



**GHENT  
UNIVERSITY**

# TIER1 INFO SESSION

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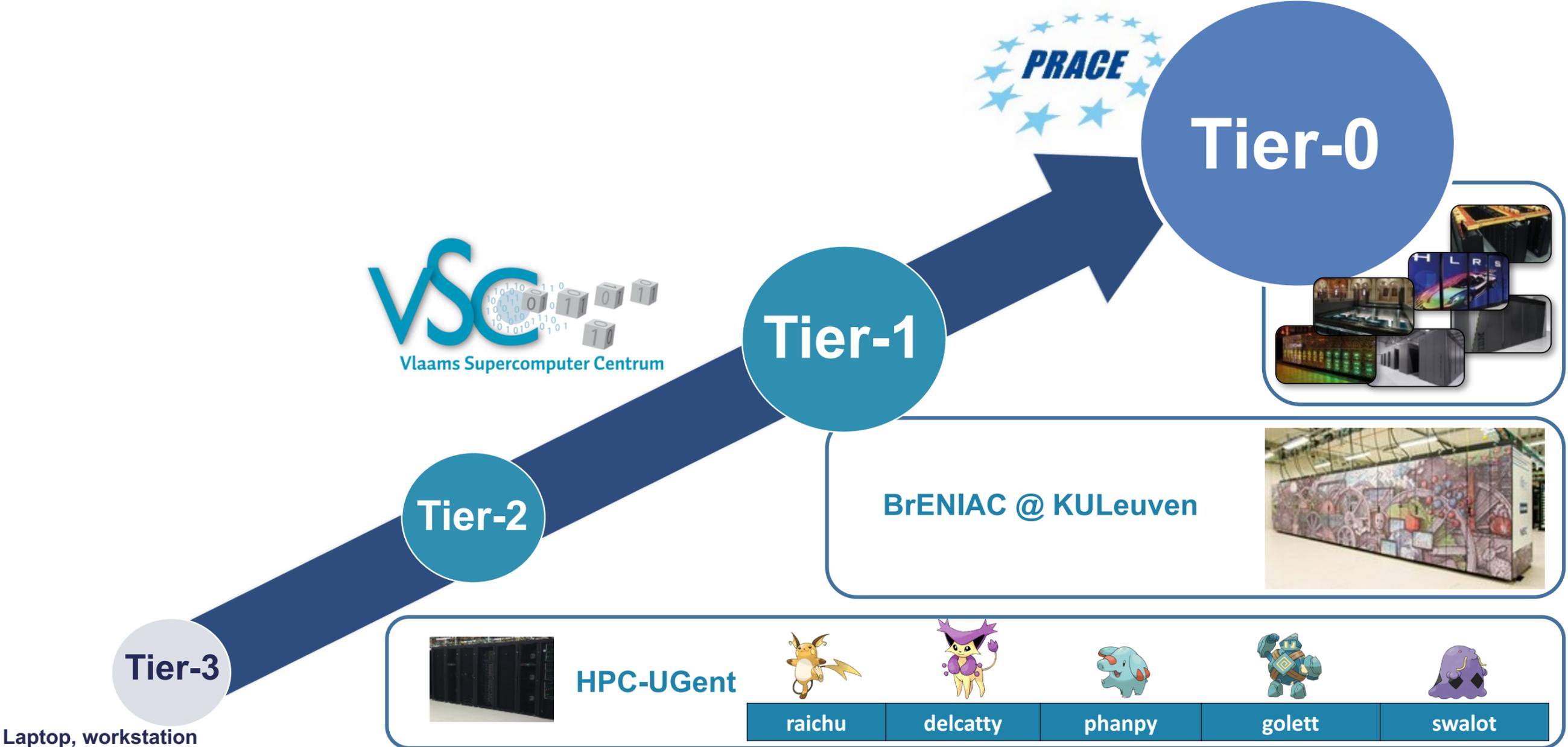
Dr. Ewald Pauwels

Scientific coordinator HPC @ Ghent University

Vice-coordinator VSC

9/01/2018

# SUPERCOMPUTING INFRASTRUCTURE



# ABOUT VSC

## VSC – Flemish Supercomputer Center

- Partnership between Flemish university associations
- Infrastructure in four hubs
- Managed by FWO



## Mission

The VSC encourages the use of scientific and technical computing in the Flemish academic and industrial landscape. To this end, it offers infrastructure, training and services. In addition, VSC acts as a lever to promote the importance of scientific and technical computing and its added value to society.

# ABOUT VSC – GOVERNING BODIES

## VSC steering group

Daily (monthly) management of VSC, consensus

UGent representative: Ewald Pauwels

## Users committee

Map user needs, advise on Tier1/2 operation, VSC user day

UGent representatives: Veronique Van Speybroeck, Marie-Françoise Reyniers

## Tier1 evaluation committee (non-Flemish experts) - **TAB**

Technical evaluation of Tier-1 applications

## Industrial board

Advise to increase involvement of industry

## FWO

Funding, final governance

# TIER1 SPECS

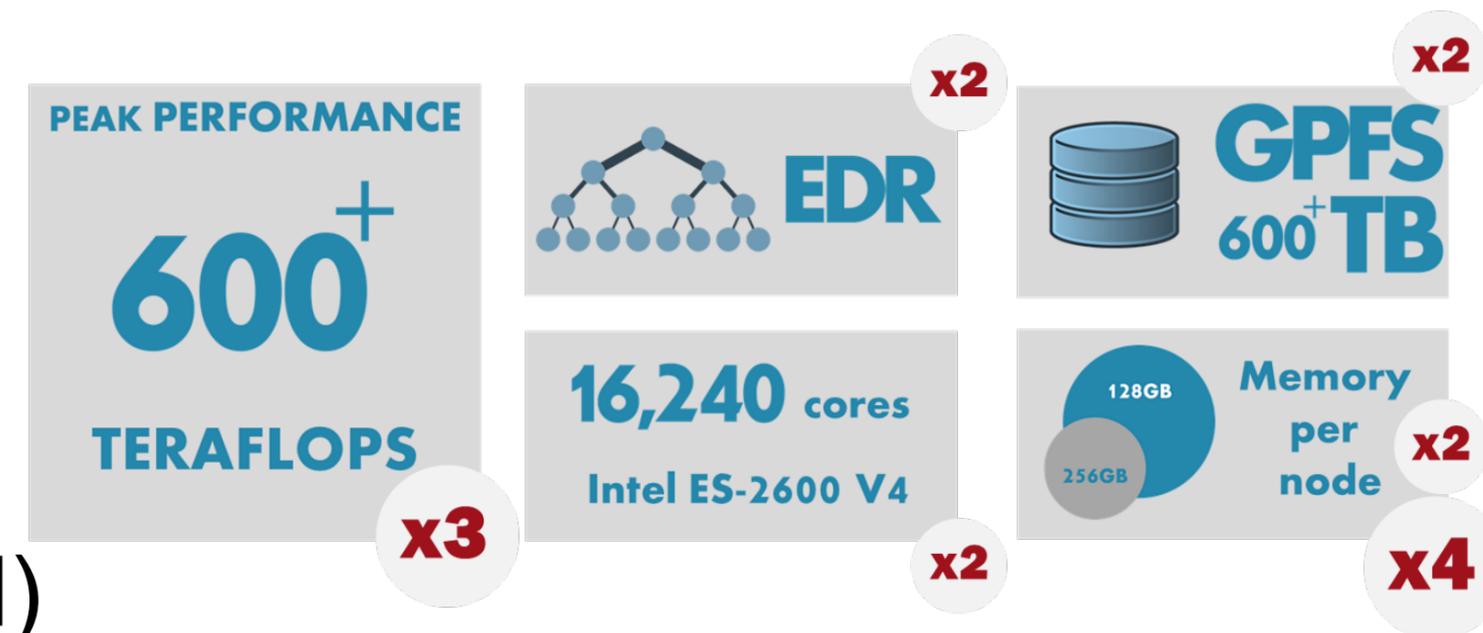
<https://www.vscentrum.be/infrastructure/hardware/hardware-tier1-breniac>

## BRENIAC (Leuven)

- 580 nodes
- 2 Intel Xeon Broadwell → 16.240 cores
- 128/256 GB RAM
- InfiniBand EDR interconnect
- 634 TB storage



Compared with previous Tier1  
(muk, Gent, now decommissioned)



# TIER1 SPECS

## BRENIAC (Leuven)

- Single job walltime = 3 days
- Environment very comparable to Tier2 @ UGent
  - Creditsystem
  - See <https://www.vscentrum.be/assets/1155> for quick start guide
- Software
  - Lots of packages already available
  - If installable on Tier2, probably doable on Tier1
  - BEWARE of licenses = your responsibility
    - Proof of validity
    - Valid in Leuven
    - Enough license seeds

# TIER1 SPECS

## BRENIAC (Leuven)

If you need help, e.g.

- Trouble with credit system
- Software installation requests
- Errors

Don't hesitate to contact [ICTS@kuleuven.be](mailto:ICTS@kuleuven.be)

**Always put [hpc@ugent.be](mailto:hpc@ugent.be) in cc**

# TIER1 USAGE

## BrENIAC: A year celebrating curiosity

3 calls 

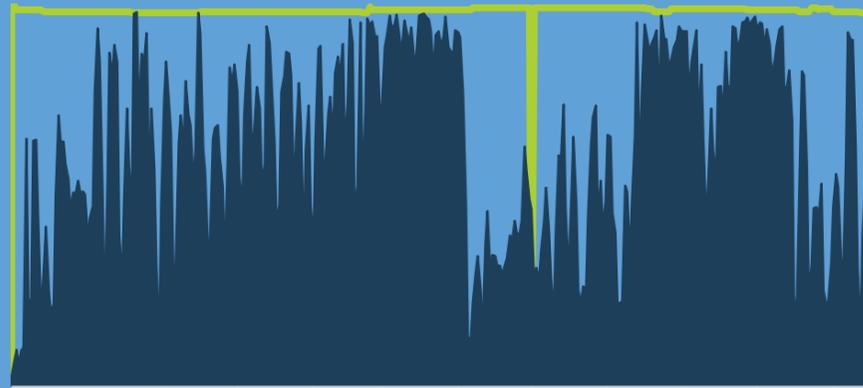
81 users 

59 projects 

72,000 jobs 

87M core hours 

98% uptime



30 Oct 2016

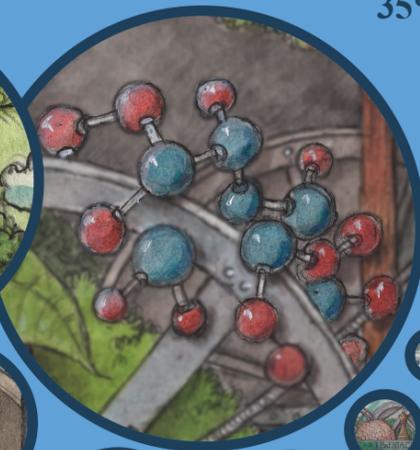
12 Oct 2017

61% usage

Technology 25%



Molecular Modelling 35%



Earth Science 1%



Computational Science 0.5%



Chemistry 3%



Psychology 5%



Physics 12%



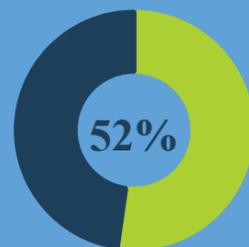
Life Science 10%



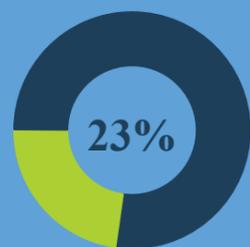
Astronomy and Astrophysics 9%



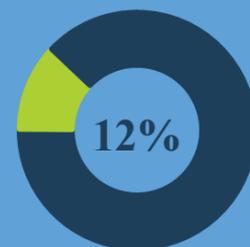
U Gent



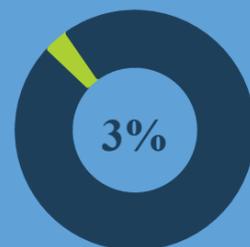
KU Leuven



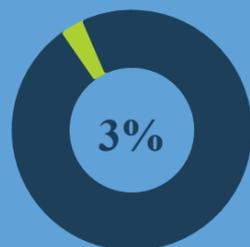
U Antwerpen



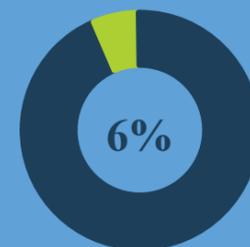
U Hasselt



VUB



Others



# TIER1 ACCESS

- Starting grant
- Project access
  
- Industrial exploratory access
  
- Buy compute time

- Flemish university associations
- Research institutes under supervision of Flemish community
- Strategic research center (VIB, IMEC, ...)

# TIER1 ACCESS – STARTING GRANT

<https://www.vscentrum.be/en/access-and-infrastructure/tier1-starting-grant>

- Purpose = explore, do scaling tests of your software, prepare for project
- 100 node days (=  $100 \times 28 \times 24 = 67.200$  core hours)
- Available for 2 months
- Personal grant
- Fast submission procedure, very short proposal
- Constantly reviewed
- Success rate = 100%
  
- FREE OF CHARGE

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# TIER1 ACCESS – PROJECT ACCESS

<https://www.vscentrum.be/en/access-and-infrastructure/project-access-tier1>

- 500 - 5000 node days (= 336.000 – 3.360.000 core hours)
- Can be granted to multiple researchers
- Reviewed 3x per year by TAB
  - Deadlines 2018: 5 February  
4 June  
1 October
- Success depends on quality of your proposal
- FREE OF CHARGE

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- Success depends on quality of your proposal
  
- FREE OF CHARGE
  
- **2018:**
  - **New application form**
  - **Suitable allocated period will be decided by TAB (8 months)**
  - **Halfway in project, you lose 30% of allocated nodedays if not used**

# TIER1 ACCESS – INDUSTRIAL EXPLORATORY

<https://www.vscentrum.be/en/hpc-for-industry>

- Purpose = explore Tier1 platform for industry
- 100 node days (=  $100 \times 28 \times 24 = 67.200$  core hours)
- Contact [hpc@ugent.be](mailto:hpc@ugent.be) or [industry@fwo.be](mailto:industry@fwo.be)
  
- FREE OF CHARGE

# TIER1 ACCESS – BUYING COMPUTE TIME

<https://www.vscentrum.be/en/access-and-infrastructure/access-industry>

- Mostly for industry
- Open for everyone in case you don't want to submit a proposal
- Contact [hpc@ugent.be](mailto:hpc@ugent.be) or [industry@fwo.be](mailto:industry@fwo.be)
- Pricing
  - Compute: 13 euro / node / day
  - Storage: 15 euro / TB / month

*(Starting grant = worth 1.300 euro)*

*(Granted project = worth 6.500 – 65.000 euro)*

# TIER1 PROJECT ACCESS

<https://www.vscentrum.be/en/access-and-infrastructure/project-access-tier1>

- Application form
- Guidelines for writing good application
  - "Feedback from Tier-1 Evaluation Committee – June 2017"*
  - (beware: information is somewhat outdated by now)*
- Example application (beware: uses 2017 template)

Dr. Ewald Pauwels

Scientific coordinator HPC @ Ghent University

Vice-coordinator VSC

HPC-UGent

E [hpc@ugent.be](mailto:hpc@ugent.be)

[www.ugent.be/hpc](http://www.ugent.be/hpc)