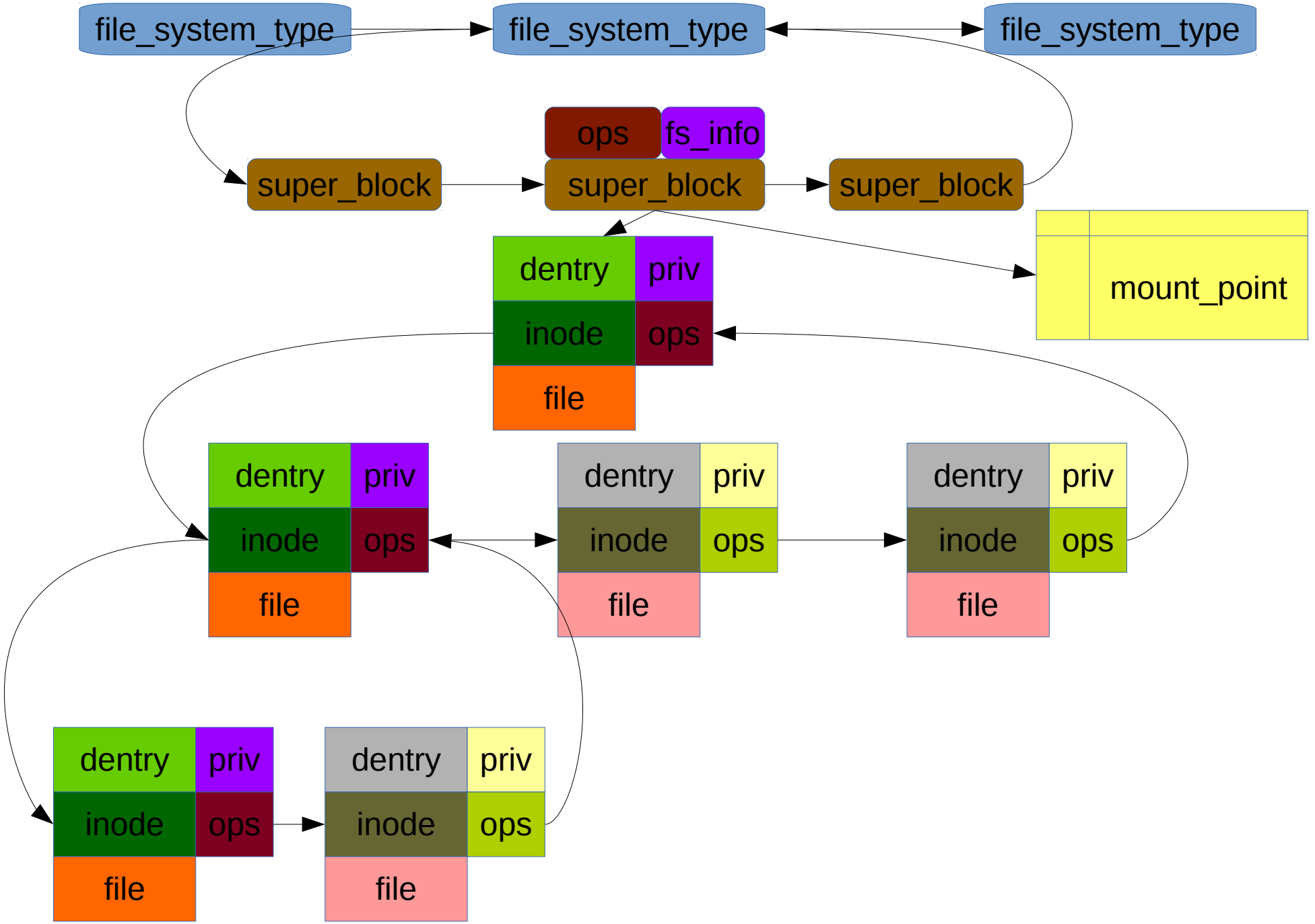
cgroup & namespace

cgroup design concept

tasks grouping , resource limitation

vfs

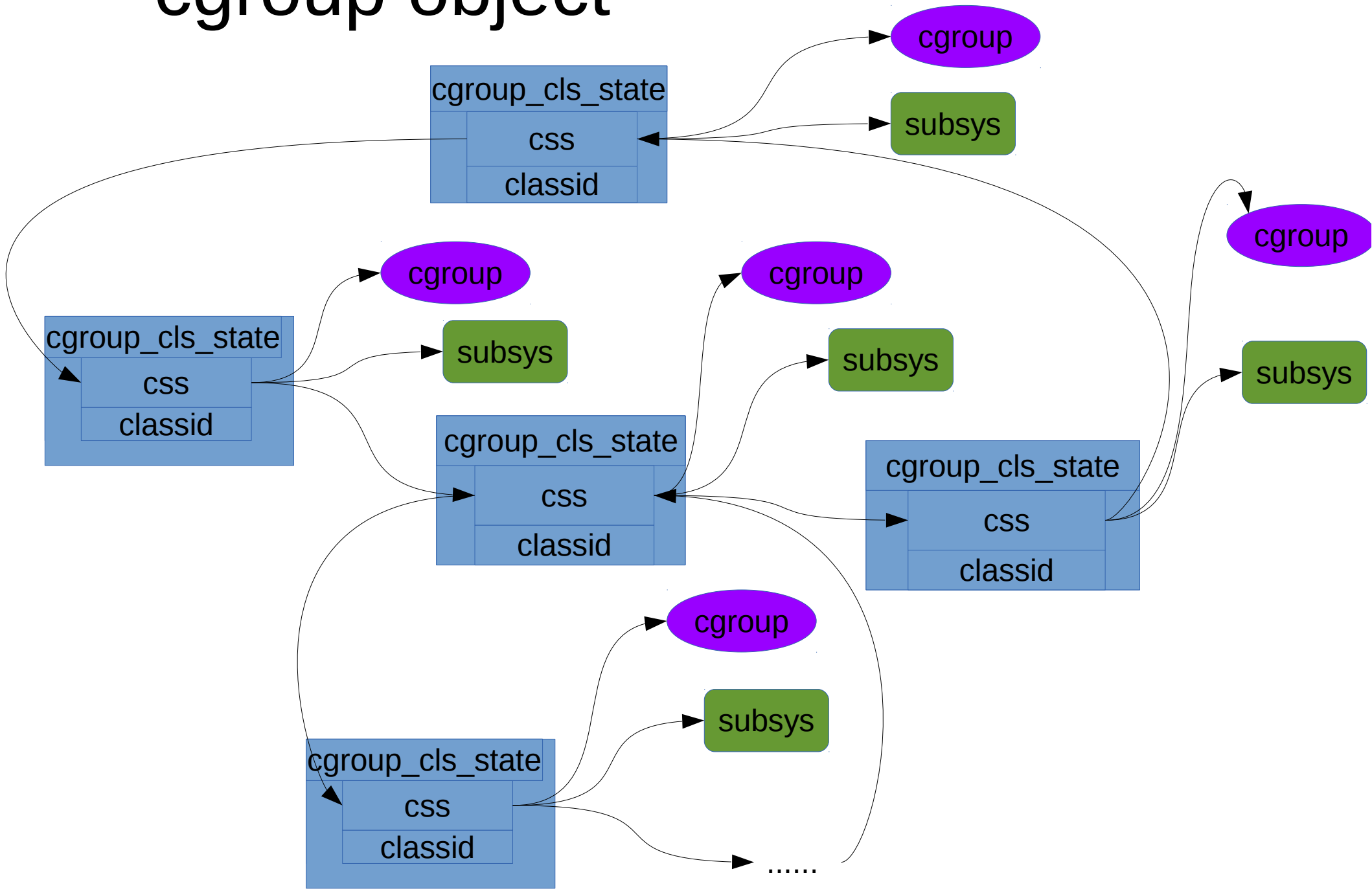

file_system_type
file_system_type
file_system_type
ops
fs_info
super_block
super_block
super_block
dentry
priv
inode
ops
file
mount_point
dentry
priv
inode
ops
file
dentry
priv
inode
ops
file
dentry
priv
inode
ops
file
dentry
priv
inode
ops
file

two way to achive a simple fs

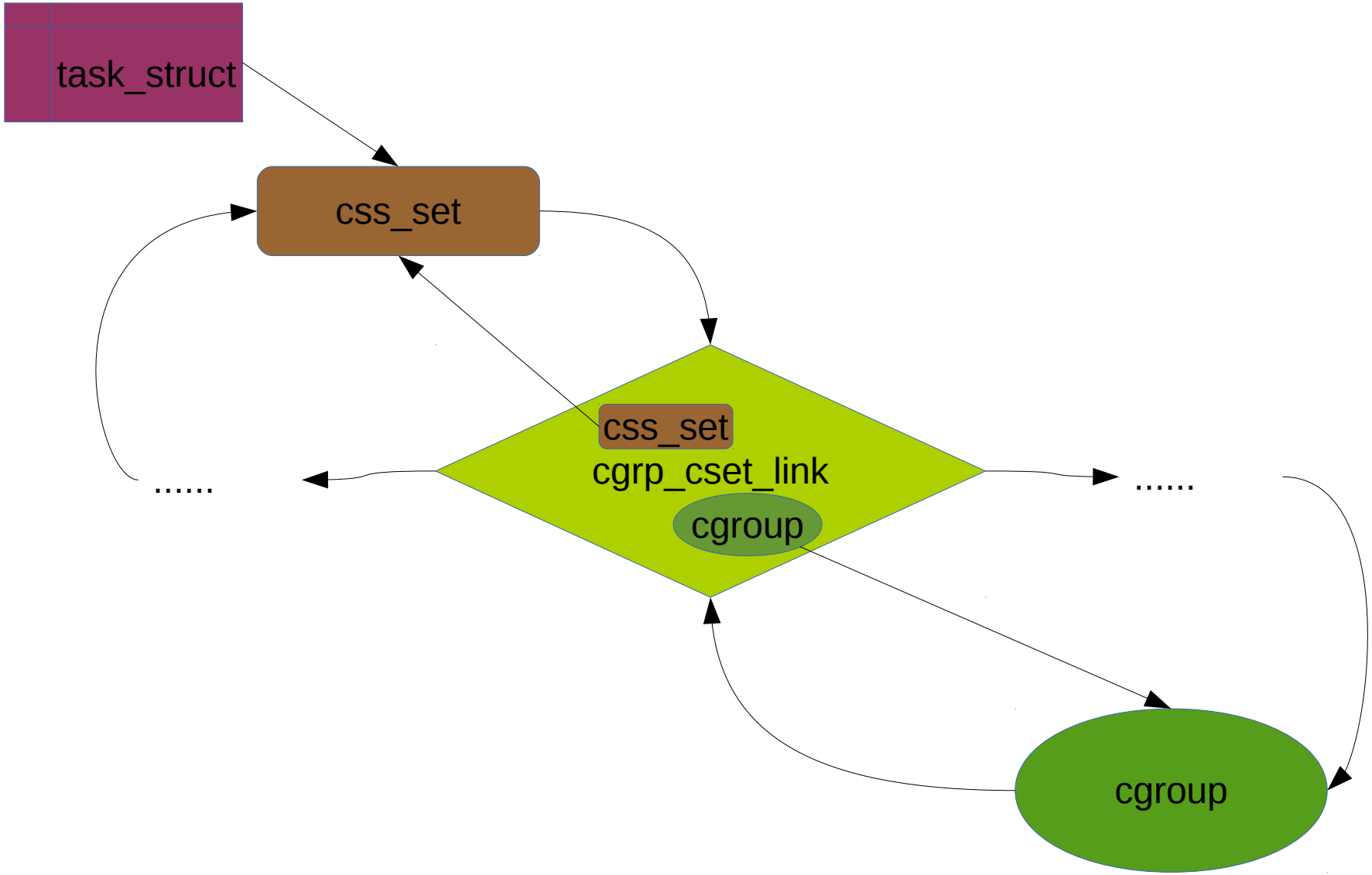
- vfs ->lxinfs
  - dentry->priv = lxin
  - file_ops =
  - dir_ops =
  - sb_ops =
- kernfs->kzhangfs
- cgroupfs
  - dentry->priv = cgroup/ss
  - file_ops =
  - dir_ops =
  - sb_ops =

Link:http://lxin.org/linux%20kernel/2015/03/20/linux-a-simple-filesystem-with-two-type/

cgroup object



task to cgroup



net_cls subsys

```
struct cgroup_subsys net_cls_cgrp_subsys = {
    .css_alloc      = cgrp_css_alloc,
    .css_online     = cgrp_css_online,
    .css_free       = cgrp_css_free,
    .attach         = cgrp_attach,
    .legacy_cftypes     = ss_files,
};
```

```
struct cgroup_cls_state {
    struct cgroup_subsys_state css;
    u32 classid;
};
```

```
static int cls_cgroup_classify(struct sk_buff *skb, const struct tcf_proto *tp,
                               struct tcf_result *res)
{
    .......
    u32 classid;
    classid = task_cls_state(current)->classid;
    ......
}
```

namespace concept

code share, data separation

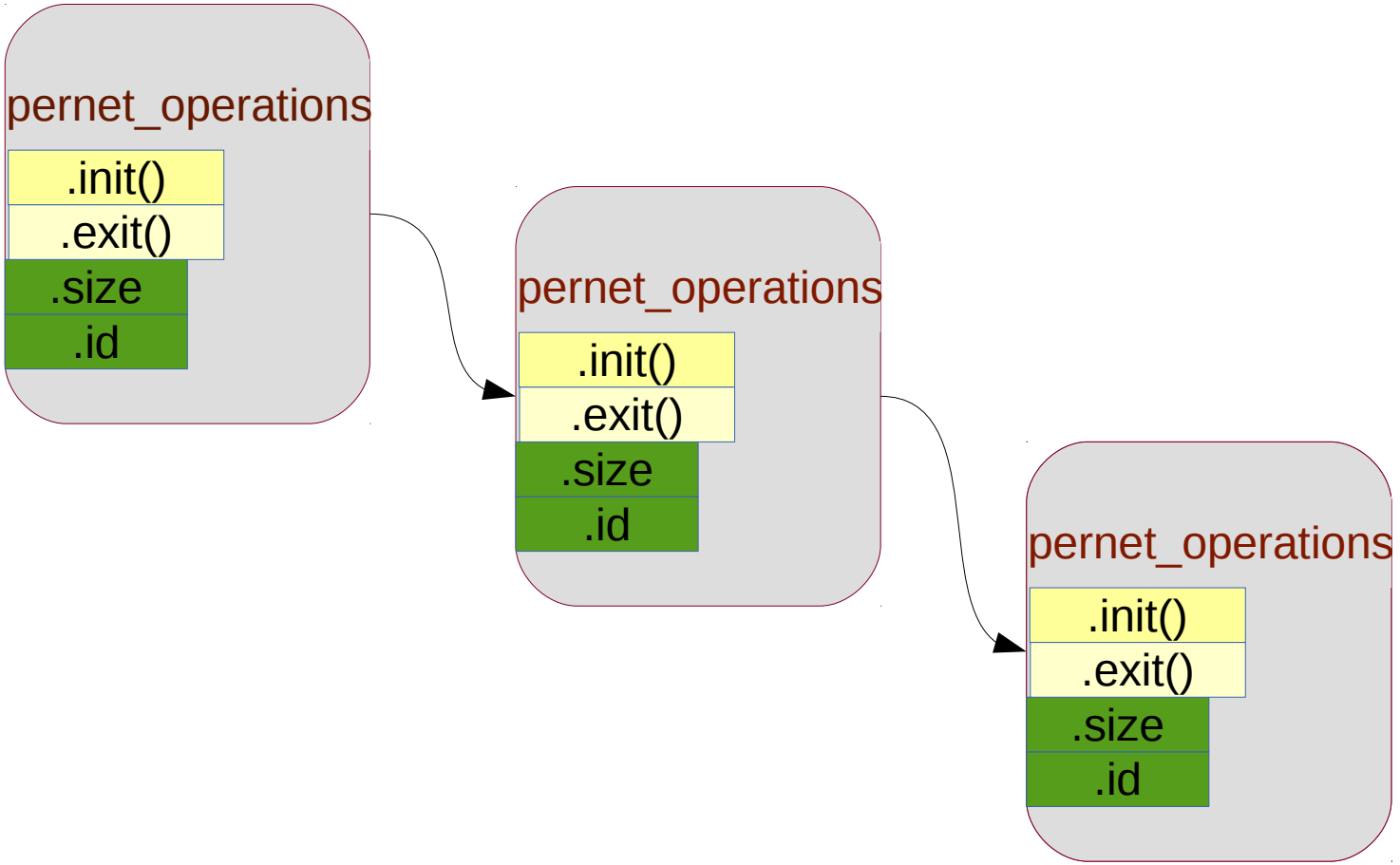
task to namesapce

- task_struct
  - struct nsproxy *nsproxy;
- nsproxy
  - struct uts_namespace *uts_ns;
  - struct ipc_namespace *ipc_ns;
  - struct mnt_namespace *mnt_ns;
  - struct pid_namespace *pid_ns_for_children;
  - struct net *net_ns;

net namespce object

- struct net
  - struct list_head dev_base_head;
  - struct netns_ipv4 ipv4;
  - struct netns_ipv6 ipv6;
  - struct netns_sctp sctp;
  - struct netns_nf nf;
  - struct netns_xt xt
  - struct netns_ct ct;
  - struct netns_nftables nft;
  - struct netns_nf_frag nf_frag;
  - struct netns_xfrm xfrm;
  - struct netns_ipvs *ipvs;
  - struct sock *nfnl

net namespce pernet_list



net namespce pernet_data

int peernet2id(struct net *net, struct net *peer)

struct net *get_net_ns_by_id(struct net *net, int id)