



Containers From Scratch

Namespaces

Time Namespace

- allows processes to see different system times in a very similar to the PID and UTS namespace.
- It was proposed in 2018 and landed on Linux 5.6, which was released in March 2020.
- Create a new time namespace by **unshare -T --fork**
- Visti: <https://udzura.medium.com/experiment-with-time-namespace-8be9ef435c05>

IPC Namespace

- The goal of the IPC namespace is to isolate between different IPC resources like message queues, semaphores and shared memory.
- All IPC objects created in an “IPC namespace” are visible only to all processes/tasks that are members of the same namespace

Cgroup Namespace

- A cgroup (control group) is a mechanism for grouping processes and allocating resources to those groups.
- Cgroups allow you to limit and monitor the resources used by a group of processes.
- There are four different types of resources that can be controlled with cgroups: **CPU, Memory, I/O, Network**
- Two version of Cgroups (v1 and v2) mounted at `/sys/fs/cgroup/`
- Version 1 uses hierarchies model so that processes running within a cgroup namespace have a different view of the hierarchy compared to processes running in the host or other namespaces
- Version 2 provides a single unified process hierarchy.
- Cgroup **namespaces** do not directly provide isolation of resources, they only provide isolation of the cgroup **hierarchy view**. In other word, it virtualizes the view of `/proc/$PID/cgroup`