



COSGrid's Reflex-WAN is a **Cloud Managed Software Defined platform** designed to transform WAN into a cloud-centric world. It is built to deliver the simplicity, flexibility and cost-effective WANs for any branch office locations and scale also seamlessly run and integrate with DC locations and Clouds deployed. Reflex-WAN provides **pervasive and unified connectivity** for delivering the reliability, provides **centralized network management** capabilities; automated zero touch provisioning of devices; and **end-to-end visibility** for validating business policy as well as reporting.

Challenges

Cloud, IoT and WFH disrupting Enterprise WAN and also the Current Enterprises WAN architectures based on MPLS not suitable for the enhancing attacks and Connectivity problems . In Short, Organisations are not reliably Connected and vulnerability is a major enterprise risk today.

- **Business continuity risks**
Poor network quality & ineffective backup
- **Unviable branch connectivity costs**
Inefficient and costly (10x expensive than Broadband)
- **Poor user experience**
Lower available bandwidth to per user or application
- **Deployment and Operations complexity**
Multiple Link types & SLA; Traffic@30% growth y-o-y
- **Increasing cost of data breaches Y-o-Y**
Average cost of breach @ \$8.19 mn USD

Reflex SD-WAN at a Glance



Unified and Accelerated Access:

Resilient & secure access,
Scalable security Infrastructure,
User experience visibility



Zero Trust Platform:

Software Designed Parameters
Distributed SDN/NFV
MicroSegmentation



Adaptive orchestration & management:

Deep network visibility,
Intelligent threat
detection and mitigation

Highlights

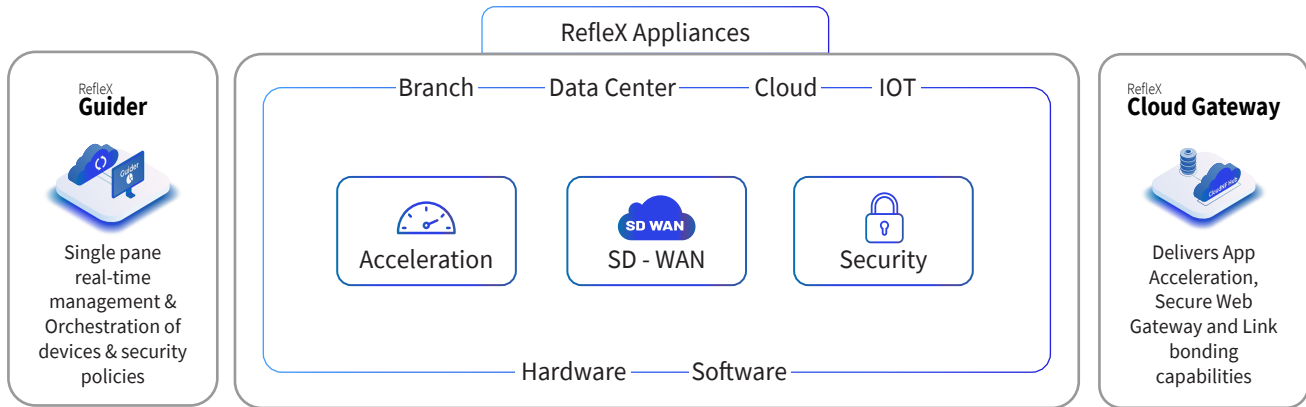
- **Unified Transport & Service to improve Bandwidth**
 - Multiple Active Links
 - Multiple Network Service
- **Intelligent Traffic Steering to prevent Downtime**
 - Application based routing
 - High performance Apps
- **Integrated Security that prevents redundancies**
 - Scalable VPN tunnels
 - Easy UTM functionality
- **Ease of Ops at Scale through interactive dashboard**
 - Simple workflow
 - Automated

Patent on "ADAPTIVE AND SEAMLESS TRAFFIC STEERING AMONG MULTIPLE PATHS BASED ON APPLICATION QOE NEEDS".



Solution Overview

Branch routers of the past are replaced by ReFlex SD-WAN. They offer zero-touch configuration, centralised policy and management of appliances, virtual private network (VPN), and dynamic path selection based on business or application policy.



ReFlex WAN Components

COSGrid's ReFlex-WAN consists of organically developed Software and Hardware which delivers an enhanced Application & User Experience (UX) through the transformation of your WAN by connecting the branch offices and the Clouds into a high-performing and resilient elastic WAN.



ReFlex Secure Edge

Intelligent SD-WAN Edge deployed at the branch office, Cloud, and Data Center that delivers superior application performance and Edge Security including the below

- Dynamic application policy and WAN link quality-based traffic steering
- Delivers Comprehensive routing, Stateful/NGFW Firewall, Encrypted overlay tunnels, NAT, and Application QoS
- Supports a variety of underlay transport including broadband, 4G/5G, Wi-Fi, MPLS, and DIA.
- Flexible deployment models with form factors across on-prem, Data Center, Hypervisor and Cloud



ReFlex Cloud Gateway

COSGrid CloudNF Hub delivers the proven architecture for optimized access to cloud and Business SaaS applications.

- Higher bandwidth through link aggregation
- Rapid provisioning of Services
- Optimised routing for cloud access

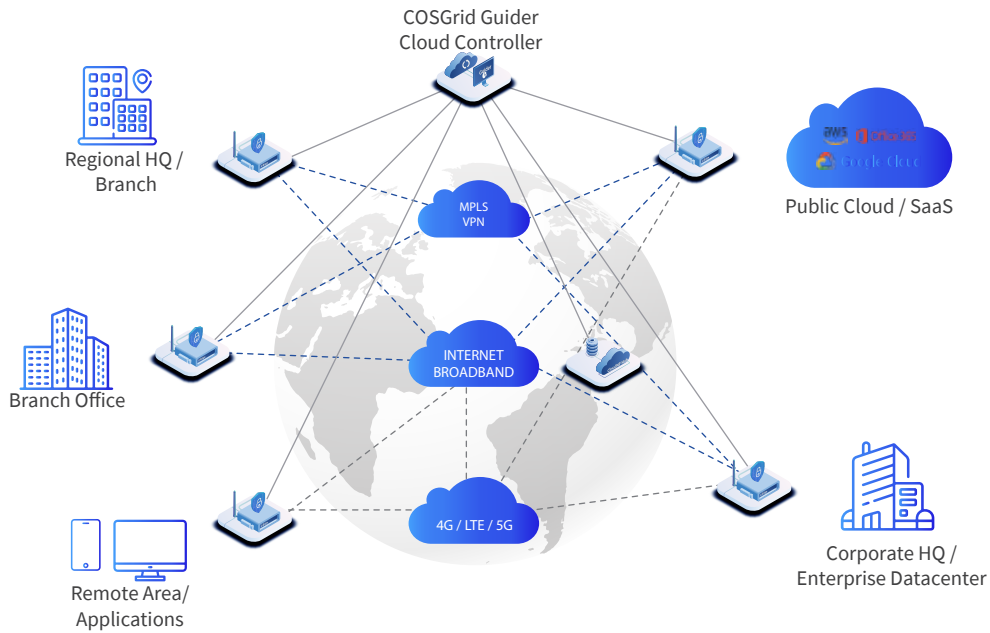


ReFlex Guider

COSGrid Guider provides centralized management, monitoring and orchestration capabilities needed to deliver software-defined network and security services from a single console. The services include

- Full lifecycle management including secure on-boarding of devices and users, zero-touch deployment and network automation
- Flexible Multi-tenant, multi-organizational management, and SLA reporting
- Centralized application, security policy management, and custom event handling APIs

ReFlex SD-WAN Architecture



ReFlex SD-WAN Use cases



Centralized Management through Dashboard

Unifies all Visibility, Documentation and Compliance Issues. Easing the Burden on Firewalls



Secure Branch Internet Access

Secure Internet access to all branch locations. Undisrupted Data Transfers, WAN



SaaS Acceleration

Undisrupted user Sessions with Acceleration
No Downtime - 24/7 support



Improve Overall Application Performance

Leap in Performance even in Remote Locations.
Local break out of Traffic headed to Internet/ Cloud.



Anytime Secure Remote Access

Ease of access remotely



Pickup calls over Broadband

Undisrupted VoIP Calls/Video Session.



Mpls Migration To Sd-Wan









Flexibility. Reduction in cost.
Switching of Combination of Internet Links (Broadband/4G/5G)



Overall Network Security Maintenance

Application-based firewalls, intrusion prevention systems (IPS), and URL filtering..




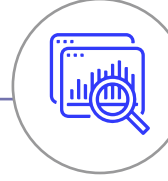
Key Features

 Hugely Improved Application Performance	 Higher Branch Bandwidth & Uptime	 Integrated & Optimized Security	 Zero Touch Provisioning
 Link Aggregation & Load Balancing	 Application Visibility & Traffic Analytics	 N/w Policy Orchestration & Automation	 Extensible And Easy Integration With Open Apis

Technical Specifications

Features	Description
Networking & Routing	
Network services	IPv4, IPv6, SNMP, NTP, DNS Client, DHCP (Client, Server & Relay), NAT/PAT, PPPoE
Routing	Static routing, BGP, OSPF, PBR, Multicast, VRRP, Policy Based Forwarding
Ethernet & VLAN Support	802.1Q, 802.1ad, QinQ (0x8100), QinQ (0x9100), Native
QoS	Classification, Marking, Rate-Limiting, Scheduling, Queuing, Shaping, SQM
Cellular Access	Integrated 4G/5G modem(s) on some devices. Support for external 4G modems over USB interface
Wi-Fi	Wi-Fi 802.11n/ac, WPA2-Enterprise, WPA2-Personal, MAC filtering
SD-WAN & WAN Management	
SD-WAN Core	Automatic WAN Failover, Application and WAN quality based traffic steering, Best path WAN Selection, Application based policy load balancing, Zero touch branch provisioning,
Advanced SD-WAN	WAN Aggregation through Adaptive Multipath Traffic Steering for zero glitch connectivity, Template-based policies with parameterization, Centralized policy enforcement, Custom Event triggers and incident handling
WAN Acceleration and Optimization, SaaS Acceleration	Forward Error Correction to restore packet loss in WAN links, Compression and TCP Protocol acceleration for higher throughput
Monitoring & Remote Diagnostics	
WAN Monitoring	WAN Links and VPN tunnels health monitoring and real-time alerts
Monitoring Integrations	Collectd, Syslog, SNMP, NetFlow, IPFIX
Traffic Flow Analytics	Applications, per-endpoints, per-branch level usage analytics
Periodic SLA reports	Details WAN uptime and performance reports sent to email
Audit Logs	Org-level login and change logs for compliance and tracking
Remote troubleshooting	Real-time diagnostic and troubleshooting tools including packet capture
Security	
Stateful Firewall	Zone-based L4 Firewall, MAC Binding, Rules, Policies, DDoS (TCP/UDP/ICMP Flood), Syn cookies, Firewall Logging
VPN	Site-to-Site, Route/Policy based VPN, IKEv2, DPD, PFS Confidentiality algorithms: Pre-shared and PKI Authentication with RSA certificates, hashing, Diffie Hellman key exchange, Hub and Spoke, OpenVPN, WireGuard VPN
Zero Trust Branch Connectivity	Granular and Secure Remote Access through deep verification with multi-layered policy enforcement, Enhanced Identity, Automated tunnels, Mesh and Direct connectivity with lower latency
Next- Generation Firewall	Application detection through Deep packet inspection, Application Blacklisting, Whitelisting based on App, Geo Location based policies
Application Visibility & Control	Identifies more than 2000+ applications and protocols, Application group support, Application filter support, Application visibility and log support
Web & URL Filtering	URL categories and reputation based permit and allow policies, URL profile (blacklist, whitelist, category reputation), SSL inspection, Forward Secure Proxy
Threat Defense with IDS/IPS	Signature based detection, customer signatures, Anti-DDoS, Anomaly detection, IP Reputation
PKI & Secure Device enrollment	PKI, SCEP
Port Security	WPA-Enterprise (EAP-MD5, EAP-TLS), WPA-Personal - Wi-Fi & Routed Port
Configuration & Management	
NetSecOps in a single pane of glass	Centralized Management of Networks, Security, Devices and Users and user experience in a single holistic view
AAA	Support for LDAP, Active Directory, RADIUS, RBAC architecture, audit logs, roles and privileges, custom workflows,
Authentication	Two-factor authentication and single sign-on with leading Identity Providers such as Okta, Azure AD etc
Configuration	REST API, CLI, GUI, NetConf

RefleX SD-WAN Comprehensive


Security	Networking	Application QoS	Traffic Analytics & Management
 <ul style="list-style-type: none"> • Next Generation Firewall • AES encrypted VPN • Content Filtering • URL filtering 	 <ul style="list-style-type: none"> • WAN balancing and failover • Application based routing • 3G/4G/5G failover • Branch routing 	 <ul style="list-style-type: none"> • Multi-path traffic Aggregation for Application • Quality of Service • Network Acceleration 	 <ul style="list-style-type: none"> • Real-time traffic reports • NetFlow stats • Log Management • Link specific SLAs

Benefits & Outcomes

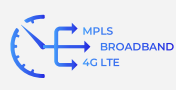
- **Zero-glitch Network experience** through patented Multi-path traffic Aggregation & Adv Traffic Steering
- **Zero Trust Access & microsegment** using device trust and geo-fencing SaaS Application acceleration
- **Only NetSecOps platform** that delivers Network Security, SD-WAN and UEM **in single console**
- **3X higher accuracy in detection** through multi-pronged approach.




More Reliable & Visible Security



Agile & Simple Ops



Network Reliability & Performance



Integrated & Converged Solution

COSGrid Networks Software Licenses

COSGrid Networks offers three tiers of software licenses to meet various networking requirements



This license tier can be considered for a branch router replacement and includes features such as:

- Basic or Advanced core routing and network services such as DHCP, DNS, NAT etc
- SD-WAN for reliable WAN connectivity; Secure dynamic and encrypted tunnels - Hub-and-Spoke;
- Includes Layer-4 Stateful Firewall and URL and IP filtering, blocking web access, and more
- Wi-Fi and 4G WAN support



This tier includes enhanced SD-WAN features. It includes:

- Advanced SD-WAN capabilities such as WAN Aggregation, reporting etc
- Advanced Security features such as IPS, Content (Web) Filtering, URL usage Tracking
- Zero trust Branch connectivity and Branch to Branch connectivity
- Provide User/User group-based traffic engineering and SLA policy
- Application detection and visibility, QoS



This tier is designed to provide advanced next-generation security features including:

- Next Generation Firewall (NGFW)
- Next generation intrusion prevention system
- WAN acceleration and Optimization - For customers who require superior voice service (FEC, cloning etc.)
- Custom workflows with Network Automation
- SSL inspection

COSGrid Hardware Profile



C-Edge B4xG

- Multi Sim 4G upto 5 Sim Slots
- 1 USB Port
- 1 SD Card Slot
- 4 Gigabit Ethernet Ports + 1 WAN Port
- 5 Years Warranty & Support
- Metal Enclosure - Aluminium



C-Edge E2XG

- Dual Sim 4G Slots
- 3 Gigabit Ethernet Ports + 1 WAN Port
- Mediatek Processor
- DRAM : 512MB
- 5 Years Warranty & Support
- Metal Enclosure- MS sheet



Large Branch SD-WAN

- x86 64-bit processor @ 2 GHz. 4 GB RAM.
- 4 Gigabit Ethernet ports.
- 4 x USB 2.0 ports & for 4G/3gMi-Fi dongles.
- Recommended for up to 500Mbps.
- 3 years warranty & support.



Small Branch SD-WAN

- 32-bit processor @ 600 MHz, 128 MB RAM.
- 5 x Fast Ethernet ports (WAN & LAN).
- 1 x USB 2.0 ports for 4G Mi-Fi dongles.
- Wi-Fi: 2.4 GHZ.
- Recommended for up to 100Mbps.
- 3 years warranty & support.



DATA Center SD-WAN

- Intel® Atom™ C2558 processor, 2.4GHz, 4GB RAM
- 7 Gigabit Ethernet ports including support for SFP/Optical+1 USB 2.0
- 64GB Storage
- Optional 3G, 4G LTE and WiFi connectivity for flexible deployment.
- Compliant with FCC and CE RED for deployable WAN and WLAN function in USA and Europe.



Small Branch SD-WAN

- 32-bit processor @ 600 MHz, 128 MB RAM.
- 5 x Fast Ethernet ports (WAN & LAN).
- 1 x USB 2.0 ports for 4G Mi-Fi dongles.
- Wi-Fi: 2.4 GHZ.
- Recommended for up to 100Mbps.
- 3 years warranty & support.



Large Branch SD-WAN

- x86 64-bit processor @ 2 GHz. 4 GB RAM.
- 4 Gigabit Ethernet ports.
- 4 x USB 2.0 ports & for 4G/3gMi-Fi dongles.
- Recommended for up to 500Mbps.
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