

ECMWF Copernicus Procurement

Invitation to Tender



Copernicus Climate Change Service

Volume III A:

Scope of Requirements and Questionnaire

Provision of Cloud Hosting Services for
Climate Data Store (CDS)

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1 Requirements

Tenderers shall respond to each functional and technical requirement included below with a clear YES/NO answer for compliance, together with additional information giving background reasoning for the response.

Tenderers may also include additional documentation, or links to specific pages/documents, but these should be limited and only included where they enhance their proposal. These documents must not be in place of full and clear responses to the requirements described above, and if unclear as to their purpose, irrelevant or unduly lengthy, may be ignored by ECMWF.

1.1 General requirements

ID	Requirement	Compliance (YES/NO)	Tenderer's Response
1.	<p>Proven technology</p> <p>The offer must be based on widely used and/or well tested open-source or commercially available products with an established support community base. (e.g. OpenStack, VMware).</p> <p>Extend your answer detailing the products, versions and reasoning behind the proposed implemented technologies.</p>		
2.	<p>Information Security</p> <p>Tenderer must have in place documented and enforced information security policies and practices based on international standards such as ISO 27001, SAS70, SSAE16 certification or equivalent.</p> <p>Describe your approach to Information Security and include copies of Certifications that you hold.</p>		
3.	<p>Ownership</p> <p>Tenderer will not move, give access, copy, remove or distribute hosted data and applications without ECMWF approval.</p> <p>Please describe your strategies for migration, deletion and decommissioning/termination.</p>		
4.	<p>Evidences and Audits</p> <p>Tenderer agrees on ECMWF reserving the right to request information or documentation of the operational services and to independently audit such, in order to verify compliance with the processes, standards, measurement systems and reported metrics required in this tender.</p>		

ID	Requirement	Compliance (YES/NO)	Tenderer's Response
5.	<p>SLAs</p> <p>Tenderer shall deliver the service based on contractual commitments for quality, availability and responsibilities on the form of SLAs.</p> <p>Describe your proposal of SLAs to be applied for the provision of the service.</p>		
6.	<p>Green IT</p> <p>Tenderer complies with green IT frameworks or standard (e.g. ISO 14001, EMAS registered, etc.).</p>		

1.2 Data Centre requirements

The following states requirements for the Data Centres managed by the Tenderer which are available to implement the Hybrid Cloud solution.

ID	Requirement	Comply (YES/NO)	Tenderer's Response
7.	<p>Location</p> <p>Tenderer Data Centres must be located in places where the Copernicus Regulation and related delegated legislation (eg the Copernicus Data Policy) can be enforced, ie countries that are members of the European Union.</p> <p>In terms of geographical presence, your proposal shall include at least 2 suitable locations to provide Public Cloud hosting, highlighting synchronization and replication mechanisms existing between the two Data Centres proposed.</p>		
8.	<p>Conformity</p> <p>Data Centres must conform at least to the Tier III specifications of 'The Uptime Institute' or equivalent.</p>		
9.	<p>Performance and scalability</p> <p>Infrastructure solution proposed for public cloud model must be supported by resilient, highly performing and horizontally scalable platforms with regards to the total amount of CPU, RAM and storage.</p>		

ID	Requirement	Comply (YES/NO)	Tenderer's Response
10.	<p>Maintenance</p> <p>Supplier must have in place infrastructure maintenance procedures that minimize the likelihood of failure or poor performance of the hosted environments.</p> <p>Describe the rules, policies or standards behind these procedures, highlighting the potential impacts and risks on the system availability and how these are minimized. Please also provide details of the maintenance plan to be implemented, and any planned down-time periods, if any.</p>		

1.3 Solution and design

ID	Requirement	Comply (YES/NO)	Tenderer's Response
11.	<p>Technologies</p> <p>Computing resources and Virtualization must be based on well-known and trusted hypervisor technologies. (eg ESX, KVM, XEN etc)</p> <p>Extend your answer describing your hypervisor technologies.</p>		
12.	<p>System Performance</p> <p>The initial system performance shall be comparable to:</p> <ul style="list-style-type: none"> - 32 nodes with 64GB RAM and 24 or more Intel cores each. 		
13.	<p>Storage</p> <p>The initial system shall have a minimum storage volume of 1PB in at least two different types of storage:</p> <ul style="list-style-type: none"> - Tier 1 "High Performance" storage with a file copy / write speed of 150MB/s or better. - Tier 2 "Normal Performance" storage with a file copy / write speed of 40MB/s or better. <p>The initial balance of the different storage types will be:</p> <ul style="list-style-type: none"> - 10% of the storage having "high performance" - 90% of the storage having "normal Performance". 		
14.	<p>Horizontal Scaling</p> <p>It shall be possible to scale up or down resources allocated to cope with incremental workloads and peaks in a timely manner.</p>		

ID	Requirement	Comply (YES/NO)	Tenderer's Response
	<p>Scalability limitations must be referred here including technical reasoning for such limitations.</p> <p>Describe particular procedures, conditions and limitations for horizontal scaling on an On-premises Private Cloud.</p>		
15.	<p>Vertical Scaling</p> <p>The platform must support easy vertical scaling by adding more resources (RAM, CPU, Storage) to VMs</p>		
16.	<p>Preconfigured Images</p> <p>A set of preconfigured Server images as well as guest operating systems must be provided for provisioning through a web management platform and programmatically via APIs.</p> <p>ECMWF must be able to upload customized VM images to the platform's catalogue.</p>		
17.	<p>Connectivity</p> <p>The tenderer shall provide network connectivity of at least 4x10Gbps Ethernet to connect the on-premises private cloud environment to the LAN at ECMWF.</p>		
18.	<p>Direct Connections</p> <p>Tenderer must have the capability to establish, in the future, direct network connections to integrate the Hybrid Cloud solution with remote Data Providers at different European Locations (such as Frankfurt, Toulouse, Bologna).</p>		

1.4 Service Level Agreements

Service Level Agreements must describe a series of commitments that will prevail between the Cloud Service Provider and ECMWF. Particular aspects of the service such as quality, availability, responsibilities will be agreed before the start of the service.

At least the following requirements must be addressed when defining SLAs:

ID	Requirement	Comply (YES/NO)	Tenderer's Response
19.	Network Uptime The tenderer Data Centres needs to have a minimum of 99.9% network availability.		
20.	Server Availability Tenderer shall provide SLAs proposal for Infrastructure Availability.		
21.	Planned outages Any planned outages must be communicated to ECMWF in advance. Number and duration of outages must be constrained by SLAs. Describe your internal policies and rules for managing planned outages and associated risks to the service.		

ID	Requirement	Comply (YES/NO)	Tenderer's Response
22.	<p>Support</p> <p>Tenderer shall describe its SLAs proposal for support and incident management in terms of support levels, reporting channels, incident categories, availability and response times.</p>		

1.5 Cloud Management Platform

This set of requirements refer to the offering of a Cloud Management Platform and programming interfaces APIs which allow ECMWF staff to perform a different set of administrative actions on the cloud infrastructure.

ID	Requirement	Comply (YES/NO)	Tenderer's Response
23.	<p>Web Portal</p> <p>The Tenderer shall provide a dedicated Web Portal through which ECMWF will have access to manage and monitor services and resources.</p> <p>A graphical description of the proposed web portal and its main functionalities shall be provided.</p>		
24.	<p>APIs</p> <p>The Cloud Management software shall allow to programmatically interface to the platform via well documented APIs (for example OpenStack API, VMware VSphere API).</p>		
25.	<p>Remote access</p> <p>Tenderer shall provide secure remote access to the servers for purposes of server administration.</p> <p>VPN shall be managed and monitored by the service provider, have flexible options for administrative access, installations, as well as user and patch management.</p>		

ID	Requirement	Comply (YES/NO)	Tenderer's Response
26.	<p>Access Management</p> <p>ECMWF shall have admin privileges on the Web portal with the possibility to administrate resources, manage additional users and permission levels.</p>		
27.	<p>Functionality</p> <p>Functionalities must cover at least the following (not exhaustive list) and be accessible via APIs:</p> <ul style="list-style-type: none"> - Provisioning resources, - Start/stop of computing resources, - Remote control via VNC, - Tagging of resources, - Network configuration (IPs, VLAN), - Advanced server configuration, - Security and access configuration, - Usage and Billing, - Status Monitoring, - User Management. <p>Describe in detail the capabilities offered by your Cloud Management platform.</p>		

1.6 Monitoring and reporting

ID	Requirement	Comply (YES/NO)	Tenderer's Response
28.	<p>Monitoring capabilities</p> <p>Monitoring capabilities must at least cover:</p> <ul style="list-style-type: none"> - Real time monitoring and access to statistics/reports produced by the deployed resources (i.e. volume usage etc.) - Run time events/alerts system. - Incident management plan. - Ability to open and update support cases and follow the ticket status. <p>Describe available monitoring capabilities and how this will be accessible by ECMWF via the Management Platform or programmatically (APIs).</p>		
29.	<p>Coverage</p> <p>Tenderer shall offer 24/7 underlying infrastructure monitoring.</p>		
30.	<p>Dashboard</p> <p>Web portal shall provide a monitoring section, where the running status and the availability of the provided resources are displayed.</p>		

ID	Requirement	Comply (YES/NO)	Tenderer's Response
31.	<p>Reporting Capabilities</p> <p>Reporting capabilities, including trend report, shall provide the information required to control the performance and availability of resources and adherence to agreed SLAs, as well as to verify the usage of resources over a specific time period (e.g. week, month).</p>		
32.	<p>Alert management</p> <p>The tenderer shall put in place the mechanisms to report system alerts and outages to ECMWF.</p>		
33.	<p>Ticketing System</p> <p>A trouble ticket system with single-tier support response allowing to track open issues shall be provided.</p> <p>The ticketing system shall have an API that would allow integration with ECMWF service desk system programmatically.</p>		

1.7 Data protection and Security

ID	Requirement	Comply (YES/NO)	Tenderer's Response
34.	<p>Data Treatment</p> <p>Tenderer needs to ensure secure, reliable and a legally compliant treatment of confidential customer data pursuant to Directive 95/46/EC of the European Parliament and of Council of 24 October 1995 and its upcoming replacement GDPR (General Data Protection Regulation) from May 2018.</p>		
35.	<p>Data Transfer</p> <p>Tenderer must ensure all data is transferred, processed and stored in compliance with EU data protection laws pursuant to Directive 95/46/EC of the European Parliament and of Council of 24 October 1995 and its upcoming replacement GDPR (General Data Protection Regulation) from May 2018.</p>		
36.	<p>Data Protection</p> <p>Tenderer shall have mechanisms to protect customer confidential data transiting networks (Internet, inside your network, connection to 3rd parties) against tampering and eavesdropping (e.g. network protection, use of encryption)</p> <p>Please provide a summary of these mechanisms with the offer.</p>		

ID	Requirement	Comply (YES/NO)	Tenderer's Response
37.	<p>Operational Security</p> <p>Tenderer shall have processes and procedures in place to ensure operational security (Change Management, Configuration Management, Vulnerability Management, Protective monitoring, (Security) Incident Management.</p> <p>Describe your processes and procedures for Operational Security including any standards you adhere to.</p>		

1.8 Additional Services

In addition, the Tenderer shall offer the following optional services:

1.8.1 Consultancy Services

ID	Requirement	Comply (YES/NO)	Tenderer's Response
38.	Expert Support Tenderer shall offer access to expert support to analyze and design the optimal configuration for Cloud services, plan, test and execute their deployment and implementation; perform activities of monitoring, tuning and support.		
39.	Off-boarding services Tenderer shall offer services to dismiss/terminate existing cloud services including the possible back-migration of systems, applications and data to the new infrastructure covering data erasure, portability, grace period, etc.		

ID	Requirement	Comply (YES/NO)	Tenderer's Response
40.	<p>Ad-hoc Consultancy services</p> <p>With the introduction of the new CDS and toolbox structure, and implementation of cloud services, ECMWF have identified a possible need for expert services support, such as Project Managers, Software Engineers and Operators. These might be required on-premises and for different periods up to the duration of the contract.</p> <p>Please describe the type of expert services you offer, including profiles of the roles, availability and notice periods. Costs for these roles should be included in the relevant worksheet in Volume III B Pricing Tables, and should include fees, ancillary costs, expat allowances (if applicable) or any other costs of relevance.</p>		

The costs for these expert services should be provided in the Pricing Tables in Volume III B. Please note that expert rates should be on a monthly basis.

1.8.2 Platform as a Service

ID	Requirement	Comply (YES/NO)	Tenderer's Response
41.	<p>Scope of PaaS</p> <p>PaaS services shall consist of managed platforms for building, deploying and running custom-built applications and services in a self-service, on-demand model.</p> <p>Please describe your PaaS offering including the configuration(s) provided</p>		

ID	Requirement	Comply (YES/NO)	Tenderer's Response
42.			
43.	<p>Provisioning</p> <p>PaaS services shall be accessible for provisioning in an online service catalogue of the Web Portal, indicating at least technical specifications, version, cost, policy, rules and restrictions of use, if any.</p>		
44.	<p>Infrastructure</p> <p>Compute, storage and networking resources shall be associated to the PaaS during the selection, according to the same categories and needs indicated for IaaS.</p>		
45.	<p>Services</p> <p>Basic managed services are included with the PaaS resources ordered and provisioned (e.g., patching, monitoring, etc.).</p> <p>Extended managed services might be offered as Complementary Services.</p>		
46.	<p>Horizontal Scaling</p> <p>The platform components will support easy out-of-the-box horizontal scaling by adding more instances to the system, cloning existing instances and automatically adding new ones to the load balancing system. Integration of added nodes shall be done automatically.</p>		

ID	Requirement	Comply (YES/NO)	Tenderer's Response
47.	Scaling limitations In case of limits on vertical (and horizontal) scaling in the Platform offerings, the technological background behind these limitations shall be explained.		