

OpenFabrics (and You) at SCInet 2007

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User Research Areas

- Computational Fluid Dynamics (CFD)
- Environmental Fluid Dynamics (EFD)
- Computational Biophysics
- Urban Sustainability
- Public Policy Informatics
- Systems Research

HPCI Areas of Interest

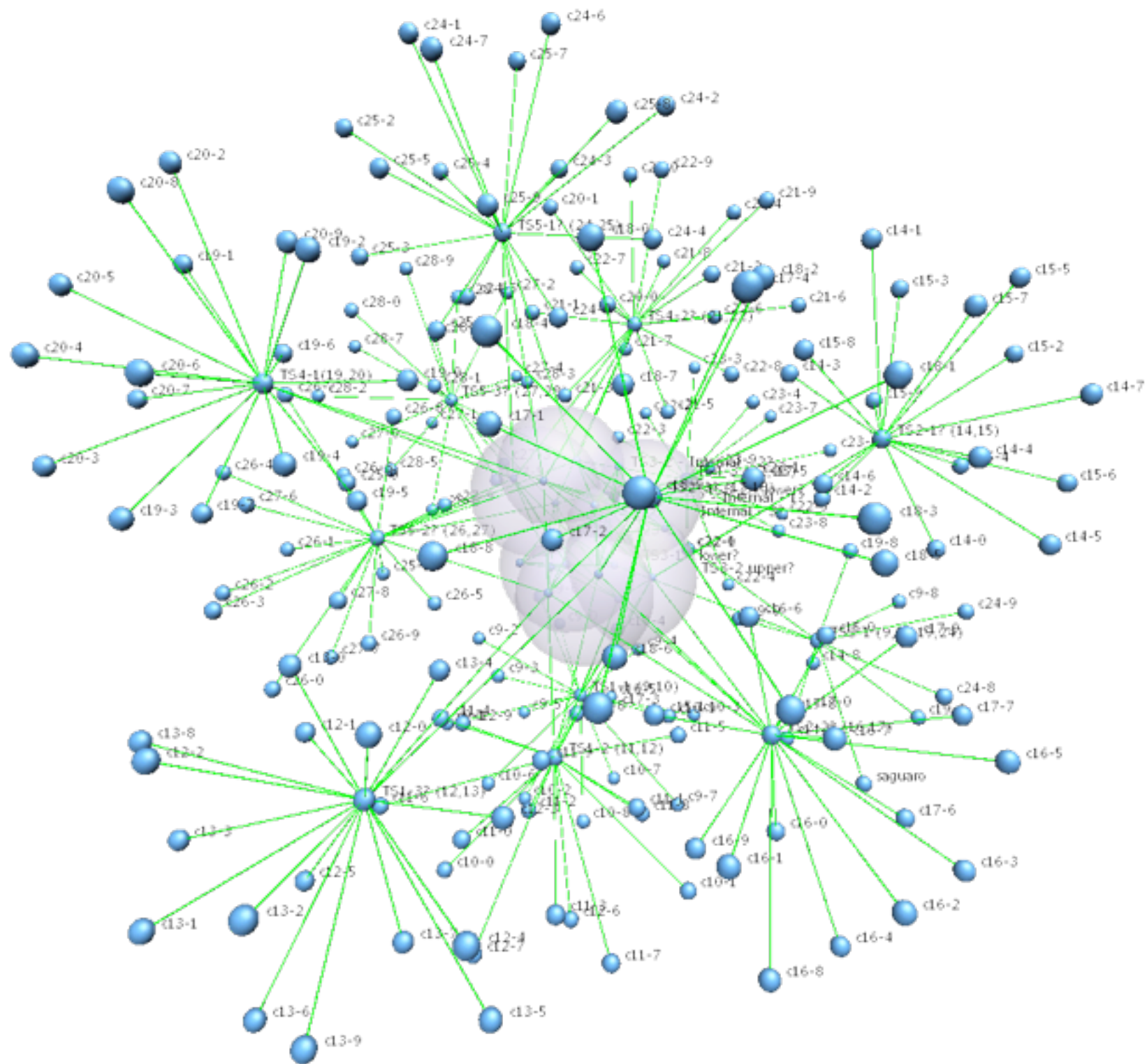
- Early adopters of long-haul InfiniBand
- Cluster virtualization
 - Job forwarding/spanning
 - System image standardizing
- Scheduling
- Education

InfiniBand at ASU

- Primary compute cluster
 - ~200 Topspin/Cisco HCAs for nodes
 - Intel Xeon x86-64 Processors (“Nocona,” “Woodcrest,” “Clovertown”)
 - Floor A/C, chilled-door air cooling
 - Dual fat-tree with Topspin/Cisco switches
 - OFED 1.1

InfiniBand at ASU

- Secondary compute cluster
 - 50 Topspin/Cisco HCAs
- Visualization cluster (Located at the Decision Theater)
 - 40 Topspin/Cisco HCAs
 - Longbow over fiber to primary cluster



Long-Haul at ASU

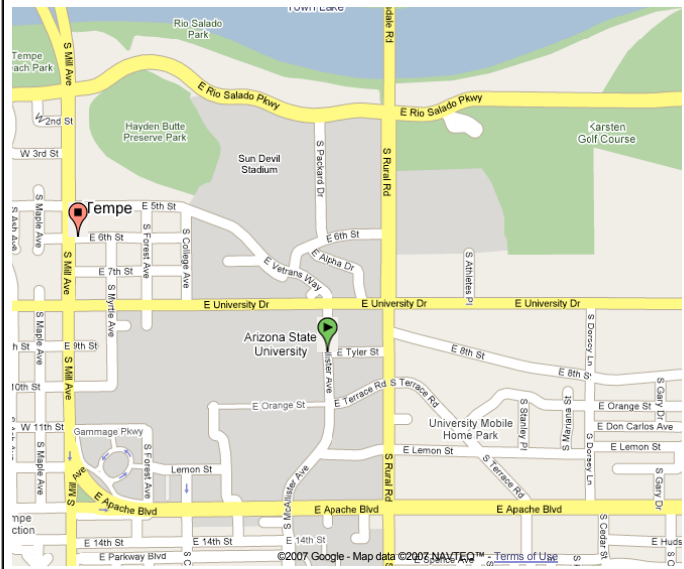
- Connects primary HPCI lab to the Decision Theater (flagship Visualization facility) in Downtown Tempe
- Dedicated fiber run: 8,300'

Google Maps

Start **S McAllister Ave & E Tyler St**
Tempe, AZ 85287

End **21 E 6th St**
Tempe, AZ 85281

Travel **0.9 mi (about 3 mins)**



S McAllister Ave & E Tyler St
Tempe, AZ 85287
Drive: 0.9 mi (about 3 mins)

1. Head north on S McAllister Ave toward E University Dr	0.1 mi
2. Turn left at E University Dr	0.5 mi 2 mins
3. Turn right at S Myrtle Ave	0.2 mi
4. Turn left at E 6th St	440 ft

21 E 6th St
Tempe, AZ 85281

Observations and Issues

- Fountain & Goanna
 - <http://sss.scl.ameslab.gov/trac/wiki/Goanna>
- OFED diagnostic utilities
- Vendor/Open Source space

Supercomputing 2007

- Reno, Nevada
- November 10-16
- 283 Exhibitors registered so far
- Education Program
- Tutorials
- OpenFabrics fits in to all of these

SCInet 2007

- Attendees
 - Deliver wireless (802.11a/b/g)
 - Technology demonstrations
- Exhibitors
 - Deliver ethernet drops
 - Deliver InfiniBand, low-latency Ethernet drops

OpenFabrics at SC07

- Troy Benjegerdes, Ames Laboratory
 - troy@scl.ameslab.gov ;)
- More than just a production network

What can we do?

- Educational
- Outreach
- Technical
- Experimental

Education

- OpenFabrics Tutorial
 - Show users how to configure clusters
 - Explain the Big, Evil Subnet Manager
 - Simple debugging
- Presentations

Education Engagements

- Alliance
 - Presenters for material
 - Setup and support for demo equipment
- Vendors
- Academia as adopters and presenters

Outreach

- OpenFabrics Alliance booth at SC 2007
 - Meeting place
 - Discussion forum
 - Presentation platform
 - Contact point

Outreach Engagements

- Alliance
 - Participate in booth events
 - Coordinate with education events
- Vendors
 - Participate in booth events
 - Showcase products on the floor

Technical

- Provide InfiniBand connections to booths
 - IPoIB
- Provide low-latency ethernet connections to booths
- Storage

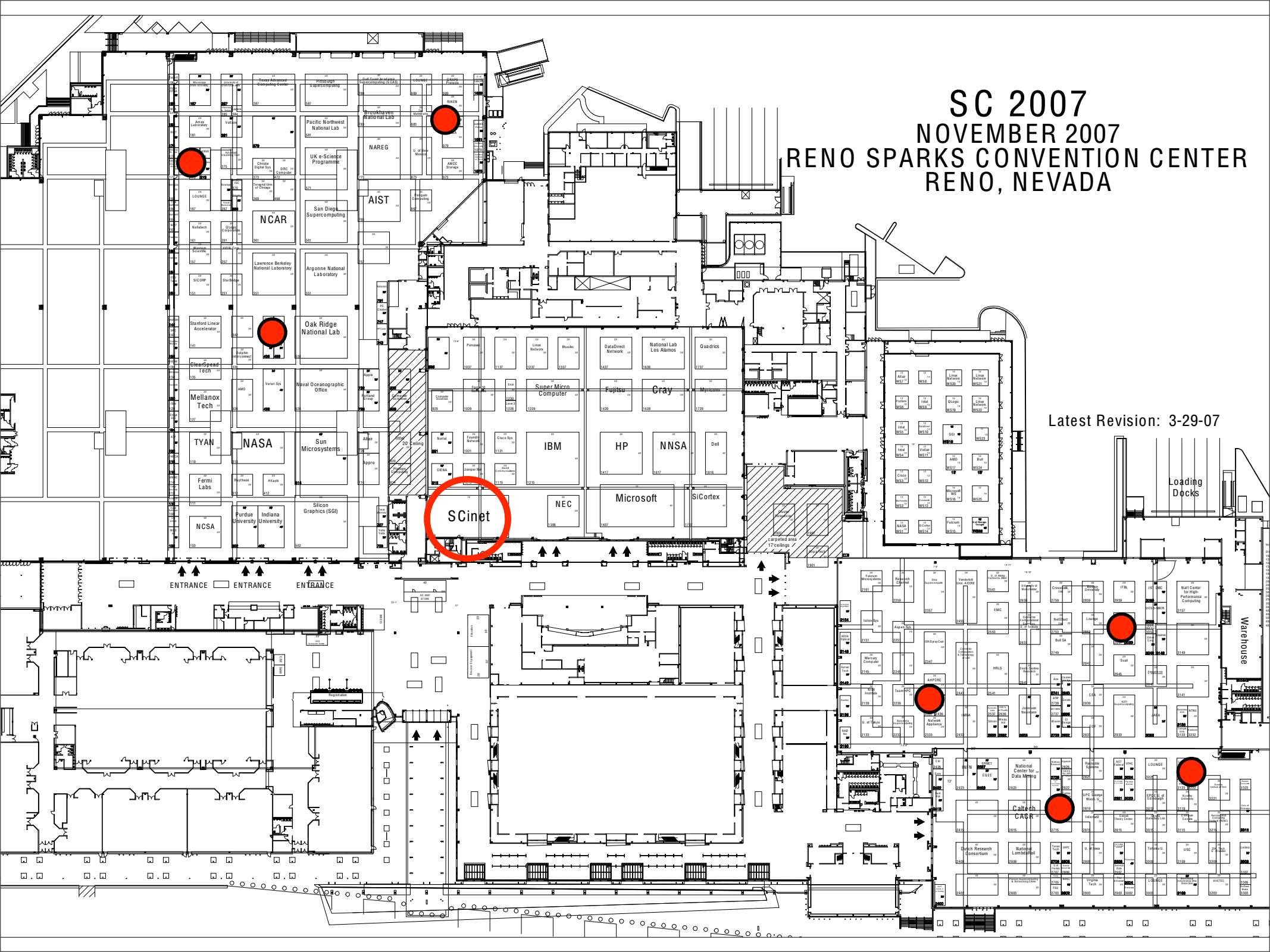
Challenges

- OpenFabrics technologies require more end-user support
- Multiple IB subnets are likely
 - Subnet manager sanity
 - Fault Isolation
 - Long distances and other geographic challenges

User Support

- Relates to other missions (Education and Outreach)
- SCInet provides links and subnet management
 - Standardizes media for drops (dropped fiber converted to copper for IB)
 - Standardizes software stack (OFED 1.2?)

SC 2007 NOVEMBER 2007 RENO SPARKS CONVENTION CENTER RENO, NEVADA



Latest Revision: 3-29-07

SCinet

ENTRANCE ENTRANCE ENTRANCE

Loading Docks

Warehouse

Opportunities

- How about an Interoperability Event?
 - Showcase OpenFabrics (and OFED) to users
 - Showcase users to communities
 - Integration with research opportunities

Technical Engagements

- Alliance
 - Support users running OFED
 - Coordinate with SCInet
 - Interoperability Working Group
- Vendors
 - Showcase equipment

Research

- Long-haul InfiniBand
- InfiniBand routing
- Low-latency ethernet and InfiniBand as a primary network connection
- Bandwidth Challenge
- Parallel file systems
- ...

Research Engagements

- Alliance
 - Identify research and experiments that utilize the floor OpenFabrics networks
 - Wide-area InfiniBand
 - IBolP as primary connectivity
- Vendors
 - Support projects with hardware

Contact information

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