloud environment.

When planning for a multicloud network, here are some questions enterprises should ask themselves:

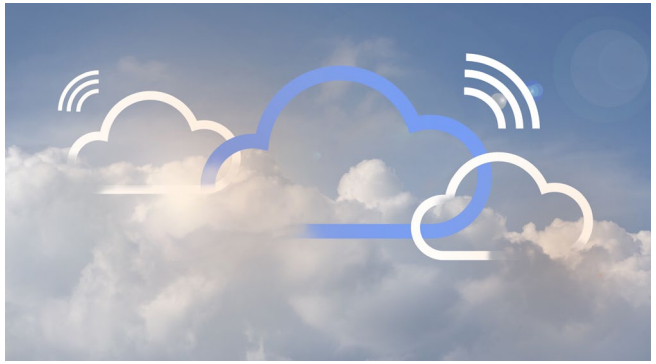
? What does my application and workload landscape look like today, and how will it evolve in the foreseeable future?

? At what rate am I migrating new and existing workloads to public clouds?

? Am I leveraging hybrid cloud today and moving toward a more aggressive multicloud posture?

? How difficult is it for my organization to manage the networks that support distributed workloads across a hybrid or multicloud environment? Think long-term.

? What sort of multicloud network do I require and how should I build it? A piecemeal, patchwork approach is not recommended for multicloud networking. A well-chosen managed cloud partner is crucial to navigating the journey.



The multicloud network must be intelligently automated, agile, flexible, elastically scalable, reliable, secure, and simple to provision and manage on an ongoing basis. **Traditional architectural and operational network assumptions and models will prove unsuitable for multicloud.**

CSPs play a key role in the Future of Connectedness journey

CSPs offer a broad portfolio of solutions covering enterprise LAN, WAN, WLAN, datacenter, software-defined networking, security, IoT, edge, and multicloud environments. As owners of the underlying networks, telcos have a deep understanding of the core networks and are well positioned to help enterprises in several areas:

Multicloud networking

Strategy, planning, design, and implementation of the network architecture to capture the benefits of multicloud while ensuring performance, speed, and agility across all deployment models

Network as a service

Consulting and integration efforts surrounding new ways to consume and operate the network in support of digital transformation

Network security

The network being the control point for security, remote workers, IoT, and exploding entry points continually put pressure on network security postures

Edge networking/ IoT and 5G

Architecting networks in support of multiple edge solutions (including IoT, mobile devices, and branches) and use cases designed with cost efficacy, security, throughput, management, and analytics

Collaboration and UC&C

Design and deployment of a suite of unified communications and collaboration (UC&C) tools to enable employees to work from anywhere, leveraging voice, data, and video communications tools that are deployed onsite, managed, or in the cloud

SD-WAN and virtual network services

Designing and implementing new processes and new networking operating models that allow the enterprise to be more agile and responsive to the business

22%

of enterprises surveyed selected communications service providers as their preferred partner in their Future of Connectedness journey

As organizations pursue the imperative of digital transformation, they will find that their ability to execute the strategy is only as strong as their weakest link. Therefore, choosing the right partner is critical.

Source: IDC Asia/Pacific Connectivity and Collaboration Survey, 2022, n = 1,200

Four factors to consider when choosing a partner

Today's network investments are being made for strategic, rather than tactical, reasons. Organizations are rethinking network architectures to support their digital transformation journeys to become an agile connected enterprise.

Software-defined and multicloud networking endeavor to bring new flexibility into the networking environment by decoupling network logic and policies from the underlying switching hardware. Policies can be defined, changed, and modified in a centralized manner, as needed.

However, organizations must realize that this Future of Connectedness journey is not a straightforward one.

Key consideration 1

Match the CSP's network coverage with your own

An enterprise must map its potential partner's network coverage with respect to the countries and cities in which the enterprise operates its HQ, branch (and remote) offices, and datacenters.

Key consideration 2

Evaluate the breadth of the services offered by the CSP

Carefully examine the overall portfolio of the service provider in terms of the underlay including MPLS and other connectivity offerings, as well as a software-defined overlay for enhanced features such as intelligent traffic routing, WAN optimization and embedded security. Also evaluate its ability to provide monitoring and management tools for visibility and control of its service.

Key consideration 3

Have a future road map

Given the pace of innovation in software-defined technologies, evaluate a CSP based not just on its current solutions and portfolio, but also on the road map of its future offerings. Look beyond the product and technology to ensure that the CSP is a strategic fit.

Key consideration 4

The CSP's track record

Consider the partner's commitment to service excellence, not just in terms of delivery but also its ability to design comprehensive service-level agreements and fulfill them in a reliable and predictable fashion.

About the IDC analyst

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Nikhil Batra is a Research Director for the regional telecommunications team in IDC Asia/Pacific. Based in Australia, Nikhil focuses on telecom service provider and tech vendor strategies, along with enterprise services across the region. In his role, Nikhil works with the regional telecom teams to produce intelligence reports, market insights, and contributes to various consulting projects for leading regional telcos and tech vendors.

More about Nikhil Batra

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