

#	Product	Specification	Q-ty
1	Workstation	<p>Chipset: X299 or equivalent</p> <p>CPU: Minimum 3.30 GHz up to 4.30 GHz; Cache: 13.75 MB L3; 10 Cores, 20 Threads</p> <p>Memory (RAM): Minimum 16GB DDR4 2666Mhz (up to 128GB; 8 Dimm Slots)</p> <p>Internal Memory: Minimum 256GB PCIe NVMe M.2 SSD; 2x 500GB 3.5' HDD 7200rpm</p> <p>Graphics Card: Minimum 2GB DDR5, 64 bit, 256 Cuda Cores; Memory Bandwidth 32 GB/s; 3x digital signal outputs, 3x 4k Display Support</p> <p>Drive Controllers: Minimum Integrated SATA 6.0 Gb/s supporting RAID 0, 1, 5, 10</p> <p>Expansion Slots: Minimum 2 PCIe3 x4; 1 M.2 PCIe3 x4, 1 PCIe8, 2 PCIe16; 6x 6Gb/s SATA ports</p> <p>Power Supply: Minimum 1000W internal power supply, up to 90% efficiency</p> <p>Ports and Connectors: Front: 1x headset connector; 2x USB 3.1 Gen 2 Type-C™; 2x USB 3.1 Gen1 (1 charging) Rear: 1x audio-in; 1x audio-out; 1x PS/2 keyboard port; 1x PS/2 mouse port; 1x RJ-45 (GbE); 5x USB 3.1 Gen 1</p> <p>Included Accessories: USB Keyboard and Mouse</p> <p>Operating System: Linux Ready (Or Free DOS)</p> <p>Warranty: Min. 3yr</p>	10
2	Workstation	<p>Chipset: C622 or equivalent</p> <p>CPU: Minimum 2.10GHz up to 3.00 GHz; Cache: 16.50 MB L3; 12 Cores, 24 Threads, 2x CPU Support</p> <p>Memory (RAM): Minimum 32GB DDR4 2666Mhz (up to 384 GB DDR4-2666 ECC RAM; 6 Dimm Slots for 1x CPU; up to 768 GB DDR4-2666 ECC RAM; 12 Dimm Slots for 2x CPU;)</p> <p>Internal Memory: Minimum 256GB PCIe NVMe M.2 SSD; 2x 500GB 3.5' HDD 7200rpm</p> <p>Graphics Card: Minimum 2GB DDR5, 64 bit, 256 Cuda Cores; Memory Bandwidth 32 GB/s; 3x digital signal outputs, 3x 4k Display Support</p>	2

		<p>Drive Controllers: Minimum Integrated SATA 6.0 Gb/s supporting RAID 0, 1, 5, 10</p> <p>Expansion Slots: Minimum 2 PCIeG3 x16, 3 PCIeG3 x4, 1 PCIeG3 x8; 2 PCIeG3 x4 M.2</p> <p>Power Supply: Minimum 1000W internal power supply, up to 90% efficiency</p> <p>Ports and Connectors: Front: 1x headset connector; 2x USB 3.1 Gen 2 Type-C™; 2x USB 3.1 Gen1 (1 charging); SD Card Reader; Rear: 6x USB 3.1 Gen 1; 2x RJ-45 (1x GbE); 1x audio-in; 1x audio-out; 1x PS/2 mouse port; 1x PS/2 keyboard port; 1x serial</p> <p>Included Accessories: USB Keyboard and Mouse</p> <p>Operating System: Linux Ready (Or Free DOS)</p> <p>Warranty: Min. 3yr</p>	
3	Monitor	<p>Display Size (diagonal): Min. (27")</p> <p>Display Type IPS w/LED backlight</p> <p>Native Resolution: Min. QHD (2560 x 1440 @ 60 Hz)</p> <p>Aspect Ratio: 16:9</p> <p>Viewing Angle: Min. 178° hor. 178° vert.</p> <p>Brightness: Min. 350 cd/m²</p> <p>Contrast Ratio: Min. 1000:1 static; 5000000:1 dynamic</p> <p>Response Time: Max. 5 ms on/off</p> <p>Input Signal, Min.: 1 VGA; 1 HDMI; 1 DisplayPort™ 1.2; (Or 1x VGA and 2x Digital Connector); 2x USB 3.0</p> <p>Monitor Stand: Minimum: Tilt: -5 to +22°; Swivel: 45° ±2°; Pivot rotation: 90°; Height: 150 mm</p> <p>Vesa Support</p> <p>Warranty: Min. 3 Years</p>	36
4	Foglight	FOGLIGHT FOR VIRTUALIZATION ENTERPRISE EDITION PER CPU SOCKET LICENSE/MAINT (VOE-FOG-PB)	20
		FOGLIGHT SERVER FOR FSM LICENSE/24X7 MAINT (FFA-FOG-PB)	1
		FOGLIGHT FOR SQL SERVER PER NAMED INSTANCE LICENSE/24X7 MAINT (NAE-FOG-PB)	1
5	Switch	<p>Ethernet ports q-ty: not less 24 ports 10/100/1000 ports</p> <p>10G SFP+ ports: not less 8</p> <p>Cooling: not less 3 cooling unit</p> <p>Form-factor: switch must be capable to be mounted in 19inch network rack. And must come with all needed mounting accessories.</p> <p>Management ports:</p> <p>RJ-45 to DB9: not less 1</p> <p>Management ports - RJ-45 type: not less 1</p> <p>Management ports RS-232 type: not less 1</p> <p>USB ports: not less 1</p> <p>Switching capacity: not less 208 Gb/s</p> <p>DRAM: not less 8GB</p> <p>Flash memory: not less 16GB</p> <p>Total number of MAC addresses: not less 32000 MAC addresses</p> <p>ACL q-ty: not less 5120</p> <p>IPv4 routes: not less 32000</p>	2

		<p>SVI q-ty: not less 2000  VLANs: not less 4000  Jumbo frames: 9198 bytes  Stacking support and stacking Cable: yes  Power Stack support and Stacking Cable: yes  Stacking bandwidth: not less 480Gbps  power: 2 X 100 to 240 VAC. redundant power supply.  Layer 2 functionality:  - Layer 2 switch ports and VLAN trunks  - IEEE 802.1Q VLAN encapsulation  - Rapid Spanning Tree Protocol (RSTP)  - Multiple Spanning Tree Protocol (MSTP)  - LACP: IEEE 802.3ad, IEEE 802.1ax  - Storm control (multicast and broadcast)  - Link-level flow control (IEEE 802.3x)  Layer 3 functions: - static routes  - BGP, EIGRP, HSRP, IS-IS, BSR, MSDP, PIM-BIDIR, IP SLA, OSPF  - VRF, VXLAN, LISP, SGT, MPLS, mVPN  Multicast functions: - Protocol-Independent Multicast Sparse Mode (PIM-SM)  - Source-Specific Multicast (SSM)  Security: - Authentication, Authorization, and Accounting (AAA)  - Access Control Lists (ACLs)  - storm control  - configurable Control-Plane Policing (CoPP)  MACsec-256: yes  Management: SSH - Telnet - SNMP - syslog - CLI-based console  Manufacturer Warranty and support : not less 1 year</p>	
6	Switch	<p>Ethernet ports: not less 48 1/10G/25G SFP+ ports.  QSFP+ ports: 6 (from these 6 ports 4 must be capable to work at 100-Gbps speed (QSFP28))  cooling: not less 4 cooling fans (Port-side intake and exhaust)  form-factor: 2RU - switch must be capable to be mounted in 19inch network rack and must come with all needed mounting accessories.  management ports SFP: not less 1  management ports RJ-45: not less 1  management ports RS-232 serial ports: not less 1  USB ports: not less 1  Switching capacity: not less 5.76Tbps  Processor: not less 2 cores  DRAM: not less 16GB  Shared system buffer: not less 20 MB  Total number of MAC addresses: not less 92000 MAC addresses  ports q-ty in one aggregation: not less 32  aggregated port groups q-ty: not less 512  ECMP routes q-ty: not less 64  ECMP groups q-ty: not less 256  ECMP members q-ty: not less 64000</p>	2

		<p>HSRP groups q-ty: not less 490  MST instances q-ty: not less 64  VLANs q-ty: not less 3967  NAT entries q-ty: not less 1023  Power supply: 100 to 240 VAC 50 to 60 Hz.  Redundant power supply support: yes.  Layer 3 and other functionality:  - Open Shortest Path First (OSPF) Protocol  - Border Gateway Protocol (BGP)  - Intermediate System-to-Intermediate System (IS-IS) Protocol  - Protocol Independent Multicast (PIM), which includes sparse mode, bidirectional mode, and Source Specific Multicast (SSM) mode  - Multicast Source Discovery Protocol (MSDP)  - Policy-Based Routing  - Generic Routing Encapsulation (GRE) Tunnels  - VRF route leaking  - VXLAN BGP EVPN  Manufacturer Warranty and Support: Not less 1 year</p>	
7	Firewall	<p>form-factor: 1RU  10/100/1000 Mbps RJ-45 ports: not less 12  10G SFP+ ports: not less 4  10/100/1000Mbps RJ-45 management port: not less 1  RJ-45 console (Console Port): not less 1  USB 2.0 interface (type A): not less 1  Storage: not less 200GB  Spare Storage slot: not less 1  Throughput: FW + AVC 1024B not less 4.75Gbps  Throughput: FW + AVC + IPS (1024B): not less 4.75Gbps  concurrent sessions, with AVC: not less 2million  new connections per second, with AVC: not less 24 000  IPSec VPN Throughput (1024B TCP w/Fastpath): not less 1.5Gbps  VPN Peers q-ty: not less 7500  Routing Protocols:  -Routing Information Protocol (RIP)  -Border Gateway Protocol (BGP)  -Open Shortest Path First (OSPF)  -Static Routes  It must be possible to add Following functionality with purchasing compliant software and license:  -IPS.  -Application Control  -: Advanced Threat Detection  -: URL Filter  URL Filtering: number of URLs categorized: not less 280 million  URL Filtering: number of categories: not less 80  HA Active/Standby Support: yes  VLANs q-ty: not less 1024  Power supply: 100 to 240V AC</p>	2

		Redundant Power supply support: yes Manufacturer Warranty and Support: no less 1 year	
8	JG314A	Compliant with HP 5500 Series Switch 8 port SFP module	2
9	JD368B	Compliant with HP 5500 Series Switch 2 SFP module 10G speed	2
10	Storage System Enclosure (UPGRADE)	Form Factor: 24x SFF Enclosure with SAS Cables, must be compatible with DELL EMC UNITY 300 Hybrid Storage System	1
11	Storage System FAST CACHE SSD (UPGRADE)	Form Factor: 2.5 SFF Capacity: 400GB SSD Interface : SAS must be compatible with DELL EMC UNITY 300 Hybrid Storage System	2
12	Storage System SSD (UPGRADE)	Form Factor: 2.5 SFF Capacity: 1.6TB SSD Interface : SAS must be compatible with DELL EMC UNITY 300 Hybrid Storage System	6
13	Storage System HDD (UPGRADE)	Form Factor: 2.5 SFF Capacity & RPM: 1.8TB 10K Interface: SAS must be compatible with DELL EMC UNITY 300 Hybrid Storage System	15
14	FC630 Blade Server Memory (UPGRADE)	DDR4: 32GB DDR4 2400 must be compatible with DELL EMC FC630 Blade Server	24
15	Blade Servers (UPGRADE)	Form Factor: Half-width Cooling: Redundant Management: Fully licensed CPU: Each server must contain two processors <ul style="list-style-type: none"> <li>• 14 nm technology</li> <li>• 12 cores</li> <li>• base frequency – 2.2GHz, turbo frequency 2.9GHz</li> <li>• 30MB SmartCache</li> </ul> Memory Slots: Minimum 24 Slots Memory: Minimum 4x 32GB DDR4 2400 Max Memory: Up to 1.5TB RAID Controller: 12 Gb/s SAS Controller Type A Disk: Minimum 2x 120GB SSD SATA 6Gbps Hot Plug Network Adapter: Dual Port 10Gbps KR CNA Fibre Channel HBA: Dual Port 16Gbps FC HBA must be compatible with DELL EMC FX2 Chassis	3
16	Backup Appliance	Form Factor: 2U Rack mountable Cooling & Power Supply: Redundant Usable Capacity: 33TB using RAID6 Protocols: CIFS, NFS, Open Storage Throughput: Up to 8.5TB/hr Throughput using turbo regime or similar function: Up to 24TB/hr	1

		<p>Deduplication: In-Line Deduplication</p> <p>Immunity: EN55024, CISPR24</p> <p>Network Card A: Quad Port 10Gbps SFP+ (must support LACP)</p> <p>Network Card B: Quad Port 10Gbps Base-T (must support both 1Gbps and 10Gbps mods)</p> <p>Management Port : 1Gbps Ethernet RJ45</p> <p>must be compatible with rest of Infrastructure</p>	
17	Precision Cooling	<p>Precision Cooling: 2 Pcs</p> <p>Form Factor: Standalone</p> <p>Net Cooling: Not less than 41KW</p> <p>Input: 400V/3phase+N/50Hz</p> <p>Refrigerant: R410A</p> <p>Type: Precision Direct Exchange, HA</p> <p>Filters: Not less than EU4 Class</p> <p>Management: TCP/IP, SNMP, With possibility of integration in proposed monitoring Solution</p> <p>Airflow: Downflow with suction from the top</p> <p>CFM of Internal Unit: Not less than 12300 m3/h</p> <p>Qty of Fans in internal unit: Not less than 2</p> <p>Fan type: Invertor, Speed modulation Control</p> <p>Fan Modulation: Not less than 54%</p> <p>Compressor Qty: Not less than 2 pcs, High Availability</p> <p>Heaters: Not less than 5 pcs</p> <p>Heaters power: Not less than 15KW</p> <p>System total Efficiency coefficient: Not less than 2.4</p> <p>Compressor ERR: Not less than 3.0</p> <p>Cooling Circuit: 1</p> <p>External Condenser Airflow: Not less than 20800 m3/h</p> <p>External Condenser level of noise 1m Radius: Not more than 55.1 db</p> <p>Dimensions: Internal Unit (Not more): H - 196cm, W - 172c, D - 865cm</p> <p>External Condenser (Not More) : H - 135cm, W - 236cm, D - 72cm</p> <p>Warranty and Support: Not less than 1 Year 24/7 On-Site</p> <p>Compliance: UNI EN ISO 9001/2000, UNI EN ISO 14001/2004, 98/37/EEC, 73/23/EEC, 89/336/EEC</p>	2
18	Server Rack	<p>Form Factor: Standalone</p> <p>Maximum height: 205.7 cm</p> <p>Maximum Width: 60.0 cm</p> <p>Minimum Depth: 106.0cm</p> <p>Equipment Capacity: Not Less than 42 U</p> <p>Door Perforation: No less than 69.3%</p> <p>Weight: No more than 121.3 KG</p> <p>Maximum Dynamic load: No less than 460 KG</p> <p>Maximum Static load: No less than 1000 KG</p> <p>Compliance with standards": UL 2416, UL 60950-1</p> <p>Warranty: No less than 5 Years</p>	5
19	Power Distribution Units	<p>Output Specifications:</p> <p>Nominal Output Voltage: 220-230V</p> <p>Output Connections: No less than (4 pcs) IEC 320 C19</p>	10

		<p>No less than (20 pcs) IEC 320 C13</p> <p>Input Specifications:</p> <p>Nominal Input Voltage: 220V</p> <p>Input frequency": 50 Hz</p> <p>Input Connector Type: IEC 309 16A 1P+N+PE</p> <p>Load: No less than 7040 Watts</p> <p>Maximum Input Power: No less than 32A</p> <p>Form Factor: Vertical, Zero U</p> <p>Physical parameters:</p> <p>Maximum height: No more than 177.8 cm</p> <p>Maximum width: No more than 5.6 cm</p> <p>Maximum Depth: No more than 4.4 cm</p> <p>Environmental:</p> <p>Working temperature: No less than -5 + 45 °C</p> <p>Working humidity": No less than 0 - 95 %</p> <p>Compliance with standards": CE, ROHS</p> <p>Warranty: Minimum 2 Years</p>	
20	Uninterruptible power supply	<p>Form Factor: Standalone, Non-Modular</p> <p>Nominal Power: No less than 60KVA/54KW</p> <p>Input Specifications:</p> <p>Input voltage range": No less than 340V- 477V</p> <p>Input frequency range": No less than 45-65 Hz</p> <p>Input/Output Type: 3 + N + G Input/Output</p> <p>Power Factor": No less than 0.99</p> <p>Power Supply Sources: Dual Feed Input</p> <p>Parallel Capability: N+1 Parallel Capability</p> <p>Maximum Input Amperage: No less than 220 A</p> <p>Short-circuit Resiliency: No less than 16kA</p> <p>Transformer: Integrated galvanic isolation transformer</p> <p>Overload Capability: No less than 10 min 125% Load</p> <p>No less than 30 sec 150% Load</p> <p>Output Specifications:</p> <p>Nominal Output Voltage: 380/400/415V (selectable)</p> <p>Output Frequency: 50/60 +/- 5% Synchronization</p> <p>50/60 Hz +/- 1 Hz Without Synchronization</p> <p>Efficiency: Efficiency at full load no less than 93.5%</p> <p>Topology: Double Conversion, Pure Sinewave</p> <p>Output Voltage Distortions: No more than 5%</p> <p>Output Voltage Tolerance: No more than 3% Non- Static load</p> <p>No more than 5% Non-Static Load</p> <p>Bypass: Integrated Stating and Maintenance Bypass accessible from the front Door</p> <p>Maintenance: A full maintenance bypass with front access, which permits complete isolation of each part of the system and facilitates maintenance operations without power interruption.</p> <p>Management:</p> <p>Remote Management: Integrated TCP/IP SNMP Card</p> <p>Control Panel: LCD Screen with buttons, Input/Output Status Diagramm</p>	2

		<p>Centralized Management: Offered UPS must be compatible with offered Datacenter monitoring solution and should be able to monitor its status from the centralized panel on monitoring solution screen</p> <p>Battery Specifications:</p> <p>Battery Type: VRLA Maintenance Free, Lead Acid</p> <p>Battery Runtime: No less than 10minutes on full load</p> <p>Enclosure Type: Batteries should be located internally, with no additional enclosure and should be maintainable and swappable without loss of UPS Output Power.</p> <p>Physical Parameters and Warranty:</p> <p>UPS Size: No more than: H- 190cm, W - 70cm, D - 95cm</p> <p>Weight: No less than 700KG and no more than 900KG</p> <p>Protection Class: IP 20</p> <p>Compliance with standards: CE, EAC, EN/IEC 62040-1, EN/IEC 62040-2, EN/IEC 62040-3, IEC 62040-4, ISTA 2B</p> <p>Warranty: No less than 1 Year 24/7 On-site</p>	
21	Datancenter Environmental Monitoring System	<p>System Description: Environmental Monitoring system must be able to work with temperature, humidity, smoke, leak sensors. Temperature / Humidity sensors must be wireless with battery life no less than 5 years. System must also be able to connect and monitor Precision cooling units and UPS Units via SNMP Protocol in realtime. Information regarding monitored external SNMP connected devices must be located on the main DC Monitoring System Screen. Also offered monitoring system must work with Digital Cameras and have CCTV Functionality</p> <p>Compliance with standards: AS/NZS 3548 (C-Tick) Class A, cUL Listed, CE, FCC Part 15 Class A, GOST, ICES-003, IRAM, Low Voltage Directive 2006/95/EC,</p> <p>Technical Specification:</p> <p>Compatible external Sensors: 0-5V, Door Contact, Dry Contact, Humidity, Smoke, Fluid Spot Leak, Temperature, Vibration</p> <p>Supported Digital Cameras Qty: No less than 4</p> <p>Supported Sensor Qty: No less than 70 Cable connected sensors and 45 Wireless</p> <p>Server Rack authorized Access function: No less than 26 x Racks with Single Monitoring module</p> <p>Expandability: Up to 99 Modules via single graphical interface</p> <p>Device/Sensor Ports: No less than 1x RJ45 Ethernet, 6x RJ45 Sensor Port, 1x USB Configuration Port, 4x USB Port, 2x Relay Output, 4x 4-20mA input port, 1x Alarm Beacon Port, 1x RS-485 Modbus Port, 1x Voltage output port.</p> <p>Video Input: Analog CCTV cameras via USB CCTV Adapter Pod, NetBotz USB Camera Pod, NTSC, PAL, Pelco IP110-CHV9, Pelco IP3701H-2, Compatible Cameras: 4 - 20mA Sensor, Camera Pod 120, Camera Pod 160</p> <p>Video Resolution: Not less 1280x1024</p> <p>Sensors:</p> <p>Wireless Temp/Humidity Sensor: 2 pcs</p> <p>Cabled Temp/Humidity Sensor: 1 pcs</p> <p>Wireless Temperature Sensor: 5 pcs</p>	1



		<p>Alarm Beacon: 1 pcs  Smoke Sensor: 2 pcs  Leak Sensor: 2 pcs  Sensor Expansion Module: 1 pcs (6 Port)  Door Sensor: 2 pcs  IP Camera: 2 pcs with 1280x1024 Resolution 30 FPS  Licenses:  CCTV Recording License:  Additional SNMP Device Connection License (If such is needed for device monitoring):  Alarm Messages:  All SNMP Alarms should be sent via Email and SMS :  Warranty: Not less than 2 Years</p>	
22	Fire Security	<p>Type: Aspirated, Early Detection  Fire Suppression Technology: Particle Free high pressure Agent FM200 Type  Agent Reservoir and Volume: Internal Pressure meter, Impulse Valve, Gas leak Detection Sensor, Manual Release Button. Volume of Agent must meet exact room volume (215 m3)  Agent Specifications: HFC227ea (FM200 Du-pont)  System Control Panel: Automatic Fire Suppression and Detection Panel must receive signal input from detection device and provide signal to gas release station. Panel must have communication port and be integrated in local area network  Accessories: Solution must include Manual release / Delay button, all needed sensors, Alarm beacon and all needed management accessories for connection and integration with active ventilation system  Compliance: ISO9001  Warranty and support: No less than 1 Year</p>	1
23	USB Remote Virtualizator	<p>USB Over Network Software 10 Devices 2 years subscription, Compatible with existing usb dongle keys.</p>	1
24	Bio Access Security Module	<p>RFID  RF Option: 125kHz EM &amp; 13.56MHz MIFARE, MIFARE Plus, DESFire/EV1, FeliCa  Mobile Card: NFC  Fingerprint  Template: SUPREMA / ISO 19794-2 / ANSI 378  Extractor / Matcher: MINEX certified and compliant  Capacity (Fingerprint)  Users (1:1) based on one finger enrollment per user: not less 10000  Users (1:N) based on one finger enrollment per user: not less 10000  Max. Finger per User: not less 10  Text Log: not less 1000000  HW  CPU: not less 1.0GHz  Memory: not less 8GB Flash + not less 64MB RAM  LED: Multiple colors  Sound Multi-tone Buzzer</p>	4

	<p>Operating Temperature: -20°C ~ 50°C Operating Humidity: 0% ~ 80%, non-condensing Dimension (WxHxD, mm): not more 50 x 165 x 38 Tamper: Supported Interface Ethernet: 10/100 Mbps, auto MDI/MDI-X RS-485: 1ch Host or Slave (Selectable) Wiegand: 1ch Input or Output (Selectable) TTL Input: 2ch Inputs Relay: 1 Relay Power: DC 12V Compatible with Biostar v.2</p>	
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