Services for Experienced and Starting HPC Tier 3 Users (SES-HPC)

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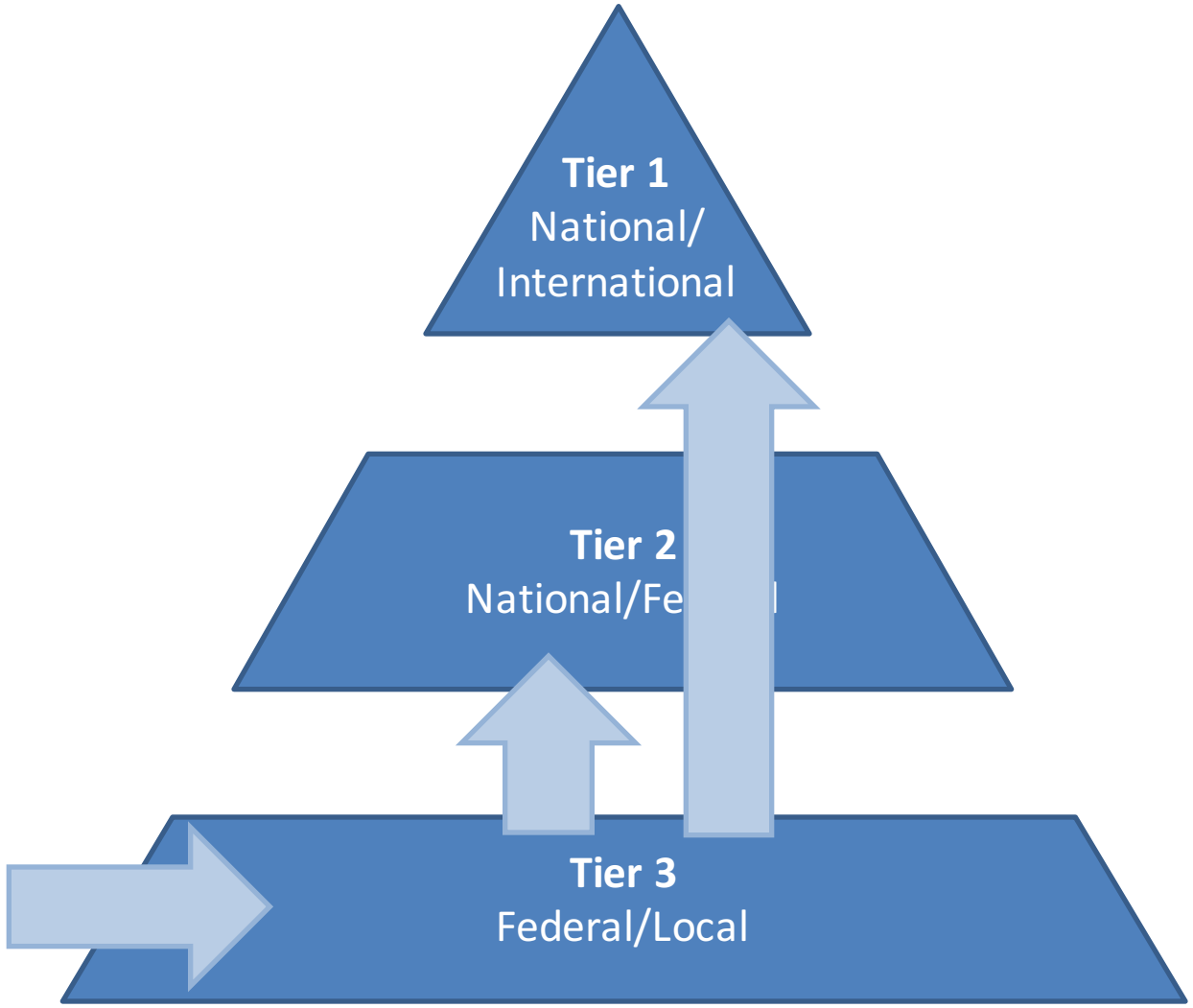
Project Focus:

- Getting people onto Tier 3
  - Users need beginner-level training
  - Users need continuous support and training

- Permeability between Tier 3 and higher tiers
  - More resources needed for larger problem sizes
  - Code development on Tier 3 - productive runs on Tier 1



Five pillars of support

Performance Analysis	Teaching and Training	Third-party Code Support	Tier Change Support	Knowledge Transfer

Five pillars of support

Performance Analysis

Experienced code developers

- Performance reviews
- Performance measurement tools

Teaching and Training

Third-party Code Support

Tier Change Support

Knowledge Transfer

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Experienced code developers	Beginner code developers			
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Performance Analysis	Teaching and Training	Third-party Code Support	Tier Change Support	Knowledge Transfer
Experienced code developers	Beginner code developers	Users of comm-ercial/open-source codes	Dev teams who want to apply for higher tier hardw.	All HPC users
• Performance reviews • Performance measurement tools	• Hold classes • Advise on external courses • Gauge demand for new courses	• Support in finding optimal settings • Find most suitable hardware	• Find most suitable hardware • Test and evaluation of software	• Establish and maintain wiki • Organize networking workshops

Thank You For Your Kind Attention.

Current Installation(s): HorUS

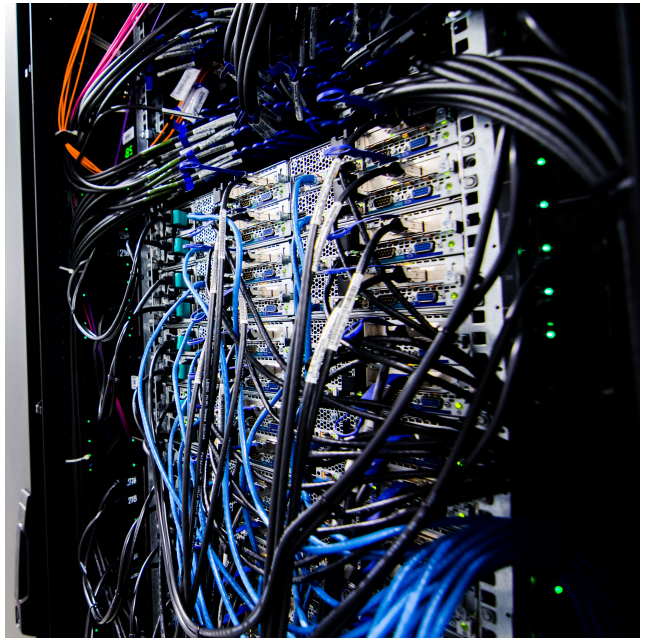
Production system:

- Hardware
  - 136 dual socket Intel Westmere nodes
  - 20 dual socket Intel Haswell nodes
- Operating system
  - SLES
- Cluster manager
  - Bright Cluster Manager 7.0
- Job scheduler
  - Slurm
- Storage
  - BeeGFS

Current Installation(s): HorUS

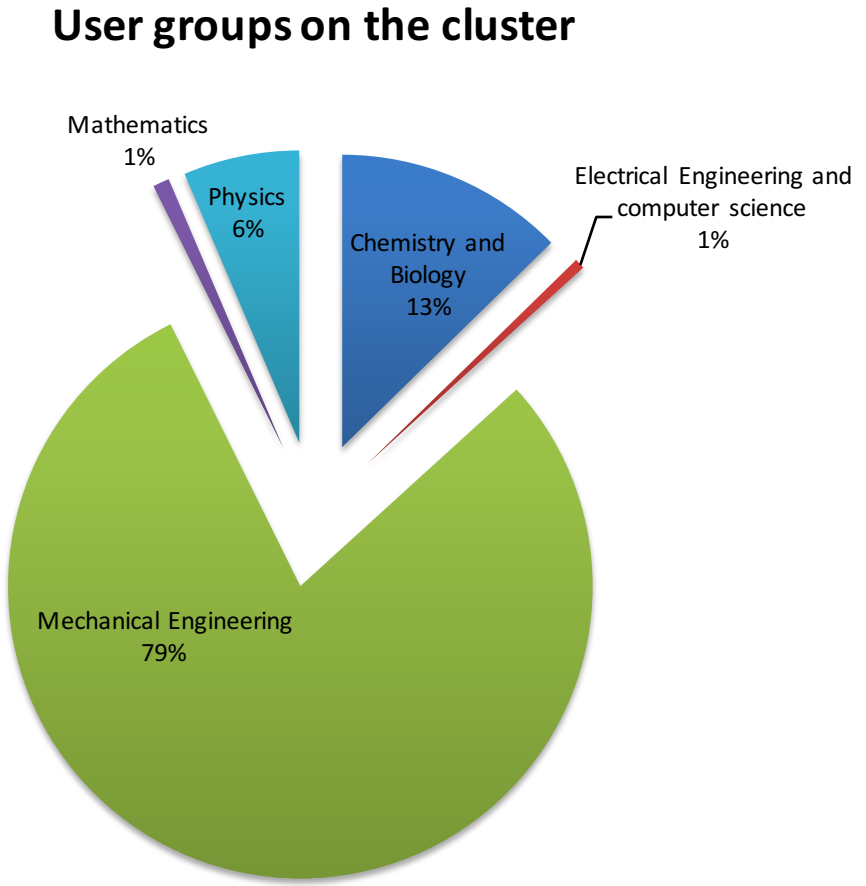
Soon-to-be-production system:

- Changes:
  - Operating system
    - SLES → CentOS 7.3
  - Cluster manager
    - Bright Cluster Manager 7.0 → 7.3 (8.0?)
- Reasons:
  - Licencing in SLES changed
    - Lowest/cheapest support level canceled
  - Better experience when installing community projects
    - OpenFOAM/NwCHEM
      - Compiler/Toolchain/...



Current user profile

- HPC
  - CFD
    - Development/Testing/Production of Tier-1
      - Research codes (APES, Musubi, Ateles, ...)
    - Production runs using commercial codes
      - Powerflow, Ansys, ...
    - Production runs using open-source frameworks
      - OpenFOAM, ...
  - Structural Analysis
    - Commercial Software
      - Abaqus, Pam-Crash, Hyperworks, ...
  - Chemistry
    - Gaussian, NWchem, ...



HPC Projects

- DFG funded project: SES-HPC
  - Services for experienced and starting HPC Tier 3 users
    - Optimization of codes
    - Support for larger simulations with open-source and commercial software
    - Training and courses
    - Supporting the step to larger machines
    - Sustainability and knowledge transfer