Shift-left networking

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The DevOps revolution

During the last decade, DevOps has dramatically changed the way companies build software. Organizations have incorporated new practices and undergone tremendous changes to shorten their software development lifecycle (SDLC) and stay competitive.

These new DevOps teams are now composed of cross-functional members working together on joint projects, with a proven ability to deliver and innovate with unparalleled efficiency.

Security become SecOps and gains efficiency

In this cultural revolution, stakeholders' such as security teams were initially kept aside, hindering the delivery process. As shortened as the SDLC was by these new practices and toolchains, it still had to go through security validation gates, delaying releases by weeks or months until they were stamped for production.

"Shift-left testing" played a pivotal role in DevOps' evolution. Therefore, it's no surprise that "shift-left security" emerged, allowing for early and iterative validation. This transformation helped reduce the time-to-market, the number of vulnerabilities, and the time-to-patch. The era of DevSecOps sees security actors integrated into DevOps teams to intervene upstream in the design phase.

Could there be a parallel with the evolution of the network infrastructure?

The Shift-Left and Shift-Right aproaches to automating security governance
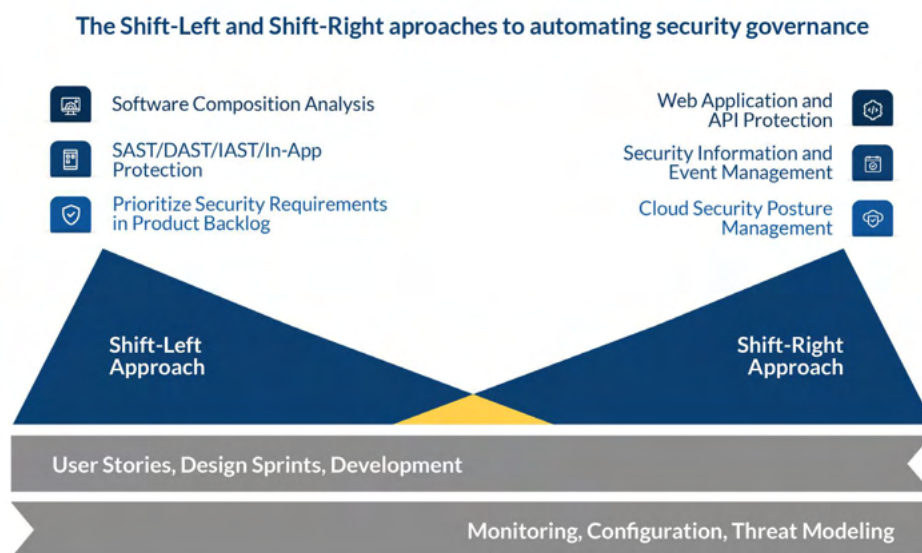
The rising of NetOps

The ultimate goal is to bring the same level of agility to network teams that cloud technologies have brought to software teams, making the network an integral part of workload specification. Network teams should be integrated into the Software Development Life Cycle (SDLC), with a focus on 'shift-left networking' to achieve this goal. However, achieving this goal is not as simple as it may seem.

Standardizing deployment across multiple cloud providers is more complex than expanding a legacy network, and attempting to standardize whilst also tailoring deployments to application workload needs can easily create a spaghetti plate that thwarts any attempt at profitability or security.
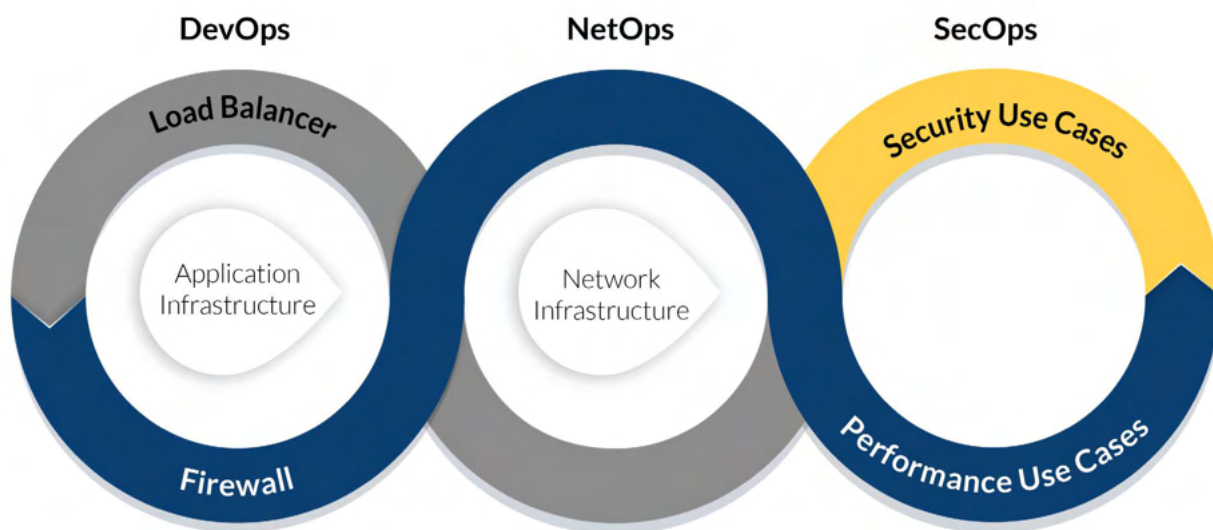
That's why Software-Defined Cloud Interconnect (SDCI) companies, such as InterCloud and Equinix, are making significant strides in simplifying the specification and modification of cloud connectivity. They serve as hubs that aggregate the ever-increasing number of cloud providers. Many organizations have already embraced this NetOps approach by integrating operations and network teams into projects during the design phase. This trend has gained momentum, thanks in large part to the growing significance of cloud teams.

The challenge now lies in providing these NetOps teams with the tools and resources to create and streamline existing network infrastructures, making them flexible enough to meet the needs of DevOps.

Alignment between DevOps, NetOps and SecOps teams

DevOps	NetOps	SecOps

Load Balancer

Security Use Cases

Application Infrastructure

Network Infrastructure

Firewall

Performance Use Cases

Shift-Left networking

As connectivity providers, our role is to enable «shift-left networking»: make the software delivery process integrate the NetOps, by facilitating the instant creation and updating of secure network infrastructures.

To make it a reality, we also need to incorporate the toolchains used in the DevOps lifecycle's various phases. The new NetOps will assess the application network constraints, measure the impact of a workload on the existing infrastructure, and update the code specifying the required cloud connectivity - or write a new definition if necessary.
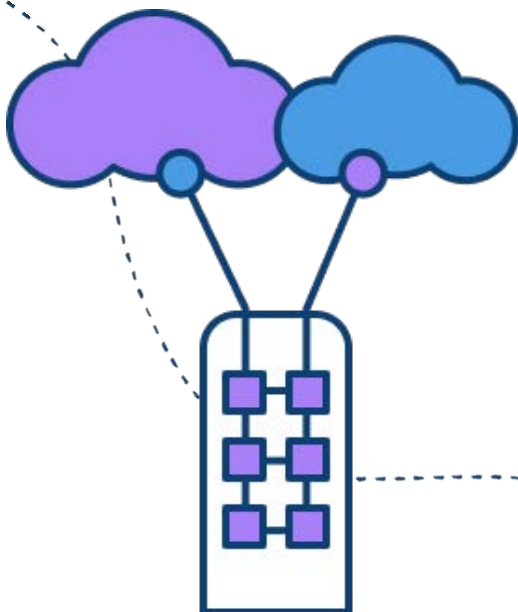
As time goes on, the application will eventually reach a larger audience and scale horizontally.

A software orchestrator, acting on the load, would then spin-up more VMs or containers to absorb the load and scale up the bandwidth to the cloud provider.

This software driven infrastructure will let applications automatically scale up and down all components: network links, routing and security through NFV, cloud services, VMs or even Bare Metal as Service to ensure the appropriate level of resources for the actual load. Peak demand will trigger the creation of additional resources that will automatically reduce once it is over.

It is no longer required to overprovision capacity as the rightsizing can be done dynamically. Companies can then focus on innovation, leveraging best of breed technologies from various cloud service providers directly interconnected together with their dedicated infrastructure in a high-performance hybrid environment.
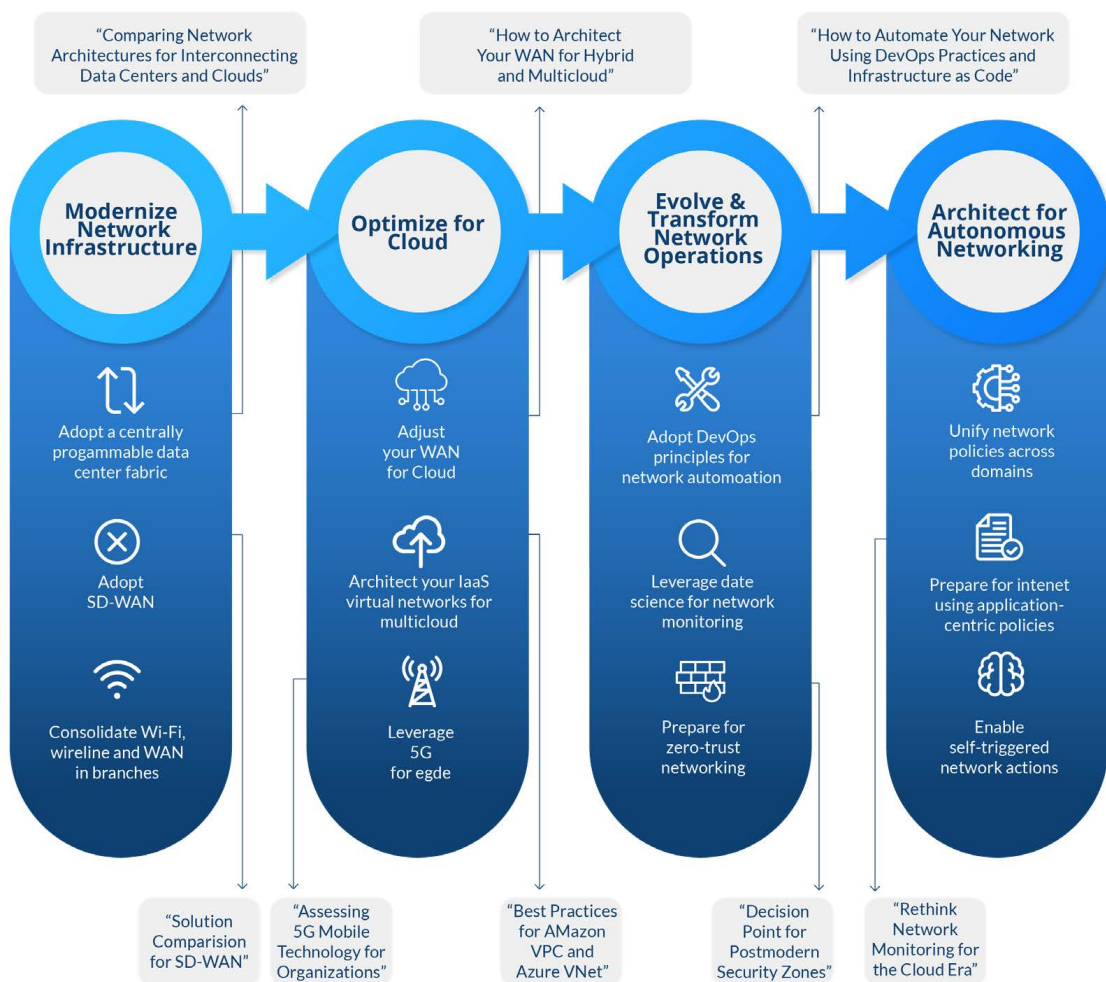
The explosion of applications made the attack surface expand and their connectivity surface too. The role of NetOps is to make that assessment as early as possible, considering performance, security, and compliance requirements. Just as DevOps evolved into DevSecOps with shift-left security, it is now time to shift-left the network, and fully integrate networking into the delivery pipeline.

How to evolve to a Next-Generation enterprise network

"Comparing Network Architectures for Interconnecting Data Centers and Clouds"

"How to Architect Your WAN for Hybrid and Multicloud"

"How to Automate Your Network Using DevOps Practices and Infrastructure as Code"

Modernize Network Infrastructure

Adopt a centrally progammable data center fabric

Adopt SD-WAN

Consolidate Wi-Fi, wireline and WAN in branches

Optimize for Cloud

Adjust your WAN for Cloud

Architect your IaaS virtual networks for multicloud

Leverage 5G for egde

Evolve & Transform Network Operations

Adopt DevOps principles for network automoation

Leverage date science for network monitoring

Prepare for zero-trust networking

Architect for Autonomous Networking

Unify network policies across domains

Prepare for intenet using application-centric policies

Enable self-triggered network actions

"Solution Comparision for SD-WAN"

"Assessing 5G Mobile Technology for Organizations"

"Best Practices for AMazon VPC and Azure VNet"

"Decision Point for Postmodern Security Zones"

"Rethink Network Monitoring for the Cloud Era"

About Equinix

Equinix (Nasdaq: EQIX) is the world's digital infrastructure company, enabling digital leaders to harness a trusted platform to bring together and interconnect the foundational infrastructure that powers their success. Equinix enables today's businesses to access all the right places, partners and possibilities they need to accelerate advantage.

With Equinix, they can scale with agility, speed the launch of digital services, deliver world-class experiences and multiply their value.

About InterCloud

InterCloud's end-to-end global connectivity platform eliminates the complexity in deploying the cloud, giving businesses full control over the security, sovereignty, and performance of their critical data traffic with complete peace of mind.

Working with organisations to help them transform global connectivity, reduce network complexity, and accelerate growth and innovation, InterCloud is a trusted advisor to some of the world's leading brands when it comes to leveraging the cloud for future success.

With offices across Europe, the company's platform is underpinned by its team of cloud experts who guide customers to implement effective strategies to leverage the power of the cloud across their organization – making global connectivity a driver for business performance.

www.intercloud.com