



# An enterprises' guide to **software-defined networking** for digital transformation

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# Introduction

Digital transformation (DX) of the business impacts the network in several dimensions. Chief among them is the strain on the enterprise network with the migration to 3rd Platform technologies, such as **big data and analytics, cloud, social and mobility**.

Existing network architectures were neither designed for the cloud nor intended to facilitate DX – and, hence, are not ready to support enterprise digital journeys. Cloud-first enterprise strategies have also opened the door to new vulnerabilities in the enterprise environment, making the security landscape more complex.

As a result, organizations are increasingly adopting a software-defined approach, and investing in next-generation technologies such as software-defined networking (SDN) and virtual network services (VNS) to address their network challenges. Are you ready to truly transform?



IDC's studies show that **only 24%** of enterprises worldwide believe that their networks are ready to reap the most of their investments in 3rd Platform technology.

**This IDC InfoBrief explores the criticality of networks to the enterprise digital transformation journey and how organizations can take advantage of a software-defined networking approach to accelerate their digital journey.**

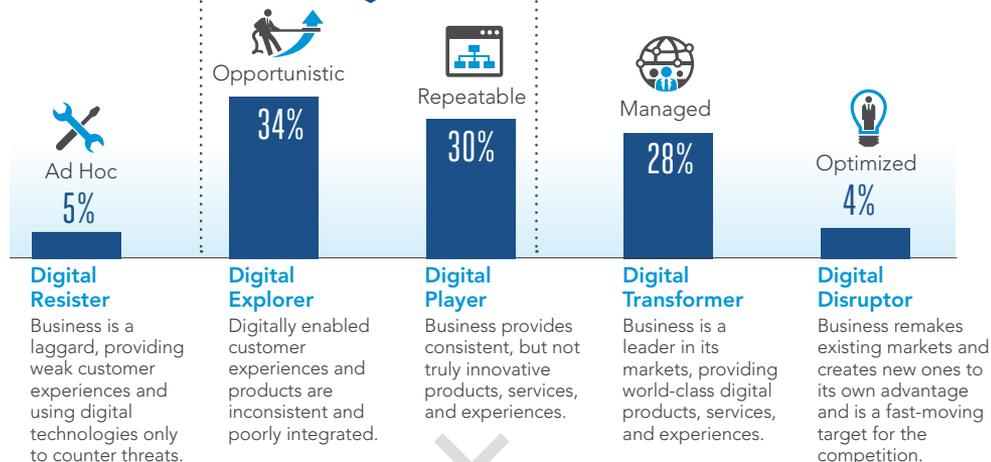
# Asia Pacific enterprises are not making headway in their DX journeys

Enterprises across the region know the importance of and urgency to digitalize their business, and most have progressed from resisting to exploring DX initiatives, according to IDC's research. Most, however, have not gotten very far.

## TOP 5 BUSINESS CHALLENGES DRIVING DX INITIATIVES ACROSS ORGANIZATIONS



## ALMOST TWO-THIRDS ARE DIGITALLY STUCK



Of the **64%** of Asia Pacific (AP) enterprises that are stuck in maturity stages 2 and 3, the inability of existing network infrastructures to meet network demands of the digital era is one of the major reasons for this digital deadlock, a 2018 IDC survey found.

So, why and how exactly do enterprise networks impact an organization's DX progress?

# Today's distributed enterprises need more from their networks

The enterprise network environment has grown in complexity in the DX era. Besides providing branch office and remote site connectivity, enterprise networks are also used to access cloud-based applications and to interconnect a mobile workforce.

**Cloud** — an essential DX enabler **but** it is only one piece of the DX puzzle.

Multicloud Adoption (2018)

66%



Multicloud Adoption (in 2020)

95%



However, it's not just about moving workloads to cloud, but **how you connect to the cloud that is critical to this journey.**



**NETWORK REQUIREMENTS OF A DISTRIBUTED ENTERPRISE (IN TODAY'S WORLD)**

## Mobile workforce

— As businesses reduce their office footprint and allow employees to work remotely, there is a constant need to be connected to the enterprise environment, and to have reliable access to enterprise applications and other organizational resources.

**49%** of enterprises believe that enterprise mobility is the most important technology in enhancing their competitive positioning in the market.

## Conferencing

— Moreover, **over 69%** of organizations in AP are relying on **video and audio conferencing** today to connect with partners and customers. But, **using non-optimized network infrastructure for the same is resulting in a poor audio/video experience.**

**The inability of the existing ICT and network infrastructure to address the network requirements of today's distributed enterprise is holding back organization-wide DX journeys in the following ways:**

# Organization-wide DX efforts are impeded by existing network infrastructure

Digital initiatives of a distributed enterprise have put a lot of strain on the legacy network infrastructure, and act as a bottleneck to an enterprise's progress due to the following limitations :



## Application performance issues on the public Internet

Over-reliance on public Internet, which is not designed to address the exploding and dynamic bandwidth requirements of diverse user applications



## Too rigid and difficult to scale

Does not provide the business agility required to support DX initiatives



## Inherently less secure

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



## Inefficient cloud access

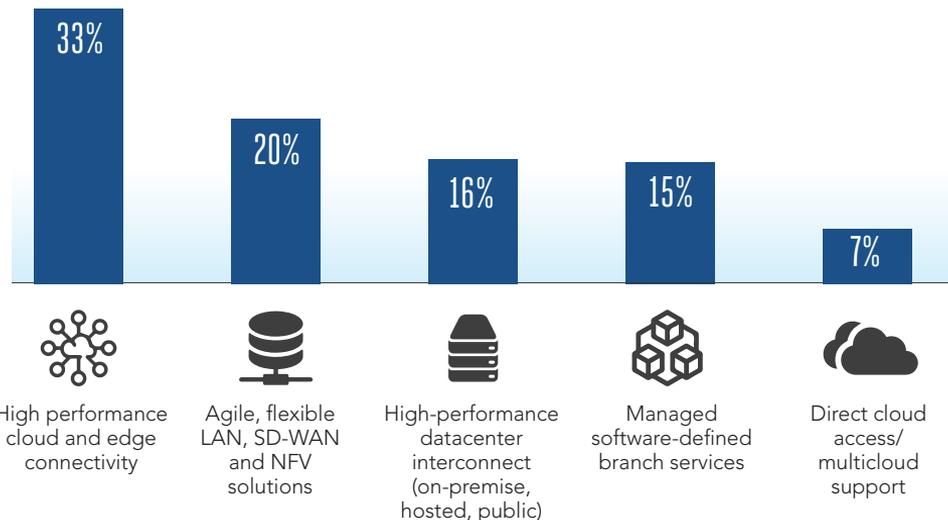
Does not support branch-to-cloud traffic efficiently



## Increasing operational costs

Exploding network capacity requirements to support 3rd Platform initiatives are resulting in significant increases in operational costs

## Key connectivity requirements in AP



These modern enterprise requirements are best addressed by a **software-defined networking approach** - with a **reliable, flexible underlay** and a **software-defined overlay** such as software-defined wide area networks (SD-WAN).

# How businesses are not maximizing their potential due to network issues

Not having a DX-ready network will negatively impact businesses, regardless of which vertical they come from. Some examples are:



## RETAIL

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

**Result:** Lost about 1/3 of expected revenue for that period of time and experienced about a week of snaking queues.



## MANUFACTURING

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

**Result:** Significant impact on the productivity of the manufacturing plant resulting in less cars produced per day.



## HOSPITALITY

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

**Result:** Long wait times and poor guest experience.



## BANKING

*Hong Kong:* A **bank's** latency issues with inflexible networks resulted in significant delays in trade execution on the trade floor.

**Result:** Revenue leakage.

# A software-defined networking approach for the DX era

To keep up with digital business needs, organizations need a hybrid network approach that **combines a variety of different underlay networks (private network, MPLS, Internet)** and a **software-defined overlay** to help them manage this combination of underlay, **wrapped with security** all around.

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-core applications or software-as-a-service solutions.

## THE UNDERLAY

- A mixture of public Internet, multiprotocol label switching (MPLS), Ethernet and other connectivity offerings.
- On-demand multicloud access (software-defined networks)
  - 70% of enterprises are leveraging communications service providers' software-defined cloud connect services for optimized connectivity to cloud, according to IDC's APAC Comms survey.



## THE OVERLAY - SD-WAN

SD-WAN is all about **WAN transformation for the DX era**. IDC predicts that by 2019, **SD-WAN will be adopted by 60% of enterprises worldwide** as a critical component of remote branch connectivity.

# Benefits of a software-defined approach

SDN is fast becoming an integral part of the enterprise network strategy with almost 65% of organizations having already deployed or are planning to deploy a SDN in their campus, branch offices and datacenters in the next 18 months. IDC believes it brings the following benefits to the enterprise:



Reduce network and operational complexity



Optimize performance of a hybrid cloud environment

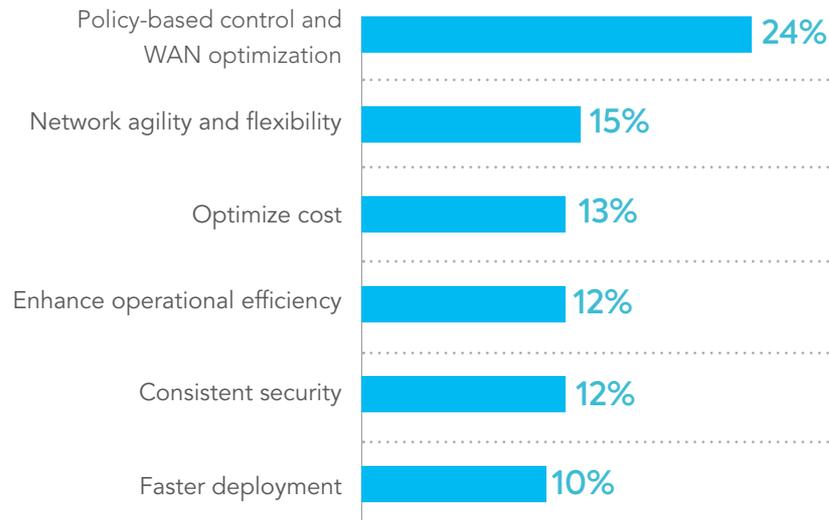


Significant reduction in network costs



Analytics-enabled network and application visibility

## Top 6 motivations for SDN adoption



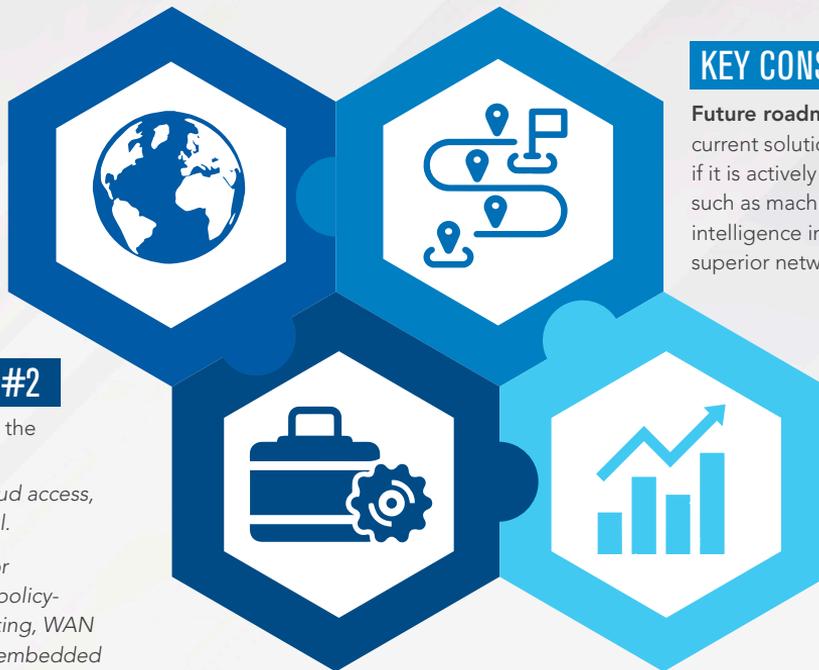
**This software-driven network redesign in the enterprise is likely to prove significantly disruptive to traditional WAN architectures and, hence, organizations should get started on their network transformation journeys today.**

# Essential guidance – selecting the right partner

Today's network investments are being made for strategic rather than tactical reasons. SDN brings new flexibility into the networking environment by decoupling network logic and policies from the underlying switching hardware. However, organizations must realize that this network transformation is not a straightforward process.

## KEY CONSIDERATION #1

**Its network coverage should match your own.** Map potential partners' network coverage to your HQ, offices, branches and datacenters. Also, keep in mind your expansion plans.



## KEY CONSIDERATION #3

**Future roadmap.** Look beyond its current solutions and portfolio to see if it is actively investing in technologies such as machine learning and artificial intelligence in order to provide a superior network experience.

## KEY CONSIDERATION #2

**Breadth of services.** Examine the overall portfolio in terms of:

- ▶ *Network offerings, multicloud access, analytics and service control.*
- ▶ *Software-defined overlay for enhanced features such as policy-based intelligent traffic routing, WAN optimization, insights, and embedded security.*

## KEY CONSIDERATION #4

**Track record.** Consider its 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.

# Singtel – your network transformation partner

Enables business's digital transformation through software-defined networking solutions built on a hybrid WAN infrastructure to deliver cloud-centric manageability and flexibility



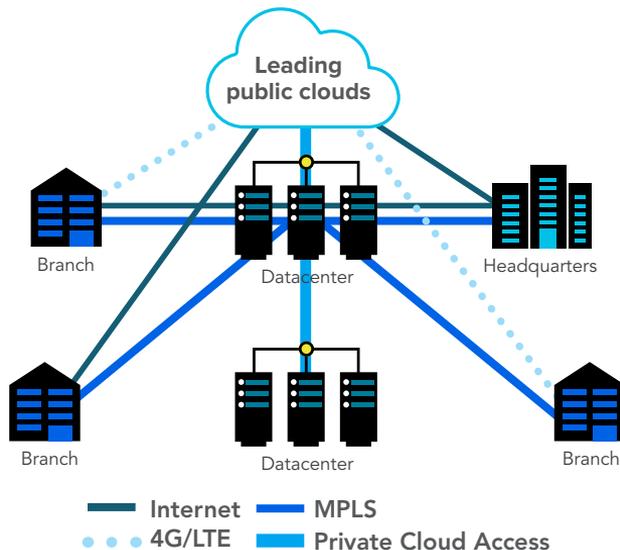
**SD-Connect** : Enables flexible and secure connections between datacenters and major public clouds, improving the performance of enterprise data and cloud applications.



**SD-WAN** : Improves and optimizes network performance with virtualized network functions, policy-based traffic prioritization and segmentation to manage complex networks, hence allowing businesses to scale easily.



**NFV**: Streamlines multi hardware devices with virtualized network function for simplicity and control.



## Flexibility

An agile network that is programmable to changing business needs



## Visibility & control

Deep visibility from the network and application layers provide data-driven insights



## Performance

Improve user experience with an enhanced and consistent application performance



## One-stop provider

Proven track record in managing high performance enterprise networks



For more information

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