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ITC Linux Cluster Node Purchase Information and Request to Participate

Note: Deadline is December 22, 2004

Information Technology and Communication (ITC) is planning the purchase of a 32- to 48-node Linux cluster in late 2004. Researchers considering their own purchase of a Linux cluster are invited to consider the purchase of nodes on the ITC Linux cluster instead. The nodes would be housed and maintained by ITC for a three-year period. Success and viability will be evaluated after one year with the hope that ensuing results will warrant a yearly invitation to join ITC in purchasing Linux cluster nodes. Some of the benefits would include:

- Free system administration
- Timely security updates
- 24 hour a day monitoring in ITC's machine room
- Ability to use more nodes than purchased during periods of non-peak demand.

Program Details

Cluster and node details

- Minimum order is four nodes - you are encourage to buy at least eight nodes. We expect the nodes will cost approximately \$2,500 each.
- Node CPU: at least 1.8 GHz dual AMD Opteron CPUs with 2 GB of memory and 1MB L2 cache. A 1.8 GHz Opteron is at least 10% faster than 3.06 GHz Xeon. Compare the [Opteron specifications](#) versus the [Xeon specs](#) on the www.spec.org Web site. NOTE: [E-Week.com](http://www.eweek.com) reported in October 2002 (<http://www.eweek.com/article2/0,1759,636049,00.asp>) that "an Opteron running at 2GHz with PC2700 DDR SDRAM achieved an unofficial score of 1,202 on SPECint, well above the 957 posted for Intel's 2.8GHz Xeon and 810 reported for its 1GHz Itanium 2. Both tests were run on 32-bit applications, since 64-bit applications for Opteron are not available (at test time)."
- Purchase includes a three year warranty on each node.
- Interconnect will be Gigabit Ethernet (not Myrinet).
- Initial Operating System (OS) will be for 32-bit operation and applications.
- Will be operated as a production cluster, installed in the ITC data center in Carruthers Hall, which includes uninterruptable power supply (UPS) and backup generator power and a 24-hour per day operation.
- Individual nodes will be part of the whole cluster. Guarantee of priority access to at least 80% of the cycles of your nodes. Note: Priority access means that your jobs will go to the front of the job queue when submitted. PBSPro scheduler will be used in a non-preemptive mode which means that if all the nodes are in use when your job is submitted, you will have to wait for jobs to complete before yours starts.
- ITC uses [NPACI Rocks](#) cluster administration suite, which includes the PBSPro batch

queuing and job submission software. This is what is used currently on ITC's [two Linux Clusters, Aspen](#) and [Birch](#).

- On-demand access through the PBSPro scheduler to all the nodes.
- One-time cost for the initial purchase of your nodes covering the three-year life of the cluster - no annual or recurring charges.

ITC Provides:

- Electrical power, (including uninterruptible power supply), machine room space, and cooling.
- Network capacity
- System software, clustering software, system administration, setup, configuration, and the usual research applications (e.g., Matlab, Fortran 90).
- A pool of local spare parts to ensure that you always have access to the nodes you fund.
- Local, **temporary** storage for use during computational runs. (Note: You are NOT purchasing any long-term storage space as part of your nodes.)
- A minimal amount of system administration time to install a user-purchased application on the cluster. Complex or problem installations will be done on a for-fee basis. Researchers are strongly encouraged to talk to Research Computing Support staff (email res-consult@virginia.edu or call 243-8800) before making a software purchase.
- The procurement (purchase) of the cluster and nodes, including compliance with SWAM and eVA guidelines as well as receipt of cluster, unpacking, and setup. Nodes purchased with ETF funds will have included appropriate as well as free storage after the three-year life cycle. ITC can arrange the inventory management to ensure departments will not lose their ETF allocations by participating in this project..

Important Details

- The per-node cost includes the cost of the computer node, its three year maintenance contract, and pro-rated partial cost of the network switch and chassis, KVM and equipment rack. It does NOT include any charge for the cluster's head node, local temporary storage, the HVAC, electricity use (uninterruptible power supply), machine room space, and system administration -- ITC is providing all these as its contribution. (Note: node cost is only the incremental cost of adding nodes to this cluster. It is **not** the fully loaded cost share of the full cluster purchase and operation.)
- You are free to pull out at any time during the three year cycle. You will receive your compute nodes only. We cannot return the pro-rated share of the cluster's common equipment.
- At the end of the three year life cycle of the cluster, you may opt to take your nodes or if you prefer, we will surplus them for you. If your nodes were purchased with ETF funds, we will store those nodes for free.
- Longer-term storage will need to be provided by the researcher (departmental storage, lease of disk wedges from ITC, etc.). ITC can help you determine the best way to provide additional storage if you need more disk storage as part of this purchase.
- **Deadline for request to participate in this purchase is Wednesday, December 22, 2004.**
- ITC will have the cluster ready for production runs no later than March 30, 2005, assuming there are no shipping delays after the order is placed in January, 2005.
- When you place your order for cluster nodes, you agree to the these terms and conditions.

As a [basis for comparison](#), we've provided a separate table comparing the cost of purchasing, setting up and administering your own cluster. This [web page is one estimate of the costs](#), individual pricing may vary depending upon multiple factors that cannot all be detailed and compared here.

Researchers are encouraged to contact Tim Tolson (tft8g@virginia.edu), the manager of ITC's Research Computing Support Group to discuss their individual needs and obtain a customized cost analysis.

**Please Complete the fields below and
Click on the "Submit Request" button**

This is an electronic form with detailed information and at the bottom a request form to be contacted about the ITC pilot program where you can join ITC in purchasing nodes for a Linux Cluster. After you completely fill in the requested fields below, click on the "Send Request" button. Problems or questions about the form, please contact Tim Tolson (tft8g@virginia.edu or 243-8800), the manager of ITC's Research Computing Support Group.

Full Name

UVa Computing ID (e.g mst3k, not an alias)

Telephone number

Department

Additional Information (specific software needed or any special needs?):

to submit your application. to clear the form and start over.

Problems submitting the form- email Tim Tolson or phone him at 243-8800.

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