SOLIDserver™ Appliance Suite

SOLIDserver™ Appliances

- **SOLIDserver™ 50**

Designed for deployment in local offices (DNS-DHCP only).

- **SOLIDserver™ 270**

Designed for deployment in small enterprises or branch offices.

- **SOLIDserver™ 570**

Designed for deployment in small to medium-sized enterprises.

- **SOLIDserver™ 1170**

Designed for deployment in medium-sized enterprises.

- **SOLIDserver™ 2270**

Designed for deployment in medium to large-sized enterprises.

- **SOLIDserver™ 3370**

Designed for deployment in large enterprises, data centers and service provider environments.

- **BLAST™ 4070 - 5070 - 5570**

Designed for high performance and DNS security, large enterprises and ISPs.

- **SOLIDserver™ 7070**®

Designed for large IPAM services with numerous objects to manage.

SOLIDserver™ suite of appliances is designed to deliver high-performance DNS-DHCP-IPAM services, network automation and user-to-application traffic routing. SOLIDserver™ platforms provide vital benefits for reliability, resiliency and security of mission-critical network services and management.

The appliance suite is based on a wide range of hardware and virtual models to match requirements, from small branch offices to the largest enterprises. SOLIDserver™ is proposed in 2 different flavors: embedded on dedicated hardware and as a software appliance image for cloud based infrastructure and customer managed server. SOLIDserver™ can be deployed as a standalone unit, high availability pairs or distributed architecture managed centrally from a powerful and user-friendly web interface.

To fulfill each customer's specific needs and ensure flexible scalability, EfficientIP's suite of appliances includes 10 models with different levels of performance and targeting different usages.

Hardware Appliance Service Sizing

SOLIDserver software includes multiple features and sizing of each server can vary based upon the role of the appliance. The table below presents a typical sizing indicator for each appliance based on its role in the DDI infrastructure.

	Performance [1]	
	DNS (QPS) [2]	DHCP (LPS) [3]
SDS-270	7,000	125
SDS-570	25,000	500
SDS-1170	50,000	1,000
SDS-2270	125,000	2,500
SDS-3370	250,000	6,000
SDS-7070	-	-
BLAST-4070	3,000,000	-
BLAST-5070	10,000,000	-
BLAST-5570	17,000,000	-

(1) recommended maximum of IPs to be discovered by NetChange: 1 million

(2) QPS: Queries per Second

(3) LPS: Leases per Second

Listed performance numbers were reached in test environment and are conservative. Performance numbers in production may be different.

Appliance Usage and Feature Set

EfficientIP offers a large set of appliances in order to cover various usages and capacity situations. Depending on the architecture of the network, the number of sites to cover and the requested functionalities, the combination of appliances, either on hardware or virtual appliances, may change. Each appliance is offered with a committed capacity on each covered service. When combining services, the performance and overall capacity may be impacted.

The virtual appliance will be directly dependent on the hypervisor and the hardware it runs on. The two main impacts to consider are the storage and the network. With regards to CPU, most of the current hardware servers seen in the virtualization farms have enough power to handle most of the jobs. The storage system, either directly attached or on a storage array network, needs to be able to handle large volumes of input/output, mainly in the case of an IPAM service or DNS service with log enabled (query log or answer log). For the network part, the virtualization layers between the physical interface installed on the server and the one presented to the virtual server greatly impact performance. When our Guardian engine is talking directly to the hardware on a Blast appliance, the solution is capable of handling tens of millions of queries per second, but on a virtualized system this number can go down to less than 2 million queries per second if the appropriate configuration is not properly applied.

For hardware appliances, there's no impact, as no need to tune the hypervisor infrastructure. This is why a physical solution may be preferable when either high performance is required or when some services are required for the virtual infrastructure to boot up.

Typical Usage per Enterprise Category

The following table presents typical usages of EfficientIP appliances per enterprise category. Depending on the real usage and activity of the enterprise, more combinations are possible. The amount of services mutualized on the same appliance may also impact the overall design.

	SDS-50 [1]	SDS-270	SDS-570	SDS-1170	SDS-2270	SDS-3370	SDS-7070	BLAST-*
Very small enterprise (< 50 users)		DDI	DDI					
Very small enterprise with remote office (< 100 users)	DNS DHCP	IPAM	IPAM					
Small enterprise (1,000 users)			DNS DHCP	DDI				
Small enterprise (1,000 users) with remote offices	DNS DHCP	DNS DHCP	DDI					
Medium enterprise (5,000 users) with datacenter		IPAM	DDI					
Medium enterprise (5,000 users) with datacenter + remote offices	DNS DHCP	DNS DHCP	DDI	IPAM				
Large enterprise (30,000) with datacenter and branches	DNS DHCP	DNS DHCP	DNS DHCP	DDI	IPAM			DNS
Very large enterprises (100,000 users)			DNS DHCP	DNS DHCP	DNS DHCP	IPAM	IPAM	DNS
Telcos, ISP, service providers					DNS DHCP	DDI	IPAM	DNS

(1) SDS-50 is only available in software appliance format

Key Service Triggers

The number of users in the enterprise is not the only topology key. The number and type of appliances required will depend also on the services proposed. The main discriminants are:

- variety of devices connected to the network (IoT, BYOD, workstation, industrial equipment)
- number of remote locations with network infrastructure
- central and regional datacenters
- location of the applications, hosting variety, network flow complexity
- hosting of DNS for public domains
- service provision for external as well as internal users
- service redundancy level
- security protection required on the DNS service

Software Appliances on VMs – Sizing and Requirements

	Performance		Virtual Machine Properties				
	DNS (QPS)	DHCP (LPS)	vCPU (min/max)	RAM (GB)	Virtual Disk (min GB)	Storage (min IOPS)	Network (min PPS)
SDS-50 [1]	500	20	1 / 2	2	32	80	1,000
SDS-270	7,000	125	2 / 4	4	64	80	20,000
SDS-570	25,000	500	2 / 4	8	64	80	40,000
SDS-1170	50,000	1,000	4 / 4	8	128	160	80,000
SDS-2270	125,000	2,500	4 / 12	16	128	160	160,000
SDS-3370	250,000	6,000	8 / 20	32	128	160	300,000
BLAST-4070	3,000,000	-	8 / 20	32	128	160	3,000,000 [2]

(1) The SDS-50 virtual appliance requires a centralized management appliance for network services configurations

(2) Requires Intel X520 or X710 10GE Chipset in PCI Passthrough mode

Software Appliances on Bare Metal – Sizing and Requirements

Using a Software Appliance licence of the SOLIDserver, it is possible to use servers directly purchased from vendors. We already support some rackable servers from Dell in the PowerEdge series. Here below are the recommended and validated hardware for each SOLIDserver model.

	Performance		Dell PowerEdge Server Characteristics					
	DNS (QPS)	DHCP (LPS)	Dell PowerEdge	CPU	RAM (GB)	RAID Controller	Disk	Additional Eth Line Card
SDS-270	7,000	125	R240	Intel Pentium G5500	8	-	1* SATA 1TB 7.2K	Broadcom 5720 Dual 1Gb
SDS-570	25,000	500	R340	Intel Xeon E-2224	8	PERC H330	2* SATA 1TB 7.2K	Intel I350 Quad 1GbE
SDS-1170	50,000	1,000	R340	Intel Xeon E-2224	8	PERC H330	2* SAS 600GB 15K	Intel I350 Quad 1GbE
SDS-2270	125,000	2,500	R340	Intel Xeon E-2236	16	PERC H730	2* SAS 600GB 15K	Intel I350 Quad 1GbE
SDS-3370	250,000	6,000	R340	Intel Xeon E-2236	32	PERC H730	2* SAS 600GB 15K	Intel I350 Quad 1GbE
SDS-7070	-	-	R640	2* Intel Xeon Gold 5215	128	PERC H730P	2* SSD SATA 480GB	Intel Ethernet i350 Dual 1GbE Intel I710 Dual 10GbE FH
BLAST-4070	3,000,000	-	R340	Intel Xeon E-2236	32	PERC H730	2* SAS 600GB 15K	Intel I350 Quad 1GbE LP Intel I710 Dual 10GbE FH
BLAST-5070	10,000,000							
BLAST-5570	17,000,000							

Hardware Appliances Characteristics

Rackable Appliances

	Dimensions H*W*D	Weight	NIC (Ethernet)	PS	BTU/hr	Disk
SDS-270	42.8 * 482 * 609.236 (mm)	12.2 (kg)	4 * 1 Gbps	1 * 250W AC	1,039	1
	1.68 * 18.97 * 23.98 (inch)	26.89 (lb)	RJ-45			
SDS-570	42.8 * 482 * 574 (mm)	12 (kg)	6 * 1 Gbps	2 * 350W AC	1,356	2
	1.68 * 18.97 * 22.59 (inch)	26.5 (lb)	RJ-45	hot swap		hot swap
SDS-1170	42.8 * 482 * 574 (mm)	12 (kg)	6 * 1 Gbps	2 * 350W AC	1,356	2
	1.68 * 18.97 * 22.59 (inch)	26.5 (lb)	RJ-45	hot swap		hot swap
SDS-2270	42.8 * 482 * 574 (mm)	12 (kg)	6 * 1 Gbps	2 * 350W AC	1,356	2
	1.68 * 18.97 * 22.59 (inch)	26.5 (lb)	RJ-45	hot swap		hot swap
SDS-3370-AC	42.8 * 482 * 574 (mm)	12 (kg)	6 * 1 Gbps	2 * 350W AC	1,356	2
	1.68 * 18.97 * 22.59 (inch)	26.5 (lb)	RJ-45	hot swap		hot swap
SDS-3370-DC	42.8 * 482 * 722 (mm)	21.9 (kg)	4 * 1 Gbps	2 * 1100W DC	4,100	2
	1.68 * 18.97 * 28.42 (inch)	48.28 (lb)	RJ-45	hot swap		hot swap
SDS-BLAST-AC	42.8 * 482 * 574 (mm)	12 (kg)	6 * 1 Gbps + 2 * 10 Gbps	2 * 350W AC	1,356	2
	1.68 * 18.97 * 22.59 (inch)	26.5 (lb)	RJ-45 + SFP+	hot swap		hot swap
SDS-BLAST-DC	42.8 * 482 * 722 (mm)	21.9 (kg)	4 * 1 Gbps + 2 * 10 Gbps	2 * 1100W DC	4,100	2
	1.68 * 18.97 * 28.42 (inch)	48.28 (lb)	RJ-45 + SFP+	hot swap		hot swap
SDS-7070-AC	42.8 * 482 * 722 (mm)	21.9 (kg)	4 * 1 Gbps + 2 * 10 Gbps	2 * 750W AC	2,843	2
	1.68 * 18.97 * 28.42 (inch)	48.28 (lb)	RJ-45 + SFP+	hot swap		hot swap
SDS-7070-DC	42.8 * 482 * 722 (mm)	21.9 (kg)	4 * 1 Gbps + 2 * 10 Gbps	2 * 1100W DC	4,100	2
	1.68 * 18.97 * 28.42 (inch)	48.28 (lb)	RJ-45 + SFP+	hot swap		hot swap

Common characteristics for rackable appliances:

Form Factor	1U
LCD Screen	yes on the bezel
Serial	DB-9 (96008N1)
Screen Attachment	yes
Light Out Of Band Management	yes
AC Adapter	100-240V~ 50-60HZ 2-4.8A
Operating Temperature	10°C to 35°C 50°F to 95°F
Storage Temperature	−40°C to 65°C −40°F to 149°F
Safety	CE, CCC, C-Tick, EEA, EAC, FCC, GOST, ICES-003, RIAM, KCC, NEMKO, TUV-GS, UL/cUL, VCCI
Environmental	RoHS, WEEE
Racking rail	SDS-270: A4 ReadyRails Stab-in Static
	SDS-570, SDS-2270 & BLAST-AC: A12 ReadyRails II Sliding
	SDS-7070 & DC chassis: A7 ReadyRails II Sliding

For additional network connectivity, a complementary line card can be added in hardware appliances based on EfficientIP price list (Intel line cards):

- quad ports 1Gb Ethernet copper RJ45:
  for models SDS-570, SDS-1170, SDS-2270 and SDS-3370

- dual ports 10Gb Ethernet with SFP+ interface (optical module not provided):
  for models SDS-1170, SDS-2270 and SDS-3370

Appliances with 10Gbps line cards are not provided with SFP which can only be selected from Intel manufacturer list for line card model X710-DA2/DA4