

SOPHOS



FIREWALL
v17.5

XG Firewall and SD-WAN

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Introduction

Few terms in networking have generated as much buzz recently as SD-WAN (or Software Defined Networking in a Wide Area Network). All that buzz has been accompanied by equal doses of useful information and confusing rhetoric. As a result, SD-WAN has grown to mean a lot of different things to different people, while some are still trying to figure out exactly what it means.

Fundamentally, SD-WAN is often about achieving one or more of these four networking objectives:

- **Reduce connectivity costs:** Traditional MPLS connections are expensive and organizations are shifting to multiple more affordable broadband WAN options
- **Business continuity:** Organizations require solutions that will elegantly handle WAN failures and outages and are looking for redundancy, routing, failover, and session preservation
- **Simpler branch office VPN orchestration:** VPN orchestration between locations is often complex and time consuming, so organizations are looking for tools to simplify and automate deployment and setup
- **Quality of critical applications:** Organizations are seeking real-time visibility into application traffic and performance in order to maintain session quality of mission-critical business apps

When considering an SD-WAN solution, it's very important to understand and prioritize your desired goals and objectives before diving into any particular solutions or features.

SD-WAN Features in XG Firewall

XG Firewall includes the SD-WAN features and capabilities most organizations need to achieve their desired goals. In this section, we'll have a look at the SD-WAN capabilities of XG Firewall.

WAN Links

Let's start with the fundamentals of WAN connectivity: flexibility in ISP and WAN connectivity, as well as redundancy and failover in the event of an outage are important considerations.

XG Firewall offers support for multiple WAN links, including a variety of copper, fiber, and even cellular interface options. XG Firewall can terminate MPLS circuits using ethernet handoff and VDSL through our optional SPF modem.

XG Firewall also offers essential WAN link monitoring, balancing, and failover capabilities.

XG Firewall and SD-WAN

SYSTEM CPU & MEMORY NETWORK HEARTBEAT ATP RED ALERT CONNECTIONS & INTERFACES



INTERFACE	TYPE	STATUS	RECEIVED KBITS/S	TRANSMITTED KBITS/S
IoT_Bridge	Bridge-pair	Connected	2.52	1.53
Port1	Physical	Connected, 1000 Mbps - Full Duplex	2764.22	313.03
Port2	Physical	Connected, 1000 Mbps - Full Duplex	426.00	2764.86
Port7	Physical	Unplugged	0.00	0.00
Port8	Physical	Disabled	0.00	0.00



GATEWAY NAME	GATEWAY IP	INTERFACE	TYPE	WEIGHT	STATUS
BACKUP_WAN	128.0.0.1	Port7	Active	1	●
DHCP_Port2_GW	50.68.180.1	Port2	Active	1	●

XG WAN Link Status is shown in the bottom of this interface status widget available via the dashboard.

Interfaces Zones **WAN link manager** DNS DHCP IPv6 router advertisement Cellular WAN IP tunnels Neighbors (ARP-NDP) Dynamic DNS

Gateway detail

Name *

IP address *

Interface *

Type * Active Backup

Weight * (1 - 100)

Default NAT policy * ⓘ

Failover rules

If ...

Not able to Connect Port on IP address AND

Not able to Connect Port on IP address

Then ...

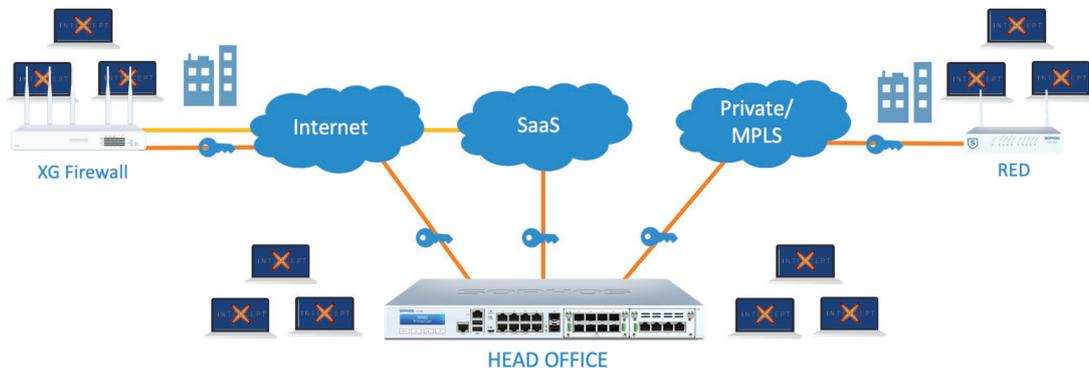
"SHIFT to another available gateway"

XG Firewall WAN Link Management, including balancing and failover rules.

Branch Office Connectivity

Securely connecting remote branch offices to the each other, central head offices, and various cloud services is another essential component of SD-WAN.

Features like affordable, flexible, and low-touch deployment are very desirable in order to make this as painless and cost-effective as possible, while still supporting a variety of enterprise connectivity requirements.



XG Firewall offers unique RED devices and tunnel options to simply and affordably connect branch offices via SD-WAN.

Sophos has long been a pioneer in the area of zero-touch branch office connectivity with our unique SD-WAN RED devices. These affordable devices are extremely easy to deploy by a non-technical person, and provide a robust secure Layer 2 tunnel between the device and a central XG Firewall.



Sophos SD-WAN RED Devices offer a zero-touch, affordable solution to SD-WAN branch connectivity.

Deploying SD-RED devices couldn't be easier: You simply note the serial number of the device in your XG Firewall, and ship the device to the remote location. Any non-technical person on-site simply has to connect the device and it will contact our cloud-provisioning service to automatically establish a secure tunnel connection with your XG Firewall.

Interfaces ZONES WAN link manager DNS DHCP IPv6 router advertisement Cellular WAN IP tunnels Neighbors (ARP-NDP) Dynamic DNS

RED settings

Branch name *	<input type="text"/>
Type	RED 10
RED ID *	<input type="text"/>
Tunnel ID *	Automatic
Unlock code *	<input type="text"/>
Firewall IP/hostname *	<input type="text"/>
Description	<input type="text"/>
Device deployment	<input checked="" type="radio"/> Automatically via provisioning service <input type="radio"/> Manually via USB stick

Uplink settings

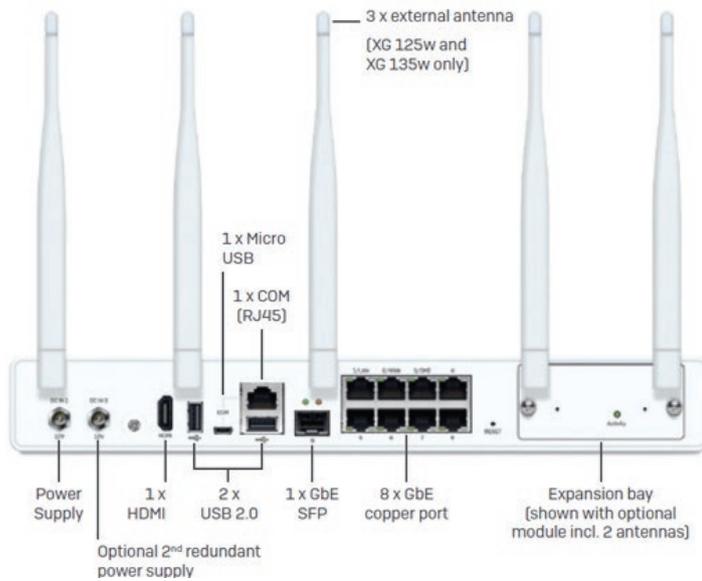
Uplink connection	<input checked="" type="radio"/> DHCP <input type="radio"/> Static
3G/UMTS failover	<input type="checkbox"/> Enable

RED network settings

RED operation mode	<input checked="" type="radio"/> Standard/unified <input type="radio"/> Standard/split <input type="radio"/> Transparent/split
RED IP *	<input type="text"/>
RED netmask	/24 (255.255.255.0)
Zone	LAN
Configure DHCP	<input checked="" type="checkbox"/> ON
RED DHCP range	<input type="text"/> <input type="text"/>
MAC filtering type	No configured MAC address lists found
Tunnel compression	<input type="checkbox"/> Enable

Sophos SD-RED offers a flexible, secure, and affordable SD-WAN branch office connectivity solution.

Our desktop XG Series appliances also make excellent branch office SD-WAN connectivity solutions with their flexible connectivity options like VDSL and cellular in addition to copper or fiber interfaces, and also support our robust RED tunnels.



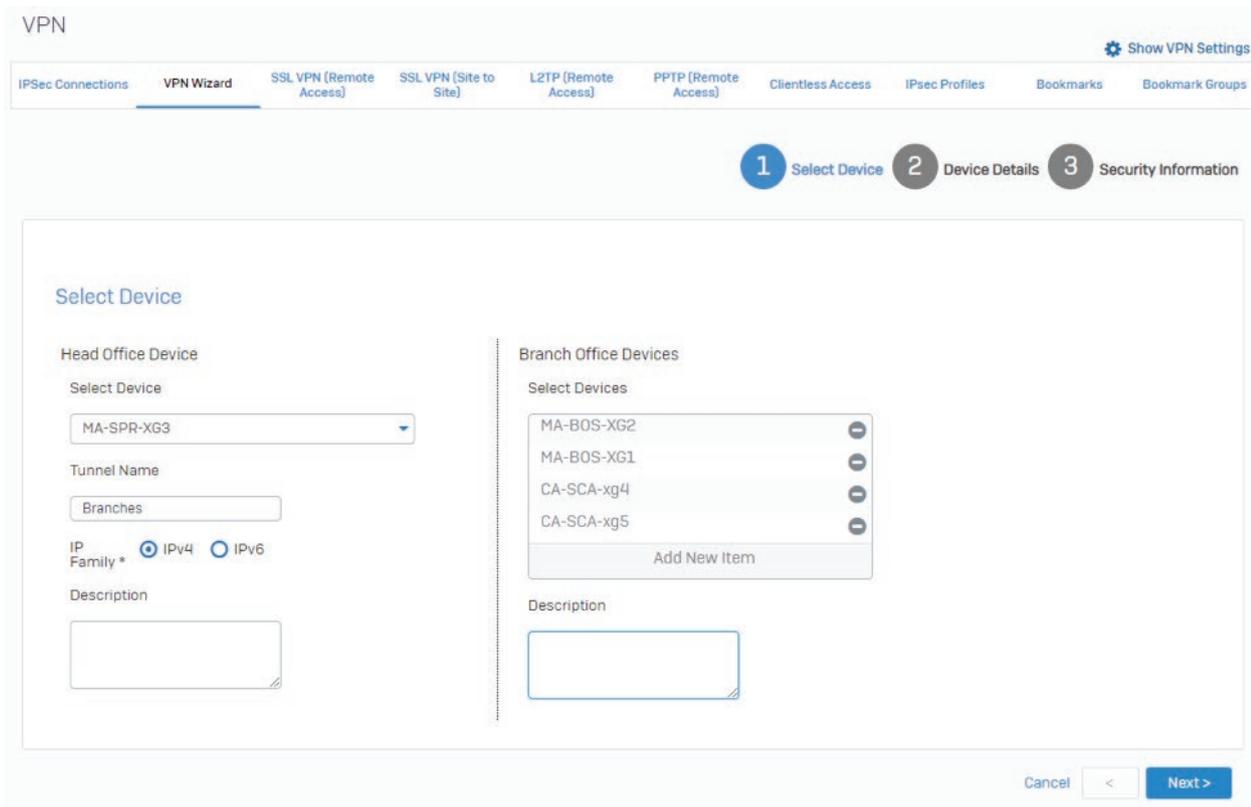
Select desktop models like the XG 135w shown here come with options for LTE/cellular, VDSL, copper, or fiber WAN connectivity options.

VPN Support and Orchestration

Another important capability for achieving many SD-WAN objectives is robust VPN support and easy centralized VPN orchestration.

XG Firewall offers support for all the standard site-to-site VPN options you would expect, including IPSec, and SSL. We even offer our own unique RED Layer 2 tunnel with routing that is very robust and proven to work reliably in high-latency situations such as over satellite links.

Sophos Firewall Manager or Central Firewall Manager also offer centralized multi-site VPN orchestration tools to easily setup a mesh of VPN SD-WAN connections.



Sophos Firewall Manager VPN Orchestration Wizard.

XG Firewall also offers a flexible failback option to automatically fail back to the primary VPN connection when a WAN link is restored.

IPsec connections SSL VPN (remote access) SSL VPN (site-to-site) Sophos Connect client L2TP (remote access) Clientless access Bookmarks Bookmark groups PPTP (remote access) IPsec policies

Connection group details

Name *

Select connection(s)

Available connections	Member connections
<input type="text" value="type to search..."/> No record	

Order of connections in "Member connections" column indicates failover preference

Mail notification Enable

Automatic failback Enable

Failover condition

If ...
Not able to Connect * Port

And
Not able to Connect Port
on Remote VPN server

Then
"SHIFT to next active connection"

XG Firewall IPsec VPN failover and automatic failback options.

Application Visibility and Routing

Another important feature for achieving certain SD-WAN objectives is application path selection and routing to ensure quality and minimize latency for mission critical applications like VoIP.

Of course, you can't route what you can't identify, so accurate, reliable application identification and visibility is critically important. This is one area where XG Firewall and Synchronized Security provide an incredible advantage. Synchronized Application Control provides 100% clarity and visibility into all networked applications, providing a significant advantage in identifying mission critical applications, especially obscure or custom applications.

Applications How-to guides Log viewer Help admin Sophos

Application filter **Synchronized Application Control** Cloud applications Application list Traffic shaping default

Synchronized Application Control

On this page you can modify application details for applications discovered with Synchronized Security from Sophos managed devices. You can change the name and category for the applications, information for some applications is already provided automatically from Sophos. You can use these applications in the overall application control feature on XG Firewall or you can directly assign the discovered applications to application filters to control the applications.

Application	Category	Endpoints	Occurrences	Last occurrence	Manage
<input type="checkbox"/> Skype ...office16\lync.exe	VoIP	Found on 1 Endpoints	739	2017-10-10 07:39	MAPPED ⋮
<input type="checkbox"/> Skype <ProgramFiles>...\phone\skype.exe	VoIP	Found on 1 Endpoints	739	2017-10-10 07:39	MAPPED ⋮
<input type="checkbox"/> Skype Applications/.../MacOS/Skype	VoIP	Found on 1 Endpoints	15270	2019-03-26 19:31	CUSTOMIZED ⋮
<input type="checkbox"/> Skype for Business Applications/.../Skype for Business	VoIP	Found on 2 Endpoints	154797	2019-04-05 15:28	CUSTOMIZED ⋮

Synchronized Application Control identifies 100% of all networked applications, making it easy to prioritize and route mission critical applications.

XG Firewall also includes application-based routing and path selection in every firewall rule, as well as policy-based routing (PBR), making it easy to direct important application traffic out the optimal WAN interface.

NAT & routing

- Rewrite source address (masquerading)
- Use gateway-specific default NAT policy

Use outbound address

MASQ ▼

MASQ (Interface default IP)

Primary gateway

DHCP_Port2_GW ▼

Backup gateway

Create new

- None
- WAN link load balance
- BACKUP_WAN
- DHCP_Port2_GW

Application-based routing is integrated into every firewall rule, providing the ultimate in flexibility.

XG Firewall and SD-WAN

The screenshot shows the configuration interface for a policy route. At the top, there are tabs for 'Static routing', 'Policy routing' (selected), 'Gateways', 'BGP', and 'OSPF'. Below the tabs is a section titled 'About this policy route' with a 'Name' field containing 'Zoom VoIP Traffic Routing' and a 'Description' field with the placeholder 'Enter Description'. The 'Traffic selector' section includes: 'Incoming Interface' set to 'Port1-10.0.1.1'; 'Source Networks' with an 'Add new item' button; 'Destination Networks' with 'Zoom' and an 'Add new item' button; 'Services' with 'UDP' and an 'Add new item' button; and 'DSCP marking' set to 'Select DSCP marking'. The 'Routing' section has a 'Gateway' field with a search icon and a 'Create new' button.

Policy-based routing provides flexible tools for routing critical application traffic.

XG Firewall also includes predefined Fully Qualified Domain Name (FQDN) objects for popular SaaS cloud services, with thousands of FQDN hosts definitions included right out of the box and the option to easily add more.

The screenshot shows a table of predefined FQDN host groups. The table has columns for 'Name', 'Description', and 'Manage'. The 'Name' column includes checkboxes for each entry. The 'Description' column provides details for some entries. The 'Manage' column contains edit and delete icons for each entry.

Name	Description	Manage
<input type="checkbox"/> Amazon Cloudfront		
<input type="checkbox"/> Apple Services		
<input type="checkbox"/> Dropbox		
<input type="checkbox"/> Google API Hosts	Access to Google APIs for Chromebook SSO auth	
<input type="checkbox"/> Google Chrome Web Store	Access to Google Web Store and other Google Services	
<input type="checkbox"/> GotoAssist		
<input type="checkbox"/> GotoMeeting		
<input type="checkbox"/> GotoMyPC		
<input type="checkbox"/> GotoTraining		
<input type="checkbox"/> GotoWebinar		
<input type="checkbox"/> Microsoft Services		
<input type="checkbox"/> Netflix		
<input type="checkbox"/> Other Citrix domains		
<input type="checkbox"/> Podio		
<input type="checkbox"/> Salesforce		
<input type="checkbox"/> Sharefile		
<input type="checkbox"/> Skype		
<input type="checkbox"/> Zoom	Zoom VoIP and Meetings	
<input type="checkbox"/> box.com		
<input type="checkbox"/> iCloud		

Pre-defined FQDN Host Objects make path selection and application-based routing easy right out of the box.

Summary and What's Next

XG Firewall includes many innovative solutions to help organizations reach their SD-WAN objectives, from great WAN connectivity options to our unique RED SD-WAN appliances to our unmatched application visibility and great routing options.

XG Firewall SD-WAN capabilities:

- **Multiple WAN link options** with MPLS (ethernet handoff), VDSL, and LTE cellular with essential monitoring, balancing, and failover
- **A pioneer in branch office SD-WAN** connectivity with our SD-RED zero-touch deployment devices and robust VPN, as well as our innovative XG Series desktop models
- **Excellent VPN support** for IPSec, SSL, RED secure L2 w/routing, and a central multi-site VPN orchestration via SFM or CFM
- **Unique application control and visibility** with Synchronized App Control, and cloud app visibility with live connection monitoring and bandwidth utilization and out-of-the-box support for major cloud applications
- **Application routing** over preferred links via firewall rules or policy-based routing

Sophos continues to invest in SD-WAN capabilities in upcoming releases including enhancements to link monitoring and selection, new SD-WAN RED devices, zero-touch firewall provisioning, VPN orchestration tools in Sophos Central, and new application routing policies that fully leverage the benefits of Synchronized Application Control.

XG Firewall offers a powerful, flexible network connectivity and security solution for every type of network. Check out our [XG Firewall Solution Brief](#) to see how XG Firewall is solving today's top problems with network protection, providing the best firewall visibility, protection, and response in the industry.

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