



APPLICATION NOTE

cPacket Cloud Suite for VMware

Agentless Packet Replication, Packet Capture & Analytics for VMware Environments

cPacket's Cloud Suite for VMware environments enable advanced packet brokering, key network analytics and network observability capabilities in VMware ESXi and NSX-T virtual environments. The Cloud Suite products – including a Packet Broker (cVu-V), Packet Capture (cStor-V), and Control Center (cClear-V) – can be deployed using cPacket OVA images and reside as dedicated Linux VM instances within a customer's vSphere environment.

cPacket delivers a best-in-class solution with the Cloud Suite for VMware. As Cloud Suite products run on dedicated VM instances in vSphere, this eliminates the need to deploy agents, which are offered by different competitors in the space. This agentless solution delivers reliable packet brokering and capturing in vSphere – without the performance degradation and complexities found in agent-based solutions.

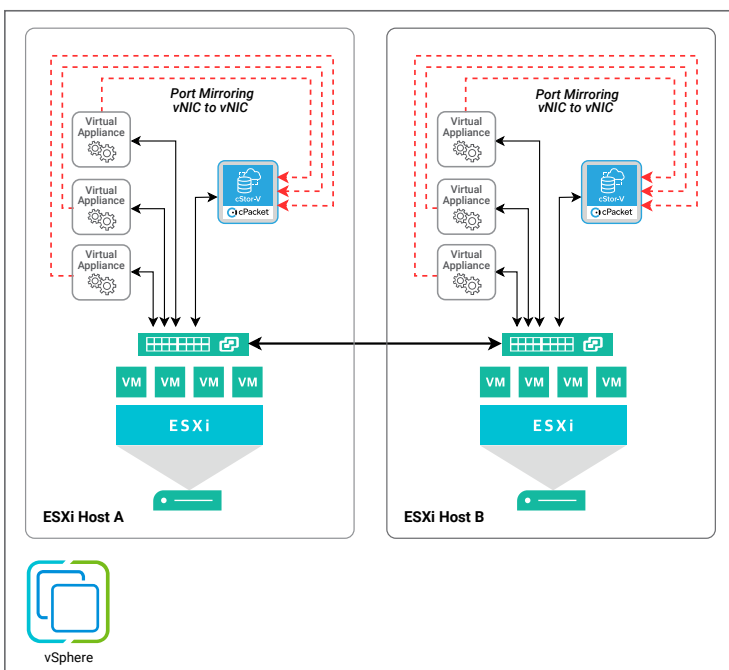
Below we'll explore some of the most common deployment patterns utilized in customer deployments today achieved utilizing various technologies supported by VMware ESXi and NSX-T. We encourage customers to work directly with their sales representative or contact us directly in to ensure we can tailor the best solution around the respective customer network topologies and requirements.

cPacket Cloud Suite and VMware ESXi

Distributed Port Mirroring

Port mirroring is a VMware feature enabling a user to mirror a distributed port's traffic to other distributed ports or specific physical switch ports in a vSphere deployment. It enables users to send a copy of packets from one switch port (source) to another distributed port (destination). Users can send all packets or specific packets through the mirror session to the destination vNIC via configuration changes.

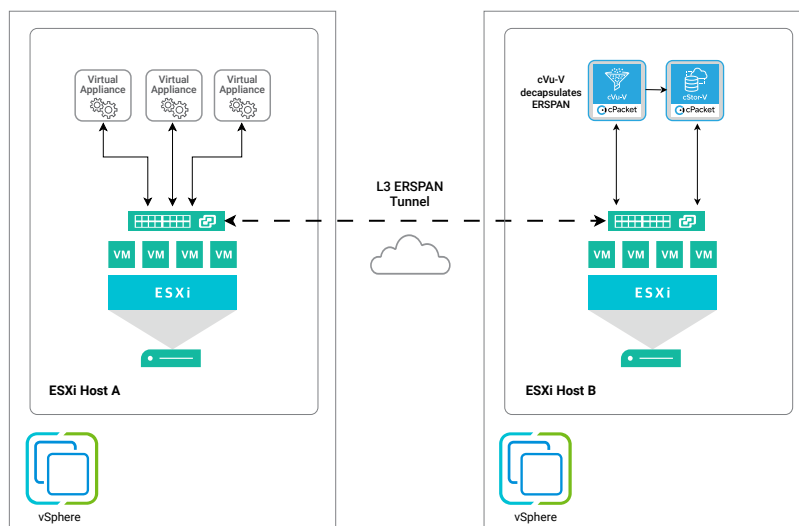
The advantage of this approach is the general simplicity of deploying dedicated cVu-V and other cPacket cloud appliances to run on the host for observability purposes. It also provides consistent performance given that the communication between NICs remains on the local network. While this solution provides a straightforward solution for packet replication, it may not be ideal in all deployment scenarios. As can be seen in the example above, each ESXi host requires the cVu-V packet broker to be deployed on the same vSphere Distributed Switch (vDS) where packet replication is desired. For customers with large numbers of ESXi hosts for which they want to obtain observability, this could require an extensive deployment of virtual packet brokers across vSphere environment(s).



Encapsulated Remote Mirroring

Encapsulated Remote Mirroring (L3) Source enables a user to mirror packets from one or more distributed ports to a remote IP address via Layer 3 IP tunneling. The cVu-V virtual packet broker is capable of terminating ERSPAN tunnels established between a vDS switch and a cVu-V node. Like with Distributed Port Mirroring, users can choose to send all packets or specific packets through the tunnel via configuration changes.

This solution provides flexibility and potentially a more scalable solution by relying on Layer 3 communication to facilitate the passive acquisition of packets using the cVu-V virtual packet broker. It also doesn't require cPacket cloud appliances to be deployed within every ESXi host like with Distributed Port Mirroring. It is worth noting that underlying ERSPAN infrastructure to support this tunneled mirroring would be required. Overall throughput and performance capabilities for Encapsulated Remote Mirroring are largely dictated by the supporting ERSPAN infrastructure, allowing customers to scale their monitoring footprint along with their infrastructure needs and requirements.



Other ESXi Supported Technologies

Lastly, cPacket's Cloud Suite supports two additional VMware technologies – Remote Mirroring Source and Remote Mirroring Destination – which facilitate the capture and transmission of specific VLAN packets to a designated vNIC, both of which rely on VLAN segmentation as opposed to directly filtering traffic on the vNIC like the two options mentioned above. To learn more about Remote Mirroring Sources and Remote Mirroring Destinations visit VMware's [website](#) for additional details.

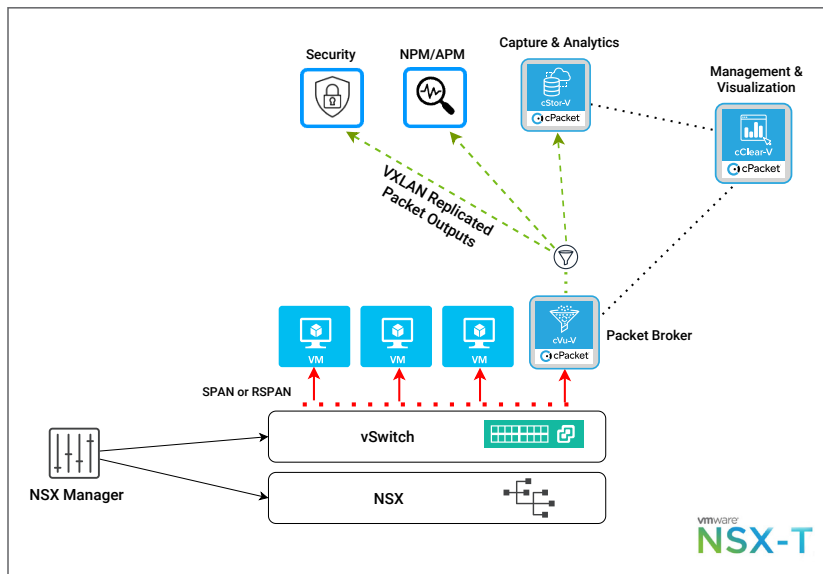
cPacket Cloud Suite and VMware NSX-T

SPAN or RSPAN to cVu-V Packet Broker

cPacket's Cloud Suite in NSX-T enables the same packet replication, capture, and visualization capabilities as ESXi. However, the method to tap into the traffic varies, where the Packet Broker (cVu-V) can receive packets from Local SPAN, Remote SPAN (RSPAN), L3 RSPAN, and Logical SPAN VMware capabilities. A table summarizing the different methods is provided below.

Type	Additional Info
Local SPAN NSX-T Manager	Validated for both physical NIC > vNIC and vNIC > vNIC. The source and destination need to be on the same hypervisor with this method.
RSPAN NSX-T Manager	RSPAN source session requires a hardware TAP. The source needs to reside on the selected hypervisor.
Remote L3 SPAN NSX-T Manager	Validated from a vNIC > IP via RSPAN. Source and destination do not need to be on the same hypervisor.
Logical SPAN NSX-T Manager	Validated from vNIC > vNIC. Source and destination do not need to be on the same hypervisor.

Each method has its own pros and cons and the best method will depend on a customers' unique NSX-T VMware environment. The cPacket team is glad to assist with an analysis of which option would work best depending on customer requirements and use cases. For more information on the different NSX-T mirroring options, see the [NSX-T Administration Guide](#).



VXLAN Replication to cStor-V for Packet Capture & Analytics

Beyond simply acquiring and brokering packets, cPacket's Packet Capture solution (cStor-V) can serve as a downstream target for the Packet Broker (cVu-V), where packets are encapsulated in VXLAN. This enables customers to continuously capture packets traversing their NSX-T environment. cStor-V can be configured with several attached disks to support a variety of storage and retention requirements. In addition to packet capture, cStor-V also captures key network analytics – such as jitter, latency, retransmissions, top talkers – and also enables certain security use cases such as DDoS and exfiltration detection capabilities. All of these analytics are visualized in cPacket's Control Center (cClear-V) via an onboard Grafana instance, which comes preloaded with an assortment of actionable dashboards.

Conclusion

The cPacket Cloud Suite offers so much more than just reliable packet delivery. Continuous packet captures enabled by the cStor-V cloud packet capture node enable extended retention of packet data for security and compliance-focused environments. On-demand packet captures enhance forensic investigation capabilities and incident response. Single pane of glass management using cClear-V provides management and observability into your VMware environment and offers powerful analytics capabilities, including the most accurate network traffic KPIs, advanced visualizations and reports, unified PCAP retrieval and more.

Lastly, the benefits of an agentless architecture remains a key differentiator for cPacket when evaluating our Cloud Suite against the competition. Maintaining agents becomes very challenging in large deployments, where agents can be deployed in the thousands and require extensive operational investment. Avoid adding another overlay component to your cloud environment and maximize the performance of your cloud and virtual workloads with an agentless deployment.

Find out more

Additional details can be found on the [cPacket website](#) and in our [cPacket Cloud Suite datasheet](#).



About cPacket

cPacket de-risks IT I/O through network-aware service and security assurance across hybrid and multi-cloud environments. Our AI/ops-ready Intelligent Observability Platform provides single-pane-of-glass analytics and deep network visibility required for complex IT environments enabling Fortune 500 organizations around the world to keep their business running. cPacket solutions are fully reliable, tightly integrated, and consistently simple. Our cutting-edge technology enables network, application, and security teams to proactively identify issues before negatively impacting the business. The result: increased service agility, enhanced experience assurance, and faster transactional velocity. Learn more at cpacket.com.