

Automating **SD-WAN** branch configuration



with HCLTech Managed
SD-WAN Services, powered by
Aruba EdgeConnect

Introduction

While the first round of debate on SD-WAN was centered around enabling branch access, the discussions are now maturing towards these areas:

- How does SD-WAN cater to IoT traffic.
- Does it matter where the application is hosted.
- What is the data center to cloud business case.
- How to integrate the broken pieces in the network.
- What happens to network performance in the cloud.
- How do I manage multi-cloud connectivity, security and costs.

The anywhere dimension is brought forth by the public cloud providers with a core focus on the DevOps narrative. As DevOps crosses knee voltage and workloads get distributed, SD-WAN methodologies for application access and security should be tightly coupled to capitalize on this new anywhere-enabled operating model.

Gartner has an SD-WAN market forecast of \$5.3 billion for 2023-24, growing to more than **\$8 billion** by 2026. Additionally, Gartner forecasts SD-WAN growth at **16.8%** compound annual growth rate (CAGR) through 2027. ([Source](#))

HCLTech envisions the new advanced SD-WAN on two unique pillars which are network edge (redefined by uCPE and NFVi stack) and a new wave of WAN backbone connectivity covering both CSP backbone (like Azure vWAN) and dedicated backbone (from network service nodes like Equinix and Digital Reality). This makes the enterprises end-to-end journey from branch-to-cloud - seamless, modular, virtualized and automated.

We see SD-WAN being critical to enterprise adoption of new-age digital technologies, with WAN pipe feeding into not only new campus initiatives but also IoT, Industry 4.0, private 5G, edge computing and WiFi 6 driven use cases.

Our end-to-end SD-WAN services are based on a platform approach, designed to help customers achieve a cloud-native state of mind: transforming business processes, delivering seamless next-gen experiences, establishing resilient and secure platforms, integrating ecosystems and enabling lean operations through orchestration and autonomies.

Trends

driving the SD-WAN adoption

1. Traditional WAN limitations bolsters SASE adoption

By 2025, 50% of new software-defined WAN (SD-WAN) purchases will be integrated with SASE offering for secured comm, a major increase from 10% in 2022.

2. Enterprises adopts NaaS to reduce technical debt

By 2026, 30% of new SD-WAN procurements will be in some form of network as a service (NaaS), which is a major increase from near 10% in 2022.

3. AIOps – the next phase of SD-WAN evolution

By 2025, 40% of enterprises with SD-WAN deployments will use AI functions to automate Day 2 operations, compared with fewer than 10% in 2022.

4. Multi-cloud networking spurs SD-WAN adoption

According to a Cisco survey, 53% of respondents said they are prioritizing SD-WAN integration with cloud services, SaaS, and middle-mile provider.

5. Private 5G and MEC drives SD-WAN innovation cycle

Enterprise 5G market is expected to grow from \$2.1 billion in 2021 to \$10.9 billion by 2027, at a CAGR of 31.8%.

6. SD-Branch a successor for LAN/WAN management

IDC predicts that up to half of the SD-WAN market will evolve into the SD-Branch market by 2024.



Some of the themes taking centerstage of SD-WAN evolution in the coming 12-18 months include:

SASE: The opportunity to offer integrated security functionality with SD-WAN products and support new digital business use cases will make SASE a key enabler for network transformation in the digital economy. This will further evolve with more frameworks around native security and network OEMs working together to garner multi-domain and seamless architecture possibilities and GTM strategy.

AI/ML: Autonomous and self-driving networks (leveraging AI/ML) have new frontiers of application, moving beyond just operations and building into Network as a Code with more focus on reliability engineering and programmability.

Cloud Onramp: With increasing networking complexities, cloud-first enterprises are looking to deploy and connect multiple cloud providers to perform a seamless traffic exchange between platforms and applications. With on-ramp services, enterprises may ensure ubiquitous network connectivity to users globally.

Remote connectivity: As enterprises look to bring workforce back to office and support cloud-native network architectures, WAN/SD-WAN will become a critically important technology for enabling flexible, agile and optimized connectivity.

SD-WAN + 5G: Future-forward enterprises will look to leverage 5G in conjunction with SD-WAN, to leap towards IoT-enabled operations and other rich-media applications.

NaaS: The days of enterprises procuring assets upfront and figuring out how to monetize these assets in a monthly OPEX model are slowly fading away. NaaS provides enterprises an opportunity to scale without having to figure it out all by themselves. From an SD-WAN perspective, it can be deployed as a value-added service with NaaS to enhance performance, security, redundancy and application experience.

uCPE: Combining SD-WAN with the principles of uCPE provides a consistent and scalable architecture for edge network. And we believe that more than half of all WAN edge infrastructure refresh initiatives will be based on uCPE platforms or SD-WAN software or appliances.

Challenges

in traditional SD-WAN branch deployment or configuration and security



Site turn up is time consuming and costly

Significant time is needed for new site turn up. This includes time for circuit delivery, equipment provisioning and change management. New sites can take months to turn up due to the complexities of change management and project coordination.



Inadequacy in protection from cyber threats

Traditional WANs pass traffic in the clear, a luxury the new WAN can't afford. With mounting cyber threats, securing traffic in transit is no longer an option. It is a requirement.



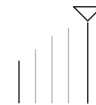
Overprovisioning of bandwidth

Voice, video, CRM and more. WANs accommodate many types of applications, each with unique requirements. Some require significant bandwidth, others require low latency. Routing protocols do not provide for those differences, forcing IT to overprovision bandwidth.



Gaps in visibility and coverage

Centralized security policies can't be effectively managed and enforced in a decentralized network. This is because most traffic from branch locations to the cloud and internet doesn't cross a centralized policy enforcement point. This results in visibility and coverage gaps, which increases the risk of a successful breach or compliance violation.



Latency and degraded internet performance faced by remote or branch users

Delay arises in accessing the internet or cloud applications when traffic is backhauled from multiple branches or remote locations through traditional hub-and-spoke architecture.



Lack of visibility and control leading to regulatory compliance violations

Many WAN monitoring tools fail to differentiate between business-critical internet applications and general internet browsing. With so many applications and different kinds of users, insight into the WAN is critical than ever.

Solution

HCLTech Managed SD-WAN Services solution overview

HCLTech Managed SD-WAN Services, powered by Aruba EdgeConnect helps enterprises dynamically route and intelligently connect their global WAN infrastructure and make it truly transport-agnostic. It offers unified management and orchestration of different sites and controllers across branch sites, on-premises and public cloud data center network environment.

The business-first and experience-centric structure enables centralized control, cloud-management, AIOps, global network automation orchestration, advanced analytics and carrier-neutral establishments, all in as a pay-as-you-go (PAYG) service model.

It combines comprehensive WAN capabilities with automation functions to simplify device onboarding in SD-WAN setup (Greenfield/ Brownfield deployment). Further, it is integrated with our DRYiCE iAutomate, a network automation and orchestration platform, for end-to-end enterprise network lifecycle management, which auto-remediates, self-heals and makes your network self-aware.

Apart from being an automation engine, DRYiCE iAutomate also serves as an orchestrator that integrates monitoring tools, ITSM (ITSM tool used for change and incident management) and network controllers, helping in change, configuration and compliance automation. DRYiCE iAutomate acts as a universal controller

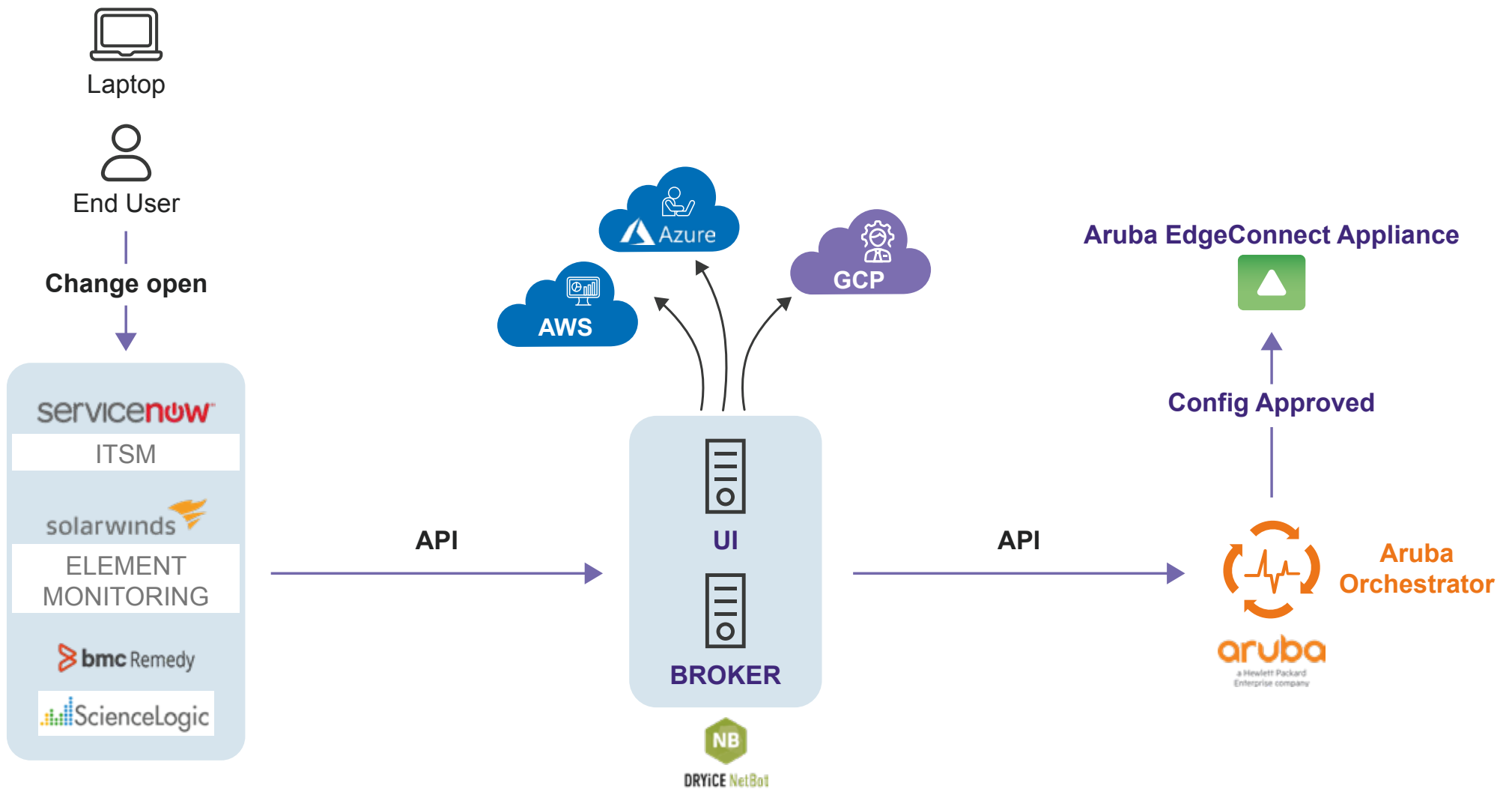
(i.e. controller of controllers), offering unified management and orchestration of different sites and controllers across branch sites, on-premises, and public cloud data center network environment.

This service offering heavily utilizes the Aruba EdgeConnect Enterprise (SD-WAN) solution for automating tasks that are time-consuming and repetitive in nature. Aruba Orchestrator is a core component of Aruba EdgeConnect Enterprise solution. Aruba Orchestrator provides an intuitive

user interface where you can centrally define, assign, and enforce policies across the WAN.

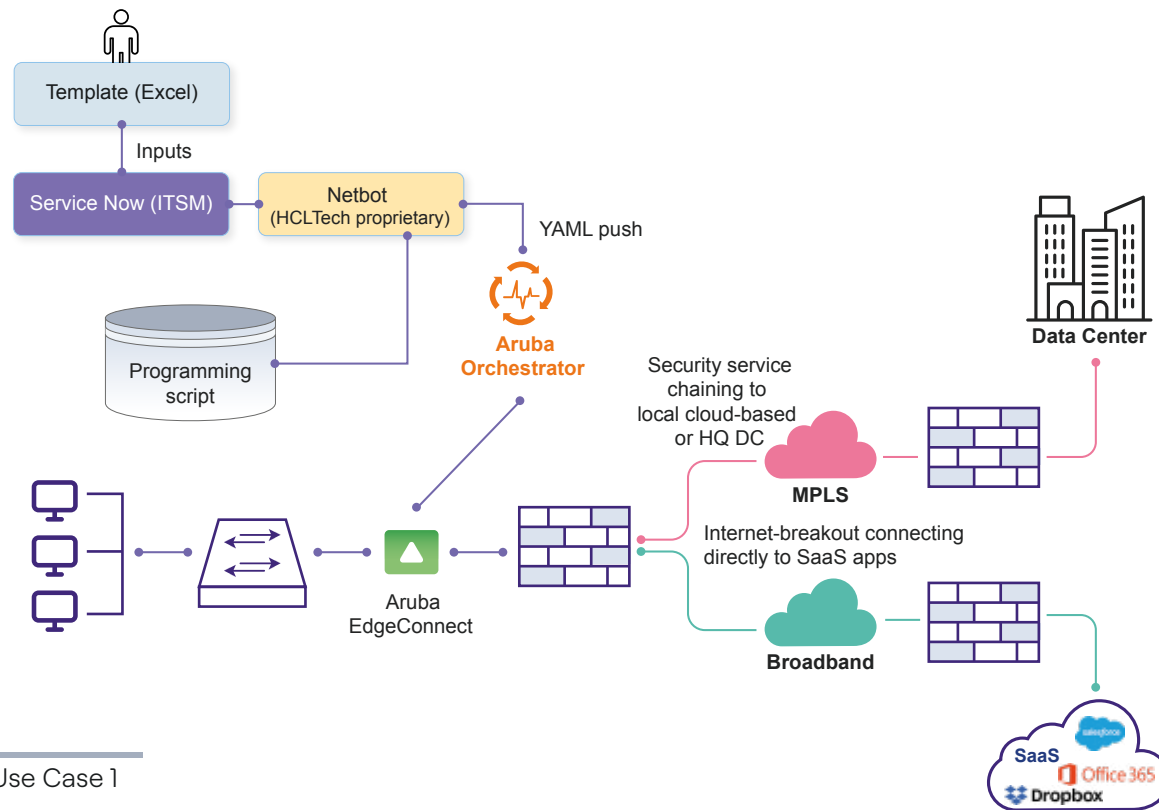
HCLTech Managed SD-WAN Services solution utilizes the centralized network configuration approach and programming languages such as python or ansible to spin up the branch network. As this is an automated solution, it's error-proof and saves time to implement changes. It also saves costs occurred by implementing changes in network.





Use Case 1: Automate device provisioning

1. The customer will open the change request from ServiceNow, and he will provide the required template as input for change.
2. ServiceNow is integrated with DRYiCE iAutomate and once the change is validated it will create a task for DRYiCE iAutomate and place it in DRYiCE iAutomate queue.
3. DRYiCE iAutomate scheduled a task to implement based on the date/time requested by the team in the change request.
4. On the scheduled time/date DRYiCE iAutomate tool converts the input template to the corresponding device configuration in YAML format (source tunnel configuration) and pushed it to Orchestrator for further action.
5. Similarly, DRYiCE iAutomate pushes Third party tunnel configuration on the SASE cloud portal to the nearest POP location to the branch.
6. Once the configuration is pushed on the Aruba EdgeConnect appliance and Third party SASE portal, the tunnel will be created automatically between the edge and POP location.



Benefits

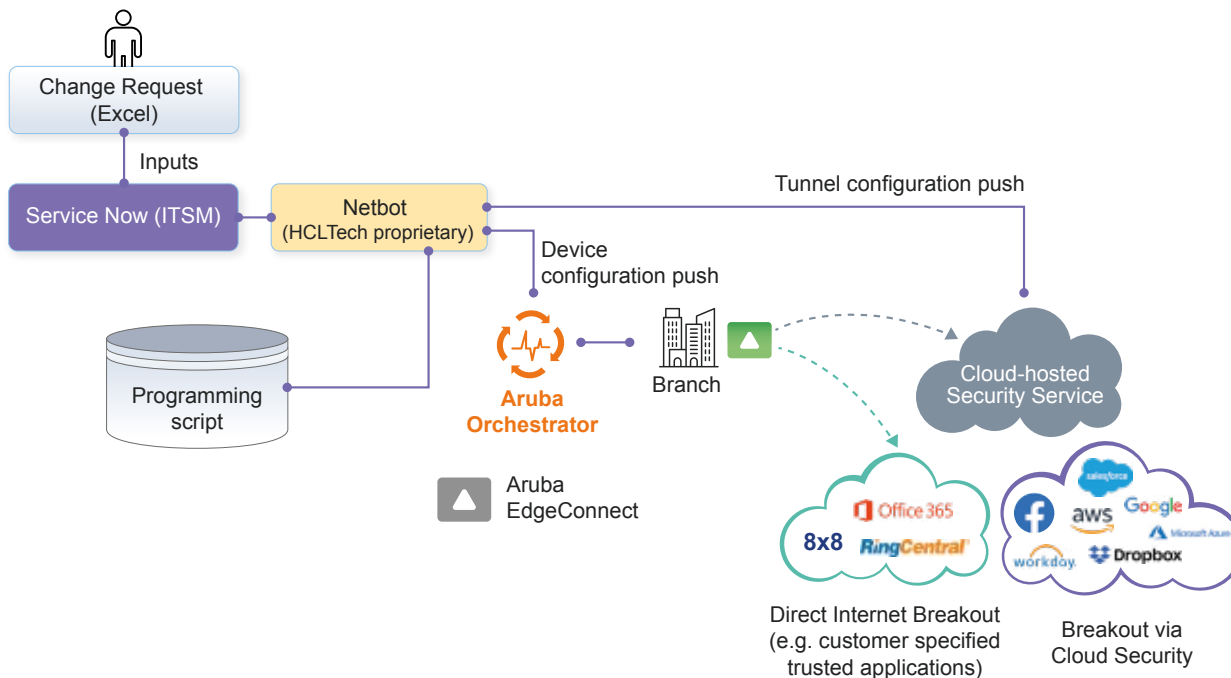
Automate device provisioning

- Seamless and automated provisioning of Aruba EdgeConnect SD-WAN appliances.
- Reduced onboarding time
- Bulk device provisioning without raising separate changes.
- Standardized device configuration throughout the customer network infrastructure
- Programmable constructs leading to increased efficiency
- Cost effective with easy-to-execute change management

Figure 1 Use Case 1

Use Case 2: Automate Integration with Axis Security Gateway

1. The customer will open the change request from ServiceNow, and he will provide the required template as input for change.
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Benefits

Automate SASE integration to Aruba EdgeConnect Enterprise (SD-WAN)

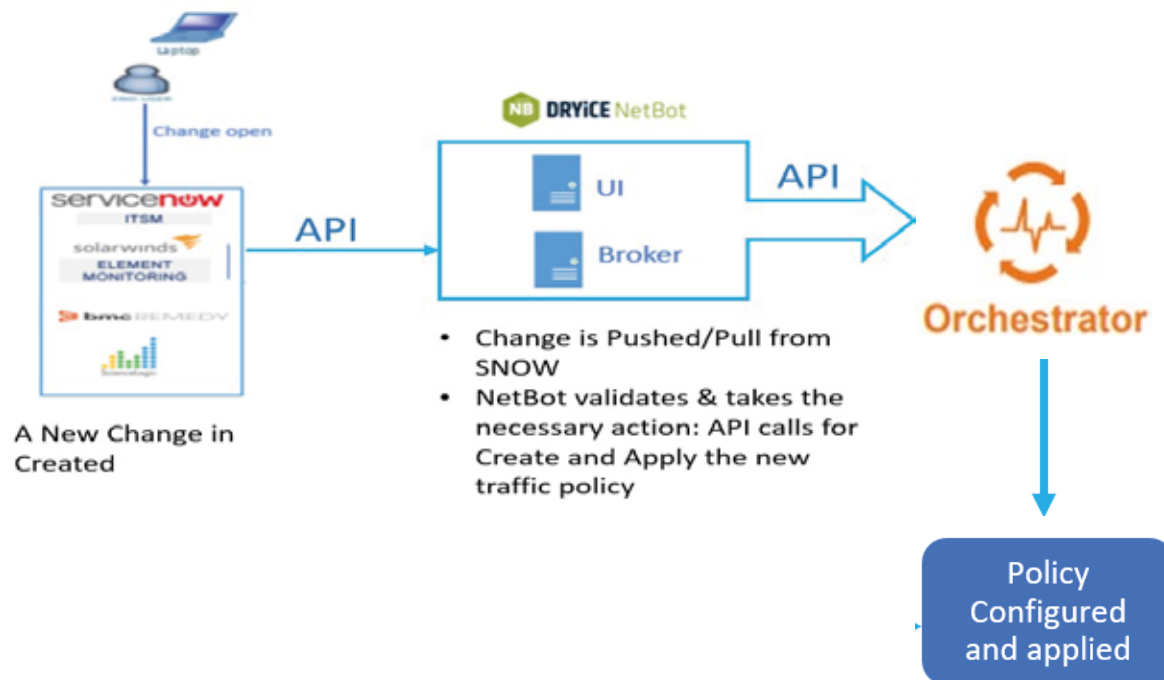
- Simplified appliance integration with SASE (including third-party tools) without manual intervention.
- Robust security posture with seamless branch (multiple) integration to SASE
- Standardized device configuration making the customer environment predictable.
- Reduced time-per-task for complex integration configurations for cloud and SD-WAN devices.

Figure 2 Use case 2

Use Case 3: Automate Application Blocking

1. Network IT Engineers person gets report of slowness and it's found through Orchestrator tool that most of the users in SD-WAN environment are using specific website for example: Netflix & Instagram.
2. The team creates a ServiceNow Change Request specifying the application to be blocked (by name or subnet IP).
3. The NetBot automation tool detects the new Change Request.
4. Based on the Change Request details, NetBot creates a new SD-WAN policy to restrict traffic for the identified application.

A similar Change Request can be submitted to unblock applications, NetBot updates the policy to allow previously blocked traffic.



Benefits

- Simplified application blocking without manual intervention via DRYICE iAutomate
- Effective bandwidth utilisation for low priority applications
- NetBot expedites change requests, allowing for faster adjustments to network traffic patterns and user needs.

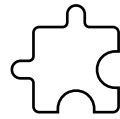
Figure 3 Use case 3

Success story

HCLTech Managed SD-WAN Services



The challenge



The leading engine manufacturer, headquartered in the US, faced several limitations with their network. They relied heavily on expensive MPLS circuits (80%) with limited internet access (20%) and a single internet breakout point.

This resulted in high costs, lack of redundancy, and an inability to optimize traffic for different applications.

Solution

The customer evaluated HCLTech's Managed SD-WAN Services, encompassing design and consultancy services coupled with building, migration and operational capabilities.



Following the PoC and Assessment Services, HCLTech implemented a comprehensive SD-WAN strategy. This included deploying SD-WAN devices at all branch sites, enabling local internet breakout, and leveraging a hybrid architecture with options like dual internet circuits and even 5G backup for some sites.

This innovative approach was the first of its kind in the industry, integrating Aruba EdgeConnect Enterprise Solutions.

Benefits

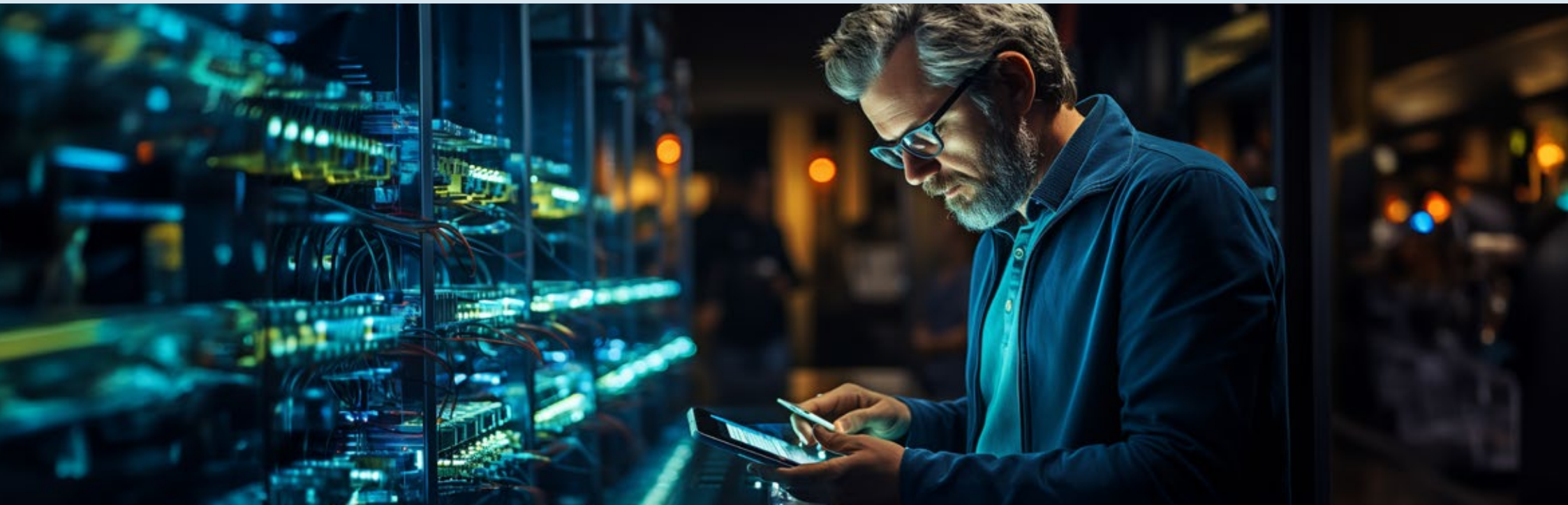


The company achieved significant cost savings on telecom expenses. They also improved customer experience with better overall throughput and automated failover for critical services. Additionally, each branch site gained redundancy through dual internet circuits and devices, and a single management plane simplified network control.

Unlocking business value with a synergy between Managed SD-WAN Services and Aruba EdgeConnect Enterprise

Managed SD-WAN Services powered by Aruba EdgeConnect Enterprise solution, offers unique solutions, assets and accelerators to simplify your SD-WAN transformation journey. These include:

- 1 Automating branch provisioning and configuration
- 2 Simplifying SD-WAN workflows and deployment
- 3 Strategic support via certified SD-WAN engineers, solution architects and SMEs
- 4 Reduction in infrastructure costs with utility constructs available as NaaS
- 5 Single vendor contact for support on day-to-day issues
- 6 Secure and reliable communication to cloud applications

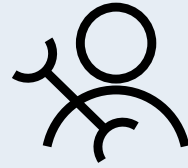


Our Managed SD-WAN differentiators



360-degree strategic partnership with OEMs

HCLTech Managed SD-WAN & SSE services helps you enjoy the power of leading **SD-WAN OEMs** (Cisco, VMware, Aruba,, etc.), telcos (Verizon, AT&T, Telstra) and **security native vendors** (Fortinet, Zscaler, PANW).



2K+ SD-WAN experts

HCLTech leverages capabilities of more than 2,000 SD-WAN engineers' who have knowledge in both security and networking, as well as the ability to support customers globally and in the remotest areas of the world.



Relationship Beyond Contract

In pursuit of providing exceptional customer experience, we offer customers the flexibility with to choose any SD-WAN service and commercial constructs (PoC-as-a-service, managed services) as per their customer needs.



10+ Network Innovation Labs

Our **Network innovation labs** helps build, test and validate SD-WAN reference architectures, customer integrations, for multiple enterprise requirements.



30+ years strong service delivery

HCLTech's proven experience in global SD-WAN managed service delivery, underpinned by **30+ years of legacy** in network modernization, enables us to empower any organization with SD-WAN transformation.

HCLTech | Supercharging Progress™

HCLTech is a global technology company, home to more than 227,000 people across 60 countries, delivering industry-leading capabilities centered around digital, engineering, cloud and AI, powered by a broad portfolio of technology services and products. We work with clients across all major verticals, providing industry solutions for Financial Services, Manufacturing, Life Sciences and Healthcare, Technology and Services, Telecom and Media, Retail and CPG, and Public Services. Consolidated revenues as of 12 months ending March 2024 totaled \$13.3 billion. To learn how we can supercharge progress for you, visit hcltech.com.

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