What is Benchmarking?

- **Benchmark** /ˈbentʃmaːk/ *n. & v.*
  - **n.**
    - 1 a surveyor’s mark cut in a wall, pillar, building, etc., used as a reference point in measuring altitudes.
    - 2 a standard or point of reference.
  - **b** problem designed to evaluate the performance of a computer system.
  - **v.tr.** evaluate or check by comparison with a benchmark.

Benchmarking (1/2)

- **Software Performance Analysis (Software Benchmarking):** understanding a single software system
- **Software Performance Engineering:** understanding and improving software while it is developed
- **Hardware Benchmarking:** understanding and analyzing hardware
Benchmarking (2/2)

- **Benchmark Suite**: a workload (set of tasks) used the measure the performance of a program or system
- **System Monitor (Program Monitor, Monitor)**: A program that observes the performance of another system or program
SoXware Monitor: Ganglia

Overview of test ems ganglia @ 2015-09-14 19:21

CPU Load Distribution

Stacked Graph - load_one
Advantages and Limitations

• **Cluster-Agnostic, General Purpose:** Can observe performance of any software program

• **Cluster Monitor:** Monitors all activity on a hardware cluster, not just a single software program

• **Data Resolution:** Discards older samples to a lower resolution
Questions for Thought (1/2)

- What traits are desired in a software monitor?
- What performance metrics are important to obtain?
- What are good benchmark suites for data science? What makes a benchmark suite good?
Questions for Thought (2/2)

- What system architectural paradigms might influence performance? What practices might be used to mitigate the influence on performance?
- What aspects of hardware, software, or system architecture might influence benchmarking performance? What practices might be used to control or characterize their influence on performance?