



HPC Advisory Council

April 2009



The HPC Advisory Council's Mission



- **Bridge the gap between HPC usage, users and its potential**
- **Bring to OEMs and users the human expertise that is needed to understand, operate and optimize an HPC system**
- **Guide users on how to improve efficiencies**
 - For better research, education, innovation and product manufacturing
- **Provide application designers with the tools to enable parallel computing**
- **Strengthen the qualification and integration of HPC system products**
- **Enable new users to leverage from the experience of seasoned HPC experts**
- **Help companies to develop better products, services and be more competitive**
- **Review future technologies and facilitate discussions about future developments in and for the HPC market**

The HPC Advisory Council Members



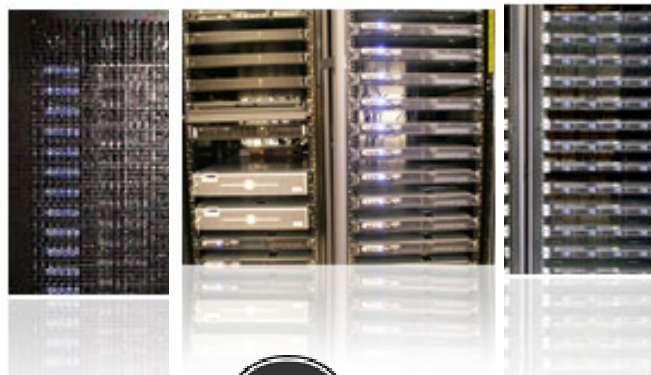
- Ace Computers
- Allinea Software
- AMD
- Appro
- Blue Ridge Numerics
- C.S.I.R.O
- CD-adapco
- Clustercorp
- Colfax International
- Corning Cable Systems
- Cornell University Center for Advanced Computing
- DataDirect Networks
- Dell
- Dildy Enterprises
- Digital Waves
- Evergrid
- Fermi National Accelerator Laboratory
- GigaSpaces Technologies
- GraphStream Incorporated
- HCL Infosystems
- HP
- IBRIX
- IBSwitches.com
- Intel
- Interactive Supercomputing
- The Israeli Association of Grid Technologies (IGT)
- Lamprey Networks
- Lawrence Livermore National Laboratory
- Livermore Software Technology Corporation
- LSI Corporation
- Mellanox Technologies
- Microsoft
- Microway
- National Research Center for Intelligent Computing Systems (NCIC)
- NEC Corporation of America
- Netweb Technologies
- Network Equipment Technologies
- Numerical Algorithms Group
- Oak Ridge National Laboratory
- Obsidian Strategics
- Ohio State University
- Panasas
- ParTec Cluster Competence Center GmbH
- Penguin Computing
- Platform Computing
- RNA networks
- Scalable Graphics
- ScaleMP
- Schlumberger
- Silicon Mechanics
- Simula Research Laboratory
- SoftModule
- Sun Microsystems
- Swiss National Supercomputing Centre CSCS
- System Fabrics Works
- Tabor Research
- Terascale
- The Victorian Partnership for Advanced Computing
- TOTAL E&P RESEARCH & TECHNOLOGY
- Virginia Tech University
- Voltaire
- VXTECH
- W.L. Gore & Associates
- Wipro InfoTech
- Wolfram Research
- Z Research
- Sharan Kalwani, Global HPC Architect

- **Collaboration of highly technical and knowledgeable individuals**
- **Support network for consultations, questions, and answers**
 - End-users, software vendors and systems builders
- **Each of the HPC Advisory Council members participates in the Network**
 - Utilize their vast experience to contribute into the Network knowledge base
- **Issues raised are posted on the HPC Advisory Council web site**
- **HPC users or vendors are encouraged to utilize the Network of Experts**
 - Use the form on the Council web site

HPC Advisory Council: Cluster Center



- An environment for development, benchmarks, testing
- The center provides on-site technical support
- Supports secure sessions onsite or remotely connection
- A unique ability to access the latest HPC technology
 - Even before it reaches the public availability
- All systems were contributed by the members



Apply for Cluster Access



- **Conferences**

- The HPC Advisory Council supports a variety of conferences throughout the year
- Conference presentations are posted on the Council web
- Partial list:
 - Supercomputing 2008
 - Oil and Gas High Performance Computing Workshop 2009
 - The 10th LCI International Conference on High-Performance Clustered Computing
 - 7th European LS-DYNA Conference
 - International SuperComputing (ISC09)
 - Cluster 2009
 - China HPC 2009
 - Supercomputing 2009

- **Best Practices**

- The HPC Advisory Council provides best practices to improve applications productivity
- Council is encouraging HPC users to provide their feedback and suggest applications/topics
- STAR-CCM+ and STAR-CD, NAMD, WRF, MM5, CMPD, Eclipse, LS-DYNA, Fluent etc

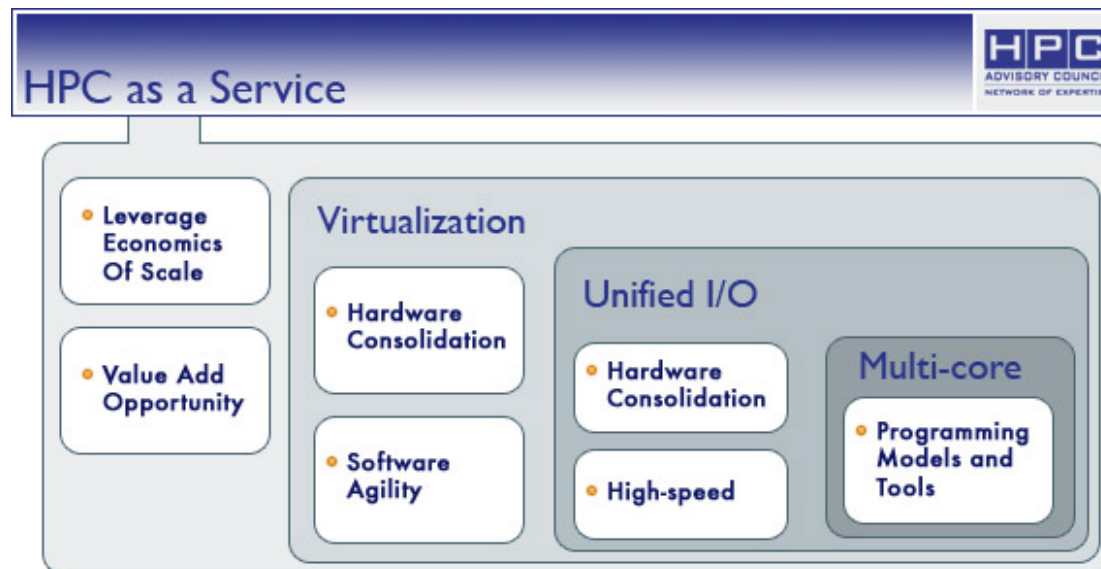
- **Case Studies**

- Real-world demonstrations, education and outreach

- **Vendor Content**

- Members whitepapers and technical content

- **HPC as a Service (HPCaaS)**
- **Virtualization in HPC**
- **HPC in a cloud**



- **Posted on the Council web:**
 - Scheduling Strategies for HPC as a Service (HPCaaS) for Bio-Science Applications

HPC Advisory Council Activities



Home | Blog | Council Members | Cluster Center | Network of Experts | Technical Content | Contact



Mellanox Cluster Center
Apply for cluster access

The HPC Advisory Council is also a community effort support center for HPC end-users, providing the following capabilities:

- Mellanox Cluster Center - the center provides a unique ability to access the latest Mellanox and the HPC Advisory Council member technology, even before it reaches the public availability. It provides the Council members and any HPC end user with a development, testing, benchmarking and optimization environment.
- HPC Advisory Council support group - provide a support center for consultations, questions, issues etc. for the HPC end-users




Performance on Overdrive

Network of Expertise

Best Practices



- Oil and Gas
- Automotive
- Bioscience
- Weather
- CFD
- Quantum Chemistry
- and more....

HPC Outreach and Education



Torrey Pines High School

A PROUD MEMBER OF THE SAN DIEGUITO UNION HIGH SCHOOL DISTRICT





Mathematics Club Torrey Pines High School 2007-2008

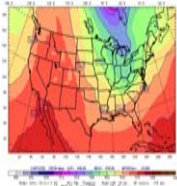



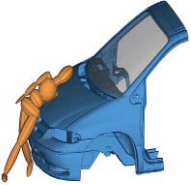
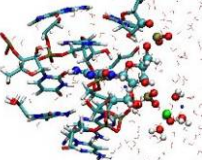
Cluster Center End-user applications benchmarking center

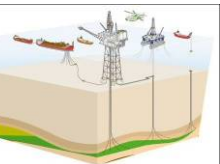




THE WEATHER RESEARCH & FORECASTING MODEL


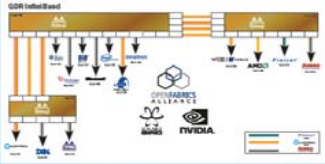






HPC Technology Demonstration

40Gb/s InfiniBand Distributed Visualization over SCinet

40Gb/s InfiniBand SCinet Participants



HPC Advisory Council: Joining



- **HPC Advisory Council is a non-profit organization**
- **All activities are sponsored by the members**
- **Joining the council is free of charge**
- **No legal agreements**
 - Members are free to join and leave at any time
- **For more info:**
 - Web site - <http://hpcadvisorycouncil.mellanox.com/index.php>
 - Chairman: shainer@mellanox.com, hpc@mellanox.com