

Sizing Guide for Blue Coat ProxySG Secure Web Gateway Deployments

Forward Proxy (Proxy & SWG Edition) SGOS Version 6.7, Jun 7, 2017



Deployment Mode				Licensing			ProxySG/SWG VA Resource Spec							
Model	Forward Proxy			Client Manager Recommended Max (UA) Clients	Licensed Client IPs Max Unique Client IPs	Active Connections Active Concurrent (For VAs, S/M/L)	Storage Capacity		CPU Cores	Memory (For VAs, S/M/L)	Available slots	On-board Network Ports		Power Supply
	Employee Count	Recommended Internet BW	Maximum Internet BW				Drives	Total (GB)				Bypass	Other	
SWG V100¹	2500	100-130 Mbps	170 Mbps	5,000	up to 2500	up to 12500	2	400	1	4/8GB	N/A	N/A	up to 4	N/A
SG-VA-C1XS	100	100 Mbps	200 Mbps	5,000	No limit	500	1	100	1	4GB	N/A	N/A	up to 4	N/A
SG-VA-C1	700-3K	100 Mbps	200 Mbps	5,000	No limit	3.5/9/15K	1	100	1	4/6/8GB	N/A	N/A	up to 4	N/A
SG-VA-C2	3K-5K	200 Mbps	400 Mbps	10,000	No limit	15/20/25K	1	100	2	8/12/16	N/A	N/A	up to 4	N/A
SG-VA-C4	5K-10K	400 Mbps	800 Mbps	20,000	No limit	25/37.5/50K	2	100	4	16/24/32	N/A	N/A	up to 4	N/A
SG-VA-C8	10K-25K	800 Mbps	1250 Mbps	35,000	No limit	50/87.5/125K	4	100	8	32/48/64	N/A	N/A	up to 4	N/A
SG-VA-C16	25K-50K	1600 Mbps	2500 Mbps	45,000	No limit	125/187.5/250K	8	100	16	64/96/128	N/A	N/A	up to 4	N/A
300-5-PR	30	6-8 Mbps	10 Mbps	800	30	150	1	250	1	2GB	None	2 x 1000BT	1 x 1000BT	Single
300-10-PR	150	6-8 Mbps	10 Mbps	800	150	750	1	250	1	2GB	None	2 x 1000BT	1 x 1000BT	Single
300-25-PR	300	10-15 Mbps	30 Mbps	1,400	No limit	1,500	1	250	1	4GB	None	2 x 1000BT	1 x 1000BT	Single
S200-10-PR	400	10-15 Mbps	30 Mbps	1,500	No limit	2,000	1	500	2	6GB	1 open slot	2 x 1000BT	2 x 1000BT	Single
S200-20-PR	1,200	25-30 Mbps	60 Mbps	5,000	No limit	6,000	2	1,000	2	8GB	1 open slot	2 x 1000BT	2 x 1000BT	Single
S200-30-PR	2,600	50-60 Mbps	120 Mbps	10,000	No limit	13,000	2	1,000	2	8GB	1 open slot	2 x 1000BT	2 x 1000BT	Single
S200-40-PR	5,000	100-125 Mbps	250 Mbps	15,000	No limit	25,000	2	1,000	2	16GB	1 open slot	2 x 1000BT	2 x 1000BT	Single
S400-20-PR	6,000	100-150 Mbps	300 Mbps	15,000	No limit	30,000	3	3,000	4	16GB	2 open slots	2 x 1000BT	2 x 1000BT	Redundant
S400-30-PR	14,000	250-320 Mbps	500 Mbps	27,000	No limit	70,000	6	6,000	6	24GB	2 open slots	2 x 1000BT	2 x 1000BT	Redundant
S400-40-PR	25,000	500-600 Mbps	1000 Mbps	35,000	No limit	125,000	8	8,000	6	32GB	2 open slots	2 x 1000BT	2 x 1000BT	Redundant
S500-10-PR	30,000	500-600 Mbps	1200 Mbps	45,000	No limit	150,000	8	8,000	8	64GB	2 open slots	2 x 10GBT	2 x 10GBT ⁵	Redundant
S500-20-PR	50,000	1000-1500 Mbps	2500 Mbps	45,000	No limit	250,000	16	16,000	16	128GB	5 open slots	2 x 10GBT	2 x 10GBT ⁵	Redundant
S500-30-PR	70,000	2000-2500 Mbps	4000 Mbps	45,000	No limit	350,000	16	16,000	20	128GB	5 open slots	2 x 10GBT	2 x 10GBT ⁵	Redundant

¹ For SWG V100 & SG-VA-Cx, performance numbers will vary based on actual VMware installation. V100 performance based on: Intel Xeon 5650 (2.67 Ghz Nehalem based), 7200 RPM SAS drives. SWG V100 was configured with 1 core, 4GB RAM, 2 dedicated disk drives, 200GB used per drive per SWG VA configuration guide.

Note: See below for SSL HW acceleration details

² S500 has 2 x 1000BT for BMC/mgmt

These guidelines provide sizing based on a standard workload for SG appliances. Actual sizing may vary significantly depending on customer workload requirements.

Forward Proxy

SGOS Proxy Edition is required for forward proxy deployments. Special rules apply for 'mixed use' configurations, which run both forward proxy and WAN optimization in a single appliance. Please refer to the Sizing Guide for WAN Optimization Deployments for suggestions on how to handle this situation. If you do not have a proxy deployed, determine the web (HTTP/S) usage from your available internet connectivity as a guide. If a proxy is in place, this number represents the client (internal) bandwidth number. Server (Internet) utilization will typically be lower.

Employee Count

The total number of employees that use the system for general Internet browsing. If employees have multiple systems or devices that are simultaneously active, rely on the total number of active connections. This number assumes 100% of devices have web connections open at any moment, though up to 80% are used for background tasks. Adjust this number if Internet usage, device count is higher.

For Cloud Applications, such as Office365, which may require more connections per employee, rely on the Active Connections limit for accurate sizing.

For limits on the number of endpoints that can use the appliance concurrently, refer to Licensed Client IPs and Active Connections.

Recommended Internet Bandwidth

Typical bandwidth range, at 70% peak CPU load with complex policies, 40% SSL, ICAP, content filtering, access logging and limited streaming content.

Maximum Internet Bandwidth

Maximum client-side throughput at 70% peak CPU with basic SWG features and limited SSL decryption. Basic SWG features include URL filtering with simple policy and access logging, no ICAP.

Client Manager Recommended (UA) Clients Managed

Maximum number of Client instances connecting to and serviced by a Client Manager, regardless of the features enabled on the Client (filtering, acceleration or both), at 50% CPU utilization. Updates can be posted to all clients in a two-hour window.

Licensing

ProxySGs are licensed based on Active Connections (and concurrent client IP if a limit exists). Other parameters such as Max Internet Bandwidth and Employee Count are suggested values based on the physical capacity of the system.

Licensed Active Connections & Client IPs

Licensing is measured by the number of open inbound TCP connections that are active (and unique client IPs if a limit exists) to the ProxySG. The measurement is instantaneous and concurrent. It is not based on the average over any time interval. If a licensed client IP limit exists and about to be exceeded, the administrator can configure the SG to either bypass, queue or drop new connections from a new user. If no limit exist, the SG will accept and process new connections up to the Active Connection limit.

Active Connections

This represents the total number of active and concurrent client side connections that are being processed. Client side connections above the Active Connection limit are supported but not actively processed.

Resource Spec

All HW models have hardware SSL acceleration with add-on cards or AES-NI capabilities in the CPUs for the S200/S400/S500 models. A separate license is not required to activate SSL termination. Ports on bypass-capable network interfaces can be configured to be bridged pairwise or to act independently. There is no need to purchase software SSL licenses; they are now available at no charge on all models, no matter when they were purchased.

NOTE: Include the appropriate additional options for ProxySG for all models.

Include BCIS Standard or Advanced Intelligence Services to enable CASB Audit AppFeed

Include the Cache Pulse subscription for increased bandwidth savings where appropriate

Include the Web Application Protections subscription where appropriate

Include the Flash streaming licenses for Flash caching/splitting where appropriate

Include the ETAP licenses for encrypted traffic visibility where appropriate

Sizing with Content and Malware Analysis

Sizing Guide for Content Analysis & Malware Analysis									
Model	Content Analysis		Content Analysis with Malware Analysis onbox				Malware Analysis offbox / standalone		
	Single AV ³	Dual AV ³	Single AV ³	Dual AV ³	Samples/day	Type		Suggested pairing ⁴ (requires CA)	Samples/day
CAS-V100⁵	100 Mbps	100 Mbps	100 Mbps	100 Mbps	10,000 ⁶	X		MAA-S400-10	12,000
CAS-S200-A1	30 Mbps	25 Mbps	30 Mbps	25 Mbps	6,000 ⁶	X		MAA-S400-10	12,000
CAS-S400-A1	60 Mbps	40 Mbps	50 Mbps	20 Mbps	3,000	X	X	MAA-S400-10	12,000
CAS-S400-A2	150 Mbps	100 Mbps	100 Mbps	30 Mbps	4,500	X	X	MAA-S400-10	12,000
CAS-S400-A3	300 Mbps	150 Mbps	250 Mbps	100 Mbps	6,000	X	X	MAA-S400-10	12,000
CAS-S400-A4	600 Mbps	320 Mbps	370 Mbps	120 Mbps	7,500	X	X	MAA-S400-10	12,000
CAS-S500-A1	1200 Mbps	750 Mbps	920 Mbps	500 Mbps	22,000	X	X	MAA-S500-10	50,000

³ Note that performance on the Content Analysis system can vary depending upon the AV vendor.

⁵ CAS-V100 performance numbers will vary based on actual VMware installation. Performance is based on a server with: Intel Xeon 5650 (2.67 Ghz Nehalem based), 7200 RPM Nearline SAS drives.

CAS-V100 was configured with 4 cores, 8G RAM, 100GB drive.

⁴ Please note that performance on the MA system is based on Sample Tasks. Sending a sample to multiple iVM profiles for analyses will reduce overall samples being analyzed by a factor of that multiple. For example, a single file sent to a single iVM will accommodate 12,000 sample analyses per day against 12,000 samples. A single file sent to three iVM profiles will result in 12,000 sample analyses per day but only against 4,000 samples.

⁶ This platform only supports emulation sandbox (SBX) - no iVM detonation. This accounts for the increased sample processing rate vs. other platforms that have iVM detonation support.

Content Analysis & Malware Analysis

To select the appropriate Content Analysis platform take the bandwidth requirement used when sizing your ProxySG.

Now choose the Content Analysis model that corresponds with your bandwidth needs either with single or dual AV or whether with or without Malware Analysis onbox (CA and MA combined on one appliance).

Performance can vary depending on traffic mix. The numbers in the table are based on typical browsing behavior.

Malware Analysis as a standalone appliance requires connectivity to a Content Analysis.

Select the Malware Analysis model that corresponds with the Content Analysis in the table.

Note: Malware Analysis onbox on the CAS-V100 and CAS-S200-A1 only supports the Symantec Emulation Sandbox. These platforms do not have the resources to run IntelliVMs. Therefore the lack of performance degrade and high sample processing when enabling MA onbox on these systems.

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EXAMPLE 1: Secure Web Gateway with Content Analysis

- Organization has 5000 employees, all with Internet access
- One Internet gateway with 100 Mbps connectivity
- Requires redundancy and room for growth over 3 years at 25% annually
- Requires advanced threat protection (malware sandboxing)

Model	Forward Proxy		
	Employee Count	Recommended Internet BW	Maximum Internet BW
SG-VA-C1	700-3K	100 Mbps	200 Mbps
SG-VA-C2	3K-5K	200 Mbps	400 Mbps
SG-VA-C4	5K-10K	400 Mbps	800 Mbps
...
...
S200-40-PR	5,000	100-125 Mbps	250 Mbps
S400-20-PR	6,000	100-150 Mbps	300 Mbps
S400-30-PR	14,000	250-320 Mbps	500 Mbps
S400-40-PR	25,000	500-600 Mbps	1000 Mbps

Step 1

First determine the limiting factor, Users (Active Connections) or Bandwidth. At 25% growth over 3 years, they will need 100 Mbps x (1.25)³ = 195 Mbps at year 3. Some models support 5000 employees, but do not meet the bandwidth requirement. The models to consider are the VA-C2, VA-C4, and the S400-20 and S400-30. As the VA-C2 supports just 5000 employees at the upper end and 200 Mbps, it will be on the low side and the VA-C4(S) would be preferred. The S400-20 meets the employee count, but falls short on the bandwidth for advanced threat protection, so use S400-30.

Step 2

Next, determine the Content Analysis sizing to pair with the ProxySG.

Model	Content Analysis		Content Analysis with Malware Analysis onbox		
	Single AV ³	Dual AV ³	Single AV ³	Dual AV ³	Samples/day
CAS-S400-A2	150 Mbps	100 Mbps	100 Mbps	30 Mbps	4,500
CAS-S400-A3	300 Mbps	150 Mbps	250 Mbps	100 Mbps	6,000
CAS-S400-A4	600 Mbps	320 Mbps	370 Mbps	120 Mbps	7,500
CAS-S500-A1	1200 Mbps	750 Mbps	920 Mbps	500 Mbps	22,000

There are multiple options for Content Analysis and Malware Analysis in this scenario. To select the correct CA and/or MA solution the required BW is applied to the CA and MA sizing table. The correct solution depends on the required AV and MA needs. If single AV or single AV with MA onbox is required, then CAS-S400-A3 would be the correct solution. If Dual AV and no MA onbox is required, then the customer would need a CAS-S400-A4. If this customer prefers a separate standalone sandbox, then the MAA-S44-10 is appropriate.

Step 3

To meet the redundancy requirement, the quote can be either:
 BOM 1 2x SG-S400-30-PR + 2 x CAS-S400-A3
 BOM 2 2x VA-C4S (small) + 2x CAS-S400-A3 (if virtual appliance is preferred)

BOM 1 with the S400 is traditional HW appliance based on Capex, while BOM 2 with the VA provides an Opex model, the customer can select which is more appropriate.

The appropriate MA and AV file inspection licenses and services should be included in the quote.

EXAMPLE 2: Forward Proxy Cluster with Office 365

- A customer requires Threat protection at the Internet gateway, starting at 500 Mbps, growing 25% annually over the next 4 years for 20,000 users.
- The solution must be fault tolerant to survive against a single point of failure.
- The customer is adopting Office 365 Exchange Online

Model	Forward Proxy			Licensed Client IPs Max Unique Client IPs	Active Conns Active Concurrent (For VAs, S/M/L)
	Employee Count	Recommended Internet BW	Maximum Internet BW		
...		
SG-VA-C16	25K-50K	1600 Mbps	2500 Mbps	No limit	125/187.5/250K
...		
S400-40-PR	25,000	500-600 Mbps	1000 Mbps	No limit	125,000
S500-10-PR	30,000	500-600 Mbps	1200 Mbps	No limit	150,000
S500-20-PR	50,000	1000-1500 Mbps	2500 Mbps	No limit	250,000
S500-30-PR	70,000	2000-2500 Mbps	4000 Mbps	No limit	350,000

Step 1

First determine the limiting factor, Users (Active Connections) or Bandwidth. At 25% growth over 4 yrs, they will need 500 Mbps x (1.25)⁴ = 1221 Mbps at yr 4. Several models meet the bandwidth requirement, but adoption of Office 365 has additional connection requirements. Office365 can use from 8-25 additional connections/user. For moderate use, anticipate 12 conns/user for Office365 on top of 5 conns/user for general Internet browsing for a total of 17 conns/user. Total connections: 20,000 employees x (12 + 5) conn/user = 340K connections. S500-30 meets both the bandwidth and connection count (350K) requirement. A pair is needed for redundancy purposes.

Option 1:

S500-30 meets both the bandwidth and connection count (350K) requirement.

Option 2:

A cluster (N+1) of appliances (either S400-40, S500-20 or VA-16M) could work:
 4x SG-S400-40-PR = 500K conns, (3x125K = 375K in redundancy)
 3x SG-S500-20-PR = 750K conns, (2x250K = 500K in redundancy)
 3x SG-VA-C16M (med) = 562.5K conns (2x187.5K = 375K redundancy)

Step 2

Next, determine the Content Analysis sizing to pair with the ProxySG.

Model	Content Analysis		Content Analysis with Malware Analysis onbox		
	Single AV ³	Dual AV ³	Single AV ³	Dual AV ³	Samples/day
CAS-S400-A4	600 Mbps	320 Mbps	370 Mbps	120 Mbps	7,500
CAS-S500-A1	1200 Mbps	750 Mbps	920 Mbps	500 Mbps	22,000

Sandboxing is not needed, select CAS-S500-A1 for the bandwidth (1200 Mbps).

Step 3

To meet the redundancy requirement, the quote can be based on either:
 BOM 1 2x SG-S500-30 + 2x CAS-S500-A1
 BOM 2 4x SG-S400-40 + 2x CAS-S500-A1
 BOM 3 3x SG-S500-20 + 2x CAS-S500-A1
 BOM 4 3x SG-VA-16M + 2x CAS-S500-A1
 Decide based on cost, upgradeability and Opex vs Capex. BOM1 with 2x S500-30 is less expensive than the 4x S400-40s or 3x S500-20s. The S400-40 is a 4U solution, while the S500-20 is 6U, it can be upgraded for future capacity and has additional headroom. BOM 3 with the SG-VA-C16M is Opex, and can also be upgraded to the SG-VA-16L.

The appropriate MA and AV file inspection licenses and services should be included in the quote. Account for the load balancing mechanism into this analysis, if appropriate.