

THE FUTURE OF NETWORKING: 5 KEY THEMES

VMware's inaugural, invitation-only future:net event featured insights on the transformation of networking and the shifting outlook from hardware to software-centric architectures.

Following are 5 takeaways from the two-day gathering.

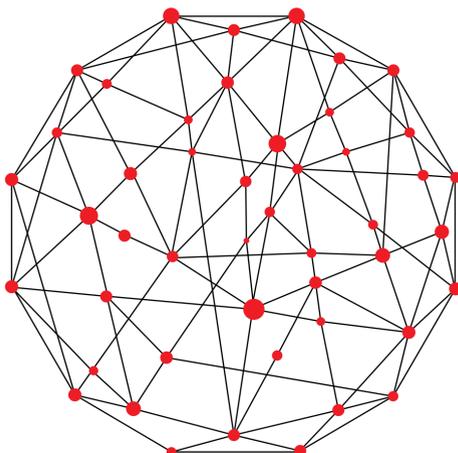
1 NETWORK-MANAGEMENT TOOLS MUST IMPROVE

THE CHALLENGE:

It's difficult to inspect a data packet and extract data.

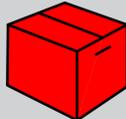
EMERGING SOLUTIONS:

Pioneers are redesigning network architectures in more software-defined ways, moving toward flexible networks.



- TWO NEW IDEAS -

1



PACKET POSTCARDS

Every switch on a network creates a small, time-stamped data digest to be sent to a central server.

2



INBAND NETWORK TELEMETRY

Switches add data to every packet's header as it passes through a switch, enabling later analysis.

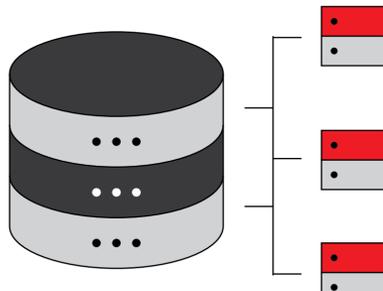
2 NETWORK NEEDS ABSTRACTION LAYERS LIKE THOSE IN COMPUTING

THE CHALLENGE:

Lack of abstraction makes controlling or modifying a network complex.

EMERGING SOLUTIONS:

P4, a programming language, is arising from SDN.



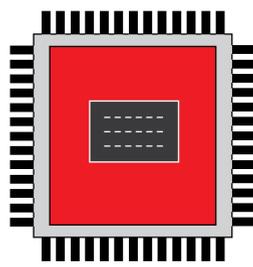
3 MOORE'S LAW HAS COME TO THE NETWORK

THE CHALLENGE:

Increased computing power is enabling greater levels of programmability in networking devices.

EMERGING SOLUTIONS:

The latest devices use application-specific integrated circuits (ASICs) for better performance and data throughput.



4 SDN HELPS MAKE NETWORKS MORE SECURE

THE CHALLENGE:

Increasing network complexity fuels new security-related fears.

EMERGING SOLUTIONS:

Embrace cloud services for network management to beef up security: Microsegmentation of networks & confining virtual machines to their own virtual networks can help thwart hackers. With no perimeters in the modern enterprise network, SDN makes it easier to protect applications.



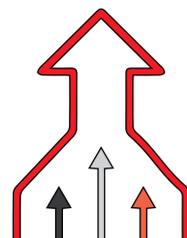
5 OPEN-SOURCE EFFORTS ARE DRIVING NETWORKING INNOVATION

THE CHALLENGE:

OpenStack, which delivers network management through infrastructure as a service, is used in many large data centers, but adoption is lagging elsewhere.

EMERGING SOLUTIONS:

Several efforts are helping make OpenStack ready for the enterprise: OpenConfig for network-device management. OpenStack-related APIs in networking equipment. Increasing capabilities of Open vSwitch and Open Virtual Network. Role of containers in reinventing networking from the software-developer side. Container-based networking and a new generation of OpenStack solutions could boost enterprise adoption.



For more information on software-defined networking and network virtualization, please visit www.vmware.com/radius/nsx.