## Application form: Cloud component of the Flemish Tier-1 supercomputing platform

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| Title of the application:  EasyChair code in case of resubmission: EasyChair code in case of continuation:  Applicant name, first name:  Institution:  Research group / department:  E-mail address:  VSC id of all mandated persons, separated by commas:   |

*This application should not exceed 18 pages, excluding possible appendices (confirmation letter of financing institution, software license(s), etc.) which may be considered by the Tier-1 Cloud Allocation Board.*

1. Research project within the framework of which computing time is applied for.
* Title
* Supervisor(s) and their e-mail address(es)
* If available, IWETO or FRIS link
* Financing institution or channel (FWO, BOF, VLAIO, EU, etc.).
	+ Attach the confirmation letter as enclosure.
	+ Attach a letter of approval of your own institution in case the project has not gone through a scientific approval process.
1. Include a short description of your research project, in layman’s terms wherever possible, with a view to dissemination. Explicitly mention the scientific questions that you are planning to address and the overall scientific goals of the project. (max. 1 A4 in Arial 12)
2. Persons mandated by the Applicant to manage the Tier-1 cloud resources within the framework of the present project. (Please note that these are not all possible end-users of the services deployed by the Applicant as part of this project - these are primarily the persons who will perform e.g. the system administration tasks required to setup these services). Please provide for every person:
* Name, first name
* VSC id
* Institution
* Research group / department
1. Why does this project need to run on the Tier-1 Cloud service? (As opposed to using e.g. a commercial cloud solution.) Select appropriate checkbox(es):

[ ]  It requires coupling to Tier-1 Compute resources.

[ ]  It requires coupling to Tier-2 Compute resources.

[ ]  It requires coupling to Tier-1 Data resources.

[ ]  Other:

Please note that if this project intends to couple with the Tier-1 Compute or Data components, a separate proposal is still required for that component.

1. Provide information about the main software packages and/or services that will be installed, configured and maintained by the Applicant:
* Operating system to be used inside the VMs (e.g. CentOS, Ubuntu, Windows, …)
* Databases (e.g. MySQL, Postgres, …)
* Orchestrators (e.g. Kubernetes ...)
* Other software packages and/or services.
* For all software state that the associated license can be validly used by all mandated users on the desired Tier-1 Cloud VMs. Add a copy of the signed license to this application where relevant.
1. Describe schematically the workflow you want to setup on the cloud resources and where the software packages and/or services provided in previous section fit in.
2. Justify the resources applied for. Start by using Table 1 to summarize the resources requested for the project. Then further describe the amount of VMs that you plan to use, when and for which period.
* Do you need access to a shared filesystem between VMs (via NFS for now)? If so, state the required size (in GB).
* Do you need VSC network access? This is mainly needed when you intend to do high data volume reshuffling between VMs and other Tier-1 components (e.g. when you want to connect to the VSC Data component with iRODS and Globus from your VMs) or Tier-2. If so, you will receive a block of eight IPv4 IPs.
* Do you need public network access? By default every project is granted 1 IPv4 public IP address. If you don’t need this e.g. because you will connect via the VSC network, please clarify this. If you need more than 1 public IP address, please motivate why the standard port-forwarding is not an option.
* Indicate the total required size (in GB) of the persistent local disk space, summing over all VMs. You will be able to distribute this local disk space allocation at will between the persistent volumes of your VMs.
* Provide an indicative list of VM flavours that you would use to set up the workflow described in section 6. This list will be used by VSC to allocate vCPU, vGPU and RAM quota, which you will be able to distribute at will between your VMs, should you need more flexibility later on in the project.
	+ The flavours of the virtual machines are appropriate for different workloads: CPUv1 for regular CPU usage, GPUv1 for GPU computations, or UPSv1 for VMs that need to be connected to an uninterruptible power supply. CPUv1 and GPUv1 virtual machines are not supported by an UPS and will go offline when an unexpected power cut occurs.
	+ The VM flavours come in different types (e.g. nano, medium, large, 2xlarge, etc.) which have different vCPUs, vGPU and RAM specifications.
	+ You can find a list of all available flavours and types in the Tier-1 Cloud documentation at:

<https://hpcugent.github.io/vsc_user_docs/pdf/intro-Cloud.pdf>

* Once your project is accepted, it is possible to request minor changes of the allocated resources by motivated request to cloud@vscentrum.be (subject to availability).

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| **Project wide resources** |
| Shared filesystem size (in GB) | YES (size) / NO |
| VSC network access | YES / NO |
| Public network access | YES (1 public IP) / NO |
| Total persistent local disk space size (in GB), summed over all VMs | (size) |

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| **List of VM flavours.types** |
| Responsibility in workflow | VM flavour.type | Number of VMs needed | Period |
| M1-M6 | M7-M12 | M13-M18 | M19-M24 |
|  |  |  | [ ]  | [ ]  | [ ]  | [ ]  |
|  |  |  | [ ]  | [ ]  | [ ]  | [ ]  |
| Example: |  |  |  |  |  |  |
| Database server | UPSv1.medium | 1 | [x]  | [x]  | [x]  | [x]  |
| Analysis virtual machine | CPUv1.small | 3 | [x]  | [x]  | [x]  | [x]  |
| Visualisation frontend | CPUv1.large | 1 | [x]  | [x]  | [x]  | [x]  |

1. Describe how you will manage the resources requested with due diligence (includes applying e.g. security updates to the VMs, operating systems, containers, etc.). Identify a contact person that will be responsible for the management of the resources.
2. Describe your exit strategy for when the project is finished. Think about the following aspects:
* Which images are you going to export and how are you going to do it?
* Which data are you going to export and how will you do it? For large datasets consider the time needed to transfer this data.
1. Describe the security related procedures that you will apply to your VMs. Describe the following aspects:
* How and how frequently will you update software packages, operating systems, containers, … on your VMs?
* Which criteria will you apply to decide whether or not to apply the updates? Is your setup capable of dealing with updates (e.g. w.r.t. HA setup)?
* All mandated persons need to declare that they agree with UGent AUP.
1. Can this proposal in its entirety be made public by FWO or VSC e.g. as an example or inspiration for other researchers?

[ ]  Yes

[ ]  No

Don’t hesitate to consult the Tier-1 Cloud support when you are preparing your application: cloud@vscentrum.be