

Measuring Broadband America

Special Projects: 1Gbps-WG

September 30, 2020

Agenda

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- Summary of contributions
- Physical bottlenecks
- Congestion factors
- Next Steps
- Q&A



Working Group Presenters

Working Group 1



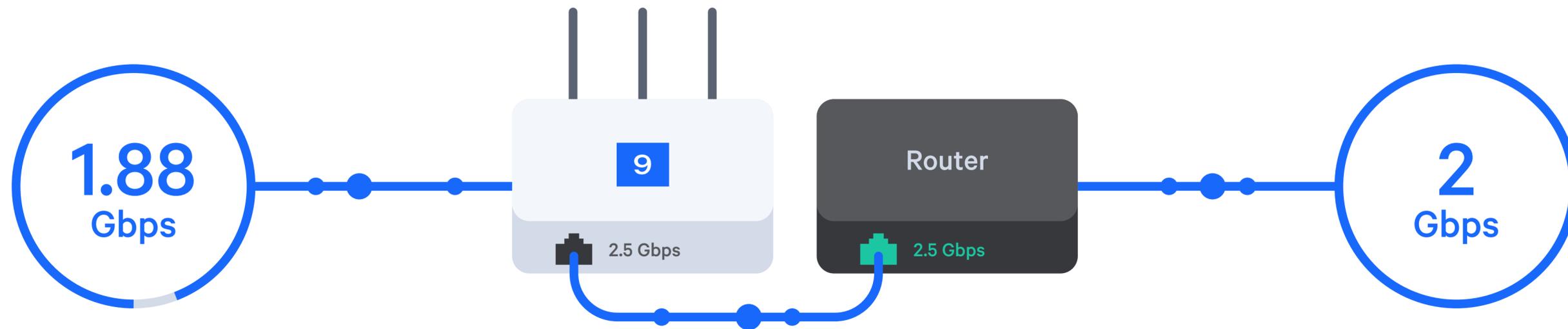
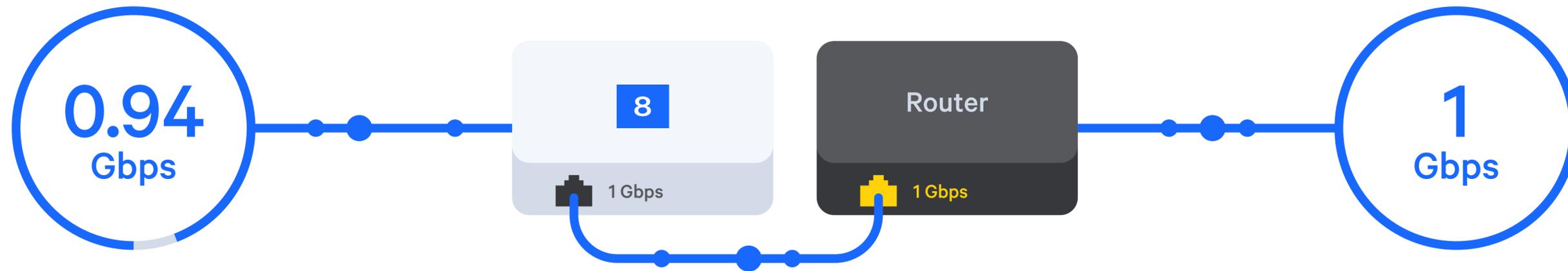
Working Group 2

CableLabs®

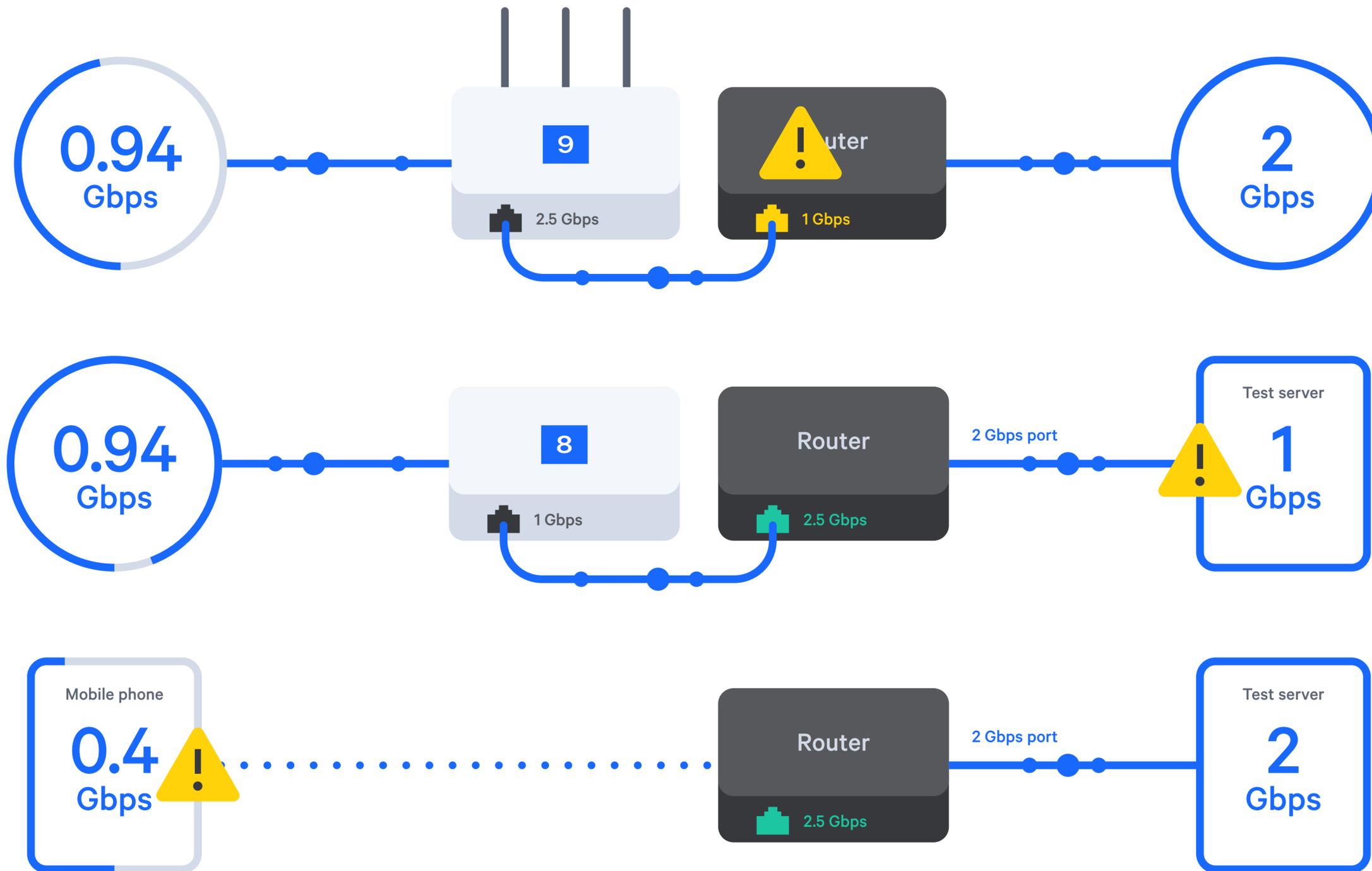
Working Group 3



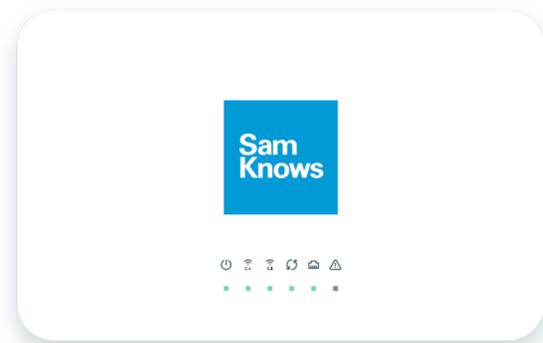
Packet Overheads



Overcoming Physical Bottlenecks



Hardware Agents



Whitebox 8.0
1Gbps



Whitebox 9.0
2.5Gbps



Whitebox 10
10Gbps



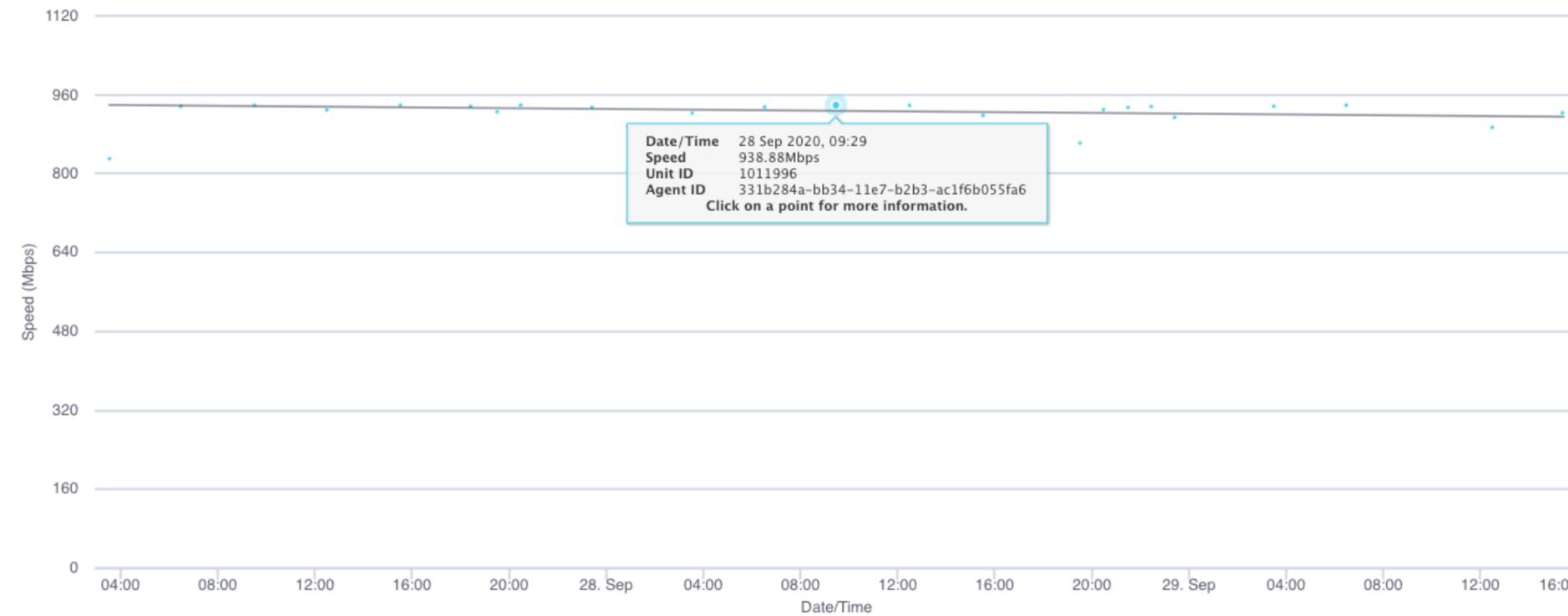
Router SDK
Hardware dependent

Whitebox 8.0

Whitebox 8.0 measuring 1Gbps

Download Speed (Multi-Threaded Only)

Visual chart Data tables Preset info

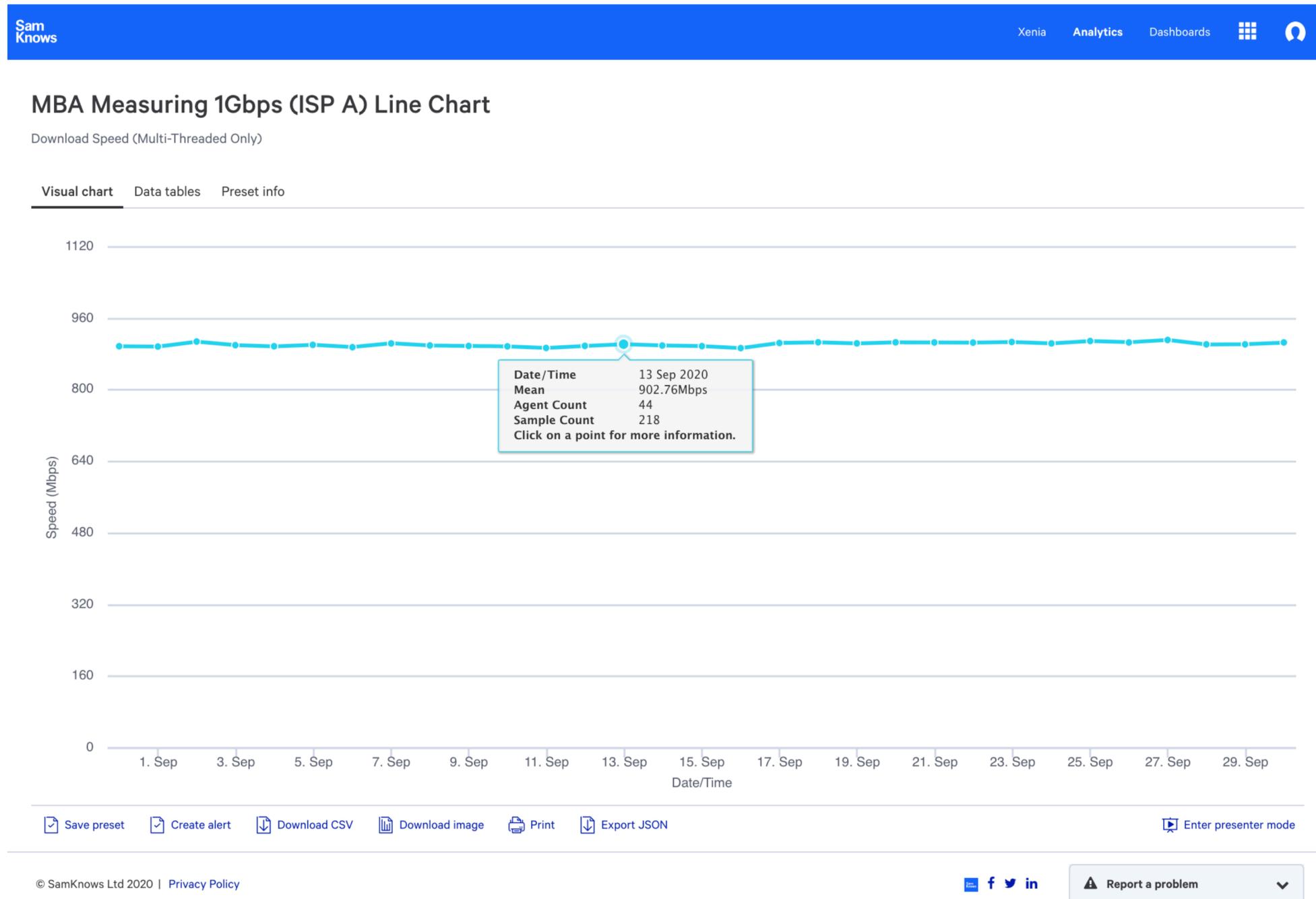


Date/Time 28 Sep 2020, 09:29
Speed 938.88Mbps
Unit ID 1011996
Agent ID 331b284a-bb34-11e7-b2b3-ac1f6b055fa6
Click on a point for more information.

Save preset Download CSV Download image Print Export JSON Enter presenter mode

- Whitebox 8.0 can measure speeds of up to 1Gbps

MBA 1Gbps Results (ISP A)



- Results are derived from tests to the off-net Stackpath servers.
- Results from all hours of the day are used (not just peak) and use a 10 second download speed test.
- All tests use 8 parallel connections and TCP (Cubic).
- Data based on 44 Whiteboxes over the last 30 days

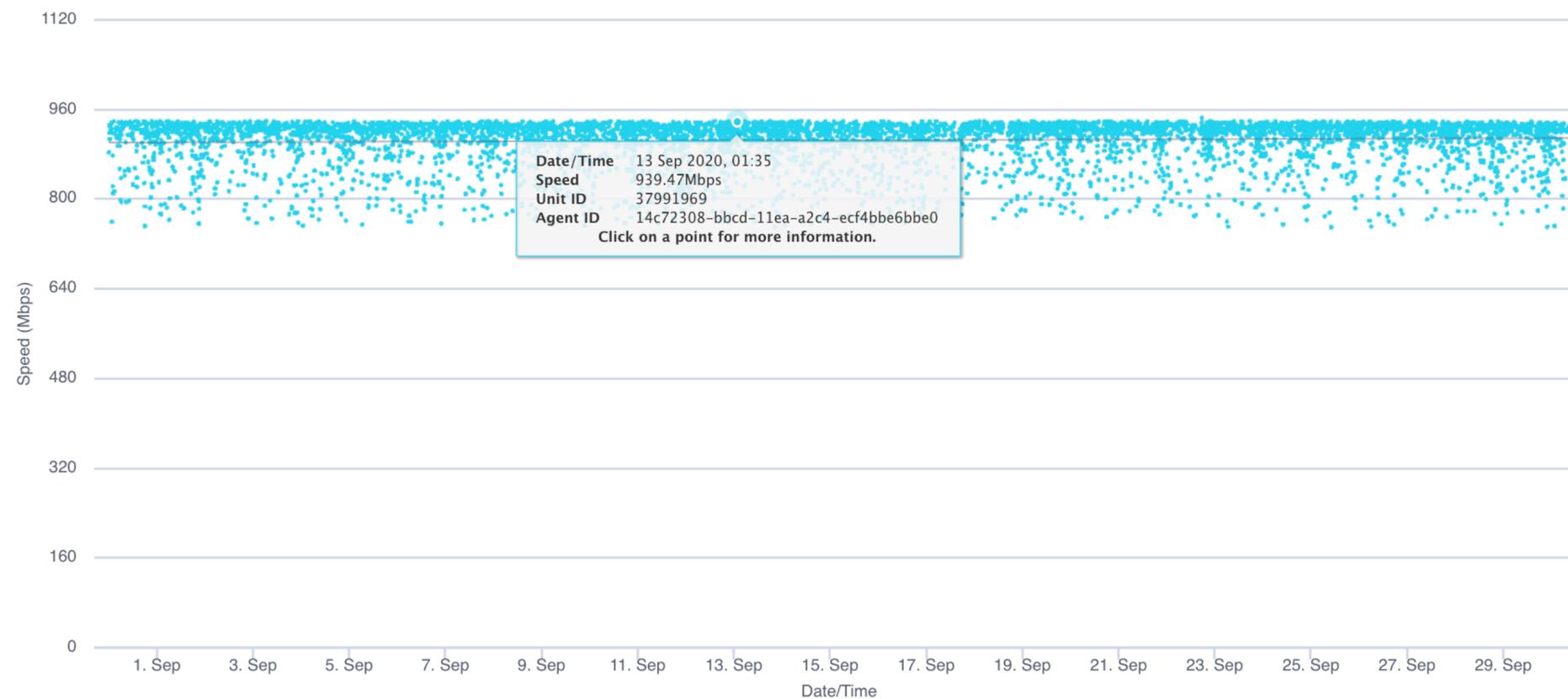
MBA 1Gbps Results (ISP A) cont.

- Results are derived from tests to the off-net Stackpath servers.
- Results from all hours of the day are used (not just peak) and use a 10 second download speed test.
- All tests use 8 parallel connections and TCP (Cubic).
- Individual Whitebox results over the last 30 days

MBA Measuring 1Gbps (ISP A) Scatter Plot

Download Speed (Multi-Threaded Only)

Visual chart Data tables Preset info



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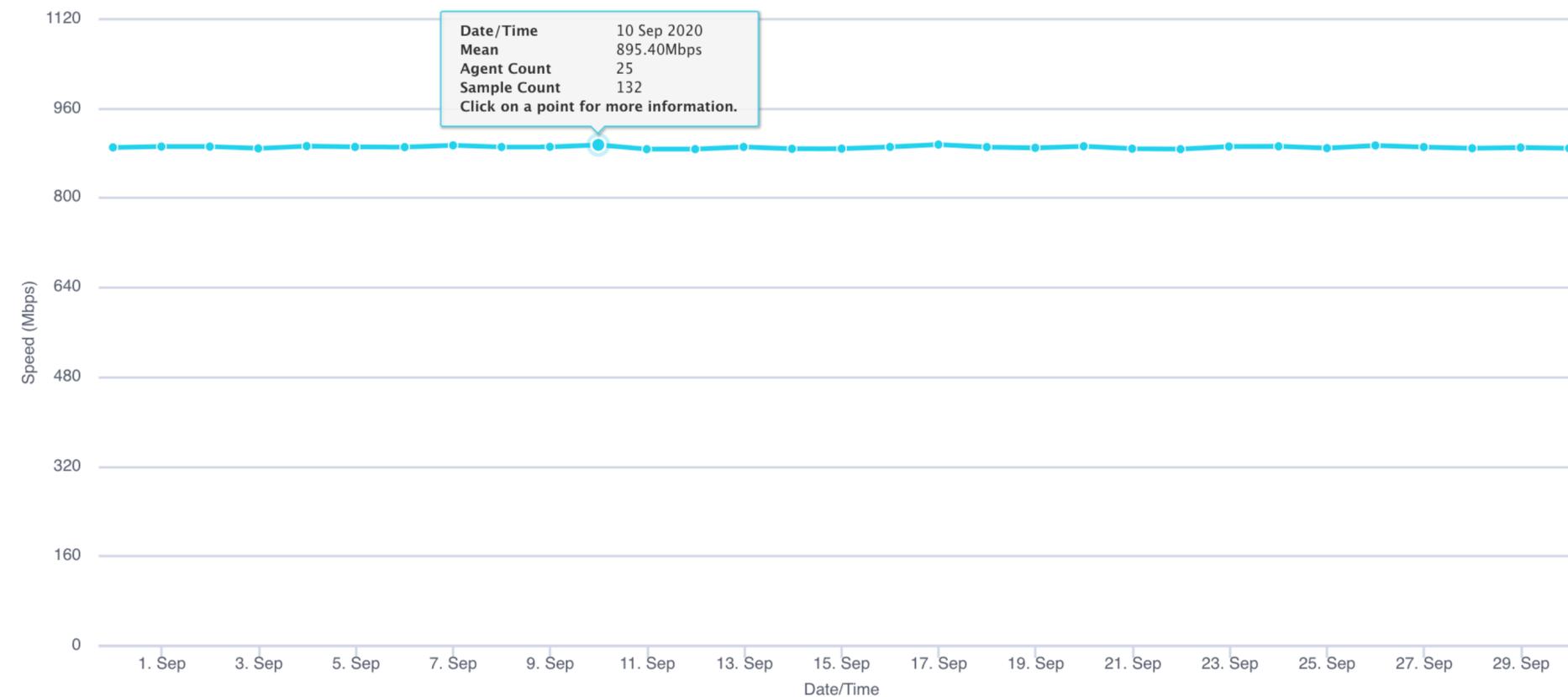
MBA 1Gbps Results (ISP B)

- Results are derived from tests to the off-net Stackpath servers.
- Results from all hours of the day are used (not just peak) and use a 10 second download speed test.
- All tests use 8 parallel connections and TCP (Cubic).
- Data based on 25 Whiteboxes over the last 30 days

MBA Measuring 1Gbps (ISP B)

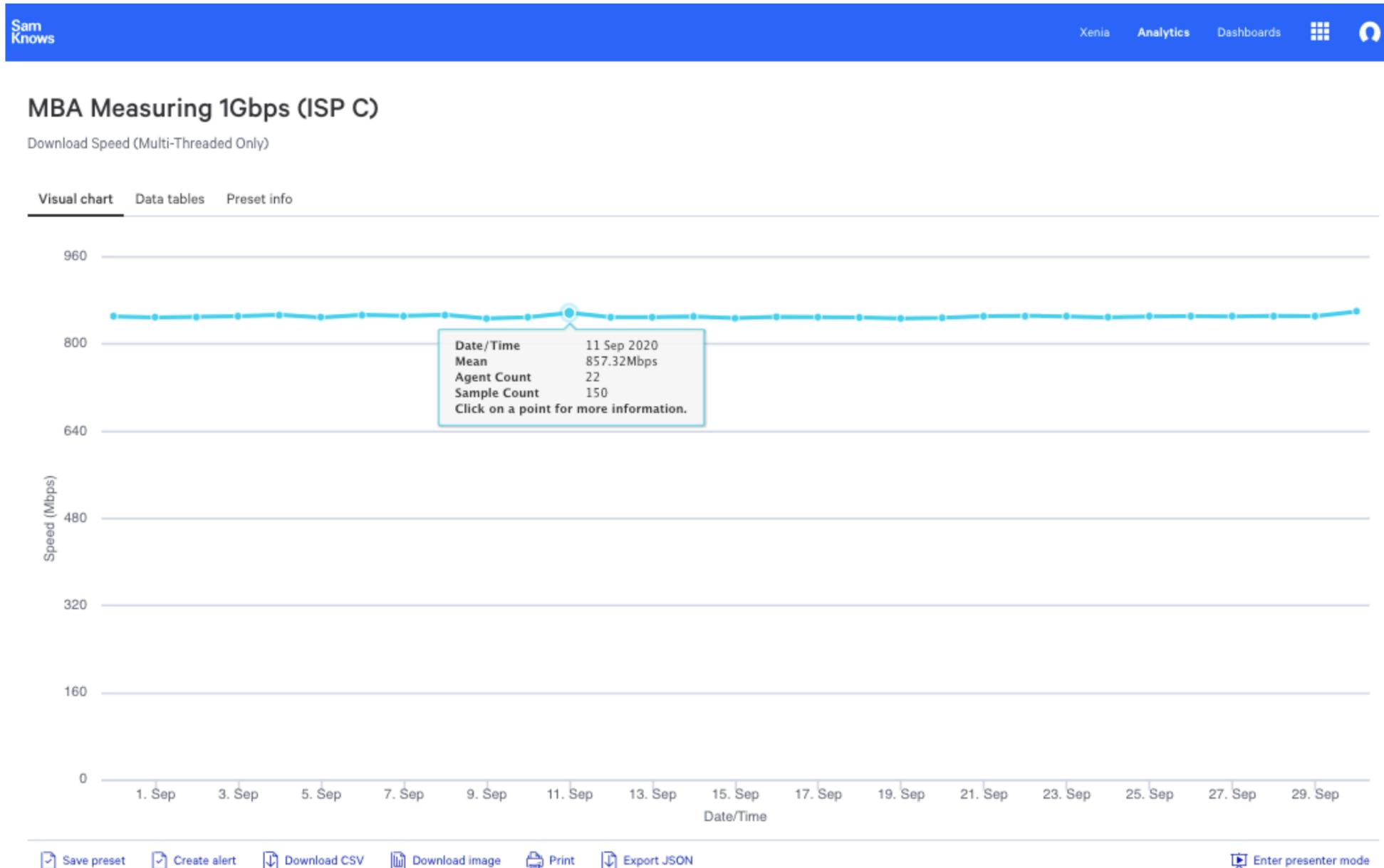
Download Speed (Multi-Threaded Only)

Visual chart Data tables Preset info



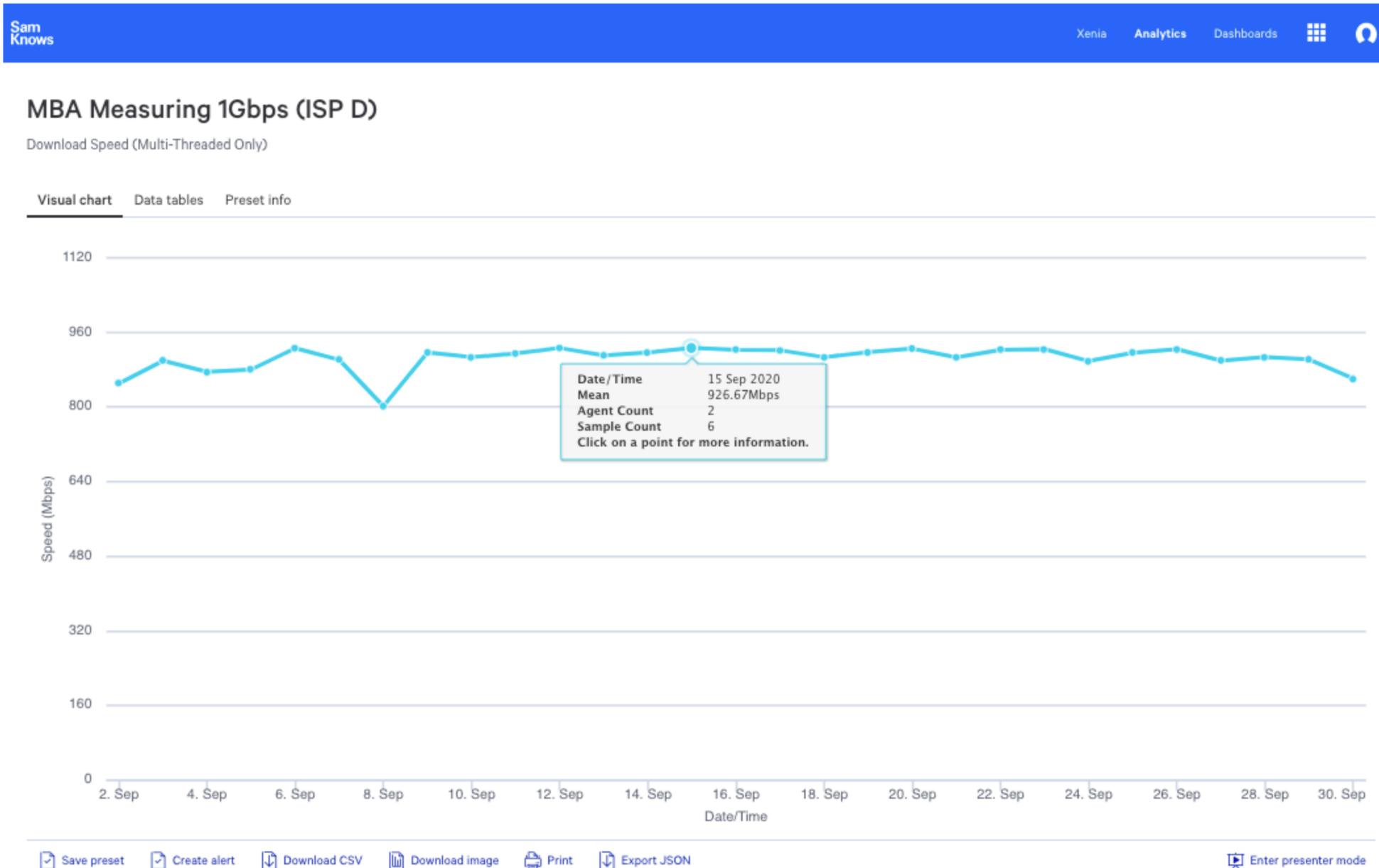
Save preset Create alert Download CSV Download image Print Export JSON Enter presenter mode

MBA 1Gbps Results (ISP C)



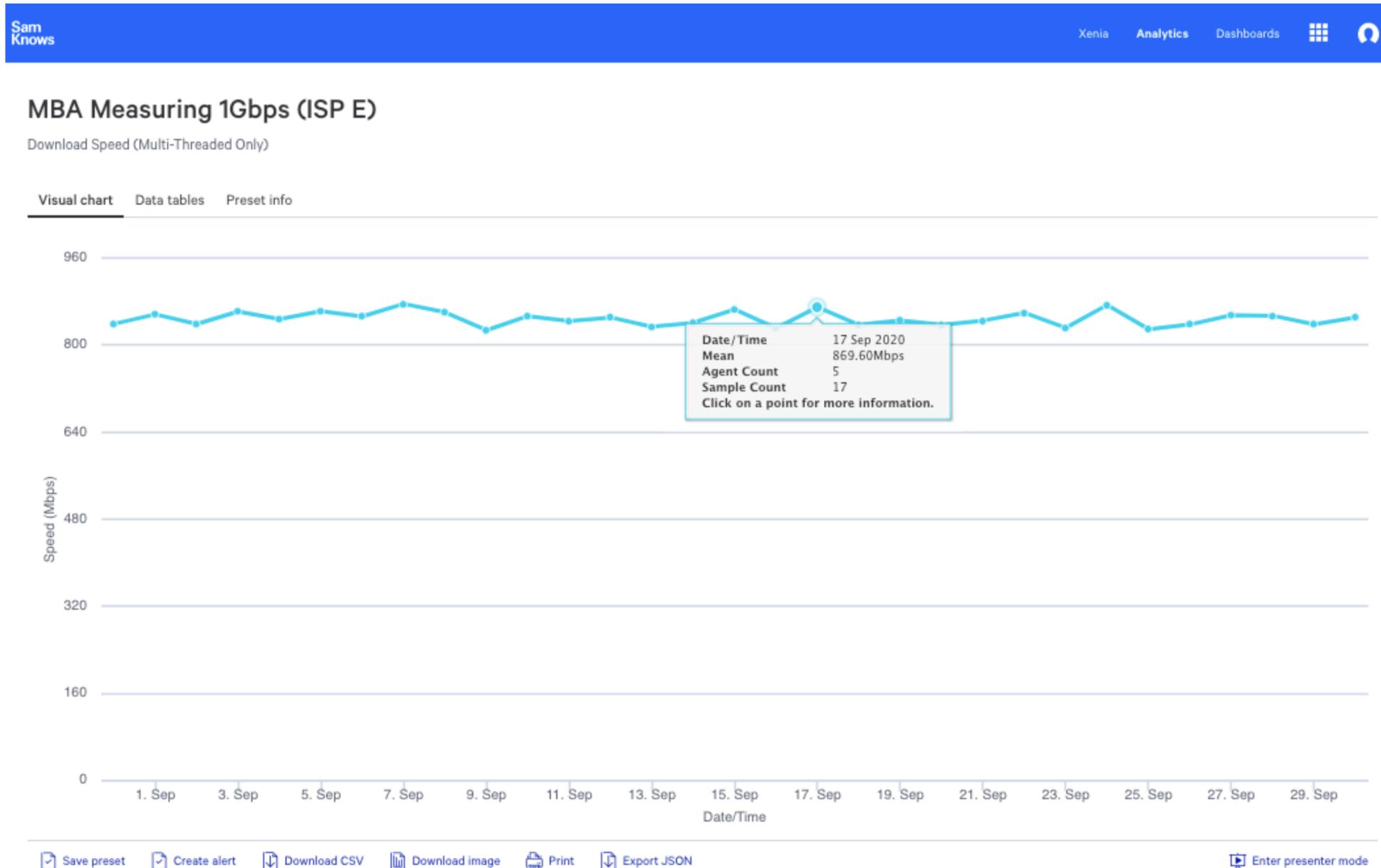
- Results are derived from tests to the off-net Stackpath servers.
- Results from all hours of the day are used (not just peak) and use a 10 second download speed test.
- All tests use 8 parallel connections and TCP (Cubic).
- Data based on 22 Whiteboxes over the last 30 days

MBA 1Gbps Results (ISP D)



- Results are derived from tests to the off-net Stackpath servers.
- Results from all hours of the day are used (not just peak) and use a 10 second download speed test.
- All tests use 8 parallel connections and TCP (Cubic).
- Data based on 2 Whiteboxes over the last 30 days

MBA 1Gbps Results (ISP E)



- Results are derived from tests to the off-net Stackpath servers.
- Results from all hours of the day are used (not just peak) and use a 10 second download speed test.
- All tests use 8 parallel connections and TCP (Cubic).
- Data based on 5 Whiteboxes over the last 30 days

Proposed Investigation

The cause of the remaining delta is unclear and warrants investigation.

The next phase of workshop to benchmark the current approach (TCP, Cubic, 8 Connections, 1:1 client - server) against:

- TCP BBR vs TCP Cubic
- Using multiple servers in parallel
- UDP speedtest
- Number of threads



Q&A

End