# Information Architecture for Supercomputing 95

# Information Architecture (IA)

Demonstrate within the SC95 conference framework a prototype implementation of a high-performance NII

- High-Performance Distributed Supercomputing Environment (aka national machine room), 50 sites, OC-3c-->OC-12c
- Push limits of video server technology in video on demand demonstrations
- Evaluate emerging wireless networking technology
- Involve information industry/universities and gov labs in SC95 information delivery
- Demonstrate virtual reality navigation in large simulation spaces
- Facilitate IA activities through a national call for proposals

# High-Performance Distributed Supercomputing Environment

- About 50 sites ..(NSF, DOE,  DOD, NASA, Vendors, etc.)
- Connect sites via a combination of existing high-speed networks and a national testbed at OC-3c and OC-12c bandwidths. (ATM forum providing connectivity)
- Ideal network testbed would exist from May 1995-May 1996
- Provide a coherent scalable software environment and systems management framework
- Enabling the use of many supercomputers in parallel (~TERAflops aggregate performance is desired)

# Link Existing High-End Networks

- vBNS, DREN, CASA, BLANCA, MAGIC, AURORA, etc.
- Provide congestion control, provisioning and systems management
- Local ATM infrastructure,  show infrastructure, early testing and debugging infrastructure
- Framework for Gigabit testbed followon

# Pushing the Limits of Video Servers

- Multipoint recoding and playback
- Demonstrations of technology with IBM, Intel and SGI (?)
- Large-scale server demonstration, video kiosks, wireless demos (see wireless tests)
- 20 video sources (realtime), 100 local video sinks, 500+ network receiving sites,  some number of remote interactive video sites.. (order 10-20)
- Audio/Video over ATM networks
- Interactive video in selected presentation venue

# Test and Evaluate Wireless Networking Technologies

- Local wireless infrastructure (Motorola, Qualcomm, etc.)
  - conference management (100 nodes)
  - networking management and problem solving (50 nodes)
  - conference attendees (500-1000) test users
- PDAs, laptops as the delivery mechanisms
  - Newtons, Zoomers, Magic-Link, Envoy, etc.
  - PCMCIA wireless cards (2 Mbs, 200 ft max cell sizes)
  - conference databases, schedules, proceedings, messaging
  - problem reporting, maps, locator service
- Wide area-- NASA  Advanced Comm Technology Sat. (ACTS)
  - OC-3c connections to Hawaii for realtime image processing demonstrations
  - interactive remote video

# Involve Information Industry in SC95 Information Delivery

- Supercomputer industry
- Highend networking (ATM forum, carriers, switchers)
- Highend servers/mass store, data miners, digital lib
- Large-scale instrumentation (APS, etc.)