Uni.lu HPC usage, frederic.pinel@uni.lu

- Application
- Cluster usage (2)
- Conclusion

Context, application, objective

- Data parallel
  - loosely coupled
- Parameter sweep:
  - Statistical machine learning (*SVM*)
  - Evolutionary algorithms
- Objective: background process

High level cluster usage

- Simplest possible
- “Works on my machine”™
- `Oarsub -I`
  - Compilation, etc.
- `Oarsub`

Low level cluster usage

- Kernels, C
- Scripts, *bash – awk - python*
- *TAOUP* E. Raymond, *Unix* R. Pike
- Kernel does one thing, stateless
- *Bash* hierarchy configures:
  - the kernel environment (paths, unique naming, check-pointing)
  - The kernel runtime, *Gnu Parallel* (max CPU performance)
- Shell launch:

```
oarsub -n "$((4 * $t))_$((4 * $t +3))-4K-hilo" -l
nodes=1/core=4,walltime=72:00:00 "./run-train-
128x16.sh $(( 4 * $t ))"
```

Conclusions

Cluster is a unix machine