Anritsu Advancing beyond

Virtual Network Master

MX109030PC

Virtual Network Master for AWS

MX109031PC

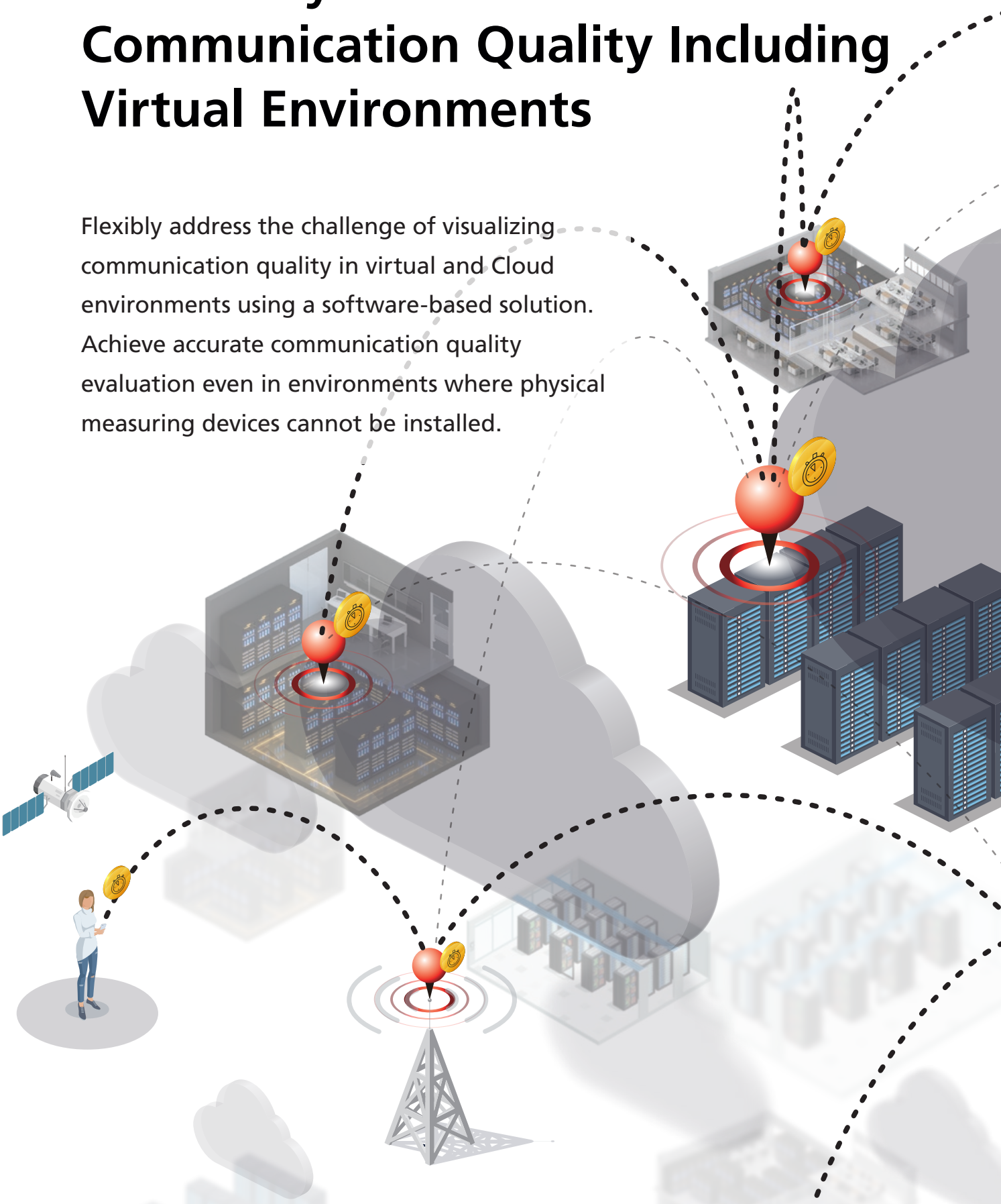
Virtual Network Master for KVM

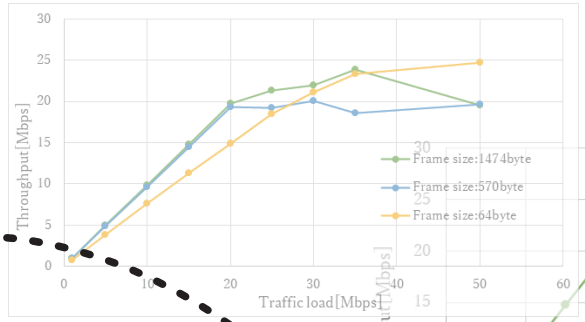
Virtual Network Master

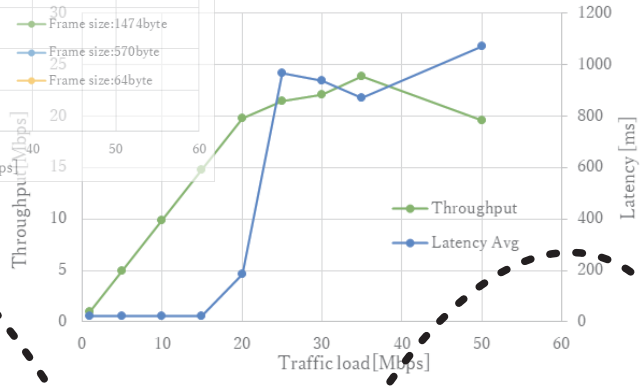
| Throughput | Latency | Frame Loss Rate | Jitter | ...

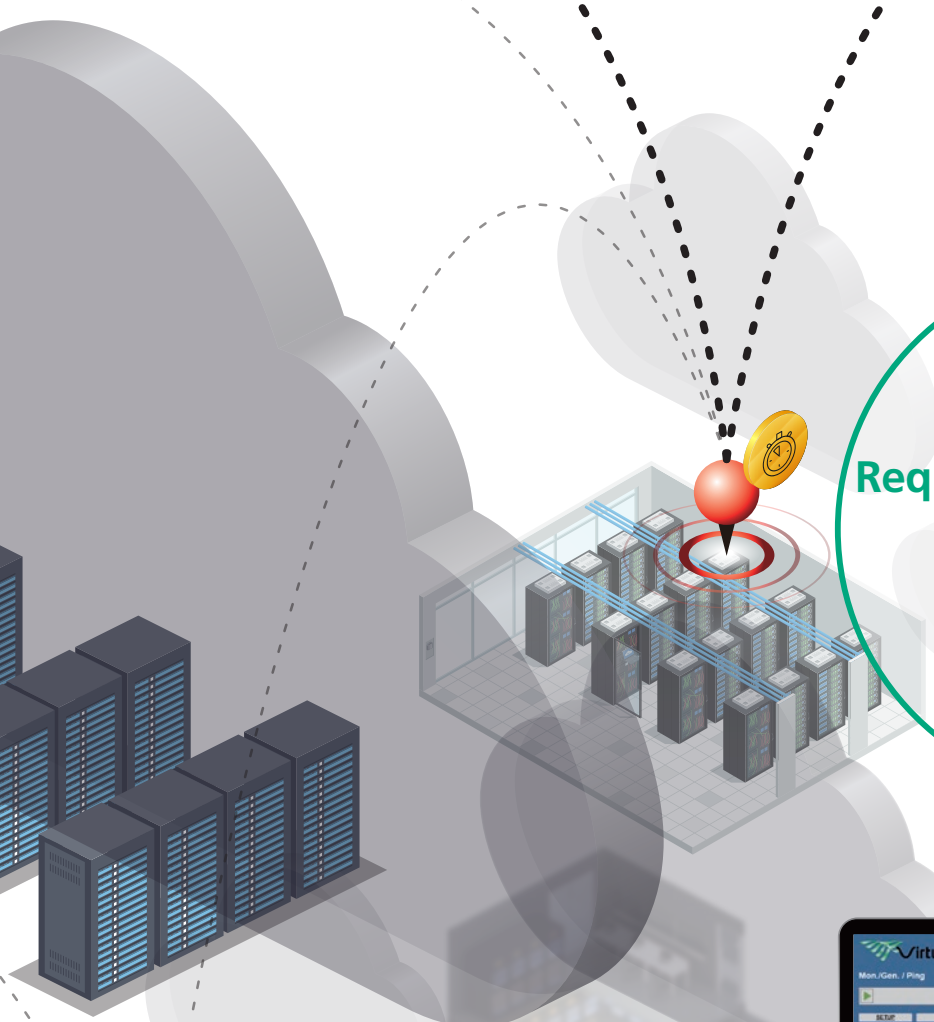
Accurately Evaluate Network Communication Quality Including Virtual Environments

Flexibly address the challenge of visualizing communication quality in virtual and Cloud environments using a software-based solution. Achieve accurate communication quality evaluation even in environments where physical measuring devices cannot be installed.





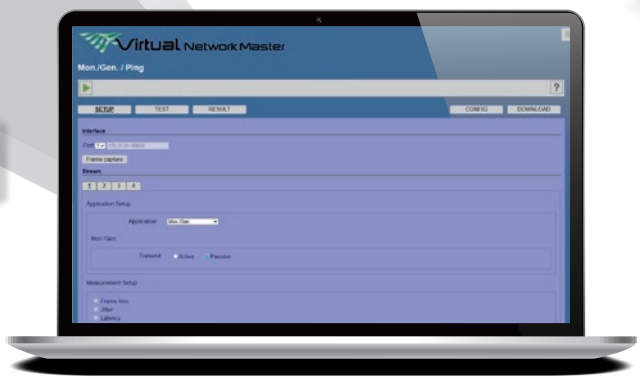




For Evaluating Cloud Services Requiring High-Precision Measurements

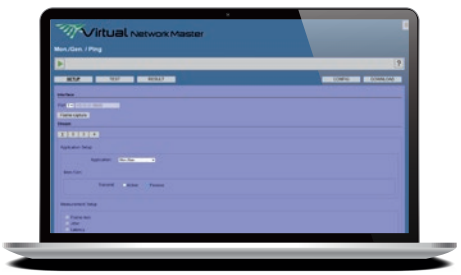
Cloud

Data Center



Virtual Network Master

Communication Quality Measurement in Cloud/Virtual Environments



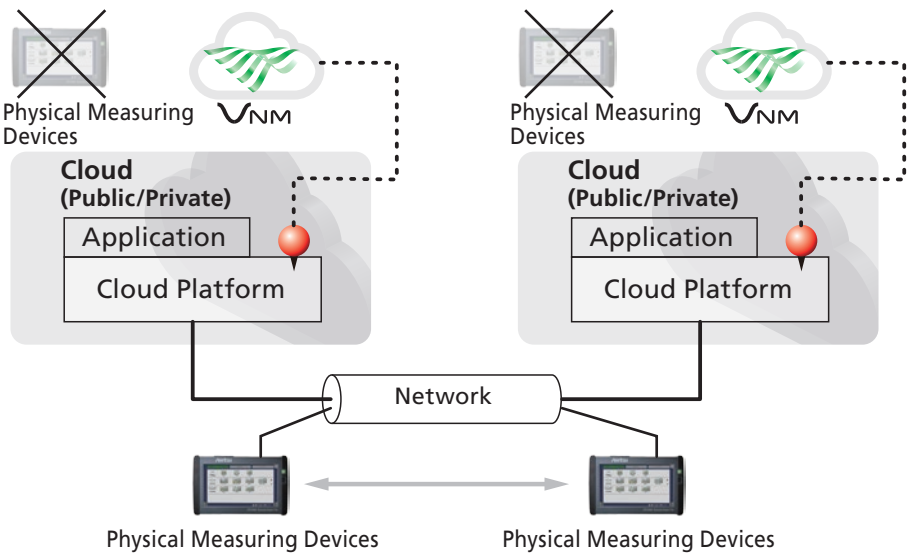
Virtual Network Master

With the growth of Cloud computing and virtualization, communication quality between applications is significantly affected by the virtual layer, making measurement that includes virtual environments increasingly important. The Virtual Network Master is the ideal communication quality test solution for Cloud/virtual environments.

1 Accurately Measure Communication Quality, Including Cloud/Virtual Environments

Since it is difficult to install physical measuring devices in Cloud/virtual environments, it is challenging to determine the communication quality between applications in virtual environments with the same high precision as measurements using physical measuring devices.

The Virtual Network Master converts the functions of physical test devices into software and operates on Cloud platforms, making it possible to set measurement points on communication paths within virtual environments.

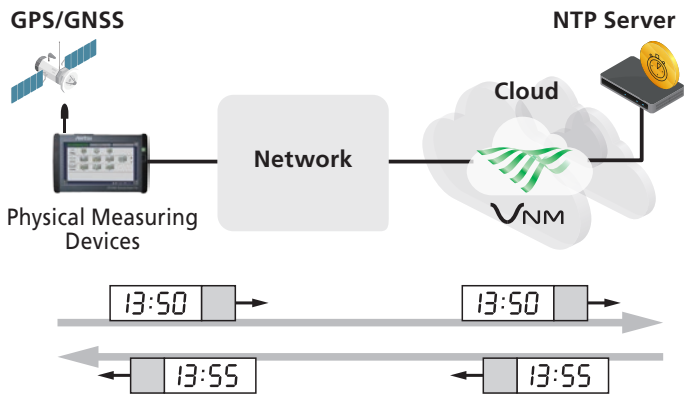


Generating stable traffic and achieving high-precision latency measurement support accurate evaluation of end-to-end communication quality including Cloud/virtual environments.

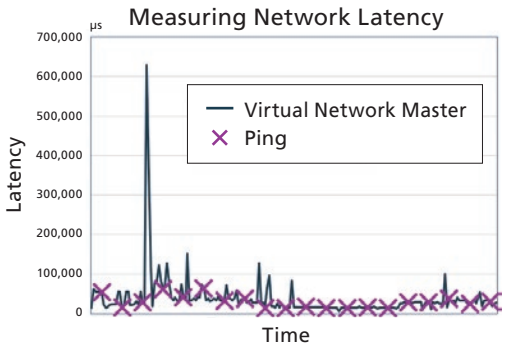
2 Accurate Measurement Tailored to Applications

The Virtual Network Master evaluates communication quality including virtual environments by active testing using similar traffic to applications in virtual environments. Applications such as video transmission where traffic load differs between uplink and downlink require measurement with different parameters in each direction.
The Virtual Network Master measures latency and frame loss individually for uplink/downlink, offering detailed quality evaluation that matches actual application behavior.

One-way Latency Measurement by Synchronizing Time Using NTP

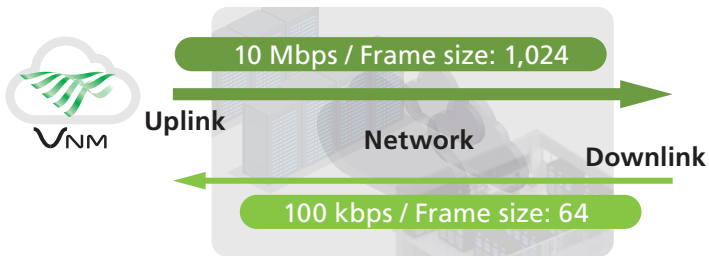


One-way latency measurement is possible by synchronizing time with an NTP server and adding time information to all measurement frames.



Recording the latency time of each frame and aggregating maximum, minimum, and average values at one-second intervals visualizes network latency fluctuations accurately and even instantaneous latency peaks can be captured with high precision.

Active Testing With Line Load and Frame Size Tailored to Applications



UDP packets are generated with individually specified line load and frame size for uplink/downlink for individual measurement of asymmetric uplink/downlink traffic.

Open-source network performance measurement tools are used commonly for general communication-quality evaluation, but the Virtual Network Master supports one-way latency measurement and allocates dedicated cores for transmission and reception, supporting stable traffic generation and measurement without effects from other applications.
The quality of communications including virtual environments is evaluated accurately by using active testing with similar traffic to applications in virtual environments.

Product Introduction

Virtual Network Master is measurement application software that runs in a cloud or virtual environment.
When connected to Network Master Pro MT1000A/MT1040A or another Virtual Network Master, this application can measure the throughput, frame loss, latency, and packet jitter of a communication line on per-second basis. Up to four streams are supported for measurement.
Virtual Network Master is licensed software with the basic license and a time-limited license. There are two types of time-limited licenses — a three-month license and a one-year license.
Install Virtual Network Master in a cloud or virtual environment and connect it to a web application via a web browser, and it can control measurements and visualize measurement results. The lineup consists of the models that support the AWS cloud environment and those that support the KVM (Kernel-based Virtual Machine) environment, a Linux-based virtualization platform.

Lineup:

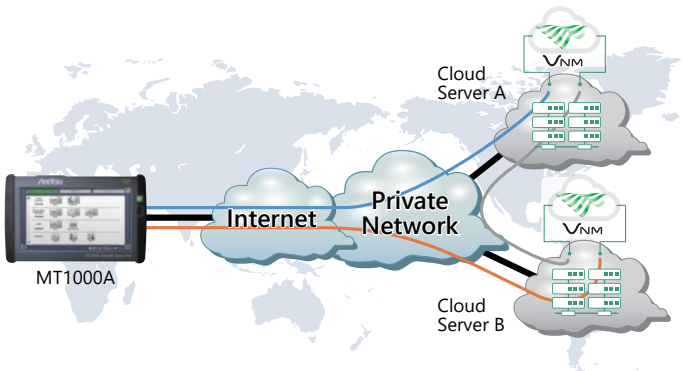
Model	Name	Cloud	Target Platforms
MX109030PC	Virtual Network Master for AWS	Public Cloud	AWS Cloud Environments
MX109031PC	Virtual Network Master for KVM	Private Cloud	KVM Virtual Environments

Use Cases for Public Cloud (MX109030PC)

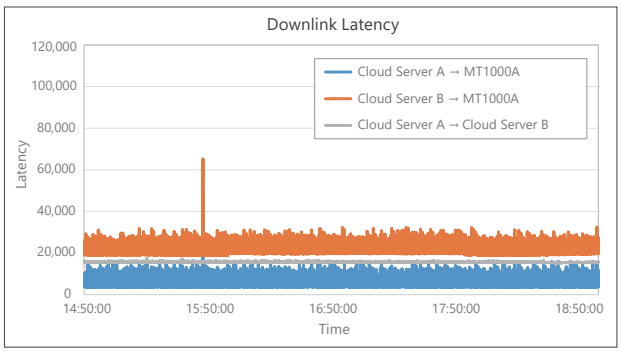
Communication Quality Between Cloud Servers

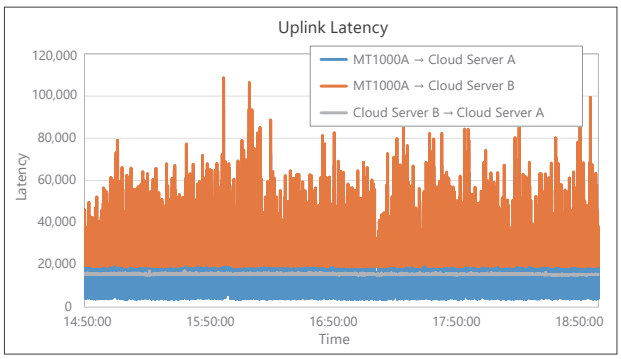
The communication quality of different routes can be measured simultaneously by deploying the MX109030PC on multiple Cloud servers. Visualizing the differences between internet routing and inter-Cloud regional network routing can assist switching decisions on redundant configurations and backup-route reliability.

■ **Evaluating System Between Cloud Servers**



■ **Comparing One-Way Latency Of Each Route**

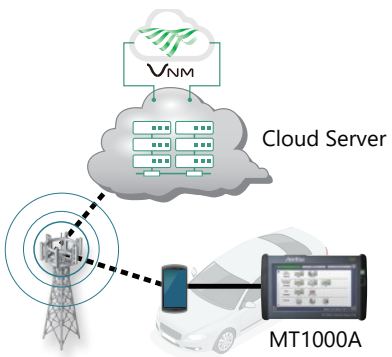




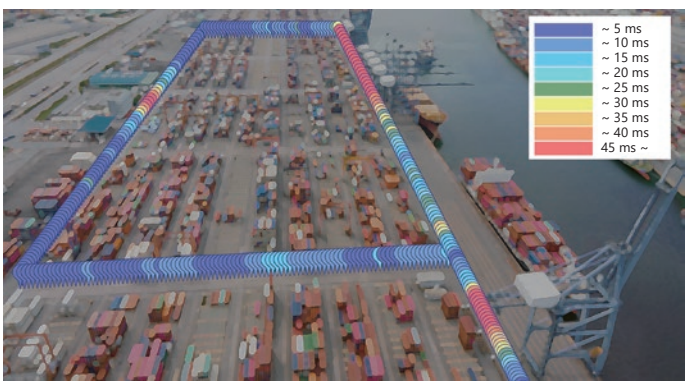
Benchmarking Cellular Network Latency

Services in advanced societies require quantitative evaluation of the latency inherent to the cellular network foundation for reliability evaluation of mission-critical systems, such as autonomous driving, and optimized service quality. Deploying the MX109030PC on a Cloud server and measuring end-to-end communication quality with mobile terminals facilitates identification of latency to assist optimized system design and determine acceptable levels.

■ **Cellular Network Evaluation System**



■ **Route and Latency Heat Map**



* Heat map created using external tools

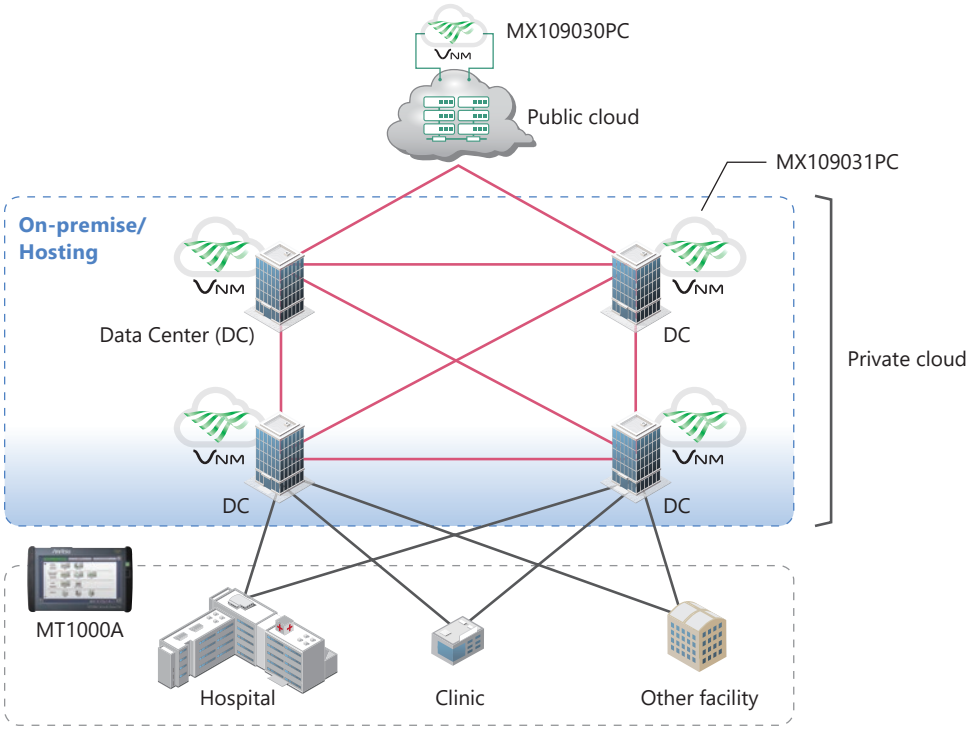
Use Cases for Private Cloud (MX109031PC)

Visualization of Communication Quality for Healthcare Enterprises

Healthcare enterprises operate electronic medical record and other business systems in their private clouds. Any communication failure can directly affect their healthcare services. Therefore, healthcare services require high availability, high redundancy, and an excellent BCP, and it is essential to interconnect multiple data centers (DCs) while utilizing KVM and other virtualization technologies. Moreover, as DC-DC connections and DC-cloud connections increase, it is becoming vital to visualize communication quality continuously.

Introducing MX109031PC into your KVM virtual environment allows the quality of communication between DCs, as well as between a DC and a cloud, to be evaluated under real-world conditions, helping to ensure stable operation and quick troubleshooting.

■ **DC-DC/DC-cloud Connection Evaluation System**

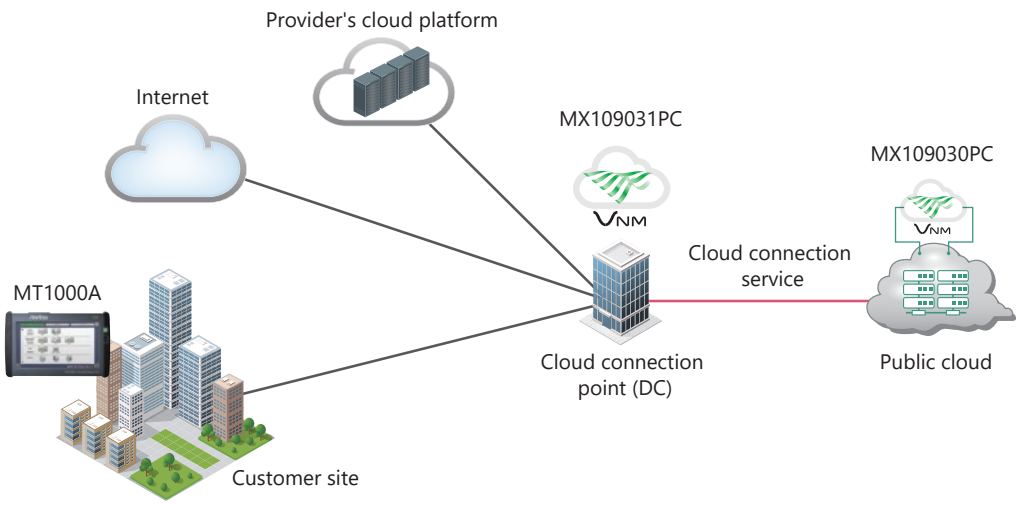


Visualization of Communication Quality of a Cloud Connection Service

With cloud usage becoming mainstream in enterprise network services and many other offerings, services for connecting to a public cloud or other cloud platform are now widely used. Meanwhile, service users demand E2E communication quality spanning from customer sites to cloud servers. This makes it necessary for cloud connection service providers to objectively prove the quality of communication from a connection point to a cloud based on numerical data.

Deploying MX109031PC in a DC that serves as a cloud connection point visualizes the quality of communication between a DC and a cloud, which helps to clarify the scope of responsibility, isolate failures rapidly, and provide customers with evidence-based explanations.

■ **Cloud Connection Service Evaluation System**



Specifications

MX109030PC Operating Environment

Platform	Amazon Web Services (AWS)*1
AWS Services	Amazon Elastic Compute Cloud (Amazon EC2)
Amazon EC2 Instance Type	C5, C6i (Recommended*2 C5.xlarge, C6i.xlarge, C6i.8xlarge)
Virtual Machine Requirements	Number of CPU cores: 4 min., RAM: 8 GB min., Storage; 16 GB min., Elastic Network Interface (ENI): 2
Required Networks	IPv4, NTP

*1: Amazon Web Services and AWS are registered trademarks of Amazon.com, Inc. or its affiliates.
*2: Ask us about other non-recommended configurations.

MX109031PC Operating Environment

Execution Environment	Kernel-based Virtual Machine (KVM)*3
Virtual Machine Requirements	Number of CPU cores: 4 min., CPU architecture: x86_64, RAM: 8 GB min., Storage: 16 GB min., Number of network interfaces: 2
NIC Available to the Measured Interface	virtio-net NIC: The following network environments are supported. OVS (open vSwitch) configuration Bridge configuration Intel E810: Only Virtual Function (VF) is supported. NVIDIA ConnectX-6: Only Virtual Function (VF) is supported.
NIC Available to the Control Interface	virtio-net NIC: The following network environments are supported. OVS (open vSwitch) configuration Bridge configuration
Required Networks	IPv4, NTP

*3: Recommended Linux kernel version: 6.17.0 or later

Control Method

Control Method	Web GUI, Web API
Recommended Web GUI	OS: Windows 11 Web Browser: Google Chrome

Functions/Performance

Test Items	Frame loss count, frame loss rate, throughput, latency, jitter

Ordering Information

Please specify the model/order number, name and quantity when ordering.
The names listed in the chart below are Order Names. The actual name of the item may differ from the Order Name.

Model/Code	Name
MX109030PC*1, *2	Virtual Network Master for AWS
MX109030PC-TL003*3	3 Months License
MX109030PC-TL011*3	1 Year License
MX109030PC1*4	Additional Virtual Network Master for AWS
MX109030PC1-TL003	3 Months License
MX109030PC1-TL011	1 Year License

Model/Code	Name
MX109031PC*1, *2	Virtual Network Master for KVM
MX109031PC-TL003*3	3 Months License
MX109031PC-TL011*3	1 Year License
MX109031PC1*4	Additional Virtual Network Master for KVM
MX109031PC1-TL003	3 Months License
MX109031PC1-TL011	1 Year License

*1: Requires MX10903xPC-TL003 or MX10903xPC-TL011 in addition to MX10903xPC.
*2: Requires that you agree to the Term License Agreement before purchase.
Additionally, there are countries/regions where this product cannot be used. For details, refer to the Term License Agreement below.
https://www.anritsu.com/en-us/test-measurement/support/downloads/manuals/dwl21349
*3: Requires that the MX10903xPC-TL003 or MX10903xPC-TL011 be purchased separately in order to extend the usage period.
*4: A license for purchasing multiple MX10903xPC units. Requires MX10903xPC1-TL003 or MX10903xPC1-TL011 in addition to MX10903xPC1.

Note

Note

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Specifications are subject to change without notice.

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