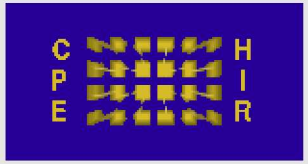
# CPEHIR




Cluster Performance Enhancements
High-Intensity Retreat
September 3 - 5, 2002
Cloudcroft, New Mexico

Rolf Riesen

# Motivation

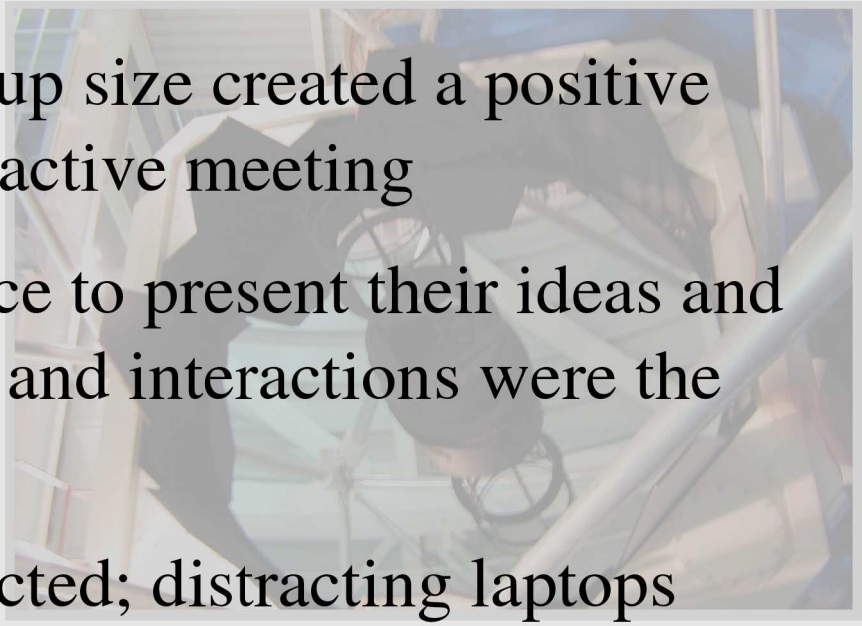
- Neil wanted me to do it! ☺
- Generate and discuss ideas to enhance performance of scientific clusters

# People

Robert A. Ballance, HPCERC
Brett Bode, Ames Laboratory
Ron Brightwell, Sandia
Thomas Christopher, Sandia
Ben Cole, Sandia
Narayan Desai, Argonne
Patrick Geoffray, Myricom
Trammel Hudson, Rotomotion
Curtis Jansen, Sandia
Jim Laros, Sandia
Vitus Leung, Sandia
Greg Lindahl, Key Research

Arthur B. Maccabe, UNM
John Noe, Sandia
Kevin Pedretti, Sandia
Neil Pundit, Sandia
Mahesh Rajan, Sandia
Rolf Riesen, Sandia
Stephen Scott, Oak Ridge
Thomas Sterling, Caltech
Nathan Stone, PSC
Todd Underwood, Oso Grande
Pete Wyckoff, OSC

# Format



- Unique format and small group size created a positive atmosphere for a highly interactive meeting
- Everybody was given a chance to present their ideas and thoughts, but the discussions and interactions were the most important
- Attendees listened and interacted; distracting laptops were off
- Fresh air and visits to Apache Point Observatory and White Sands cleared the brain for more thinking
- Holding it at a remote site kept distractions and interruptions to a minimum (cell phones didn't work ☺)

# Outcome

- Ideas at brainstorming level
- People are turning these ideas into research proposals
- Areas we discussed:
  - Programming models for petaflop computing
  - Making complex resources available to application developers and users; allowing users to access the available performance
  - Managing & maintaining very complex, large resources
  - Beyond point-to-point latency and bandwidth
  - Futursitic hardware versus commodity
  - Dealing with faults, check-pointing, recovery
  - Role of system software

http://www.cs.sandia.gov/~rolf/CPEHIR