

snow
Rmpi
pbdMPI



Focus on who owns what data and what communication is needed

Sockets
MPI
Hadoop

RHIVE

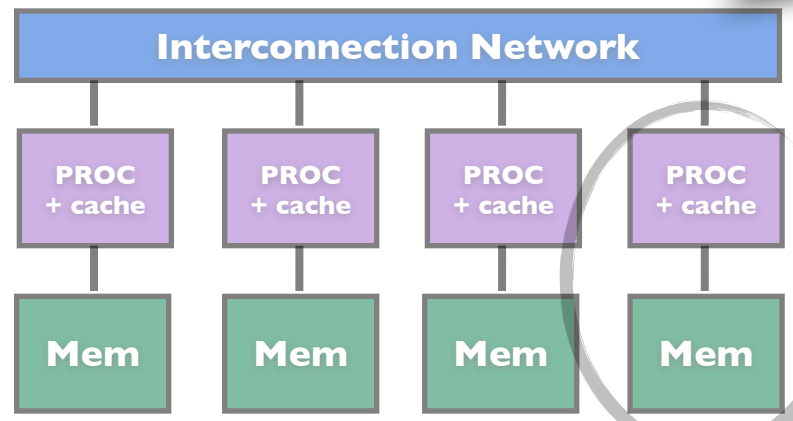
LAPACK
BLAS

ScaLAPACK
PBLAS
BLACS

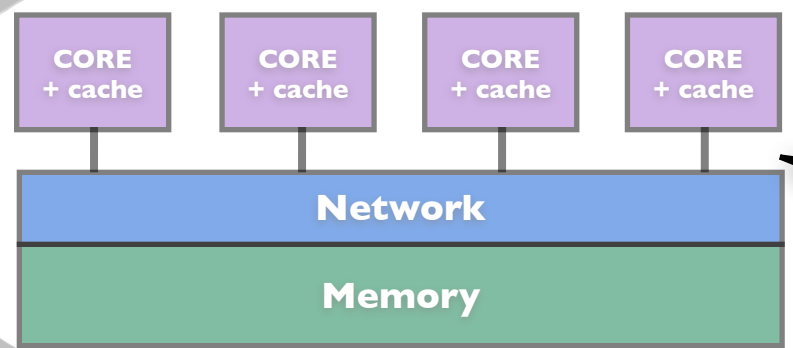
PETSc

Trilinos

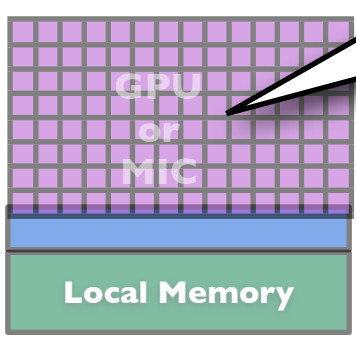
Distributed Memory



Shared Memory



Co-Processor



GPU: Graphical Processing Unit
MIC: Many Integrated Cores

Same Task on Blocks of data

.C
.Call
Rcpp
OpenCL
inline

CUDA
OpenCL
OpenACC

OpenMP
OpenACC

OpenMP
Threads
fork

multicore
(fork)

CUBLAS

MAGMA

MKL
ACML
LibSci

DPLASMA

PLASMA

Focus on which tasks can be parallel

snow + multicore = parallel