

Sify SD-WAN Capability

Customers prefer Sify for its expertise in end-to-end managed solutions, deep engagement with OEMs, Network-agnostic managed services, quick & cost-effective rollouts, project implementation expertise and extensive operations support across 1500+ cities.

Sify proposes a long-term strategic partnership with Customers to be partner of choice which brings an integrated SD-WAN solution to business and technology needs of the Customer. Sify proposes new-age technology network designed for reliability, scalability, optimized for latency and application performance.

Currently, Sify has 50+ customers running on SD-WAN solution across multiple verticals such as:

| | |
|----|--------------------------|
| 1 | Manufacturing |
| 2 | BFSI |
| 3 | Pharma |
| 4 | Security |
| 5 | Media |
| 6 | Retail |
| 7 | Utilities |
| 8 | Logistics & Distribution |
| 9 | Education |
| 10 | Healthcare |

Key Features of Sify SD-WAN solution

Application visibility and control

Applications can be prioritized on the basis of business policies, and visibility is provided through the centralized cloud-based network management application.

Dynamic WAN selection.

Minimum performance benchmarks can be set on a per-application basis and can be adjusted automatically.

Application optimization.

The service allows the customer to continuously monitor and improve network paths based on performance bench-marks and includes forward error correction and jitter buffering.

Secure network deployment.

The SD-WAN service automatically sets up IPSec tunnels with end-to-end encryption, enabling dynamic branch-to-branch connectivity.

Stateful firewall.

An integrated stateful firewall allows for the deployment and management of security policies, which can be managed centrally with options for edge overrides by location.

In addition, application layer filtering provides some next-generation firewalling capabilities.

Network analytics.

Real-time analytics allow for policy creation and troubleshooting and provide insights into application utilization and bandwidth consumption.

Brief description on Sify Managed SD-WAN Best Practices

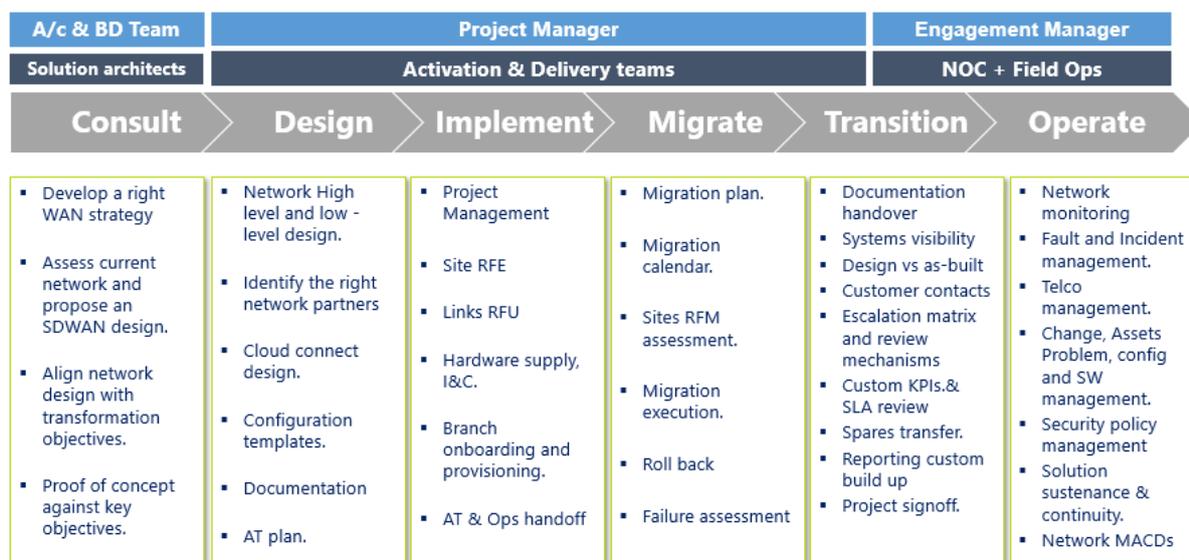
- Network & Service Provider Agnostic Solution
 - I. Supports multiple transport types – MPLS/ Internet/ LTE/ DSL
 - II. Support for 3rd party ISP links
 - III. End-to-End Managed Services Model- Edge CPEs, Subscription, Installation & Support
- Sify Owned Sify Managed Highly redundant SD-WAN Platform
 - I. Cloud based, Multi-tenant platform hosted within Sify Core Network infrastructure
 - II. Geo-redundant core for business continuity (Mumbai and Chennai)
 - III. High level of redundancy for Connectivity links for the platform
 - IV. Managed 24x7 by skilled resources
- NOC, SOC and systems experience
 - I. Managing multi-vendor environments, single ownership, SLA driven
 - II. Integrated NOC & SOC, 24x7x365 monitoring and management
 - III. Visibility Tools -1200+ Man Years in Tools & Process
 - IV. 1800+ Network services strength
- Inhouse cloud and application delivery
 - I. Capability and experience in all aspects of building cloud infrastructure
 - II. Managing public and hybrid cloud services
 - III. CloudInfinet CMP to provide multi cloud operational best practices
 - IV. AWS/Azure/Oracle/Google cloud implementation
 - V. Delivering SaaS - ForumNXT, I-test, Safescrypt and E-learning
- Pan India Regional Field team Structure
 - I. Sify presence in 1500+ cities in India
 - II. 1300 + trained engineers on field covering 400+ locations
 - III. Project teams that deliver customer centric projects

Sify Managed SD-WAN - Deliverables

| Deliverable | Description |
|----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Service portal | Portal to customer, able to view, configure, monitor WAN network performance of Sify and other providers |
| Capacity management | Measure WAN link utilization trends, create baselines and recommend customer on the actions taken – upgrade, downgrade |
| Transition and implementation services | Site survey, CRD, HLD and LLD. Deploy initial CPE devices across all sites. Perform MACD as and when changes required [bandwidth upgrade/downgrade, new features] |
| Proactive network monitoring | 24x7 Monitoring of network related faults and performance management. Able to view this alerts on self-service portal |
| Application visibility | Identify applications and sub-applications, report the performance of applications |

| | |
|-----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| Incident reporting and management | Trouble ticketing for all network related issues including other SP links. Detection of alerts from fault and performance management systems |
| Problem management | Diagnose, identify and isolate issues. Work on fix and workarounds with providers and SD-WAN vendors |
| Configuration management | Configuration of managed CPE devices, auditing, backup of configuration, template based config |
| Inventory management | Manages inventory of CPE devices, resources – IP address, VLAN etc |
| Vendor management | Co-ordinate with vendors for issue reporting and resolution, faulty hardware management, recommended best practices |
| Change management | Scheduled network changes – changing software based on EOL, proactive identification of network issues and resolution, MACD of WAN links and bandwidth |
| Service desk | 24x7 technical support team to co-ordinate with customer for issue reporting and resolution |
| Hardware replacement time | Replacement of faulty hardware and components |
| Support systems | IAM, NTP, OOB management systems |
| Root cause analysis | Analysis of issues and identify root causes – including CPE and provider links |

Sify managed SDWAN Lifecycle management



Sify's wide experience in design & engineering of Enterprise Networks along with managing and administering the world-class network is a core capability for SD-WAN lifecycle management. Our Capabilities are detailed below.

A. Network Engineering & Design

- Requirement Gathering, concept build
- Project detailed SOW – develop and sign-off
- Develop Network High Level Design
- High Level Design Review
- Develop Low Level Design
- Documentation, Reviews
- Project milestone reviews and sign-off
- KPIs:
 - Project Milestone based timelines
 - Design compliance to gathered business input

B. Network Implementation & Integration

- HLD documentation and Review
- Low Level Design documentation
- Impact and risk assessment
- LLD Review and Nodal Configuration development
- Configuration testing at staging
- Implementation and Integration
- Design validation, UAT, Sign-off
- KPIs:
 - Project Milestone based timelines

C. Network Migration & Transition

- Requirement Gathering
- Motivation, expectations - documentation
- Pre-Migration statistics and configuration dump
- Risk analysis and mitigation methodology
- Rollback methodology
- As-is and to-be documentations
- Migration & transition
- Post-Migration analysis, review and sign-off
- KPIs:
 - Project Milestone based timelines
- Compliance to expected results

D. Network Audit & Optimization

- Network Study and documentation
- Architectural review
- Business expectations and known issues - doc
- Audit reporting, analytics and compliance reports
- Best practices and optimization recommendations
- KPIs:
 - Project Milestone based timelines

Scope of Work

A. Sify's Scope: Deployment

- Supply of proposed hardware to Customer (Customer) locations.
- Provisioning of SD-WAN CPEs, SD-WAN Gateway, Control systems.in consultation with Versa by taking their professional services and support.
- Configuration of SD-WAN devices at DC and DR.
- Work closely in conjunction with our SDWAN OEM versa in terms of low-level design etc.,
- Configuration of cloud orchestration system in DC & DR based on Customer's application profiling details
- Mounting and Configuration of SD-WAN devices at branch locations, which will be carried out by Sify Field Team.
- Provide login credentials to Customer IT team on support portal for any service requests.
- Configuration of cloud orchestration system based on Customer's application profiling details.
- Training for designated Customer personnel as the per scope mentioned in the RFP.
- Testing as per agreed criteria.

A. Sify Scope – Support during Contract Period

- Sify to provide One on-site engineers at Customer premises as per the requirements mentioned in the RFP document.
- The onsite engineer's responsibility will be as follows,
 - Raise Trouble Ticket for any Hardware /Software related issues on the proposed SD-WAN overlay solution.
 - Raise Trouble Ticket on intimation from the Customer on any SD-WAN overlay related issues.
 - Coordinate with Sify Field Operations.
 - Coordination with OEM for RMA
- Sify to provide AMC support for the proposed hardware for 4 years as per the terms and conditions mentioned in the RFP post one year Warranty
- Sify to maintain the Hardware items including Software/License during warranty and AMC period
- Sify to inform Customer on the patches and updation of the same as per requirements mentioned in the RFP document.
- During Warranty and AMC support Sify should inform Customer about all release/version change/patches/ upgrades/ updates of software/ OS/ middleware etc. as and when released by the OEM.
- Any corruption in the software/License shall be rectified by Sify during the full period of the contract including Warranty and AM
- To provide Customer with reports of the deployed SD-WAN setup as specified in the RFP.
- All other compliance as per the RFP document

B. Customer's Scope:

- Access permission to premises for deployment of network elements (devices)
- UPS-propelled power and proper earthing for network elements.
- Collocation space for SD-WAN CPEs, Controllers etc., at DC & DR sites.
- Provisioning of underlay network.
- Passive cabling within sites from SD-WAN CPE to internal LAN infrastructure.

- Participate in workshop with Sify on application profiling requirement.
- Define application-wise service level requirements.
- To provide Workspace, laptop/desktop & telephone landlines for the Sify Service onsite resources at Customer's location.
- Provide Internet access to Sify resources to access Sify helpdesk portal.
- Identify faults in the network and inform Sify onsite engineer if the problem is related SD_WAN hardware /software deployed

C. Joint Scope:

- Define application performance requirements for profiling & policies.
- Define acceptance criteria test parameters & format.
- LAN & WAN IP Scheme.

D. Out of Scope:

- Any organizations/users/components/services not listed in scope.
- Any other location other than sites mentioned in the work order.
- Any other items not mentioned in the scope, BOQ/PO and commercial proposal.
- Sify scope is only limited to the activities pertaining to Sify services.
- Warranty/AMC/FMS support activities for any equipment or component which are not provided by Sify.
- End user device configuration, management & support.
- Any trouble shooting on the existing underlay network and hardware associated with it.

Within the scope of this proposal, Sify does not take responsibility for performance of Customer applications or any third-party software.

This proposal is prepared based on the information made available till now. If need be, the proposal shall be improvised / modified at a later stage under mutual consultations with Customer.

E. Minimum Requirements at Customer Sites

Sify expects Customer to provide for the following minimum requirements at all Customer premises to ensure smooth project delivery within the committed timelines.

- Clear address along with contact person's name & phone number for site survey.
- Notification / Communication to Customer's representative at Office regarding the site survey & deployment of SD-WAN CPE.
- Access rights at Customer premises, for deployment of SD-WAN CPE.
- Passive cabling within sites from SD-WAN CPE to internal LAN infrastructure.
- Availability of UPS-propelled Power with earthing at all Customer premises, for smooth working of all network elements.
- Configuration of LAN devices for integrating SD-WAN CPEs to LAN.
- To provide free ports on the existing core switches at DC and DR for connectivity to Head end devices.
- Enable access to relevant infrastructure to provide the proposed services.
- Internal communication with respective stakeholders on workshop for application & SD-WAN deployment.

KEY SD-WAN DEPLOYMENTS

- VERTICALS: BFSI, MFG, EDUCATION, HEALTHCARE
- MULTI-OEM, GEOGRAPHICALLY SPREAD

