
Subject: Re: Mac Clusters & IDL

Posted by [Marshall Perrin](#) on Sat, 12 May 2007 17:36:11 GMT

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Trae <traewinter@gmail.com> wrote:

- > I do a lot of numerical simulation and image rendering in IDL. This
- > is amazingly CPU intensive and I've been using the new parallel
- > processing capabilities of IDL with good success. (It might not be
- > the most efficient, but man is it easy!)

One question you will need to think about is whether the various parallel nodes in your cluster need to talk back and forth a lot, or whether they can each mostly compute independently, passing only a relatively small amount of data between nodes. This will influence the sort of computing topology that works best for your problem. I suspect that for your case - image rendering - you may often be in the case where each node is working entirely independently to render a different frame or scene (often called "Embarassingly parallel" computing.)

- > I was wondering if anyone on this list has used IDL on a Mac cluster?
- > Specifically, a Pooch cluster?

I have never heard of Pooch before. Apple provides its own clustering technology, Xgrid, which can be used to set up clusters, geared mostly towards the case where each node can work independently. We have an smallish Xgrid cluster (five dual-CPU machines) used for a variety of projects, in my case for running a Monte Carlo radiative transfer code. I used the Xgrid system to distribute jobs to the various nodes, and that works fine, but the nodes don't communicate at all to each other while running the job. More complicated approaches are possible, but just aren't necessary for my particular problem.

- > There are some good threads on other
- > forms of clusters. Mac clusters seem easy to make but expensive.
- > Linux clusters seem to be cheaper hardware wise but harder to keep
- > running.

My personal opinion is that most of the cost savings of Linux compared to Mac are an illusion. Don't look at hardware costs only. Speaking as a former grad student myself, you've got better things to do with your time than administer some cluster (like write papers!). I haven't tried to set up any Linux clusters myself, but from what I've heard from those who have, the learning curve is still pretty steep - and there are many different approaches and software options to sort through along the way.

First off you need to figure out what sort of cluster network topology suits your particular computing needs. Then, if possible, you need to talk your advisor into hiring someone, even just temporarily as a consultant for a few days, who knows what they're doing and can guide you through the setup process. We tried to go the grad-student-sysadmin route for a while, and it was sort of OK, but once we hired a part-time actual sysadmin, things became *much* smoother and more reliable. And the grad student in question suddenly had more time to actually do research! Funny that.

- > Mac cluster? How well does the native IDL multi-threading work on a
- > Mac cluster? Has anyone used IDL_IDLBridge on such a cluster?

Multithreading won't work across different machines in a cluster - all the threads have to run on the same computer. I haven't tried the IDL_IDL bridge so I can't comment on that.

- Marshall
