CONTENTS

[1. PURPOSE. 2](#_Toc120188502)

[2. BACKGROUND TO THE CONTRACTING aUTHORITY 2](#_Toc120188503)

[3. Background to requirement/OVERVIEW of requirement 2](#_Toc120188504)

[4. definitions 2](#_Toc120188505)

[5. HIGH LEVEL scope of requirement 4](#_Toc120188506)

[6. DETAILED requirement 5](#_Toc120188507)

[7. key milestones and Deliverables 10](#_Toc120188508)

[8. MANAGEMENT INFORMATION/reporting 11](#_Toc120188509)

[9. continuous improvement 11](#_Toc120188510)

[10. quality 12](#_Toc120188511)

[11. PRICE 12](#_Toc120188512)

[12. STAFF AND CUSTOMER SERVICE 12](#_Toc120188513)

[13. service levels and performance 12](#_Toc120188514)

[14. Security and CONFIDENTIALITY requirements 13](#_Toc120188515)

[15. payment AND INVOICING 14](#_Toc120188516)

[16. CONTRACT MANAGEMENT 14](#_Toc120188517)

[17. Location 14](#_Toc120188518)

[18. ANNEX A – CURRENT ENVIRONMENT 15](#_Toc120188519)

[19. ANNEX B - Current Virtual Server Environment 18](#_Toc120188520)

# 

# PURPOSE.

## The purpose of this requirement is to secure the provision, implementation and service of a technical refresh of the MoD Police’s on-premise network and server infrastructure.

# BACKGROUND TO THE CONTRACTING aUTHORITY

## The MoD Police (MDP) is a statutory civilian police force serving Defence and other customers across the UK with around 3000 sworn in police officers holding constabulary powers. The MDP is an integral part of Defence security capabilities providing armed policing, uniformed policing and investigations of serious crime that impacts significantly against Defence capability.

## The in-house network, called MDPNET, has been in use across the UK for a number of years and has gradually been replaced with MODNet where available. Principally, MDPNET is used in the major MoD Police Control Rooms across the UK.

# Background to requirement/OVERVIEW of requirement

## The MDP internal CIS team currently manages and maintains MDPNET, comprising of approximately 50 desktops and 70 servers (physical and virtual). This network is distributed across the country, providing critical policing applications such as Command & Control, ICCS, ControlWorks, UNIFI (Crime & Intel. Recording) and access to National Policing Applications such as PNC – It also provides a subset of these applications to users on MODNET via Citrix thin client presentation.

## The MDP needs to update this on-premise network and server infrastructure due to equipment age, challenges with physical maintenance and to ensure security accreditation can be maintained.

## The MDP needs to promptly resolve these issues and cohere the ongoing management and support of these systems in the most efficient and cost-effective way. This will be achieved on a non-“Cloud” platform, i.e. on premise managed and maintained by the MDP CIS Department.

# definitions

|  |  |
| --- | --- |
| **Expression or Acronym** | **Definition** |
| **ADC** | Means; Application Delivery Controller |
| **CIS** | Means; Communication and Information Systems |
| **DDC** | Means; Delivery Controller |
| **JSP** | Means; Joint Services Publication |
| **HCI** | Means; Hyper Converged Infrastructure |
| **HQ** | Means; Head Quarters |
| **ICCS** | Means; Integrated Command & Communications System |
| **ITSO** | Means; Information Technology Security Officer |
| **LECN** | Means; Law Enforcement Community Network |
| **LTO** | Means; Linear Tape Open |
| **LTS** | Means; Long Term Support |
| **LTSR** | Means: Long Term Service Release |
| **KMS** | Means; Key Management Server |
| **KVM** | Means; Keyboard Video Mouse |
| **MDP** | Means; MoD Police |
| **MDPNET** | Means; MoD Police’s in-house network / system. Windows 2012 R2 Active Directory based. Located around the country. |
| **MODNet** | Means; MoD’s own corporate office automation-based network. |
| **NCALT** | Means; College Of Policing learning platform |
| **NPM** | Means; Network Performance Monitor |
| **NVMe** | Means; Non-Volatile Memory Express |
| **PNC** | Means; Police National Computer |
| **PSN** | Means; Public Services Network |
| **PSNfP** | Means; Public Services Network for Policing |
| **RDP** | Means; Remote Desktop Protocol |
| **UNIFI** | Means; Police crime and intelligence system |
| **QSFP** | Means; Quad Small Form Factor Plug |
| **SC** | Means; Security Check: the minimum clearance needed for a contractor to have administration access to MDPNET devices. |
| **SCCM** | Means; System Center Configuration Manager |
| **SCVMM** | Means; System Center Virtual Machine Manager |
| **SFP** | Means; Small Form Factor Plug |
| **SNMP** | Means; Simple Network Management Protocol |
| **SQL** | Means; Standard Query Language |
| **SSL** | Means; Secure Socket Layer |
| **TACACS** | Means; Terminal Access Controller Access-Control System |
| **UNIFI** | Means; Police crime and intelligence system |
| **UPM** | Means; Universal Profile Management |
| **VDA** | Means; Virtual Delivery Agent |
| **VPX** | Means; Virtual Appliance |

# HIGH LEVEL scope of requirement

## The Contract term will be for three (3) years with options for years four (4) and five (5). Any licences, maintenance / support and management of these shall last for three (3) years with options for years four (4) and five (5).

## The requirement is for the provision of the following equipment and associated Professional Services:

## In scope:

### Replacement active failover core Layer 3 switches for the existing pair of Cisco 6509 switches. This is to include the provision of the physical devices, physical installation and configuration including configuration of core routing. This must provide the capability to utilise 10gbs links throughout the core switching / routing platform.

### Replacements for the existing server infrastructure. This is to include the provision of physical devices, physical installation and installation / configuration of the Operating System.

### New servers to connect to network core at 10gbs as a minimum.

### New servers to configured with latest version of Windows Server which is compatible with the wider environment.

### New server infrastructure to be as condensed as possible to ensure occupation of minimal physical space and optimised power consumption; e.g. HCI based.

### Microsoft HyperV to be used as the hypervisor for any virtual machines.

### Install and configure on new hardware, Citrix VirtualApps to latest LTSR version. To be compatible with MOD Citrix WorkSpace client and network and scaled to support 400 concurrent sessions.

### Installation & configuration of a new failover pair of Citrix Netscaler ADC (licenses required, for200mb throughput).

### Symantec Endpoint Protection (SEPM) upgrade to latest stable release version; final configuration for hardware device control & software control; configure offline updating using LUA.

### Ancillary items (e.g. environmental monitoring, KVMs) and migration / configuration of smaller server based software (e.g. licensing services).

## Out of scope:

### Any associated Microsoft licensing requirements will be dealt with separately through defined MOD Microsoft licensing methods.

### Windows servers (both Standard and Datacenter versions) are all licensed with Microsoft Core Infrastructure Suite (CIS) licenses.

### Citrix VirtualApps / XenApps licenses are already procured and in current support agreements (400 concurrent sessions).

### Any existing desktop machines are not in scope.

### Any third party / domain trusted devices are not in scope.

### Replacement user access switches are not in scope, e.g. existing HPE 5130 EI / HPE 5510 HI switches.

### An available, powered empty 42U rack will be provided in the data centre. A second empty 42U rack can be provided if needed.

### The data centre environment is provided with Cat6a cabling throughout, along with various lengths (1m to 5m) Cat6a patch leads.

### Various types of OM4 fibre cables are available (1m to 5m). E.g. LC-LC, ST-LC, etc.

### **Cloud-based solutions that require internet or other off-site connectivity are not in scope or required.**

# DETAILED requirement

## Due to the nature of the business, a commencement date that is mutually agreeable is to be sought as soon as the Contract is awarded. A full impact assessment of this date is required as part of the tender submission.

### Due to COVID-19 the Authority and Supplier will agree on a suitable and safe way of conducting the impact assessment post Contract Award.

## All installation and configuration must have minimal downtime / disruption impact to existing systems due to the 24/7 operational policing nature of the MDP

## All installation and configuration should be installed in parallel with existing services wherever possible to minimise downtime / disruption.

## *All installations are to be on-premise only; no “Cloud” or internet based services / installations will be accepted.*

## The installations should make use of Microsoft Windows based operating system in preference to any other operating system; exceptions accepted for devices such as disk array, bespoke HCI enclosures, hardware such as environmental monitoring or KVM switch boxes, etc.

## The following works will be undertaken as part of this Contract:

### **Core network infrastructure:**

#### Replacement active failover pair core switches (e.g. Cisco C9600 chassis based).

#### Replacement to include 4x 48 port 10Gbs copper line cards per chassis (e.g. Cisco C9600-LC-48TX).

#### Replacement to include minimum of 1x supervisor card per chassis (e.g. Cisco C9600-SUP-1).

#### 2x 40Gbs QSFP+ modules per supervisor card.

#### Replacement to include 1x 40 port QSFP+ lines cards per chassis (e.g. Cisco C9600-LC-40YL4CD).

#### All line cards to support 1Gbs connections (e.g. Cisco C9600-SUP-1 required).

#### All required licenses and hardware support for contract duration.

#### Configuration and installation as an active failover pair with core routing, replacing current installation.

### **Additional Network infrastructure:**

#### Provide active failover 10Gbs network switches for any disk arrays, server or HCI chassis based servers if these are required.

#### Provide sufficient SFP or QSFP modules for the above network switches to uplink to core failover switches (section 6.6.2.1).

### **Firewalls:**

#### Replace and configure a failover pair of firewalls, requiring at least 100Mb/s throughput. These should be not EOL or EOS within at least the next 3 years (within current knowledge accepted).

#### Replace and configure a single firewall, requiring at least 100Mb/s throughput. This should be not EOL or EOS within at least the next 3 years (within current knowledge accepted). However a priced option for an active failover pair is requested.

#### Note: If the firewalls are Cisco based, FirePower is not required as it cannot be updated automatically due to lack of internet access.

### **Server infrastructure:**

#### Update the Domain & and Forest Functional Level as required; currently Windows 2008 R2 Functional Level.

#### Upgrade the current Domain Controllers to latest Operating System version compatible with the environment (Exchange Server dependant).

#### Create / virtualise two (2) Domain Controllers.

#### Import new Group Policy objects as required for updated operating systems / software.

#### Capacity for approximately 55TB, NVMe / flash based storage; to cover user storage, capacity for any virtual machines or physical servers.

#### Create and configure replacement virtual servers for those defined in the current environment (Annex A).

#### Install and migrate SQL for databases in the current environment (Annex A) ensuring application compatibility.

### **Citrix infrastructure:**

#### Health check of current Citrix XenApps 7.15 LTSR CU3 & Citrix NetScaler Gateway 12.1.56.22.

#### Supply, installation and configuration of two (2) virtualised Citrix ADC VPX devices running the latest version of Citrix ADC VPX.

#### Configuration for load balancing of the two (2) Citrix ADC VPXs.

#### Licenses (200mbs) and support of the two (2) Citrix ADC VPXs, for the contract duration.

#### Install and configure custom landing pages for the two (2) Citrix ADC VPXs; to display important messages, upcoming outages, etc.

#### Install and configure the latest Citrix VirtualApps LTS version; to include the two (2) DDCs and Citrix VDA client on sixteen (16) virtual servers.

#### Install and configure a new virtualised Microsoft SQL Server database server for the primary use of Citrix VirtualApps.

#### Migration off and decommissioning of the current Citrix Delivery Controllers to the new ones installed in 6.5.5.4.

#### Creation of new Citrix Machine Catalogs; these should be at least double the current environment (defined in Annex A) for expected load. Use of current Citrix master images accepted.

#### Configure and implement Citrix UPM to exclude specified directories and files, preventing excessive growth.

#### Disable the Citrix Desktop from autoloading when logging into StoreFront or NetScaler.

### **Microsoft Exchange:**

#### Upgrade existing Microsoft Exchange 2016 infrastructure and host operating system to latest versions, e.g. Microsoft Windows Server 2019 and Microsoft Exchange 2019 or later, including existing smart hosts / connectors. Current implementation of 2x mailbox servers and 2x edge transport servers.

#### Import any new Group Policy objects as required; design and apply any relevant additional Group Policies required for the upgrades.

#### Update domain schema as required.

### **Environmental:**

#### Replacement for existing Geist Watchdog 1000 environmental monitor, including 16 temperature, humidity, dew point and airflow sensors.

#### Additional environmental monitor to cover 6 racks (different location to above) to include temperature, humidity, dew point and airflow sensors.

### **Microsoft System Center:**

#### Installation and configuration of the latest version of System Center Virtual Machine Manage.

### **Symantec Endpoint Protection:**

#### Upgrade to latest stable version of Symantec Endpoint Protection Manager (SEPM).

#### Upgrade deployed clients to latest stable version.

#### Full design, configuration and deployment of device control policy, on all desktop clients and servers; to include defined whitelisted devices.

#### Full design, configuration and deployment of software control policy, on all desktop clients and servers; to include defined whitelisted software.

#### Implement offline Live Update Administrator (LUA) to enable air-gapped updating of all updatable components not included in the DOBUS offering.

#### Decommission Ivanti Device & Application Control v5.1, including removal of agent from desktops and servers.

### **Data Backup:**

#### Provide a backup and restore solution to cover up to approximately 10TB data (this includes system states, databases – both direct and backup files, virtual machines, Exchange mailboxes, installation media, user data, etc).

#### Backup and restoration solution must use LTO tape media.

#### Backup and restoration solution must be backward compatible with existing LTO5 tape media.

#### Import current media sets (catalogues) into new backup and restoration solution.

#### Daily differential backups to deduplication disk array.

#### Full backup to tape at weekends required (overwritable on a 4 weekly cycle).

#### Full backup tape required 4 weekly to be retained (non appendable, non overwritable).

#### Provide sufficient LTO tapes for contract duration, utilising the cycles specified in 6.6.10.6 and 6.6.10.7 above.

### **SolarWinds NPM:**

#### Install and configure new application server(s) for SolarWinds NPM.

#### Install and configure new database server(s) for SolarWinds NPM.

#### Migrate current SolarWinds installation to the new servers.

#### New servers must be capable of monitoring approximately 500 nodes utilising SNMP.

#### New application server must use the current SSL certificate in use for the web frontend.

### **Other:**

#### Migration of Microsoft KMS to a suitable new or multiuse server.

#### Migration of Radius / TACACS to a suitable new or multiuse server.

#### Migration of RDP license server to a suitable new or multiuse server.

#### Migration of print server to a suitable new or multiuse server.

#### Supply six (6) replacement KVM switch boxes to support up to 16 servers / devices each including those in 6.6.4 above. This should not use Java as it’s primary method of operation and be easily updateable.

#### Supply size (6) replacement KVM rack mount consoles to work with 6.6.12.5 above.

#### Supply, configure and install a replacement GPS connected time server; to include external GPS antenna with lightning protection.

### All installations should conform to MOD security and installation requirements, including JSP 440 and JSP 604.

### All installations should be compatible with a third party trusted domain which is in place to provide core policing functional applications across the UK. This is currently at Windows 2012 R2 Functional Domain & Forest level.

### All installations should be compatible for use with the PSN / PSNfP / LECN and associated application usage (e.g. NCALT, PNC, etc).

### All installations to be carried out at MoD Wethersfield, Wethersfield, Braintree, Essex CM7 4AZ.

# key milestones and Deliverables

## The following Contract milestones/deliverables shall apply:

|  |  |  |
| --- | --- | --- |
| **Milestone/Deliverable** | **Description** | **Timeframe or Delivery Date** |
| 1 | Implementation / schedule plan | Within week 1 of Contract Award |
| 2 | Impact assessment of the implementation | Within 2 weeks of Contract Award |
| 3 | Agreement on implementation date | Within 2 weeks of Contract Award |
| 4 | Start of contracted activities (agreement of 3 dependant) | Within 30 days of Contract Award |
| 5 | Core Network Infrastructure | By 17th March 2023 |
| 6 | Additional Network Infrastructure | By 17th March 2023 |
| 7 | Firewalls | By 31st March 2023 |
| 8 | Server Infrastructure | By 17th March 2023 |
| 9 | Citrix Infrastructure | By 14th April 2023 |
| 10 | Microsoft Exchange | By 14th April 2023 |
| 11 | Environmental | By 31st March 2023 |
| 12 | Microsoft System Center | By 17th March 2023 |
| 13 | Symantec Endpoint Protection | By 14th April 2023 |
| 14 | Data Backup solution | By 14th April 2023 |
| 15 | SolarWinds NPM | By 31st April 2023 |
| 16 | Other | By 31st March 2023 |
| 17 | Full operating capacity complete | By 31st April 2023 |
| 18 | Skills transfer to Authority’s staff to repeat / maintain installation | By 31st April 2023 |

# MANAGEMENT INFORMATION/reporting

## No reporting beyond the out-of-the-box reports are envisaged.

# continuous improvement

## The Supplier will be expected to continually improve the way in which the required Services are to be delivered throughout the Contract duration as they adapt to the intricacies of the MDP network and its devices.

## Changes to the way in which the Services are to be delivered during the life of the Contract must be brought to the Authority’s attention and agreed prior to any changes being implemented.

# quality

## Demonstrate organisational compliance with ISO 27001 (or equivalent) and / or the Cyber Essentials Scheme (CES).

## Installation & Professional Services in line with Cyber Essentials Scheme and / or Defence Cyber Protection Partnership (DCPP).

## Final acceptance testing / approval by MDP ITSO (IT Security Officer).

# PRICE

## Separation of cost between COTS hardware, COTS licensing & Professional Services will be required in the price.

## The Professional Services should be inclusive of any expenses being incurred by the contractor and charged to Authority such as T&S.

## The cost of Professional Services must include a daily rate and the number of hours to be worked. The Professional Services will be expected to be on site during normal working hours, nominally 09:00 to 17:00 though the exact timings of each day will be flexible.

## Prices are to be submitted via the e-Sourcing Suite Attachment 4 – Price Schedule excluding VAT and including all other expenses relating to Contract delivery.

# STAFF AND CUSTOMER SERVICE

## Implementation and the related Professional Services should be delivered over no longer than a total of 90 working days (based on an 8 hour working day).

## The Supplier shall provide the sufficiently qualified and experienced level of resource throughout the duration of the Contract in order to consistently deliver a quality service.

## The Supplier’s staff assigned to the Contract shall have the relevant qualifications and experience to deliver the Contract to the required standard.

## The Supplier shall ensure that staff understand the Authority’s vision and objectives and will provide excellent customer service to the Authority throughout the duration of the Contract.

# service levels and performance

## The Authority will measure the quality of the Supplier’s ongoing delivery over the life of the contract after FOC is reached.

|  |  |  |  |
| --- | --- | --- | --- |
| KPI/SLA | Service Area | KPI/SLA description | Target |
| 1 | Device vendor 1st line support response | Response within 30 minutes of contact for high / severity 1 support requests. Response within 2 hours for low / severity 4 support requests. |  |
| 2 | Device vendor 2nd/3rd line support | Resolution within 24 hours of contact for high / severity 1 support requests. Resolution within 96 hours for low / severity 4 support requests. |  |
| 3 | Device vendor hardware break / fix replacements | Replacement items to be shipped with priority shipping carrier within 4 hours of fault identification |  |
| 4 | Availability of device vendor support services | 24 hours a day, 7 days a week |  |
| 5 | Contact methods of device vendor support services | Telephone, email & web portal |  |
| 6 | Regular device / software updates to resolve security & functional issues | To be issued by device vendor through their defined update regime |  |
| 7 | Regular service review meetings | Bi-annual service review meetings, with annual configuration optimisation health checks |  |
| 8 | Named customer manager as an escalation point | Defined account manager |  |

# Security and CONFIDENTIALITY requirements

## Clearance at SC level at a minimum required for the installation / Professional Services delivery at site.

## All contractors to submit their NI number along with details of their clearance (with host organisation / reference number) for checking.

## Only MDP provided desktops / servers can be used to access the system at MOD Wethersfield in Essex.

## If log files are required for diagnostic requirements, a secure method of transfer is required and indication of data contained for MDP ITSO approval prior to transfer.

# payment AND INVOICING

## All contract and any other payments will be made to the supplier using MOD’s Contracting, Payment and Forecasting (CP&F) system.

## Payment can only be made following satisfactory delivery of pre-agreed certified products and deliverables.

## Before payment can be considered, each invoice must include a detailed elemental breakdown of work completed and the associated costs.

# CONTRACT MANAGEMENT

## Any unused Professional Services time to be returned to the Authority.

## Any shortfall in time to be worked or credited as required.

## Final Contract Review Meeting to be held on last day of implementation.

## 50% of payment to be held until final Contract Review Meeting and acceptance by MDP ITSO.

## Attendance at any formal Contract Review meetings shall be at the Supplier’s own expense.

# Location

## The location of the installation and Professional Services will be carried out at:

### CIS Department, MOD Wethersfield, Braintree, Essex CM7 4AZ.

# ANNEX A – CURRENT ENVIRONMENT

Server Overview:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Type** | **Quantity** | **Model** | **Cores** | **CPU Model** | **RAM (GB)** | **OS** |
| *Citrix Delivery Group A* | | | | | | |
| Virtual | 7 |  | 4 |  | 16 | Windows 2012 R2 |
| *Citrix Delivery Group B* | | | | | | |
| Virtual | 5 |  | 4 |  | 16 | Windows 2012 R2 |
| *Citrix Delivery Group C* | | | | | | |
| Virtual | 3 |  | 4 |  | 16 | Windows 2012 R2 |
| *Citrix Delivery Group D* | | | | | | |
| Virtual | 1 |  | 4 |  | 16 | Windows 2012 R2 |
| *Citrix Gold Images (One For Each Delivery Group)* | | | | | | |
| Virtual | 4 |  | 4 |  | 16 | Windows 2012 R2 |
| *Citrix StoreFront* | | | | | | |
| Virtual | 2 |  | 4 |  | 16 | Windows 2012 R2 |
| *Citrix NetScaler* | | | | | | |
| Virtual | 1 |  | 2 |  | 4 | NetScaler ADC 12.1 |
| *Database Server 001 (SQL Standard)* | | | |  | | |
| Virtual | 1 |  | 4 |  | 32 | Windows 2008 R2 |
| *Database Server 002 (SQL Standard)* | | | |  | | |
| Physical | 1 | Dell R620 | 24 | 2x Xeon E5-2667 | 64 | Windows 2012 R2 |
| *Database Server 005 (SQL Standard)* | | | |  | | |
| Virtual | 1 |  | 2 |  | 16 | Windows 2012 R2 |
| *Database Server 011 (SQL Standard)* | | | |  | | |
| Virtual | 1 |  | 2 |  | 8 | Windows 2016 |
| *Database Server 014 (SQL Standard)* | | | |  | | |
| Virtual | 1 |  | 2 |  | 16 | Windows 2016 |
| *Database Server 015 (SQL Standard)* | | | |  | | |
| Virtual | 1 |  | 4 |  | 16 | Windows 2016 |
| *Database Server 003 (SQL Standard)* | | | |  | | |
| Physical | 1 | Dell PE 2950 | 8 | 2x Xeon X5460 | 32 | Windows 2016 |
| *File Servers* | | | | | | |
| Virtual | 3 |  | 4 |  | 8 | Windows 2012 R2 |
| *Ivanti Management* | | | | | | |
| Virtual | 1 |  | 2 |  | 4 | Windows 2016 |
| *Symantec SEPM* | | | | | | |
| Virtual | 1 |  | 2 |  | 16 | Windows 2016 |
| *SolarWinds* | | | | | | |
| Virtual | 1 |  | 4 |  | 16 | Windows 2016 |
| *Radius & RDS Licensing* | | | | | | |
| Virtual | 1 |  | 2 |  | 4 | Windows 2012 R2 |
| *Radius* | | | | | | |
| Virtual | 1 |  | 2 |  | 4 | Windows 2012 R2 |
| *Print Server* | | | | | | |
| Virtual | 1 |  | 2 |  | 4 | Windows 2016 |
| *TMG* | | | | | | |
| Physical | 1 | Dell R710 | 16 | 2x Xeon E5620 | 8 | Windows 2008 R2 |
| *Domain Controller* | | | | | | |
| Physical | 4 | Dell R620 | 4 | Xeon E5-2609 | 8 | Windows 2012 R2 |
| *Exchange 2016 Mailbox Servers* | | | | | | |
| Virtual | 2 |  | 4 |  | 24 | Windows 2016 |
| *Exchange 2016 Edge Transport Servers* | | | | | | |
| Virtual | 2 |  | 4 |  | 4 | Windows 2016 |
| *Backup Server* | | | | | | |
| Physical | 1 | Dell DL2100 | 24 | 2x Xeon X5650 | 24 | Windows 2016 |
| *Data Store* | | | | | | |
| Physical | 1 | Dell R510 | 8 | Xeon E5640 | 8 | Windows 2012 R2 |
| *SCCM Store* | | | | | | |
| Physical | 1 | Dell R510 | 4 | Xeon E5640 | 6 | Windows 2012 R2 |
| *SCVMM* | | | | | | |
| Physical | 1 | Dell R620 | 24 | 2x Xeon E5-2640 | 16 | Windows 2012 R2 |

\* Note – cores = logical cores

## 

HyperV Physical Hosts:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Physical | 5 | Dell R620 | 24 | 2x Xeon E5-2640 | 128 | Windows 2008 R2 |
| Physical | 4 | Dell R620 | 32 | 2x Xeon E5-2640 v2 | 64 | Windows 2012 R2 |
| Physical | 2 | Dell R620 | 24 | 2x Xeon E5-2640 | 64 | Windows 2016 |
| Physical | 1 | Dell R620 | 24 | 2x Xeon E5-2640 | 128 | Windows 2016 |

\* Note – cores = logical cores

HyperV 10g Switches:

|  |  |  |  |
| --- | --- | --- | --- |
| **Make** | **Model** | **Quantity** | **Density Each** |
| Dell | PowerConnect 8132 | 2 | 24 Ports |

HyperV Disk Arrays:

|  |  |  |  |
| --- | --- | --- | --- |
| **Make** | **Model** | **Quantity** | **Raw Size Each** |
| Dell | Equalogic PS6110XV | 2 | 7.2TB |
| Dell | Equalogic PS6210XV | 1 | 7.2TB |

Firewalls:

|  |  |  |  |
| --- | --- | --- | --- |
| **Connection** | **Model** | **Quantity** | **Throughput** |
| Network Connection A | Cisco ASA 5515X | 2 | At least 100Mb/s |
| Network Connection B | Cisco ASA 5515X | 1 | At least 100Mb/s |

Backup Server Disk De-Dupe & Tape Drive:

|  |  |  |  |
| --- | --- | --- | --- |
| **Make** | **Model** | **Quantity** | **Size** |
| Dell | PowerVault MD1000 | 2 | 10TB each |
| Dell | TL2000 (2x LTO5 Tape Drives) | 1 | 8x LTO5 Tapes |

GPS Time Server:

|  |  |  |
| --- | --- | --- |
| **Make** | **Model** | **Quantity** |
| TimeTools | SR7110 | 1 |

Software licenses currently held:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Vendor** | **Product** | **Type** | **Version** | **Maint.** | **Qty** |
| Microsoft | Core Infrastructure Suite Standard | Subscription |  | Y | 17 |
| Microsoft | Core Infrastructure Suite Datacenter | Subscription |  | Y | 16 |
| Microsoft | Exchange Server | Subscription | 2016 | Y | 4 |
| Microsoft | SQL Server Standard (per 2x cores) | Subscription | 2016 | Y | 50 |
| Microsoft | Remote Desktop Services | Perpetual | 2012 R2 | N | 2900 |
| Veritas | Backup Exec | Perpetual | 21 | Y | 10TB |
| Citrix | VirtualApps | Perpetual |  | Y | 400 |
| Citrix | NetScaler ADC VPX 50 | Perpetual |  | Y | 1 |
| SolarWinds | Network Performance Monitor | Perpetual | Unlimited | Y | 1 |

\* Note – Upgrade of Microsoft licenses is not in scope of this requirement

# ANNEX B - Current Virtual Server Environment

