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TIER-1 INFO SESSION

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VSC
Vlaams Supercomputer Centrum

SUPERCOMPUTING INFRASTRUCTURE

Tier-0

PRACE

EuroHPC
Joint Undertaking

Tier-1

Tier-1 Compute

VLAAMS
SUPERCOMPUTER
CENTRUM

Vlaanderen
is supercomputing

Tier-2

HPC-UGent: skitty, victini, kirlia, …

Tier-3

Your laptop, workstation

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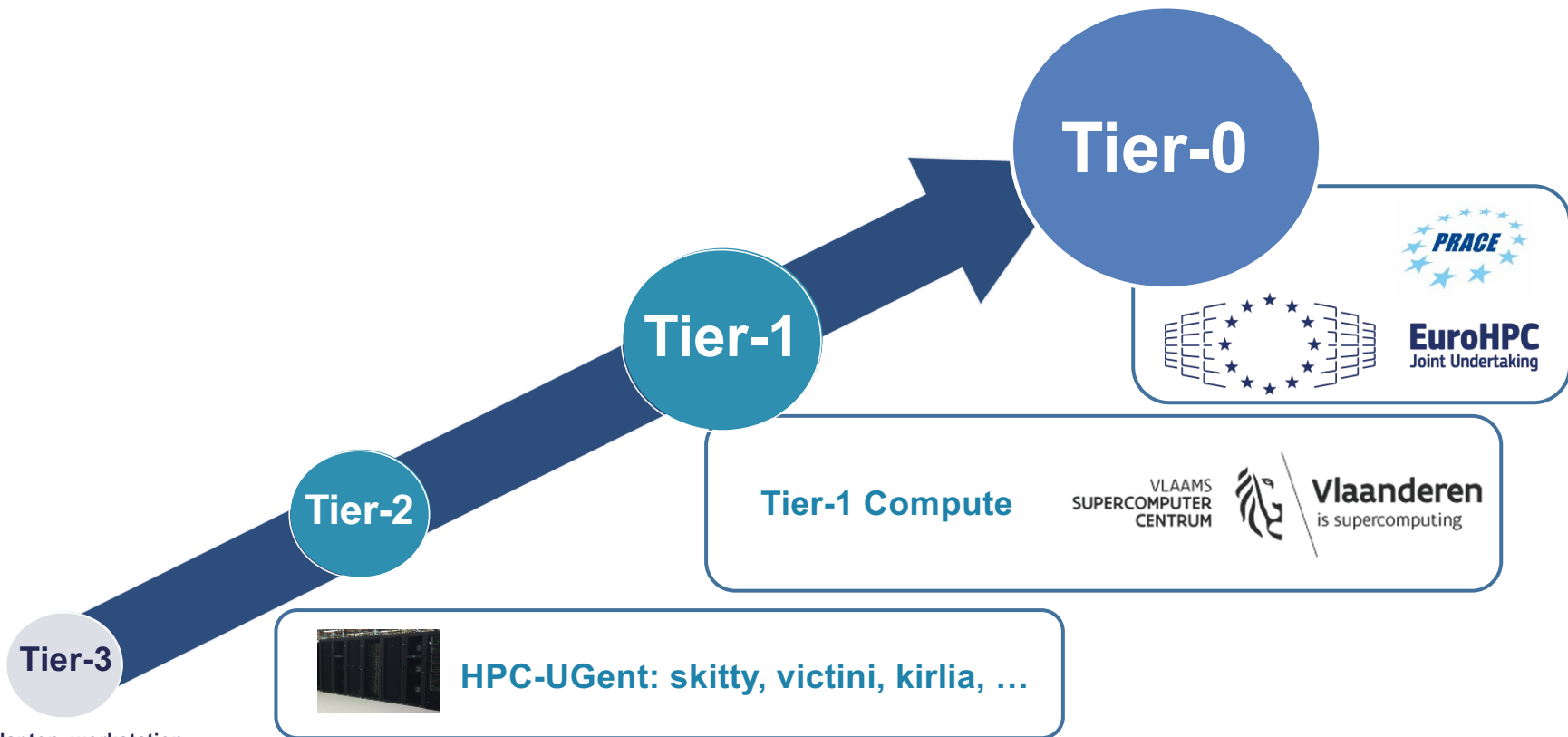
ABOUT VSC

VSC – Flemish Supercomputer Center

- Partnership between Flemish university associations
- Managed by FWO

- Infrastructure in four hubs
  - ➢ UAntwerpen: Tier2
  - ➢ VUB: Tier2
  - ➢ KULeuven: Tier2 & Tier1 Compute BrENIAC
  - ➢ UGent: Tier2 & Tier1 Compute Hortense

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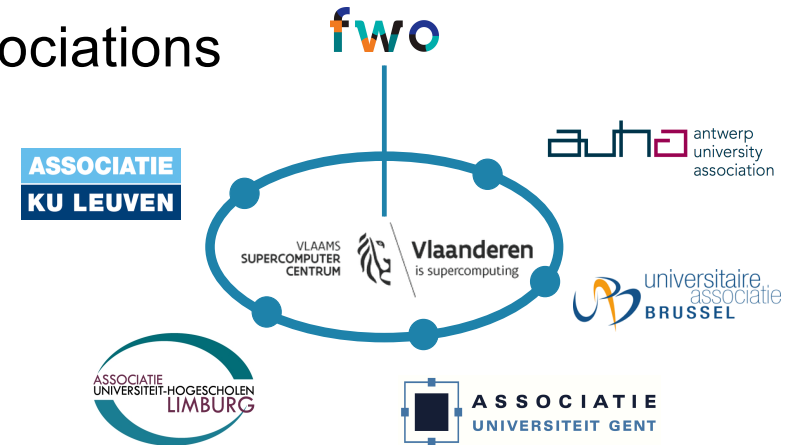
IN THIS PRESENTATION

1. Tier1 Compute: hardware and technical details
2. Access models and project calls
3. Recent changes
4. Q&A

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1/ TIER1 COMPUTE – BRENIAC (KULEUVEN)

https://www.vscentrum.be/compute

436 nodes
- 28 CPU cores Intel Xeon E5-2680v4 (Broadwell)
- 128 GB RAM

144 nodes
- 28 CPU cores Intel Xeon E5-2680v4 (Broadwell)
- 256 GB RAM

408 nodes
- 28 cores Intel Gold 6132 (Skylake)
- 192 GB RAM

InfiniBand EDR interconnect

~600 TB shared storage

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1/ TIER1 COMPUTE – HORTENSE (UGENT)

https://www.vscentrum.be/compute

336 CPU nodes
- 2x 64-core AMD Epyc 7H12 CPU 2.6 GHz
- RAM: 294 nodes @ 256 GiB, 42 nodes @ 512 GiB
- Total of 43.008 cores

20 GPU nodes
- 2x 24-core AMD Epyc 7402 CPU 2.8 GHz
- 4x NVIDIA Ampère NVLink3 (40 GB)
- RAM: 256 GiB
- Total of 960 cores and 80 GPUs

InfiniBand HDR-100 interconnect

3 PB shared storage based on Lustre

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1/ TIER1 COMPUTE ~ TIER2

Single job walltime = 3 days

Environment very comparable to Tier2 @ UGent
- Resource limit system (Credits @ KULeuven, QoS @ UGent)
  https://vlaams-supercomputing-centrum-vscdocumentation.readthedocs-hosted.com/en/latest/jobs/credit_system_basics.html

Software
- Lots of packages already available
- If installable on Tier2, likely doable on Tier1
- BEWARE of licenses = your responsibility
  - Proof of validity
  - Valid in Ghent/Leuven
  - Enough license seeds

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2/ ACCESS MODELS AND PROJECT CALLS

Academic user	Commercial user
A. Starting Grant B. Project access C. Collaborative Grant Free of charge – project based	D. Free exploratory access E. Full access

https://www.vscentrum.be/compute

academic user = *natural person who is (legally) active within public research institution, incl. e.g. VIB, federal institutes, … (see rules&regulations for full list)*

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2A/ STARTING GRANT (ACADEMIC)

- Purpose
    - explore, do scaling tests of your software
    - prepare for full project access

- Allocation:

Maximal	
500.000	CPU core hours
or	
1.000	GPU hours

- Available for 4 months
- Personal grant

- Fast submission procedure, very short proposal
- Constantly reviewed, Success rate ~ 100%

Apply by mail to compute@vscentrum.be

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2B/ PROJECT ACCESS (ACADEMIC)

- Allocation:

At least	Maximal	
500.000	5.000.000	CPU core hours
or	and	
1.000	25.000	GPU hours
	Or more with proper justification	

- Can be granted to multiple researchers
- Reviewed 3x per year by <u>Technical</u> evaluation committee
- Upcoming deadlines:
  - 1 February 2021
  - 7 June 2021
  - 4 October 2021

- Success depends on quality of your proposal

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Apply via EasyChair

2C/ COLLABORATIVE GRANT (ACADEMIC)

- Allocation:

Maximal	
10.000.000	CPU core hours
and	
75.000	GPU hours

- For consortium of at least 3 research groups from different research institutes
- Well-defined common research topic
- Clarify added value over one or more regular proposals

- Constantly reviewed

- Success depends on quality of your proposal

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Apply by mail to compute@vscentrum.be

2D/ EXPLORATORY ACCESS (COMMERCIAL)

- Purpose
  - o explore infrastructure suitability
  - o proof-of-concept testing

- Allocation:

Maximal	
500.000	CPU core hours
or	
1.000	GPU hours

- Free of charge

Apply by mail to compute@vscentrum.be

2E/ FULL ACCESS (COMMERCIAL)

- Pay what you use

- Subject to 3-parties legal agreement:
  - o Company
  - o UGent or KULeuven
  - o FWO

- Rates (BrENIAC)
  - 13 euro per nodeday (~672 CPU core hours)
  - 15 euro per TB per month

Apply by mail to compute@vscentrum.be

3/ CHANGES

- Breniac and Hortense partitions will be (temporarily) active side by side
  - o User can request specific partition (Breniac/Hortense)
  - o Scaling tests should be done on desired partition

- compute@vscentrum.be
  - o Apply for Starting/Collaborative grants
  - o Get technical help on Tier1 Compute

    (joining ICTS@kuleuven.be + hpc@ugent.be)

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3/ CHANGES

- Changes to application form for Academic Project Access
    - Requirement lifted to list publications (section 9)
        - → Provide list of previous computing time allocations (section 3)
    - Example GPU scaling table
    - Stress that layman's abstract should be layman
    - Applicant should provide more information on (task/data) automation (section 8)
    - Applicant can actively opt in to make full proposal public

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4/ Q&A

Don't hesitate to contact hpc@ugent.be

    for more information

    for a review of your project proposal

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