Facilities and Other Resources

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# Harvard Medical School

## Overview

O2 is a platform for Linux-based high-performance computing at Harvard Medical School that is readily available to BCH employees. The name is derived from being the next generation of the HMS "Orchestra" cluster, hence "O"2. O2 is managed by the Research Computing Group, part of HMS IT. O2 is an HPC cluster built on Linux and the SLURM open source job scheduler.

## Detail

O2 currently includes 371 computing nodes for a total of 11356 cores and ~98TB of memory:

* 232 nodes, each node hostname is composed by the prefix compute-a-16- or compute-a-17- and the node number, for example compute-a-16-28, compute-a-16-29, …​, compute-a-16-171. Each node has 32 physical compute cores, 256GB of memory and is connected to the network with a 10Gb ethernet card and in addition with a 40Gb Infiniband card.
* 69 nodes, each node hostname is composed by the prefix compute-e-16- and the node number. Each node has 28 physical compute cores, 256GB of memory and is connected to the network with a 10Gb ethernet card.
* 17 nodes, each node hostname is composed by the prefix compute-f-16- and the node number. Each node has 20 physical compute cores, 188GB of memory and is connected to the network with a 10Gb ethernet card.
* 11 heterogenous high memory nodes, each node hostname is composed by the prefix compute-h-16- and the node number; 7 nodes have 750GB of memory, 1 node 300GB and the other node 1TB.
* 6 GPU compute nodes, each node hostname is composed by the prefix compute-g-16- and the node number. Two nodes have 4 Tesla V100 each, two nodes have 8 Tesla K-80 each and two nodes have 4 Tesla M-40 for a total of 32 GPU units.
* 3 transfer nodes, each node hostname is composed by the prefix compute-t-16- and the node number. Each node is a VM with 4 cores and 6GB of memory, those nodes are intended for data transfer to/from the /files filesystem.
* 31 contributed nodes, for a total of 1160 cores and ~10TB of memory.