

**Technical Specifications (In-Cash Procurement)**

**TECS\_2024-06\_CFT\_IT HARDWARE 2024**

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## SUPPLY

## Table of Contents

<b>1</b>	<b>PREAMBLE.....</b>	<b>3</b>
<b>2</b>	<b>PURPOSE.....</b>	<b>3</b>
<b>3</b>	<b>ACRONYMS &amp; DEFINITIONS .....</b>	<b>3</b>
3.1	Acronyms .....	3
3.2	Definitions.....	3
<b>4</b>	<b>APPLICABLE DOCUMENTS &amp; CODES AND STANDARDS.....</b>	<b>4</b>
4.1	Applicable Documents .....	4
4.2	Applicable Codes and Standards.....	4
<b>5</b>	<b>SCOPE OF WORK.....</b>	<b>4</b>
<b>5.1</b>	<b>Lots .....</b>	<b>5</b>
5.1.1	Lot 1 Details:.....	5
5.1.1.1	IO Hardware current environment.....	5
5.1.1.2	Associated services scope of work .....	6
5.1.1.3	Estimated volumes (based on historical data) .....	6
5.1.1.4	Associated services scope of work .....	7
5.1.1.5	Maintenance services associated to the equipment in use.....	11
5.1.2	Lot 2 Details:.....	11
5.1.2.1	Environment presentation.....	11
5.1.2.2	Associated services and scope of work .....	17
5.1.2.3	Scope of hardware, software, and services.....	18
5.1.2.4	Estimated volumes (based on historical data) .....	19
5.2	Corporate and Channel categories (applicable individually to both lots) .....	20
5.2.1	<i>Corporate category</i> .....	20
5.2.2	<i>Channel category</i> .....	20
5.2.3	Context.....	21
5.2.4	Sizing .....	21
5.2.5	Acceptance Criteria.....	21
5.2.6	Specific Requirements and conditions.....	21
5.2.7	Contract Administration and Performance .....	22
5.2.8	Work Monitoring/Meeting Schedule .....	22
5.2.9	Delivery Time .....	22
<b>5.3</b>	<b>Duration .....</b>	<b>22</b>
<b>6</b>	<b>LOCATION FOR SCOPE OF WORK EXECUTION .....</b>	<b>22</b>

	<b>SUPPLY</b>	
7	<b>IO DOCUMENTS &amp; IO FREE ISSUE ITEMS.....</b>	<b>22</b>
8	<b>LIST OF DELIVERABLES.....</b>	<b>22</b>
9	<b>QUALITY ASSURANCE REQUIREMENTS.....</b>	<b>22</b>
10	<b>SAFETY REQUIREMENTS .....</b>	<b>23</b>
11	<b>CAD DESIGN REQUIREMENTS.....</b>	<b>23</b>
12	<b>APPENDICES .....</b>	<b>24</b>

## SUPPLY

### 1 Preamble

This Technical Specification is to be read in combination with the General Management Specification for Service and Supply (GM3S) – Ref [1] that constitutes a full part of the technical requirements.

In case of conflict, the content of the Technical Specification supersedes the content of Ref [1].

### 2 Purpose

Currently ITER Organization (hereinafter IO) acquires its IT hardware (PC, server, storage, printer, network, audio/video products), IT Solutions and Services via value-added resellers providing a distribution channel between the products manufacturers and IO. These contracts require the selected contractors to hold highly qualified partnership relations with the various manufacturers involved.

The purpose of this open call for tenders is to conclude a framework supply contract (per lot) for the supply of a wide range of Information Technology solutions (Hardware, Software, Services and Consultancy). The tenderers must be able to deliver the complete range of solutions (for the lot(s) for which they are applying) from the main brands in the sector. The future Contractors must provide a unique interface between the manufacturers and IO.

The selected Contractor(s) should be able to deliver high quality services related to the hardware selling including, but not limited to:

- Presales consultancy;
- Configuration optimization;
- Hardware and software installation;
- Extended warranty;
- Preventive and remedial maintenance;
- Services and SLAs including monitoring
- other incidental services such as consulting, development and training.

### 3 Acronyms & Definitions

#### 3.1 Acronyms

The following acronyms are the main one relevant to this document.

Abbreviation	Description
MTO	Material Take Off
CRO	Contract Responsible Officer
GM3S	General Management Specification for Service and Supply
IO	ITER Organization
PRO	Procurement Responsible Officer

#### 3.2 Definitions

For a complete list of ITER abbreviations see: [ITER Abbreviations \(ITER\\_D\\_2MU6W5\)](#)

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## 4 Applicable Documents & Codes and standards

### 4.1 Applicable Documents

This is the responsibility of the Contractor to identify and request for any documents that would not have been transmitted by IO, including the below list of reference documents.

This Technical Specification takes precedence over the referenced documents. In case of conflicting information, this is the responsibility of the Contractor to seek clarification from IO.

Upon notification of any revision of the applicable document transmitted officially to the Contractor, the Contractor shall advise within 4 weeks of any impact on the execution of the contract. Without any response after this period, no impact will be considered.

Ref	Title	IDM Doc ID	Version
1	General Management Specification for Service and Supply (GM3S)	82MXQK	0.0

### 4.2 Applicable Codes and Standards

This is the responsibility of the Contractor to procure the relevant Codes and Standards applicable to that scope of work.

## 5 Scope of Work

The scope of work consists in supplying the hardware, services and maintenance as requested in the relevant task orders upon acceptance of the corresponding commercial proposal.

The overall objectives of the Contract resulting from the present procurement procedure are as follows:

- Obtaining an efficient way to acquire IT solutions that cover a wide range of products, such as:
  - New Hardware and Software subsequently as-a-service
  - Consultancy services (including installation and configuration of products and trainings);
  - Maintenance services for the new acquired products and take-over of the existing maintenances;
  - Supply of add-ons and upgrades to equipment already in use prior to the entry into force of the Framework Contract.
  - Cloud and onsite services
- Simple contract administration and management (quotation, ordering, order tracking, delivery, reporting, etc.), for new acquisitions and related services;

## SUPPLY

- An acquisition channel that allows the choice/purchase of “best-of-breed” systems in a highly dynamic IT market;
- ITER to benefit from the most advantageous prices available in the market.

### 5.1 Lots

This tender is divided in two lots.

- **Lot 1:** to select one Contractor recognized for its expertise in the supply of IT hardware (e.g. laptop, desktop, workstation, servers), consumables (e.g. printer toner and spare parts), other items related to IT (e.g. laptop bag) and associated services (e.g. guarantee, maintenance, consultancy).
- **Lot 2:** to select one Contractor recognized for its expertise in the supply of IBM specialized hardware and services targeted high performance computing such as but not limited to: storage (hardware, software and / or storage as a service), backup (hardware, software and / or backup as services), 24/7 support and monitoring, warranty and extended warranty service performed onsite, maintenance and various other services (installation, migration, updates, development, consultancy, etc.).

#### 5.1.1 Lot 1 Details:

##### 5.1.1.1 IO Hardware current environment

ITER Organization already maintains an IT infrastructure including the equipment listed below (and other equipment not applicable to this tender). An example of equipment is provided for each product family:

##### Server side:

- Stand-alone servers:
  - HPE ProLiant DL360 Gen10+/11
  - HPE ProLiant DL380 Gen10+/11
  - HPE Apollo/Cray servers
- Data storage :
  - HPE MSA2050, MSA2052
  - HPE D3610, D3710
  - HPE StoreVirtual 3200
- PCoIP rack workstations:
  - DELL R7920
- NVMe Storage:
  - Intel SSD DC P4608 Series

## SUPPLY

- Intel Optane SSD DC P4800X Series

### **Client side:**

- Laptops
  - Laptops: DELL Latitude 5440, Dell Precision 7670
- Screens
  - 24” LCD DELL screen with/without embedded docking station
- Internal HDD/SSD
  - SATA Solid State Drive Samsung SSD 860 EVO 500GB NVMe

#### ***5.1.1.2 Associated services scope of work***

The IO expects the selected tenderer to be able to deliver the purchased hardware in IO headquarters (located in Cadarache, Alpes de Haute Provence, France)

The associated services are due in the same locations as the delivery.

The services include, but are not limited to, installation, configuration, extended warranty, maintenance, and other incidental services such as consulting - analysis and design - or training. These services may be acquired directly from the Contractor through this framework contract.

The support services include preventive and remedial maintenance, as well as moves, modification of equipment and software upgrades required to ensure that installed solutions can work effectively and within a homogeneous environment.

The maintenance services will also be used to maintain existing equipment of a brand offered by the contractor but purchased and installed via previous procurement procedures.

Consulting services may include the qualified, professional ability of the supplier to offer analysis, recommendations, or design expertise to ITER Organization relating to the applicable hardware and may include the ability to:

- Analyse existing technological environment, including hardware, software, and live operations for proactive actions.
- Develop functional and/or design specifications, technical writing and documentation in English.

In addition, IO asks the tenderer to provide a general discount based on a public published price list for: Dell, HP, SAMSUNG, IBM, NetApp, GN Netcom, Logitech, Microsoft (hardware only)

#### ***5.1.1.3 Estimated volumes (based on historical data)***

The estimated volumes of procurement are the following:

- Laptop: ~500 units per year
- Screens: ~800 units per year

## SUPPLY

- Servers: 20~50 units per year
- Storage: 300~500 TB per year in various systems (e.g. DAS, SAN, NAS)

These numbers are given for sizing and evaluation purpose. They do not represent a commitment. The presented estimation is not a commitment from the part of ITER, it is only provided for information purposes.

### 5.1.1.4 *Associated services scope of work*

The services include, but are not limited to, installation, configuration, extended warranties, maintenance, and other incidental services such as consulting - analysis and design - or training. These services may be acquired directly from the supplier under this framework contract.

The support services include preventive and remedial maintenance, as well as relocation, modification of equipment and software upgrades required to ensure that installed solutions can function effectively and within a homogeneous environment.

#### 5.1.1.4.1 Consulting Services

Consulting services may include the qualified, professional ability of the supplier to offer analysis, recommendations, or design expertise to ITER Organization relating to network and security hardware and software. Said expertise must include a current knowledge of the technology marketplace, related network and security issues and trends, and may include the ability to:

- Analyse existing technological environment, including hardware, software, and live operations for proactive actions,
- Design and develop new systems, add-ons or modifications to existing network and security systems, including single platform or distributed systems,
- Develop functional and/or design specifications, technical writing and documentation in English.

#### 5.1.1.4.2 Consulting services for Corporate category products

The Contractor must be able to provide, when requested by ITER, technical consulting services for both Corporate and Channel (see chapter 6.2) Category products, with at least three different profiles: high level consultant, senior consultant and consultant, as described below.

##### a) **High-level Consultant**

The high-level consultant must possess the following skills, capabilities, and experience:

- University degree in computer science, mathematics, engineering, or physics.
- 7+ year experience managing the product(s) specified in the requested field of experience.
- Any relevant certification in the area is considered.
- A broad, enterprise-wide view of the business and varying degrees of appreciation for strategy, processes and capabilities, enabling technologies, and governance.



## SUPPLY

- The ability to recognize structural issues within the organization, functional interdependencies.
- The ability to apply architectural principles to business solutions.
- The ability to assimilate and correlate disconnected documentation and drawings and articulate their collective relevance to the organization and to high-priority business issues.
- Good understanding of ITIL practices.
- He/she shall have a very good written and oral command of English.
- Capability of integration in an international/multicultural environment, even if for short periods, rapid self-starting capability and experience in team working are mandatory.
- The ability to:
  - Design and coordinate effective installation of one or more of the specified products and properly configure hardware and software.
  - Plan and perform appropriate procedures, documentation, inventory assessment, and other procedures related to the product(s) management.
  - Monitor, analyse system components and make recommendations regarding system security, performance, disk, and other components utilization.
  - Design architectures and reviews existing architectures as part of the service life cycle, using performance benchmark data and/or manufacturers recommendations as inputs into choosing the appropriate hardware and/or software.
  - Determine business requirements and translate those requirements into the definition of a conceptual, logical, and physical model for the proposed new system or enhancements.
  - Work with a team to automate management tasks, streamline processes, and perform standard administration functions as needed.
  - Conduct software and hardware evaluations, provide technical analysis, and implement systems to meet ITER's IT goals.

### **b) Senior Consultant**

The Senior consultant must possess the following skills, capabilities, and experience:

- University degree in computer science, mathematics, engineering, or physics.
- 5+ year experience managing the product(s) specified in the requested field of experience.
- Any relevant certification in the area is considered.
- Good understanding of ITIL practices.
- He/she shall have a very good written and oral command of English
- Capability of integration in an international/multicultural environment, even if for short periods, rapid self-starting capability and experience in team working are mandatory.
- The ability to:
  - Perform and coordinate effective installation of one or more of the specified products and properly configure hardware and software.
  - Administer the product operations, install new software releases (if applicable), perform upgrades, evaluate, and install patches and resolve software/hardware related problems (as applicable).

### SUPPLY

- Plan and perform appropriate procedures, documentation, inventory assessment, and other procedures related to the management of the product life cycle.
- Maintain, monitor, analyse system components and make recommendations regarding the security of the product(s), system performance, disk, and other components utilization (as applicable). Monitors product operations to track operating efficiency.
- Test and implement technical solutions and provide strong operational support on the product(s).
- Work with a team to automate management tasks, streamline processes, and perform standard administration functions as needed.
- Conduct software and hardware evaluations, provide technical analysis, and implement systems to meet ITER's IT goals.

#### c) Consultant

The Consultant must possess the following skills, capabilities, and experience:

- Secondary school diploma plus three (3) years of proven experience in the field.
- 3+ year experience managing the product(s) specified in the requested field of experience.
- Any relevant certification in the area is considered.
- Good understanding of ITIL practices.
- He/she shall have a very good written and oral command of English
- Capability of integration in an international/multicultural environment, even if for short periods, rapid self-starting capability and experience in team working are mandatory.
- The ability to:
  - Perform effective installation of one or more of the specified products and properly configure hardware and/or software.
  - Administer the product operations, install new software releases (if applicable), perform upgrades, evaluate and install patches and resolve software/hardware related problems (as applicable).
  - Evaluates adequacy of system hardware and software to meet present and future needs.
  - Monitors performance to track operating efficiency.
  - Work with a team to automate management tasks, streamline processes and perform standard administration functions as needed.

#### 5.1.1.4.3 Maintenance Services

The Contract will also cover the maintenance of the equipment supplied, repairing or replacing the defective products.

The Maintenance Services can be purchased as part of an official price list (e.g. HP carepacks ) or as a service supplied directly by the Contractor.

## SUPPLY

The Contractor must be able to provide the Maintenance level required for each manufacturer, as described in Annex ??? “Manufacturers List”.

Three maintenance services are requested in the call for tender:

**a. Basic maintenance** to exchange defective parts;

The Basic maintenance service covers an Advanced Replacement Service (=SWAP) for every hardware item supplied to ITER under the Contract.

The Basic Maintenance will operate as follows:

- The Contractor (or the Manufacturer) will keep a spare stock of hardware items.
- Whenever a hardware item becomes defective, ITER will inform the Contractor, who will arrange an appointment to deliver (**within five working days**) a replacement unit at the IT Service Desk.
- ITER will return the defective part to the Contractor.

The Basic Maintenance Services will provide ITER with a direct access to the Technical Support or Assistance Centres of the different manufacturers.

For software products, the basic maintenance covers the access to the Manufacturers’ Service Desk to obtain software support and to download the latest upgrades. For some software products it may be necessary that ITER will have to order a software subscription.

The Contractor must provide a service desk with fluent English-speaking Staff during ITER’s **Normal Working Hours (08.00 – 18.00)**.

**The transport cost (delivery and return of a defective part) is included in the basic maintenance service cost.**

**b. Standard maintenance** for on-site support during the **Normal Working Hours (08.00 – 18.00)**.

The Standard maintenance is a supplement of the Basic Maintenance and provides on-site maintenance **during the Normal Working Hours, 5 days a week, on site intervention next business day.**

The standard maintenance services also include the installation of regular updates of the system software in order to keep the devices up to date.

**c. Critical maintenance** for on-site support **24/7 on site intervention within 4 hours.**

The Critical Maintenance provides the same services as the Standard Maintenance increased with **critical incident resolution on site 24 hours per day, 7 days per week, on site intervention within 4 hours.**

## SUPPLY

### **Remarks:**

- The guarantee for the products acquired via this tendering procedure is for a period of 2 years. During this guarantee period the Basic maintenance is free of charge. The guarantee period starts from the date of signature by ITER of the delivery slip or the installation report.
- For some manufacturers the definition of working hours can be different from the ITER's one (e.g. 09.00 – 17.00 instead of 08.00 – 18.00). If a Maintenance Service provided by the Manufacturer has a slightly different definition of working hours for the coverage of the Service itself, ITER reserves the right to purchase it or to ask the Contractor to provide a different solution.

#### ***5.1.1.5 Maintenance services associated to the equipment in use.***

The Contractor must be able to take over the maintenance of the IT equipment already in use at ITER at the end of their guarantee period.

ITER may decide to transfer to the new Contractor the maintenance of products acquired under a previous contract and from the Manufacturers List. The maintenance of these products must be provided after the expiration of the current maintenance contract.

#### ***5.1.2 Lot 2 Details:***

The ITER Scientific Data and Computing Center (SDCC) is at the forefront of managing systems related to science, including the storage and processing of all data produced by the project. The SDCC hosts multiple compute clusters for computation jobs in areas such as Neutronics, Physics Modelling, Simulations, and Analysis, featuring approximately 14,000 cores, with cloud bursting capabilities to Microsoft Azure and Google Cloud, and managing around 3 PB of data. Besides the scientific data the ITER SDCC also manages all ITER data backup onsite and remote replication and archiving.

##### ***5.1.2.1 Environment presentation***










Currently, the SDCC leverages IBM Spectrum Scale Storage Systems on-site for HPC and SDCC prototyping applications, with data replication to an off-site data center for backup/DR/archiving via IBM Spectrum Protect. The new SDCC's facility is under construction and expected to be operational by Q4 2024, will initially boast 1 MW capacity and 48 racks, adhering to Tier 3 compliance (99.99%).

**(Below illustrates the current SDCC setup including hardware and software.)**

## SUPPLY

ITER SDCC  
Infrastructure & Applications  
50+ HPC and Linux applications for  
DevOps and support



 6 NX Login nodes (GPU acc.) 100+ sessions	 File Sharing system, 6+ servers 1000+ users	 HPC Scheduler 5+ Servers Average 100+ jobs	 7 Spectrum Scale Clusters 3 locations, 12 PB capacity. 20+ file systems	 9,6 PB protected data 1000 VMs, 250+ nodes 2 Disk and 1 Tape copy
 3 Onsite data centers (2 Offsite data centers) 65+ Racks, HVAC, Power Genset(s), UPS, DCIM	 <b>Hewlett Packard Enterprise</b> 400+ Physical Servers 340 HPC Nodes 100+ Data/Apl. servers	 <b>NVIDIA</b> Infiniband Network 50+ switches, GPU based servers	 <b>HUAWEI</b> 800 Gbit WDM Network ITER – MRS – GEANT -	

The ITER SDCC is currently operated from a temporary data center at ITER until the new facility is constructed. Additionally, a data distribution centre is operational in Marseille at Interxion with 2\*400 Gbit connectivity to ITER and connectivity to international research networks.

HPC Servers currently are mainly from HPE connected via both 10/25 Gbit Ethernet and 100 Gbit InfiniBand to the IBM Scale Storage systems (GPFS).

Remote connectivity to the cluster is handled via 6+ NoMachine login nodes with graphical RedHat 9X Gnome desktop environment including GPU acceleration for visualisation purposes.

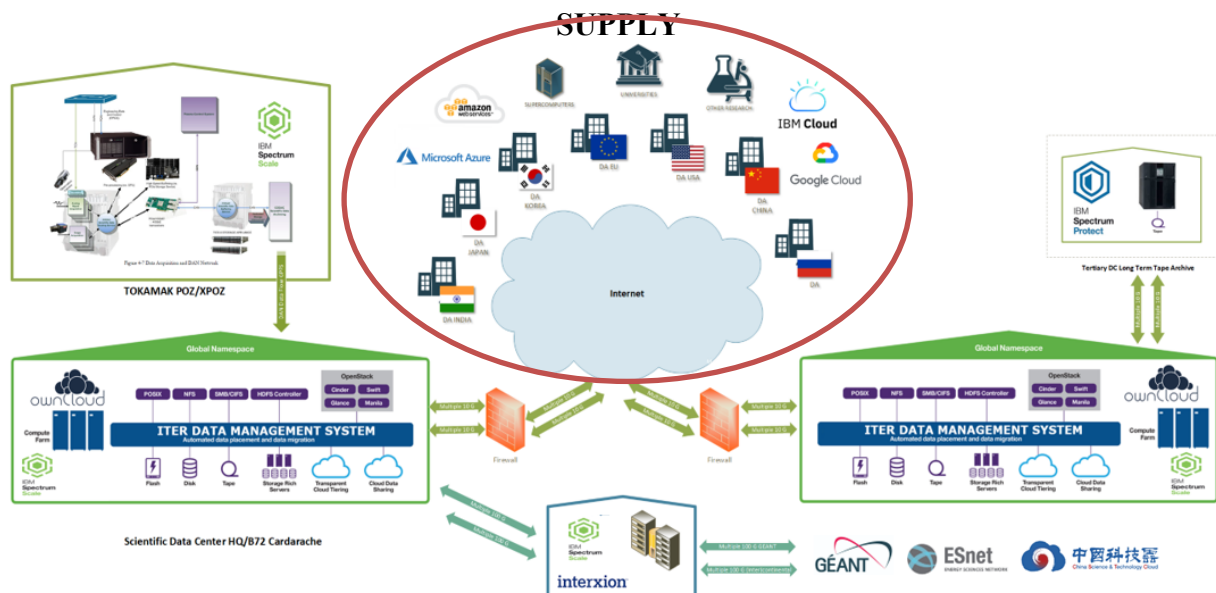
HPC jobs are scheduled via SLURM workload manager. In average the cluster handles 100+ concurrent jobs.

ITER has a strategy to consolidate it's Linux distributions on RedHat in 2024. All HPC nodes and servers are to be migrated from current CentOS 8 to RedHat 9X before end of 2024. Going forward only RedHat will be supported.

For updates, automation, and deployment ITER uses RedHat Satellite and Ansible playbooks.

There is a wide variety of backend application and services including DBs, monitoring, development tools etc.

**(below illustrates the current and future top-level design of data flow and connectivity)**



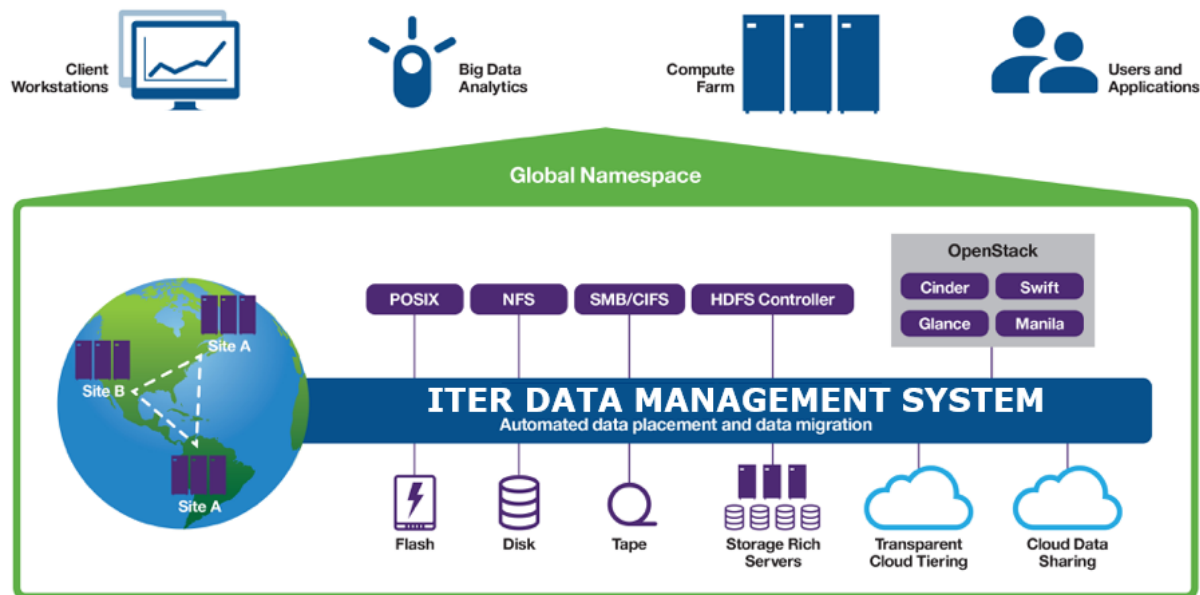
The top left in the illustrates the Tokamak of the experiment and the main control room where a temporary storage for all future data ingestion is planned. Data will flow in the vicinity of 50 GB/s and total future data production is estimated around 5 exabyte / 2.2 PB per day. This is not a part of this CFT, as the actual experiment is not scheduled to start before early 2030s. In the left bottom the SDCC is illustrated which is part of this CFT scope. The SDCC will store all data permanently in a hot state for online data analysis. External collaborators and partners can access the data via a distribution centre in Marseille or directly from ITER as remote participation.

The circled part in red illustrates the internet and external institutions which are not part of this CFT.

## Storage systems and background

At the end of 2019 a new IBM Spectrum Scale storage system was installed for the HPC and SDCC prototyping applications with 1.5 PB capacity onsite and remote at a partner. As part of this contract an offsite DR replication and backup/archive was installed during 2020 replacing all existing backup systems at ITER IT (Microsoft DPM to disk/tape, RapidRecovery, FreeNas etc). In 2021 the capacity of the main systems onsite/remote was expanded with additional 1.5 PB. The system is currently delivered on a storage-as-a-service model including licenses, support, SLA, and maintenance.

## SUPPLY



IBM Spectrum Scale has been in production since 2019, and the different technologies for data tiering, migration, archiving, replication etc has since been tested and implemented. The figure above illustrates some of the interfaces and functionality provided by the ITER IBM Spectrum Scale System.

The current IBM Spectrum Scale storage was implemented in late 2019 and expanded in 2021 and 2023. It currently consists of 2 X IBM V7000 Flash systems – each with 160 TB NVME capacity and 4 X IBM expansion enclosures with a total of 3 PB usable NL-SAS capacity. The maximum bandwidth of the current setup is approximately 16 GB/s.

## SUPPLY



ITER 2 X V7000  
8 X NSD Server  
2 X 60 TB NVME  
4 X Expansion  
shelves 4 PB



External Partner  
4 NSD Servers  
No NVME  
4 X Expansion  
shelves 4 PB

### (current onsite and offsite IBM V7000 Setup)

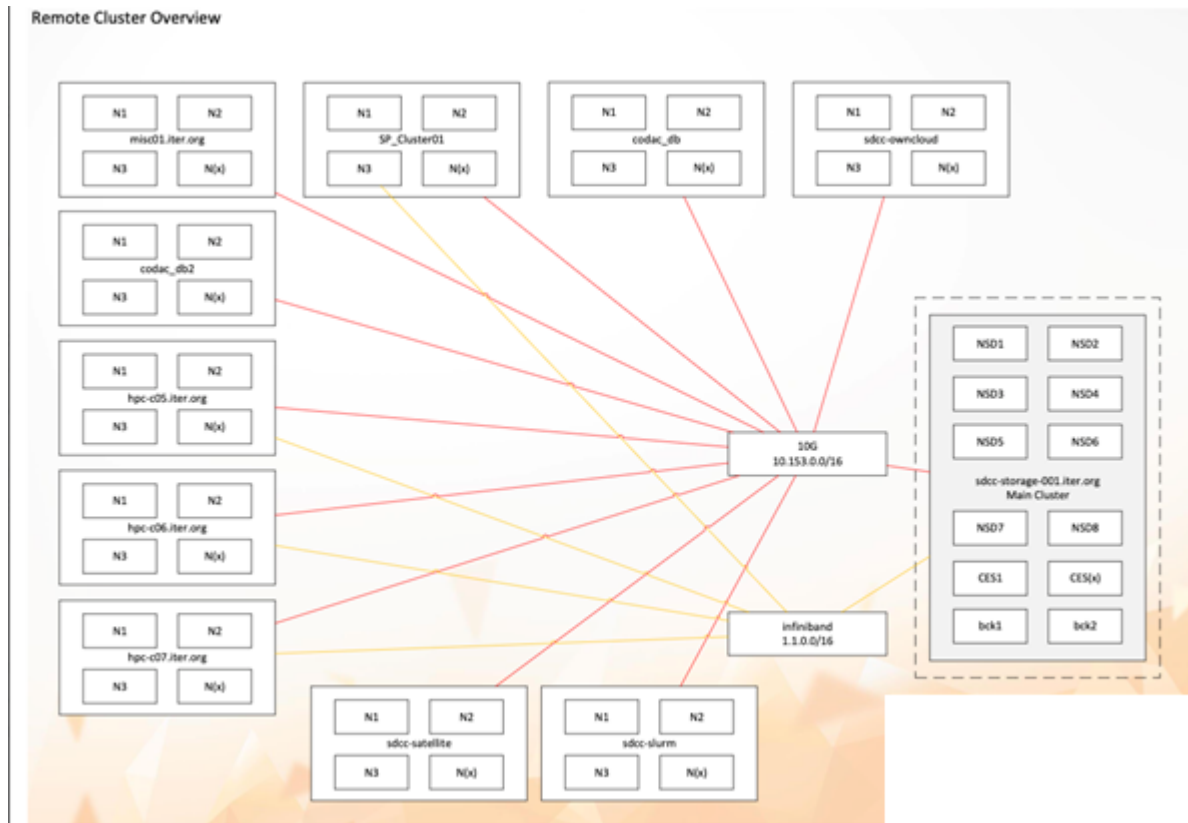
The main operations are currently as a high-performance parallel filesystem for the ITER HPC, filesystem for ITER ownCloud, and additional minor systems as well as main onsite backup storage pool via IBM Spectrum Protect for all ITER IT systems (2023 = 1.5 PB deduplicated).

The system replicates a full copy of all stored data daily to a secondary IBM Spectrum Scale NL-SAS based system placed in an IBM partners primary data and further to a tertiary data center for long term tape archival and ransomware protection.

The current storage setup is divided in multiple Remote Clusters to isolate traffic and optimize security and availability. An error or failure in any Remote Cluster groups of clients minimizes impact on remaining Remote Cluster groups.



## SUPPLY



The intended new base SDCC and HPC systems are based on the latest IBM ESS 3500 systems. This CFT includes future IBM ESS based systems and expansion as well as extended warranty, service, and support on existing systems.

### Backup systems and services

The ITER backup systems is based on IBM Spectrum Protect delivered as-a-service on a capacity model including licenses, service, support, monitoring, and reporting. This CFT is requesting a similar model.

The backup and archive are handled by an IBM partner as-a-service and offloaded via 2\*10 Gbit VPN connections.

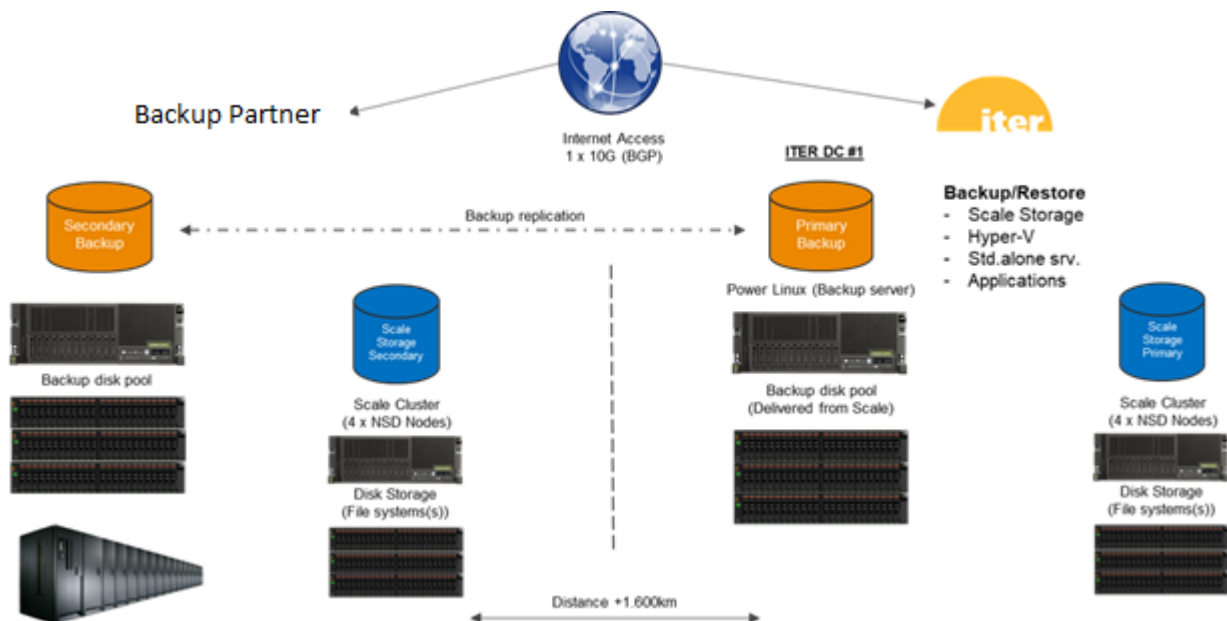
The setup includes an onsite and offsite disk-based copy based on the IBM V7000 capacity and 2 X 5 IBM Spectrum Protect Servers handling more than 300 physical (BA/TDP) nodes and 1000 VMs based on Hyper-V. For Spectrum Scale based systems backup is handled via the “mm backup” feature. A third copy is delivered on a capacity model as-a-service on tape in a separate remote data centre.

The total current (March 2024) reporting/logical capacity is approximately 10 PB of data, (1.5 physical after deduplication) and 3 PB of tape capacity after compression.

Reporting is done daily in separate groups to systems owners via e-mail, and an online portal is available for monitoring and management.

## SUPPLY

(below illustrates the current backup setup)



These services are a part of the CFT. Migration effort to a new contractor and service provider is estimated to 1000 hours for ITER technicians. The provider has to estimate also migration/transfer cost to alternative systems.

#### 5.1.2.2 Associated services and scope of work

The selected tenderer must ensure the delivery of hardware and/or services to ITER headquarters in Cadarache, Alpes de Haute Provence, France, and Interxion Marseille, France and provide associated services at the same locations. These services encompass installation, configuration, extended warranty, maintenance, and consulting - including analysis, design, and training - all obtainable through this framework contract.

Support services will include preventive and remedial maintenance, equipment and software modifications, and upgrades to maintain effective operations within a unified environment. Maintenance services will extend to equipment previously procured but from brands the contractor represents.

Consulting services should offer expertise in analysing the current technological setup, recommending enhancements, designing new systems or modifications, implementation, development and drafting technical specifications and documentation in English.

Development services are associated to the delivered systems and can include e.g. data transfer, data management and data archiving services.

The IO expects the selected tenderer to be able to deliver the systems in IO headquarters (located in Cadarache, Alpes de Haute Provence, France) or as-a-service (cloud), or in one of the ITER controlled data centres or co-location centres.

## SUPPLY

The associated services are due in the same locations as the delivery.

### *5.1.2.3 Scope of hardware, software, and services*

#### 5.1.2.3.1 Hardware

- **IBM Hardware Storage Systems**

- **Storage Scale System**
- **Storage Fusion HCI System**
- **Storage Flash System**
- **External Storage (cloud) as-a-service on a capacity-based model (S3/GPFS/Tape)**

IO requests the tenderer to provide a general discount based on a public pricelist for IBM ESS 3500 Storage Scale systems fully populated with 15 TB NVME disks including capacity expansion shelves with 18 TB disks. This must be offered as-a-service with 24/7/365 Service Level Agreement 2-hour response time. The service provider must take responsibility for daily operations, monitoring, service, repair, updates/upgrades, and support to ITERs technical team for a 3-year period extendable up to 5 years on yearly basis. Yearly SLA and service extensions must be priced on a unit, system or capacity base and must include licenses and spare parts necessary to keep operation at 99.9% availability measured as a monthly average. The tenderer must assign a dedicated account and technical manager to the project and daily operation.

#### 5.1.2.3.2 Software

- **IBM Software Storage Systems**

- **Storage Fusion (and OpenShift services)**
- **Storage Scale**
- **Storage Protect & Archive (as-a-service on a capacity or license model)**
- **Storage Ceph**
- **Data Archive, Transfer and Replication software**

IO ask the tenderer to provide a general discount based on a public pricelist for a variety of the above-mentioned systems, software licenses and services. For Spectrum Protect the provider must offer the licenses and services as described and as a service/capacity model. Prices are to be quoted per TB usable capacity usage per month. For remote capacity the same applies for disk and tape usage.

#### 5.1.2.3.3 Services

The Contractor shall provide onsite or remote service typically SMD (Same Business Day) for critical systems such as main HPC storage systems, SDCC storage systems and backup storage

## SUPPLY

systems ; or NBD (Next Business Day) for all the other systems. After notification from the IO of the need the standard services associated to the above-mentioned technologies may include if needed:

- **Onsite maintenance**
- **Onsite Spare parts replacement**
- **Onsite installation.**
- **Extended warranty services (break-and-fix, spare part supply etc.)**

The contractor shall provide offsite services 24/7 or on-demand such as:

- **Storage monitoring and support (1 hour response)**
- **Consulting services as design, implementation, and optimisations**
- **Onsite installation**
- **Development**
- **Training**

IO request the tendered to price consulting and development services per hour and in tranches of 100/200/500 hours including associated discount. Please quote the services as follows:

- **Senior IBM consultant per hour/tranches**
- **IBM technician per hour/tranches**
- **Linux administrator per hour/tranches**
- **Developer/scripter per hour/tranches**

In addition, IO asks the tenderer to provide a general discount based on a public published price list for:

IBM, Nvidia and Lenovo hardware:

- Nvidia EDR/HDR/NDR switches and cables
- Lenovo HPC servers, 2 X min. 20 core processors 2+ Ghz Intel, Infiniband HDR adapter 2 port, Ethernet 10/25 Gbit, 512 GB ram. 2 std. SSD boot drives.

### ***5.1.2.4 Estimated volumes (based on historical data)***

The estimated volumes of procurement are the following:

- Servers: 50~200 units per year (optional)
- Storage: 1-2 systems per year, 2-5 PB capacity per year growing 30% annually.
- Backup: IBM Spectrum Protect and Archive. 10 PB front-end, 3-5 PB tape archive, 300 BA/TDP licenses, 1000 VMs, management and monitoring system, reporting, support, and service.
- Nvidia Infiniband switches and cables: 10 switches per year, 100 cables (optical EDR).
- Consulting/development: 500-2000 hours per year.

## SUPPLY

### 5.2 Corporate and Channel categories (applicable individually to both lots)

The list of Manufacturers is divided in two categories:

- Corporate Category;
- Channel Category.

The Manufacturers List includes the list of manufacturers that need to be available via the contract. The Manufacturers List is split in 2 sections. There is a sub list of corporate brands covering the main hardware and software solutions currently installed and in use (or likely to be installed in the near future) at IO. Additionally, there is a second sub list of Channel brands that are relevant players in the market but that have a minor spread in ITER. However, in the light of the duration of the contract and the rapid evolution of the technology, ITER wants to reserve the right to buy products of the Channel brands.

The need of purchasing the specific brands detailed in the Manufacturers list is intended to ensure IO's business continuity and to avoid critical service disruptions.

#### 5.2.1 *Corporate category*

The Corporate Category contains core products, heavily used in the current IT infrastructure to deliver IT services to ITER users, such as: PCs, Servers, storage and related options and spare parts. They include solutions from the main manufacturers relevant for IO.

The Manufacturers of the Corporate Category are listed in the Manufacturers List and for each manufacturer the tenderer will be requested to provide:

- the Official Price list of the Manufacturer.
- the proposed discount for each corporate product category valid for the whole duration of the Contract;
- the prices for the consultancy services (€/day) and installation services (in terms of percentage of acquisition price) in the Service Basket in the Financial Offer, to be used for the whole duration of the Contract.

In addition, the tenderer must be able to provide ITER with the level of Maintenance Services required in Annex 1 "Manufacturers List".

#### 5.2.2 *Channel category*

The Manufacturers of the Channel Category are listed the Manufacturers List.

The tenderer must provide discount, one percentage for the products and a second one for the services (maintenance and consulting services).

In addition, the tenderer must be able to provide ITER with the level of Maintenance Services required. See Sections 11 and 12 for additional details about the maintenance services.

## SUPPLY

### 5.2.3 *Context*

ITER has built, during the last 15 years, an IT environment based on standard and recognized technologies. The IT infrastructure is mainly based on high availability systems/components including redundancy for critical servers, virtualization, storage, disk and tape-based backup system. For security reasons, IO has a preference to provide IT hardware resources to every user (staff and external workers) connected on the IO internal network.

IO wants to continue to maintain, develop and improve the IT infrastructure by

- adding new hardware according to the needs
- maintaining the existing hardware configuration
- replacing or upgrading old technologies with new standards for:
  - better performances.
  - increased quality.
  - better reliability and manageability.
  - reduce the total cost of ownership.

### 5.2.4 *Sizing*

The IO IT give support to 3000 users over more than 25 buildings on the Saint-Paul Lez Durance site and 4500 remote users spread over the ITER project member's country.

Two datacentres have been implemented in the ITER campus and are hosting the technical infrastructure mainly composed by:

- 800 physical and 1000 virtual servers.
- 12+ petabytes of highly available storage (IBM Spectrum Scale, SAN, mirrored between buildings and DAS).
- 10.000 ports and full Wi-Fi coverage are provided by the network infrastructure.
- 50 meeting rooms fully interconnected for voice and videoconferencing.
- A complete telephony infrastructure (VOIP, PBX, mobile phones)

The selected providers must be able to deliver hardware to IO headquarters.

### 5.2.5 *Acceptance Criteria*

The hardware, maintenance and service delivered shall match the requirements contained in each purchase order.

### 5.2.6 *Specific Requirements and conditions*

The spoken and written language of all communications between the contractor and the IO will be English. Generally, all documentation deliverables, reports, minutes, drafts and other documents the contractor is expected to deliver must be written in English. Meetings will be conducted in English.

## SUPPLY

The IO expects the Tenderer to be able to deliver the purchased hardware in IO headquarters or its logistic Contractor (located in Cadarache, Alpes d'Haute Provence, France)

**The serial numbers of the delivered hardware have to be sent in an editable electronic format to the responsible officer at the same time as the invoice.**

### 5.2.7 *Contract Administration and Performance*

To improve the technical quality of the offer, the tenderer may optionally propose an online portal for order/delivery tracking purposes.

### 5.2.8 *Work Monitoring/Meeting Schedule*

Follow up strategic meeting shall be conducted on a regular basis (at least once every 6 months). Meetings at operational and tactical level shall be conducted more often depending on the needs of the parties.

### 5.2.9 *Delivery Time*

To be defined in each task order

## 5.3 Duration

This framework contract will be set up for 3 firm years + 2 optional years.

In relation to the rapid obsolescence of IT items subject of this procurement procedure, ITER is presenting a list of currently ordered hardware to give an idea of the level of performance and features required. ITER will be allowed to order different models than the one mentioned in the framework contract tech specs to follow the technological evolution.

## 6 Location for Scope of Work Execution

The work consists in supplying the hardware, services and maintenance as requested in the relevant task orders upon acceptance of the corresponding commercial proposal.

## 7 IO Documents & IO Free issue items

No input nor free issue item is expected from IO.

## 8 List of deliverables

The deliverables are the hardware, services and maintenance defined in the relevant task orders and according to the agreed commercial proposal.

## 9 Quality Assurance requirements

The organisation conducting these activities should have an ITER approved QA Program or an ISO 9001 accredited quality system.

## SUPPLY

The general requirements are detailed in [ITER Procurement Quality Requirements \(ITER\\_D\\_22MFG4\)](#).

Prior to commencement of the task, a Quality Plan must be submitted for IO approval giving evidence of the above and describing the organisation for this task; the skill of workers involved in the study; any anticipated sub-contractors; and giving details of who will be the independent checker of the activities (see [Procurement Requirements for Producing a Quality Plan \(ITER\\_D\\_22MFMW\)](#)).

Documentation developed as the result of this task shall be retained by the performer of the task or the DA organization for a minimum of 5 years and then may be discarded at the direction of the IO. The use of computer software to perform a safety basis task activity such as analysis and/or modelling, etc. shall be reviewed and approved by the IO prior to its use, in accordance with [Quality Assurance for ITER Safety Codes \(ITER\\_D\\_258LKL\)](#)

## 10 Safety requirements

ITER is a Nuclear Facility identified in France by the number-INB-174 (“Installation Nucléaire de Base”).

For Protection Important Components and in particular Safety Important Class components (SIC), the French Nuclear Regulation must be observed, in application of the Article 14 of the ITER Agreement.

In such case the Suppliers and Subcontractors must be informed that:

- The Order 7th February 2012 applies to all the components important for the protection (PIC) and the activities important for the protection (PIA).
- The compliance with the INB-order must be demonstrated in the chain of external contractors.
- In application of article II.2.5.4 of the Order 7th February 2012, contracted activities for supervision purposes are also subject to a supervision done by the Nuclear Operator.

For the Protection Important Components, structures and systems of the nuclear facility, and Protection Important Activities the contractor shall ensure that a specific management system is implemented for his own activities and for the activities done by any Supplier and Subcontractor following the requirements of the Order 7th February 2012 [20].

## 11 CAD design requirements

This contract does not imply CAD activities.



## 12 Appendices