



# Linux Thermal Critical Trip handling

Linux Plumbers 2020

# Problems with Critical trip

- One temperature spike will cause power down
- Boot time power-down: Too late to act from user space
  - Some OS and vendors boot in max performance
- Trips configured via ACPI
  - May not be optimal for Linux
- This critical trip design was primarily focused on CPU
  - Newer CPUs have in built mechanism to using TCC offset before halt
  - Other sensor like skin, single violation is not a problem

# Experiments

- Critical trip uses runtime average for before power down
  - Similar to what is done for x86 mce/therm\_throt.c for notification
  - Three point run time average (sample/second) in delayed workqueue
  - If trend is upwards from last 3 samples issue power down
  - If sample temperature drops below critical temp, cancel workqueue
  - Conditional during thermal zone register