Memorandum of Understanding Between Brookhaven National Laboratory and the SNEWS Collaboration

October 20, 2003

1 Preamble

This memorandum describes an understanding between Brookhaven National Laboratory (BNL) and the SNEWS collaboration (SNEWS) for the hosting of a SNEWS coincidence server at BNL. In this document, "BNL" refers to Brookhaven National Laboratory Physics Division, with support from the Information Technology Division. The SNEWS collaboration structure is outlined in the Inter-Experiment Memorandum, which can be found on the SNEWS Working Group page, `http://cyclo.mit.edu/snnet/`. In particular, the "SNEWS subgroup" comprises a subset of representatives from each experiment with access to the data and running processes.

SNEWS, the SuperNova Early Warning System, is a real-time inter-experiment system with the purpose of informing astronomers of the occurrence of a Galactic core-collapse supernova if a coincidence of neutrino signals in multiple detectors is observed. The SNEWS system is described in detail elsewhere.

Computer security is very important to SNEWS, given that a fake alert would be very damaging to astronomers, who would waste valuable time trying to locate a false event, and as well as to SNEWS credibility and potential future response. It is essential to have the alert messages sent to and from a highly secure and well-maintained server.

In this document, the "coincidence server" or "server" refers to a computer which receives datagrams from SNEWS member experiments and sends out alert messages to interested parties. The "backup server" refers to a computer which will be ready to act as server if the primary server fails, and which may also take over during planned downtime of the primary server.

This memorandum will be updated as necessary and will constitute the main policy basis for managing the server.

2 Technical Requirements and Security Specifications

- The coincidence server has very modest CPU and bandwidth requirements: any Pentium processor and a simple 10 Mbs network connection will suffice.

- The server must run an up-to-date, well-supported version of Linux. At BNL this will be Debian.
- The server is to remain behind the BNL firewall. The only allowed external access is via the SNEWS clients and SSH via the BNL SSH gateway. All other external connections should be rejected via tcp_wrappers. Additional private connections between the server and backup are allowed.
- A single user account will be enabled, in which the coincidence server process will run. Only members of the SNEWS subgroup are authorized to use this account. Strict password management must be enforced.
- Only ports 13001 and 13002 should be enabled, for SNEWS datagrams, plus others necessary for the services listed below.
- No network services other than sshd, ntpd, and the SNEWS coincidence code should be run on the server. The server machine should be dedicated to the SNEWS coincidence server and not share resources with other jobs.
- The server will need to send automated email to SNEWS shift workers as well as the supernova alarm distribution list (in event of a supernova!). It will need an outgoing SMTP connection or a local SMTP relay.
- The server will need access to BNL's local ntp and DNS servers, but will not need external access to such ports.
- Other security needs not enumerated here are encouraged to be applied as BNL's expertise suggests.

3 BNL Responsibilities

BNL agrees to take on the following responsibilities.

1. The BNL Physics Department will supply a BNL SNEWS system administrator (initially this will be Brett Viren).
2. A physically secure location for the primary and backup coincidence server will be provided, with access to BNL personnel only allowed. This will be "Lab A" in the BNL Computing Facility. The Information Technology Division will provide space and UPS.
3. The backup server will be maintained in parallel to the primary server by the BNL SNEWS sysadmin.
4. For initial setup, the primary and backup server computers will have their hard drives erased and a new Linux operating system installed from scratch. This will be done by the BNL SNEWS sysadmin.

5. The server machine must be kept running and current with all security patches appropriate to the OS. This will be the responsibility of the BNL SNEWS sysadmin.

6. Security scans will be performed on a quarterly bases as part of the normal BNL security measures.

4 SNEWS Responsibilities

The SNEWS collaboration will take on the following responsibilities:

1. The SNEWS collaboration will provide suitable primary and backup server hardware (Pentium class PCs).

2. The latest release of the coincidence server software from the SNEWS collaboration will be installed on primary and backup servers after initial OS install and security scan.

3. SNEWS coincidence software will be updated on primary and backup servers when new releases become available.

4. The SNEWS collaboration will also ensure that the backup server's data files are in synch with the primary server's, to ensure that failover procedure is seamless.

5 Personnel

BNL agrees to ensure that there will be a BNL SNEWS contact person responsible for the server for the duration of the validity of this MOU. This person is currently Brett Viren, who will also be a member of the SNEWS collaboration subgroup.

6 Reporting

BNL agrees to provide a full security report at yearly intervals. This report will contain logs of all security scans and documentation of any fixes, upgrade and security patch documentation, as well as an uptime report.

7 Schedule and Validity

The initial setup and security report will be provided by December 1, 2003. This memorandum will remain valid until December 1, 2008, with renewal to be negotiated one year before expiration. Updates will be made as necessary.

8 Approval

SNEWS Advisory Board Members

Director of Information Technology Division, BNL

Chairman of Physics Department, BNL