

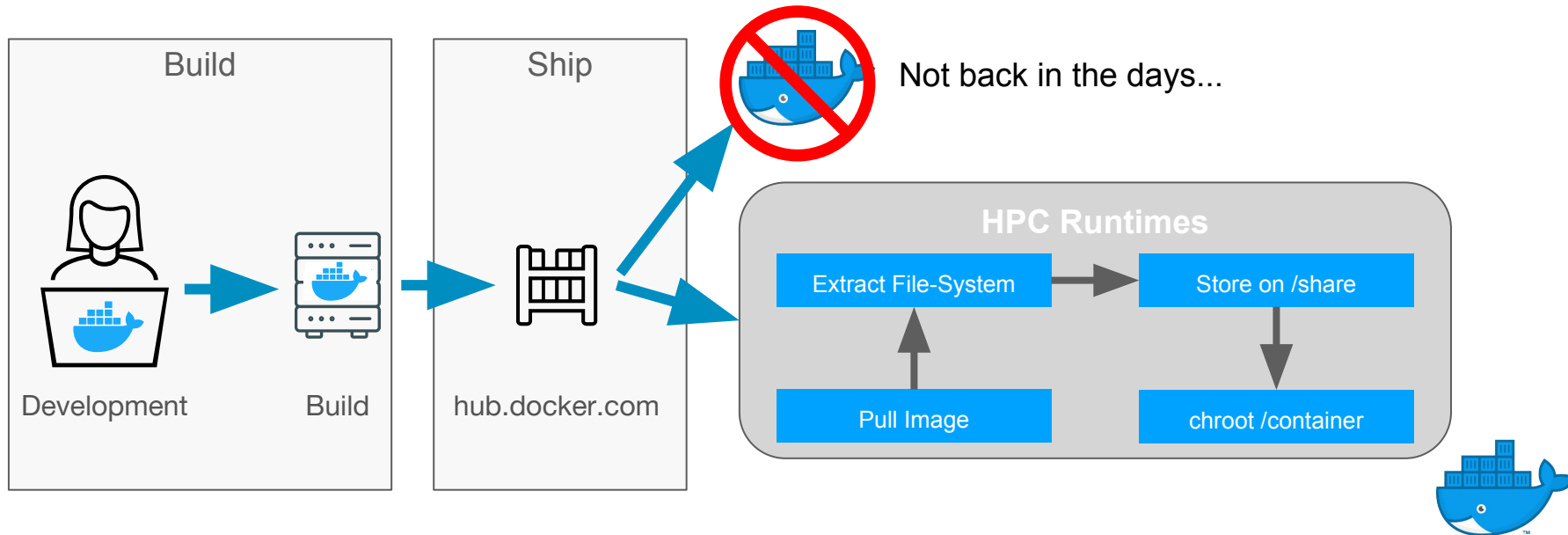
High Performance Container Workshop

HPC Use-Cases, Challenges and current Solutions



Current Solutions

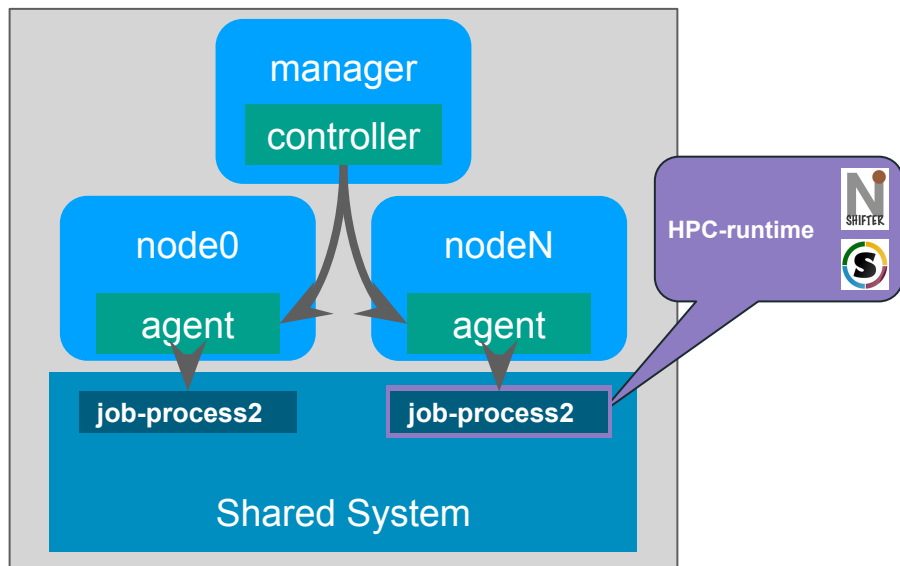
Lack of HPC focus gave birth to HPC workarounds.



Current Solutions [cont]

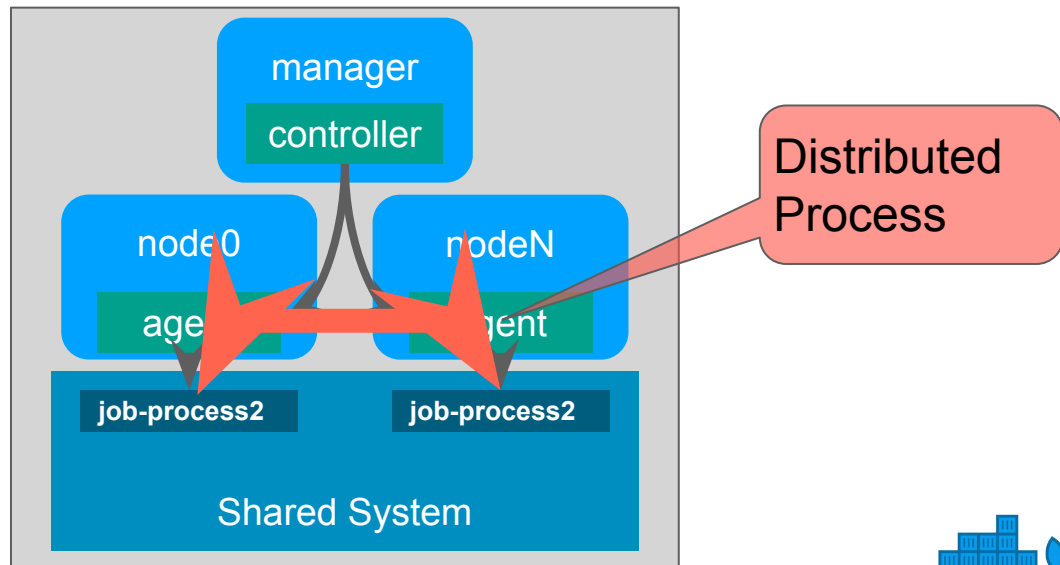
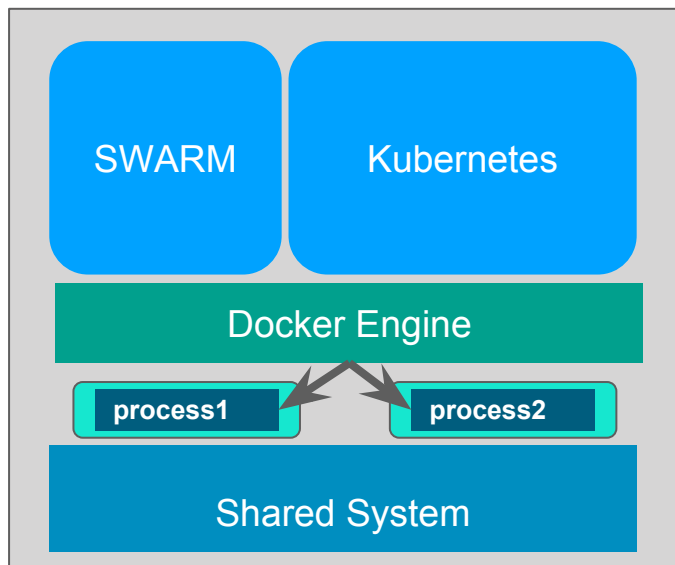
HPC-specific workaround

- + Drop-in replacement as it wraps the job
- Not OCI compliance
- No integration with upstream container ecosystem
- hard to combine with new workloads



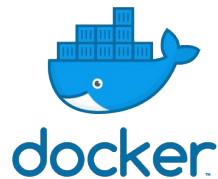
Service vs Batch Scheduling

Traditionally container workloads are scheduled in a descriptive manner, as tasks (pods) on worker nodes. HPC schedules a workloads as a batch job on multiple nodes.

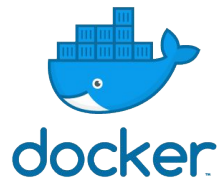


HPC Workload Scheduler

DEMO!

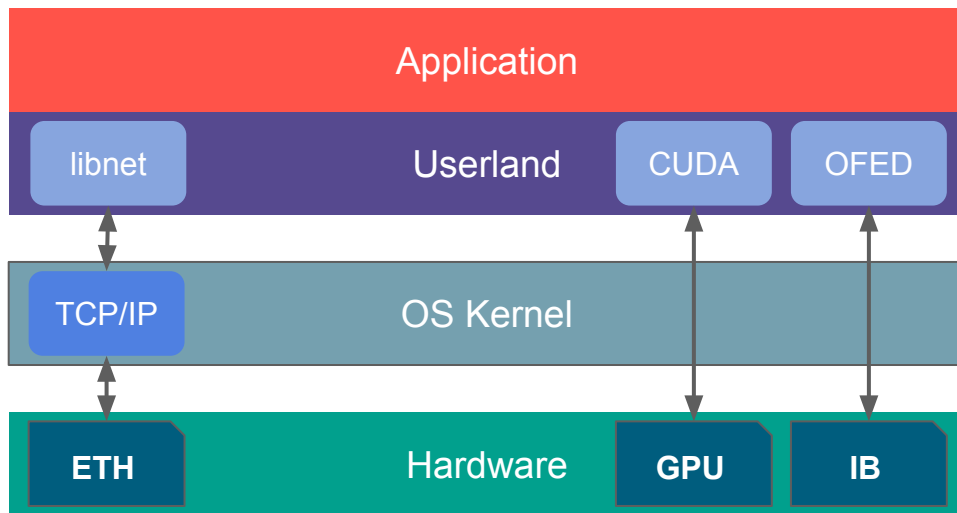


HPC Challenges



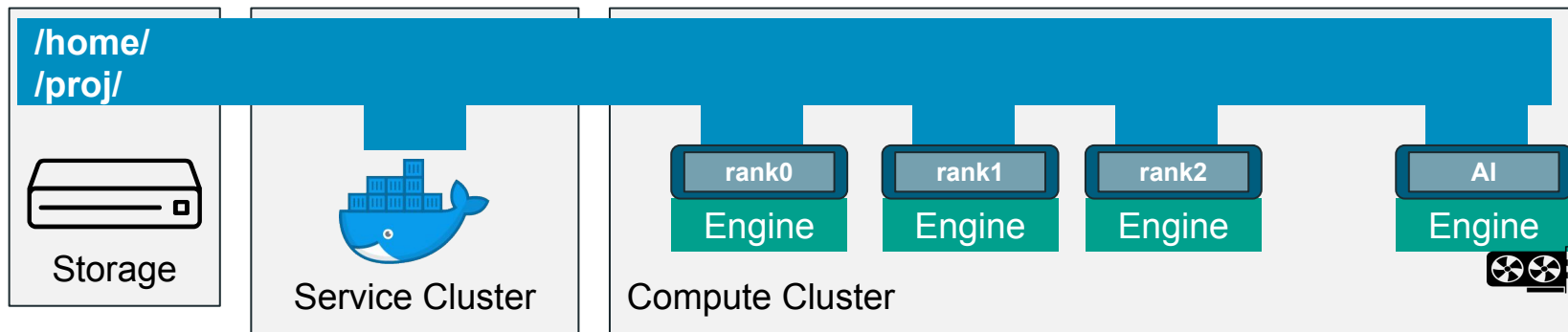
Kernel-bypassing Devices

To achieve the highest performance possible the kernel got squeezed out of the equation for performance-critical parts.



Scientific Environments

Scientific end-users expect the environment to be set up for them, without prior knowledge about the specifics of the cluster.





THANK YOU :)

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