



High Performance Computing
EMPOWERING RESEARCHERS

Introduction to HPC-UGent and VSC

FOSDEM – HPC and Computational Science devroom
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<http://ugent.be/hpc>



HPC @ UGent



High Performance Computing

Started in 2008

Centralisation of HPC

... infrastructure

... expertise

... support

... training

→ Single point of contact



Stijn De Weirdt
Technical lead



Ewald Pauwels
Team lead



Kenneth Hoste
User support, Easybuild



Wouter Depypere
Sysadmin



Jens Timmerman
User support, sysadmin



Kenneth Waegeman
Sysadmin, storage



Andy Georges
User support, sysadmin

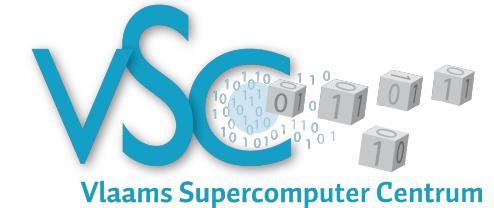


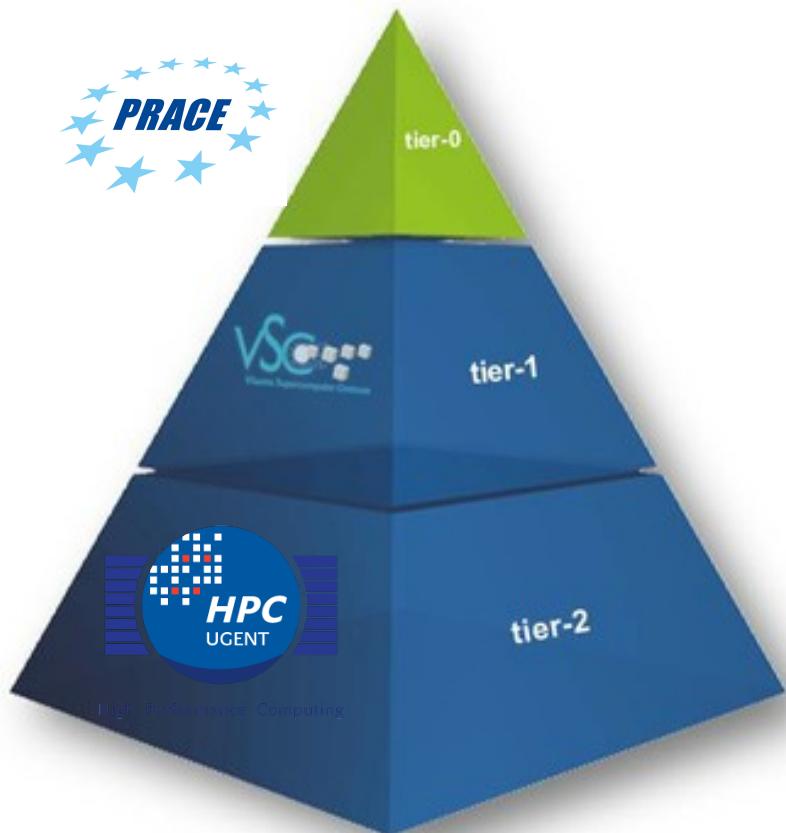
Ewan Higgs
User support, bigdata



High Performance Computing

Flemish Supercomputer Centrum (vsc)





Performance pyramid

Tier-0

Capability computing
European level

Tier-1

Capability/capacity computing
National level

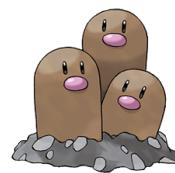
Tier-2

Capacity computing
University level

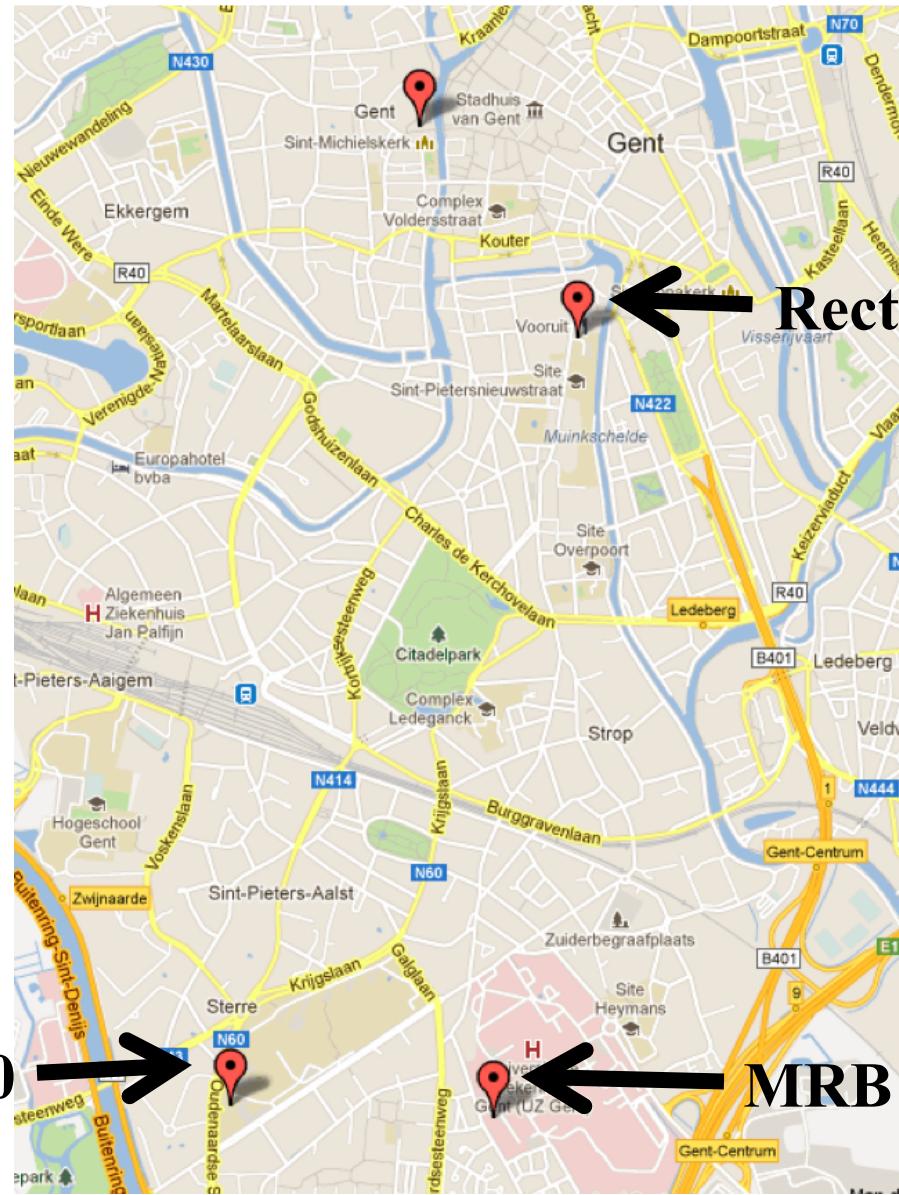


UNIVERSITEIT
GENT

Tier-2: STEVIN @ UGent



Datacenter S10



MRB





	gengar	gastly	haunter	gulpin	dugtrio	raichu	delcatty
# nodes	192 -> 125	56	167	34	16	64	160
# cores	1536 -> 1000	448	1336	1088	192	1024	2560
network	IB DDR	ethernet	ethernet	IB 2x QDR	IB 2x QDR	ethernet	IB FDR
CPU	Intel Xeon Harpertown (L5420)	Intel Xeon Nehalem (L5520)	Intel Xeon Nehalem (L5520)	AMD Magny- Cours (Opteron 6136)	Intel Westmere- EP (X5675)	Intel Sandy Bridge (E5-2670)	Intel Xeon Sandy Bridge
Clock (GHz)	2,5	2,26	2,26	2,4	3,06	2,6	2,6
Memory per node (GiB)	16	12	12	64	96 (vSMP)	32	64
Dedicated SCRATCH	28 TB	-	-	53 TB	-	-	400 TB
Shared storage	200 TB (HOME & DATA)						
	2008	2009	2010	2011	2011	2012	2013





Tier-1

muk



528 computing nodes
64 GB RAM/node
8448 cores @ 2.6 GHz
Intel Sandy Bridge
450 TB storage
Infiniband
176 Teraflops

June 2012: **118**
November 2012: **163**
June 2013: **239**
November 2013: **306**