

Test Values to Benchmark  
Topology

n(Subnets)/ n(Hosts/ Subnet)	Throughput (Bytes/sec) (Intra-subnet) (inter-subnet)	Bandwidth (Bytes/Sec)	Delay (Hz)	Packet Loss (%)	Flow request Rate (Hz) (Rootsw_ctrlr) (Relsw_ctrlr)
1/75	40.755	18370.830	0.261	0	457.667
1/100	34.991	17356.51	0.368	0	421.218
1/125	33.385	16059.575	0.498	0	421.218
2/75	(39.800) (131.147)	8474.048	1.147	0	(211.058) (178.142)
2/100	(33.654) (33.092)	788.602	1.604	0	(206.138) (175.460)
2/125	(36.090) (144.687)	7664.663	2.104	0	(204.827) (175.027)
3/75	(22.492) (65.106)	7741.935	1.884	0	(184.219) (197.909)
3/100	(13.245) (114.217)	7305.647	2.654	0	(176.873) (189.724)
3/125	(19.464) (56.255)	6920.175	3.495	0	(168.550) (180.656)
4/75	(22.525) (35.294)	6363.316	3.059	0	(143.111) (174.360)
4/100	(16.619) (41.622)	6011.837	4.300	0	(135.744) (165.223)
4.125	(15.133) (43.412)	5862.210	5.502	0	(125.774) (161.112)

# Test Values to Benchmark Attack Detection and Mitigation

(Subnet/Host)/(pkt_sent/ sec in each Condition)	No Attack	Attack with no Mitigation	Attack with proposed Mitigation strategy
2 Subnets/ 75 Hosts	160.113	2203.116	65.666
2 Subnets/ 100 Hosts	178.533	1868.416	84.416
2 Subnets/ 125 Hosts	168.716	2137.166	78.51
3 Subnets/ 75 Hosts	292.916	2077.650	89.766
3 Subnets/ 100 Hosts	271.460	1746.650	80.083
3 Subnets/ 125 Hosts	250.016	2596.266	74.233
4 Subnets/ 75 Hosts	247.883	2257.012	86.866
4 Subnets/ 100 Hosts	219.916	2122.336	89.663
4 Subnets/ 125 Hosts	250.278	2399.616	83.116

Test Values to Benchmark  
Attack Strategy against  
The Attack

Subnets/Hosts per subnet	Total number of hosts	Number of zombies <sup>1</sup>	Total il-legitimate packets expected <sup>2</sup>
2 subnets, 75 hosts each	150	14	1,400,000
2 subnets, 100 hosts each	200	19	1,900,000
2 subnets, 125 hosts each	250	24	2,400,000
3 subnets, 75 hosts each	225	22	2,200,000
3 subnets, 100 hosts each	300	29	2,900,000
3 subnets, 125 hosts each	375	37	3,700,000
4 subnets, 75 hosts each	300	29	2,900,000
4 subnets, 100 hosts each	400	39	3,900,000
4 subnets, 125 hosts each	500	49	4,900,000

1 The zombies are calculated as following:

- Assume the topology has 'n' number of total hosts.
- Out of 'n' hosts, one is selected for the purpose of acting like a bad HTTP server, remaining unselected hosts (n-1).
- Now out of (n-1) remaining hosts, 10% are randomly selected for acting like zombies, i.e., if 150 hosts are total, 149 are left after bad server selection, 10% of 149 is 14.9. After integer roundoff, it is 14, hence the attack on such a topology will be carried out by 14 zombies simultaneously.

2 Each zombie is programmed to flood 100,000 il-legitimate packets. So number of expected il-legitimate packets are:

$$100000 * (\text{int\_round}(10\% * (n-1)))$$

Subnets/Hosts per subnet	Il-legitimate packets processed	Total il-legitimate packets expected	% processed packets
2 subnets, 75 hosts each	25,657	1,400,000(14)	1.832
2 subnets, 100 hosts each	56,284	1,900,000(19)	2.962
2 subnets, 125 hosts each	69,142	2,400,000(24)	2.880
3 subnets, 75 hosts each	49,112	2,200,000(22)	2.232
3 subnets, 100 hosts each	61,091	2,900,000(29)	2.104
3 subnets, 125 hosts each	46,563	3,700,000(37)	1.258
4 subnets, 75 hosts each	54,311	2,900,000(29)	1.872
4 subnets, 100 hosts each	82,407	3,900,000(39)	2.113
4 subnets, 125 hosts each	114,170	4,900,000(49)	2.330

