



SunGate Traffic QoS

White Paper

SunGate Networks



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Introduction

SunGate Traffic is used by thousands of ISP customers worldwide. This demanding customer base has resulted in the highest throughput, lowest latency, most powerful and feature rich bandwidth management product available today.

The ongoing growth and convergence of different traffic types in IP networks has resulted in congestion and increased the complexity of network management. SunGate Traffic inimitably solves this problem and adds value in the areas of performance, reliability and integrity improvement as well as measurement and control.

While most bandwidth management solutions are focused on managing queues, SunGate Traffic's primary focus is on avoiding the queues in the first place by managing the traffic at the point of ingress and ultimately, if necessary, provide superior traffic prioritization.

The ability to effectively manage bandwidth for efficiency and throughput is a primary advantage of SunGate Traffic while also providing the ability to prioritise traffic or guarantee bandwidth by application, service, user or any other entity on the network.

Benefits

With SunGate Traffic, Stretch your network to deliver real Business Benefits, it will enhance your network, building your business:

- | Optimises your network usage and performance
- | Moves best effort delivery to a predictable service
- | Dedicates the correct amount of bandwidth to your users and applications – increasing user productivity satisfaction and performance of all your applications
- | Enforces service level agreements with effective management of your bandwidth – reducing management, support and maintenance costs
- | Allows the business to eliminate and delay costly bandwidth upgrades

SunGate Traffic reduces traffic congestion, discards and retransmissions, increasing performance, reliability and integrity providing comprehensive bandwidth management and control.

Functionalities

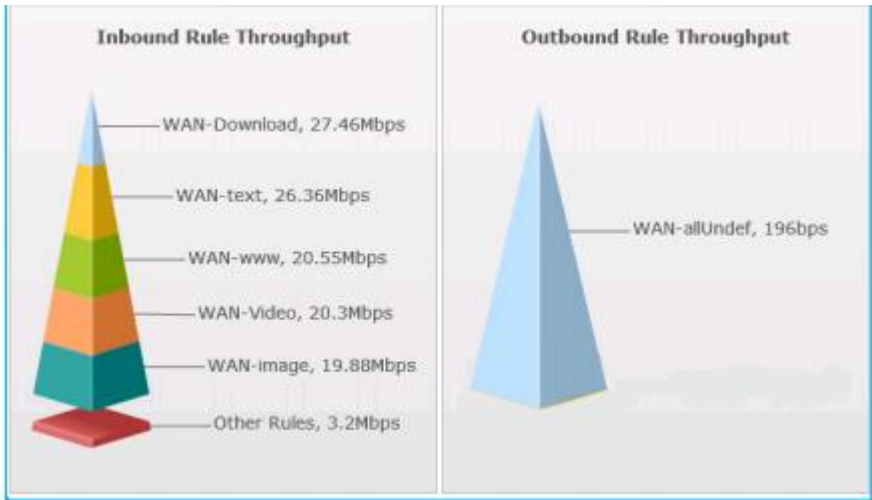
Functions

- | To buffer and smooth congestion peaks so as to reduce or eliminate discards and retransmissions
- | To identify (classify) traffic types, hosts, and applications
- | To enforce traffic and bandwidth policies
- | To deliver guaranteed levels of service
- | To deliver more advanced Quality of Service (AQoS)
- | To eliminate queuing (QOS)
- | To enforce traffic priorities in line with business needs
- | To provide reports to enable effective management of traffic

Statistics for Interface:WAN1 Policy:All (Period:11 of 15 seconds)										
Policy	Group	Name	Last In (bps)	Last Out (bps)	Cur In (bps)	Cur Out (bps)	Hits	Drops	Drop %	Dir
Interface			117,753,417	238	114,712,055	167	0	0	0.00	
100	fac	JHB-Link	117,753,417	238	128,089,471	164	1,517,249,541	0	0.00	
140	JHB-Link	WAN-peering	8,974	0	8,618	0	287,882,103	0	0.00	
150	WAN-peering	WAN-p2p	8,974	0	8,618	0	287,882,103	0	0.00	
260	JHB-Link	WAN-web	117,405,792	0	125,135,803	0	1,166,484,643	0	0.00	
270	WAN-web	WAN-IM	286,886	0	334,175	0	30,161,651	0	0.00	
280	WAN-web	WAN-VOIP	0	0	0	0	26,374,428	0	0.00	
300	WAN-web	WAN-Audio	2,528,302	0	2,968,169	0	2,074,470,550	0	0.00	
310	WAN-web	WAN-Video	20,304,490	0	21,551,859	0	572,034,012	0	0.00	
320	WAN-web	WAN-Download	27,457,283	0	28,243,500	0	2,145,250,819	0	0.00	
330	WAN-web	WAN-image	19,876,453	0	21,533,870	0	1,341,091,302	0	0.00	
335	WAN-web	WAN-text	26,359,961	0	28,163,350	0	801,318,213	0	0.00	
340	WAN-web	WAN-https	40,623	0	76,971	0	57,708,331	0	0.00	
350	WAN-web	WAN-www	20,551,295	0	21,478,629	0	1,087,657,578	0	0.00	
360	JHB-Link	WAN-mail	2,125	0	2,325	0	370,161,602	0	0.00	
370	WAN-mail	WAN-smtp	2,125	0	2,325	0	370,161,602	0	0.00	
380	JHB-Link	WAN-other	54,843	0	28,855	0	63,040,745	0	0.00	
390	WAN-other	WAN-netbios	6,478	0	6,576	0	13,036,697	0	0.00	
400	WAN-other	WAN-Auth	0	0	0	0	81,074	0	0.00	
420	WAN-other	WAN-ftp	46,464	0	19,747	0	7,853,773	0	0.00	
430	WAN-other	WAN-netfiles	0	0	0	0	140,455	0	0.00	
440	WAN-other	WAN-tftp	1,827	0	2,570	0	40,014,618	0	0.00	
480	JHB-Link	WAN-Undefined	272,437	196	237,940	167	1,325,299,791	0	0.00	
500	WAN-Undefined	WAN-tcp	167,365	0	151,977	0	1,611,091,011	0	0.00	
510	WAN-Undefined	WAN-udp	105,071	0	85,727	0	307,925,366	0	0.00	
2000	WAN-Undefined	WAN-allUndef	0	196	279	167	6,262,726	0	0.00	
Interface			117,753,417	196	114,712,055	167	0	0	0.00	

Classification

- | Ability to classify both inbound and outbound traffic using a single rule
- | All protocols (ie IP, IPX, DECnet, IGMP etc.)
- | Port Source, Destination or either
- | Port Range
- | Special filters for packet fragments, SYN set, ACK set, connects (SYN set & ACK not set) and all IP. (TCP header flags)
- | IP Address or subnet. Source or Destination Address or both
- | Named network object and groups support
- | P2P protocols – Gnutella, Morpheus, Kazar, Bittorrent and variants
- | VLAN discovery and filtering (802.1q)
- | TOS/Diffserv Matching (802.1p)
- | MAC Address. Source or Destination Address or both
- | Virtual Host Name Address filtering (eg DNS name, www.google.com)
- | URL sub-string or domain from GET or POST
- | FTP Protocol sniffing
- | SMTP Protocol and address decoding
- | HTTP/S Protocol and header decoding
- | IM Protocol discovery
- | VOIP discovery
- | Full layer 7 decoding



Actions

- | Fixed or automatic rate limiting (TCP window size) using proprietary algorithms
- | Manages inbound UDP traffic from the host
- | Fine grained control of Bandwidth
- | In, Out or combined (Bit Pacing)
- | Minimum (Guaranteed) Bandwidth
- | Burst Bandwidth with unlimited triggers
- | 10 priority levels with priority thresholds
- | Pass-Thru for unmanaged data streams
- | Deny to block any traffic stream
- | Statistics Only Rules for reporting
- | Time-of-day, Day-of-Week, or Weekend activation

Online Policy/Rule Table for the LAN Interface																										
No	Group	Name	Dir	Flags	Prot	IP		MAC		TOS	Vlan	FR	TCP	Wn	B/W/Pps		Burst			Pri	Mk	Stats				
						Port	Addr	Prot	Addr						In/Out	Min	To	Trig	Thresh							
Interface: (Analyze)															1G/1G bps				900M							
1010	iface	P2P			p2p													Off			FW-Deny					
1020	iface	Spyware			spyware													Off			FW-Deny					
2000	iface	HighPriority													700M/700M bps	1G	Off									
2010	HighPriority	DNS																Off			9					
2020	HighPriority	AllHTTP			http													Off			8					
2030	HighPriority	IM			im													Off			7					
3000	iface	LowPriority													200M/200M bps	500M	Off									
10000	iface	OtherTraffic													400M/400M bps	900M	Off				5					

Unique Features

- | Ability to classify both inbound and out bound traffic using a single rule
- | Named network object and groups support
- | Global rules for multiple interfaces

- | Manages inbound UDP traffic from the host
- | Fine grained control of Bandwidth In, Out or combined (Bit Pacing)
- | True 10 Gigabit plus - highest throughput available on the market
- | Lowest latency
- | Up to 200K Policies
- | Caters for exceptional load management/capacity



Advanced Features

- | Global Priorities definable by any combination of filters
- | Multi-port Bandwidth Management at true 10 Gigabit and over
- | Unlimited Sessions or Policies
- | Change Rules Dynamically in real-time
- | Online and Multiple Offline ruleset management with roll-back and backups
- | Automatic rule generation from templates on discovery of a new host(IP or MAC address)
- | Reverse Limiting (Limit each “session” or user accessing a site)
- | Balanced Reverse Limiting (Each client gets proportionate sum of bandwidth)
- | Policy Groups with balanced or allocation of bandwidth, nested to unlimited levels
- | Advanced Group Functions (balanced groups, member overrides)
- | Bandwidth profiles for rule and SLA management
- | Daily and/or Monthly Bandwidth Quotas with automatic user and administration notifications
- | Unlimited report groups
- | SQL statistics reports on any/all policies with ODBC access
- | Graphing of any definable address, network or traffic type
- | Application load balancing
- | Policy groups with balanced or allocation of bandwidth, nested to any level
- | ODBC Access
- | Full SQL reporting on all bandwidth usage

- | User Access filters so that customers/departments can only view applicable statistics
- | FUP enforcement and monitoring
- | API integration for dynamically managing and changing rules for tens of thousands of users
- | Floating Quota's, daily, weekly and monthly Quota management
- | Quota reports, force over quota, reset quotas – full API integration for total automation with existing systems
- | Integrate with existing billing and network management systems through SNMP, ODBC and SMTP alerting