Also an issue at Petascale

Fault tolerance becomes critical at Petascale (MTTI <= 1day)
Poor fault tolerance design may lead to huge overhead

Overhead of checkpoint/restart

Cost of non optimal checkpoint intervals:

Today, 20% or more of the computing capacity in a large high-performance computing system is wasted due to failures and recoveries.
Dr. E.N. (Mootaz) Elnozahy et al. *System Resilience at Extreme Scale, DARPA*

30min ckpt

1min ckpt

5min ckpt

1440
300
60
1

Checkpoint Interval (min)

1 d