

# TeraVM™ - Virtualized Network Test Solution

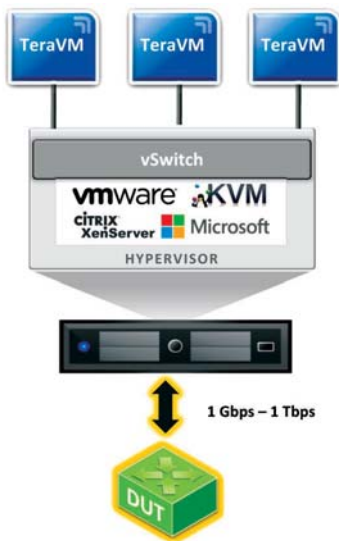


Figure 1. Physical Device Under Test (DUT) - Firewall/VPN, Router/Switch, DPI or IPS/IDS, Video Infrastructure, Load Balancer

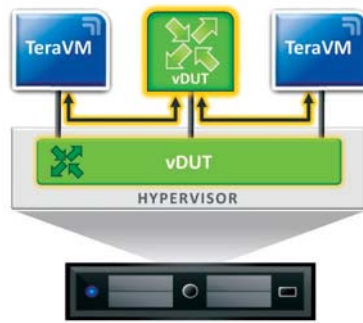


Figure 2. Virtual Device Under Test (DUT) - vSwitch, vFirewall, vLoad Balancer, vPolicy Manager, vWAN Optimization

**AEROFLEX**  
A passion for performance.

## Benefits

- Highly scalable: 1 Gbps to 1 Tbps
- Test both physical and virtual devices
- Supports all major hypervisors: VMware ESXi, Microsoft Hyper-V, Citrix XenServer and KVM
- Delivers 100% of capabilities developed by Shenick over 10+ years
- Rapid expansion and contraction of test beds
- On demand test bed portability
- Utilizes industry-standard hardware
- Offers most cost effective method of test

## Features

- Emulation and real-time measurement of millions of unique application flows
- Fully stateful application flows, test live application servers
- Real time analysis and reporting on each individual application flow
- Easy pinpointing and isolation of problem flows

TeraVM is a fully virtualized test and measurement solution that can emulate and measure millions of unique applications flows. TeraVM provides comprehensive measurement and performance analysis on each and every application flow with the ability to easily pinpoint and isolate problem flows.

## Test Physical or Virtual Devices

TeraVM is a highly scalable virtualized test solution, suitable for testing high performance physical devices. Yet at the same time, TeraVM can be deployed to test virtual networking devices. This enormous versatility provides great benefit particularly when testing both the physical and virtual version of a product such as a firewall.

## Scale as you Grow

With TeraVM you no longer have to pre-plan the scale of your test bed. You can start small at a gigabit or less of test traffic and add more TeraVMs as your test needs increase. Or you could take the opposite approach and build a large scale test bed and then break it up in to its constituent parts to make many small test beds or even individual test beds that single engineers or testers could use for functional testing.

## Portability

Gone are the days of physically transporting test hardware from lab to lab or across the world. TeraVM is packaged as a virtual machine which is easily deployed on any industry-standard hardware and only requires a software license to operate. For geographically dispersed test organizations moving a test bed across the world is as simple as checking out a license from a centrally deployed license server that is installed in the user's network.

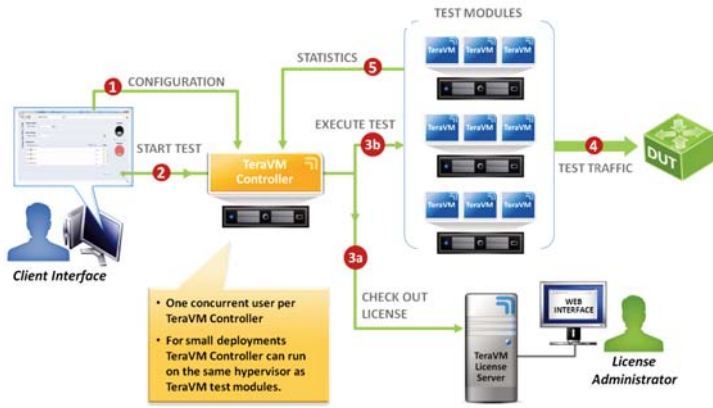
## Comprehensive Test Capability

TeraVM provides the industry's most comprehensive test suite with over 3,000 unique metrics; ranging from application performance to protocol tunneling down to simple port enabled testing with throughput and latency metrics. A user defined threshold can be set on any of these metrics to easily pinpoint and isolate problem flows.

TeraVM enables mixed testing of IPv4 and IPv6 traffic. Below are samples of some of the 3,000 metrics that are available with TeraVM.

- ICMP Ping Round Trip Time
- In CSTP Control Frames
- HTTP Time to Download Web Page
- IKE Message Errors
- TCP Connections per second
- QmVideo In I-Frames
- SMTP Mail Messages per second
- Multicast Join/Leave Latency
- FTP File/Bytes Downloaded/Uploaded

## ARCHITECTURE



## FEATURES

### GENERAL

Real-time isolation of problem flows

### DATA

TCP / UDP

HTTP (headers, substitution, attachments)

SMTP / POP3 (incl. file attachments)

FTP (Passive/Active), P2P applications, DNS

### ADDRESS

MAC

DHCP, PPPoE (IPv4 & IPv6)

Dual Stack (6RD, DS Lite)

### ETHERNET SWITCH

VLAN and Double VLAN Tagging (Q-Q)

ACL, 802.1p, DSCP

### REPLAY

Replay large PCAP files - TCP, UDP and raw data playback

Amplify and dynamically substitute data into PCAP files

## VIDEO

Multicast: IGMP v1/v2/v3 & MLD v1/v2

Automatic Multicast Tunelling (AMT)

Video on Demand (VoD)

Adaptive Bit Rate Video (HLS, HDS, Smooth)

Video conferencing

## DATA CENTER

VxLAN, SR-IOV

## SECURE VPN

Clientless VPN (SSL/TLS/DTLS), IPsec (IKEv1/v2), Generic remote access

Cisco AnyConnect SSL VPN Client, Cisco AnyConnect IPsec VPN

Cisco ScanSafe

Juniper Pulse, Juniper Network Connect

Dell SSO, Fortinet Fortigate and F5

802.1x EAP-MD5

## SECURITY ATTACK MITIGATION

Spam / Viruses / DDoS

## VOICE

VoIP: SIP & RTP (secure & unsecure), H.323, SMS

Dual Hosted UACs, SIP Trunking

Voice & Video quality metric (MOS)

## LTE/4G

GTP tunnel support

## SLA

TWAMP, PING

## AUTOMATION

CLI, Perl, TCL, XML, Java API

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