
Subject: [PATCH 1/4] NFS: make nfs_client_list per net ns
Posted by [Stanislav Kinsbursky](#) on Mon, 23 Jan 2012 17:26:05 GMT
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This patch splits global list of NFS clients into per-net-ns array of lists.
This looks more strict and clearer.
BTW, this patch also makes "/proc/fs/nfsfs/servers" entry content depends on /proc mount owner pid namespace. See below for details.

NOTE: few words about how was /proc/fs/nfsfs/ entries content show per network namespace done. This is a little bit tricky and not the best is could be. But it's cheap (proper fix for /proc containerization is a hard nut to crack).
The idea is simple: take proper network namespace from pid namespace child reaper nsproxy of /proc/ mount creator.
This actually means, that if there are 2 containers with different net namespace sharing pid namespace, then read of /proc/fs/nfsfs/ entries will always return content, taken from net namespace of pid namespace creator task (and thus second namespace set wil be invisible).

Signed-off-by: Stanislav Kinsbursky <skinsbursky@parallels.com>

```
---
fs/nfs/client.c | 38 ++++++-----
fs/nfs/idmap.c  |  5 +-
fs/nfs/inode.c  |  1 +
fs/nfs/internal.h |  2 +-
fs/nfs/netns.h  |  1 +
5 files changed, 32 insertions(+), 15 deletions(-)
```

```
diff --git a/fs/nfs/client.c b/fs/nfs/client.c
index 98af1cb..058eb9b 100644
```

```
--- a/fs/nfs/client.c
+++ b/fs/nfs/client.c
@@ -39,6 +39,8 @@
#include <net/ipv6.h>
#include <linux/nfs_xdr.h>
#include <linux/sunrpc/bc_xprt.h>
+#include <linux/nsproxy.h>
+#include <linux/pid_namespace.h>
```

```
#include <asm/system.h>
```

```
@@ -49,11 +51,11 @@
#include "internal.h"
#include "fscache.h"
#include "pnfs.h"
+#include "netns.h"
```

```

#define NFSDBG_FACILITY NFSDBG_CLIENT

DEFINE_SPINLOCK(nfs_client_lock);
- LIST_HEAD(nfs_client_list);
static LIST_HEAD(nfs_volume_list);
static DECLARE_WAIT_QUEUE_HEAD(nfs_client_active_wq);
#ifdef CONFIG_NFS_V4
@@ -464,8 +466,9 @@ static struct nfs_client *nfs_match_client(const struct nfs_client_initdata
*dat
{
    struct nfs_client *clp;
    const struct sockaddr *sap = data->addr;
+ struct nfs_net *nn = net_generic(data->net, nfs_net_id);

- list_for_each_entry(clp, &nfs_client_list, cl_share_link) {
+ list_for_each_entry(clp, &nn->nfs_client_list, cl_share_link) {
    const struct sockaddr *clap = (struct sockaddr *)&clp->cl_addr;
    /* Don't match clients that failed to initialise properly */
    if (clp->cl_cons_state < 0)
@@ -483,9 +486,6 @@ static struct nfs_client *nfs_match_client(const struct nfs_client_initdata
*dat
    /* Match the full socket address */
    if (!nfs_sockaddr_cmp(sap, clap))
        continue;
- /* Match network namespace */
- if (clp->net != data->net)
- continue;

    atomic_inc(&clp->cl_count);
    return clp;
@@ -506,6 +506,7 @@ nfs_get_client(const struct nfs_client_initdata *cl_init,
{
    struct nfs_client *clp, *new = NULL;
    int error;
+ struct nfs_net *nn = net_generic(cl_init->net, nfs_net_id);

    dprintk("--> nfs_get_client(%s,v%u)\n",
        cl_init->hostname ? "" : "", cl_init->rpc_ops->version);
@@ -531,7 +532,7 @@ nfs_get_client(const struct nfs_client_initdata *cl_init,
    /* install a new client and return with it unready */
install_client:
    clp = new;
- list_add(&clp->cl_share_link, &nfs_client_list);
+ list_add(&clp->cl_share_link, &nn->nfs_client_list);
    spin_unlock(&nfs_client_lock);

    error = cl_init->rpc_ops->init_client(clp, timeparms, ip_addr,
@@ -1227,9 +1228,10 @@ nfs4_find_client_sessionid(const struct sockaddr *addr,

```

```

    struct nfs4_sessionid *sid)
{
    struct nfs_client *clp;
+ struct nfs_net *nn = net_generic(&init_net, nfs_net_id);

    spin_lock(&nfs_client_lock);
- list_for_each_entry(clp, &nfs_client_list, cl_share_link) {
+ list_for_each_entry(clp, &nn->nfs_client_list, cl_share_link) {
    if (nfs4_cb_match_client(addr, clp, 1) == false)
        continue;

@@ -1757,6 +1759,13 @@ out_free_server:
    return ERR_PTR(error);
}

+void nfs_clients_init(struct net *net)
+{
+ struct nfs_net *nn = net_generic(net, nfs_net_id);
+
+ INIT_LIST_HEAD(&nn->nfs_client_list);
+}
+
+ #ifdef CONFIG_PROC_FS
+ static struct proc_dir_entry *proc_fs_nfs;

@@ -1810,13 +1819,15 @@ static int nfs_server_list_open(struct inode *inode, struct file *file)
{
    struct seq_file *m;
    int ret;
+ struct pid_namespace *pid_ns = file->f_dentry->d_sb->s_fs_info;
+ struct net *net = pid_ns->child_reaper->nsproxy->net_ns;

    ret = seq_open(file, &nfs_server_list_ops);
    if (ret < 0)
        return ret;

    m = file->private_data;
- m->private = PDE(inode)->data;
+ m->private = net;

    return 0;
}

@@ -1826,9 +1837,11 @@ static int nfs_server_list_open(struct inode *inode, struct file *file)
*/
static void *nfs_server_list_start(struct seq_file *m, loff_t *_pos)
{
+ struct nfs_net *nn = net_generic(m->private, nfs_net_id);
+

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/* lock the list against modification */
spin_lock(&nfs_client_lock);
- return seq_list_start_head(&nfs_client_list, *_pos);
+ return seq_list_start_head(&nn->nfs_client_list, *_pos);
}

/*
@@ -1836,7 +1849,9 @@ static void *nfs_server_list_start(struct seq_file *m, loff_t *_pos)
*/
static void *nfs_server_list_next(struct seq_file *p, void *v, loff_t *pos)
{
- return seq_list_next(v, &nfs_client_list, pos);
+ struct nfs_net *nn = net_generic(p->private, nfs_net_id);
+
+ return seq_list_next(v, &nn->nfs_client_list, pos);
}

/*
@@ -1853,9 +1868,10 @@ static void nfs_server_list_stop(struct seq_file *p, void *v)
static int nfs_server_list_show(struct seq_file *m, void *v)
{
    struct nfs_client *clp;
+ struct nfs_net *nn = net_generic(m->private, nfs_net_id);

    /* display header on line 1 */
- if (v == &nfs_client_list) {
+ if (v == &nn->nfs_client_list) {
    seq_puts(m, "NV SERVER  PORT USE HOSTNAME\n");
    return 0;
}
diff --git a/fs/nfs/idmap.c b/fs/nfs/idmap.c
index ff084d2..92deaf8 100644
--- a/fs/nfs/idmap.c
+++ b/fs/nfs/idmap.c
@@ -571,13 +571,12 @@ static int rpc_pipefs_event(struct notifier_block *nb, unsigned long
event,
    void *ptr)
{
    struct super_block *sb = ptr;
+ struct nfs_net *nn = net_generic(sb->s_fs_info, nfs_net_id);
    struct nfs_client *clp;
    int error = 0;

    spin_lock(&nfs_client_lock);
- list_for_each_entry(clp, &nfs_client_list, cl_share_link) {
- if (clp->net != sb->s_fs_info)
- continue;
+ list_for_each_entry(clp, &nn->nfs_client_list, cl_share_link) {

```

```

    if (clp->rpc_ops != &nfs_v4_clientops)
        continue;
    error = __rpc_pipefs_event(clp, event, sb);
diff --git a/fs/nfs/inode.c b/fs/nfs/inode.c
index d2c760e..e8f81e5 100644
--- a/fs/nfs/inode.c
+++ b/fs/nfs/inode.c
@@ -1558,6 +1558,7 @@ EXPORT_SYMBOL_GPL(nfs_net_id);

static int nfs_net_init(struct net *net)
{
+ nfs_clients_init(net);
    return nfs_dns_resolver_cache_init(net);
}

diff --git a/fs/nfs/internal.h b/fs/nfs/internal.h
index cdb121d..a9ae806 100644
--- a/fs/nfs/internal.h
+++ b/fs/nfs/internal.h
@@ -146,6 +146,7 @@ extern void nfs_umount(const struct nfs_mount_request *info);

/* client.c */
extern const struct rpc_program nfs_program;
+extern void nfs_clients_init(struct net *net);

extern void nfs_cleanup_cb_ident_idr(void);
extern void nfs_put_client(struct nfs_client *);
@@ -183,7 +184,6 @@ static inline void nfs_fs_proc_exit(void)
#endif
#ifdef CONFIG_NFS_V4
extern spinlock_t nfs_client_lock;
-extern struct list_head nfs_client_list;
#endif

/* nfs4namespace.c */
diff --git a/fs/nfs/netns.h b/fs/nfs/netns.h
index 39ae4ca..feb33c3 100644
--- a/fs/nfs/netns.h
+++ b/fs/nfs/netns.h
@@ -7,6 +7,7 @@
struct nfs_net {
    struct cache_detail *nfs_dns_resolve;
    struct rpc_pipe *bl_device_pipe;
+ struct list_head nfs_client_list;
};

extern int nfs_net_id;

```
