

Running MATLAB at SHARCNET

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Agenda

- Site licenses (Western, UW, McMaster)
- Options for non-site license users
- MATLAB Parallel Computing Toolbox
- Demos
- Questions

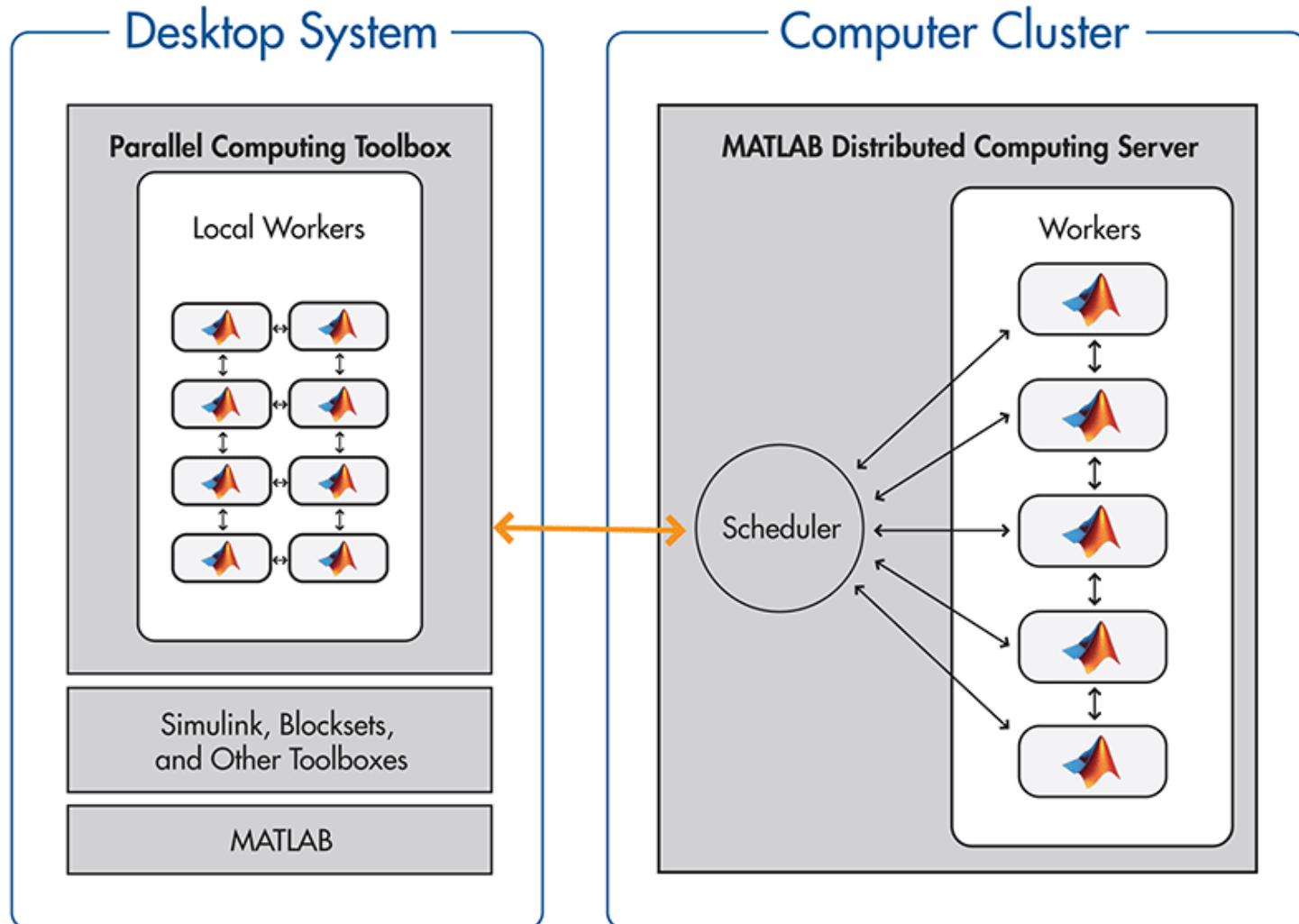
Site licenses

- UW, Western, McMaster: license is managed on a campus license server, e.g., by IST at UW.
- License number is limited
 - UW: 300 basic MATLAB license campus wide,
limit to 50 on SHARCNET systems
fewer licenses for many toolboxes
- username match: your SHARCNET username should be the same as your institution username
- Run MATLAB on the site specific SHARCNET systems
 - UW: orca, hound (R2012b, R2014a)
 - Western: goblin, kraken (R2012a)
 - McMaster: wobbie, cat, iqaluk (R2012b), requin (R2009a)

Options for non-site license users

- **MATLAB Compiler Runtime (MCR)**
your license have MATLAB compiler, mcc
compile your MATLAB codes on a **Linux** system
run the compiled code on SHARCNET systems
- **MATLAB PCT**
you have a client PCT license
parallel your code makes a big difference
you can modify your code to make use of PCT
- **Using Octave**

MATLAB PCT Architecture (client-server)



Key Function List

- **Job Creation**

`createJob` Create job object in scheduler and client

`createTask` Create new task in job

`dfeval` Evaluate function using cluster

- **Interlab Communication Within a Parallel Job**

`labBarrier` Block execution until all labs reach this call

`labBroadcast` Send data to all labs or receive data sent to all labs

`labindex` Index of this lab

`labReceive` Receive data from another lab

`labSend` Send data to another lab

`numlabs` Total number of labs operating in parallel on current job

- **Job Management**

`cancel` Cancel job or task

`destroy` Remove job or task object from parent and memory

`getAllOutputArguments` Output arguments from evaluation of all tasks in job object

`submit` Queue job in scheduler

`wait` Wait for job to finish or change states

Configure MATLAB and PCT on PC

- **Cluster server side**
 - setup MATLAB distributed computing server engine
 - setup 'matlab' queue
 - command/script for job submission
- **Client side configuration**
 - clusterInfo.m (set up cpu, memory, PATH etc., copy and modify)
 - runscript.m (copy and modify)
 - your own .m files
 - create local data directory, e.g., 'C:\temp' on a Windows PC
 - * create data directory on SHARCNET cluster side (scratch/userid/matlab)

Install and configure instruction in the online document
<https://www.sharcnet.ca/help/index.php/MATLAB>