

# Passive vs. Active Measurement: A Comprehensive Guide to Network Monitoring Techniques

Network monitoring is a critical task for any organization that relies on its network to conduct business. By monitoring your network, you can identify and resolve problems before they impact your users. There are two main types of network monitoring techniques: passive measurement and active measurement.



## Passive and Active Measurement: 22nd International Conference, PAM 2024, Virtual Event, March 29 – April 1, 2024, Proceedings (Lecture Notes in Computer Science Book 12671) by Christoffer Petersen

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## Passive Measurement

Passive measurement involves monitoring network traffic without interacting with it. This is typically done using a network tap or span port, which allows you to copy traffic from the network without affecting it.

Passive measurement tools can monitor a variety of metrics, including:

- Traffic volume
- Packet size distribution
- Protocol distribution
- Application usage
- Network latency
- Network jitter

Passive measurement is a non-intrusive way to monitor your network, and it does not require any changes to your network infrastructure. However, passive measurement can only provide limited information about your network. For example, passive measurement cannot tell you whether a particular application is performing poorly, or whether a particular user is experiencing problems with their network connection.

## **Active Measurement**

Active measurement involves sending test traffic to your network and measuring the response. This is typically done using a network probe, which is a device that sends test traffic to specific destinations on your network. Active measurement tools can measure a variety of metrics, including:

- Latency
- Jitter
- Packet loss
- Bandwidth

- Application performance

Active measurement is a more intrusive way to monitor your network than passive measurement, and it requires you to make changes to your network infrastructure. However, active measurement can provide more detailed information about your network than passive measurement. For example, active measurement can tell you whether a particular application is performing poorly, or whether a particular user is experiencing problems with their network connection.

## **Choosing the Right Measurement Technique**

The best network monitoring technique for your organization depends on your specific needs. If you need to monitor a large amount of traffic without impacting your network, then passive measurement is a good option. If you need to monitor specific applications or users, then active measurement is a better choice.

In many cases, it is beneficial to use both passive and active measurement techniques. Passive measurement can provide a general overview of your network traffic, while active measurement can provide more detailed information about specific applications or users.

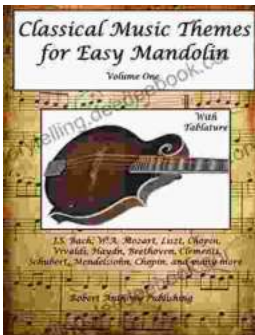
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