



# Introduction of CNGrid

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# Outline

- Background
- Grid nodes
- Major Computing facilities
- Application Grids
- Contribution to CNGrid in SCCAS
- Conclusion Remarks

# Background

- High-Tech R & D Program (863) “HPC & its kernel software”, Total budget: 100M
- Start from May of 2002
- End at December of 2005
- Make a HPC & Grid system software
- Integrate computing resources

# Grid Nodes



# Grid Nodes (con.)

- Major Nodes
  - Supercomputing Center, CNIC, CAS (SCCAS, Northern Node)
  - Shanghai Supercomputer Center (SSC, Southern Node)
- Normal Nodes
  - Beijing Institute of Applied Physics and Computational Mathematics

## Grid Nodes (con.)

- Normal Nodes
  - Tsinghua University
  - University of Science and Technology of China
  - Xi'an JiaoTong University
  - National University of Defense Technology
  - Hong Kong University

# Major Computing facilities

- Dawning 4000A
  - AMD Opteron 2.2GHz
  - Network: Myrinet
  - 640 nodes, 4 procs.
  - Peak perf.: 11Tflops
  - Linpack: 8Tflops
  - OS: Linux
  - Top 500: rank 10  
(June 2004), 31 (June 2005)



# Major Computing facilities (con.)

- Deepcomp 6800
  - Itanium 2 1.3GHz
  - Network: Qsnet
  - 265 nodes, 4 procs.
  - Peak perf. 5.3Tflops
  - Linpack 4.2Tflops
  - OS: AS Linux
  - Top 500: rank 14 (Nov. 2003), 72 (June 2005)





# Major Computing facilities (con.)

- SGI Onyx 350
  - r16000, 600MHz
  - Mem: 32GB
  - 32 procs.
  - Peak perf. 38Gflops
  - Linpack: 22Gflops
  - OS: IRIX 6.5
  - Disk: 500GB



# Application Grids

- **Resource and Environment**
  - GSG, DFG, SeisGrid
- **Research**
  - SDG, BAGrid, DDG, ChinaGrid
- **Services**
  - CMAG, TIG
- **Manufacturing**
  - AviGrid, SimGrid

# Geological Survey

- **Undertaken by China National Geological Survey Bureau**
  - Nation-wide productive grid
  - Data exchange and sharing
  - Resource evaluation services
- **Shorten the evaluation time**
  - from 3 years to 3 months for underground water of the north China

# China Meteorological Application

- **Undertaken by China National Meteorological Center**
- **Multiple sites to form the research platform for new weather prediction model research**
- **Provide new weather forecast services (time and location-specific)**

# Contribution to CNGrid in SCCAS

- ScGrid (Scientific Computing Grid)
  - BioScGrid
  - CheScGrid
  - EnvScGrid
  - MatScGrid
  - VisScGrid
  - GeoScGrid

# Contribution to CNGrid in SCCAS

- User Environment
  - Web based on grid technology
  - Interactive job, graphic interface, etc
- Utilization (Deepcomp 6800)
  - 145 Users
  - 95%, 2004.6-12: 76%, 2005.1-9: 88%

# Conclusion Remarks

- Management of CNGrid
- Service and daily operation
- Friendly user environment
- Accounting
- Killer applications
- Service on demand

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Thank you very much  
for your attention!