



Network Service Offerings 2004

SCinet, the High Performance Network Committee for SC2004, provides all network connectivity for SC2004 Industry and Research Exhibitors both within the David L. Lawrence Convention Center and to many wide area networks. SCinet will provide three separate networks in 2004. The first, and most common, is the commodity network, a dedicated connection from the David L. Lawrence Convention Center to an Internet Service Provider. Distribution of this service will be provided through both traditional LAN and wireless (IEEE 802.11a, 802.11b and 802.11g) services. The second is the high-performance show floor network, a robust and production-ready network capable of supporting very high bandwidth connections among Exhibitors, with external connections to various national networks. The third network is the eXtreme Network (XNET), a leading- (and often bleeding) edge network where next generation network technology is demonstrated in its early form. SCinet also supports custom fiber requests including dark fiber.

As an Exhibitor, it is your responsibility to request one or more network connections.

All network connection requests must be made through completion of the network connection request form at: <http://scinet.supercomp.org/>. Refer to the SCinet 2004 Connection Request Form in this Exhibitor Kit for additional information.

For the SC2004 Conference, SCinet offers the following LAN-based network services. *Please note: 100FX Ethernet is not available. The minimum wired service is Gigabit Ethernet.* For more information about SCinet wireless network services, please refer to the SCinet 2004 Wireless Network Service Policy.

Wireless^[1]

Ubiquitous IEEE 802.11a, 802.11b and 802.11g service throughout the meeting rooms, common areas, and exhibit floor space. There is no charge for this service.

Ethernet^{[2][3]}

1000BaseSX (multi-mode fiber) (1500 or 9000-byte Ethernet frames)

1000BaseLX (multi-mode fiber) (1500 or 9000-byte Ethernet frames)

10GBase-LR (single-mode fiber) (1500 or 9000-byte Ethernet frames)



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IP over SONET^[4]

OC-48c/STM-16c (single-mode fiber) (4470 byte IP packets)

OC-192c/STM-64c (single-mode fiber) (4470 byte IP packets)

SONET^[5]

OC-12c/STM-4c (single-mode fiber)

OC-48c/STM-16c (single-mode fiber)

OC-192c/STM-64c (single-mode fiber)

Dark Fiber^[6]

single-mode fiber only

Unless otherwise specified, all fiber is terminated in your booth with an SC fiber optic connector. Exhibitors are responsible for providing any inter-series adapter or patch cables necessary to attach your end equipment.

Network connections are charged at a flat rate of \$1500. Any new requests or modification to existing network connection requests made *after October 1, 2004* will incur an additional \$1000 late fee. No additional connection requests can be accommodated after October 29. Modification to the specific location of individual drop requests will be accepted without penalty through October 29, 2004. Special requests for connection services will be negotiated separately.

Please submit any questions specifically concerning registration for SCinet network connection services to registration@scinet.supercomp.org.

Notes:



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- [1] Native IPv4 and IPv6 Unicast provided by default, with automatic address allocation from the network.
- [2] Native IPv4 Unicast, IPv4 Multicast, and IPv6 Unicast provided by default. Router-to-router connections (IPv4 /30) and subnet routing options supported.
- [3] Private 802.1q VLAN trunking supported between booths on request.
- [4] Native IPv4 Unicast, IPv4 Multicast, and IPv6 Unicast provided by default. Router-to-router connections only.
- [5] Wide-area SONET circuits will be terminated at the David L. Lawrence Convention Center demarc. These circuits will be carried to the booth by SCinet-managed optical transport equipment or dark fiber, at the discretion of SCinet.
- [6] All dark fiber will be run through the SCinet NOC patch panels, where it will be terminated and cross-connected. Cost is assessed on a per-booth basis on each span to the SCinet NOC. Cross-connects within the SCinet NOC are included in the span charge.



SCinet 2004 Connection Requests

Exhibitors who have received their Exhibitor Kits are authorized to initiate network connection requests from SCinet, the network services provider for the SC2004 conference. This sheet is intended to provide clarification about the responsibilities of the Exhibitor.

As an Exhibitor, it is your responsibility to request one or more network connections.

Network connections are charged at a flat rate of \$1500 each. Special requests for non-standard connection services must be negotiated separately. Please contact SCinet at registration@scinet.supercomp.org to discuss dark fiber orders.

All network connection requests must be made through completion of SCinet's network connection request form at the SCinet public web site, <http://scinet.supercomp.org/>. This web site provides a fully automated form that allows Exhibitors to request multiple network connection services, and then edit or modify these requests as needed. This capability allows Exhibitors to react to changes in their booth layout or network connection requirements as they prepare for the Conference.

Beginning on July 31, 2004, SCinet will send each Exhibitor an email containing a unique username and password that may be used to create, edit, review, and delete connection requests. This email will be delivered to the point of contact (POC) noted on the contract with the Exhibits Management Company, Hall/Erickson. This POC may also generate additional SCinet accounts to be associated with their Exhibit. Exhibitors are strongly encouraged to establish both a technical POC and a show floor POC. The technical POC should be familiar with the technical aspects of the services being requested. The show floor POC should be familiar with the Exhibit layout, including the locations for the terminations of the SCinet services. Exhibitors who provide these POCs will help SCinet manage clarifications, questions, and problem resolution more effectively.

SCinet will carefully monitor all Exhibitor use of the SCinet connection request system, using the username and password as the authentication mechanism. Detailed time-stamped logs of all account activity will be retained by SCinet to assist with billing requirements. Points of contact are responsible for all connection request system activity logged to their username and password. Usernames and passwords should be protected accordingly.

Any new requests or modification to existing network connection requests made *after October 1, 2004* will incur an additional \$1000 late fee. Specification of the drop points for existing individual connections may be modified through October 29, 2004. There is no penalty or charge for relocating drop points through this date. *Please Note:* Exhibitors are responsible for ensuring that all charges for requested network services have been paid to the IEEE. SCinet cannot provide network services without confirmation of payment.

As Exhibitors edit the connection request form, they must consider the following:

The completeness and accuracy of the organization and contact information is critical. SCinet must have a dependable method for locating the administrative, technical, and on-site or show-floor points of contact, especially in the critical time immediately prior to the Conference.



SCinet 2004 Connection Requests

The completeness and accuracy of the booth drop information, i.e. the physical location of the fiber termination, is critical. If the Exhibitor does not provide this information, then SCinet will terminate the fiber according to a best-effort policy that may not coincide with the Exhibitor's wishes. Fiber termination occurs before Exhibitors are allowed onto the show floor. There will be no opportunity for Exhibitors to dynamically direct this installation. Any changes made to the fiber drop point after initial installation will be made only as time permits, and will be subject to the \$1000 late fee.

Very late requests *after November 1, 2004* for fiber may not be accommodated. Any request that requires deployment of fiber will be considered on a case-by-case basis. There are many obstacles to deploying fiber after this date. It is unlikely that these network requests can be fulfilled.

Gigabit Ethernet Connections are Live

All 1000SX, and 1000LX Ethernet connection requests will be "live" when Exhibitors arrive to install their exhibit booths. Exhibitors may attach their end equipment to the SC-terminated fiber at any time after 12:00pm on Thursday, November 4, 2004. All SCinet services including DHCP and DNS will be available to connected Exhibitors at that time. All routing to the commodity Internet will be functional. This service eliminates the need to open a ticket, stand in line at the helpdesk, or wait for a SCinet connection request drop team to visit for those Exhibitors who have requested Gigabit Ethernet connections.

Transmit and receive optics are NOT marked on the individual fibers. If no link light is indicated, simply switch the transmit and receive fiber connections on your end equipment. 1000SX, and 1000LX laser sources will not damage similar transmitters.



WARNING! Always assume that fiber delivered to your Exhibit Booth has an active laser light source at the other end. The systems used by SCinet to light these fibers are Class 1 laser devices. Under no circumstances should you look into the beam or view the beam directly with an optical instrument.

Helpdesk

Exhibitors other than those with 1000SX or 1000LX connections must open a helpdesk connection request ticket at <http://scinet.supercomp.org/helpdesk> so that we can assist you with establishing the connection. Exhibitors with 1000SX or 1000LX connections who are not comfortable establishing their own connections, or who experience problems establishing their connections may open tickets as well. Tickets will be addressed in the order in which they are received pursuant to prioritization as described in the SCinet Service Level Policy.



SCinet 2004 Service Level Policy

Summary The SCinet Committee (SCinet) provides commodity Internet, research, and experimental networks for use by the exhibitors and attendees. While every practical effort shall be made to provide stable and reliable network service on each network, there is no explicit service level agreement for any SCinet network, nor are there any remedies available in the event that network services are lost.

Background SCinet provides a series of networks each year for use by the exhibitors and attendees. Each network can be broadly categorized as Commodity Internet, Research, or Xnet infrastructure. In addition, there are significant peering relationships among these networks that allow them to communicate.

Commodity Internet networks include the high bandwidth connection from the convention location to one or more Internet Service Providers, and both wired and wireless networks that connect the exhibit halls, meeting rooms, ballrooms, mail rooms, and other common areas to the Internet.

Research networks include very high bandwidth connections to National and Agency networks including Abilene, ESnet, DREN, NREN, ATDnet, and NLR. Coupled with the extensive peering relationships that these networks have with other research networks worldwide, SCinet can engineer connectivity to virtually any public IP address in the world. Access to these networks is limited to exhibitors with network connections to the SCinet core.

Xnet networks are typically experimental and often fragile. These networks connect small numbers of devices at extremely high bandwidth using equipment that is pre-production, pre-standard, or research oriented. In most cases, Xnet networks do not peer with other networks to reduce potential network volatility.

Description SCinet is responsible for the design, engineering, installation, operation, and maintenance of all Commodity, Research, and Xnet networks. These networks must be installed during the week prior to the conference, and removed in their entirety by the day after the conference. The design and engineering phase of SCinet occupies much of the year preceding the conference. In contrast, timelines for the installation, operation, and maintenance are extremely compressed, and introduce significant operational risk that would not necessarily be present in a production environment.

SCinet is primarily organized across functional areas. There are specific points of contact with responsibility for Wide Area Transport, Local Area Transport, Internet Services, Wireless Infrastructure, Architecture, Routing and Switching Services, and Xnet. Each of the functional area leads has an appropriate staff level



SCinet 2004 Service Level Policy

to support the installation, operation, and maintenance of that area. Area leads coordinate the interaction among separate groups.

SCinet will make every practical effort to provide uninterrupted service on all networks that it manages. In the event that there is a disruption of service on any network, every practical effort will be made to return that network to service as quickly as possible. Efforts to correct network errors shall be prioritized across the following broad guidelines. Higher priority events are listed first.

- 1) Failure of core routing services in the SCinet infrastructure.
- 2) Network service disruptions related to the wide area network transport facilities.
- 3) Widespread failure of the commodity Internet services.
- 4) Widespread failure of routing and switching services beyond the core.
- 5) Widespread failure of wireless Internet services.
- 6) Disruption of service for individual connections.

SCinet management, at its own discretion, can modify the priority of a reported service disruption. This policy will generally be applied to support high priority scheduled events. Examples include the Internet distribution of a keynote speech, high profile initiatives such as 2004's SC Global, and featured conference programs such as the Bandwidth Challenge.

While every practical effort shall be made to provide stable and reliable network service on each network, there is no explicit service level agreement for any SCinet network, nor are there any remedies available in the event that network services are lost.



SCinet 2004 Network Security Policy

The annual challenge for the SCinet committee is to provide a robust, scalable, production-quality network that meets the bandwidth requirements for a Conference devoted to showcasing leading-edge research. SCinet provides very high bandwidth connectivity between the show floor network and high-speed Agency and experimental Wide Area Networks. Due to the high bandwidth and large scale of the SC2004 network, SCinet does not provide firewall services.

There is no firewall at SC2004.

The SC2004 network is a logical extension of the open Internet. Any host on the Internet can connect to any machine on the show floor unless the machine's owners take the necessary steps to prevent unauthorized access. The Internet is a hostile environment where security is a collective responsibility.

Each Exhibitor is responsible for ensuring that their *systems* are configured in accordance with their security requirements.

Experience has shown that many of the systems used by Exhibitors at previous SCxy Conferences were configured in a default or standard manner. These default configurations often have well-known vulnerabilities for which freely available exploits exist. Exhibitors should ensure that the equipment they use at SC2004 has been patched and configured in accordance with the Original Equipment Manufacturer's (OEM) recommendations and the Exhibitor's security requirements.

Each Exhibitor is responsible for ensuring that their *communication sessions* are protected in accordance with their security requirements.

Exhibitors who use insecure communication methods are exposing their networks and systems to compromise. The use of insecure applications including TELNET and FTP is *strongly discouraged*. TELNET and FTP are subject to compromise because they send passwords to remote hosts in human readable cleartext. Exhibitors are *strongly encouraged* to protect their communication sessions through a mechanism such as Secure Shell (SSH) where all communication is encrypted. SSH implementations are widely available for little or no cost, and are straightforward to implement and use. Consult your system and network administration staff for more information on configuration and use of SSH.

Exhibitors should assume NO expectation of privacy for network traffic.

SCinet will passively monitor traffic on most external network connections as part of their network performance monitoring activities. SCinet will also monitor Exhibit floor and external network traffic for evidence of security-related activity including compromise or abuse. By no means should this coverage be considered a substitute for safe security practices. **SCinet reserves the right to *deny* network access to any system or user that poses a serious security threat to other exhibitors and the conference or abuses the network as determined by SCinet security.**

Please do your part by being cognizant of network security risks and protecting your systems and sessions.



SCinet 2004 Wireless Service Policy

The SCinet committee is providing conference attendees with ubiquitous IEEE 802.11b, IEEE 802.11g, and IEEE 802.11a wireless TCP/IP services for the SC2004 Conference. The wireless service coverage areas include the exhibit halls, the conference meeting rooms, and selected common areas. The wireless networks are connected to the SCinet commodity network (and the Internet), the high-performance show floor network, and several national agency networks. There is no connectivity between the wireless network and XNET. Wireless networks are anticipated to be available from November 4-11, 2004.

Free wireless!

All conference attendees may take advantage of the wireless service. There is no charge for its use. While every practical effort will be made to provide stable, reliable network services, there is no explicit service level agreement for the wireless network, nor are there any remedies available in the event that network services are lost. Please refer to the [SCinet Service Level Policy](#) for more information. If you need to ensure connectivity to SCinet, you should order a physical connection. SCinet will monitor the health of the wireless networks and maintain this information for exhibitors and attendees.

IEEE 802.11b-compliant wireless network interface cards will be sold at the conference. Order forms may be obtained at the SCinet Helpdesk. These wireless network interface cards are “plug and play” on most laptop computers. As a general rule, SCinet cannot support setup, configuration, or debugging of laptop computers and their wireless network interfaces.

SCinet control of the 2.4GHz and 5.2GHz frequency radio spectrums

In order to provide the most robust wireless services possible, SCinet must control the 2.4GHz radio frequency spectrum used by 802.11b and 802.11g (2.412GHz to 2.462 GHz) and the 5.2GHz radio frequency spectrum used by 802.11a (5.15GHz to 5.35GHz) within Pittsburgh’s David L. Lawrence Convention Center.

This has important implications for both Exhibitors and Attendees:

- Exhibitors and attendees **may not** operate their own IEEE 802.11a, 802.11b, or 802.11g wireless Ethernet access points **anywhere** within the David L. Lawrence Convention Center, including within their own booth.
- Wireless clients **may not** operate in ad-hoc or peer-to-peer mode due to the potential for interference with other wireless clients.
- Exhibitors and attendees **may not** operate 2.4GHz or 5.2Ghz cordless phones.
- Exhibitors and attendees **may not** operate 2.4GHz wireless video or security cameras, or any other equipment transmitting in the 2.4GHz or 5.2GHz spectrums.
- Any special request to operate equipment in the prohibited frequency range(s) for specific demonstrations **must be pre-approved** by SCinet. Requests for exemptions may be submitted to wireless@scinet.supercomp.org.



SCinet 2004 Wireless Service Policy

Successful wireless operation is a community responsibility.

SCinet wants you to have a successful, pleasant experience at SC2004. This should include the ability to sit down with your wireless-equipped laptop and check e-mail or surf the Web from anywhere in the wireless coverage areas. Please help us achieve this goal by not operating equipment that will interfere with other users.

SCinet is watching.

We will be trolling for rogue access points and clients in ad-hoc mode. SCinet will actively police both the 2.4GHz and 5.2GHz frequency spectrums. Please distribute this notice to your booth staff and consultants.



SCinet 2004

High Performance Bandwidth Challenge

Call for Participation

Networks are an integral piece of modern high performance computing. The ability to maximize network throughput is often essential to the success of high performance computation. The Bandwidth Challenge challenges participants to push the envelope in terms of network throughput as it relates to high performance computing.

For SC 2004 in Pittsburgh, PA SCinet will provision as many as 8 OC-192c (10 Gbps) circuits into the convention center. This anticipated bandwidth volume will exceed the available bandwidth into and out of all but the largest countries in the world. The challenge is to present a real application that requires massive network resources and demonstrate it during SC 2004. The following criteria will be used to judge entries:

1. The sustained throughput
2. The scientific merit or real world applicability of the application
3. The use of innovative and fair TCP and non-TCP implementations
4. The physical distance between involved sites and the associated latency
5. The use of emerging or underutilized technologies including IPv6 and IP multicast.

The throughput will be verified using high performance monitoring equipment provided by Spirent Communications. Separate awards will be made for the best TCP and the best non-TCP application throughput.

The Bandwidth Challenge is a collaboration between SC, SCinet and Qwest Communications. Qwest Communications is generously providing a monetary prize for the winning entry. This is the fifth annual Bandwidth Challenge. The winning application in last year's Bandwidth Challenge reached 23.21 Gb/s of TCP throughput.

The deadline for submitting a full entry for the Bandwidth Challenge is September 1, 2004. However, in order to be included in the final SC 2004 program an abstract must be submitted by July 26, 2004. All submissions must be made through the following website:

<http://www.sc-submissions.org/>

Contestants with special network requirements are urged to contact SCinet at their earliest opportunity. SCinet is responsible for all aspects of networking at SC 2004 and provides technical support to applicants, make arrangements for equipment and may be able provide rack space to support entries.

Please contact bwc@scinet.supercomp.org for further information.



Xnet 2004

Xnet Mission: Provide a venue to showcase bleeding-edge, developmental networking technologies and experimental networking applications.

Xnet (eXtreme Net) is the leading edge, network technology development showcase at SC – the International Conference for High Performance Computing and Communications. Every year, the SCinet staff meets the challenge to design and implement the world’s leading state-of-the-art production network. The SCinet exhibit floor network has evolved into a robust, high-performance, production-quality network that Exhibitors, users and attendees depend on for reliable local area, wide area, and commodity network service. Consequently, it has become increasingly difficult for SCinet to showcase bleeding edge, potentially fragile technology. In this environment, OEMs have been reticent about showcasing bleeding-edge hardware in SCinet, as it became a mission critical, production network.

Xnet provides the solution to this dichotomy by providing a venue which is by definition bleeding-edge, pre-standard, and in which fragility is understood. Xnet provides OEMs and researcher exhibitors an opportunity to showcase emerging network equipment or capabilities, prior to their general commercial availability.

Xnet debuted in Portland, OR at SC’99, where Dense Wavelength Division Multiplexing (DWDM) technology was used in the implementation of OC-48 SONET rings on the conference show floor. At SC2000, Xnet demonstrated pre-production and early delivery 10-Gigabit Ethernet equipment connecting several exhibit floor booths. The SC2001 Xnet expanded the impact of 10 Gigabit Ethernet using equipment from several vendors and using 10 Gigabit Ethernet in several Bandwidth Challenge Applications. In Baltimore at SC2002, with 10-Gigabit Ethernet a commodity and the telecom industry focusing on survival, Xnet took a sabbatical. In 2003, Xnet returned with a focus on adaptive switching technologies. In 2004, Xnet will focus on GMPLS protocol demonstrations and the next step in the SONET hierarchy, OC-768. There will also be a panel discussion entitled “Beyond 10 Gigabit Ethernet” held in conjunction with Xnet.

SCinet and Xnet are actively seeking OEMs and Exhibitor partners who are positioned to display their research networking technologies and applications in Phoenix this November. Candidate technologies being sought for SC2004 include synchronous interface technologies, all optical switching, GMPLS protocol implementations, and OC-768.

For those OEMs and Exhibitors with technologies that are candidates for Xnet participation, we will work with you to integrate your network research applications so that you can demonstrate your technology and gather test data. Interested parties should contact SCinet representatives at xnet@scinet.supercomp.org.