Master Thesis – Modelling Linux CFS Parameters in K8s Resource Model

Background
The Linux CFS thread scheduler is a very advanced scheduler that allows for fine grained resource sharing between Linux threads. In K8s deployments most of these capabilities are not exposed in the K8s resource model, leading to difficulties in efficiently sharing resources for deployed applications.

Thesis Description
Explore models for these resources in K8s and evaluate the performance. Include support for heterogenous compute (Big/Little cores).

The following steps are envisioned as part of the thesis work:

- Investigate and compare current research covering resource constrained environments (less than ten servers)
- Apply research to this specific problem
- Implement a resource model to improve resource utilization with latency guarantees.
- Analyze results of the tests and evaluate latency
- Stretch: upstream to K8

The thesis will be concluded with a result presentation for the Ericsson team.

Qualifications
This project aims at students in electrical engineering, computer science, computer engineering or similar. Background in wireless communication is preferred.

Extent
1-2 students, 30hp each

Location
Ericsson AB Mjärdevi, Linköping

Preferred Starting Date
Spring 2022

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