

Cloud Network Evolution

Addressing the Pitfalls of the Public Internet

A Frost & Sullivan Executive Brief

Powering clients to a future shaped by growth

F R O S T  S U L L I V A N

Rapid Data Growth Requires New Ways to be Flexible and Secure

Businesses across industries have realised the value that data-driven strategies bring to processes, solutions, and communications. The ongoing digital transformation (DX) in nearly all realms of modern life has accelerated in recent years in response to the COVID-19 pandemic, largely as a way for businesses and governments to continue providing products, services, and employment in an environment of heavily restricted in-person contact. The virtualization of the customer experience (CX) and employee experience (EX) has driven organizations to prioritize and expand systems, applications, and workloads that enable fundamental functions, such as eCommerce and work from home (WFH).

One consequence of this sudden digitalization of experiences has been an increase in the volume of data generated: Frost & Sullivan research shows that data expanded an average of 44% for businesses in 2021.¹ Cloud usage also grew tremendously—and is expected to continue growing at a high trajectory—as businesses work to manage, utilize, and secure the increased volume of information and related applications, workloads, and systems.

Now that businesses have had two years to build, operate, and perfect remotely-accessed digital solutions, many are finding the public internet is not always ideal, especially for critical apps that require heightened privacy protocols, better bandwidth and latency, and potential traceable routing for compliance and security. More effective options exist for businesses wanting to retain public-network flexibility but with a private network's level of privacy, latency, performance, speed, and ease of compliance.



Sudden—and Enduring—Virtualization Drives Public Environment Utilization

The rush to digitalize employee and customer interactions meant modernizing business applications and workloads and, in many cases, migrating to cloud-native applications. Numerous organizations found themselves ill prepared to manage this transition. Frost & Sullivan's 2021 research on the state of the cloud identifies the following challenges:²

- Internal capabilities: More than half, 57%, of IT leaders say lack of in-house skill sets impedes cloud migration.
- Repatriation: In 2021, 64% of companies repatriated applications, and another 24% considered doing so.
- Security and compliance: Reducing security risk is the leading reason apps remain on-prem, followed closely by retaining greater control over apps and ensuring compliance.

Despite these challenges, many organizations feel they had to engage cloud infrastructure to keep up with changing customer and employee needs. Customer resource management (CRM) and enterprise resource planning (ERP), workloads that support privacy-dependent departments such as HR and finance, and customer-facing applications were among the many critical use cases that needed to be accessed remotely and within days. Public cloud and internet made this transition achievable, but brought challenges in access, security, and compliance.



In 2021, **64%** of companies repatriated applications, and another **24%** considered doing so.

Redesign Closed Networks, Gain Cloud-like Advantages

A traditional safeguard for keeping apps and workloads secure has been to retain a level of physical separation in storage, access, and connectivity. This means building or leasing private networks from network operators, often through multi-year contracts, which helps ensure high-volume or sensitive data can travel quickly and securely from endpoints, within data centers, and across the internet. Such closed-loop networks can be designed to fit an organization's bandwidth, security, and compliance needs—at least at the start. Over time, however, new generations of technologies layer on top of existing ones, and private networks become rife with challenges: inflexible systems may not keep up with the evolving data and security needs of the business, the cost for maintaining aging hardware begins to stack up, and sunk capital expenses plus vendor lock-in make it difficult to consider alternatives. The recent acceleration of DX and virtual experiences has complicated the situation when many critical apps and systems must be pushed to the cloud and accessed through public internet. Although the internet is good enough for accessing basic business applications, it lacks the consistency, predictability, and privacy requirements of today's mission-critical applications that transfer more sensitive data.

The recent acceleration of DX and virtual experiences has complicated the situation when many critical apps and systems must be pushed to the cloud and accessed through public internet.

Another option is available that does not lead to private network lock-in or public internet risks. New software-defined solutions mean that businesses can separate and manage critical apps and systems with the security and stringent service level agreements (SLAs) of a dedicated private network and the flexibility of a public internet. Software-defined networking (SDN) and network function virtualization (NFV) create a new model of orchestration, resulting in a private network system that is faster and more flexible, without compromising security or compliance adherence. NFV sets the stage for SDN by allowing closed networks to be redesigned more effectively by leveraging the flexibility and agility of software. SDN is then able to optimize closed network functionality by separating the network control software from the network traffic forwarding function, consolidating available networking assets and providing enterprises with more optimal connectivity options. Having a centralised, software-defined control function generates on-demand network services that are cloud-like in agility and flexibility. PCCW Global's Console Connect, for example, is a Software Defined Interconnection® (SDI) platform that is pre-integrated with the world's leading cloud and Software-as-a-Service (SaaS) providers and enables the provisioning of networks on-demand and in real time. It provides both network operators and enterprises an option for secure, fast, and compliant connectivity between their users and cloud workloads, all delivered through a self-service web portal or via API integrations directly with enterprise applications.

Directly Connecting with Hyperscalers Bridges the Chasm between Network Flexibility and Security

Hyperscalers are offering services that physically separate connection to critical apps and workloads from the public internet, such as AWS' Direct Connect, Azure's ExpressRoute Direct, and Google's Dedicated Interconnect. Benefits of having a private and direct link between the hyperscaler's data center and the customer's infrastructure include:






- Gaining greater security with faster and more consistent connectivity as compared to using public internet through an internet service provider (ISP)
- Allowing cloud access while still complying with regulations that prohibit the transfer of data over public internet
- Providing direct and dedicated capacity suitable for transferring massive amounts of data quickly
- Offering a more favourable cost structure for certain use cases, e.g. AWS' reduced rate for its dedicated connection service as opposed to its standard public internet data transfer rates, meaning lower egress charges for high volumes of data transfer



Making IT More Business-forward

Improving the performance of applications and workloads that employees and customers engage with can have direct benefits to an organization’s productivity and profit. However, it is difficult for internal IT teams to focus on improvements when security and compliance issues take priority. Employing an SDN solution can streamline networking activities and help IT teams navigate performance challenges very quickly. This, in turn, can help expensive, and increasingly in-demand, IT teams focus more of their time on critical business-forward solutions. Figure 1 outlines key advantages and sample use cases for a SDI platform that offers private connectivity.

FIGURE 1: Key Advantages and Sample Use Cases for a SDI Platform

| ADVANTAGE | BENEFIT | USE CASE |
|---|---|---|
| Improved latency and speed  | Online collaboration tools perform better with private network connectivity. | A major customer contact center organization that connects remote employees, regardless of channel. |
| Privacy, security, and compliance  | Private connectivity provides enhanced network security and creates compliance-friendly data tracking. | A major legal firm that uses cloud for data storage; a global insurance company that works across regions. |
| Back-up and redundancy  | Private connectivity enables data back-up more quickly, cost effectively, and with greater security. | An organization that has primary systems on one cloud platform, with back-ups and secondary systems on another. |
| Cost  | Private network connectivity can reduce costs related to egress fees, streamline IT operations, and help with security and compliance. | Organizations that handle a high volume of data (e.g., digital retailers, content providers, governments). |
| Short-term, high-traffic needs  | Compared to the public internet, private connectivity can respond better to sudden shifts in network traffic with cloud-like agility and scalability, including better performance and a cost structure that mirrors usage. | A media company that has to move large video files between locations for rendering. |

Next Steps: Public Internet vs. Direct Connectivity

IT managers are increasingly conscious of the gaps in security, compliance, and optimised operations that can emerge when critical apps and systems are run in public environments. Cloud infrastructure and internet connectivity may have been the lynchpin that enabled businesses to survive, and even thrive, despite the obstacles of the last few years. However, they also created scenarios rife with potential risks and vulnerabilities that now must be addressed. An advanced SDI solution can ensure that the rapid progress organizations made in accelerating their DX continues to elevate operations, productivity, and customer experiences.

Endnotes

1. Frost & Sullivan, "The State of the Cloud 2021: The Hybrid, Multicloud Forms the Foundation to Digital Organizations," December 2021
2. Ibid.

More about Software Defined Interconnection®

Console Connect is a platform for the Software Defined Interconnection® of applications and infrastructures. It allows users to self-provision private, high-performance connections among a global ecosystem of enterprises, networks, clouds, SaaS providers, IoT providers and applications providers.

Console Connect is the only digital platform that is underpinned by one of the world's largest private networks and a Tier 1 global IP network that is ranked in the top 10 for IPv4 and IPv6 peering, delivering higher levels of network performance, speed, and security to meet the digital needs of today's interconnected users and communities.

Accessible from 850+ data centers in 50+ countries worldwide, the platform is integrated with all major hyperscale cloud providers, including AWS, Google Cloud, IBM Cloud, Microsoft Azure, Alibaba Cloud and more. Through the Console Connect portal or via its API, users can access a broad range of native and third party solutions.

Relevant links:

<https://info.consoleconnect.com/resources/network-as-a-service-guide?hsLang=en>

<https://blog.consoleconnect.com/case-study-acquire-bpo>

<https://blog.consoleconnect.com/5-scenarios-where-an-agile-networking-model-can-benefit-your-business>

<https://blog.consoleconnect.com/mpls-versus-public-internet-a-balancing-act>

F R O S T  S U L L I V A N

Growth is a journey. We are your guide.

For over six decades, Frost & Sullivan has provided actionable insights to corporations, governments and investors, resulting in a stream of innovative growth opportunities that allow them to maximize their economic potential, navigate emerging Mega Trends and shape a future based on sustainable growth.

Contact us: [Start the discussion](#)