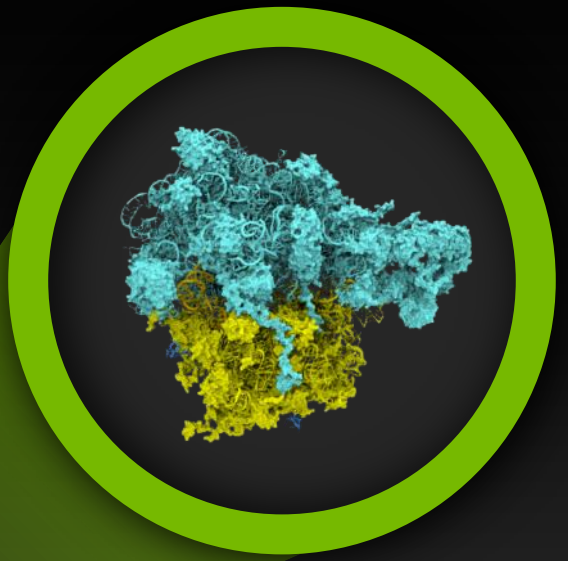
Virtual GPU을 활용한 VDI 구현

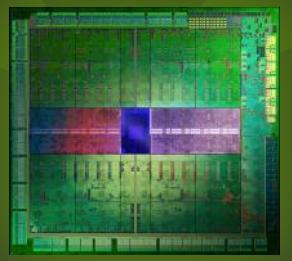
엔비디아 서완석
wseo@nvidia.com

NVIDIA

Graphics

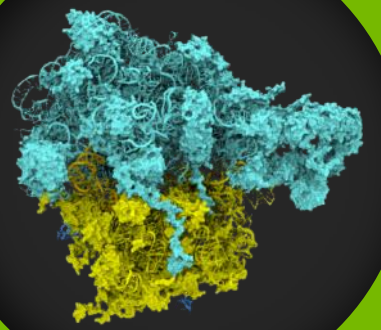


Computing

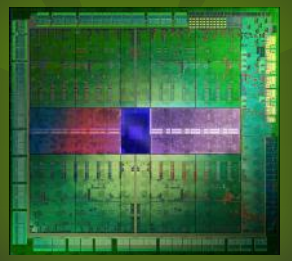


Graphics

Cloud

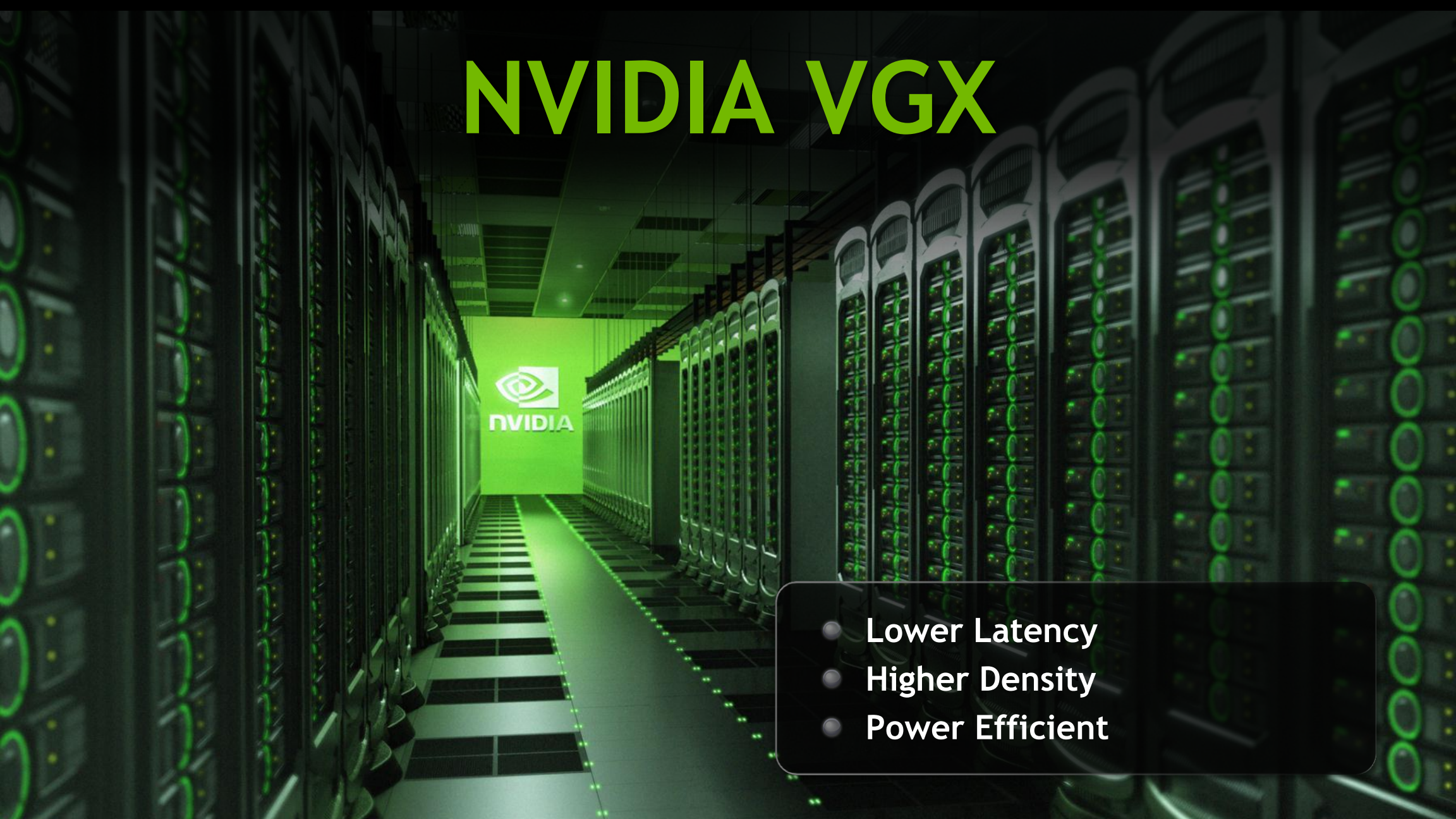


Computing



share graphic data in workflow at anywhere

NVIDIA VGX



- Lower Latency
- Higher Density
- Power Efficient

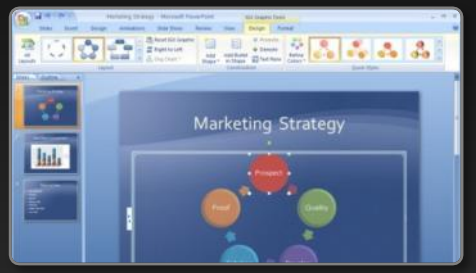
Enterprise Computer Users

DESIGNER
(CATIA, CS6, Inventor)

25M

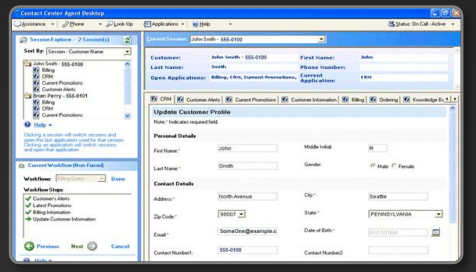
POWER USER
(PLM, Med Img, Showcase)

200M



KNOWLEDGE WORKER
(MS Office, Photoshop)

400M

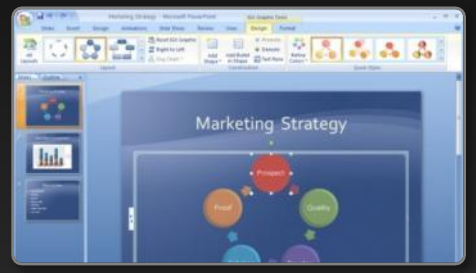


TASK WORKER
(Call Center Apps)

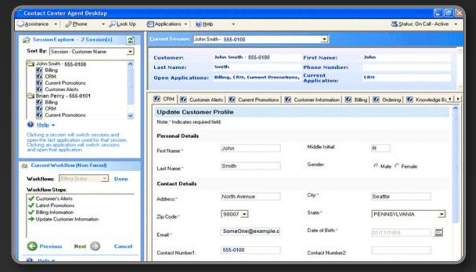
100M

DESIGNER
(CATIA, CS6, Inventor)

POWER USER
(PLM, Med Img, Showcase)



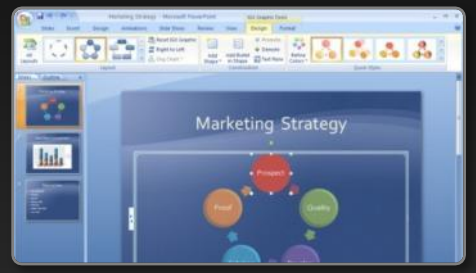
KNOWLEDGE WORKER
(MS Office, Photoshop)



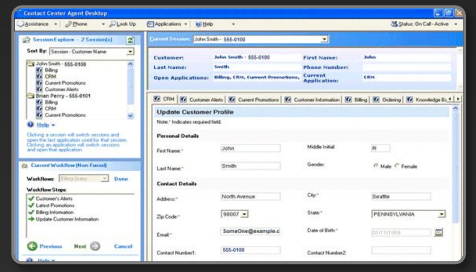
TASK WORKER
(Call Center Apps)

DESIGNER
(CATIA, CS6, Inventor)

POWER USER
(PLM, Med Img, Showcase)



KNOWLEDGE WORKER
(MS Office, Photoshop)



TASK WORKER
(Call Center Apps)

PC

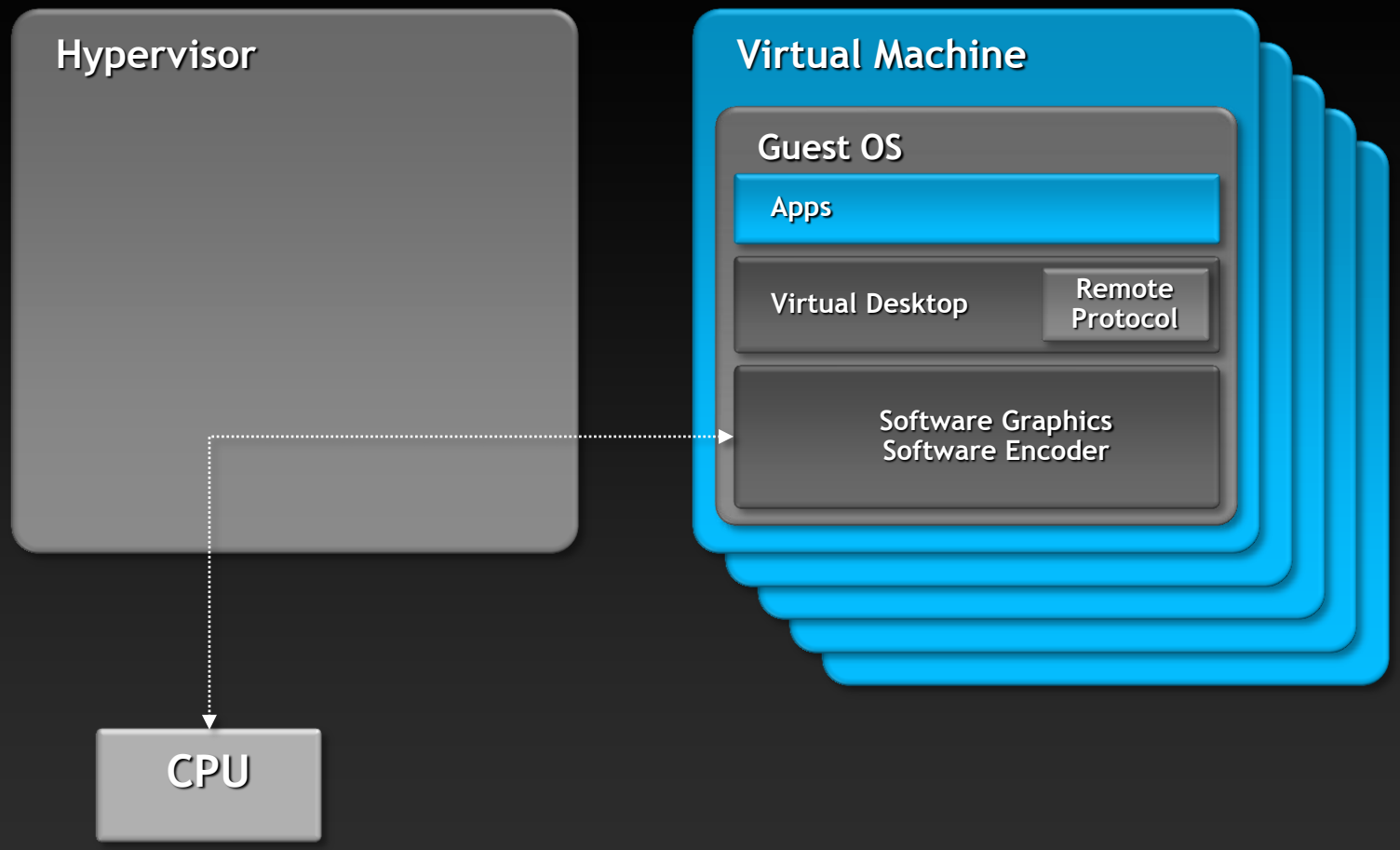
GPU Pass-through

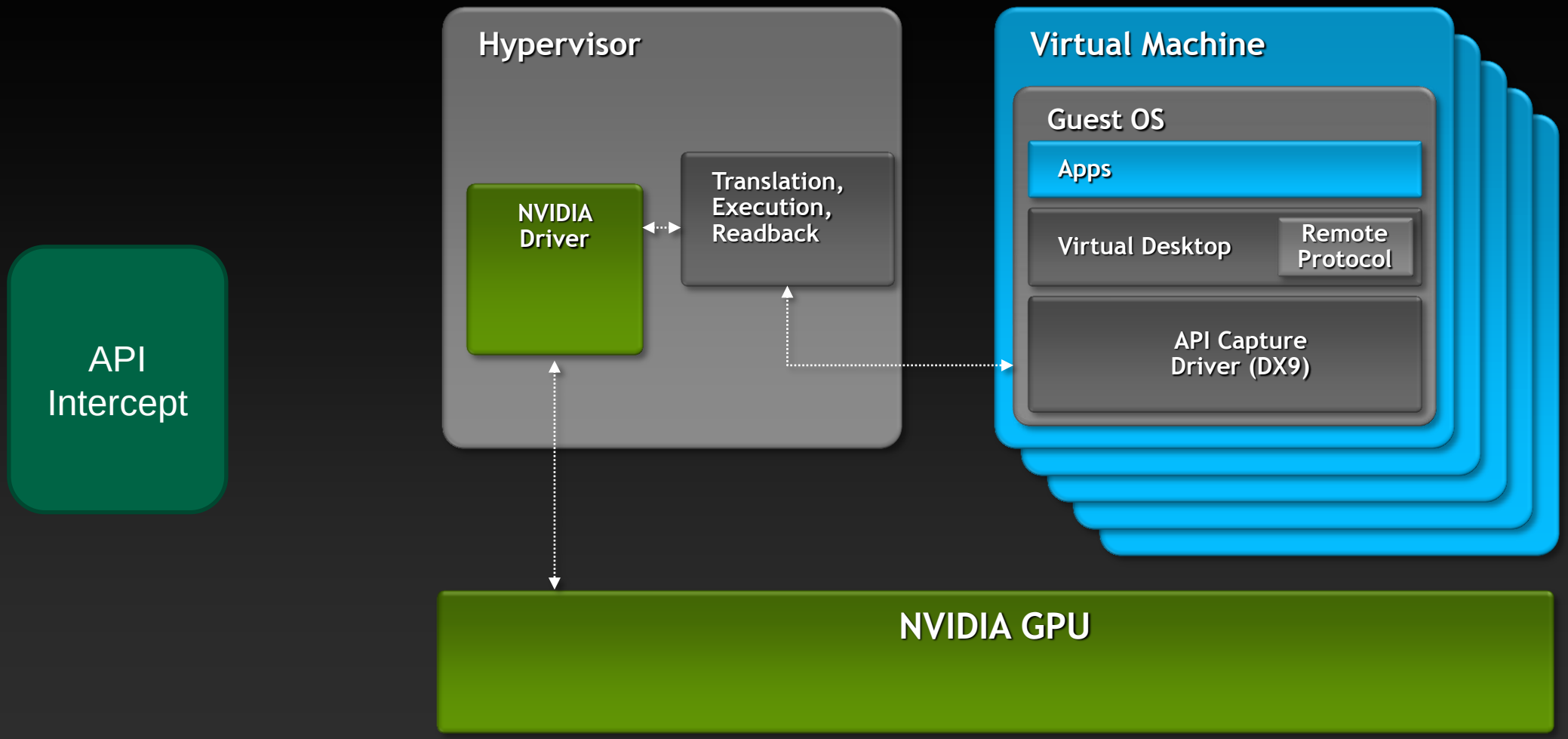
Software (CPU) Rendered Graphics

API Intercept (DX9)

NVIDIA VGX

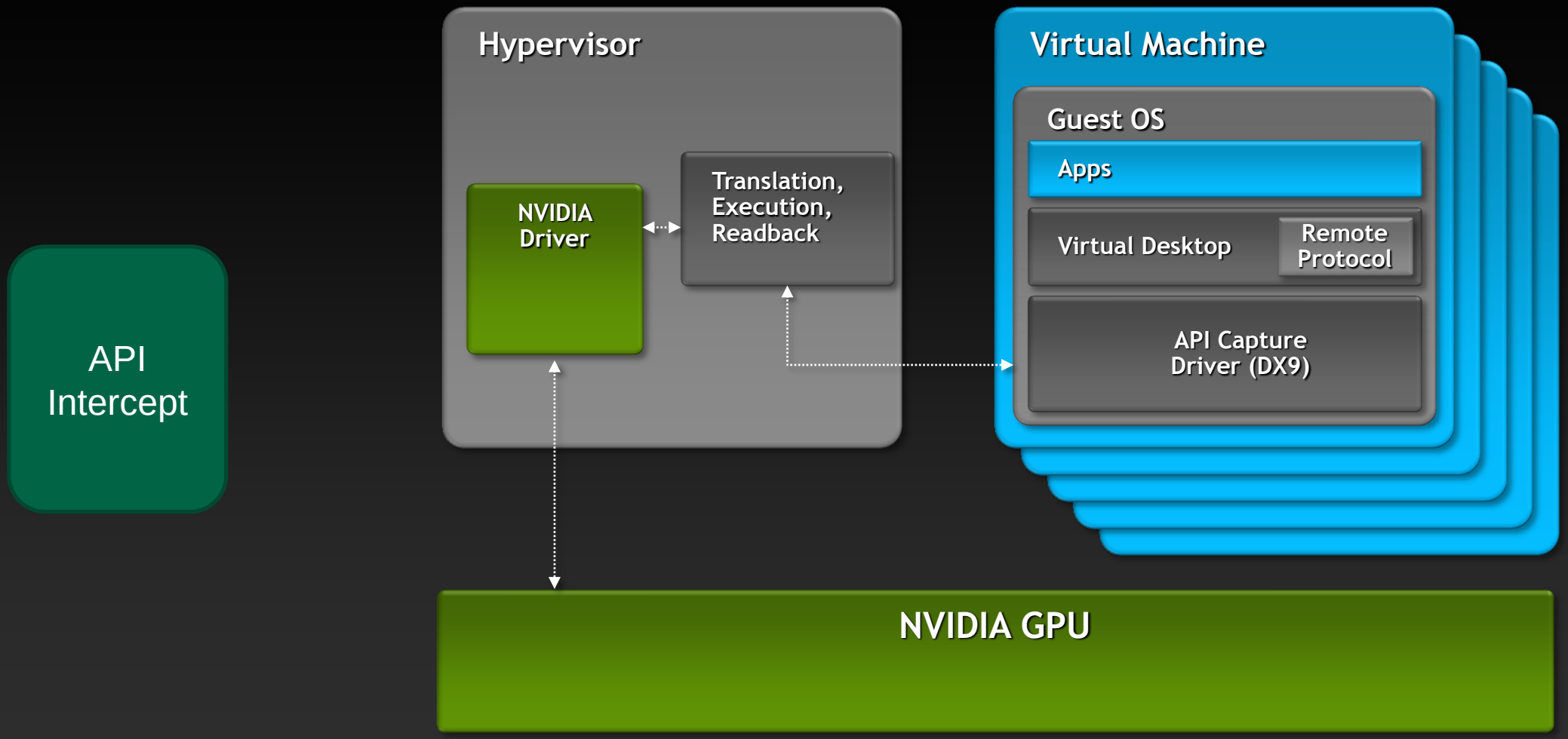
Software (CPU) Rendered Graphics




API
Intercept
Hypervisor
NVIDIA
Driver
Translation,
Execution,
Readback
Virtual Machine
Guest OS
Apps
Virtual Desktop
Remote
Protocol
API Capture
Driver (DX9)
NVIDIA GPU

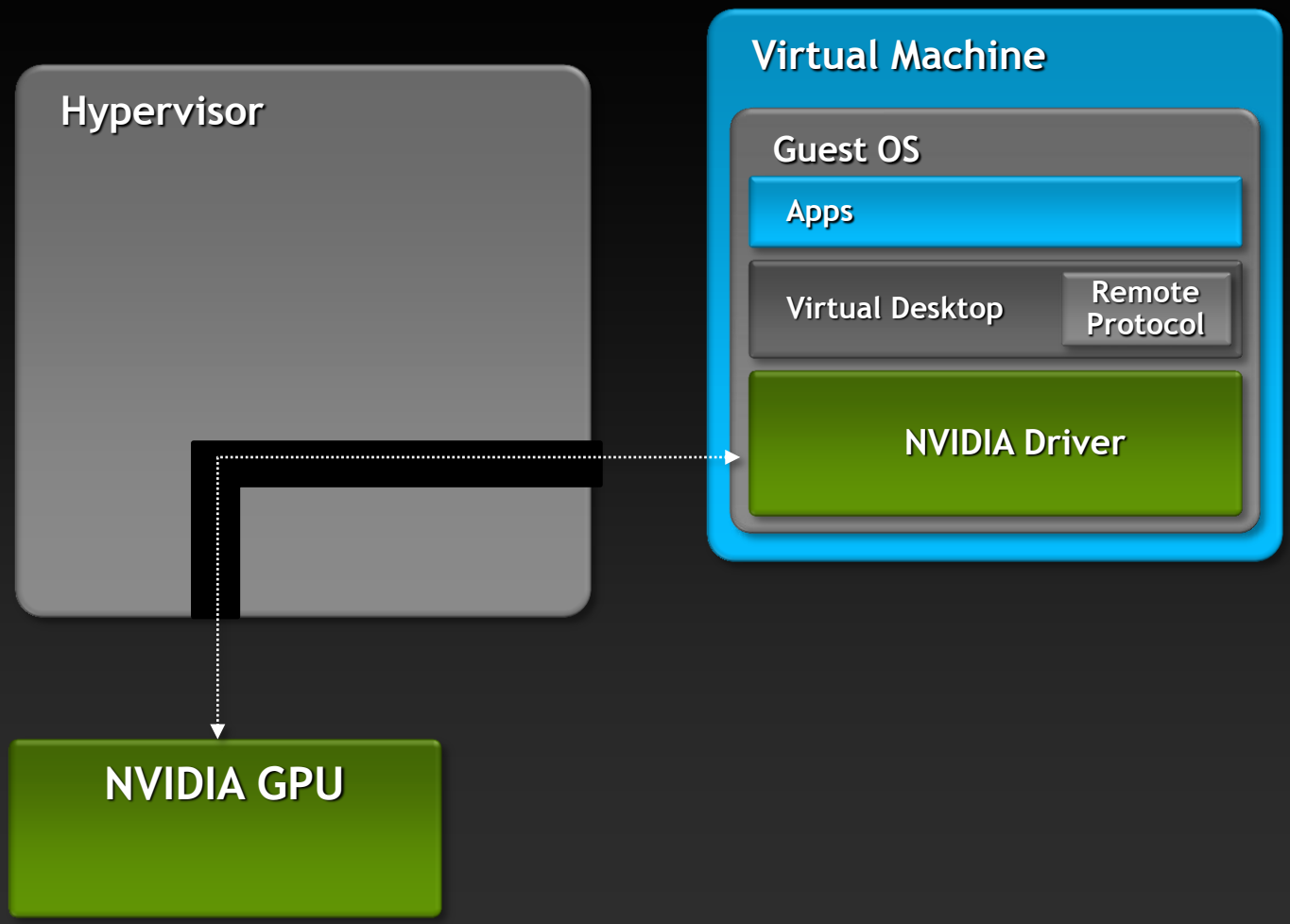
- Microsoft Server 2008 HyperV
- VMware ESX - Coming Soon

- Microsoft RemoteFX
- VMware View - Coming Soon

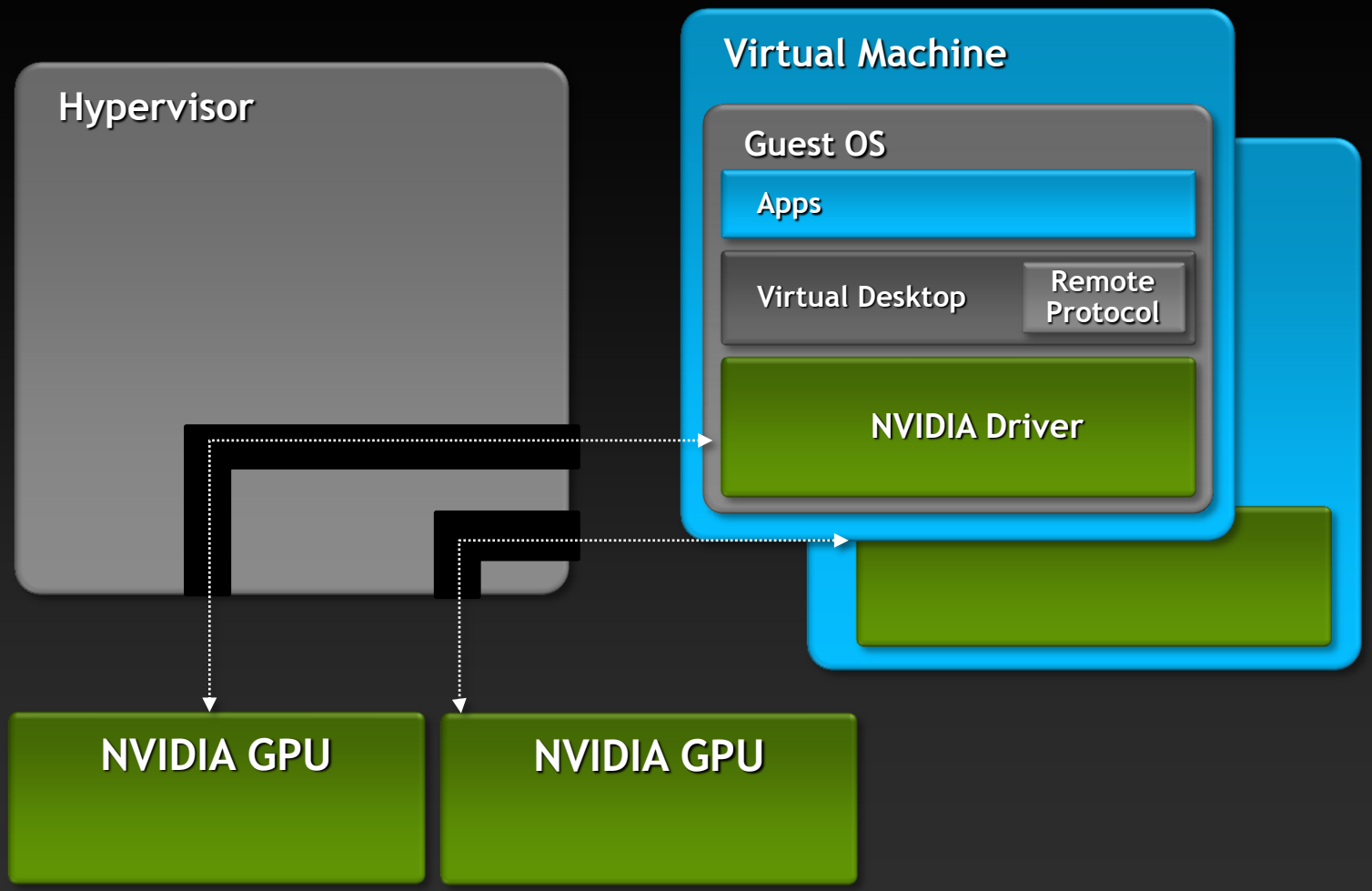


API Intercept

GPU Pass-through



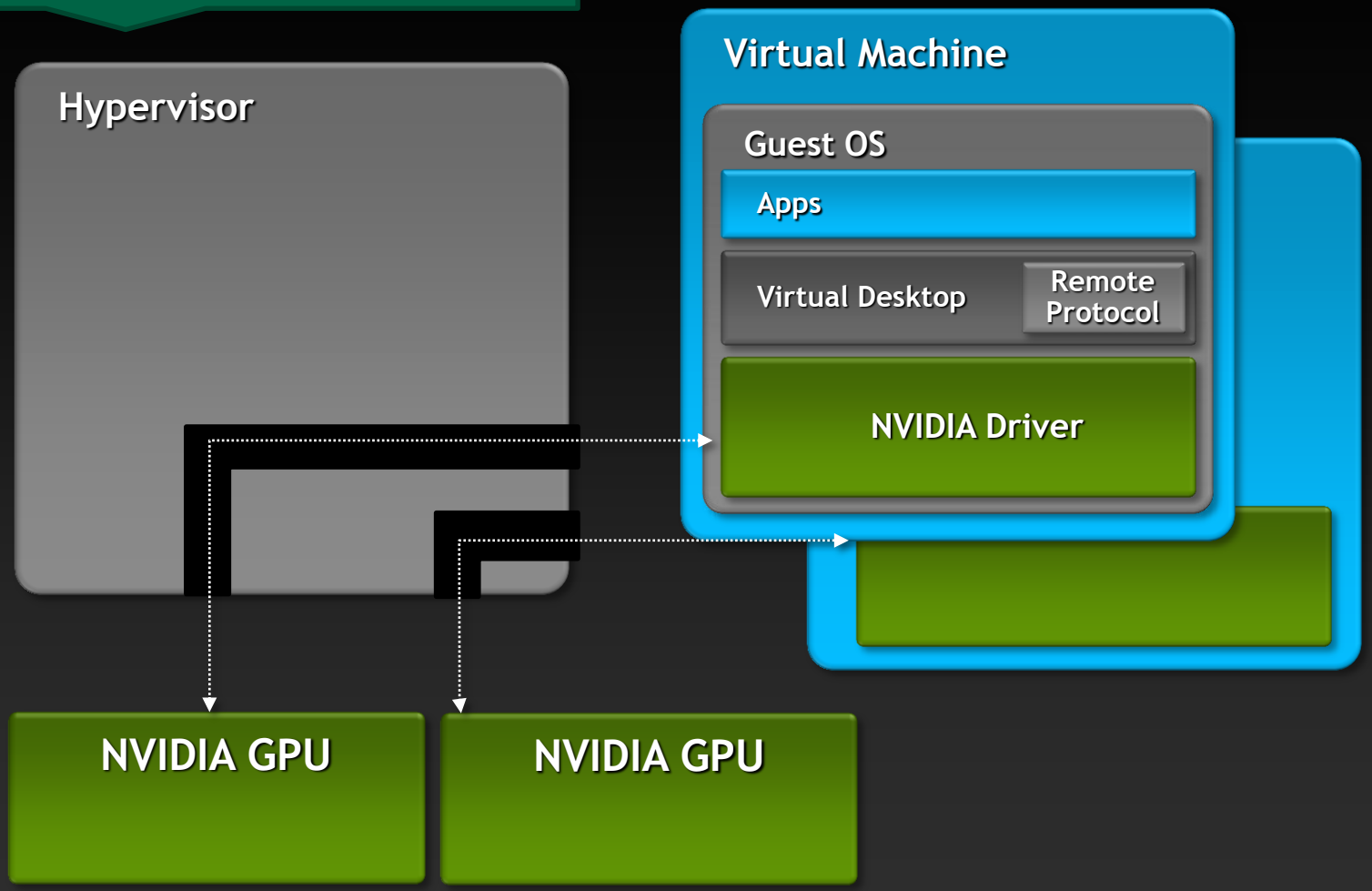
GPU Pass-through



GPU Pass-through

- Citrix XenServer 6
- VMware ESX - Coming Soon
- Parallels Workstation 6 Extreme

- Citrix XenDesktop 5.6
- VMware View - Coming Soon

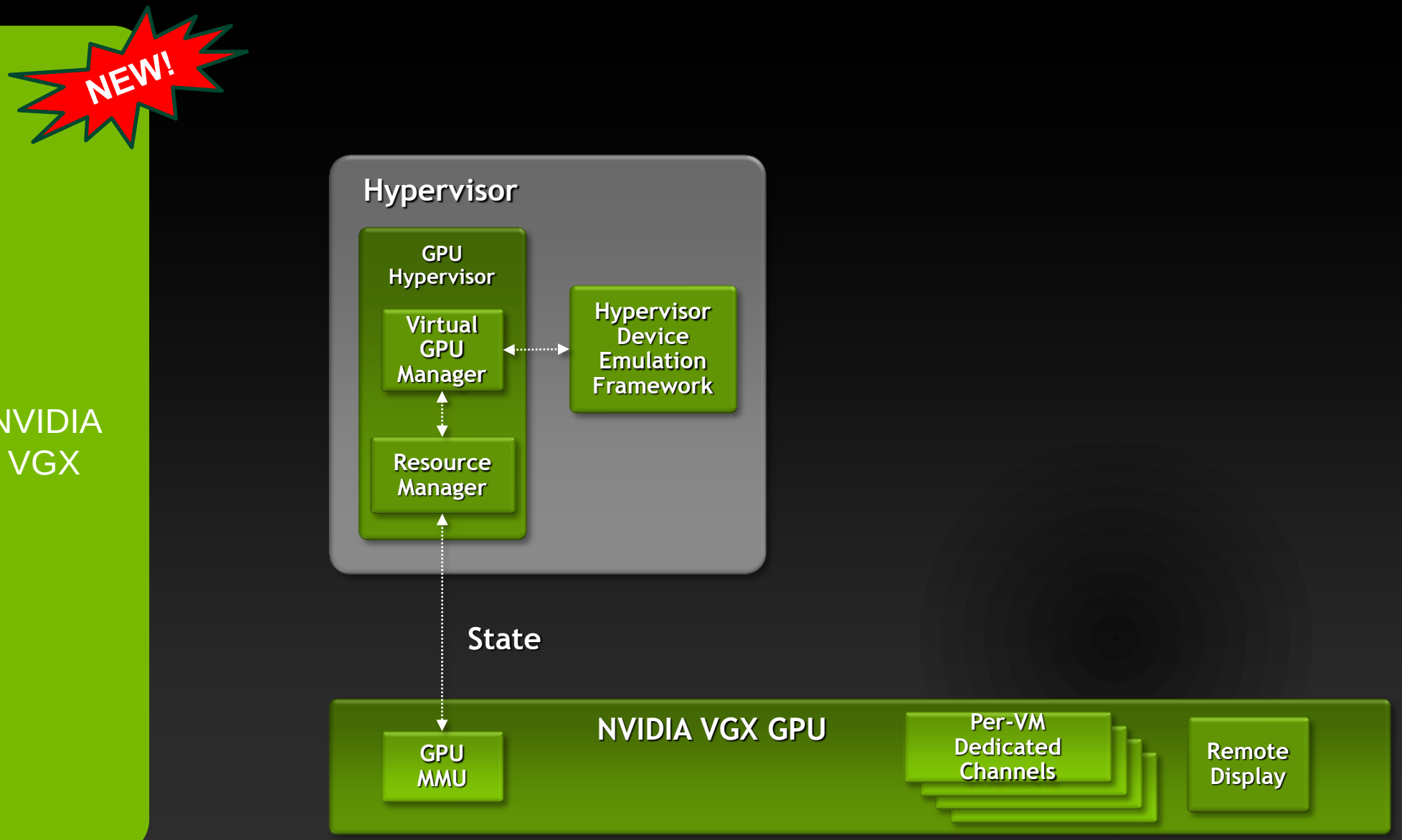


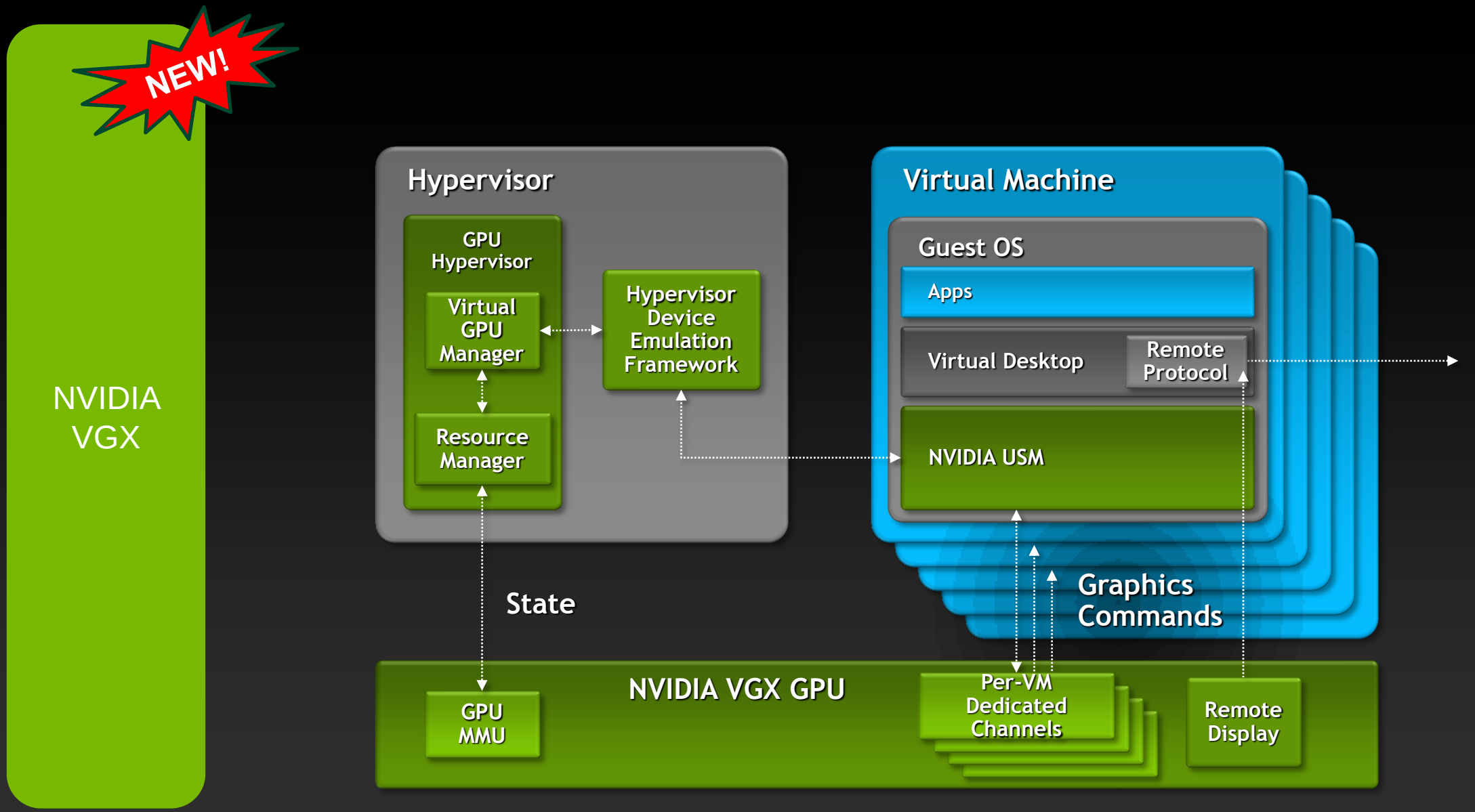
NVIDIA
VGX

NEW!

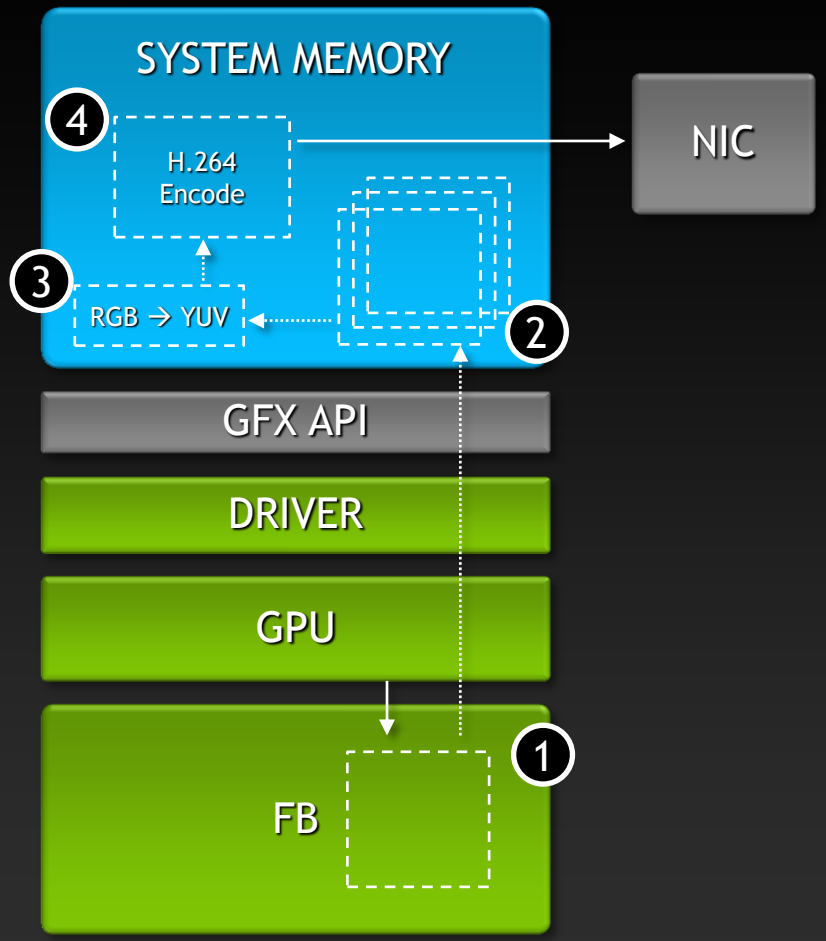
NVIDIA
VGX

NVIDIA VGX

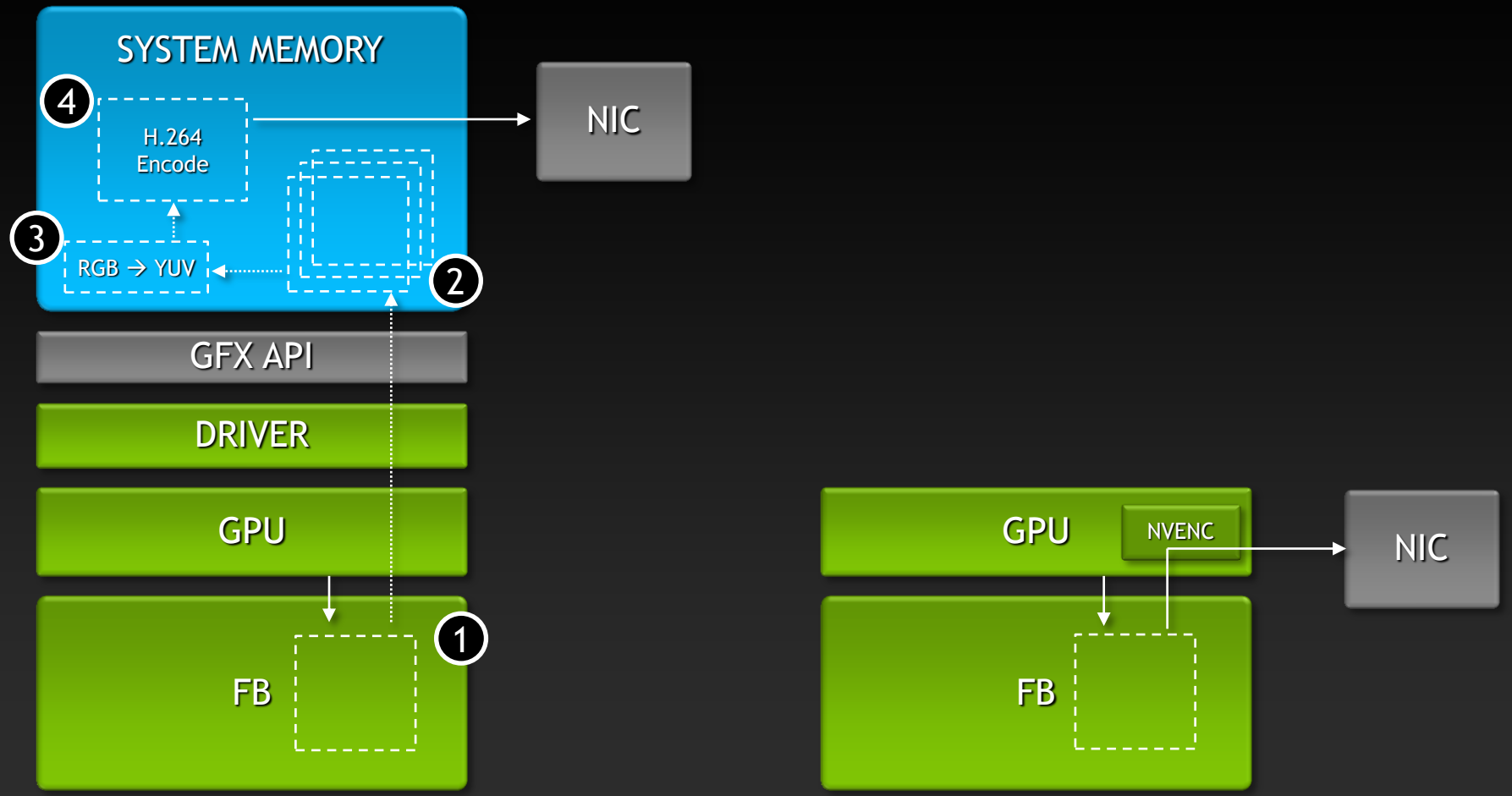

NEW!
Hypervisor
GPU Hypervisor
Virtual GPU Manager
Resource Manager
Hypervisor Device Emulation Framework
State
NVIDIA VGX GPU
GPU MMU
Per-VM Dedicated Channels
Remote Display


NEW!
NVIDIA VGX
Hypervisor
GPU Hypervisor
Virtual GPU Manager
Resource Manager
Hypervisor Device Emulation Framework
Virtual Machine
Guest OS
Apps
Virtual Desktop
Remote Protocol
NVIDIA USM
Graphics Commands
State
NVIDIA VGX GPU
GPU MMU
Per-VM Dedicated Channels
Remote Display

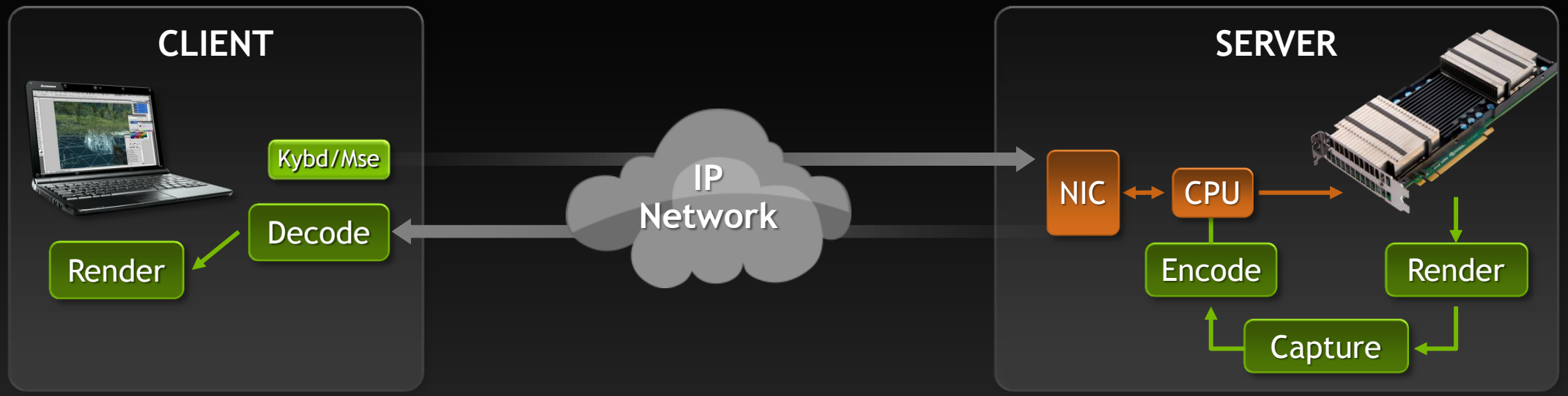
NVIDIA VGX Remote Display



NVIDIA VGX Remote Display

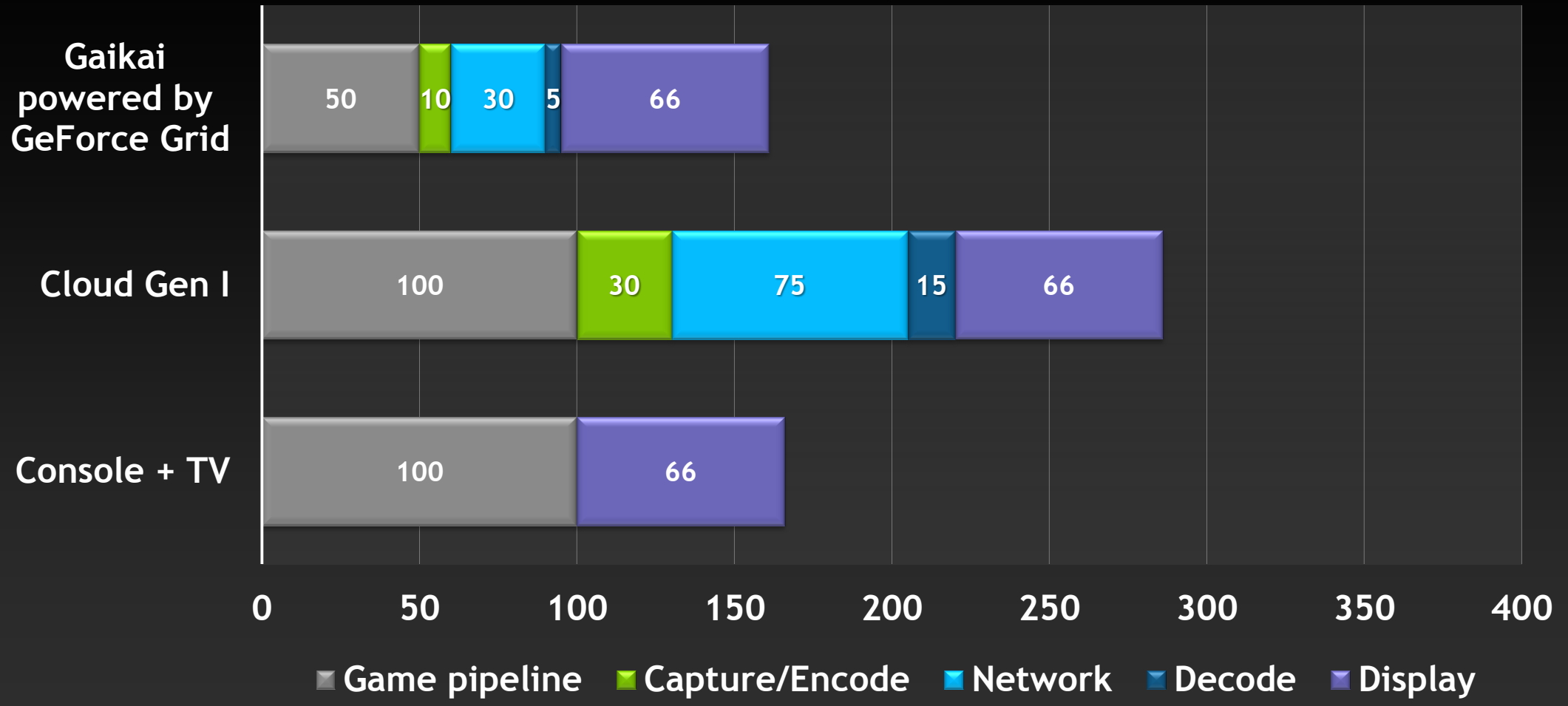


VGX Remote Display Latency



End user	Network	VGX enabled server
30-60 ms 2 Frames	30 ms 2 Frames	60 ms 4 Frames

Game Latency
in Milliseconds



NVIDIA® VGX™ Platform

Frees Users to Run A True PC as a Service From Any Connected Device

VGX Board

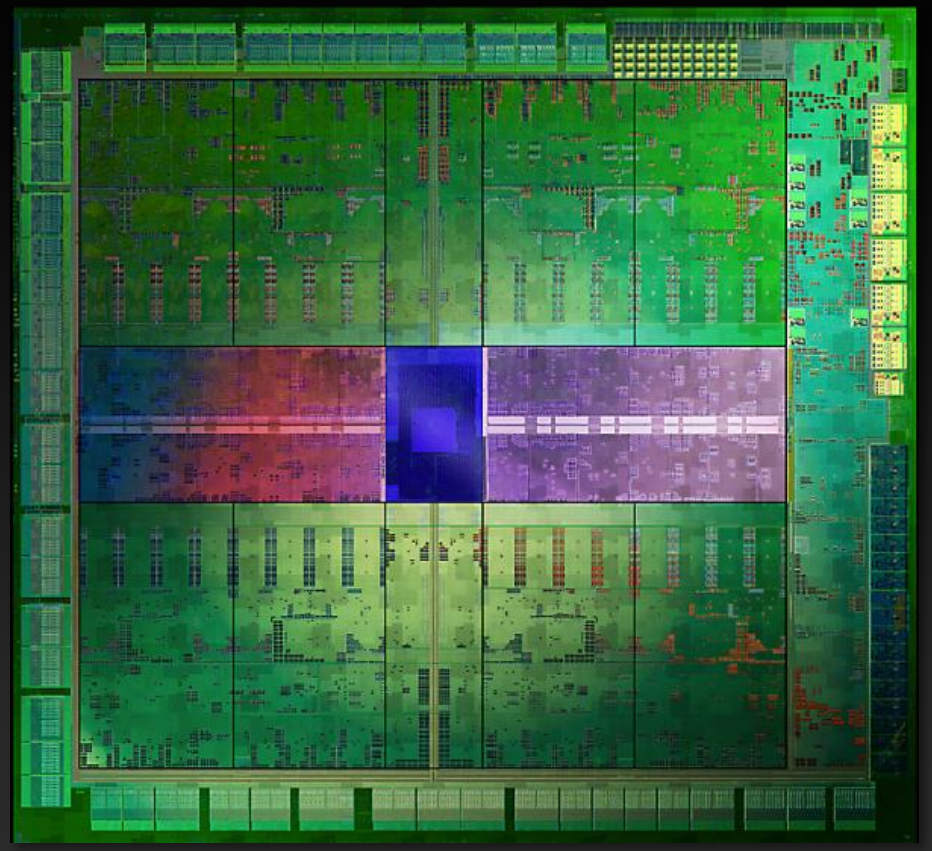
World's First Virtualized GPU

VGX HyperVisor

True Virtual PC, Running Any App

User Selectable Machines

Enterprise Manageability



KEPLER

THE WORLD'S FIRST GPU for CLOUD COMPUTING

Virtualized GPU

Low Latency Remote Display

Super energy-efficiency

NVIDIA® VGX™ Board

Hardware Virtualization

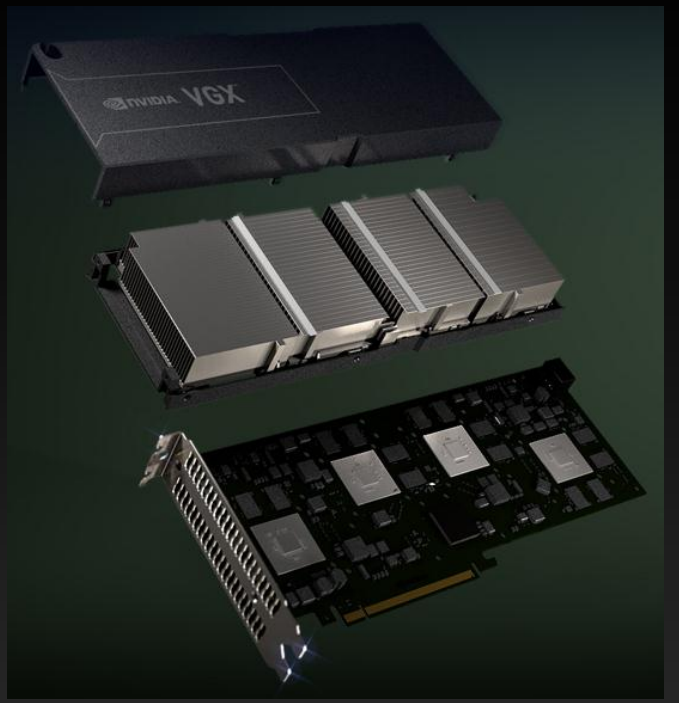
Four GPUs, 16GB of Frame Buffer

Low Latency Remote Display

Dedicated h.264 Encoder

Datacenter Efficiency

New SMX Shader Design, Passively Cooled



GPUs	CUDA Cores	Memory Size	Memory Perf	Shader Perf	TDP
Quad	768	16GB	115 GB/sec	1.3 TFLOPS	150W

USM SKUs

Standard USM

bundled with NVIDIA VGX boards and provides up to 100 knowledge workers with a true PC experience via GPU-VDI

NVS USM

Delivers a stable NVS system image for mission-critical professionals—such as financial traders and multi-monitor knowledge workers—who use a variety of productivity and dedicated business applications

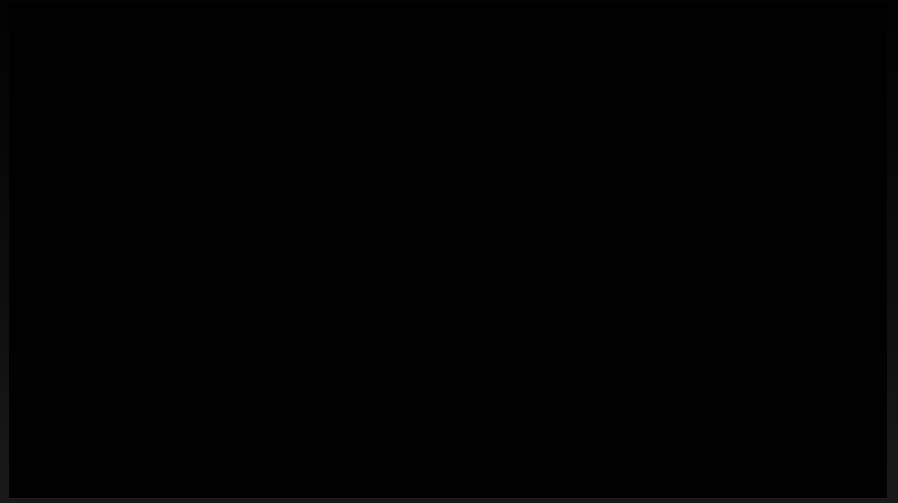
Quadro USM

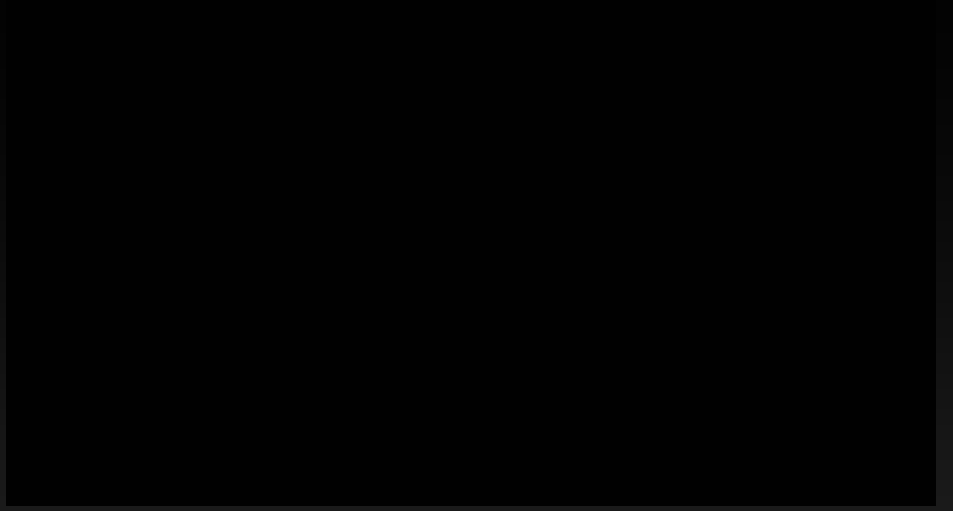
Provides industry-leading support for designers, artists, and scientists who rely on specific technical workstation applications that require interactive 3D graphics and full compatibility

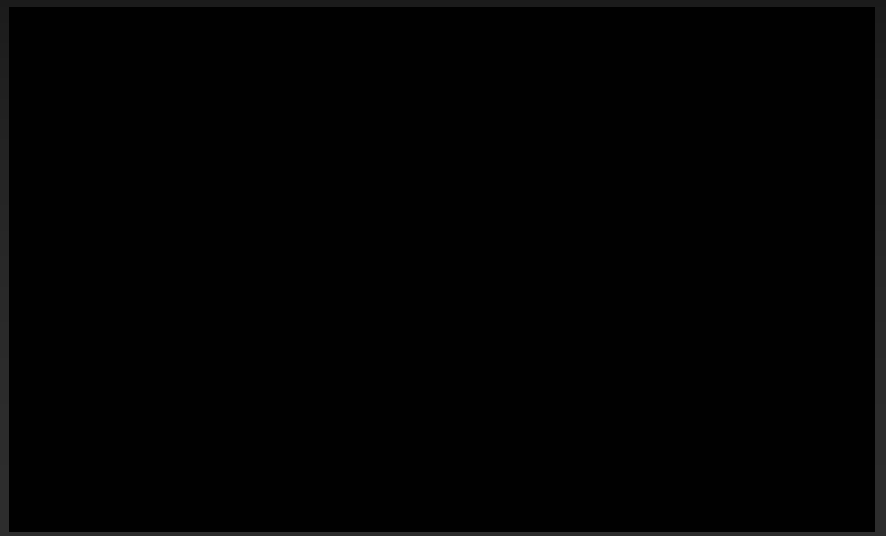
USM features

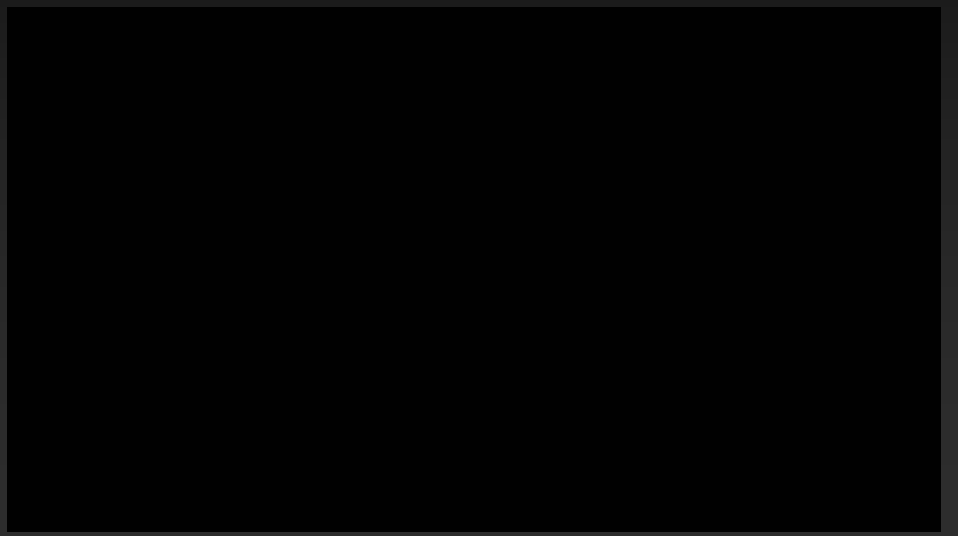
Features	Quadro USM	NVS USM	Stand USM	Traditional VDI
Workstation Apps Certi	√			–
Workstation OGL acceleration	√			–
CUDA accelerated Apps	√	√		–
Business Apps Certi	√	√		–
nView Multi-Display Management Suite	√	√		–
DirectX Acceleration	√	√	√	–
Multi-Display Remoting	√	√	√	–

Side-by-Side comparison video

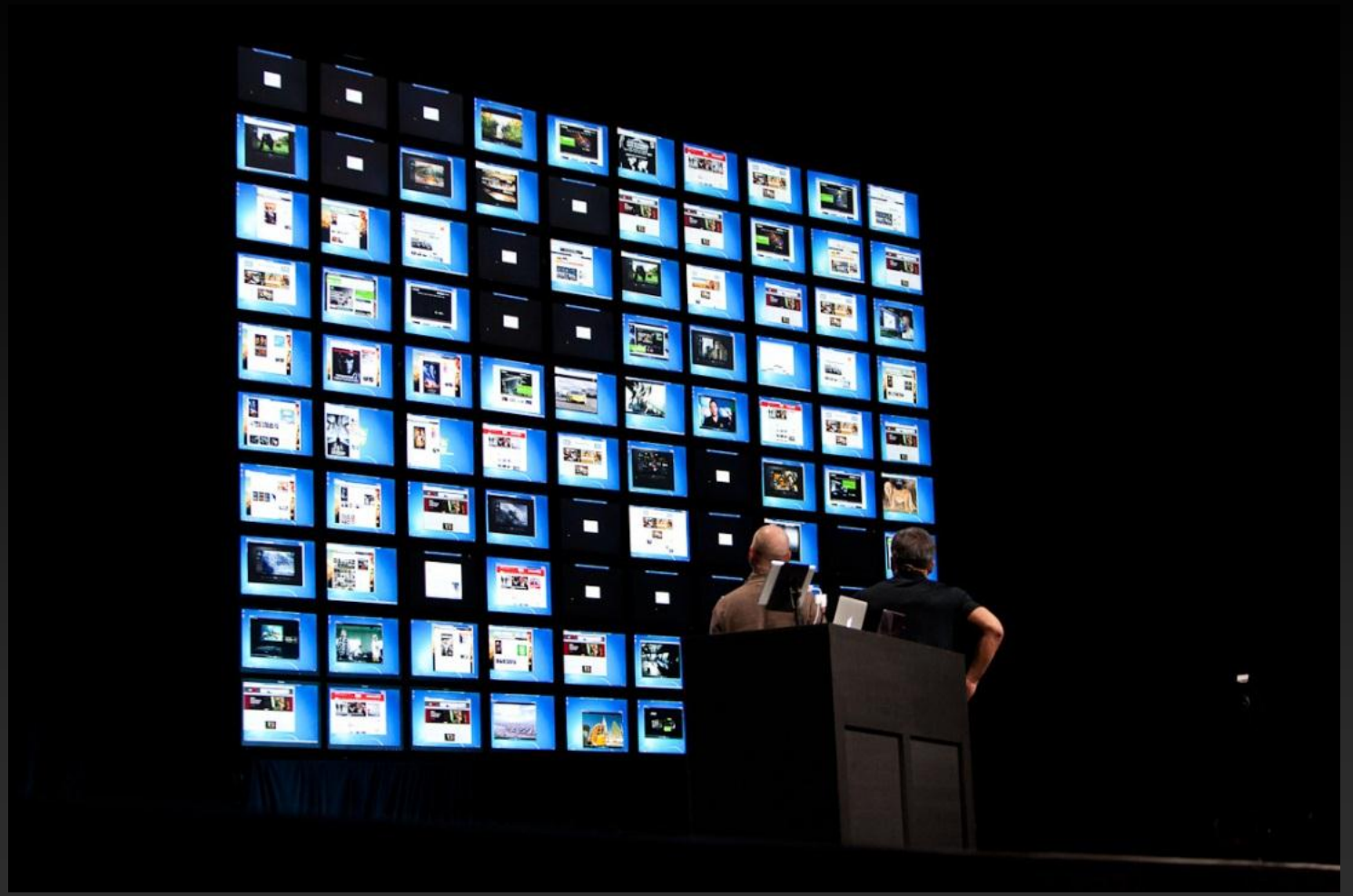






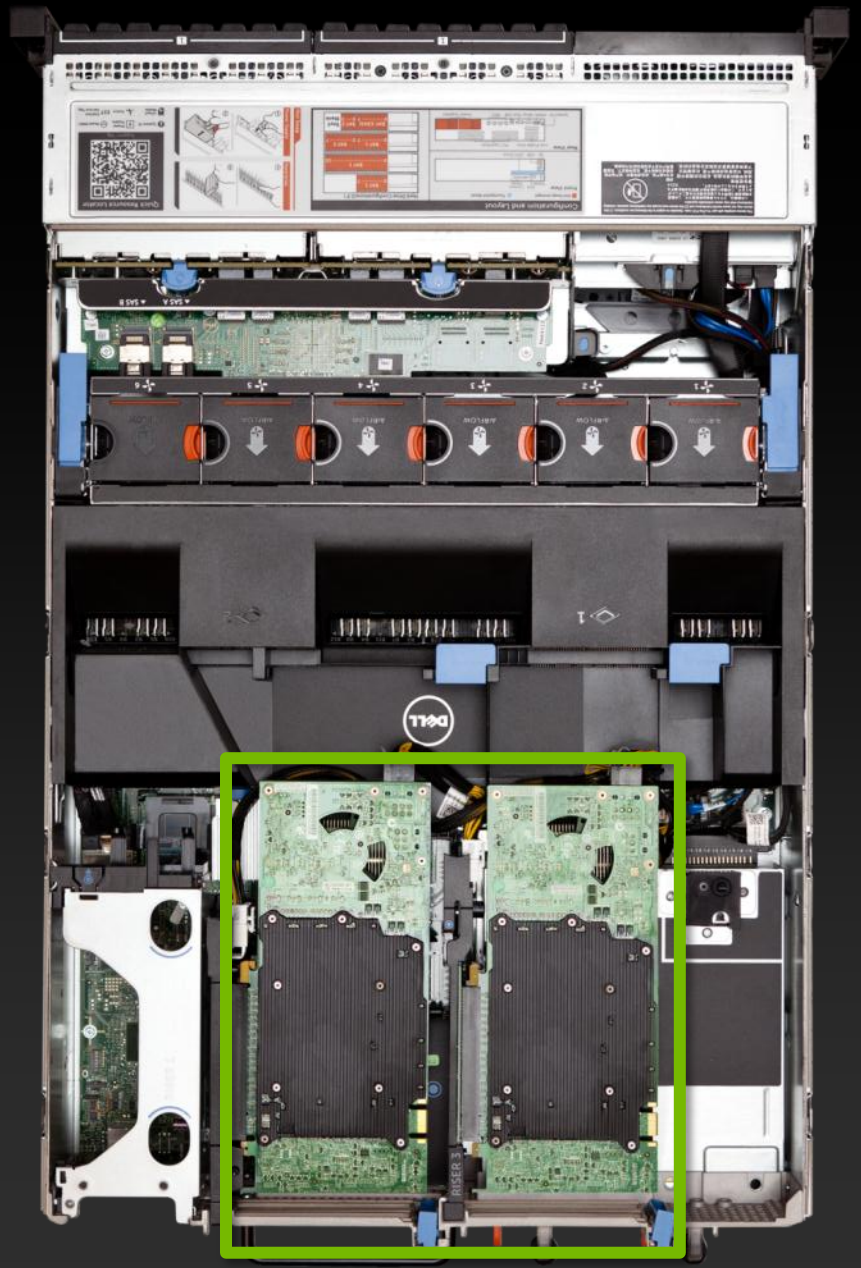


NVIDIA GTC VDI Demo



Running 100 Virtual Machines with MicroSoft RemoteFX on single GPU

With RemoteFX, applications can be accelerated in DirectX 9 and DirectX 11 (now available with Server 2012)


RISER 3

DELL

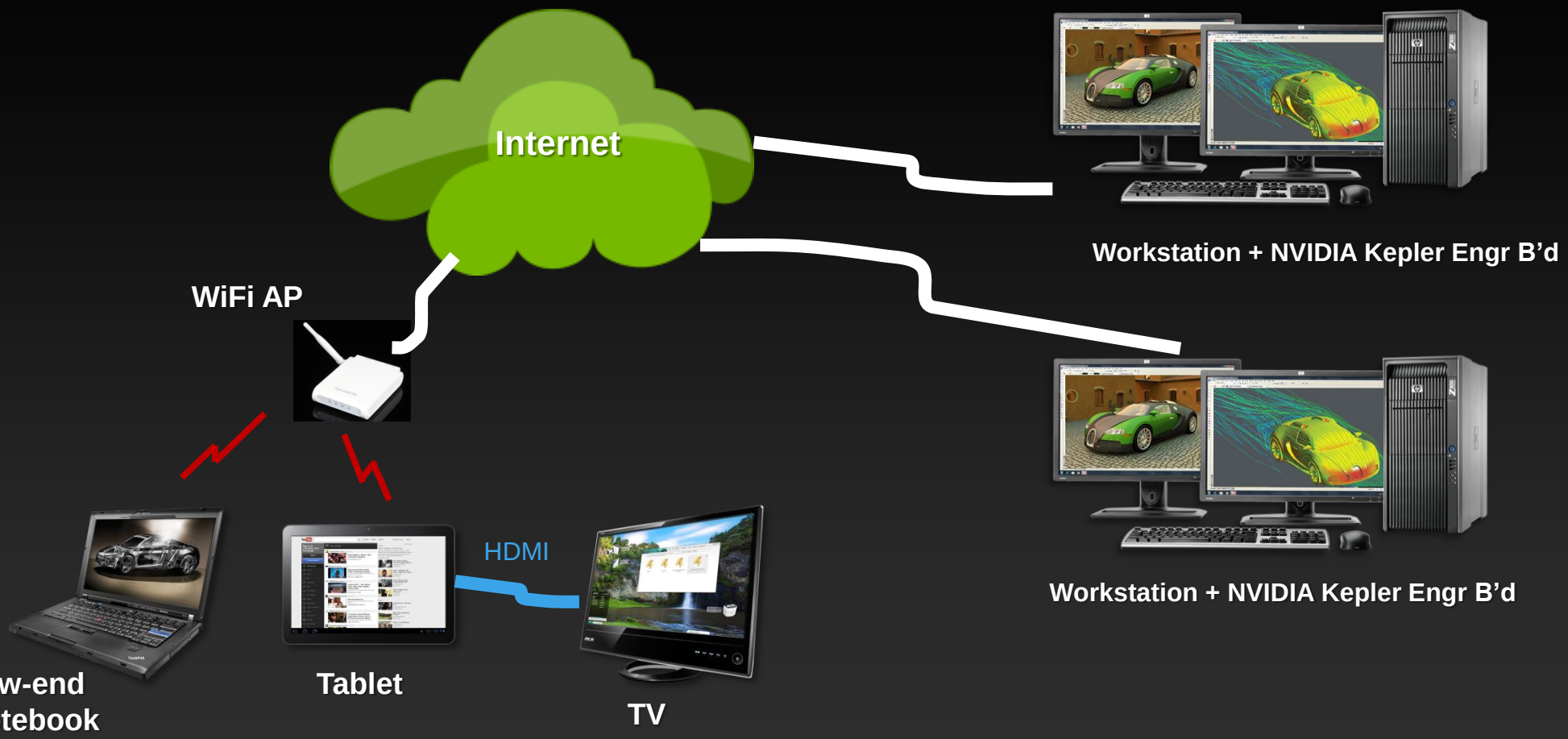
CISCO

hp

IBM

SUPERMICRO

Network Diagram in demo Booth



감사합니다