

CS3210

# Lab 8: TCP Protocol based Experiments

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## Inferences:

- **SACK = ON** increases the performance
  - **WINDOW SCALING** increases the performance
  - **CUBIC** is better than RENO
  - As file size increases the Latency increases
  - If Drop % is less , the congestion will be less so latency will be less
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**File Size : 512 KB**

SACK	Window Size (KB)	Link Delay (ms)	Link Drop %	TCP Protocol	Throughput (KB/s)	Latency (s)
OFF	16KB	2ms	0.5%	cubic	2085.8KB/s	0.26s
OFF	16KB	2ms	5%	cubic	2244.0KB/s	0.2s
OFF	16KB	50ms	0.5%	cubic	2654.0KB/s	0.2s
OFF	16KB	50ms	5%	cubic	2504.0KB/s	0.2s
OFF	256KB	2ms	0.5%	cubic	2118.0KB/s	0.22s
OFF	256KB	2ms	5%	cubic	1844.0KB/s	0.28s
OFF	256KB	50ms	0.5%	cubic	2508.0KB/s	0.2s
OFF	256KB	50ms	5%	cubic	2746.0KB/s	0.2s
ON	16KB	2ms	0.5%	cubic	1922.0KB/s	0.26s
ON	16KB	2ms	5%	cubic	2192.0KB/s	0.26s
ON	16KB	50ms	0.5%	cubic	2974.0KB/s	0.2s
ON	16KB	50ms	5%	cubic	2164.4KB/s	0.28s
ON	256KB	2ms	0.5%	cubic	1870.0KB/s	0.3s
ON	256KB	2ms	5%	cubic	1956.0KB/s	0.3s
ON	256KB	50ms	0.5%	cubic	1908.0KB/s	0.28s
ON	256KB	50ms	5%	cubic	1870.0KB/s	0.26s
OFF	16KB	2ms	0.5%	reno	1710.0KB/s	0.3s
OFF	16KB	2ms	5%	reno	1058.8KB/s	0.86s
OFF	16KB	50ms	0.5%	reno	1308.0KB/s	0.4s
OFF	16KB	50ms	5%	reno	1788.0KB/s	0.3s
OFF	256KB	2ms	0.5%	reno	2612.0KB/s	0.2s
OFF	256KB	2ms	5%	reno	2618.0KB/s	0.2s
OFF	256KB	50ms	0.5%	reno	2300.0KB/s	0.26s
OFF	256KB	50ms	5%	reno	1826.0KB/s	0.3s
ON	16KB	2ms	0.5%	reno	2788.0KB/s	0.2s
ON	16KB	2ms	5%	reno	2920.0KB/s	0.2s
ON	16KB	50ms	0.5%	reno	1988.0KB/s	0.28s
ON	16KB	50ms	5%	reno	2200.0KB/s	0.26s
ON	256KB	2ms	0.5%	reno	3028.0KB/s	0.2s
ON	256KB	2ms	5%	reno	3054.0KB/s	0.2s
ON	256KB	50ms	0.5%	reno	2498.0KB/s	0.22s
ON	256KB	50ms	5%	reno	2564.0KB/s	0.2s

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### File Size : 1 MB

SACK	Window Size (KB)	Link Delay (ms)	Link Drop %	TCP Protocol	Throughput (KB/s)	Latency (s)
OFF	16KB	2ms	0.5%	cubic	2410.0KB/s	0.4s
OFF	16KB	2ms	5%	cubic	2528.0KB/s	0.4s
OFF	16KB	50ms	0.5%	cubic	2440.0KB/s	0.42s
OFF	16KB	50ms	5%	cubic	1860.0KB/s	0.56s
OFF	256KB	2ms	0.5%	cubic	2330.0KB/s	0.42s
OFF	256KB	2ms	5%	cubic	2696.0KB/s	0.4s
OFF	256KB	50ms	0.5%	cubic	2508.0KB/s	0.42s
OFF	256KB	50ms	5%	cubic	2464.0KB/s	0.38s
ON	16KB	2ms	0.5%	cubic	3406.0KB/s	0.3s
ON	16KB	2ms	5%	cubic	3688.0KB/s	0.28s
ON	16KB	50ms	0.5%	cubic	3308.0KB/s	0.32s
ON	16KB	50ms	5%	cubic	2758.0KB/s	0.38s
ON	256KB	2ms	0.5%	cubic	3768.0KB/s	0.3s
ON	256KB	2ms	5%	cubic	3528.0KB/s	0.3s
ON	256KB	50ms	0.5%	cubic	3052.0KB/s	0.32s
ON	256KB	50ms	5%	cubic	3432.0KB/s	0.28s
OFF	16KB	2ms	0.5%	reno	3188.0KB/s	0.32s
OFF	16KB	2ms	5%	reno	2882.0KB/s	0.36s
OFF	16KB	50ms	0.5%	reno	3244.0KB/s	0.32s
OFF	16KB	50ms	5%	reno	2732.0KB/s	0.36s
OFF	256KB	2ms	0.5%	reno	2848.0KB/s	0.36s
OFF	256KB	2ms	5%	reno	3376.0KB/s	0.3s
OFF	256KB	50ms	0.5%	reno	3376.0KB/s	0.32s
OFF	256KB	50ms	5%	reno	3584.0KB/s	0.3s
ON	16KB	2ms	0.5%	reno	3708.0KB/s	0.28s
ON	16KB	2ms	5%	reno	2718.0KB/s	0.4s
ON	16KB	50ms	0.5%	reno	2386.0KB/s	0.42s
ON	16KB	50ms	5%	reno	2490.0KB/s	0.38s
ON	256KB	2ms	0.5%	reno	2248.0KB/s	0.46s
ON	256KB	2ms	5%	reno	2000.0KB/s	0.54s
ON	256KB	50ms	0.5%	reno	2356.0KB/s	0.42s
ON	256KB	50ms	5%	reno	2350.0KB/s	0.42s

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### File Size : 2 MB

SACK	Window Size (KB)	Link Delay (ms)	Link Drop %	TCP Protocol	Throughput (KB/s)	Latency (s)
OFF	16KB	2ms	0.5%	cubic	2106.0KB/s	0.98s
OFF	16KB	2ms	5%	cubic	2626.0KB/s	0.8s
OFF	16KB	50ms	0.5%	cubic	3616.0KB/s	0.54s
OFF	16KB	50ms	5%	cubic	2830.0KB/s	0.72s
OFF	256KB	2ms	0.5%	cubic	3760.0KB/s	0.54s
OFF	256KB	2ms	5%	cubic	3294.0KB/s	0.62s
OFF	256KB	50ms	0.5%	cubic	2544.4KB/s	2.24s
OFF	256KB	50ms	5%	cubic	3184.0KB/s	0.6s
ON	16KB	2ms	0.5%	cubic	2792.0KB/s	0.76s
ON	16KB	2ms	5%	cubic	3408.0KB/s	0.58s
ON	16KB	50ms	0.5%	cubic	3664.0KB/s	0.52s
ON	16KB	50ms	5%	cubic	3100.0KB/s	0.64s
ON	256KB	2ms	0.5%	cubic	3474.0KB/s	0.58s
ON	256KB	2ms	5%	cubic	4142.0KB/s	0.52s
ON	256KB	50ms	0.5%	cubic	3184.0KB/s	0.62s
ON	256KB	50ms	5%	cubic	3218.0KB/s	0.62s
OFF	16KB	2ms	0.5%	reno	2436.0KB/s	0.84s
OFF	16KB	2ms	5%	reno	2278.0KB/s	0.9s
OFF	16KB	50ms	0.5%	reno	1740.0KB/s	1.16s
OFF	16KB	50ms	5%	reno	2196.0KB/s	0.92s
OFF	256KB	2ms	0.5%	reno	2328.0KB/s	0.86s
OFF	256KB	2ms	5%	reno	3110.0KB/s	0.66s
OFF	256KB	50ms	0.5%	reno	3692.0KB/s	0.54s
OFF	256KB	50ms	5%	reno	3214.0KB/s	0.68s
ON	16KB	2ms	0.5%	reno	3426.0KB/s	0.58s
ON	16KB	2ms	5%	reno	2397.0KB/s	1.18s
ON	16KB	50ms	0.5%	reno	628.8KB/s	3.4s
ON	16KB	50ms	5%	reno	1635.8KB/s	1.42s
ON	256KB	2ms	0.5%	reno	3452.0KB/s	0.58s
ON	256KB	2ms	5%	reno	2718.0KB/s	0.76s
ON	256KB	50ms	0.5%	reno	4002.0KB/s	0.5s
ON	256KB	50ms	5%	reno	3586.0KB/s	0.58s



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## Graphs:











