

CorvilNet

Arista DANZ Integration

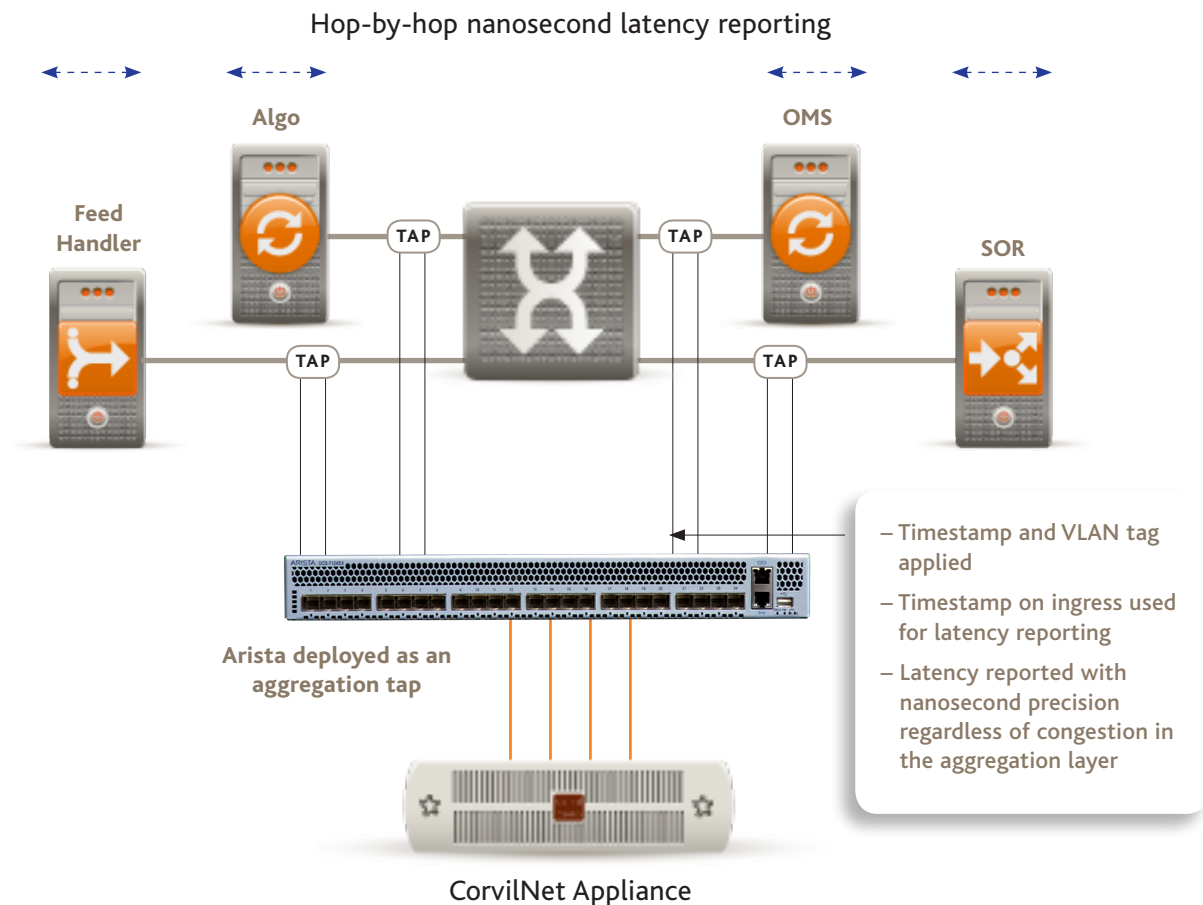
CorvilNet is a performance monitoring system for global Fortune 2000 enterprises. Clients use CorvilNet for precision monitoring, troubleshooting and reporting of their application and network performance. CorvilNet provides unprecedented visibility into short timescale events that contribute to the underlying cause of many end user experience issues. Clients want to gain the visibility provided by CorvilNet across every hop or tier in their LAN, MAN and WAN environments. CorvilNet instrumentation at each hop requires the following characteristics:

- Passive instrumentation that does not introduce additional performance or risk into the production path
- The instrumentation must be “on the wire” such that it represents an independent and complete view of all application activity (versus, for example, a software log)
- A nanosecond timestamp of every packet/message copied from the wire to report latency and other performance measurements at the required level of granularity

The Arista 7150 deployed passively as an aggregation tap delivers all of these characteristics. Leveraging Arista’s port density of 52 10G/1G ports in a 1U chassis, many critical hops can be instrumented with a single Arista switch combined with a single CorvilNet appliance. Each of the ports on the Arista switch supports hardware timestamping of all packets off the wire with nanosecond granularity. The switch can aggregate these packets to a CorvilNet appliance, which uses the timestamps applied at ingress to ensure accurate performance and visibility into all application and network performance issues.

Why CorvilNet + Arista DANZ

- Hardware timestamping on Arista ports lowers the cost of instrumentation and extends the visibility and reach of your CorvilNet deployment with no loss in the reporting fidelity and granularity
- One-way latency, loss and jitter can be reported across LAN, MAN and WAN environments. CorvilNet’s auto-synchronization protocol works with Arista timestamps for environments without time synchronization capabilities
- Where PTP is available, CorvilNet can provide time synchronization packet captures based on Arista timestamps on all ingress ports
- CorvilNet can leverage the Arista LANZ reporting to correlate network congestion across the production environment with application performance issues



CorvilNet Leveraging Arista 7150 Deployed as an Aggregation Tap

Figure 1 shows a typical deployment involving an Arista 7150 deployed to passively instrument the hops in a trading environment and aggregate the traffic to a CorvilNet appliance. CorvilNet uses the timestamps applied at each ingress port on the 7150 to report hop-by-hop latency across the feed handler, trading algorithm, order management system (OMS) and a smart order router (SOR).

Figure 2 shows in detail an example of the Arista 7150 deployed to forward a copy of packets on the SOR ingress and egress ports. First a copy of an order on ingress to the SOR is forwarded to CorvilNet with a timestamp applied. Similarly on egress the corresponding order is also timestamped and forwarded. CorvilNet correlates the ingress order with the egress

Figure 1

**CorvilNet and Arista Timestamping:
Data Center - Arista deployed as an aggregation tap**

order and reports the "wire to wire" latency across the SOR with nanosecond granularity.

This type of deployment can be extended to distributed environments that are commonly encountered across most enterprise environments. CorvilNet can use its patented auto synchronization protocol with Arista timestamps to measure latency, jitter and loss end-to-end across a distributed environment without the need for any external timing sources such as GPS or PTP. Figure 3 shows an Arista 7150 deployed as an aggregation tap in two data centers. The CorvilNet appliance uses the Arista 7150 timestamps for synchronization of the clocks over the CorvilNet peer-to-peer protocol to report one-way latency, jitter and loss across the service provider infrastructure to determine SLA compliance.

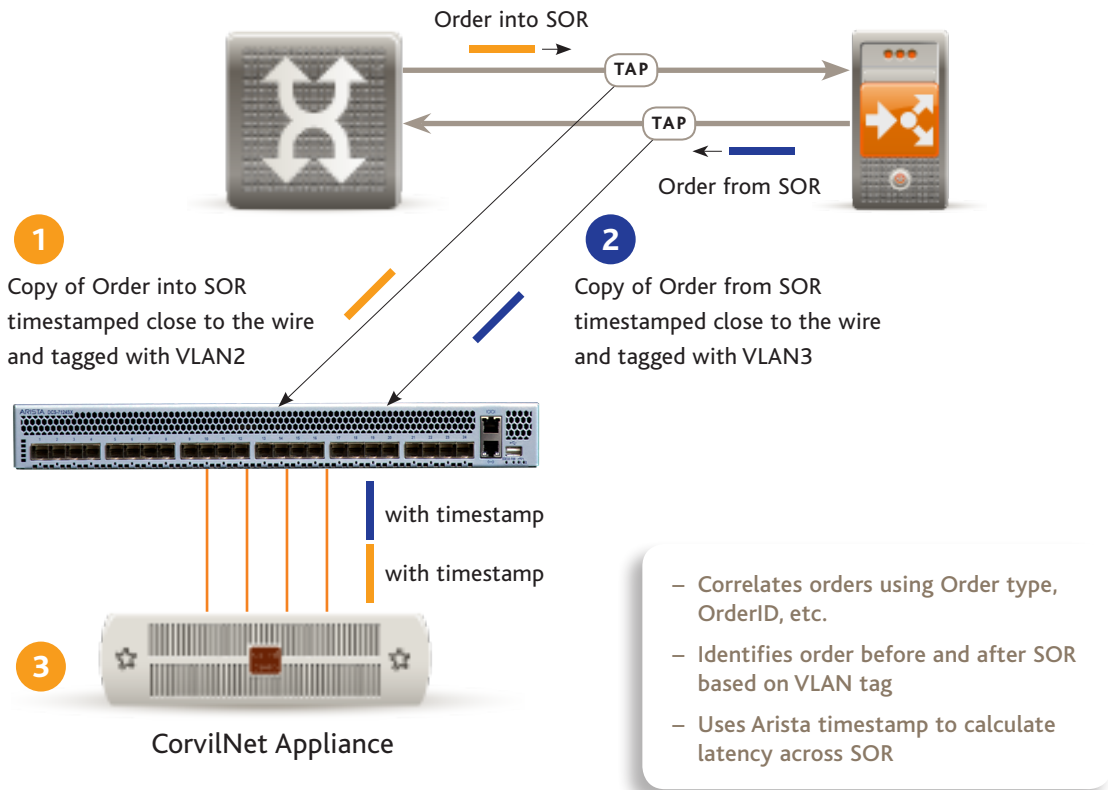
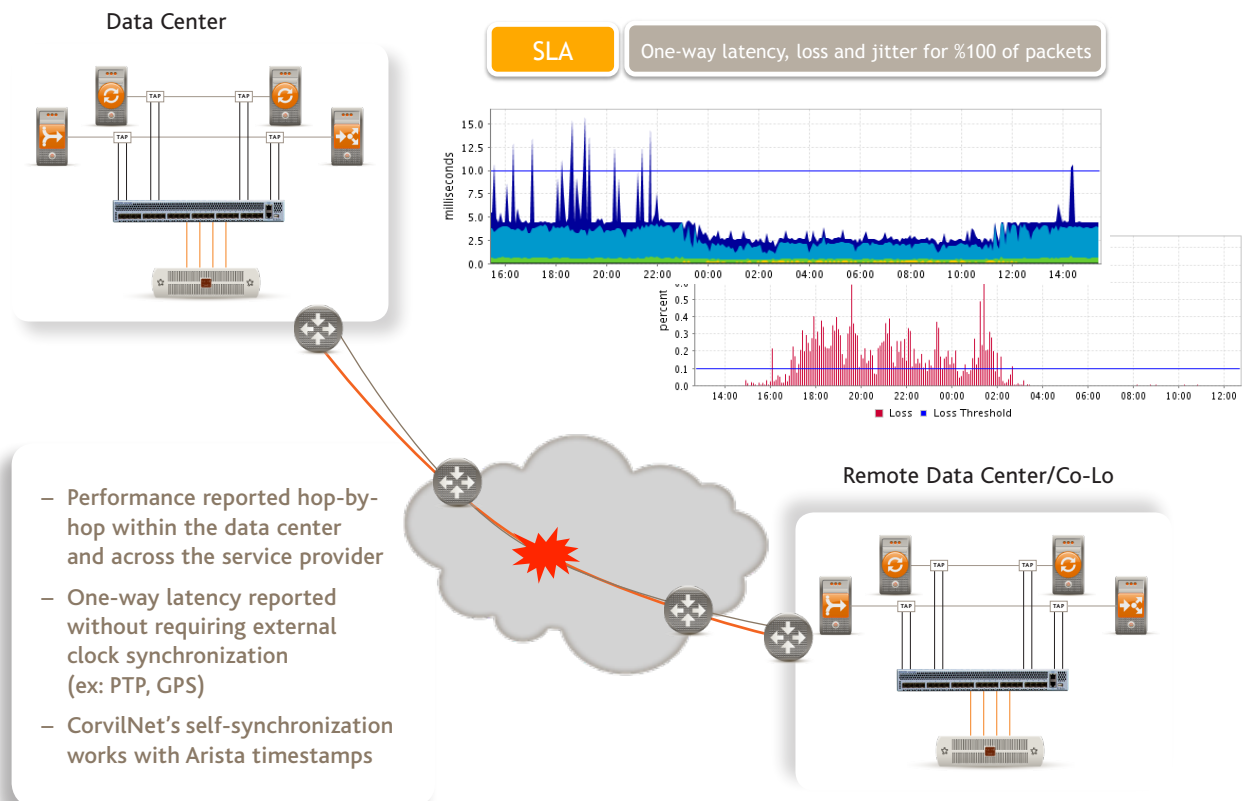


Figure 2 (above)
CorvilNet and Arista Timestamping:
Data Center - Arista deployed as an aggregation tap

Figure 3 (below)
SLA Compliance:
Inter-Datcenter - Arista deployed as an aggregation tap



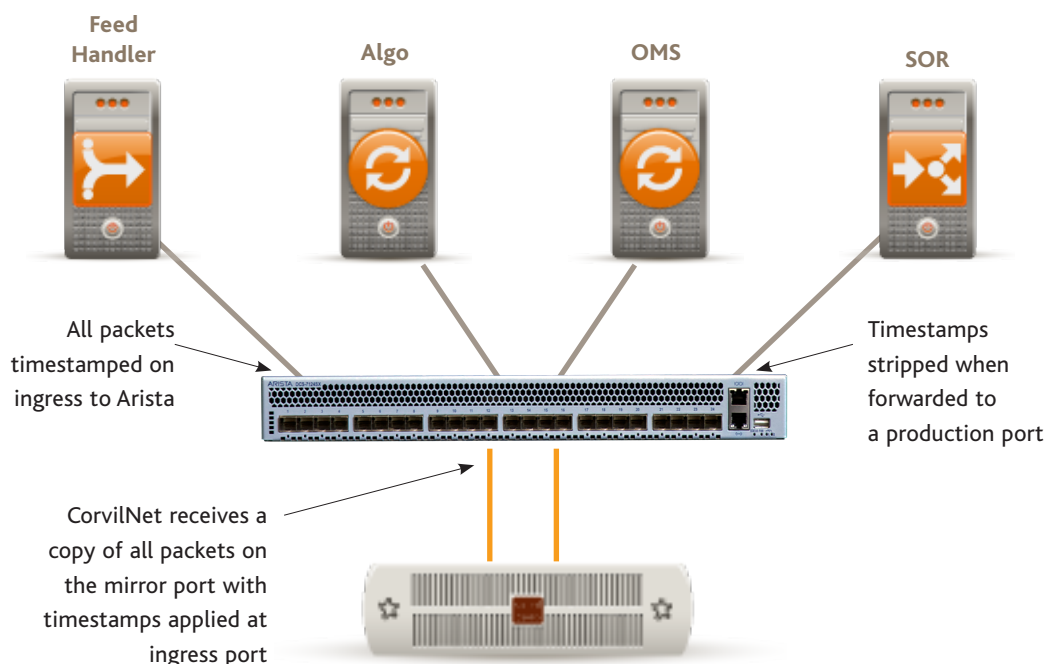
CorvilNet Leveraging Arista 7150 in Production Environments

Alternatively, the Arista 7150 may also be deployed as the production switch. In this deployment example (see figure 4), Arista's ability to timestamp on ingress and send a copy to a mirror port where CorvilNet is connected enables the same hop-by-hop latency and

performance reporting. For packets being forwarded in the production path, the 7150 can strip the timestamp from the packet such that there is no impact on the downstream application.

Figure 4

CorvilNet + Arista Timestamping: Arista deployed in production (independent of timestamping support)

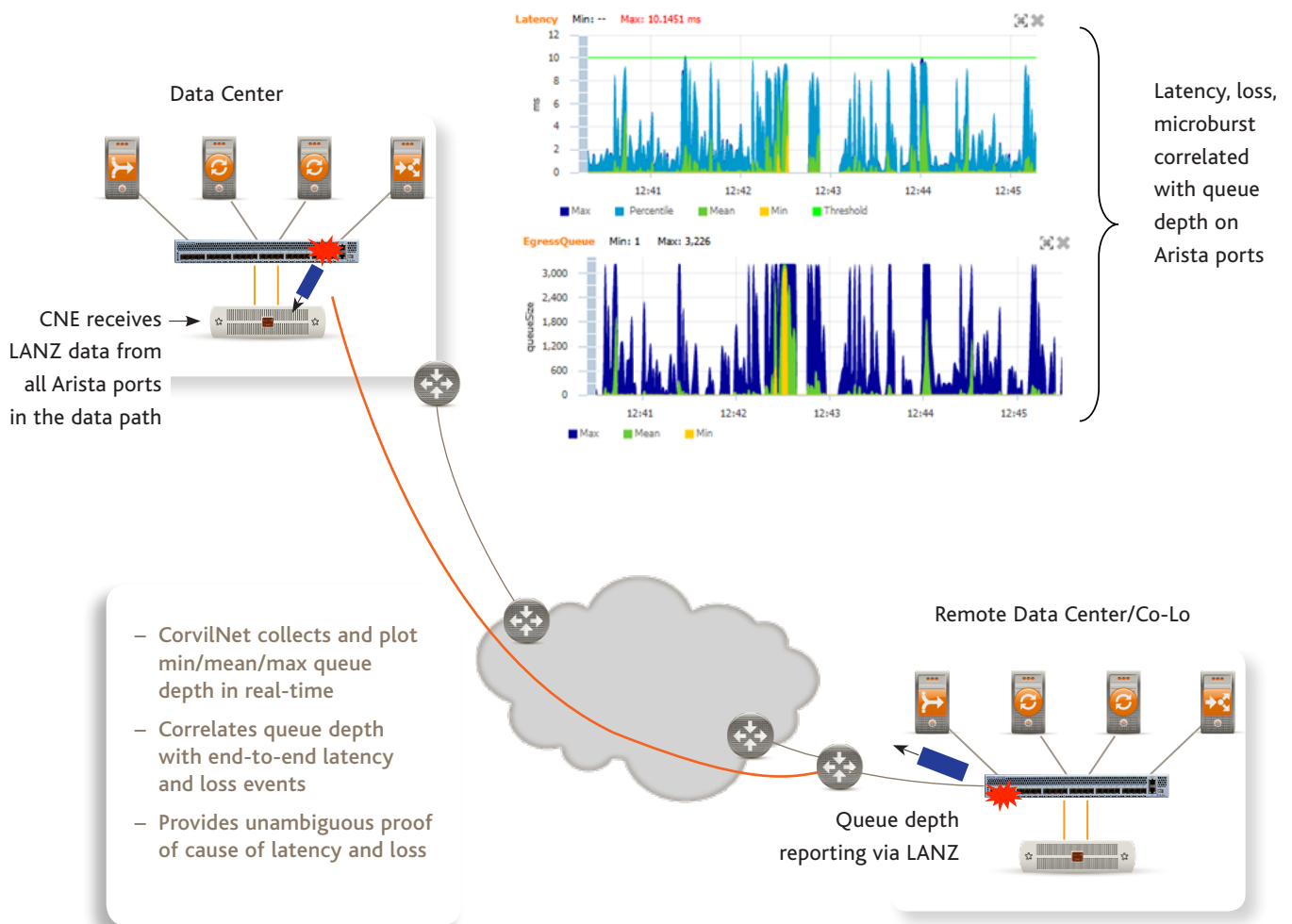


CorvilNet Leveraging Arista LANZ for Isolation Performance Issues

Arista LANZ functionality supports real time microsecond reporting of queuing congestion on the switch. This data can be streamed to CorvilNet to be correlated with application performance and end user experience. For example, CorvilNet reports a drop in application response time alongside the end-to-end latency and loss performance of the application session. The Arista LANZ data

allows a CorvilNet user to quickly resolve the issue by correlating the drop in response time and the latency/loss issues with queuing congestion at the switching layer.

Figure 5 shows Arista switches deployed in a distributed data center environment. CorvilNet has been instrumented to measure end-to-end network latency, jitter and loss and report the application performance. CorvilNet additionally collects the LANZ data to report in real-time a plot of the minimum, mean and maximum queue depth for each Arista port in the



product path. In a single real-time view, CorvilNet enables the user to quickly correlate application performance issues with network latency, jitter and loss and any queuing congestion at an Arista port.

Summary

The cost of instrumenting many components for hop-by-hop application performance reporting can be lowered when the Arista 7150 is deployed as an aggregation tap with a CorvilNet appliance. The Arista 7150 offers up to 52 ports in a 1U chassis all with nanosecond timestamping capabilities. CorvilNet's auto-synchronization protocol also works with Arista

Figure 5

CorvilNet and Arista LNZ: Arista deployed in production (independent of timestamping support)

timestamps. This enables easy measurement of one-way latency, jitter and loss across LAN, MAN and WAN environments without requiring a PTP or GPS deployment.

Finally, CorvilNet correlates application performance with the underlying network infrastructure performance. For example, end user experience issues can be correlated with latency, jitter, loss and congestion at the network layer. CorvilNet leverages Arista's LNZ+ capabilities to report per port congestion at each switch hop in the production path.



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