HOME LAB

Physical topology, infrastructure services and VCF environments / 22 October 2026

1 GbE | 10 GbE SFP+ | 10 GbE SFP+ | 10 GbE SFP+

Verizon FiOS G3100

UniFi UDM Pro

Distribution switch / USW Pro 48

Server rack switch / USW Pro 48

USW Pro Aggregation

Rack access: Intel NUC Ethernet

10 GbE via aggregation

iDRAC

PXE / 1 GbE NIC / host

PHYSICAL INFRASTRUCTURE

5 Intel NUCs + ROBO1 shown below

DC1 / NUC10i7FNH
Windows Domain Controller / DNS
Core i7-10710U / 10th Gen
32 GB DDR4-2667
1 x 480 GB SanDisk SSD

DC2 / NUC10i7FNH
Windows Domain Controller / DNS
Core i7-10710U / 10th Gen
32 GB DDR4-2667
1 x 480 GB SanDisk SSD

is3.jteclocal / NUC13ANHi7
ESXi / vSAN witness appliance host
Core i7-1360P / 13th Gen
64 GB DDR4-3200
1 x 400 GB Intel SSD
1 x 2 TB Kingston NVMe PCIe SSD

TFTP / NUC13ANHi7
Windows PXE / TFTP server
Core i7-1360P / 13th Gen
64 GB DDR4-3200
1 × 400 GB Intel SSD
1 × 2 TB Kingston NVMe PCIe SSD

WAN / NUC13ANHi7
Ubuntu WAN simulator / 40 ms delay
Core i7-1360P / 12 cores / 16 threads
64 GB RAM
2 TB Samsung 990 EVO NVMe
512 GB SATA SSD

INFRASTRUCTURE / 2-NODE vSAN + NFS

is1
MS-7D99

is2
MS-7D99

Per host / MSI Pro B760M

CPU: Intel Core i9-14900K
24 cores / 24 logical CPUs exposed to ESXi
RAM: 128 GB DDR5 / no active memory tiering
NVMe: Samsung 970 EVO Plus 500 GB
Kingston NV2 2 TB + Corsair MP600 CORE XT 1 TB

Shared vSphere services / 18 VMs

Lab Builder Appliance	builder
VCF Offline Depot	depot
Jira alternative	jira
ServiceNow alternative	service
Mattermost	opschat
NetBox IPAM	netbox
SMTP relay	smtp
Security Appliance	security
Storage Appliance	storage
vCenter 9.1	vcis
VCF Operations 9.1	vcops / infra-ops
VCF License Server	vclic / infra-lic
VCF Installer	vcf
Health & Security Toolkit	hst
NTP service	ntp1
LogLab / Critical alerts	splunk
VMSP Toolkit 3.0.1	vmsp-toolkit
Windows Root CA	ca1.jtec.local

NESTED LAB

Dell PowerEdge R650 / Nested VCF host

CPU: 2 x Xeon Gold 6330 / 56 cores / 112 threads
DRAM: 512 GB + NVMe memory tier
ESXi memory capacity: approximately 1,534 GiB
Boot: BOSS-S2 / mirrored 240 GB SSDs
6 x Dell P5600 1.6 TB NVMe (data + tier)

VyOS virtual router
Shared nested routing / VyOS

VCF 5.2

Management 4 nested hosts	Workload 3 nested hosts

VCF 9.x

Management 3 nested hosts	Workload 3 nested hosts

VCF MANAGEMENT

VCF 9.1.1 / mgmt-cl01
4 x MS-A2 / 14 management VMs (includes DSM)

mgmt1
MS-A2

mgmt2
MS-A2

mgmt3
MS-A2

mgmt4
MS-A2

Per host

CPU: mgmt1-3 Ryzen 9 7940HX
mgmt4 Ryzen 9 7945HX
16 cores / 32 threads per host
RAM: 128 GB DDR5 + active NVMe tier
ESXi memory: approximately 251 GiB / host
500 GB SK hynix P31 + 2 TB Samsung 990 EVO
1 TB NVMe tier device (Corsair / Kingston)

VCF WORKLOAD

VCF 9.1.1 / wkld1-cl01
3 x MS-A2 with GPUs / vSAN + NFS

Workload host 1
MS-A2 with GPU

Workload host 2
MS-A2 with GPU

Workload host 3
MS-A2 with GPU

Per host

CPU: Ryzen 9 9955HX / 16 cores / 32 threads
RAM: 96 GB DDR5 + active NVMe tier
ESXi memory: approximately 187 GiB / host
500 GB SK hynix P31 boot NVMe
1 TB Samsung 990 EVO (memory tiering)
2 TB Samsung 990 EVO (vSAN)
Cluster services (shared across hosts):
Supervisor wkld1-sv1 / NSX edgew1 + edgew2
VCF Automation / Private AI Services
3-node PAIS VKS / GPU Llama + embeddings
DSM PostgreSQL / 2-node chat + MCP VKS

Connection legend

Primary data / 10 GbE connectivity

Dedicated PXE / management connection

HP ProLiant DL360 Gen9

Spare nested host

Data: 10 GbE to Pro Aggregation
iLO only: 1 GbE to server rack switch

CPU: 2 x Xeon E5-2699 v4 / 44 cores / 88 threads
Last-reported RAM: 1,024 GB DDR4
Drives: 2 x 2 TB SanDisk SSD (RAID 1)
3 x 4 TB Crucial MX500 SSD (RAID 5)
1 x 8 TB Samsung SSD (RAID 0)

QNAP TS-435XeU / SAN storage

SAN: 10 GbE to Pro Aggregation
Management: 1 GbE to server rack switch

CPU: Marvell CN913X / 2.2 GHz
4-core ARMv8 Cortex-A72
RAM: 32 GB DDR4
Cache: 2 × 1 TB Crucial M.2 PCIe SSD (RAID 1)
Data: 4 × 18 TB Seagate Exos 7.2K HDD

ROBO1 / PHYSICAL REMOTE SITE HOST

ROBO1 / NUC13ANHi7 / ESXi 9.1.1
Core i7-1360P / 12 cores / 12 logical CPUs / 64 GB RAM
960 GB SanDisk SATA + 512 GB SATA + 2 TB Samsung 970 EVO Plus
Managed by vce / ztp-cl01 / zero guest VMs
Ethernet to rack switch / routed via WAN / 40 ms each way