CLAIMS:

1. A method of measuring network performance comprising:

receiving a packet at a first routing device;

inspecting, by the first routing device, the packet to determine that the packet is associated with a specified network service or application;

determining, by the first routing device, that the packet is to be sampled based on the inspecting;

sampling, by the first routing device, the packet by storing first information associated with the packet;

transmitting, by the first routing device, the first information to a measurement server;

before transmitting the packet by the first routing device, adding an additional header to the packet associated with the specified network service or application;

transmitting, by the first routing device, the packet towards a destination according to routing information;

receiving the packet at a second routing device;

determining, at the second routing device, that the packet is to be sampled;

sampling, by the second routing device, the packet by storing second information associated with the packet;

transmitting, by the second routing device, the second information to the measurement server;

before transmitting by the second routing device the second information to the measurement server, removing the additional header associated with the specified network service or application from the packet; and

determining, by the measurement server, a performance measurement based on the first information and second information,

wherein the additional header uniquely identifies the packet associated with the specified network service or application and the determining at the second routing device that the packet is to be sampled comprises determining a value in the additional header.

2. The method of claim 1, wherein the determining at the first and second routing devices that the packet is to be sampled comprises detecting a value in the packet header.

3. The method of claim 2, wherein the detecting a value in the packet header comprises detecting a value in at least one of a source address, a destination address, a source port, a destination port, a packet sequence number, and a protocol version.

4. The method of claim 1, wherein determining at the first and second routing devices that the packet is to be sampled comprises:

(a) performing a hash function on at least a portion of the packet; and

(b) determining a result of the hash function satisfies a condition.

5. The method of claim 1, wherein the first information comprises a timestamp and at least a portion of the packet.

6. The method of claim 5, wherein the at least a portion of the packet comprises at least one of a portion of a header and a portion of a payload.

7. The method of claim 1, wherein the measurement comprises at least one of a latency, a throughput, a jitter, a packet rate, and a frame rate.

8. A system for measuring network performance, comprising:

a first routing device configured to:

receive a packet;

inspect the packet to determine that the packet is associated with a specified network service or application;

determine that the packet is to be sampled based on the inspecting;

sample the packet by storing first information associated with the packet;

transmit the first information to a measurement server;

before transmitting the packet by the first routing device, add an additional header to the packet associated with the specified network service or application; and

transmit the packet towards a destination according to routing information;

a second routing device configured to:

receive the packet at a second routing device;

determine that the packet is to be sampled;

sample the packet by storing second information associated with the packet;

transmit the second information to the measurement server;

before transmitting by the second routing device the second information to the measurement server, removing the additional header associated with the specified network service or application from the packet; and

the measurement server configured to determine a performance measurement based on the first information and second information,

wherein the additional header uniquely identifies the packet associated with the specified network service or application and the second routing device is further configured to determine that the packet is be to sampled by determining a value in the additional header.

9. The system of claim 8, wherein the first and second routing devices are further configured to determine that the packet is to be sampled by detecting a value in the packet header.

10. The method of claim 9, wherein the detecting a value in the packet header comprises detecting a value in at least one of a source address, a destination address, a source port, a destination port, a packet sequence number, and a protocol version.

11. The system of claim 8, wherein the first and second routing devices are further configured to determine that the packet is to be sampled by performing a hash function on at least a portion of the packet and determining a result of the hash function satisfies a condition.

12. The system of claim 8, wherein the first information comprises a timestamp and at least a portion of the packet.

13. The system of claim 12, wherein the at least a portion of the packet comprises at least one of a portion of a header and a portion of a payload.

14. The system of claim 8, wherein the measurement comprises at least one of a latency, a throughput, a jitter, a packet rate, and a frame rate.

15. A non-transitory computer-readable medium having instructions stored thereon that, when executed by at least one computing device, causes the at least one computing device to perform operations for measuring network performance, the operations comprising:

receiving a packet at a first routing device;

inspecting, by the first routing device, the packet to determine that the packet is associated with a specified network service or application;

determining, by the first routing device, that the packet is to be sampled based on the inspecting;

sampling, by the first routing device, the packet by storing first information associated with the packet;

transmitting, by the first routing device, the first information to a measurement server;

transmitting, by the first routing device, the packet towards a destination according to routing information;

before transmitting the packet by the first routing device, adding an additional header to the packet associated with the specified network service or application;

transmitting , by the first routing device, the packet towards a destination according to routing information;

receiving the packet at a second routing device;

determining, at the second routing device, that the packet is to be sampled;

sampling, by the second routing device, the packet by storing second information associated with the packet;

transmitting, by the second routing device, the second information to the measurement server;

before transmitting by the second routing device the second information to the measurement server, removing the additional header associated with the specified network service or application from the packet; and

determining, by the measurement server, a performance measurement based on the first information and second information,

wherein the additional header uniquely identifies the packet associated with the specified network service or application and the determining at the second routing device that the packet is to be sampled comprises determining a value in the additional header.

16. The computer-readable medium of claim 15, wherein the determining at the first and second routing devices that the packet is to be sampled comprises detecting a value in the packet header.

17. The computer-readable medium of claim 16, wherein the detecting a value in the packet header comprises detecting a value in at least one of a source address, a destination address, a source port, a destination port, a packet sequence number, and a protocol version.

18. The computer-readable medium of claim 15, wherein determining at the first and second routing devices that the packet is to be sampled comprises:

(a) performing a hash function on at least a portion of the packet; and

(b) determining a result of the hash function satisfies a condition.

19. The computer-readable medium of claim 15, wherein the first information comprises a timestamp and at least a portion of the packet.

20. The computer-readable medium of claim 19, wherein the at least a portion of the packet comprises at least one of a portion of a header and a portion of a payload.

21. The computer-readable medium of claim 15, wherein the measurement comprises at least one of a latency, a throughput, a jitter, a packet rate, and a frame rate.

22. A system of measuring network performance comprising:

a computing device;

a database;

a configurator module that instructs a first and second routing device to (i) sample packets determined to meet a particular criteria and (ii) transmit, to the computing device, both information identifying the sampled packets and timestamps indicating when the respective first and second routing devices received the sampled packets;

a packet sampler module, implemented on the computing device, that receives information and timestamps, and stores the information and timestamps in the database; and

a traffic analyzer module that (i) queries the database to determine that a first information received from the first routing device a second information received from the second routing device both represent a common packet associated with a specified network service or application based on an additional header, added by the first routing device, to the common packet associated with the specified network service or application, and removed from the common packet by the second routing device before transmitting to the computing device the information identifying the sampled packets and timestamps; and (ii) compares a first and second timestamp to determine a performance measurement, the first and second timestamps having been stored in the database and indicating when the respective first and second routing device received the common packet.