

**IT infrastructure hosting services for the Agency for the
Cooperation of Energy Regulators**

Framework Contract

TECHNICAL SPECIFICATIONS

OPEN CALL FOR TENDERS

ACER/OP/MMD/12/2013

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1. Introduction

This document contains detailed technical specifications for the requested “IT infrastructure hosting services for the Agency for the Cooperation of Energy Regulators” and includes the following:

- a description of the services requested;
- a description of experts’ profiles required for the delivery of the services;
- the Service Level Agreement (SLA) framework.

The purpose of this document is to specify in a clear manner what are the expected deliverables and services which may be part of each specific contract.

2. Technical specifications

The purpose of the Framework Contract is the provision of the following services:

- Secure and highly available dedicated managed hosting services in order to implement a new IT infrastructure that will be needed for testing, development and deployment of software, web applications, databases, services, etc. in test/stage and production.
- Housing (co-location) of ICT infrastructure (i.e. servers, storage equipment, related networking and any other needed equipment, etc.) owned by the Agency.
- Provision of front desk services capable to provide maintenance and support of any provided hosted equipment and/or any installed and configured software by the tenderer. The front desk will need to intervene in case of fault of any provided equipment and/or provided service in order to re-establish normal functionality of the entire platform.
- Dedicated managed hosting services to assure Business Continuity/Disaster Recovery to the abovementioned hosted IT infrastructure.
- Dedicated managed hosting services to assure Business Continuity/Disaster Recovery to the current Agency’s owned and hosted ICT infrastructure.

2.1. Description of the requested services

The services listed below shall include the related basic infrastructure (such as cooling, power, space, cabling, etc.) which will be able to provide a fully working system.

2.1.1. General requirements

All tenderers shall comply with all the general requirements regarding the functionality of the Data Centre and the hosted equipment.

2.1.2. Specific requirements

The tenderers shall take into account also the specific requirements mentioned below. Please note that some specific requirements are applicable only to specific services as indicated below.

- **Hardware availability:** The dedicated hardware operated and maintained on behalf of the Agency will be operational at least 99.95% of the time in each calendar month **(this is applicable only to services in points 2.1.3 and 2.1.4);**

- **Air conditioning** shall be provided and should achieve the temperature of the open space in the Agency's Data Centre Services area between 17° C and 25° C with relative humidity between 30% and 70% (**this is applicable only to services in points 2.1.2 and 2.1.4**);
- **Physical security:** access to the rented Data Centre Services facility(s) shall be monitored and restricted at all times. Efforts to ensure security to the facility shall be maintained via a proper access control system and video surveillance (**this is applicable only to services in points 2.1.2 and 2.1.4**);
- **Network availability:** The Contractor's Network shall assure that its IP network is available and capable of forwarding IP packets 99.95% generated or received by the Agency hosted equipment (**this is applicable only to services in point 2.1.3**);
- **Internet availability:** The Contractor shall assure that rented internet connections provided for the Agency's needs are available and capable of forwarding IP packets 99.95% of the time (**this is applicable only to services in point 2.1.6**);
- **Packet loss:** The Contractor shall guarantee that packet loss shall not be more than one per cent (1%) on its data centre network or Backbone Network. Packet loss should be measured on the Contractor's Backbone Network at approximately five (5) minute intervals and should calculate the average at the end of each calendar month(**this is applicable only to services in point 2.1.6**);
- **Outage notification:** The Contractor shall inform the Agency, either by telephone or by email, within one (1) hour after the occurrence of any unavailability affecting the Agency's infrastructure linked to an outage.
- **Disaster Recovery/Business Continuity:** The Contractor shall ensure the activities of the managed hosting infrastructure and services by establishing and managing a Disaster Recovery site (on request of the Agency). The scope of a Disaster and Recovery site is to ensure the operation and provision of services to end users in case of disaster. Recovery Point Objective (RPO) and Recovery Time Objective (RTO) together with other details of the solution will be defined in the SLA in case this service will be ordered (**applicable only to service H.4**).

The requested services shall include related services such as licensing with the limitation to the licensing of specific features related to the provided hardware platforms (i.e. iLO licenses, licensed software for the Storage Area Network and for the networking and security equipment/appliances), initial set up of the hardware platform, installation and basic configuration of operating systems, installation and basic configuration of databases, security and networking software, maintenance of an adequate security and service level. These related services shall be included in the relevant price of the service requested and shall not be charged separately by the selected Contractor.

The selected Contractor should also provide, for each provided service (i.e. hosted service), permits (if applicable), technical support for all platforms used for hosting (e.g. active technical support with various vendors of various components of the technological platform) without being entitled to any additional compensation for such service.

At the end of each specific contract and/or at the end of the Framework Contract the Agency shall retain the right to remove its own equipment, software, applications, data, etc. The selected Contractor is required to ensure cooperation with a potential new contractor for the

possible handover of the equipment upon prior agreement for a Transfer Out of all the platforms.

The Agency's staff and/or consultants shall have physical access to the hosted equipment without any additional cost.

2.1.3. Collocation and rack related services

The selected Contractor shall be able to provide at least the following:

- C.1 - A dedicated space inside the datacentre facility (primary site) hosting a cage with enough volume to hold 6 standard 42 HU racks and a possibility of extension/addition to get, in total, enough volume to hold 12 standard 42 HU racks, to be rented by the Agency as a service.
The cages (or private server rooms, if offered) should be physically secured (locks, doors) and every access should be automatically recorded by the selected Contractor's monitoring and surveillance system. The Agency may request that it is automatically notified (e.g. by email) of any access to the secured area.
- C.2 - A dedicated space inside a secondary datacentre facility (secondary site) hosting a cage with enough volume to hold 6 standard 42 HU racks and a possibility of extension/addition to get, in total, enough volume to hold 12 standard 42 HU racks, to be rented by the Agency as a service.
The cages (or private server rooms, if offered) should be physically secured (locks, doors) and every access should be automatically recorded by the selected Contractor's monitoring and surveillance system. The Agency may request that it is automatically notified (e.g. by email) of any access to the secured area.
- C.3 - A dedicated 42 HU standard server rack inside the cages referred to in points 2.1.1 and 2.1.2 above, to be rented by the Agency as a service.

The racks should be physically secured (locks, doors) and every opening of the rack door should be automatically recorded by the tenderer's monitoring and surveillance system. The Agency may request that it is automatically notified (e.g. by email) of any access to the rack.

2.1.4. Hosting hardware services

A dedicated managed physical hardware platform inside the rack referred to **point 2.1.3 – C.3**, to be rented by the Agency as a service. This shall include at least one or more of the following components:

- D1. Server
- D2. Blade Server
- D3. Storage Area Network (SAN) Unit
- D4. Network Connectivity Device (switch, router, fibre switch, proxy, load balancer, etc.)
- D5. Network Security Device (an appliance containing at least firewall, IPS, IDS, malware protection, mail security, web security, DLP and syslog)
- D6. Backup Device (tape drive, tape library, disk backup device)

The products shall comply with the following minimum requirements:

- D1.1- Server:
 - support for two physical 2.2 GHz CPUs;
 - support for 16CPU cores;
 - support for 256 GB of RAM;
 - 10 Gbps total available Ethernet network bandwidth;
 - FC, FCoE and Ethernet connectivity with two (2) ports for each protocol;
 - eight (8) Gbps FC bandwidth per port;
 - two SAS 15 K internal hard drives of 128 GB each;
 - RAID options 0/1 for internal hard drives;
 - supported or certified for use with VMware vSphere (ESX 4.1 and higher), Windows 2008 r2 (and higher), Redhat Enterprise Linux 5.6 (and higher) and Oracle 11g R2;
 - easily integrated with all other offered services if needed;
 - support of IP V4 and IP V6.

Minimal configuration shall be:

- two physical 2.2 GHz CPUs;
- eight (8) CPU cores;
- 128 GB of RAM;
- four (4) Ethernet cards with 10 Gbps speed;
- two (2) FC ports for each protocol (LC size – 8 Gbps minimum);
- eight (8) Gbps FC bandwidth per port;
- two SDD internal hard drives of 128 GB each;
- RAID options 0/1 for internal hard drives.

- D1.2 - Server:
 - support for four physical 2.2 GHz CPUs;
 - support for 32 CPU cores;
 - support for 384 GB of RAM;
 - 10 Gbps total available Ethernet network bandwidth;
 - FC, FCoE and Ethernet connectivity with two (2) ports for each protocol;
 - eight (8) Gbps FC bandwidth per port;
 - two SDD internal hard drives of 128 GB each;
 - RAID options 0/1 for internal hard drives;
 - supported or certified for use with VMware vSphere (ESX 4.1 and higher), Windows 2008 r2 (and higher), Redhat Enterprise Linux 5.6 (and higher) and Oracle 11g R2;
 - easily integrated with all other offered services if needed;
 - support of IP V4 and IP V6.

Minimal configuration shall be:

- four physical 2.4 GHz CPUs;
- 16 CPU cores;
- 256 GB of RAM;
- six (6) Ethernet cards with 10 Gbps speed;
- two (2) FC ports for each protocol (LC size – 8 Gbps minimum);
- eight (8) Gbps FC bandwidth per port;
- two SDD internal hard drives of 128 GB each;
- RAID options 0/1 for internal hard drives.

- D1.3 - Server:
 - support for eight physical three (3) GHz CPUs;
 - support for 32 CPU cores;
 - support for 512 GB of RAM;
 - 10 Gbps total available Ethernet network bandwidth;
 - FC, FCoE and Ethernet connectivity with 2 ports for each protocol;
 - eight (8) Gbps FC bandwidth per port;
 - two SDD internal hard drives of 256 GB each;
 - RAID options 0/1 for internal hard drives;
 - supported or certified for use with VMware vSphere (ESX 4.1 and higher), Windows 2008 r2 (and higher), Redhat Enterprise Linux 5.6 (and higher) and Oracle 11g R2;
 - easily integrated with all other offered services if needed;
 - support of IP V4 and IP V6.

Minimal configuration shall be:

- eight physical 3 GHz CPUs;
- 32 CPU cores;
- 512 GB of RAM;
- six (6) Ethernet cards with 10 Gbps speed;
- two (2) FC ports for each protocol (LC size – 8 Gbps minimum);
- eight (8) Gbps FC bandwidth per port;
- two SDD internal hard drives of 256 GB each;
- RAID options 0/1 for internal hard drives.

- D2.1 Blade Server (just single blades in a contractor provided enclosure):
 - support for two physical 2.2 GHz CPUs;
 - support for eight (8) CPU cores;
 - support for 256 GB of RAM;
 - 10 Gbps total available Ethernet network bandwidth;
 - FC, FCoE and Ethernet connectivity with two (2) ports for each protocol;
 - eight (8) Gbps FC bandwidth per port;
 - two SAS 15 K internal hard drives of 128 GB each or, in alternative, 128 GB of Disk provided from a SAN on RAID 1/0;
 - If internal disks are provided, RAID options 0/1 must be present;
 - supported or certified for use with VMware vSphere (ESX 4.1 and higher), Windows 2008 r2 (and higher), Redhat Enterprise Linux 5.6 (and higher) and Oracle 11g R2;
 - easily integrated with all other offered services if needed;
 - support of IP V4 and IP V6;

Minimal configuration shall be:

- two physical three (3) GHz CPUs;
- 32 CPU cores;
- 512 GB of RAM;
- four (4) Ethernet cards with 10 Gbps speed;
- two (2) FC ports for each protocol (LC size – 8 Gbps minimum);
- eight (8) Gbps FC bandwidth per port;
- two SAS 15 K internal hard drives of 128 GB each or, in alternative, 128 GB of Disk provided from a SAN on RAID 10;
- RAID options 0/1 for internal hard drives.

- D2.2 Blade Server (just single blades in a contractor provided enclosure):
 - support for four physical 2.2 GHz CPUs;
 - support for 16 CPU cores;
 - support for 384 GB of RAM;
 - 10 Gbps total available Ethernet network bandwidth;
 - FC, FCoE and Ethernet connectivity with two (2) ports for each protocol;
 - eight (8) Gbps FC bandwidth per port;
 - two SAS 15 K internal hard drives of 128 GB each or, in alternative, 128 GB of Disk provided from a SAN on RAID 1/0;
 - if internal disks are provided, RAID options 0/1 must be present;
 - supported or certified for use with VMware vSphere (ESX 4.1 and higher), Windows 2008 R2 (and higher), Redhat Enterprise Linux 5.6 (and higher) and Oracle 11g R2;
 - easily integrated with all other offered services if needed;
 - support of IP V4 and IP V6.

Minimal configuration shall be:

- four physical 2.4 GHz CPUs;
- 16 CPU cores;
- 384 GB of RAM;
- six (6) Ethernet cards with 10 Gbps speed;
- two (2) FC ports for each protocol (LC size – 8 Gbps minimum);
- eight (8) Gbps FC bandwidth per port;
- two SSD internal hard drives of 256 GB each or, in alternative, 256 GB of Disk provided from a SAN on RAID 10;
- RAID options 1/0 for internal hard drives.

- D2.3 Blade Server (just single blades in a contractor provided enclosure):
 - support for four physical 2.5 GHz CPUs;
 - support for 16 CPU cores;
 - support for 512 GB of RAM;
 - 10 Gbps total available Ethernet network bandwidth;
 - FC, FCoE and Ethernet connectivity with two (2) ports for each protocol;
 - eight (8) Gbps FC bandwidth per port;
 - two SSD internal hard drives of 256 GB each or, in alternative, 256 GB of Disk provided from a SAN on RAID 1/0;
 - if internal disks are provided, RAID options 0/1 must be present;
 - supported or certified for use with VMware vSphere (ESX 4.1 and higher), Windows 2008 R2 (and higher), Redhat Enterprise Linux 5.6 (and higher) and Oracle 11g R2;
 - easily integrated with all other offered services if needed;
 - support of IP V4 and IP V6.

Minimal configuration shall be:

- four (4) physical 2.5 GHz CPUs;
- 32 CPU cores;
- 512 GB of RAM;
- six (6) Ethernet cards with 10 Gbps speed;
- two (2) FC ports for each protocol (LC size – 8 Gbps minimum);
- eight (8) Gbps FC bandwidth per port;
- two SSD internal hard drives of 256 GB each or, in alternative, 256 GB of Disk provided from a SAN on RAID 1/0;
- RAID options 0/1 for internal hard drives.

- D3. Storage Area Network (SAN) Unit:
 - support for minimum 20 TB capacity;
 - support for 20.000 IOPS;
 - support for SAS, SATA, and SSD disk drives;
 - one redundant controller pair assuring high availability;
 - FC and FCoE connectivity;
 - 16 GB total controller memory;
 - RAID options 0/1/10/5/6;
 - supported or certified for use with VMware vSphere (ESX 4.1 and higher), Windows 2008 r2 (and higher), Redhat Enterprise Linux 5.6 (and higher) and Oracle 11g R2;
 - easily integrated with all other offered services if needed;
 - support of IP V4 and IP V6.
- D4. Network Connectivity Device:
 - support for 100 Mbps, 1 and 10Gbps ports;
 - support for FC, FCoE and Ethernet;
 - support for VLANs;
 - 400Gbps total throughput;
 - Minimum of 32 physical ports;
 - support for port aggregation (teaming);
 - support for usage in multi device environment assuring high availability of the system and of the configurations;
 - supported or certified for use with VMware vSphere (ESX 4.1 and higher), Windows 2008 r2 (and higher), Redhat Enterprise Linux 5.6 (and higher) and Oracle 11g R2;
 - easily integrated with all other offered services if needed;
 - support of IP V4 and IP V6.
- D5. Network Security Device:
 - support for 100 Mbps, 1 and 10 Gbps ports;
 - support for VLANs;
 - 10 Gbps total throughput;
 - eight (8) physical ports;
 - network traffic filtering/routing and inspection;
 - redundant configuration;
 - redundant controller configuration;
 - supported or certified for use with VMware vSphere (ESX 4.1 and higher), Windows 2008 r2 (and higher), Redhat Enterprise Linux 5.6 (and higher) and Oracle 11g R2;
 - easily integrated with all other offered services if needed;
 - support of IP V4 and IP V6.
- D6. Backup Device:
 - support for 150 TB capacity;
 - 1 TB/h data transfer;
 - supported or certified for use with VMware vSphere (ESX 4.1 and higher), Windows 2008 r2 (and higher), Redhat Enterprise Linux 5.6 (and higher) and Oracle 11g R2;
 - support of IP V4 and IP V6.

The provision of hosting hardware services shall include at least the following:

- maintenance of hardware inventory system listing all hosted equipment;
- physically installation in the racks (i.e. server or any other rack mountable device), or placement of the rack in the room if a rack is ordered;
- testing of hosted equipment after installation;
- checking and installing cable connections and cable management;
- device labelling.

2.1.5. Housing hardware services

The selected Contractor shall be able to collocate and keep functioning, in the selected Contractor's data centre inside the racks or the space rented as described in point 2.1.3., the equipment owned and pre-configured by the Agency.

The selected Contractor shall provide at least the following housing services:

- E1. Housing of a Server;
- E2. Housing of a SAN Unit;
- E3. Housing of a Network Connectivity Device (i.e. switch, router, fibre switch, proxy, load balancer, etc.)
- E4. Housing of a Network Security Device (i.e. firewall, IPS, IDS, malware protection, mail security, web security, DLP, syslog, etc.)
- E5. Housing Backup Device (i.e. tape drive, tape library, disk backup device and the connected Backup System)

The procedures and requirements for the transport of the equipment to/from the data centre are described in point 2.1.10 of these Technical Specifications.

2.1.6. Services which can be ordered on a capacity base per year

The selected Contractor shall provide services which cannot be rented on a "per item basis" but may be rented on a "maximum capacity allocation" basis.

These services will relate mainly to data storage and to data transportation in cases in which it will be difficult to establish the exact needs and where the Agency will need to retain the freedom to order the capacity needed and to scale the need as soon as this will change.

This may include at least:

F1. Allocated Storage Capacity (in Tera Bytes) is a measure of the storage capacity made available to the Agency. Ordering "D3. Storage Area Network (SAN) Unit" is a prerequisite for ordering *Storage capacity*. When ordering *Storage capacity* the Agency shall not be obliged to order additional "D3. Storage Area Network (SAN) Unit" if this has been already ordered in a previous specific contract. This service shall include the provision and the installation of all the needed connectivity (cables, FC or Ethernet Switches, Converters and any other needed component) from the Storage Area Network Unit to all the Agency's hosted devices ordered as items D.1.1, D.1.2, D.1.3, D.2.1, D.2.2, D.2.3, D.3, D5 and D.6 if the items are provided with cards capable to be connected.

F2. Allocated Backup Capacity (in Tera Bytes) is a measure of the backup capacity made available to the Agency. Ordering "D6. Backup Device" is a prerequisite for ordering *Allocated backup capacity*. When ordering *Allocated backup capacity* the Agency shall not be obliged to order additional "D6. Backup Device" if this has been already ordered in a previous specific contract. The selected Contractor shall make available to the Agency a

certain amount of space allocated on a fully automatic and working Backup system (composed as a minimum of a central backup server of the selected Contractor and of a rented Backup Device rented by the Agency) with the aim to save data and configurations of all existing hosted and housed systems at the selected Contractor's or at the Agency's premises up to the capacity defined in the specific contract. The service includes the capacity allocated on tape on a hosted system and any component (including basic platform software, backup client, backup server software and all needed configurations, all needed consumables, i.e. tapes and/or disks, and the installation and maintenance of all connections from the backup server to each of the backup clients).

2.1.7. Connectivity services

The selected Contractor shall provide dedicated managed physical network connections, to be rented as a service by the Agency, for the purpose of connecting the physical hardware platform referred to in points 2.1.3 and 2.1.4 to the following targets:

- G1. Agency's premises – 10 Mbps
- G2. Agency's premises – 100 Mbps
- G3. Agency's premises – 1 Gbps
- G4. Internet – 10 Mbps
- G5. Internet – 100 Mbps
- G6. Internet – 1 Gbps
- G7. Any other external site – 10 Mbps
- G8. Any other external site – 100 Mbps
- G9. Any other external site – 1 Gbps
- G10. Secure Communication Channel equipment (based on VPN appliances installed on end-points connected over the Internet, not including the connectivity covered from points G1 to G9)

The services under point G, except service G10, should be provided regardless of the actual traffic transmitted and must be based on a flat rate.

All the provided connections must be fully redundant at the level of network operators and with seamless and automated failover in case of connection failure. The services (except service G10) shall include the provision of a redundant connection for single physical network connection.

Service G9 may be requested to be delivered to locations other than the Agency.

All the connections shall be provided for bandwidths of 10 Mbps, 100 Mbps and 1000 Mbps. All the connections should be fully symmetrical regarding the traffic direction (download/upload).

2.1.8. Hypervisor and general purpose software related services

The selected Contractor shall be able to provide the Agency with a basket of basic software products to be used in conjunction with owned hardware or hosted equipment (described in points 2.1.3 and 2.1.4). Software shall be provided as a service to the Agency.

The list of software shall include:

- H1.1. Hypervisor and Virtualization Software (per physical CPU).
- H1.2. Enhanced Hypervisor (per Data Centre).
- H2.1. Operating System (per physical machine).
- H2.2. Enhanced Operating System (per Data Centre).
- H3. Backup Software (per OS instance).
- H4. BC/DR Software (per Data Centre).
- H5. Anti-malware Software (per OS instance).
- H6. Monitoring and Surveillance Software (per Data Centre).

The following minimum requirements shall be met by each item:

H1.1. Hypervisor and Virtualization Software (per physical CPU):

- Support for clustering, DRS and HA.
- Centralized management console.
- Support for Linux Red Hat and Microsoft Windows virtual machines.
- Virtual machine and storage migrations.
- Virtual machines resource management.
- Integrated backup functionalities.
- Performance and capacity monitoring.
- Easily integrated with all other offered services if needed.
- Support all the offered hardware platforms.
- Capable to replicate the Agency's current environment.

H1.2. Enhanced Hypervisor (per Data Centre):

- Enterprise/Data Centre or unlimited version of item H1.1

H2.1. Operating System (per physical machine):

- Linux Red Hat and Windows 2008 R2 license.
- Capable to replicate the Agency's current environment.
- Licensed for using 4 CPUs (physical or virtual).

H2.2. Enhanced Operating System (per Data Centre):

- Enterprise/Data centre or unlimited version of item H2.1

H3. Backup Software (per OS instance):

- Supports both Linux and Windows on physical and/or virtualized environment.
- Includes deduplication of data.
- Support for automatic scheduled backups.
- Support all the offered hardware platforms.
- Easily integrated with all other offered services if needed.
- Have a centralised management console.

H4. BC/DR Software suite (per data centre):

- Support Linux and Windows on physical and/or virtualized environment.
- Support for nearly synchronous replication.

- Guarantee a smooth integration of all proposed services.
- Support all the offered hardware platforms.
- Have a centralised management console.

H4.1 Agency's BC/DR Software suite and service (per data centre):

The selected Contractor shall provide the Agency's existing infrastructure at the Agency's premises with a viable Business Continuity solution capable to:

- Support for VMWare ESX 4.1 and superior.
- Support for EMC Clariion CX-4 Series.
- Host up to 16 physical CPUs and 64 CPU cores.
- Interact with CISCO switches and routers.
- Interact with the following software/hardware security vendors: CISCO, JUNIPER, BLUECOAT.
- Guarantee a smooth integration of all proposed services and all service described in this section.
- Have a centralised management console.

This service will connect solely the DR Data Centre to the Agency's premises with the aim to assure Business Continuity in case of serious disaster at the Agency's premises.

H5. Anti-malware Software suite (per operational system instance):

- Protection for Linux and Windows on physical and/or virtualized environment;
- Support for up-to-date real-time protection.
- Support for automatic scheduled scans.
- Easily integrated with all other offered services if needed.
- Support all the offered hardware platforms.
- Have a centralised management console.

H6. Monitoring and Surveillance Software (per data centre):

- Monitoring for Linux and Windows on physical and/or virtualized environment.
- Monitoring of HW platforms (e.g. Syslog, SNMP).
- Automatic alerting and reporting.
- Easily integrated with all other offered services if needed.
- Support all the offered hardware platforms.
- Have a centralised management console.

All the software must be provided with complete software installation on the hardware (in hosting or/and in housing in the Data Centre for the quantity indicated in the specific contract) and with basic configuration services.

Basic configuration means all the actions needed to implement all the minimum requirements for all the involved equipment (in hosting and/or in housing in the Data Centre).

The BC/DR, Monitoring and Surveillance software shall take into consideration the number of available sites and the potential risk to increase the number of sites. The selected Contractor shall offer BC/DR solutions which operate and possibly integrate Business Continuity coordinated between the storage controller and hypervisor level.

2.1.9. Support services made available to the Agency

The Agency may need to delegate supervision of the hosted platforms to the selected Contractor. The purpose of these support services is to have the Contractor's experts who can perform routine operations and emergency/urgent operations 24/7 in order to support the Agency as well as potential stakeholders (e.g. other contractors) in having fully working and operational hosted services. As a part of the Contractor's expert's duties, the selected Contractor shall provide also Project Management activities in order to improve efficiency of the work between the Agency and the selected Contractor and to coordinate the activities among all the parties involved.

The selected Contractor shall provide at least the following services:

- J1. 24x7 Service Desk for the hosted services
- J2. Monitoring, Surveillance and Reporting/Alerting for the hosted services
- J3. System Administration for the hosted services
- J4. Project Management Services
- J5. Custom Support Services

2.1.9.1. Description of support services

Service J1 - 24x7 Service Desk for the hosted services

Service Desk services shall include as a minimum:

- the ability to answer the phone call or email inquiry on any issues related to hosting service,
- to log the issue in an appropriate tool, provided by the selected Contractor and
- to act as a central point of all communications related to operating the hosted environment.

The Service Desk services should be provided at least in the three (3) working languages of the EU (English, French and German).

Service J2 - Monitoring, Surveillance and Reporting/Alerting for the hosted services

Monitoring, Surveillance and Reporting/Alerting services shall as a minimum include continuous monitoring of hosted equipment and automated alerting of the selected Contractor's staff and the Agency staff on incidents detected. In addition, it shall also include periodical reporting on the status of hosted equipment/services. For this purpose, the selected Contractor shall collect and analyse, on a regular basis, security threats and incident related data, data concerning operational reliability of hosted services/equipment and data related to the capacity/performance of hosted services/equipment.

Service J3 - System Administration for the hosted services

System Administration services shall include as a minimum any possible system administration procedure and action required and/or supplied by the Agency to be performed on hosted services with the aim to have a fully working hosted platform.

This service shall also include activities on any provided and hosted network related equipment (i.e. creation of VPNs, creation of VLANs, creation of DNS Entry etc.), the regular execution of BC/DR tests on a yearly basis and the implementation of configuration change requests, including administration related to all security services provided (i.e. authentication and authorization mechanisms, mitigating discovered security threats, anti-malware operations, etc.).

System administration shall include the following activities:

- Performing hardware related software installations according to published installation processes where the installation is not included in the service description.
- Basic server administration tasks, i.e. creating new virtual hosts, activating authentications etc.
- Kernel updates and recompilation.
- Software updates and recompilation.
- File system checking.
- Basic system troubleshooting.
- LAN network device administration (i.e. switches, routers, load balancers, proxies, etc.).

System administration services do not include the installation or maintenance of the Agency's proprietary software, or third party software directly related to it, that will be installed on hosted platforms.

Service J4 - Project Management Services

Project Management Services shall include as a minimum the preparation of relevant documentation, attendance at meetings, managing projects, etc.

Service J5 - Custom Support Services

Custom Support Services shall include as a minimum the installation and maintenance of the Agency's proprietary software and equipment, for which the Agency shall provide written procedures/manuals describing the tasks to be performed by the selected Contractor.

2.1.10. Other essential hosting services related to networking needs

The selected Contractor shall provide the following services:

- K1. Provision of Public IP addresses to be used on a provided Internet Connection (per IP address, max. 48);
- K2. Public domain names management in order to associate Public IP addresses with the Agency's Domain Name and the Service Name (per domain name);
- K3. Public DNS entries needed to propagate the information under K.1 and K.2 over the Internet (per entry) which shall include the secondary DNS server and a management interface for the Agency.

2.1.11. Transfer in/out of the Agency's owned or hosted equipment

The selected Contractor shall be able to relocate existing hardware which belongs to the Agency and which the Agency intends to host in the datacentre of the selected Contractor or which the Agency intends to transfer from the Hosting site to another location.

For transfer in/out services, the following planned delivery lead time shall apply: for 95% of the specific contracts related to transfer services in a quarter, the delivery lead time shall not exceed 52 weeks.

The services to be provided shall include in particular:

L1. The removal of the IT equipment, owned by the Agency, from the Agency's Headquarters in Ljubljana, Slovenia to the Hosting Data Centre of the selected Contractor;

L2. The removal of the IT equipment owned by the Agency and located in the Hosting Data Centre of the selected Contractor, to the Agency's Headquarters or to a third party location.

For the services mentioned above (L1 and L2) the selected Contractor shall be able to provide the following activities:

LA.1. Inventory of hardware, software, services and related configuration(s) that the Agency intends to relocate to the selected Contractor's Hosting Data Centre. In order to define the scope of the transfer, the Agency will include in its request for services a description of the scope with a draft list of hardware (i.e. physical and virtual servers, roles of the servers, software installed and dependencies from other services).

LA.2. Creation of a migration plan which should include as a minimum the following documents:

- a. A detailed time schedule containing activities planned.
- b. A list of dependencies with the suggested resolution of the dependencies. The resolution should use as much as possible any equipment in the Hosting Data Centre which belongs to the Agency.
- c. A document containing high level analysis of the function of each component of a platform and a low level analysis containing a description of how the platform works, the security needed and which must be present at the place of hosting, any device or piece of infrastructure which is functional to the component.
- d. A deviation plan which must be provided only in the case that one or more components of the entire working system will not be relocated. In this event the selected Contractor will need to assure that the migrated equipment can work in the absence of one or more components which can be replaced with the Agency's existing component or with a similar component which can be ordered by the selected Contractor.
- e. Technical Manuals and instructions on how to re-establish the full functionality of migrated hardware, software, to re-establish connections with all software dependencies (local or remote) how to start up the full migrated system, and eventually how to publish the system to a public network infrastructure (e.g. on the Internet) or on a private network infrastructure. These manuals need to be provided to the Agency and the selected Contractor.
- f. Test case manuals with the purpose to test that all functionalities with the same hardware and different configuration will work in the new migrated location. The test case will be used as an acceptance test.

LA.3. Proper packing of all equipment prior to transportation. Packing shall be specific for IT equipment with the use of air bubbles or specific foams and specific boxes (generally made of wood and/or carton). The selected Contractor shall assure the working of the platform; prior to the removal of the equipment, i.e. all cables need to be labelled, each input/output port shall be identified on each piece of equipment and clearly marked in order to allow smooth re-installation of all parts as well as connection to the remaining components of the system.

LA.4. Provision of transportation services and means from the Agency's location to the location of the selected Contractor. The transportation service must include the door to door service and the transportation in and out of the buildings involved. In case no goods lift is present in the building and no transportation path is available, the selected Contractor shall provide specific means of transport which shall reduce the risk on any damage to the transported equipment or the premises (e.g. through the use of specific remote handling devices for IT equipment).

LA.5. Inventory of all parts prior to the final re-installation is necessary. The inventory must be consistent with the inventory mentioned in point LA.1, and shall specify a list of additional items that might be needed for the final re-installation.

LA.6. Re collocation of the transported assets in the new final location and in particular in a rented rack;

LA.7. Establishment of all cables based on the labels applied during the inventory, and checks on connectivity of all the components which need to be connected to the internal and external pre-existing components;

LA.8. Reconfigurations of the equipment (mainly of hardware and software) in order to re-establish all the dependencies and needed links to the internal and external components.

LA.9. Start-up of the moved system in the new working environment and test electrical, network and storage connectivity.

LA.10. Test of removed items following the acceptance tests as described in point LA.2.f.

L11. Final deployment of removed items in production and publication of the services for normal use (in case a migration of data will be needed, this will be done by the selected Contractor as the last stage).

3. Professional profiles

The selected Contractor shall be able to provide experts with the following minimum qualifications in terms of education, skills, and experience as described below.

Each expert may cover at most two profiles.

3.1. A-level profiles

Project Manager (PM)	
Minimum education	University degree in the field of Computer Science, Computer Engineering, Economics or any other technical degree with the exclusion of degrees with main subject in the legal and humanistic field.
Knowledge and skills	<ul style="list-style-type: none">– In-depth knowledge of project management frameworks (i.e. PRINCE2 and/or PMBOK)– Knowledge of project management tools (e.g. Primavera or MS Project, Microsoft Excel);– Excellent command of English language which should allow him/her to participate in meetings and to draft minutes and notes of the internal team and external meetings with the contractor and/or stakeholders.
Experience	<ul style="list-style-type: none">– Minimum 7 years' experience in IT covering a similar position for at least 5 years;– Experience in quality assurance procedures;– Completed the project management for at least 2 international projects.

IT Infrastructure Architect	
Minimum education	University degree in the field of Computer Science, Computer Engineering, Mathematics OR a post-secondary education attested by a diploma and any relevant completed Certification Path in the design and implementation of enterprise ICT infrastructures.
Knowledge and skills	<ul style="list-style-type: none"> – Detailed understanding of infrastructure technologies and solutions. – Knowledge of IT governance and operations. – Comprehensive knowledge of hardware, software, application and systems engineering. – Familiar with best practice methodologies pertaining to design and development, systems engineering and integration and service management (such as ITIL). – Analysis skills using analysis methodologies. – Ability to interact with stakeholders, by means of facilitating scoping workshops, in order to drive out requirements. – Grasp of tools and techniques used to capture and prioritise requirements in order to produce designs that deliver business value.
Experience	<ul style="list-style-type: none"> – At least 5 years' experience in the relevant field. – Excellent experience in Data Centre design, relocation and transformation projects, – Wide experience of current infrastructure technologies and with major IT companies including Oracle, Sun, Microsoft, IBM, HDS, RedHat, VMware, EMC, Cisco, HP. – Good experience in network systems design, implementation and management. – Excellent experience in virtualisation technologies and best practices. – Excellent experience in designing large highly available resilient IT systems. – Familiar with best practice methodologies pertaining to design and development, systems engineering and integration and service management (such as ITIL) utilised in the IT industry in general. – Ability to conceptualise, energise, mobilise and ensure delivery on time, budget and according to customer expectations and company directives.

3.2. B-level profiles

Storage Area Network Engineer	
Minimum education	University degree in the field of Computer Science, Computer Engineering, Mathematics OR a post-secondary education attested by a diploma and a completed Storage Area Network certification path.
Knowledge and skills	<ul style="list-style-type: none"> – Knowledge of storage clustering, virtualisation, SAN and networking functionality. – Ability to monitor system performance and utilization. – Ability to create documentation based on functions and tasks performed.
Experience	<ul style="list-style-type: none"> – At least 5 years' experience in the relevant field. – Minimum 3 years' experience in storage (SAN and NAS) administration and other related experience. – Extensive experience in working on multiple vendor platforms including but not limited to EMC, HP, NetApp, Hitachi and IBM and their associated file system structures. – Experience in supporting Fibre Channel switches (Brocade, Cisco, etc.) HBAs and zoning and an understanding of SAN design in a heterogeneous environment. – Certifications: at least 1 certification for each proposed storage component.

Network Engineer	
Minimum education	University degree in the field of Computer Science, Computer Engineering, Mathematics OR a post-secondary education attested by a diploma and a completed certification path on the field of networking and/or security.
Knowledge and skills	<ul style="list-style-type: none"> – Extensive knowledge of network system engineering methods, configuration and management of networking components and various networking services. – Extensive knowledge of network operations. – Good leadership skills and the ability to guide and provide technical direction and supervision for a given project.
Experience	<ul style="list-style-type: none"> – At least 5 years' experience in the relevant field. – At least 1 certification on proposed LAN component (router-switching, etc.). – Working knowledge of major networking and hardware components.

Virtualisation Engineer	
Minimum education	University degree in the field of Computer Science, Computer Engineering, Mathematics OR a post-secondary education attested by a diploma and a completed certification path in the field of virtualisation using hypervisor platforms.
Knowledge and skills	<ul style="list-style-type: none"> – Transforming business requirements and specifications into efficient virtualisation infrastructure. – Designing robust systems for expanding and maturing the virtualisation environment, designing complex virtual infrastructure solutions in a mid-to-large scale data centre environment. – Excellent knowledge of server and desktop virtualisation technologies. – Understanding of storage, network and hardware technologies. – Lead or work in a variety of teams with members of multiple groups to proactively address support issues. – Liaison with other IT teams to gain consensus, provide status updates and present remediation solutions.
Experience	<ul style="list-style-type: none"> – At least 4 years' experience in the relevant field. – At least 1 certification on the proposed virtualisation component. – Excellent experience in designing virtualisation infrastructure that meets customer requirements.

3.3. C-level profiles

Infrastructure Server Engineer	
Minimum education	University degree in the field of Computer Science, Computer Engineering, Mathematics or similar OR a post-secondary education attested by a diploma, OR a secondary education attested by a diploma giving access to post-secondary education and appropriate professional experience of three years.
Knowledge and skills	<ul style="list-style-type: none"> – Investigating, reporting and resolving problems, including documenting solutions. – Understanding of VLANs, TCP/IP networks and routing. – Be proactive when dealing with customer incidents and service requests. – Excellent knowledge of the hardware of the proposed server brand. – Understanding backup, monitoring/surveillance and anti-malware solutions.
Experience	<ul style="list-style-type: none"> – At least 3 years' experience in the relevant field (in case of secondary educations this means additional 3 years of experience). – At least 1 certification on the proposed server brand.

	<ul style="list-style-type: none"> – Experience in building, changing and decommissioning server hardware. – Experience in testing and managing hot fixes, patches and upgrades.
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4. Service Level Agreement (SLA) framework

Each specific contract will include a Service Level Agreement which will be defined when the request for services will be issued.

4.1. Benchmarks for SLA

With the aim to define a modular service level agreement framework, the Agency will set a list of benchmarks which will be used during the implementation of each specific contract to continuously monitor the Contractor's performances in respect of commonly agreed quality standards. Service levels requirements described below could eventually have the form of benchmarks.

The selected Contractor may propose additional benchmarks prior to the signature of a specific contract. The proposed benchmarks shall be approved in writing by the Agency and should follow the following basic rules:

- cannot override or modify any part of the requirements and benchmarks defined by the Agency
- cannot be expressed in a way that makes the benchmarks defined by the Agency unusable for the purpose of the contract implementation,
- must be supported by relevant literature and with a descriptive paper describing the use of the proposed benchmark.

An example of a benchmark card may be issued in a specific contract:

Benchmark E2.1 – Infrastructure availability and uptime	
Service quality indicators	Continuity of operation of the overall Agency's hosted managed infrastructure (including hardware and related software, connectivity, networking components, storage, etc.)
Unit of measure	Minutes
Source of measurement data	Report of the level of the services offered
Observation period	Quarterly
Frequency of measure	Monthly
Data to measure	<ul style="list-style-type: none"> – Actual availability: minutes of the month when there is availability of infrastructure. The infrastructure is considered unavailable even in case of problems of application which cause the complete closure of the system. – Planned unavailability of the infrastructure: minutes for the month of unavailability of infrastructure agreed in advance with the Agency – Theoretical availability: minutes of the month
Rules for measuring	None
Formula (if any)	$\text{Value} = (\text{Actual availability} - \text{Planned unavailability of the infrastructure}) \times 100 / (\text{Theoretical availability} - \text{Planned unavailability of the infrastructure})$
Thresholds	Value $\geq 99.5\%$ for each month of the quarter Improvements of the threshold value indicated by the Contractor in offering technical improvements can also be provided separately for each service area. In this case the determination of the score will take as a

	reference the average of the values individually applicable to the different service areas.
Contractual actions	<p>In case of non-compliance with the threshold value the Agency shall apply a penalty equal to:</p> <ul style="list-style-type: none"> – 3% of the monthly fee for each month that the Contractor registers one service area with non-standard up-time; – 10% of the monthly fee for each month that the Contractor registers two areas of service with up-time with non-standard; – 20% of the monthly fee for each month that the Contractor registers three or more areas of services with up-time with non-standard.
Exceptions	Force majeure adequately documented by the Contractor and accepted by the Agency.