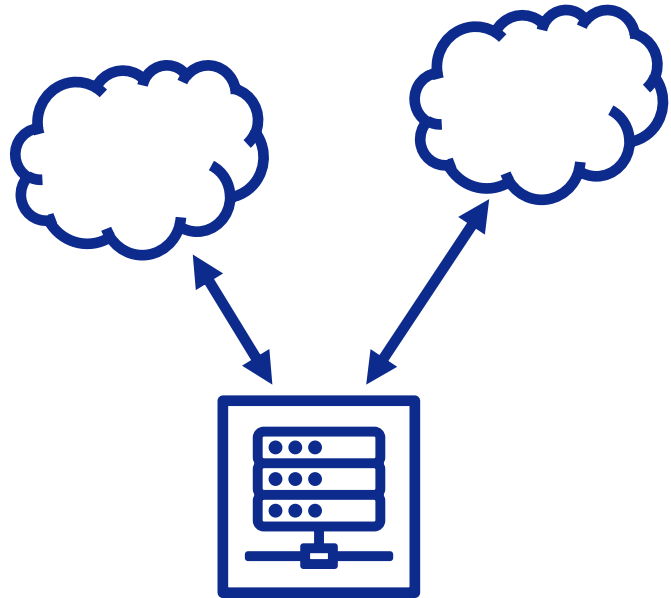# STAC Update:
Fast Data

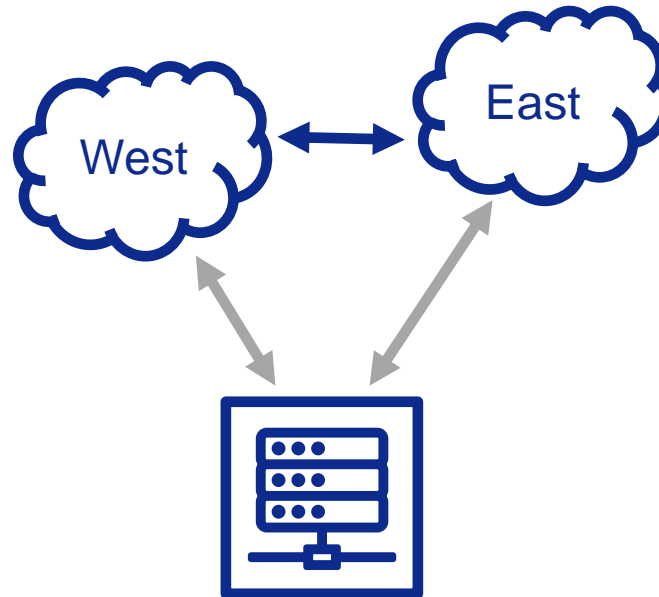**Peter Nabicht**
President, STAC

peter.nabicht@STACresearch.com
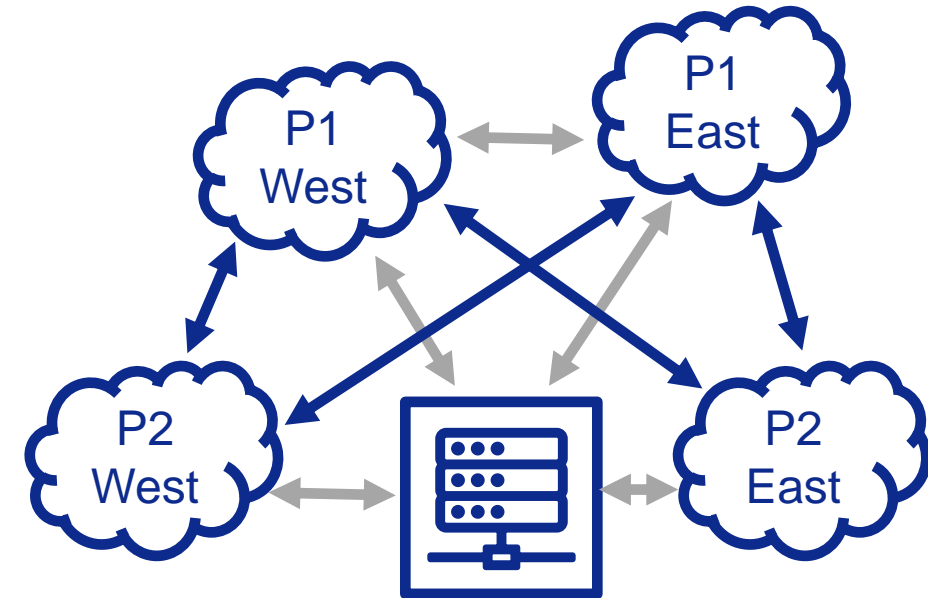
Cloud connectivity measurments

- Working through understanding latency and determinism of networks for

**On-prem
to Cloud**

**Cloud Region
to Cloud Region**

**Cloud Provider
to Cloud Provider**

S T A C ®
SECURITIES TECHNOLOGY ANALYSIS CENTER

Cloud connectivity latencies

- **Recently held first meeting**
  - 5 financial firms plus cloud, network, and service providers

- **Many challenges under discussion, including**
  - Time sync, accurate time stamps, and where in the path to time stamp
  - Hypervisor vs containers vs bare metal
  - Taking measurements over time and over multiple cloud instances

- **Next step is defining a base-case, common scenario to use as a strawman for answering the open issues**

- **If you are interested in helping define specifications…**

council@STACresearch.com

S T A C
SECURITIES TECHNOLOGY ANALYSIS CENTER

STAC-N1

- Measures the performance of a host network stack (server, OS, drivers, host adapter)

- Round-trip software timestamping

- Market data style workload

- Network API to network API
  - No middleware, feed handlers, etc.
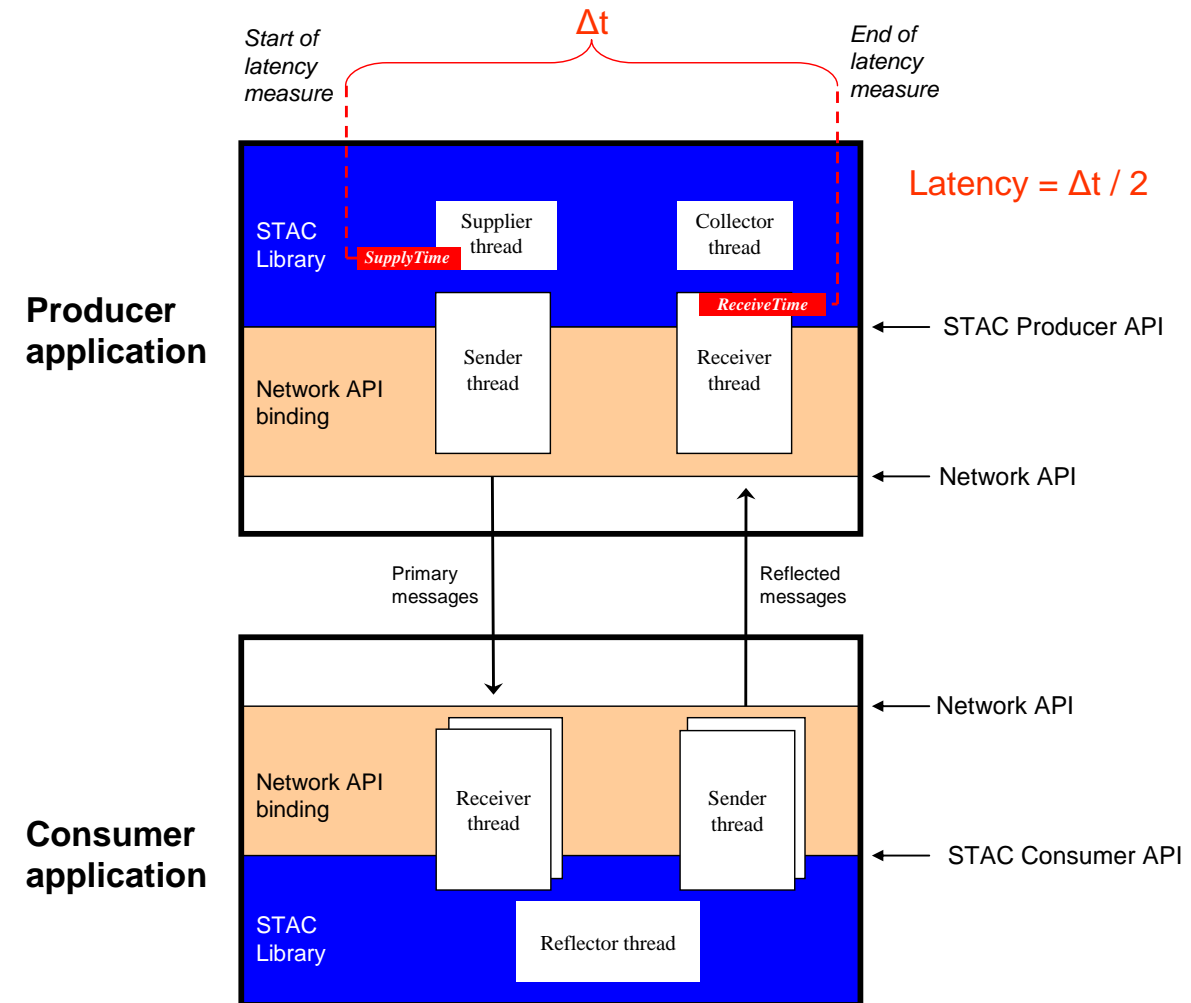
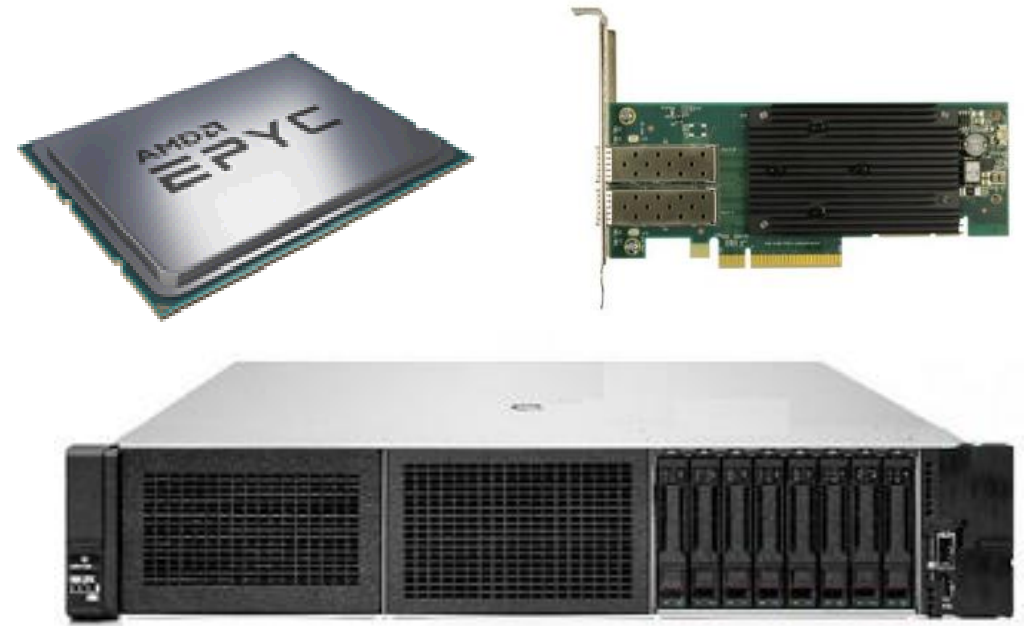# STAC-N1 / UDP / AMD / HPE / XtremeScale / OpenOnload

- First STAC software latency benchmarks with AMD EPYC

- Stack
  - STAC-N1 UDP-TCP binding
  - 2 x HPE ProLiant DL345 Gen10 Plus Servers
    - 1 x 32-core AMD EPYC™ 75F3 @ 2.95Ghz (4 GHz Boost)
    - AMD Xilinx XtremeScale™ X2522-25G-PLUS Adapter
    - Red Hat Enterprise Linux 8.4
  - 25Gb (via cross-over cable, FEC off)

www.STACresearch.com/AMD221001
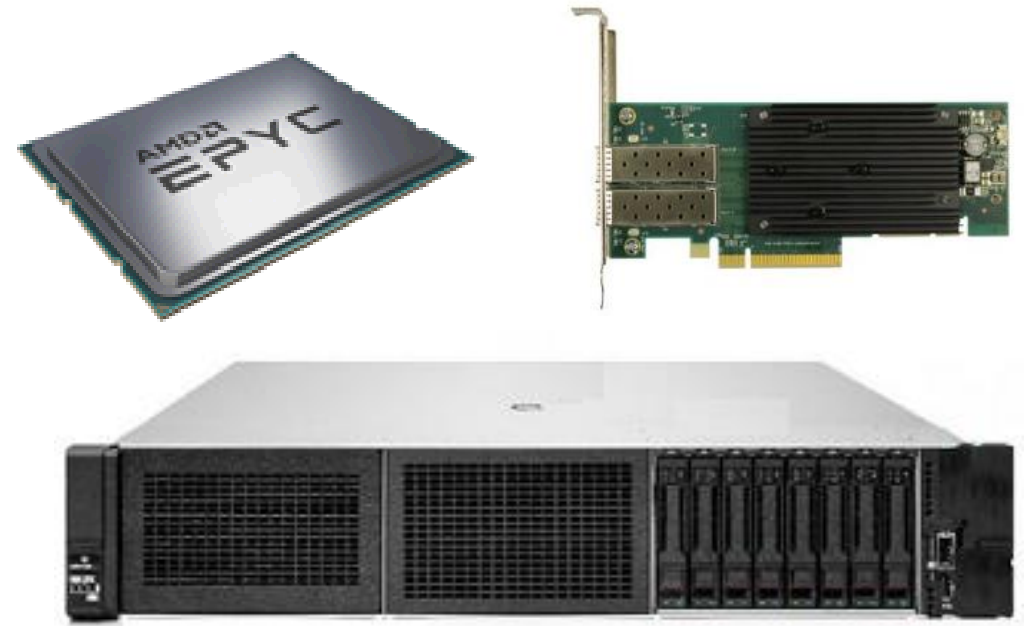
STAC®
SECURITIES TECHNOLOGY ANALYSIS CENTER

Vs. all public results for UDP on non-overclocked servers

- The lowest maximum latency for the base rate of 100k messages per second
  - STAC.N1.β1.PINGPONG.LAT1

- The highest maximum throughput tested of 1.2 million messages per second
  - STAC.N1.β1.PINGPONG.TPUT1

- The lowest 99p and max latency at the highest rate tested. Both:
  - STAC.N1.β1.PINGPONG.LAT2
  - STAC.N1.β1.PINGPONG.LAT3

www.STACresearch.com/AMD221001

S T A C
SECURITIES TECHNOLOGY ANALYSIS CENTER