

Accurately Evaluating Communication Environments, Including Cloud Latency and Jitter Measurements, Using Virtual Testers

Anritsu has launched a software-based network testing solution for use in AWS cloud environments. The solution has been available since October 2025. The solution can accurately evaluate network communication quality in both physical and virtual environments to support mission-critical applications in industries such as healthcare, finance, and mobility. Anritsu also plans to make the solution compatible with other major cloud platforms and data centers.

"As services increasingly rely on clouds, there is a growing need to precisely evaluate overall network communication quality, including that of virtualized environments. Anritsu is addressing this need by offering the key functions of our hardware-based network testers as cloud-based software solutions. We aim to make these network test solutions more accessible to a wider range of enterprise customers, including those in the data center operators and telecommunications carriers."

Toshiro Miyazaki, manager of the Solution Marketing Department at Anritsu's Service Infrastructure Solutions Division, introduces Anritsu's software-based network testing solution, Virtual Network Master (VNM) for AWS MX109030PC.

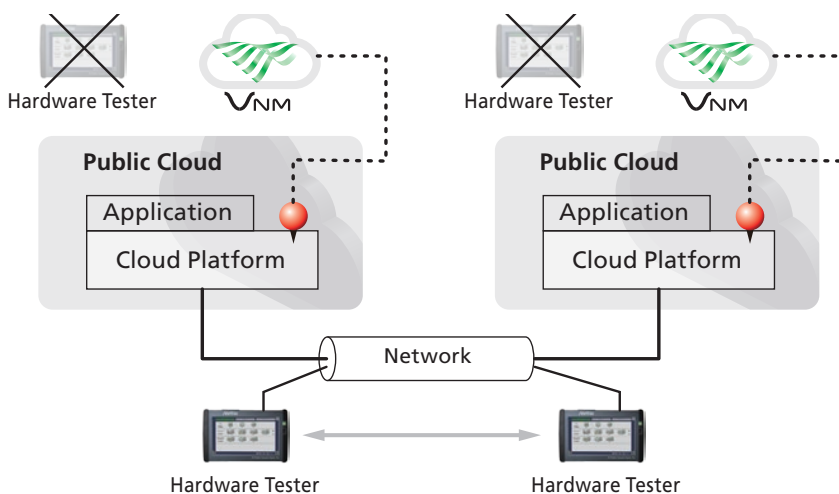
Anritsu, in addition to its software-based VNM, also offers handheld hardware testers: the Network Master Pro MT1000A (up to 100 Gbps) and MT1040A (up to 400 Gbps). These hardware testers are widely used by telecommunications carriers and network equipment vendors to

evaluate network communication quality in mobile and core/metro networks. These hardware testers excel at generating test traffic and accurately measuring communication quality, such as throughput, latency, jitter, and packet loss rate, when connected to both ends of the network.

However, as networks become increasingly virtualized, it is becoming more difficult to position hardware testers. As a result, there is a growing need for software-based solutions that can be installed flexibly. Therefore, Anritsu has developed a software-based VNM. VNM can precisely assess network communication quality even in virtual and cloud environments, offering customers a scalable and efficient alternative to traditional hardware-based testing.

Takaya Abe, the lead developer of VNM, explains: "We have implemented the essential MT1000A and MT1040A network testing functions, including those needed for cloud environments, directly into VNM, our AWS-based application."

Figure 1 Placing Measurement Points on Communication Paths within a Virtual Environment.



Manager Toshiro Miyazaki (left) and Assistant Manager Takaya Abe, Solution Marketing Department, Service Infrastructure Solutions Division, Test & Measurement Company, Anritsu

Using VNM, customers can configure measurement points within virtual environments. This allows them to accurately evaluate their network communication quality, including that of virtualized environments, by integrating VNM with MT1000A and MT1040A (see Figure 1). Furthermore, VNM enables customers to evaluate the quality of communication between applications hosted in separate AWS data centers by installing VNM at both locations. VNM also offers an intuitive web-based interface, allowing customers to operate and configure the system remotely easily.

One-Way Latency Measurement Stable Operation Using Dedicated Cores

Open-source network performance testing tools are commonly used to evaluate communication quality, including that of cloud environments. However, these common tools have limitations in terms of their accuracy and advanced capabilities. For example, open-source common tools such as Ping only measure round-trip latency, have limited interval settings, and make it difficult to detect short-term latency fluctuations.

On the other hand, VNM can measure one-way latency, which is one key advantage.

A VNM installed in a cloud environment synchronizes with an NTP server, enabling the transmission of measurement frames containing highly accurate time information. By analyzing these measurement frames with the MT1000A/MT1040A, customers can obtain precise and high-frequency downlink latency measurements. (See Figure 2).

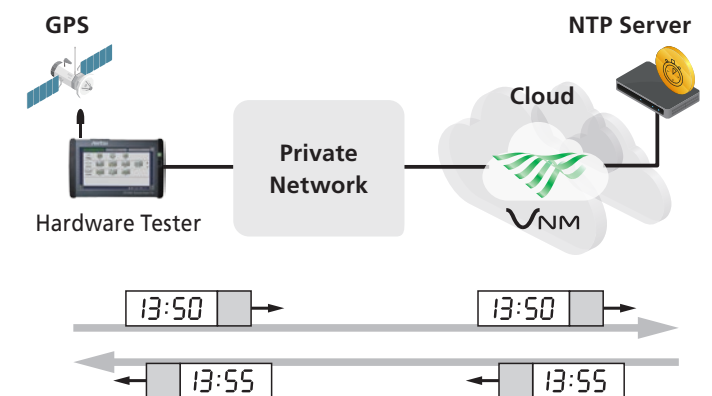
Even for uplink communication to the cloud, VNM in the cloud can accurately measure latency. By using the GPS time information appended to the measurement frames received from the MT1000A/MT1040A, which supports GPS time synchronization, VNM delivers accurate latency data.

VNM can provide comprehensive one-way latency measurement and flexible testing intervals.

Furthermore, VNM allows customers to configure a network load and frame size to match specific application requirements, ensuring that tests reflect real-world scenarios. While open-source common tools such as iPerf can also perform similar tests, VNM is unique in that it allocates dedicated CPU cores for transmission and reception.

Anritsu is committed to enhancing VNM's compatibility, with plans to extend support beyond AWS to include Google Cloud, Microsoft Azure, and other leading cloud services. Looking ahead, Anritsu intends to release a KVM-based version that can be deployed directly on virtual servers in data centers by 2026, according to Abe.

Figure 2 Achieving One-way Latency Measurement Through Time Synchronization Using NTP.



Expanding Measurement Needs with the Growth of Virtualization Applications in Healthcare, Finance, and Mobility

How will VNM be utilized?

Anritsu anticipates that companies running applications on AWS servers will emerge as a key market for VNM. The solution is expected to be eagerly selected by industries where reliable network quality is essential, such as healthcare, finance, and manufacturing.

Abe commented, "While cloud services are typically provided on a best-effort basis, we are seeing significant demand for benchmarks that demonstrate the level of reliability of a service used for mission-critical applications."

For example, the IT department of a healthcare company, which uses cloud servers across multiple regions for system redundancy, commented: "Visualizing communication quality with VNM could help us assess the reliability of backup paths and support switchover decisions."

The testing solution will also be invaluable to the mobility (automotive) industry, where it is necessary to evaluate the end-to-end communication quality across 5G networks and the cloud infrastructure. This capability supports the optimization of system design, helping manufacturers meet the stringent safety and performance requirements of autonomous driving. In addition, the solution enables the verification of whether existing cloud cores, currently deployed with private 5G networks, can be seamlessly integrated into the target cloud environment.

As virtualization accelerates the demand for advanced network measurement, VNM offers a software-based testing solution tailored to the evolving needs of businesses. Companies leveraging cloud services, system integrators, the cloud service providers of telecommunications carriers, and data center operators can all benefit from VNM's ability to deliver precise, scalable, and cost-effective network measurements, helping them optimize performance and ensure reliable service delivery.

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Figure 3 Enabling Communication Quality Evaluation Between Cloud Servers.

