Report – I: Setup of Cluster.

Start Date: 28-7-03
Cluster Ready on: 01-8-03

System's specification:

Hardware:
1. 10 identical machines having P4 2.0 GHz processor
2. Node 6 = Head Node of Cluster.
3. Other Nodes (i.e. except 6th node) are compute nodes.

Software:
1. OS : Red Hat 7.2 Linux (Enigma)
2. Cluster Software: OSCAR (http://oscar.sourceforge.net/)

Date-wise Details:

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1. Red Hat 7.2 installed on Node 6. But, the graphics card was not detected.
2. Installed RH 7.3 on node 3 with full X-support
   (primarily for Internet, so that bugs can be trouble-shooted)

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1. Tried to start X-Server on node 6 using tool - XConfigurator. But no drivers worked.
2. Tried installing RH 9.0 (experimentation) on node 9 and 10.But installation failed with following error message: "Select *Ch_tree failed. Install exited abnormally.*"
3. Downloaded updated XFree86 (4.1.2) for Red Hat 7.2.

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1. RH 7.2 – Xfree86 was updated.
   Updated XFree86 (4.1.2.) has support for VESA drivers.
   Hence X was then supported by RH 7.2. Thus node 6 (RH
   7.2) was fully functional with graphics mode as well.
2. OSCAR `s RPM was downloaded form
   http://oscar.sourceforge.net/.
3. OSCAR 2.2.1 was installed on node 6.
4. Using OSCAR , RH 7.2 was installed on every other node
5. Only head node has X-window .Others are pure console.

Nomenclature:

Head Node (node 6):
Name - cluster.theory.tifr.res.in
eth1 - for internal network - 192.168.10.1
eth0 - for external network - 158.144.51.59

On other(compute) nodes only eth0 is configured.

No.	Node No.	Name	Address (eth0)
1	1	oscarnode1.theory.tifr.res.in	192.168.10.2
2	2	oscarnode2.theory.tifr.res.in	192.168.10.3
3	3	oscarnode3.theory.tifr.res.in	192.168.10.4
4	4	oscarnode4.theory.tifr.res.in	192.168.10.5
5	5	oscarnode5.theory.tifr.res.in	192.168.10.6
6	7	oscarnode7.theory.tifr.res.in	192.168.10.7
7	8	oscarnode8.theory.tifr.res.in	192.168.10.8
8	9	oscarnode9.theory.tifr.res.in	192.168.10.9
9	10	oscarnode10.theory.tifr.res.in	192.168.10.10

<u>**01/8/03**</u>

<u>Testing Phase of Clusters.</u>

Two Test that were run:

I) <u>Complete Cluster Setup:</u>
        This test ran successfully without any errors.

II) <u>Test Cluster Setup:</u>

- All "root" tests were successful.

- "user" test :

    o All <u>SSH</u> test were successful.
    o PBS shell test – passed.
    o PVM (via PBS) – passed.
    o PBS HDF5 test :
        - This test was initially failing because of "30" secs time-out .The test was taking more than default time. So to increase the default time, the script /root/oscar2.2.1/testing/pbs_test.
          The time-out was increased to 1200 secs.
        - The problem of time – out might have arisen due to NFS or / and SSH (guessing!) i.e. while communication between the client nodes and head node.
        - Test was then successful.
    o MPICH (via PBS) – passed.
    o LAM / MPI (via PBS) – passed.

Thus, all the tests were successful passed and the cluster was setup successfully.