

# CFS – Completely Fair Scheduler

- Ready Queue – red black tree  
lowest key proc. goes first  
1 queue/processor (core/hw thread)
- vruntime  
virtual runtime – runtime weighted by priority
- Sched\_latency – amount of time to split between ready proc. (target)  
48 msec
- Min\_granularity  
6 msec

# CFS - Calculations

$$\text{time\_slice}_k = \frac{\text{weight}_k}{\sum_{i=0}^{n-1} \text{weight}_i} \cdot \text{sched\_latency} \quad (9.1)$$

$$\text{vruntime}_i = \text{vruntime}_i + \frac{\text{weight}_0}{\text{weight}_i} \cdot \text{runtime}_i \quad (9.2)$$

high  
nice

```
static const int prio_to_weight[40] = {  
    /* -20 */ 88761, 71755, 56483, 46273, 36291,  
    /* -15 */ 29154, 23254, 18705, 14949, 11916,  
    /* -10 */ 9548, 7620, 6100, 4904, 3906,  
    /* -5 */ 3121, 2501, 1991, 1586, 1277,  
    /* 0 */ 1024, 820, 655, 526, 423,  
    /* 5 */ 335, 272, 215, 172, 137,  
    /* 10 */ 110, 87, 70, 56, 45,  
    /* 15 */ 36, 29, 23, 18, 15,  
};
```