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**Automated datacenter network validation allows architects and operations teams to respond to the need for dynamic change while moving at the speed of digital business. The result is that enterprises realize business benefits and operational efficiencies and avoid having to make a trade-off between speed and reliability.**

# Network Validation: Closing the Loop in Datacenter Network Automation

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## Introduction

IDC research confirms that hybrid IT is the predominant posture of large enterprises worldwide. In an IDC *Cloud Pulse Survey* conducted in June 2020, enterprise respondents indicated that about 50% of their applications would still be running in on-premises datacenters in two years.

### AT A GLANCE

#### KEY STATS

- 53% of applications are currently running in on-premises datacenters.
- IDC expects that about 50% of applications will be located on premises in two years.

In this environment, modern networks are critical. They not only must contribute to an organization's digital transformation (DX) strategy but also must proactively support an organization's increasingly valuable applications. Failure to recognize the salience of modern networks — and the significant challenges presented by hybrid architectures — can result in infrastructure and operational issues that compromise business outcomes. To mitigate these risks and simplify hybrid networking for architects and NetOps teams, organizations require modern network architectures, advanced network tooling, and an intelligently automated operational approach that includes well-defined and continuous network validation from Day 0 through Day 2/N.

At Day 0, the ability to run simulated what-if scenarios in a staged environment ensures that everything will work according to plan when the network goes live. Once Day 0 validation confirms that it will, operators can push and commit changes that are then automatically applied in a live environment. Further validation also verifies that the network is behaving as intended. From there, Day 2 automation that employs streaming telemetry and advanced analytics provides actionable visibility to facilitate faster and more effective troubleshooting and remediation.

Further, closed-loop insights in Day N scenarios enable operators to manage change and further optimize the network. From a more proactive network automation posture, operators can anticipate, predict, and preclude potential issues while automating routine tasks.

Traditional network architectures are too rigid, and manual network operations are too inflexible to deliver such functionality and benefits. Consequently, overburdened NetOps teams are unable to keep pace with the changes that are required to support applications and reach business outcomes. Most of their time is spent triaging problems (i.e., fighting fires) rather than proactively innovating to make the network a meaningful enabler of business outcomes and DX success.

For DX to be successful, the network must be agile and accurate so that it can deliver and support applications consistently, reliably, responsively, at scale, and securely across a hybrid landscape. This requires implementing a flexible and modern architectural foundation and providing continuous network visibility and assurance across complex distributed environments to maintain operational proficiency.

## Benefits

A fully modernized datacenter network with intelligent automation and validation provides several operational and business benefits:

An intent-based, increasingly autonomous network is not only agile, flexible, and resource efficient. It is also reliable and robust.

- **Greater agility and flexibility.** The network delivers the automated agility needed to constitute the modern infrastructure on which DX depends.
- **Increased operational simplicity.** Operational simplicity helps organizations resolve resource constraints and skills gaps while facilitating agility.
- **Reliability and robustness.** The network is necessarily reliable and robust, capable of consistently supporting and delivering the modern and traditional workloads that are at the core of DX.
- **Support for cloud operating models.** Architects and network operators must be able to derive full value from the network through collaborative processes and workflows. A unified approach to networking reconciles their concerns.
- **Consistent security policies.** Continuous validation of intent-based network policy, derived from a single source of truth, helps architects and network operators adopt a more proactive approach to managing a strong and consistent security posture throughout the network life cycle.

## Considerations

Before modernizing their datacenter network, organizations must consider all aspects of their environment. This includes current and prospective applications and workloads, existing and planned investments in related datacenter infrastructure, resource allocations and constraints, and the degree to which vendor or partner support will be required. Organizations must also ensure that network modernization is a collaborative pursuit among all relevant stakeholders so that the resulting network, as well as its operational model, meets organizations' digital objectives.

## Conclusion

Any viable digital transformation strategy must include comprehensive modernization and automation of the datacenter infrastructure. The datacenter network should be at the forefront of those efforts, especially amid the growing shift to hybrid IT and the potential complexities that accompany it.

Datacenter networks that are fully and intelligently automated, leveraging intent-based networking and analytics to achieve closed-loop continuous validation, are crucial for organizations that want to achieve the agility, flexibility, and operational efficiencies needed to succeed in the cloud-defined digital era.

# About the Analyst

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Brad Casemore is IDC's Research Vice President, Datacenter Networks. He covers networking products and related technologies and platforms typically deployed in the datacenter. Mr. Casemore also works closely with IDC's Enterprise Networking, Server, Storage, Cloud, and Security programs to assess the impact of emerging IT and converged and hyperconverged infrastructure.

## MESSAGE FROM THE SPONSOR

**About Apstra**

Apstra continually automates and validates both the network's architecture and operations. Advanced Intent-Based Analytics (IBA), derived from a single source of truth, continuously validates the network against its expressed intent. This validation results in a reliable, secure, and resilient network, even in the presence of change. The network teams no longer must choose between speed and reliability.

- **RELIABILITY** Automate the network's deployment and operation reliably through continuous validation of changes and alerting if deviations arise from the original intent.
- **FLEXIBILITY** An open architecture that empowers the deployment and operation of a single or multi-vendor network, with the same ease and simplicity.
- **AGILITY** Compress the timelines to implement network change through advanced analytics, automation, and validation.
- **RESOURCE EFFICIENCIES** Architect and operator convergence enable knowledge retention and efficient IT resource utilization.
- **SPEED** Drastically reduce the time to deliver network infrastructure services and leverage intent-based analytics to predict and eliminate network outages.

IDC Custom Solutions

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