



DPDK

DATA PLANE DEVELOPMENT KIT

DPDK on Microsoft Azure

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DPDK Summit - San Jose – 2017



Agenda

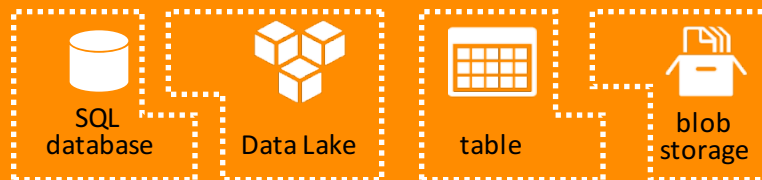


- ▶ Microsoft Azure
- ▶ The need for DPDK in the Cloud – NFV
- ▶ Accelerated Networking in Azure
- ▶ Enhancements to DPDK for Cloud usage
 - ▶ Host Serviceability and VM Migration support
- ▶ Public Preview of DPDK on Azure

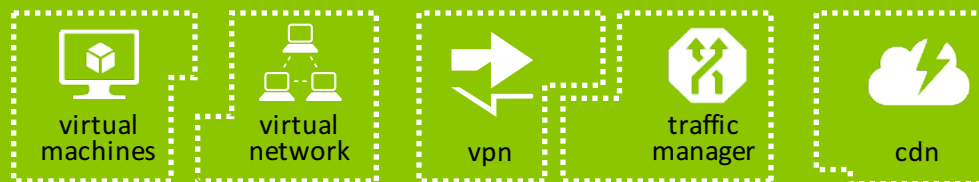
App Services



Data Services



Infrastructure Services



The Need for DPDK in the Cloud



- ▶ As customers migrate on-prem networks and apps to the cloud, NFV has become wildly popular
- ▶ Popular appliances in Azure Marketplace: Load Balancing, L7 filtering, web application firewalls, application gateways, DDoS protection, SD-WAN, and more
- ▶ DPDK can improve performance, throughput, latency, and reliability for this important class of workloads
- ▶ Goal: How can we make DPDK appliances work well in the public cloud?

Azure Accelerated Networking: DPDK

Fastest Cloud Network!

- ▶ Highest bandwidth VMs of any cloud
 - ▶ Up to 30Gbps for full-sized regular compute VMs
 - ▶ Standard Linux VM with CUBIC gets 30+Gbps on a single connection
- ▶ Consistent low latency network performance
 - ▶ Provides SR-IOV to the VM
 - ▶ Up to 10x latency improvement – as low as sub-10us within tenants
 - ▶ Increased packets per second (PPS)
 - ▶ Reduced jitter means more consistency in workloads
- ▶ Enables workloads requiring native performance to run in cloud VMs
 - ▶ >2x improvement for many DB and OLTP applications

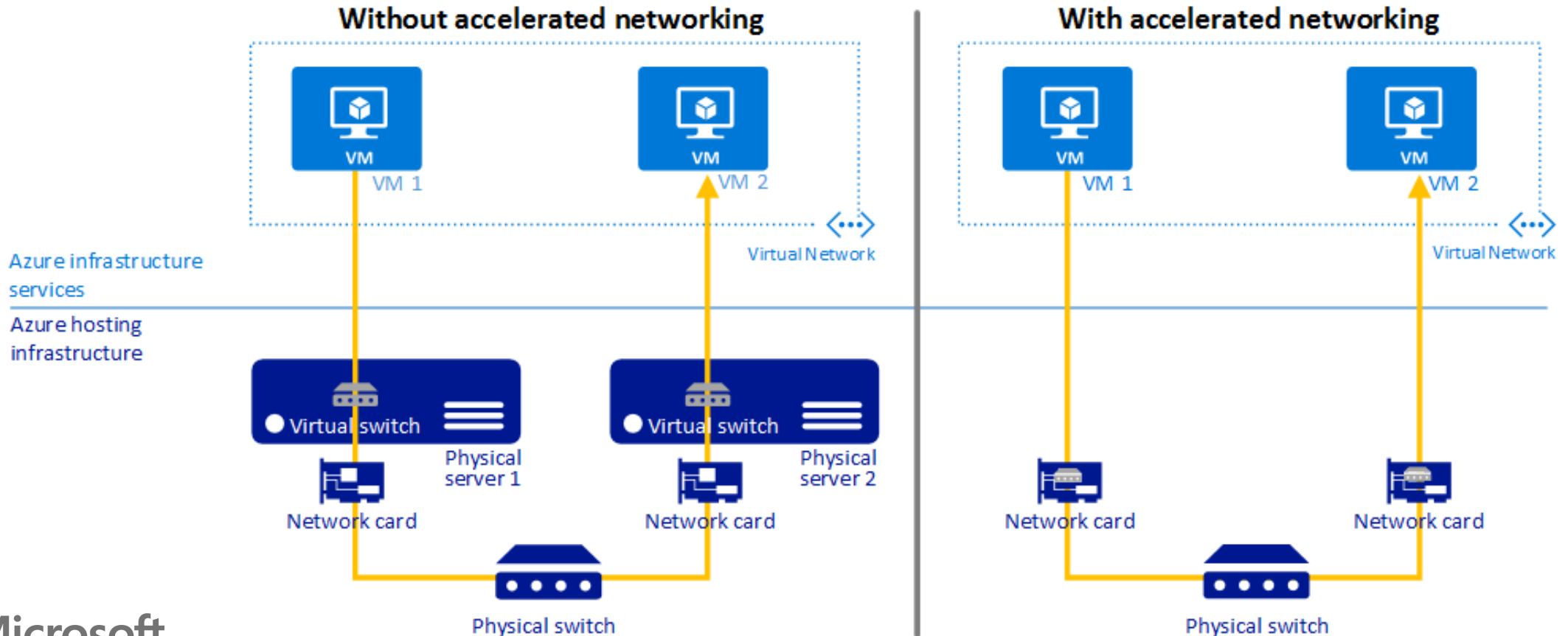


Accelerated Networking Internals: SR-IOV



SDN/Networking policy applied in software in the host

FPGA-based SmartNIC acceleration used to apply all policies

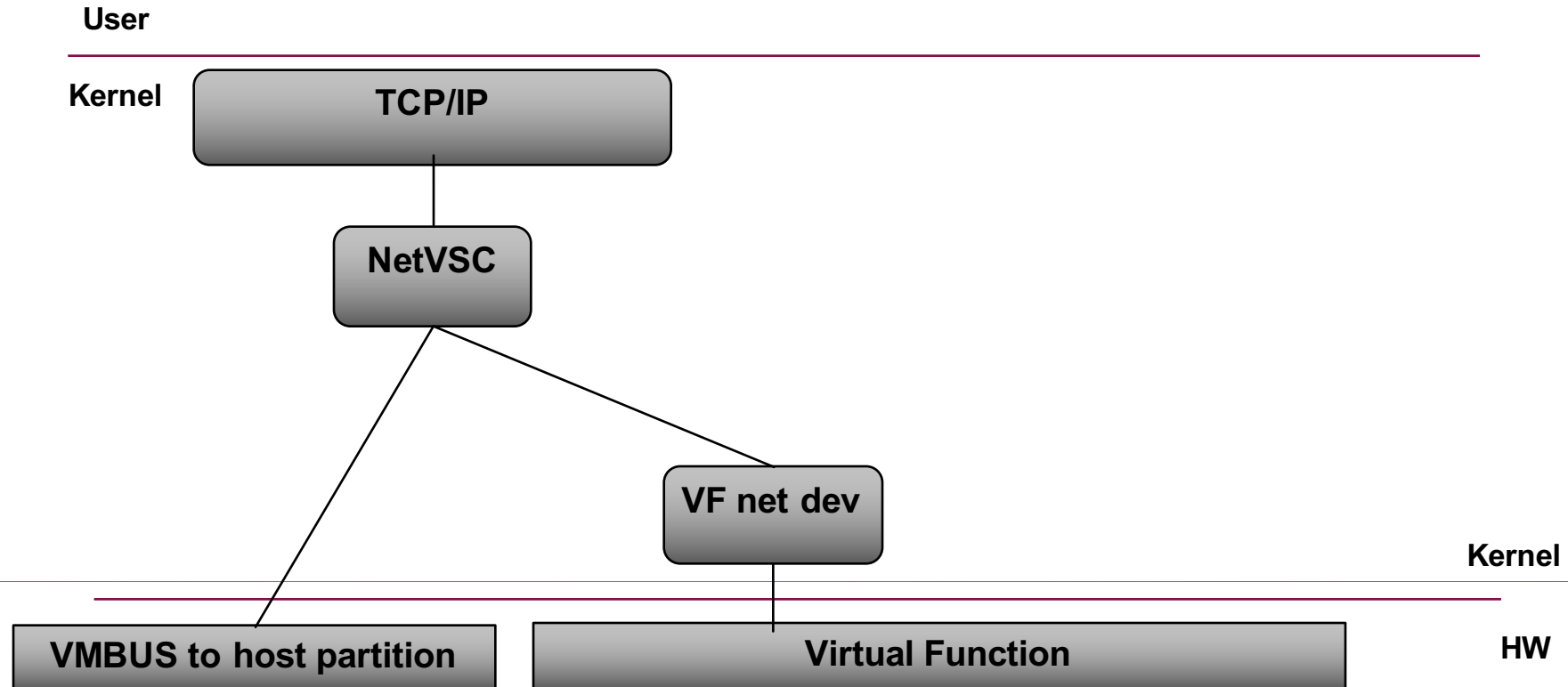


The Need for Serviceability



- ▶ Support migration of VMs
- ▶ Host updates including PF driver updates
- ▶ Completely transparent to the VM network stack
- ▶ Completely transparent to the DPDK applications

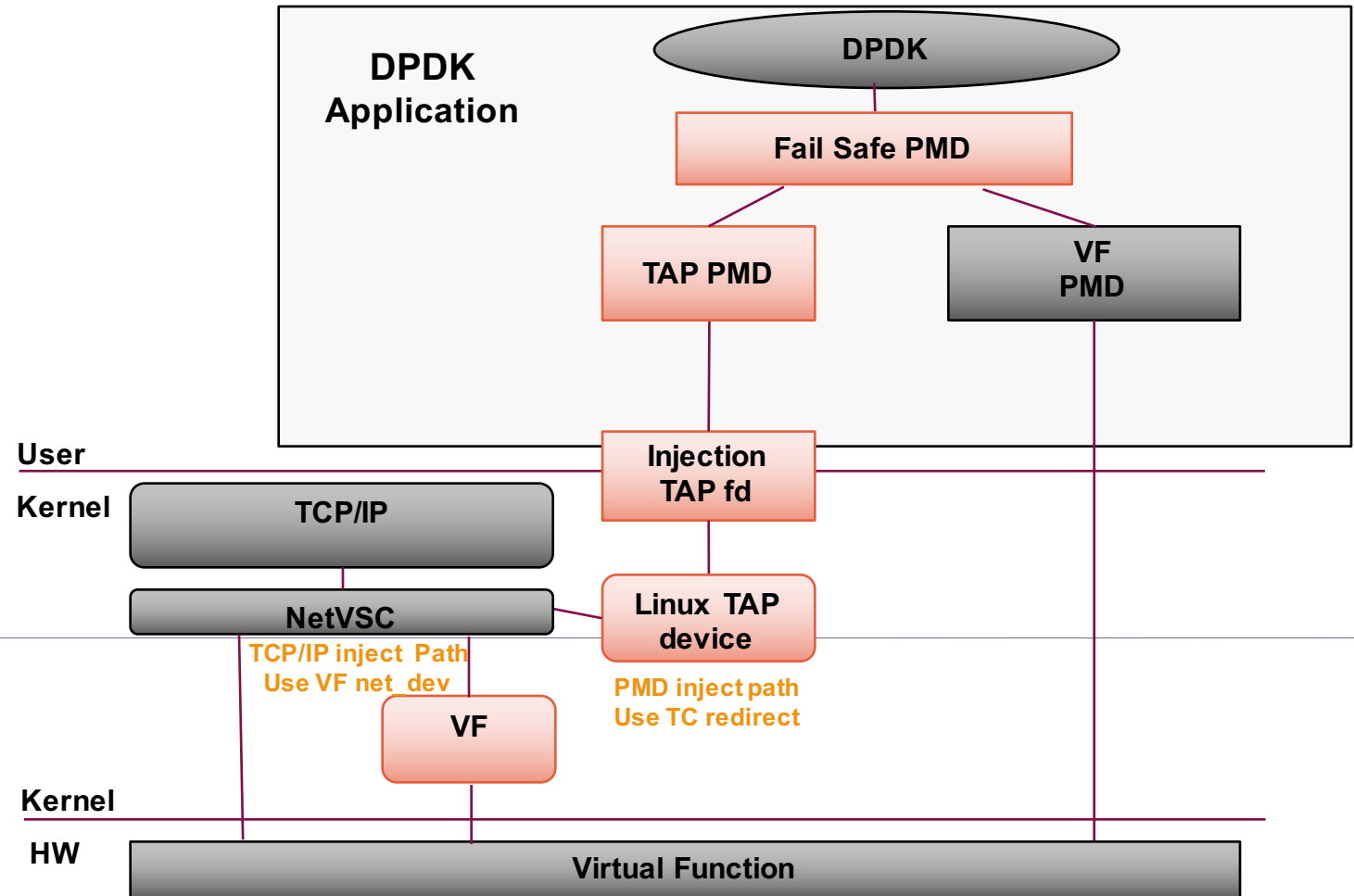
Accelerated Networking with serviceability & migration support



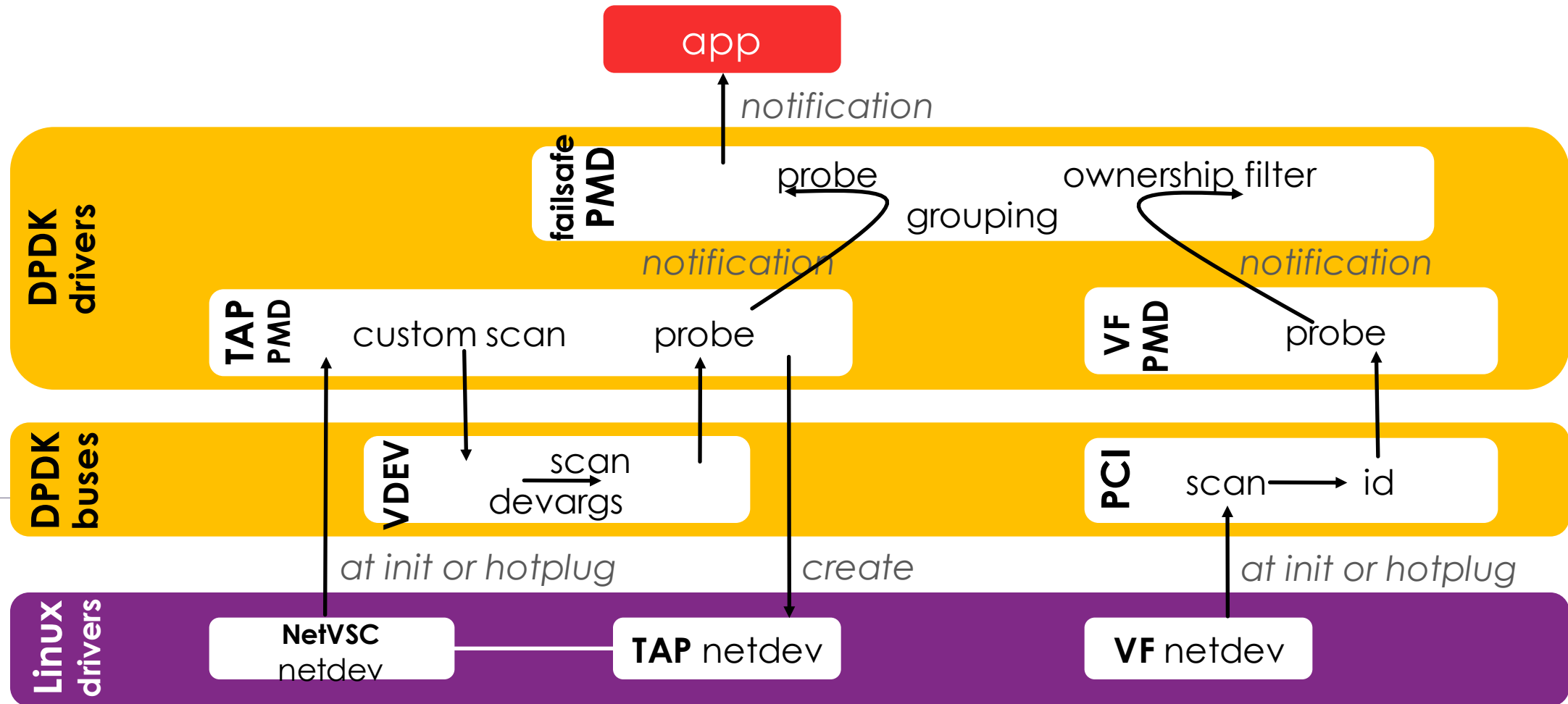
DPDK with serviceability & migration support



- DPDK application binds over failsafe PMD
- Transparent failsafe works over VF PMD and TAP PMD
- TAP PMD will create TC rules with action "redirect" to forward traffic from NetVSC to TAP net_dev and from TAP to NetVSC



Transparent failsafe





- ▶ Launched production DPDK access to select registered developers at Ignite (September 2017) based on 17.08
- ▶ Got lots of great feedback from the community
- ▶ Demo: A10 vThunder appliance running over DPDK on Azure at 30Gbps line-rate

New Announcement - DPDK Public Preview!



- ▶ **DPDK capable VMs are now available in Canada East!**
- ▶ All Accelerated Networking VM sizes supported
 - ▶ 4+ core VMs
- ▶ Look for additional region availability and GA in the coming months!
- ▶ We want to work with the community to find ways to make servicing and migration completely transparent to DPDK applications
- ▶ **Developers - Please try DPDK on Azure and give us feedback!**

For any questions regarding the preview, please email
AzureDPDK@Microsoft.com

Questions?