Memorandum of Understanding Between INFN Sezione di Bologna and the SNEWS Collaboration

January 1, 2007

1 Preamble

This memorandum describes an understanding between INFNBO and the SNEWS collaboration (SNEWS) for the hosting of a SNEWS coincidence server at INFNBO. In this document, "INFNBO" refers to INFN Sezione di Bologna. The SNEWS collaboration structure is outlined in the Inter-Experiment Memorandum, which can be found on the SNEWS Working Group page, `http://snews.bnl.gov/wg`. 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 bogus 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 term "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. Currently there is a SNEWS primary and backup server at Brookhaven National Laboratory (BNL). We intend for INFNBO to provide a second backup server to take over the role of the primary server if the network connection to BNL fails.

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

2 Technical Requirements and Security Specifications

These requirements apply to either primary or backup servers.

- 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.
- The server is to remain behind the INFNBO firewall. Access will be allowed only via SSH from a gateway machine inside INFNBO LAN. All other connections should be rejected via tcp_wrappers.
- 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 INFNBO'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 local expertise suggests.

3 INFNBO Responsibilities

INFNBO agrees to take on the following responsibilities.

1. The INFNBO Physics Department will supply a INFNBO SNEWS system administrator. Initially this will be Andrea Paolucci.
2. A physically secure location for the INFNBO backup coincidence server will be provided, with access to INFNBO personnel only allowed. INFNBO will provide space and UPS.
3. The backup server will be maintained in parallel to the primary server by the INFNBO SNEWS sysadmin.
4. For initial setup, the backup server computer will have its hard drives erased and a new Linux operating system installed from scratch. This will be done by the INFNBO 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 INFNBO SNEWS sysadmin.

6. The server at INFNBO will normally accept connections, but if the BNL primary or backup server is running (*i.e.* if the network connection to BNL is up), the Bologna server will not send any output alerts. (Note that this is distinct from the BNL backup, which is kept running but which does not accept connections unless it becomes the new server.) However when necessary, output alert emails will be enabled at INFNBO.

7. Security scans will be performed on a quarterly basis as part of the normal INFNBO security measures.

8. The backup server will not have a visible DNS entry.

9. INFNBO will provide individual accounts to SNEWS working group members on its gateway machine.

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. SNEWS working groups members will be granted access to INFNBO LAN through its gateway machine. They will subscribe and follow INFN BO Internal Rules for the access to IT resources. In particular they will follow registration procedures requested under 2005 Anti-Terrorism Act by Italian Law.

5 Personnel

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

6 Reporting

INFNBO 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 February 1, 2007. This memorandum will remain valid until October 1, 2011, with renewal to be negotiated one year before expiration. Updates will be made as necessary.

8 Approval

SNEWS Advisory Board Members

Paolo Mazzanti
Director, Computing Centre INFN-BO