Q&A

Electrical and mechanical

Q - What is the air handling capacity in data halls?

A - The Data halls have a room cooling capacity of 500kW with an air flow of 42m3/s.

Q- What is the PUE of the Bologna Data Centre?

A - The design PUE of the Data Centre is 1.27 annualised and 1.495 peak.

Q - What do you use all the power data you collect for?

A - We use the data to look for improvements in our energy efficiency. We look at the power the racks use and work out how to optimise the cooling in the Data Centre space. We also monitoring the switchboards to make sure that our distribution system is well balanced.

Q- How do you allocate the space when you don't know what computer you are designing for?

A - Over time we have learnt to maintain a flexible approach to designing infrastructure systems and we always look for ways to maximise the resources we have.

Q- What are the pump sizes for the Data hall?

A - The pumps for the future HPC circuits can deliver water at 80l/s @450kPa.

Q - What is the power density of a fully populated rack?

A – The power density of a fully populated rack is 700kW

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Networks and Security

Q - When will the procurement approach be agreed for the network and security infrastructure?

A - The procurement approach for the network and security infrastructure will be agreed the of February.

Q - How will the site to site connectivity be deployed?

A – Circuits to public networks have already been procured at both sites. We will run EVPN (or similar) to provide connectivity over these channels.

Q - Will the traffic be transit across an IPv4 or IPv6 transport layer?

A - Our network specification will require support for both.

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Procurement

Q - How will you send notifications of tender announcements

A - ECMWF encourages suppliers to register on its eprocurement portal (see presentation document) and indicate ECMWF as the buyer organisation in their notification set up. All tender procedures will also be announced on ECMWF Suppliers web page.

Q – What will be the Tender Approach

A- ECMWF uses a variety of approaches when issuing tenders / RFPs. Bidders are therefore recommended to read the documentation thoroughly in order to understand the specific requirements for each tender, and hence, to be able to respond appropriately.

Q - Viability of tendering organisations in terms of financial capacity and legal forms

ECMWF noted some inquiries whether our future tenders will include requirements in terms of the size of tendering organisations and also regarding which forms of partnerships will be allowed.

Tenderers may note that whilst ECMWF undertakes a due diligence check for assessing the viability of its possible contractors, these aspects will be assessed on a case by case basis in accordance with

the requirements of that tendering and contracting procedure. Hence it is not envisaged that tender documents will include elimination criteria such as thresholds in financial capacity.

ECMWF encourages small and medium size organisations as well as larger ones to show interest in our tenders.

Q – What is the role of the Outsourced Procurement companies, Ayming and eXceeding:

A - ECMWF are being supported by two procurement outsourcing companies, Ayming and eXceeding. These companies will run the tender administrative procedures on behalf of ECMWF but, as indicated in our presentation, the whole process from strategic approach to approval of contractor is overseen by a Tender Evaluation Board established within ECMWF.

Q - Segmentation of tenders and time plan:

A - Identification of individual tenders is a work in progress hence ECMWF will publish the tenders based on its overall analysis. The first tenders are aimed to be launched before the end of February and no further time plan is available in terms of individual tenders.

Q – Do you have any framework in place?

A - In accordance with its regulations, ECMWF may carry out its procurements through established internal or external frameworks**.**

> **Data Storage Systems Framework (ITT 262)**
>
> For the provision of IT data storage systems under the BOND programme, it is our intention to use the existing ECMWF ITT_262 framework, which was set up at the end of 2017. The framework will therefore be re-opened during February through an open tender in order to consider further, suitably qualified applicants. Once finalised, mini-competitions for individual equipment and service requirements will be issued to both existing and newly appointed providers who have been accepted onto the framework.
>
> Interested suppliers for this category of procurement are therefore advised to respond to the call for tender relating to the framework in order to be considered for the equipment 'competitions'.

BOND Consultancy Framework (RFP_276)

ECMWF are currently running a 'rolling' tender for a framework for consultancy services to the BOND project and for other ad hoc requirements. The consultancy service areas covered by RFP_276 are IT; Building services engineers, CAD and BIM services, design, testing and commissioning; Project and Programme management, cost control; and Interior design and space planning. Interested applicants can visit ECMWF Suppliers web page in order to access and apply to this framework

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Servers

Q - When will the procurement approach be agreed for the server systems?

A – The procurement approach for the server systems should be agreed during the month of February.

Q - For the compute part, are you considering containers?

A – We already run Kubernetes in production, on the VMware platform.

Q - Are you considering the use of VMware and NSX?

A - We already use VMware and this is the chosen virtual infrastructure solution for the new data centre. We are investigating NSX, and tender responses may incorporate this if they wish.

Q- Are you considering open standards (for virtual infrastructure)?

A - VMware is the chosen virtual infrastructure solution for this procurement.

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Storage

Q - Can you please provide more information about the mini-competition process?

A - To be invited to tender under a mini-competition, suppliers have to have been approved by ECMWF onto the existing storage framework (known as ITT262).

ECMWF will shortly be opening up the framework (a Contract Notice will be issued on OJEU at that time) for further interested parties to apply (those suppliers who are currently on the framework will remain and so do not need to re-apply). New suppliers applying at this stage will undergo a selection process, including acceptance of the framework's term and conditions, and those who meet the necessary criteria will be invited to participate in the Framework.

Mini competitions will then be run for the actual equipment/service requirements during 2019 (and beyond), and all relevant participants to the framework will be invited to tender for these specific requirements at that time.

Q - Are you using different storage technologies?

A – We use a variety of local, direct attached (HBA), and network attached storage. Each Mini Competition of the Storage Framework (ITT262) will specify its own requirements.

Q – What are the support requirements of your Tiers (1.1, 1.2, etc)?

A – The Tiers describe non-overlapping time-to-fix and query response service levels for groups of services. However, each service will define its own SLA in more specific terms, and each specific storage solution Mini Competition will define appropriate requirements.

Q - During your presentation, you mentioned different Tiers. Can some of them be merged.

A - The Tiers describe non-overlapping time-to-fix and query response service levels for groups of services. However, it is not one storage solution per tier. A service or group of services may share a storage solution. Each storage solution may also satisfy the requirements of multiple tiers.

Q - Do we have the same SLAs in the Networks and Servers side?

A - Yes, the whole infrastructure supporting a given service must will the same SLA.

Q - Are you looking to a software defined storage solution?

A - Yes, VSAN is a software defined storage solution we are currently using.

Q - Are you using stateless NFS as a protocol?

A - Yes, the network is stable, and local, and it is fine to use this protocol internally.

Q - What solution are you using for backups?

A – For the virtual infrastructure we use Veeam. For other systems we copy files or images into our own mass storage archive system.