IDC | ANALYZE THE FUTURE

NETWORK TRANSFORMATION TO TURBOCHARGE YOUR DIGITAL JOURNEY

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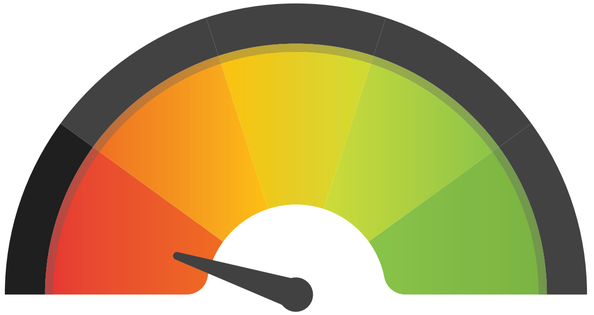
INTRODUCTION

Digital Transformation of the broader business impacts network in several dimensions. And increased adoption of new-age technologies, such as cloud and mobility, is creating a lot of strain on enterprise networks.

Traditional enterprise network architectures were neither architected for the cloud, nor were they intended to facilitate digital transformation. Moreover, cloud-first enterprise strategies have created new vulnerabilities in the enterprise environment, making the security landscape furthermore complex.

Organizations, as a result, are increasingly adopting a secure, hybrid networking approach and investing in next-gen technologies such as software-defined networking (SDN) and virtual network services (VNS) to address their network challenges.

This InfoBrief explores the criticality of networks to the enterprise digital transformation journey and how organizations can take advantage of a secure hybrid networking approach to accelerate their digital journey.



Recent IDC studies suggest that **only 24% of enterprises worldwide have indicated that their networks are ready** to reap the most of emerging technologies.

SOURCE: IDC NEXT-GEN NETWORKS AND COMMS SURVEY 2017-18

THE ENTERPRISE BUSINESS LANDSCAPE IS TRANSFORMING, BUT ....

DX is no longer a “maybe” for organizations around the globe — and they have already embarked on their digital transformation journeys. Most of them have progressed from resisting DX to exploring DX initiatives, although the maturity of these digital initiatives vary by region.

STAGE 1 to 3

In Asia/Pacific (87%) and **Europe (76%)** a larger enterprise population is in the initial stages of their transformation journeys.

APej US Europe

STAGE 2 to 3

almost **60%** of enterprises worldwide are stuck in a **digital deadlock**

Organizations in the US are further along, when compared to other regions, on their DX journey – most obviously observed in stages 4 and 5.

Digital Resister
Business is a laggard, providing weak customer experiences and using digital technologies only to counter threats.

Digital Explorer
Digitally enabled customer experiences and products are inconsistent and poorly integrated.

Digital Player
Business provides consistent, but not truly innovative products, services, and experiences.

Digital Transformer
Business is a leader in its markets, providing world-class digital products, services, and experiences.

Digital Disruptor
Business remakes existing markets and creates new ones to its own advantages and is a fast-moving target for the competiton.

STAGE 1 | STAGE 2 | STAGE 3 | STAGE 4 | STAGE 5

However, despite the varying maturity of digital transformation amongst enterprises in the US, Europe and Asia/Pacific, one trend is common – **almost 60% of enterprises worldwide are stuck in a digital deadlock** (stages 2-3). But **why** is that?

IDC MATURITYSCAPE BENCHMARK: DIGITAL TRASNFORMATION IN ASIA/PACIFIC (EXCLUDING JAPAN), 2018
IDC MATURITYSCAPE BENCHMARK: DIGITAL TRASNFORMATION WORLDWIDE 2017
IDC MATURITYSCAPE BENCHMARK: DIGITAL TRASNFORMATION IN WESTERN EUROPE, 2017

TRADITIONAL NETWORKS ARE NOT ARCHITECTED FOR DX

While DX is widely recognized as key to overcoming the challenges in redefining business, many struggle to progress in their transformational journey, and are stuck in a **"digital deadlock"** due to the legacy nature of their network and infrastructure requirements.

Top 5 business challenges driving DX Initiatives across organizations

However, traditional enterprise networks are a bottleneck for DX initiatives due to the following limitations:

APPLICATION PERFORMANCE ISSUES ON PUBLIC INTERNET
Overreliance on public Internet, which is not designed to address the exploding and dynamic bandwidth requirements of diverse user applications

INCREASING OPERATIONAL COSTS
Exploding network capacity requirements to support 3rd Platform (such as cloud) initiatives are resulting in significant increase in operational costs

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

TOO RIGID AND DIFFICULT TO SCALE
Does not provide the business agility required to support DX initiatives

INEFFICIENT CLOUD ACCESS
Does not support branch-to-cloud traffic efficiently

Scaling DX initiatives across the enterprise is an immediate, pressing challenge that many organizations face today. The **legacy network's inability** to address requirements of today's distributed enterprise is **impeding** organizations on their DX journeys.

SOURCE: IDC ASIA/PACIFIC NEXT-GEN NETWORK AND COMMS SURVEY 2017-18

EVOLVED NETWORK REQUIREMENTS OF TODAY'S DISTRIBUTED ENTERPRISE

The enterprise network environment has become much more complex in this DX era, where, in addition to the branch office and remote site connectivity, enterprise networks are also being used to access cloud-based applications, and to interconnect a mobile workforce.

Cloud — an essential DX enabler and is only one piece of the DX puzzle.

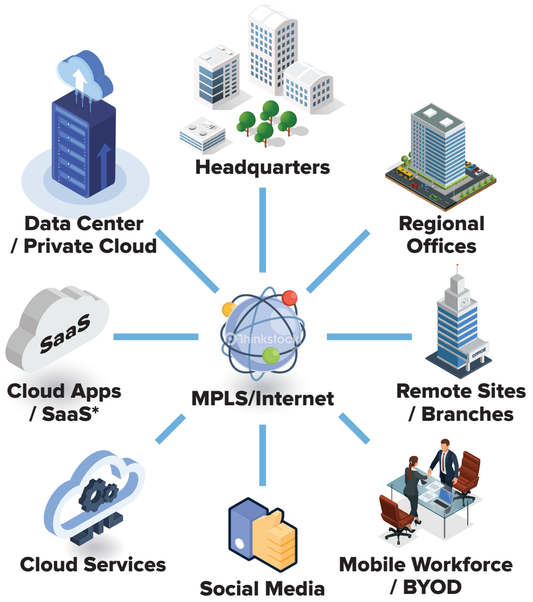
66% Multicloud Adoption (2018)

95% Multicloud Adoption (2020)

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

ONLY 24% of organizations believe that their network satisfies their hybrid cloud application delivery

Network requirements of a distributed enterprise (in today's world)



*Software as a Service

FROM COMMUNICATION TO COLLABORATION

Businesses in the DX era are reducing their office footprint through hot-desking and remote working policies. As a result, employees have a constant need to be connected to the enterprise environment and have reliable access to enterprise applications and other resources.

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

Moreover, more and more organizations today are relying on video and audio conferencing to connect with partners and customers. But, using the Internet for the same is resulting in a poor audio/video experience.

These modern enterprise requirements are best addressed by a hybrid network approach with a reliable underlay and a software-defined overlay such as an SD-WAN solution.

SOURCE: IDC FUTURESCAPE: WORLDWIDE CLOUD 2018 PREDICTIONS

BUSINESS IMPACT OF A COMPROMISED NETWORK

Subpar application performance

Retail – Slow checkout at a retail store: The outlet claimed slow performance of a new cloud-based point-of-sale system. As a result, it was only able to service 1/3 of customers, resulting in snaking queues and loss of revenue.

Banking/Finance – Slow execution of trades at a financial institution, resulting in late reaction to market movements and loss of millions.

Network outage

Government – Shutdown of immigration services resulted in long queues at the Melbourne airport in Australia.

Fast-Moving Consumer Goods – Closure of a supermarket grocery chain due to the self-service checkouts not working, following a network outage. This ultimately led to its closure for half a day and a significant loss of revenue.

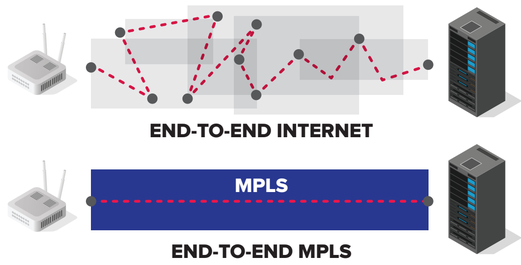
Compromised network security

Finance – Fraudulent transactions conducted on behalf of a large trading firm resulted in investors losing billions of dollars.

Manufacturing – Network hackers manipulated control systems so that a German steel mill's blast furnace could not be shut down, resulting in massive damage to the machinery.

HYBRID NETWORKING APPROACH FOR THE DX ERA

Traditional offerings like MPLS have been a popular choice for enterprise networks, given their performance and reliability, but they were **neither architected nor designed to facilitate digital transformation.** Public Internet, on the other hand, has its own set of performance- and security-related challenges. Here's how the two compare:



THE UNDERLAY

#1 PERFORMANCE

Internet - Typically cheaper as it is a public network

MPLS - More expensive due to dedicated links: Robust and less prone to faults

#2 COST

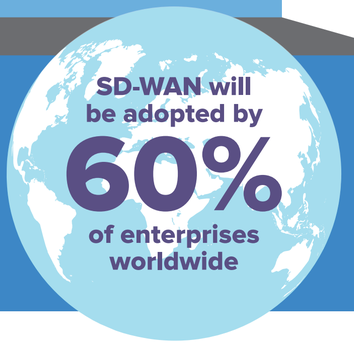
MPLS
Offers differentiated performance through quality of service (QoS) and is backed by end-to-end performance service-level agreements (SLAs)

Internet
Public network and hence 'best-effort' performance only

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

SD-WAN OVERLAY

Software-defined Wide Area Networks (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.



SOURCE: IDC WW TELECOM PREDICTIONS 2018

THE MYTHS AND REALITIES OF SD-WAN

Organizations need an agnostic network that deploys quickly to meet today's dynamic business needs. SD-WAN, which can even provision new sites remotely, fits the bill. Sometimes, this can be done in a matter of days through what many vendors call Zero Touch Provisioning.

SD-WAN can be deployed over existing network infrastructures, or it might come bundled with the network underlay. Both these deployment methods can either utilize onsite controllers or be controlled via a cloud-delivered, consumption-based model. With each approach having its own pros and cons, the messaging around what an SD-WAN solution is, and its true benefits and capabilities, can often be confusing.

What SD-WAN Cannot Do

MYTH #1
SD-WAN will replace MPLS with broadband Internet connections

MYTH #2
SD-WAN can always guarantee QoS

MYTH #3
SD-WAN = WAN optimization

MYTH #4
SD-WAN lowers network spending

Hence, organizations must carefully evaluate these SD-WAN solutions and understand its benefits and implications before committing to their network transformation journey.

SOURCE: IDC'S 2017 WW ENTERPRISE COMMUNICATION SURVEY, N = 1,200

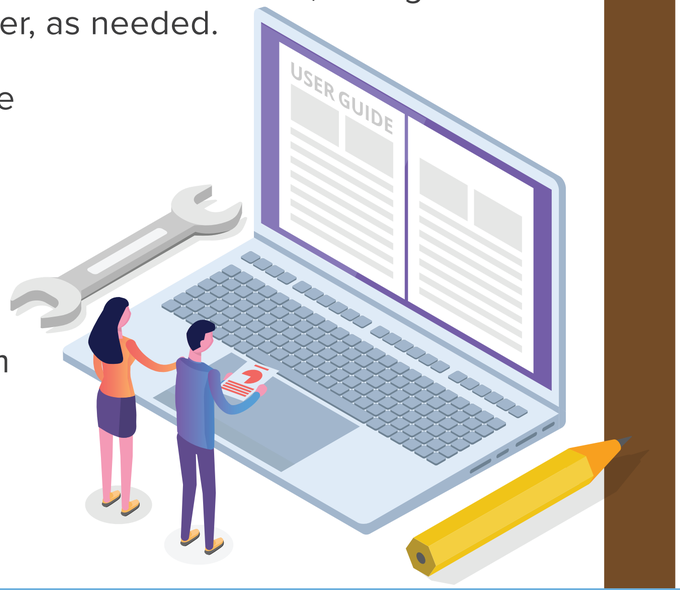
ESSENTIAL GUIDANCE – SELECTING THE RIGHT PARTNER

Today's network investments are being made for strategic, rather than tactical, reasons. Organizations are rethinking network architectures to support their DX journeys.

SD-WAN endeavors 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 realise that this network transformation is not a straightforward process. Multiple service providers in the market, different solutions and deployment approaches, and confusing messaging by different vendors – makes it difficult for them to make a choice.

Carefully evaluate your network transformation partners on the following parameters:



KEY CONSIDERATIONS

01 **Match the service provider's network coverage with your own**. An enterprise must map its potential partner's network coverage with respect to the countries and cities that the enterprise operates its HQ and branch (and remote) offices and datacenters in.

02 **Evaluate the breadth of the services offered by the carrier partner**. Carefully examine the overall portfolio of the service provider in terms of ***the underlay*** including MPLS, and other connectivity offerings; ***the overlay*** such as SD-WAN solutions for enhanced functionalities like dynamic traffic routing and WAN optimization; as well as ***other ICT offerings*** such as cloud and managed security services. A carrier offering cloud solutions is more likely to understand the nuances of cloud migration, including the network and security aspect.

03 **Future roadmap**. Given the pace of innovation in software-defined technologies, evaluate a service provider based not just on its current solutions and portfolio, but also on the roadmap of its future offering. Ensure that the service provider is a strategic fit, rather than just a product/technology fit.

04 **The service provider's track record**. Consider the partner's commitment to service excellence. Not just in terms of delivery but also in its ability to design comprehensive SLAs and fulfill them in a reliable and predicable fashion.

60% CAGR (2018-21)

Given SD-WAN's ability to address pressing enterprise networking needs, IDC estimates that worldwide enterprise spend on SD-WAN infrastructure and services will reach **US$8 billion in 2021**, a CAGR of 60%.

TATA COMMUNICATIONS: ENABLING NETWORK TRANSFORMATION

Tata Communications' comprehensive IZO™ WAN suite of services provides an open, extensible platform combining the best of both cloud and on-premises technology to deliver a differentiated experience. A solution that enables you to transform your legacy system to a secure, scalable and high-performing global network across diverse locations.

THE UNDERLAY

IZO™, the world's most comprehensive cloud enablement platform:

1. IZO™ Internet WAN: Business-class SLAs over the public Internet in partnership with over 20 service providers
2. IZO™ Private Connect : Private connectivity to cloud service with embedded security such as AWS, Azure, Google, IBM, Oracle, Office 365, Salesforce, Alibaba, and SAP.
3. IZO™ Hybrid WAN: A versatile service that gives you increased resilience for the most cost-effective performance, thus increasing efficiencies across your enterprise infrastructure

SD-WAN OVERLAY

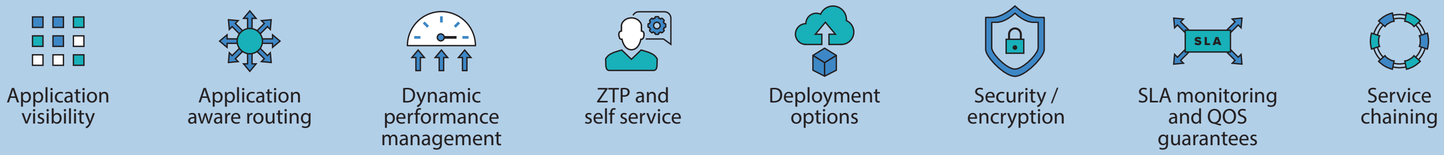
IZO™ SD-WAN - THE TWO VARIANTS TO SUIT YOUR NEEDS

IZO™ SD-WAN Prime - The Evolution

- Ideal for the risk-averse, with mature standards, logistics and support
- Leverage on existing assets - no rip and replace required
- Dynamic congestion management

IZO™ SD-WAN Select - The Revolution

- x86 appliance - for innovators/lower CAPEX to replace routers
- Starts with strong NFV, flexibility & UI
- Granular steering policies, almost limitless segmentation & encryption is embedded



Application visibility | Application aware routing | Dynamic performance management | ZTP and self service | Deployment options | Security / encryption | SLA monitoring and QOS guarantees | Service chaining

Powered by the world's largest enterprise global Tier-1 network, our open, agile, cloud-driven networking solutions will help your business grow across borders with ease. From Ethernet to Global VPN, in emerging or local markets, our services will exceed your expectations.

Protected with Tata Communications Managed Security Services Powered by

MULTI-LAYERED **I**NTEGRATED **S**ECURE **T**RUSTED

M ulti-layered coverage. Protects people, processes and technology across the entire threat surface from all threat actors.

I ntegrated models. Vendor updates, security policies, open source collaborations, IT security infrastructure and threat intelligence enables digital integration across all IT environments.

S ecure operations. Leveraging a strong alliance with leading technology providers, Tata Communications employs more than 300 highly skilled and certified security professionals in global security operations centers (SOCs) and facilities.

T rusted relationships. Executive dashboards, technology partnerships and a flexible consumption model provide many benefits.

CLOUD NETWORK MOBILITY SECURITY

TATA COMMUNICATIONS