GARLAND TECHNOLOGY
See every bit, byte, and packet.

OVERVIEW

The Differences Between

TAP vs SPAN

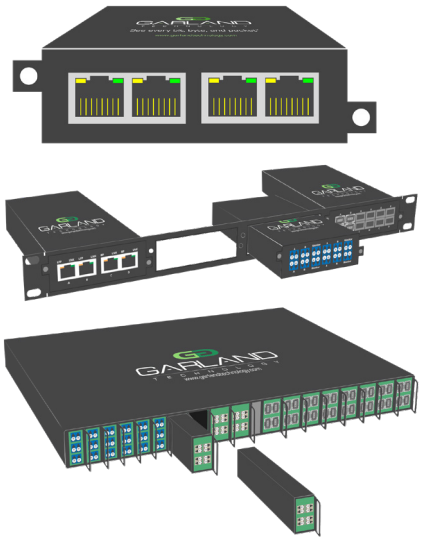
Creating access points for data capture in your network is critical. As regulations and monitoring best practices have become a network standard, getting access to that data is sometimes overlooked.

Network test access points (TAP) and port mirroring (SPAN) are the two most common access methods of packet capture for the use of analysis in data monitoring. There are significant differences which affect the integrity of the traffic that is being analyzed, as well as the performance of the network traffic. Network TAPs are the clear choice when it comes to data capture, versatility, and ease of use, but let's review the key differences.

Network Test Access Points (TAP)

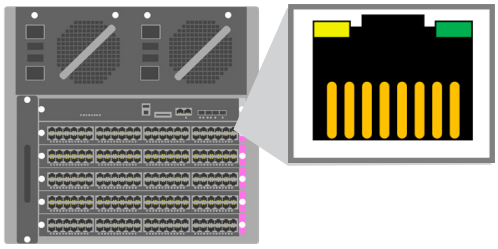
Network TAPs are a purpose-built hardware tool that allows you to access and monitor your network. TAPs transmit both the send and receive data streams simultaneously on separate dedicated channels, ensuring all data arrives at the monitoring or security device in real time.

- Network TAPs make a 100% full duplex copy of network traffic without altering the data.
- Network TAPs are scalable and can either provide a single copy, multiple copies (regeneration), or consolidate traffic (aggregation) to maximize the production of your monitoring tools.
- Network TAPs are either 100% passive [Fiber TAPs] or utilize failsafe technology, that allows you to manage your monitoring and security tools without being a point of failure in the network.
- Recommended for lawful intercept. A TAP provides forensically sound evidence, ensuring the data captured is 100% accurate with time reference.



Switch Port Analyzer (SPAN)

Port mirroring also known as SPAN (switched Port Analyzer), is a designated port on a network switch that is programmed to mirror, or send a copy, of all network packets seen on a specific port (or an entire VLAN), where the packets can be analyzed.



- Provides access to packets for monitoring
- SPAN sessions do not interfere with the normal operation of the switch
- Configurable from any system connected to the switch
- Disallows bidirectional traffic on that port to protect against back flow of traffic into the network

TAPs

- Ensure 100% of network traffic is being sent to critical network tools
- Can send traffic to multiple tools at once
- Eliminates a single point of failure (SPOF)
- Plug and play; easy configure and deploy
- Enables faster troubleshooting of network issues
- TAPs do not alter the time relationships of frames
- Secure. TAPs do not have a IP address, or MAC address and cannot be hacked
- Bypass TAPs reduce maintenance impact on inline security appliances

VS

SPANs

- Takes up ports on the switch, which can be of high value
- SPAN traffic has a low priority on switch
- Switch will drop SPAN packets if heavily utilized or oversubscribed
- Can duplicate packets if multiple VLANs are used
- Will not pass corrupt packets or errors
- Using SPAN/Mirror ports can change the timing of the frame interactions, altering response times
- Admin/programming costs for SPAN gets progresively more time intensive and costly

> *"The switch treats SPAN data with a lower priority than to-port data...the best strategy is to make decisions based on the traffic levels of the configuration, and when in doubt to use the SPAN port only for relatively low-throughput situations."* - Cisco

Access Best Practices

Creating a foundation of visibility is key for network management. Once deployed, a network TAP allows you to access that point in your network at any time. Many organizations have adopted the stance of tapping all critical links for easy access during troubleshooting or inevitable security breaches.

Spanning (mirroring) technology is still viable for some limited situations but as one migrates from 10Mb to Gigabit to 40 Gigabit networks, and with the demands of seeing all frames for data security and policy compliance, deep packet capture, and Lawful Intercept, one must use purpose-built TAP technology to fulfill the demands of today's complex analysis and monitoring technologies.

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