

Thoughts from a Business School

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Maximize the Use of Existing Resources



- Bentley's 1st Cluster was the decommissioned virtual server hardware.
- This is a practical start. These things are usually on a 5-year cycle.
- At the end of the 5 years, they usually get tossed into recycling.
- We upgraded the networking (1GB to 10GB Ethernet) and storage (76GB to 146GB drives).
- Problem: Security concerns (old hardware...) forced a purchase of new hardware after three years.
- So this is an easy start, but make the most of it!

Look for Donations & Funding



- Join CarCC, Campus Champions, ACI-REF, regional efforts (New England = NEREN, UMass HPC days, etc.), vendor efforts, etc.
- Talk to your Corporate and Foundation Relations folks to see if any grant or donor opportunities are out there.
- Look for Internal Grants too.
- Network with all those folks.
- You are looking for Free Hardware (it's out there), Grants, and Donations.
- Also consider a condo-model (researchers pay for) compute and/or storage.

Sizing A New System



- Canvas your researchers to find out dataset sizes and algorithms. This information will tell you...
- Networking: Big datasets (GBs) need fast networking (10-100GB Ethernet). If the algorithms need to run on many servers at once, you need low latency networking (Infiniband). Both? Infiniband.
- Storage: Total up the dataset sizes, add 20% for analysis data of it. Buy something that'll let you add over time and budget for it.
- Compute: Some researchers use 90% of the resources. Most don't. Your cost of storage and networking will basically be the same as compute. Aim for a homogenous environment by resource (CPU, GPU, etc.).

Use CPQ to Your Advantage



- CPQ stands for Configure, Price, Quote. In 2018 Gartner estimated the CPQ industry at \$1.2 Billion.
- The idea is to configure a complex system (like a supercomputer), give a price, and generate a quote.
- It's setup for quantity. You can do a hundred of these. Vendors understand. So shop around!
- Consider going to SC's vendor space just to collect vendor names.
- Don't forget about Sustainability!

Save When Purchasing New Hardware

- About those configurations: Pay attention to the:
 - Service Contracts
 - Bezels, Rails, and Cable Management Arms
 - Number of Power Supplies (redundant or necessary?) and Cables
 - Bundling of Networking Gear (shop around)
- You can save money on these if you have the people or are willing to put up with the headaches.

Feel Free to Email Me!

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