



GPU Assisted VDI and Distributed Graphics Design

Customer Solution Overview

Services not available everywhere. Lumen may change, cancel or substitute offers and services, or vary them by service area at its sole discretion without notice.

Lumen Value Proposition

Managed Services & Support

- Offload daily IT operations to Lumen's managed services and help desk
- Free your teams to focus on strategic initiatives

Quantified Business Impact

Simplified and consolidated IT infrastructure may lead to cost savings

Strategic Benefits

Hybrid work enablement, operational efficiency, and future-ready scalability



Core Value Proposition

Modernize network and virtual desktop infrastructure (VDI) with the intent to enable hybrid work, optimize performance, and reduce costs.

Cloud-Optimized Infrastructure

- Deploy Lumen® Edge Private Cloud (EPC), e.g. 16 nodes with GPUs, 50TB physical storage, network switches, storage, VMware licensing, and scalable network storage.
- Seamless cloud workload integration for consistent performance across offices and remote users.
- Advanced Managed Services for ongoing platform management.

Scalable and Future-Ready VDI Architecture

- GPU-accelerated VDI for graphic and compute intensive or AI inferencing workloads.
- Partner VDI-as-a-Service (VDIaaS) solution.
- GPU provisioning within Lumen Edge Private Cloud (EPC) and Lumen® Edge Bare Metal offering (EBM).

Performance & Reliability

- Opportunity for latency reduction by relocating data center to the edge close to customer premises.
- IT infrastructure optimization may improve network uptime and reliability for high productivity.

Additional Services

- Lumen® Network Storage, Lumen® Data Protect.
- Cyber Resiliency

Customer Solution Overview

Motivation

- Do you have a need for **distributed desktop solutions** with compute intensive applications?
- Is the existing solution's **performance and availability** sufficient?
- Do you have **compute intensive or graphics intensive applications** that would benefit from a solution with integrated GPUs and accelerators
- Is your data center and application hosting close enough to the end user to **minimize latency**?
- Is your **server IT infrastructure** aging and **ready for an upgrade**?

Lumen Approach

Full **cost-efficient** package including

- Network as a Service **Scalability**
- Fully provisioned partner **VDI** solution.
- **Designed to reduce latency** and enhance network **reliability** with local Edge Private Cloud (EPC) hosting
- **Enhanced performance** with updated GPUs and VMware GPU awareness,
- **Resiliency and security** with Lumen Network Storage (LNS) and Lumen Data Protect (LDP)

Lumen Solution Example

- Partner Virtual Desktop Infrastructure solution supporting hundreds of endpoints (Instance Profile: 8 vCPU, 64GB RAM, 600GB Disk, 8GB vGPU (Frame Buffer) with resource reservations)
- **Lumen® Advanced Managed Services**
- 16 node **Lumen Edge Private Cloud** (EPC)
- Node Config: 2x HPE DL385 AMD EPYC 9274 2.9GHz 24 Core, 2,048 GB RAM, 8x 6.4TB Raw Storage, 4x NVIDIA L40S GPU
- Colocation in Cage with 5 cabinets at Lumen Dallas Data Center
- GPU aware VMs on **Lumen Edge Private Cloud**, 64 NVIDIA L40S data center GPUs
- Custom Sophos firewall and **Lumen Network Storage** (LNS)
- **Lumen Data Protect** (LDP) VM backup

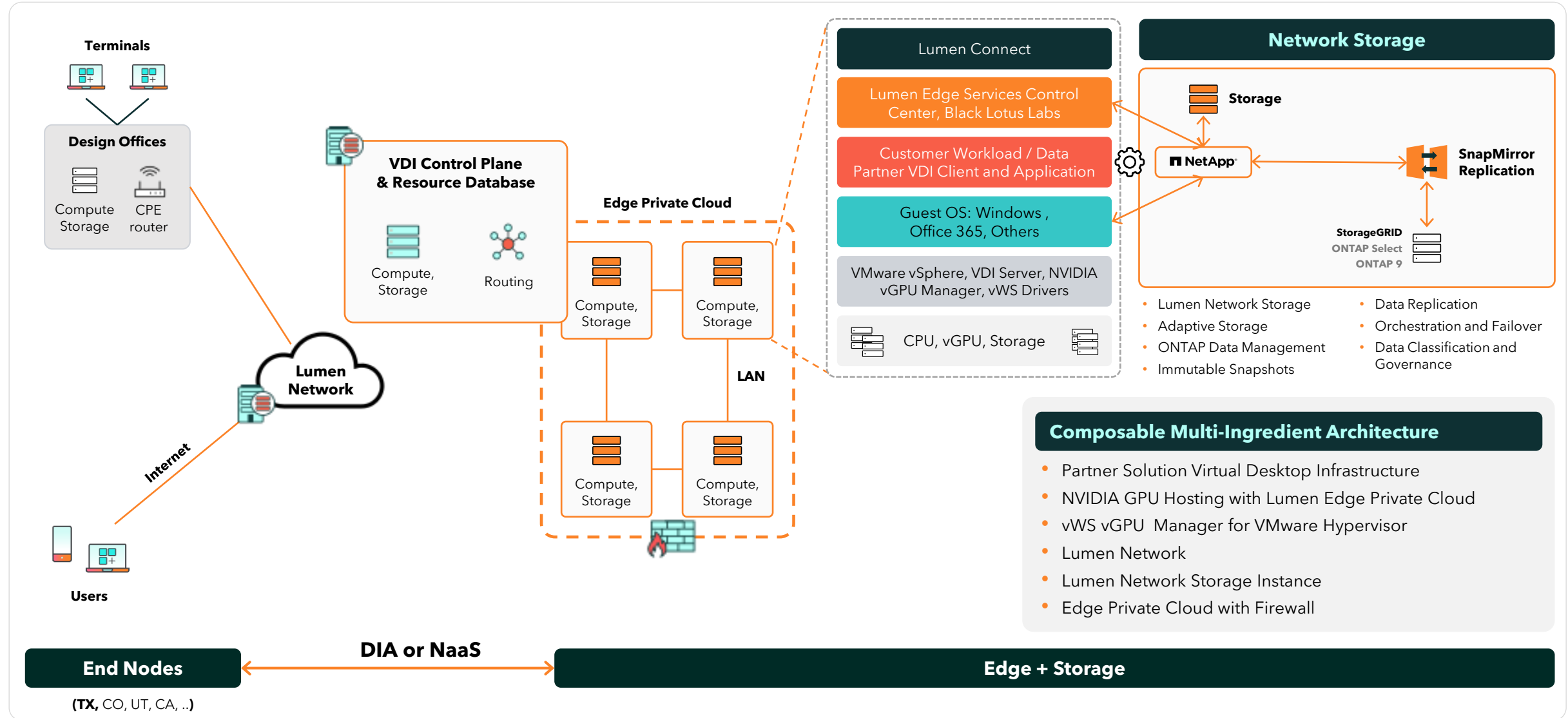
Impact

- Possible cost savings over time
- Potential for latency reduction
- Designed to improve network uptime for high productivity



Solution Architecture

Virtual Desktop Infrastructure Use Case Architecture



GPU Hosting and Virtualization

Core Value Proposition

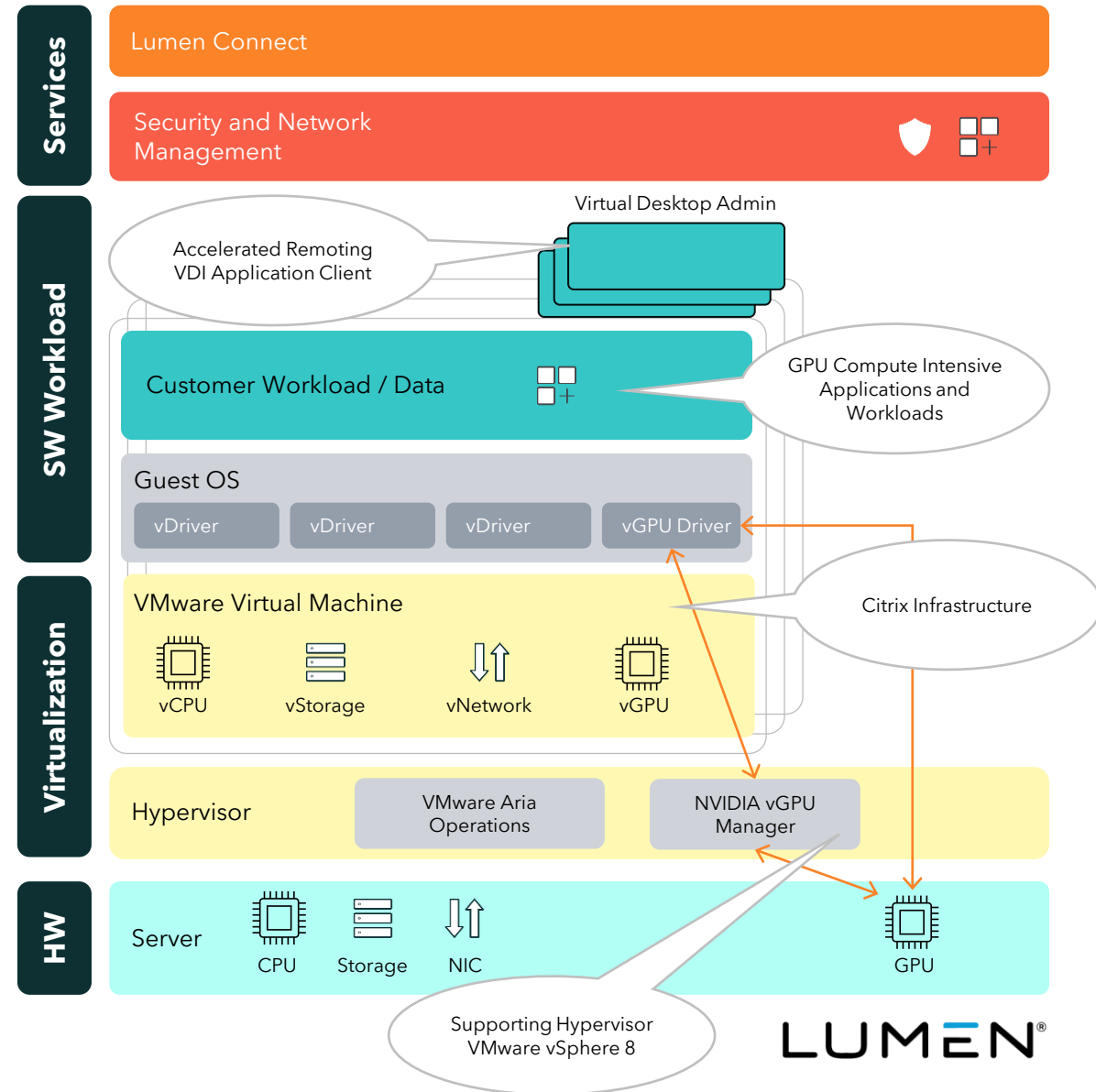
- End-to-end reliable, fast, and low-latency application and desktop sharing across the entire organization
- Local private and secure solution hosting
- Easy to provision and manage
- Easy and deep integration with enterprise IT infrastructure

Lumen Advantage

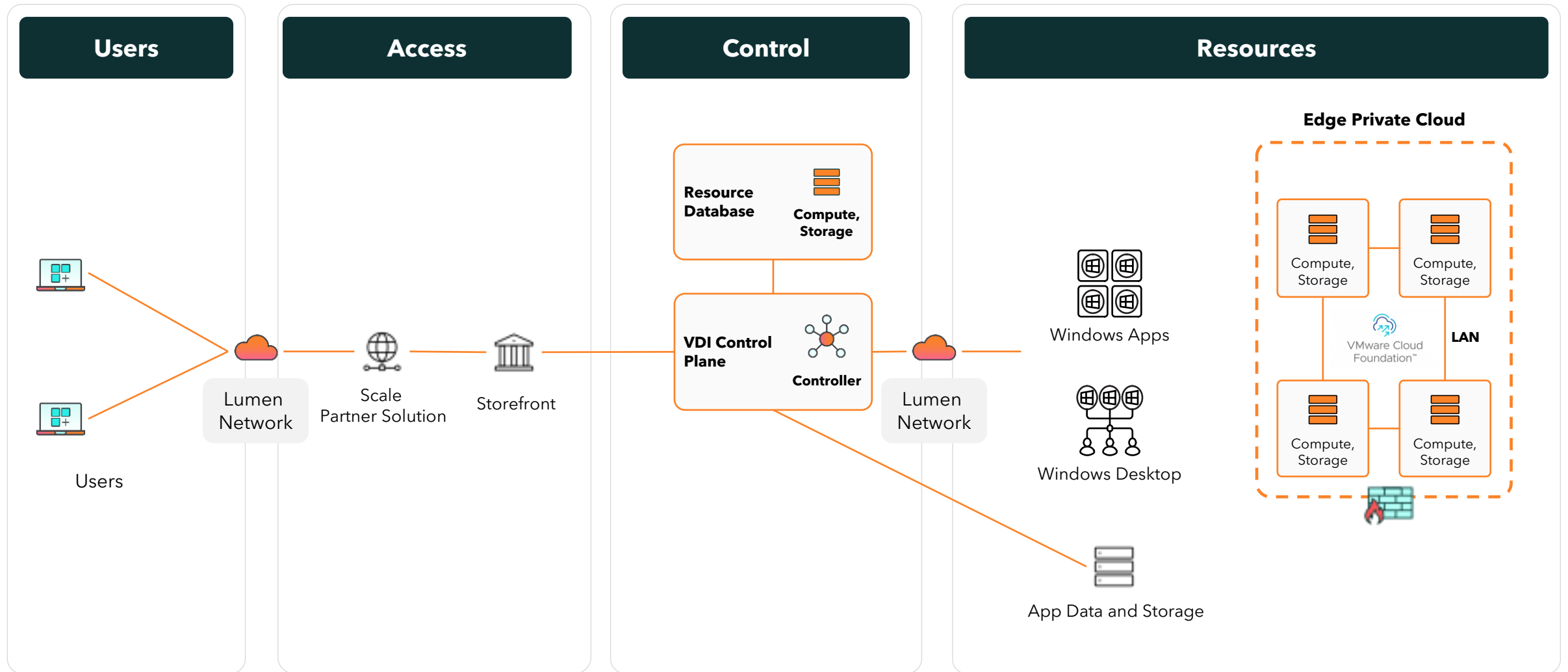
- Local and secure private access near you
- ~60 available **edge** data center locations throughout the US
- Ability to deploy in customer preferred locations (public cloud, on premise, colocation)
- Composable and flexible Edge Bare Metal and Edge Private Cloud configuration
- Well established solution partners
- Fully virtualizable IT stack

Software Stack

- The **VMware Hypervisor** layer runs a vWS Manager to present vGPU through the virtual machine and exposing it to the guest OS.
- Guest OS with graphics intensive workload support.
- Partner virtual desktop infrastructure (VDI) provisioning services run alongside managing virtual desktops using a **Virtual-Desktop-as-a Service (VDIaaS)** cloud hosted application management solution.



Desktop as a Service (VDIaaS)



Optimize your Virtual Desktop IT Infrastructure

- **Scalable Edge Private Cloud** located close to the end user
- Flexible and expandable **Lumen Edge Private Cloud** software stack
- ~60 EBM sites allows to move workloads close to the digital interaction
- **Strong partnerships** with managed application providers
- **VMware's hypervisor hardware awareness** and ability to export hardware APIs to the guest OS layer
- **Lumen's willingness to adapt** our offering **to customer needs** including GPU support
- **The strength of Lumen's network** for low latency and distributed access
- **≤ 5ms of latency** designed to cover up to 97% of U.S. enterprise demand

Lumen Edge Private Cloud with GPU Hosting and Virtual Desktop as a Service



High Performance Graphics Application Sharing

The combination of a complete yet flexible edge compute offering, with strong partnerships and low latency networks