



# Death of a Network: Identify the Hidden Causes of Lousy Network Performance

June 17, 2010


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**SHARKFEST '10**

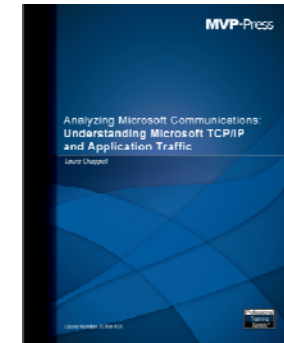
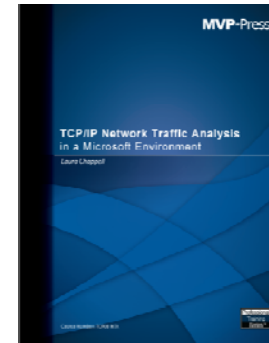
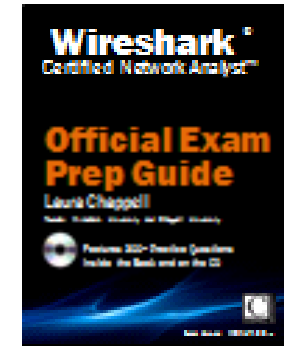
Stanford University

June 14-17, 2010



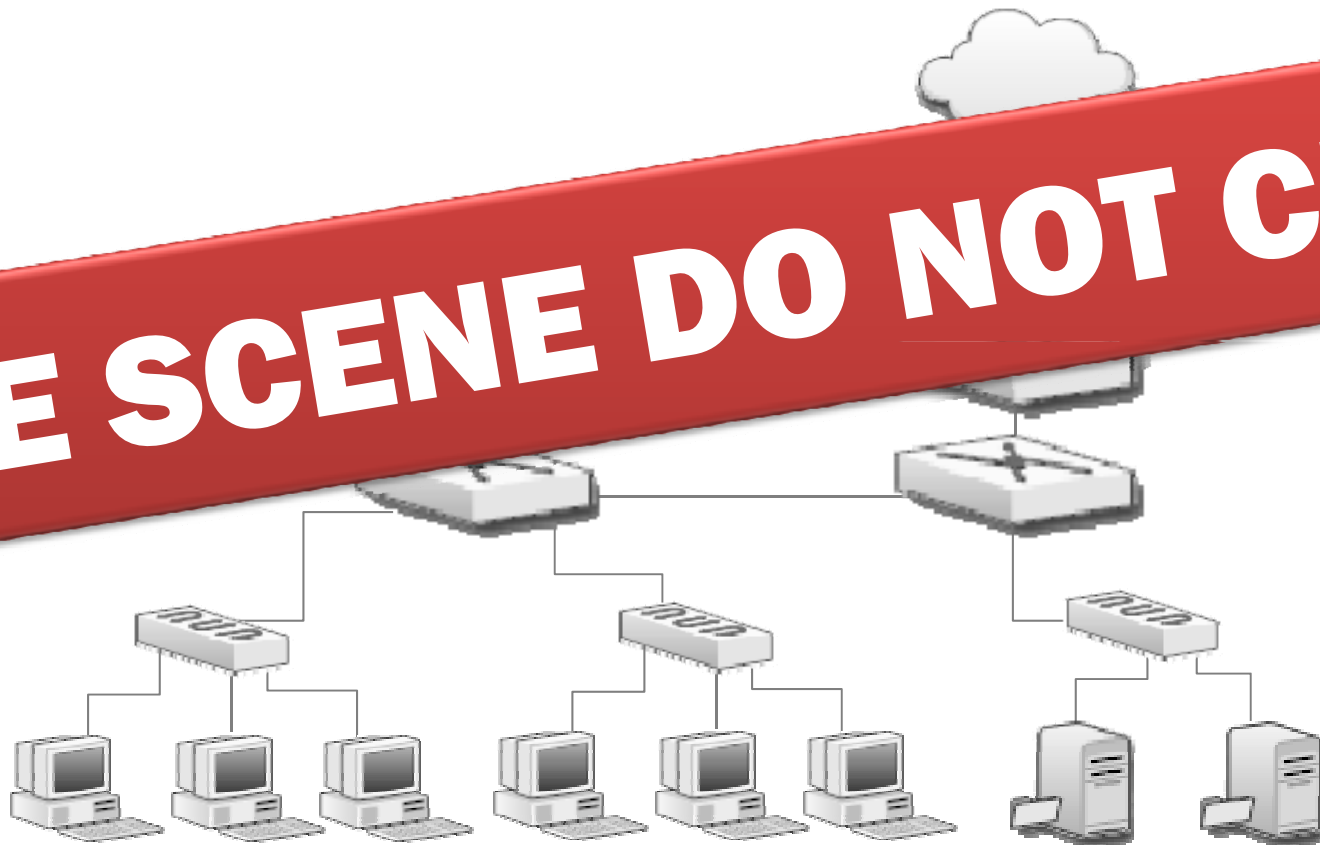
# What's Up These Days?

- **Translations of Wireshark Network Analysis**
- **Wireshark Certified Network Analyst Exam Release**
- **Wireshark Certification Official Exam Prep Guide**
- **Wireshark Certification Bootcamps**
- Oh yeah... and this little **“Microsoft project”**



# What Really Kills Network Performance?

**CRIME SCENE DO NOT CRO**

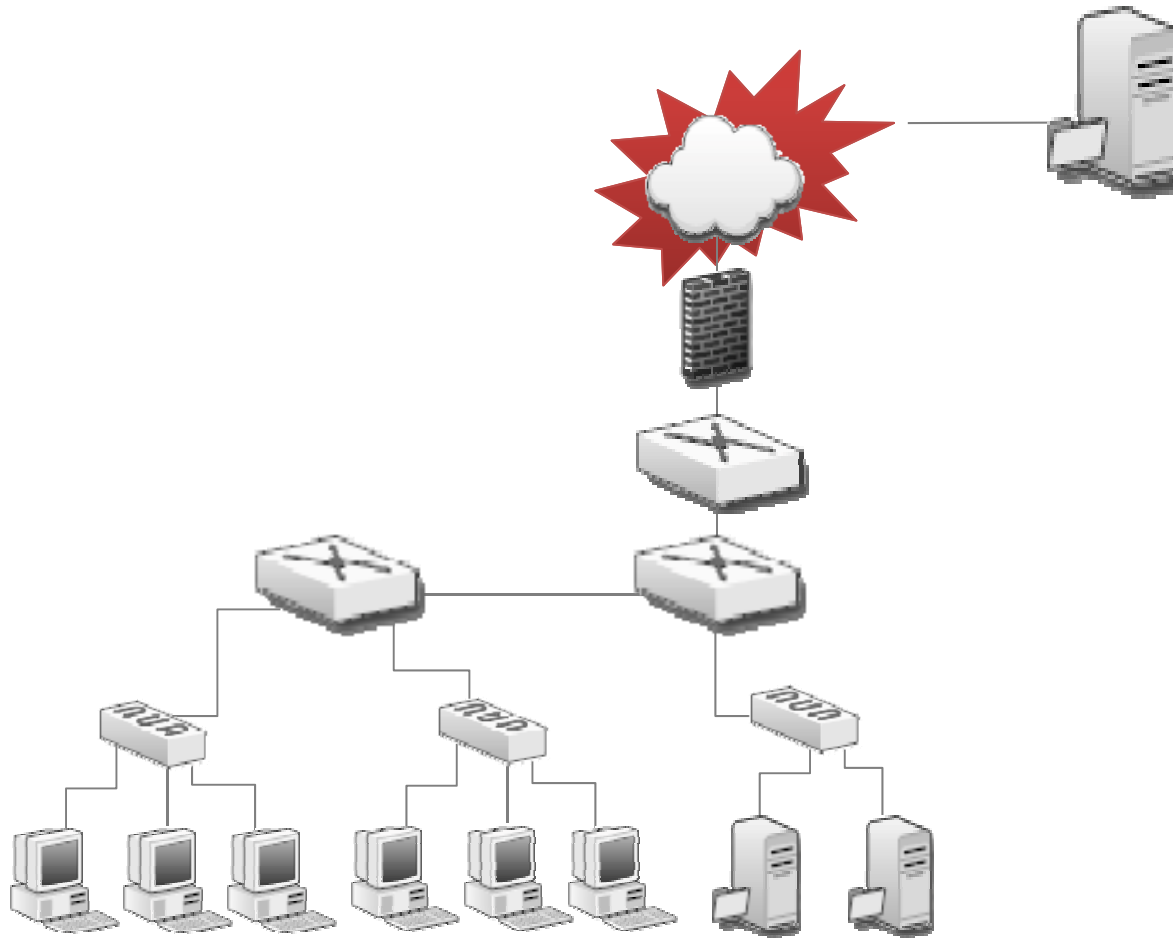


# Causes of Network Death

- High Latency
- Packet Loss
- Misconfigurations
- Poorly-designed/behaving applications
- Faulty devices
- Cruddy software
- Malicious applications or communications
- Network design
- Security
- Users

# Latency

(How bad is 100ms delay on a path?)



# Let's Look at a Problem...

## **http-download-bad.pcap**

- high latency
- window zero condition
- packet loss

## **http-download-good.pcap**

- high latency
- window-almost-zero condition
- packet loss

# Open http-download-bad.pcap

1. Set **View | Time Display Format | Seconds Since Previous Displayed Packet**
2. Examine the **Expert Infos** (click the button)

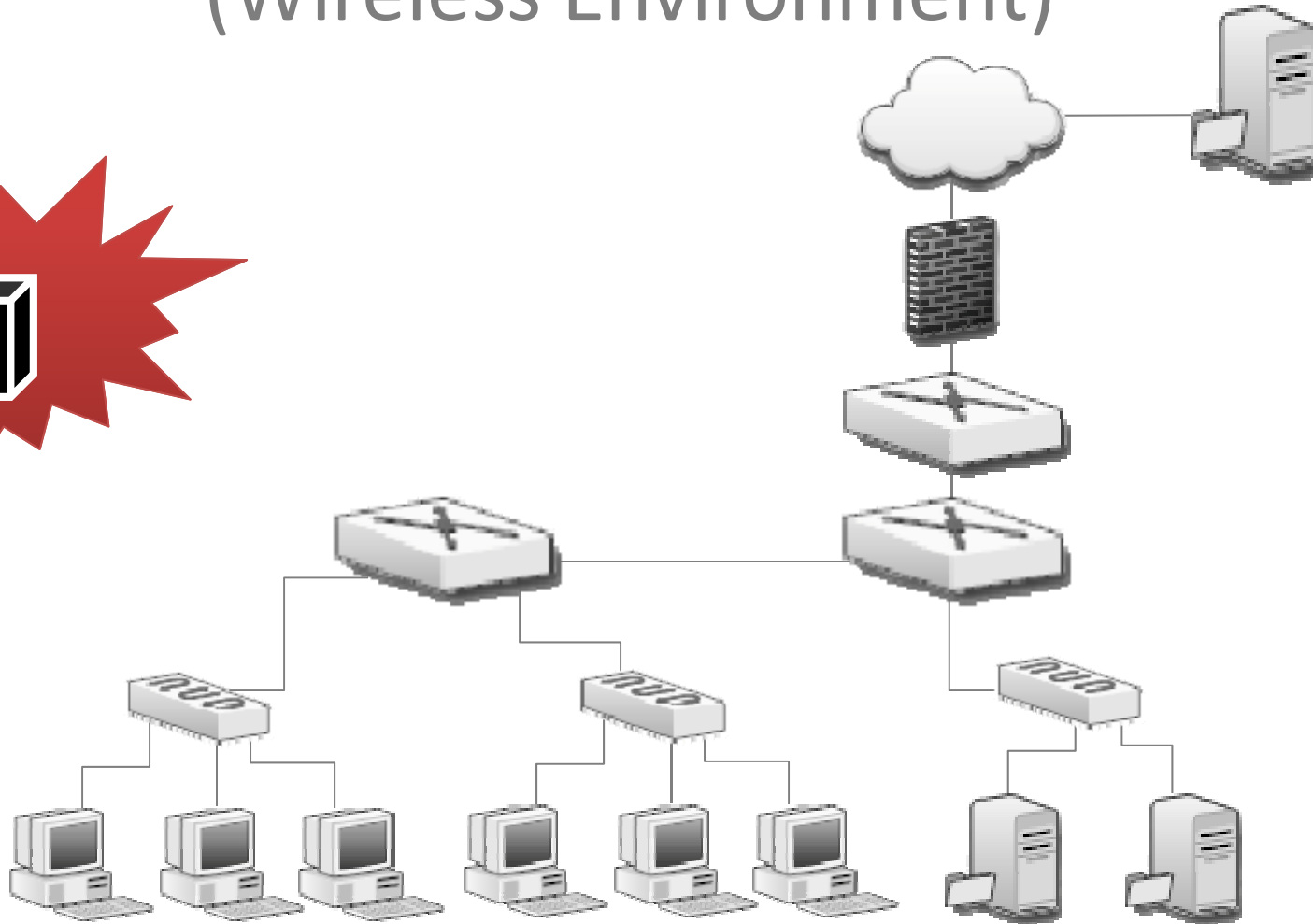
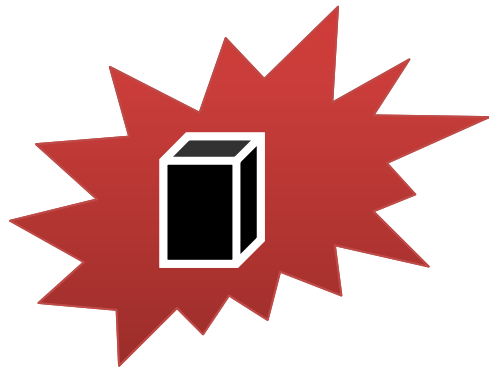
Can you fix latency issues?

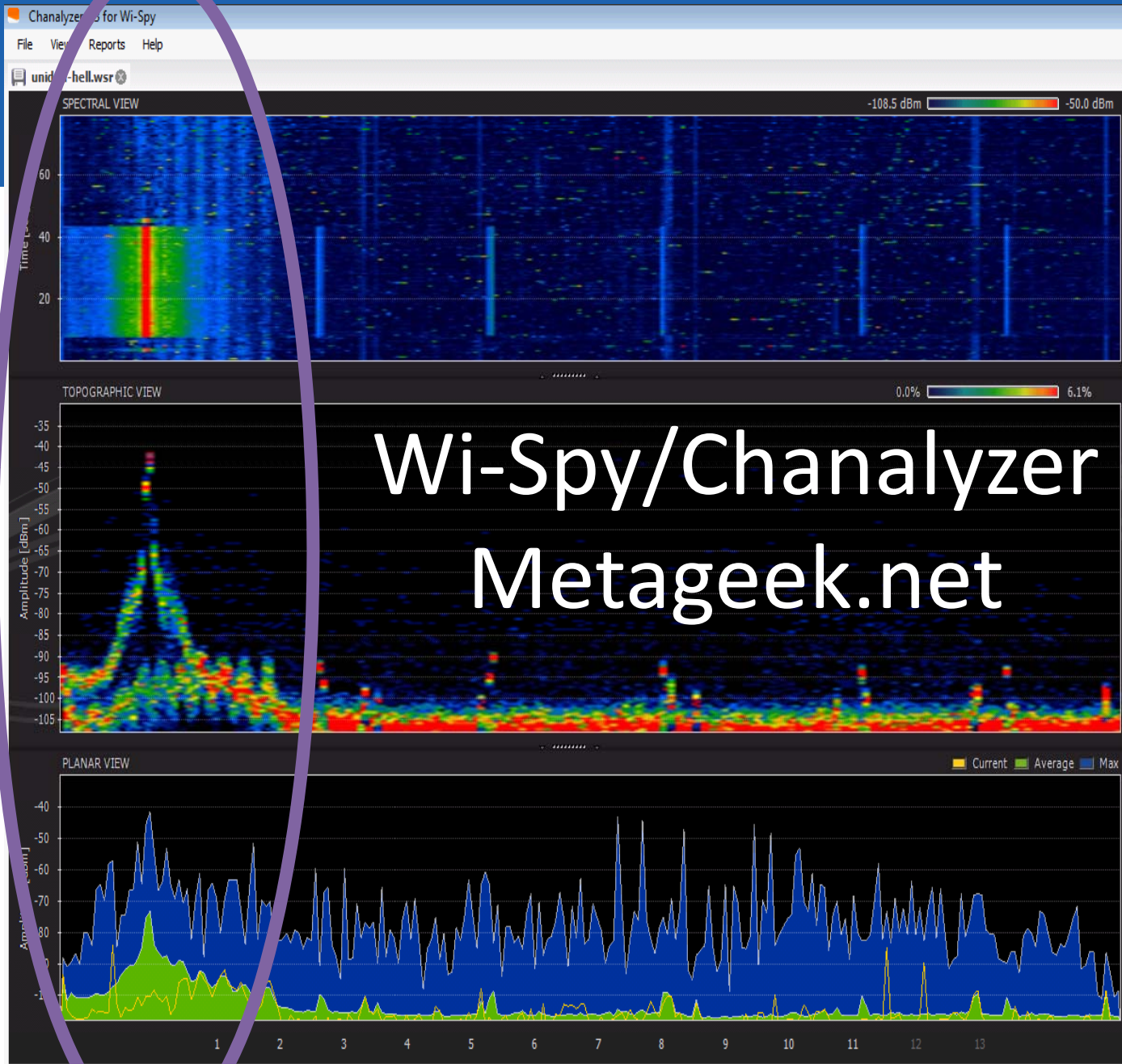
Can you fix packet loss?

Can you improve the recovery process?

# Noise/Interference

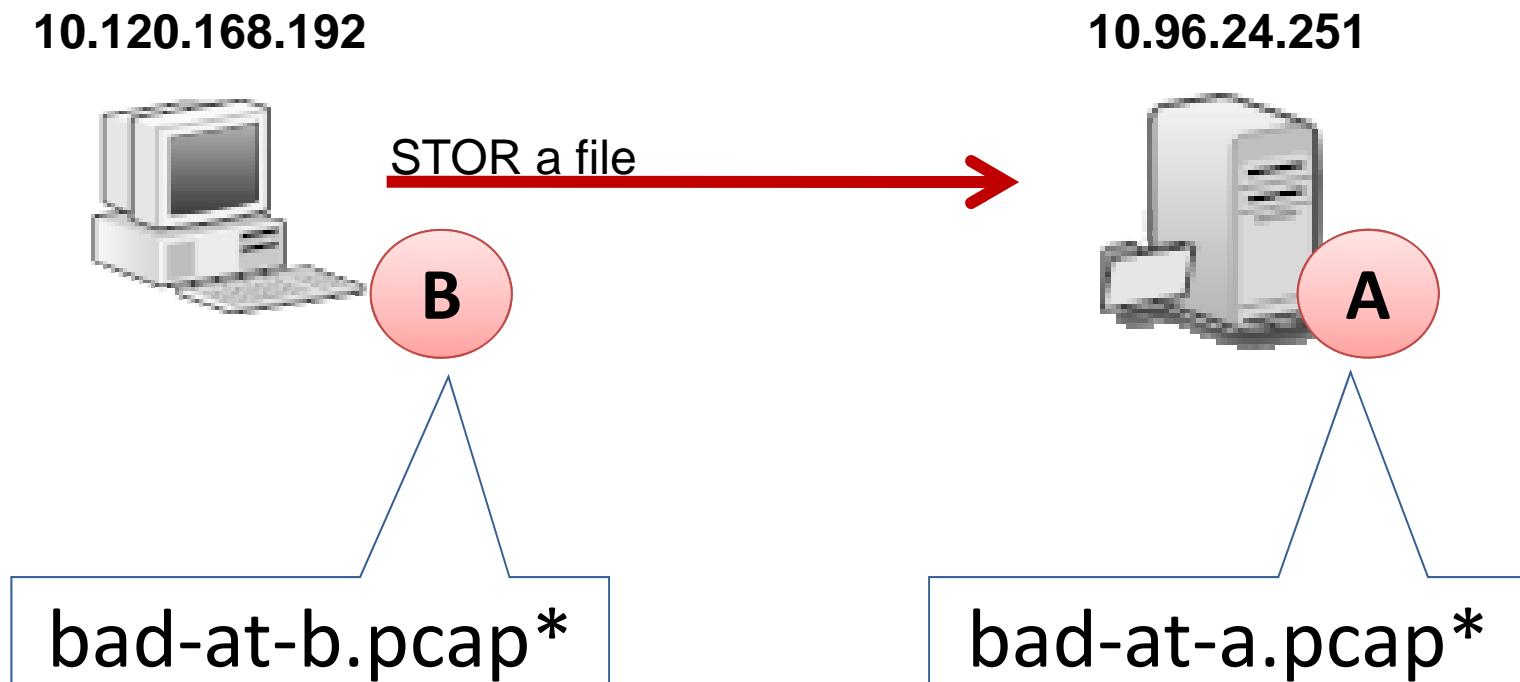
(Wireless Environment)





Wi-Spy/Chanalyzer  
Metageek.net

# Let's Look at a Problem...



\*Not on the CD/website

# Latency and Throughput Test Results

Lab Test	Delay	A: 1323 On B: rWin- 1,875,000	iperf -s rWin at 1,875,000	iperf -c rWin at 1,875,000	Results
#1: Local iPerf					94.5, 90, 92, 94, 94
#2: iPerf at 100ms delay	100ms				4.6, 4.8, 4.58, 4.61, 4.62

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Lab Test	Delay	A: 1323 On B: rWin- 1,875,000	iperf -s rWin at 1,875,000	iperf -c rWin at 1,875,000	Results
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#2: iPerf at 100ms delay	100ms				4.6, 4.8, 4.58, 4.61, 4.62
#3: iPerf w/delay + reg change	100ms	Reg sets (x32) 1323 on 1,875,000 rWin			5.6, 4.6, 4.7, 4.7, 4.7
#6: iPerf to 10.10.16.16 w/delay + rWin at receiver set	100 ms	"	Receive window (-w) set at 1,875,000		5.0

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#6: iPerf to 10.10.16.16 w/delay + rWin at receiver set	100 ms	"	Receive window (-w) set at 1,875,000		5.0
#7: iPerf to 10:10:16:16 w/delay + rWin at receiver set	100 ms	"	"	Sender window (-w) set at 1,875,000	77.6

# Keep Up with Me

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