Subject: [PATCH 0/5] A config option to compile out some namespaces code
Posted by Pavel Emelianov on Wed, 26 Sep 2007 15:39:57 GMT
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There were some questions like "do I need this on my cellphone"
in reply to different namespaces patches. Indeed, the namespaces
are not useful for most of the embedded systems, but the code
creating and releasing them weights a lot.

So I propose to add a config option which will help embedded
people to reduce the vmlinux size. This option simply compiles
out the namespaces cloning and releasing code *only*, but keeps
all the other logic untouched (e.g. the notion of init_ns).

When someone tries to clone some namespace with their support
turned off, he will receive an EINVAL error.

This patchset can save more than 2KB from the vmlinux when
turning the config option "NAMESPACES" to "n":

$ scripts/bloat-o-meter vmlinux-no-ns vmlinux-with-ns
add/remove: 27/0 grow/shrink: 11/7 up/down: 2477/-340 (2137)
function old new delta
copy_pid_ns - 537 +537
copy_user_ns - 181 +181
copy_ipcs - 149 +149
zap_pid_ns_processes - 130 +130
copy_utsname - 120 +120
shm_exit_ns - 106 +106
sem_exit_ns - 106 +106
msg_exit_ns - 106 +106
freeary - 100 +100
release_uids - 95 +95
freeque - 92 +92
free_nsproxy 48 123 +75
create_new_namespaces 300 358 +58
free_pid_ns - 56 +56
pid_namespaces_init - 48 +48
__sem_init_ns - 45 +45
shm_init_ns - 42 +42
sem_init_ns - 42 +42
msg_init_ns - 42 +42
__shm_init_ns - 38 +38
__msg_init_ns - 31 +31
sysvipc_proc_release 5 35 +30
proc_kill_sb 5 35 +30
free_ipc_ns - 30 +30
do_shm_rmid - 29 +29

```
proc_set_super                    13     38    +25
shm_release                       18     39    +21
put_pid                           75     95    +20
alloc_pid                        687    706    +19
pid_caches_mutex                   -     16    +16
free_user_ns                       -     16    +16
sysvipc_proc_open                100    111    +11
do_shmat                         778    787     +9
pid_caches_lh                      -      8     +8
free_uts_ns                        -      5     +5
pid_ns_cachep                      -      4     +4
__initcall_pid_namespaces_init6    -      4     +4
do_exit                       1855   1856     +1
show_stat                     1665   1661     -4
sys_shmctl                    1934   1907    -27
msg_init                        82     47    -35
shm_init                        92     47    -45
sem_init                        99     44    -55
sys_msgctl                    1394   1311    -83
sys_semctl                    2123   2032    -91
```

This set was reviewed and approved by Serge, Cedric and Eric.

Signed-off-by: Pavel Emelyanov <xemul@openvz.org>

Subject: [PATCH 1/5] The config option itself
Posted by Pavel Emelianov on Wed, 26 Sep 2007 15:43:28 GMT
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The option is called NAMESPACES. It can be selectable only
if EMBEDDED is chosen (this was Eric's requisition). When
the EMBEDDED is off namespaces will be on automatically.

One more option (NAMESPACES_EXPERIMENTAL) was added by
Serge's request to move there all the namespaces that are
not finished yet. Currently only the user and the network
namespaces are such.

Signed-off-by: Pavel Emelyanov <xemul@openvz.org>

---

diff --git a/init/Kconfig b/init/Kconfig

```
index 684ccfb..05a71d7 100644
--- a/init/Kconfig
+++ b/init/Kconfig
@@ -369,6 +360,23 @@ config RELAY

   If unsure, say N.

+config NAMESPACES
+ bool "The namespaces support" if EMBEDDED
+ default !EMBEDDED
+ help
+   Provides the way to make tasks work with different objects using
+   the same id. For example same IPC id may refer to different objects
+   or same user id or pid may refer to different tasks when used in
+   different namespaces.
+
+config NAMESPACES_EXPERIMENTAL
+ bool "Add the experimantal namespaces support" if EMBEDDED
+ depends on NAMESPACES && EXPERIMENTAL
+ default !EMBEDDED
+ help
+   Also include the support for the namespaces that are not fnished
+   or well developed yet
+
 config BLK_DEV_INITRD
  bool "Initial RAM filesystem and RAM disk (initramfs/initrd) support"
  depends on BROKEN || !FRV
```

Subject: [PATCH 2/5] Move the UST namespace under the option
Posted by Pavel Emelianov on Wed, 26 Sep 2007 15:46:16 GMT
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Currently all the namespace management code is in the
kernel/utsname.c file, so just compile it out and make
stub in .h file.

The init namespace itself is in init/version.c and is
left in the kernel.

Signed-off-by: Pavel Emelyanov <xemul@openvz.org>

```
diff --git a/include/linux/utsname.h b/include/linux/utsname.h
index 923db99..52b9116 100644
--- a/include/linux/utsname.h
+++ b/include/linux/utsname.h
@@ -35,6 +35,7 @@ struct new_utsname {
 #include <linux/sched.h>
 #include <linux/kref.h>
 #include <linux/nsproxy.h>
+#include <linux/err.h>
 #include <asm/atomic.h>

 struct uts_namespace {
@@ -43,6 +44,7 @@ struct uts_namespace {
 };
 extern struct uts_namespace init_uts_ns;

+#ifdef CONFIG_NAMESPACES
 static inline void get_uts_ns(struct uts_namespace *ns)
 {
  kref_get(&ns->kref);
@@ -56,6 +58,25 @@ static inline void put_uts_ns(struct uts
 {
  kref_put(&ns->kref, free_uts_ns);
 }
+#else
+static inline void get_uts_ns(struct uts_namespace *ns)
+{
+}
+
+static inline void put_uts_ns(struct uts_namespace *ns)
+{
+}
+
+static inline struct uts_namespace *copy_utsname(unsigned long flags,
+     struct uts_namespace *ns)
+{
+ if (flags & CLONE_NEWUTS)
+  return ERR_PTR(-EINVAL);
+
+ return ns;
+}
+#endif
+
 static inline struct new_utsname *utsname(void)
 {
  return &current->nsproxy->uts_ns->name;
diff --git a/kernel/Makefile b/kernel/Makefile
index 76f782f..5817bfe 100644
```

```
--- a/kernel/Makefile
+++ b/kernel/Makefile
@@ -4,8 +4,7 @@
      signal.o sys.o kmod.o workqueue.o pid.o \
      rcupdate.o extable.o params.o posix-timers.o \
      kthread.o wait.o kfifo.o sys_ni.o posix-cpu-timers.o mutex.o \
-     hrtimer.o rwsem.o latency.o nsproxy.o srcu.o \
-     utsname.o notifier.o sysctl.o
+     hrtimer.o rwsem.o latency.o nsproxy.o srcu.o notifier.o sysctl.o

 obj-$(CONFIG_SYSCTL) += sysctl_check.o
 obj-$(CONFIG_STACKTRACE) += stacktrace.o
@@ -50,6 +49,7 @@ obj-$(CONFIG_AUDITSYSCALL) += auditsc.o
 obj-$(CONFIG_AUDIT_TREE) += audit_tree.o
 obj-$(CONFIG_KPROBES) += kprobes.o
 obj-$(CONFIG_KGDB) += kgdb.o
+obj-$(CONFIG_NAMESPACES) += utsname.o
 obj-$(CONFIG_SYSFS) += ksysfs.o
 obj-$(CONFIG_DETECT_SOFTLOCKUP) += softlockup.o
 obj-$(CONFIG_GENERIC_HARDIRQS) += irq/
```

Subject: [PATCH 3/5] Move the IPC namespace under the option
Posted by Pavel Emelianov on Wed, 26 Sep 2007 15:51:12 GMT
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Currently all the IPC namespace management code is in
ipc/util.c. I moved this code into ipc/namespace.c file
which is compiled out when needed.

The linux/ipc_namespace.h file is used to store the
prototypes of the functions in namespace.c and the stubs
for NAMESPACES=n case. This is done so, because the stub
for copy_ipc_namespace requires the knoweledge of the
CLONE_NEWIPC flag, which is in sched.h. But the linux/ipc.h
file itself in included into many many .c files via the
sys.h->sem.h sequence so adding the sched.h into it will
make all these .c depend on sched.h which is not that good.
On the other hand the knowledge about the namespaces stuff
is required in 4 .c files only.

Besides, this patch compiles out some auxiliary functions
from ipc/sem.c, msg.c and shm.c files.

Signied-off-by: Pavel Emelyanov <xemul@openvz.org>

```
diff --git a/include/linux/ipc.h b/include/linux/ipc.h
index 96988d1..b882610 100644
--- a/include/linux/ipc.h
+++ b/include/linux/ipc.h
@@ -100,56 +100,6 @@ struct kern_ipc_perm
  void  *security;
 };

-struct ipc_ids;
-struct ipc_namespace {
- struct kref kref;
- struct ipc_ids *ids[3];
-
- int  sem_ctls[4];
- int  used_sems;
-
- int  msg_ctlmax;
- int  msg_ctlmnb;
- int  msg_ctlmni;
-
- size_t  shm_ctlmax;
- size_t  shm_ctlall;
- int  shm_ctlmni;
- int  shm_tot;
-};
-
-extern struct ipc_namespace init_ipc_ns;
-
-#ifdef CONFIG_SYSVIPC
-#define INIT_IPC_NS(ns)  .ns  = &init_ipc_ns,
-extern void free_ipc_ns(struct kref *kref);
-extern struct ipc_namespace *copy_ipcs(unsigned long flags,
-      struct ipc_namespace *ns);
-#else
-#define INIT_IPC_NS(ns)
-static inline struct ipc_namespace *copy_ipcs(unsigned long flags,
-      struct ipc_namespace *ns)
-{
- return ns;
-}
-#endif
-
-static inline struct ipc_namespace *get_ipc_ns(struct ipc_namespace *ns)
```

```
-{
-#ifdef CONFIG_SYSVIPC
- if (ns)
-  kref_get(&ns->kref);
-#endif
- return ns;
-}
-
-static inline void put_ipc_ns(struct ipc_namespace *ns)
-{
-#ifdef CONFIG_SYSVIPC
- kref_put(&ns->kref, free_ipc_ns);
-#endif
-}
-
 #endif /* __KERNEL__ */

 #endif /* _LINUX_IPC_H */
diff --git a/include/linux/ipc_namespace.h b/include/linux/ipc_namespace.h
new file mode 100644
index 0000000..3d8a516
--- /dev/null
+++ b/include/linux/ipc_namespace.h
@@ -0,0 +1,67 @@
+#ifndef __IPC_NAMESPACE_H__
+#define __IPC_NAMESPACE_H__
+
+#include <linux/err.h>
+
+struct ipc_ids;
+struct ipc_namespace {
+ struct kref kref;
+ struct ipc_ids *ids[3];
+
+ int  sem_ctls[4];
+ int  used_sems;
+
+ int  msg_ctlmax;
+ int  msg_ctlmnb;
+ int  msg_ctlmni;
+
+ size_t  shm_ctlmax;
+ size_t  shm_ctlall;
+ int  shm_ctlmni;
+ int  shm_tot;
+};
+
+extern struct ipc_namespace init_ipc_ns;
```

```
+
+#ifdef CONFIG_SYSVIPC
+#define INIT_IPC_NS(ns)  .ns  = &init_ipc_ns,
+#else
+#define INIT_IPC_NS(ns)
+#endif
+
+#if defined(CONFIG_SYSVIPC) && defined(CONFIG_NAMESPACES)
+extern void free_ipc_ns(struct kref *kref);
+extern struct ipc_namespace *copy_ipcs(unsigned long flags,
+       struct ipc_namespace *ns);
+
+static inline struct ipc_namespace *get_ipc_ns(struct ipc_namespace *ns)
+{
+ if (ns)
+  kref_get(&ns->kref);
+ return ns;
+}
+
+static inline void put_ipc_ns(struct ipc_namespace *ns)
+{
+ kref_put(&ns->kref, free_ipc_ns);
+}
+#else
+static inline struct ipc_namespace *copy_ipcs(unsigned long flags,
+  struct ipc_namespace *ns)
+{
+ if (flags & CLONE_NEWIPC)
+  return ERR_PTR(-EINVAL);
+
+ return ns;
+}
+
+static inline struct ipc_namespace *get_ipc_ns(struct ipc_namespace *ns)
+{
+ return ns;
+}
+
+static inline void put_ipc_ns(struct ipc_namespace *ns)
+{
+}
+#endif
+#endif
diff --git a/ipc/util.c b/ipc/util.c
index fd29246..44fb843 100644
--- a/ipc/util.c
+++ b/ipc/util.c
@@ -32,6 +32,7 @@
```

```
 #include <linux/proc_fs.h>
 #include <linux/audit.h>
 #include <linux/nsproxy.h>
+#include <linux/ipc_namespace.h>

 #include <asm/unistd.h>

@@ -50,66 +51,6 @@ struct ipc_namespace init_ipc_ns = {
  },
 };

-static struct ipc_namespace *clone_ipc_ns(struct ipc_namespace *old_ns)
-{
- int err;
- struct ipc_namespace *ns;
-
- err = -ENOMEM;
- ns = kmalloc(sizeof(struct ipc_namespace), GFP_KERNEL);
- if (ns == NULL)
-  goto err_mem;
-
- err = sem_init_ns(ns);
- if (err)
-  goto err_sem;
- err = msg_init_ns(ns);
- if (err)
-  goto err_msg;
- err = shm_init_ns(ns);
- if (err)
-  goto err_shm;
-
- kref_init(&ns->kref);
- return ns;
-
-err_shm:
- msg_exit_ns(ns);
-err_msg:
- sem_exit_ns(ns);
-err_sem:
- kfree(ns);
-err_mem:
- return ERR_PTR(err);
-}
-
-struct ipc_namespace *copy_ipcs(unsigned long flags, struct ipc_namespace *ns)
-{
- struct ipc_namespace *new_ns;
-
```

```
- BUG_ON(!ns);
- get_ipc_ns(ns);
-
- if (!(flags & CLONE_NEWIPC))
-  return ns;
-
- new_ns = clone_ipc_ns(ns);
-
- put_ipc_ns(ns);
- return new_ns;
-}
-
-void free_ipc_ns(struct kref *kref)
-{
- struct ipc_namespace *ns;
-
- ns = container_of(kref, struct ipc_namespace, kref);
- sem_exit_ns(ns);
- msg_exit_ns(ns);
- shm_exit_ns(ns);
- kfree(ns);
-}
-
 /**
  * ipc_init - initialise IPC subsystem
  *
diff --git a/ipc/namespace.c b/ipc/namespace.c
new file mode 100644
index 0000000..cef1139
--- /dev/null
+++ b/ipc/namespace.c
@@ -0,0 +1,73 @@
+/*
+ * linux/ipc/namespace.c
+ * Copyright (C) 2006 Pavel Emelyanov <xemul@openvz.org> OpenVZ, SWsoft Inc.
+ */
+
+#include <linux/ipc.h>
+#include <linux/msg.h>
+#include <linux/ipc_namespace.h>
+#include <linux/rcupdate.h>
+#include <linux/nsproxy.h>
+#include <linux/slab.h>
+
+#include "util.h"
+
+static struct ipc_namespace *clone_ipc_ns(struct ipc_namespace *old_ns)
+{
```

```
+ int err;
+ struct ipc_namespace *ns;
+
+ err = -ENOMEM;
+ ns = kmalloc(sizeof(struct ipc_namespace), GFP_KERNEL);
+ if (ns == NULL)
+  goto err_mem;
+
+ err = sem_init_ns(ns);
+ if (err)
+  goto err_sem;
+ err = msg_init_ns(ns);
+ if (err)
+  goto err_msg;
+ err = shm_init_ns(ns);
+ if (err)
+  goto err_shm;
+
+ kref_init(&ns->kref);
+ return ns;
+
+err_shm:
+ msg_exit_ns(ns);
+err_msg:
+ sem_exit_ns(ns);
+err_sem:
+ kfree(ns);
+err_mem:
+ return ERR_PTR(err);
+}
+
+struct ipc_namespace *copy_ipcs(unsigned long flags, struct ipc_namespace *ns)
+{
+ struct ipc_namespace *new_ns;
+
+ BUG_ON(!ns);
+ get_ipc_ns(ns);
+
+ if (!(flags & CLONE_NEWIPC))
+  return ns;
+
+ new_ns = clone_ipc_ns(ns);
+
+ put_ipc_ns(ns);
+ return new_ns;
+}
+
+void free_ipc_ns(struct kref *kref)
```

```
+{
+ struct ipc_namespace *ns;
+
+ ns = container_of(kref, struct ipc_namespace, kref);
+ sem_exit_ns(ns);
+ msg_exit_ns(ns);
+ shm_exit_ns(ns);
+ kfree(ns);
+}
diff --git a/ipc/Makefile b/ipc/Makefile
index b93bba6..d81fb35 100644
--- a/ipc/Makefile
+++ b/ipc/Makefile
@@ -7,4 +7,5 @@ obj-$(CONFIG_SYSVIPC) += util.o msgutil.
 obj-$(CONFIG_SYSVIPC_SYSCTL) += ipc_sysctl.o
 obj_mq-$(CONFIG_COMPAT) += compat_mq.o
 obj-$(CONFIG_POSIX_MQUEUE) += mqueue.o msgutil.o $(obj_mq-y)
+obj-$(CONFIG_NAMESPACES) += namespace.o

diff --git a/ipc/ipc_sysctl.c b/ipc/ipc_sysctl.c
index 79e24e8..7f4235b 100644
--- a/ipc/ipc_sysctl.c
+++ b/ipc/ipc_sysctl.c
@@ -14,6 +14,7 @@
 #include <linux/nsproxy.h>
 #include <linux/sysctl.h>
 #include <linux/uaccess.h>
+#include <linux/ipc_namespace.h>

 static void *get_ipc(ctl_table *table)
 {
diff --git a/ipc/msg.c b/ipc/msg.c
index b7274db..eb74965 100644
--- a/ipc/msg.c
+++ b/ipc/msg.c
@@ -36,6 +36,7 @@
 #include <linux/seq_file.h>
 #include <linux/mutex.h>
 #include <linux/nsproxy.h>
+#include <linux/ipc_namespace.h>

 #include <asm/current.h>
 #include <asm/uaccess.h>
@@ -92,6 +93,7 @@ static void __msg_init_ns(struct ipc_nam
  ipc_init_ids(ids);
 }

+#ifdef CONFIG_NAMESPACES
```

```
 int msg_init_ns(struct ipc_namespace *ns)
 {
  struct ipc_ids *ids;
@@ -127,6 +129,7 @@ void msg_exit_ns(struct ipc_namespace *n
  kfree(ns->ids[IPC_MSG_IDS]);
  ns->ids[IPC_MSG_IDS] = NULL;
 }
+#endif

 void __init msg_init(void)
 {
diff --git a/ipc/sem.c b/ipc/sem.c
index 45c7e57..2e9f449 100644
--- a/ipc/sem.c
+++ b/ipc/sem.c
@@ -82,6 +82,7 @@
 #include <linux/seq_file.h>
 #include <linux/mutex.h>
 #include <linux/nsproxy.h>
+#include <linux/ipc_namespace.h>

 #include <asm/uaccess.h>
 #include "util.h"
@@ -130,6 +131,7 @@ static void __sem_init_ns(struct ipc_nam
  ipc_init_ids(ids);
 }

+#ifdef CONFIG_NAMESPACES
 int sem_init_ns(struct ipc_namespace *ns)
 {
  struct ipc_ids *ids;
@@ -165,6 +167,7 @@ void sem_exit_ns(struct ipc_namespace *n
  kfree(ns->ids[IPC_SEM_IDS]);
  ns->ids[IPC_SEM_IDS] = NULL;
 }
+#endif

 void __init sem_init (void)
 {
diff --git a/ipc/shm.c b/ipc/shm.c
index f28f2a3..2717cbc 100644
--- a/ipc/shm.c
+++ b/ipc/shm.c
@@ -38,6 +38,7 @@
 #include <linux/mutex.h>
 #include <linux/nsproxy.h>
 #include <linux/mount.h>
+#include <linux/ipc_namespace.h>
```

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

@@ -97,6 +98,7 @@ static void do_shm_rmid(struct ipc_names
   shm_destroy(ns, shp);
 }

+#ifdef CONFIG_NAMESPACES
 int shm_init_ns(struct ipc_namespace *ns)
 {
  struct ipc_ids *ids;
@@ -132,6 +134,7 @@ void shm_exit_ns(struct ipc_namespace *n
  kfree(ns->ids[IPC_SHM_IDS]);
  ns->ids[IPC_SHM_IDS] = NULL;
 }
+#endif

 void __init shm_init (void)
 {
diff --git a/ipc/util.h b/ipc/util.h
index 99414a3..8972402 100644
--- a/ipc/util.h
+++ b/ipc/util.h
@@ -20,6 +20,8 @@ void sem_init (void);
 void msg_init (void);
 void shm_init (void);

+struct ipc_namespace;
+
 int sem_init_ns(struct ipc_namespace *ns);
 int msg_init_ns(struct ipc_namespace *ns);
 int shm_init_ns(struct ipc_namespace *ns);
diff --git a/kernel/nsproxy.c b/kernel/nsproxy.c
index ee68964..5a27426 100644
--- a/kernel/nsproxy.c
+++ b/kernel/nsproxy.c
@@ -20,6 +20,7 @@
 #include <linux/mnt_namespace.h>
 #include <linux/utsname.h>
 #include <linux/pid_namespace.h>
+#include <linux/ipc_namespace.h>

 static struct kmem_cache *nsproxy_cachep;
```

Subject: [PATCH 4/5] Move the user namespace under the option
Posted by Pavel Emelianov on Wed, 26 Sep 2007 15:53:43 GMT
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We currently have a CONFIG_USER_NS option. Just rename it
into CONFIG_NAMESPACES_EXPERIMANTAL and move the init_user_ns
into user.c file to make the kernel compile and work without
the namespaces support.

Signed-off-by: Pavel Emelyanov <xemul@openvz.org>

```
diff --git a/include/linux/user_namespace.h b/include/linux/user_namespace.h
index b5f41d4..dda160c 100644
--- a/include/linux/user_namespace.h
+++ b/include/linux/user_namespace.h
@@ -17,7 +17,7 @@ struct user_namespace {

 extern struct user_namespace init_user_ns;

-#ifdef CONFIG_USER_NS
+#ifdef CONFIG_NAMESPACES_EXPERIMENTAL

 static inline struct user_namespace *get_user_ns(struct user_namespace *ns)
 {
diff --git a/init/Kconfig b/init/Kconfig
index 684ccfb..0db1c3b 100644
--- a/init/Kconfig
+++ b/init/Kconfig
@@ -206,15 +206,6 @@ config TASK_IO_ACCOUNTING

    Say N if unsure.

-config USER_NS
- bool "User Namespaces (EXPERIMENTAL)"
- default n
- depends on EXPERIMENTAL
- help
-   Support user namespaces.  This allows containers, i.e.
-   vservers, to use user namespaces to provide different
-   user info for different servers.  If unsure, say N.
-
 config AUDIT
   bool "Auditing support"
```

```
  depends on NET
diff --git a/kernel/Makefile b/kernel/Makefile
index 76f782f..5817bfe 100644
--- a/kernel/Makefile
+++ b/kernel/Makefile
@@ -4,7 +4,7 @@

 obj-y     = sched.o fork.o exec_domain.o panic.o printk.o profile.o \
       exit.o itimer.o time.o softirq.o resource.o \
-      sysctl.o capability.o ptrace.o timer.o user.o user_namespace.o \
+      sysctl.o capability.o ptrace.o timer.o user.o \
       signal.o sys.o kmod.o workqueue.o pid.o \
       rcupdate.o extable.o params.o posix-timers.o \
       kthread.o wait.o kfifo.o sys_ni.o posix-cpu-timers.o mutex.o \
@@ -50,6 +49,7 @@ obj-$(CONFIG_AUDITSYSCALL) += auditsc.o
 obj-$(CONFIG_KPROBES) += kprobes.o
 obj-$(CONFIG_KGDB) += kgdb.o
 obj-$(CONFIG_NAMESPACES) += utsname.o
+obj-$(CONFIG_NAMESPACES_EXPERIMENTAL) += user_namespace.o
 obj-$(CONFIG_SYSFS) += ksysfs.o
 obj-$(CONFIG_DETECT_SOFTLOCKUP) += softlockup.o
 obj-$(CONFIG_GENERIC_HARDIRQS) += irq/
diff --git a/kernel/user.c b/kernel/user.c
index b45f55f..d7c0831 100644
--- a/kernel/user.c
+++ b/kernel/user.c
@@ -17,6 +17,15 @@
 #include <linux/module.h>
 #include <linux/user_namespace.h>

+struct user_namespace init_user_ns = {
+ .kref = {
+  .refcount = ATOMIC_INIT(2),
+ },
+ .root_user = &root_user,
+};
+
+EXPORT_SYMBOL_GPL(init_user_ns);
+
 /*
  * UID task count cache, to get fast user lookup in "alloc_uid"
  * when changing user ID's (ie setuid() and friends).
@@ -199,6 +208,7 @@ void switch_uid(struct user_struct *new_
  suid_keys(current);
 }

+#ifdef CONFIG_NAMESPACES_EXPERIMENTAL
 void release_uids(struct user_namespace *ns)
```

```
 {
  int i;
@@ -223,6 +233,7 @@ void release_uids(struct user_namespace

  free_uid(ns->root_user);
 }
+#endif

 static int __init uid_cache_init(void)
 {
diff --git a/kernel/user_namespace.c b/kernel/user_namespace.c
index 7af90fc..4c90062 100644
--- a/kernel/user_namespace.c
+++ b/kernel/user_namespace.c
@@ -10,17 +10,6 @@
 #include <linux/nsproxy.h>
 #include <linux/user_namespace.h>

-struct user_namespace init_user_ns = {
- .kref = {
-  .refcount = ATOMIC_INIT(2),
- },
- .root_user = &root_user,
-};
-
-EXPORT_SYMBOL_GPL(init_user_ns);
-
-#ifdef CONFIG_USER_NS
-
 /*
  * Clone a new ns copying an original user ns, setting refcount to 1
  * @old_ns: namespace to clone
@@ -84,5 +73,3 @@ void free_user_ns(struct kref *kref)
  release_uids(ns);
  kfree(ns);
 }
-
-#endif /* CONFIG_USER_NS */
```


Subject: [PATCH 5/5] Move the PID namespace under the option
Posted by Pavel Emelianov on Wed, 26 Sep 2007 15:58:45 GMT

For the same reasons as with the IPC namespaces, all the
prototypes and stuns go to the pid_namespace.h file. The
namespace management code itself is moved to the
pid_namespace.c file.

The pid_namespace cache is created inside an initcall,
i.e. a bit later than the pid hash is initialized. This
is OK for now - no code in kernel tries to clone new
pid namespaces before boot.

The zap_pid_namespace() function is expanded into a
BUG() when NAMESPACES is "n". This is normal as exiting
the init namespace (the only namespace in this case)
causes a panic() in exit_child_reaper() function anyway.

Signed-off-by: Pavel Emelyanov <xemul@openvz.org>

```
diff --git a/include/linux/pid.h b/include/linux/pid.h
index 4817c66..3215274 100644
--- a/include/linux/pid.h
+++ b/include/linux/pid.h
@@ -122,7 +122,8 @@ extern struct pid *find_ge_pid(int nr, s

 extern struct pid *alloc_pid(struct pid_namespace *ns);
 extern void FASTCALL(free_pid(struct pid *pid));
-extern void zap_pid_ns_processes(struct pid_namespace *pid_ns);
+
+int next_pidmap(struct pid_namespace *pid_ns, int last);

 /*
  * the helpers to get the pid's id seen from different namespaces
diff --git a/include/linux/pid_namespace.h b/include/linux/pid_namespace.h
index 0135c76..6d6bd18 100644
--- a/include/linux/pid_namespace.h
+++ b/include/linux/pid_namespace.h
@@ -6,6 +6,7 @@
 #include <linux/threads.h>
 #include <linux/nsproxy.h>
 #include <linux/kref.h>
+#include <linux/err.h>

 struct pidmap {
        atomic_t nr_free;
@@ -29,6 +30,7 @@ struct pid_namespace {
```

```
 extern struct pid_namespace init_pid_ns;

+#ifdef CONFIG_NAMESPACES
 static inline struct pid_namespace *get_pid_ns(struct pid_namespace *ns)
 {
  if (ns != &init_pid_ns)
@@ -38,12 +40,37 @@ static inline struct pid_namespace *get_

 extern struct pid_namespace *copy_pid_ns(unsigned long flags, struct pid_namespace *ns);
 extern void free_pid_ns(struct kref *kref);
+extern void zap_pid_ns_processes(struct pid_namespace *pid_ns);

 static inline void put_pid_ns(struct pid_namespace *ns)
 {
  if (ns != &init_pid_ns)
   kref_put(&ns->kref, free_pid_ns);
 }
+#else
+static inline struct pid_namespace *get_pid_ns(struct pid_namespace *ns)
+{
+ return ns;
+}
+
+static inline void put_pid_ns(struct pid_namespace *ns)
+{
+}
+
+static inline struct pid_namespace *copy_pid_ns(unsigned long flags,
+  struct pid_namespace *ns)
+{
+ if (flags & CLONE_NEWPID)
+  return ERR_PTR(-EINVAL);
+
+ return ns;
+}
+
+static inline void zap_pid_ns_processes(struct pid_namespace *ns)
+{
+ BUG();
+}
+#endif

 static inline struct pid_namespace *task_active_pid_ns(struct task_struct *tsk)
 {
diff --git a/kernel/Makefile b/kernel/Makefile
index 76f782f..5817bfe 100644
--- a/kernel/Makefile
+++ b/kernel/Makefile
```

```
@@ -50,6 +49,7 @@ obj-$(CONFIG_AUDITSYSCALL) += auditsc.o
 obj-$(CONFIG_KPROBES) += kprobes.o
 obj-$(CONFIG_KGDB) += kgdb.o
 obj-$(CONFIG_NAMESPACES) += utsname.o
+obj-$(CONFIG_NAMESPACES) += pid_namespace.o
 obj-$(CONFIG_NAMESPACES_EXPERIMENTAL) += user_namespace.o
 obj-$(CONFIG_SYSFS) += ksysfs.o
 obj-$(CONFIG_DETECT_SOFTLOCKUP) += softlockup.o
diff --git a/kernel/pid.c b/kernel/pid.c
index e2e060e..05b1f9a 100644
--- a/kernel/pid.c
+++ b/kernel/pid.c
@@ -18,12 +18,6 @@
  * allocation scenario when all but one out of 1 million PIDs possible are
  * allocated already: the scanning of 32 list entries and at most PAGE_SIZE
  * bytes. The typical fastpath is a single successful setbit. Freeing is O(1).
- *
- * Pid namespaces:
- *    (C) 2007 Pavel Emelyanov <xemul@openvz.org>, OpenVZ, SWsoft Inc.
- *    (C) 2007 Sukadev Bhattiprolu <sukadev@us.ibm.com>, IBM
- *     Many thanks to Oleg Nesterov for comments and help
- *
  */

 #include <linux/mm.h>
@@ -34,14 +28,12 @@
 #include <linux/hash.h>
 #include <linux/pid_namespace.h>
 #include <linux/init_task.h>
-#include <linux/syscalls.h>

 #define pid_hashfn(nr, ns) \
  hash_long((unsigned long)nr + (unsigned long)ns, pidhash_shift)
 static struct hlist_head *pid_hash;
 static int pidhash_shift;
 struct pid init_struct_pid = INIT_STRUCT_PID;
-static struct kmem_cache *pid_ns_cachep;

 int pid_max = PID_MAX_DEFAULT;

@@ -181,7 +173,7 @@ static int alloc_pidmap(struct pid_names
  return -1;
 }

-static int next_pidmap(struct pid_namespace *pid_ns, int last)
+int next_pidmap(struct pid_namespace *pid_ns, int last)
 {
  int offset;
```

```
  struct pidmap *map, *end;
@@ -432,178 +424,6 @@ struct pid *find_ge_pid(int nr, struct p
 }
 EXPORT_SYMBOL_GPL(find_get_pid);

-struct pid_cache {
- int nr_ids;
- char name[16];
- struct kmem_cache *cachep;
- struct list_head list;
-};
-
-static LIST_HEAD(pid_caches_lh);
-static DEFINE_MUTEX(pid_caches_mutex);
-
-/*
- * creates the kmem cache to allocate pids from.
- * @nr_ids: the number of numerical ids this pid will have to carry
- */
-
-static struct kmem_cache *create_pid_cachep(int nr_ids)
-{
- struct pid_cache *pcache;
- struct kmem_cache *cachep;
-
- mutex_lock(&pid_caches_mutex);
- list_for_each_entry (pcache, &pid_caches_lh, list)
-  if (pcache->nr_ids == nr_ids)
-   goto out;
-
- pcache = kmalloc(sizeof(struct pid_cache), GFP_KERNEL);
- if (pcache == NULL)
-  goto err_alloc;
-
- snprintf(pcache->name, sizeof(pcache->name), "pid_%d", nr_ids);
- cachep = kmem_cache_create(pcache->name,
-   sizeof(struct pid) + (nr_ids - 1) * sizeof(struct upid),
-   0, SLAB_HWCACHE_ALIGN, NULL);
- if (cachep == NULL)
-  goto err_cachep;
-
- pcache->nr_ids = nr_ids;
- pcache->cachep = cachep;
- list_add(&pcache->list, &pid_caches_lh);
-out:
- mutex_unlock(&pid_caches_mutex);
- return pcache->cachep;
-
```

```
-err_cachep:
- kfree(pcache);
-err_alloc:
- mutex_unlock(&pid_caches_mutex);
- return NULL;
-}
-
-static struct pid_namespace *create_pid_namespace(int level)
-{
- struct pid_namespace *ns;
- int i;
-
- ns = kmem_cache_alloc(pid_ns_cachep, GFP_KERNEL);
- if (ns == NULL)
-  goto out;
-
- ns->pidmap[0].page = kzalloc(PAGE_SIZE, GFP_KERNEL);
- if (!ns->pidmap[0].page)
-  goto out_free;
-
- ns->pid_cachep = create_pid_cachep(level + 1);
- if (ns->pid_cachep == NULL)
-  goto out_free_map;
-
- kref_init(&ns->kref);
- ns->last_pid = 0;
- ns->child_reaper = NULL;
- ns->level = level;
-
- set_bit(0, ns->pidmap[0].page);
- atomic_set(&ns->pidmap[0].nr_free, BITS_PER_PAGE - 1);
-
- for (i = 1; i < PIDMAP_ENTRIES; i++) {
-  ns->pidmap[i].page = 0;
-  atomic_set(&ns->pidmap[i].nr_free, BITS_PER_PAGE);
- }
-
- return ns;
-
-out_free_map:
- kfree(ns->pidmap[0].page);
-out_free:
- kmem_cache_free(pid_ns_cachep, ns);
-out:
- return ERR_PTR(-ENOMEM);
-}
-
-static void destroy_pid_namespace(struct pid_namespace *ns)
```

```
-{
- int i;
-
- for (i = 0; i < PIDMAP_ENTRIES; i++)
-  kfree(ns->pidmap[i].page);
- kmem_cache_free(pid_ns_cachep, ns);
-}
-
-struct pid_namespace *copy_pid_ns(unsigned long flags, struct pid_namespace *old_ns)
-{
- struct pid_namespace *new_ns;
-
- BUG_ON(!old_ns);
- new_ns = get_pid_ns(old_ns);
- if (!(flags & CLONE_NEWPID))
-  goto out;
-
- new_ns = ERR_PTR(-EINVAL);
- if (flags & CLONE_THREAD)
-  goto out_put;
-
- new_ns = create_pid_namespace(old_ns->level + 1);
- if (!IS_ERR(new_ns))
-  new_ns->parent = get_pid_ns(old_ns);
-
-out_put:
- put_pid_ns(old_ns);
-out:
- return new_ns;
-}
-
-void free_pid_ns(struct kref *kref)
-{
- struct pid_namespace *ns, *parent;
-
- ns = container_of(kref, struct pid_namespace, kref);
-
- parent = ns->parent;
- destroy_pid_namespace(ns);
-
- if (parent != NULL)
-  put_pid_ns(parent);
-}
-
-void zap_pid_ns_processes(struct pid_namespace *pid_ns)
-{
- int nr;
- int rc;
```

```
-
- /*
-  * The last thread in the cgroup-init thread group is terminating.
-  * Find remaining pid_ts in the namespace, signal and wait for them
-  * to exit.
-  *
-  * Note:  This signals each threads in the namespace - even those that
-  *    belong to the same thread group, To avoid this, we would have
-  *    to walk the entire tasklist looking a processes in this
-  *    namespace, but that could be unnecessarily expensive if the
-  *    pid namespace has just a few processes. Or we need to
-  *    maintain a tasklist for each pid namespace.
-  *
-  */
- read_lock(&tasklist_lock);
- nr = next_pidmap(pid_ns, 1);
- while (nr > 0) {
-  kill_proc_info(SIGKILL, SEND_SIG_PRIV, nr);
-  nr = next_pidmap(pid_ns, nr);
- }
- read_unlock(&tasklist_lock);
-
- do {
-  clear_thread_flag(TIF_SIGPENDING);
-  rc = sys_wait4(-1, NULL, __WALL, NULL);
- } while (rc != -ECHILD);
-
-
- /* Child reaper for the pid namespace is going away */
- pid_ns->child_reaper = NULL;
- return;
-}
-
 /*
  * The pid hash table is scaled according to the amount of memory in the
  * machine.  From a minimum of 16 slots up to 4096 slots at one gigabyte or
@@ -636,9 +456,6 @@ void __init pidmap_init(void)
  set_bit(0, init_pid_ns.pidmap[0].page);
  atomic_dec(&init_pid_ns.pidmap[0].nr_free);

- init_pid_ns.pid_cachep = create_pid_cachep(1);
- if (init_pid_ns.pid_cachep == NULL)
-  panic("Can't create pid_1 cachep\n");
-
- pid_ns_cachep = KMEM_CACHE(pid_namespace, SLAB_PANIC);
+ init_pid_ns.pid_cachep = kmem_cache_create("pid", sizeof(struct pid),
+   0, SLAB_HWCACHE_ALIGN | SLAB_PANIC, NULL);
 }
```

```
diff --git a/kernel/pid_namespace.c b/kernel/pid_namespace.c
new file mode 100644
index 0000000..2936923
--- /dev/null
+++ b/kernel/pid_namespace.c
@@ -0,0 +1,196 @@
+/*
+ * Pid namespaces
+ *
+ * Authors:
+ *    (C) 2007 Pavel Emelyanov <xemul@openvz.org>, OpenVZ, SWsoft Inc.
+ *    (C) 2007 Sukadev Bhattiprolu <sukadev@us.ibm.com>, IBM
+ *     Many thanks to Oleg Nesterov for comments and help
+ *
+ */
+
+#include <linux/pid.h>
+#include <linux/pid_namespace.h>
+#include <linux/syscalls.h>
+
+#define BITS_PER_PAGE  (PAGE_SIZE*8)
+
+struct pid_cache {
+ int nr_ids;
+ char name[16];
+ struct kmem_cache *cachep;
+ struct list_head list;
+};
+
+static LIST_HEAD(pid_caches_lh);
+static DEFINE_MUTEX(pid_caches_mutex);
+static struct kmem_cache *pid_ns_cachep;
+
+/*
+ * creates the kmem cache to allocate pids from.
+ * @nr_ids: the number of numerical ids this pid will have to carry
+ */
+
+static struct kmem_cache *create_pid_cachep(int nr_ids)
+{
+ struct pid_cache *pcache;
+ struct kmem_cache *cachep;
+
+ mutex_lock(&pid_caches_mutex);
+ list_for_each_entry (pcache, &pid_caches_lh, list)
+  if (pcache->nr_ids == nr_ids)
+   goto out;
+
```

```
+ pcache = kmalloc(sizeof(struct pid_cache), GFP_KERNEL);
+ if (pcache == NULL)
+  goto err_alloc;
+
+ snprintf(pcache->name, sizeof(pcache->name), "pid_%d", nr_ids);
+ cachep = kmem_cache_create(pcache->name,
+   sizeof(struct pid) + (nr_ids - 1) * sizeof(struct upid),
+   0, SLAB_HWCACHE_ALIGN, NULL);
+ if (cachep == NULL)
+  goto err_cachep;
+
+ pcache->nr_ids = nr_ids;
+ pcache->cachep = cachep;
+ list_add(&pcache->list, &pid_caches_lh);
+out:
+ mutex_unlock(&pid_caches_mutex);
+ return pcache->cachep;
+
+err_cachep:
+ kfree(pcache);
+err_alloc:
+ mutex_unlock(&pid_caches_mutex);
+ return NULL;
+}
+
+static struct pid_namespace *create_pid_namespace(int level)
+{
+ struct pid_namespace *ns;
+ int i;
+
+ ns = kmem_cache_alloc(pid_ns_cachep, GFP_KERNEL);
+ if (ns == NULL)
+  goto out;
+
+ ns->pidmap[0].page = kzalloc(PAGE_SIZE, GFP_KERNEL);
+ if (!ns->pidmap[0].page)
+  goto out_free;
+
+ ns->pid_cachep = create_pid_cachep(level + 1);
+ if (ns->pid_cachep == NULL)
+  goto out_free_map;
+
+ kref_init(&ns->kref);
+ ns->last_pid = 0;
+ ns->child_reaper = NULL;
+ ns->level = level;
+
+ set_bit(0, ns->pidmap[0].page);
```

```
+ atomic_set(&ns->pidmap[0].nr_free, BITS_PER_PAGE - 1);
+
+ for (i = 1; i < PIDMAP_ENTRIES; i++) {
+  ns->pidmap[i].page = 0;
+  atomic_set(&ns->pidmap[i].nr_free, BITS_PER_PAGE);
+ }
+
+ return ns;
+
+out_free_map:
+ kfree(ns->pidmap[0].page);
+out_free:
+ kmem_cache_free(pid_ns_cachep, ns);
+out:
+ return ERR_PTR(-ENOMEM);
+}
+
+static void destroy_pid_namespace(struct pid_namespace *ns)
+{
+ int i;
+
+ for (i = 0; i < PIDMAP_ENTRIES; i++)
+  kfree(ns->pidmap[i].page);
+ kmem_cache_free(pid_ns_cachep, ns);
+}
+
+struct pid_namespace *copy_pid_ns(unsigned long flags, struct pid_namespace *old_ns)
+{
+ struct pid_namespace *new_ns;
+
+ BUG_ON(!old_ns);
+ new_ns = get_pid_ns(old_ns);
+ if (!(flags & CLONE_NEWPID))
+  goto out;
+
+ new_ns = ERR_PTR(-EINVAL);
+ if (flags & CLONE_THREAD)
+  goto out_put;
+
+ new_ns = create_pid_namespace(old_ns->level + 1);
+ if (!IS_ERR(new_ns))
+  new_ns->parent = get_pid_ns(old_ns);
+
+out_put:
+ put_pid_ns(old_ns);
+out:
+ return new_ns;
+}
```

```
+
+void free_pid_ns(struct kref *kref)
+{
+ struct pid_namespace *ns, *parent;
+
+ ns = container_of(kref, struct pid_namespace, kref);
+
+ parent = ns->parent;
+ destroy_pid_namespace(ns);
+
+ if (parent != NULL)
+  put_pid_ns(parent);
+}
+
+void zap_pid_ns_processes(struct pid_namespace *pid_ns)
+{
+ int nr;
+ int rc;
+
+ /*
+  * The last thread in the cgroup-init thread group is terminating.
+  * Find remaining pid_ts in the namespace, signal and wait for them
+  * to exit.
+  *
+  * Note:  This signals each threads in the namespace - even those that
+  *    belong to the same thread group, To avoid this, we would have
+  *    to walk the entire tasklist looking a processes in this
+  *    namespace, but that could be unnecessarily expensive if the
+  *    pid namespace has just a few processes. Or we need to
+  *    maintain a tasklist for each pid namespace.
+  *
+  */
+ read_lock(&tasklist_lock);
+ nr = next_pidmap(pid_ns, 1);
+ while (nr > 0) {
+  kill_proc_info(SIGKILL, SEND_SIG_PRIV, nr);
+  nr = next_pidmap(pid_ns, nr);
+ }
+ read_unlock(&tasklist_lock);
+
+ do {
+  clear_thread_flag(TIF_SIGPENDING);
+  rc = sys_wait4(-1, NULL, __WALL, NULL);
+ } while (rc != -ECHILD);
+
+
+ /* Child reaper for the pid namespace is going away */
+ pid_ns->child_reaper = NULL;
```

```
+ return;
+}
+
+static __init int pid_namespaces_init(void)
+{
+ pid_ns_cachep = KMEM_CACHE(pid_namespace, SLAB_PANIC);
+ return 0;
+}
+
+__initcall(pid_namespaces_init);
```

_____

Containers mailing list
Containers@lists.linux-foundation.org
https://lists.linux-foundation.org/mailman/listinfo/containers

---

Subject: Re: [PATCH 1/5] The config option itself
Posted by Randy Dunlap on Wed, 26 Sep 2007 16:30:28 GMT
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On Wed, 26 Sep 2007 19:43:28 +0400 Pavel Emelyanov wrote:

> The option is called NAMESPACES. It can be selectable only
> if EMBEDDED is chosen (this was Eric's requisition). When
> the EMBEDDED is off namespaces will be on automatically.

and when EMBEDDED is on, namespaces will be off automatically,
until it is enabled? Is that what you want? (It's OK by me.)

Same way for NAMESPACES_EXPERIMENTAL.

> One more option (NAMESPACES_EXPERIMENTAL) was added by
> Serge's request to move there all the namespaces that are
> not finished yet. Currently only the user and the network
> namespaces are such.
>
> Signed-off-by: Pavel Emelyanov <xemul@openvz.org>
>
> ---
>
> diff --git a/init/Kconfig b/init/Kconfig
> index 684ccfb..05a71d7 100644
> --- a/init/Kconfig
> +++ b/init/Kconfig
> @@ -369,6 +360,23 @@ config RELAY
>
> If unsure, say N.
>

> +config NAMESPACES
> + bool "The namespaces support" if EMBEDDED

 bool "Namespaces support" if EMBEDDED

> + default !EMBEDDED
> + help
> +   Provides the way to make tasks work with different objects using
> +   the same id. For example same IPC id may refer to different objects
> +   or same user id or pid may refer to different tasks when used in
> +   different namespaces.
> +
> +config NAMESPACES_EXPERIMENTAL
> + bool "Add the experimantal namespaces support" if EMBEDDED

            experimental

> + depends on NAMESPACES && EXPERIMENTAL
> + default !EMBEDDED
> + help
> +   Also include the support for the namespaces that are not fnished
> +   or well developed yet
> +
> config BLK_DEV_INITRD
>   bool "Initial RAM filesystem and RAM disk (initramfs/initrd) support"
>   depends on BROKEN || !FRV
> -

~Randy
Phaedrus says that Quality is about caring.

_____
Containers mailing list
Containers@lists.linux-foundation.org
https://lists.linux-foundation.org/mailman/listinfo/containers

---

Subject: Re: [PATCH 1/5] The config option itself
Posted by serue on Wed, 26 Sep 2007 16:34:32 GMT
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Quoting Pavel Emelyanov (xemul@openvz.org):
> The option is called NAMESPACES. It can be selectable only
> if EMBEDDED is chosen (this was Eric's requisition). When
> the EMBEDDED is off namespaces will be on automatically.
>
> One more option (NAMESPACES_EXPERIMENTAL) was added by

> Serge's request to move there all the namespaces that are
> not finished yet. Currently only the user and the network
> namespaces are such.
>
> Signed-off-by: Pavel Emelyanov <xemul@openvz.org>
>
> ---
>
> diff --git a/init/Kconfig b/init/Kconfig
> index 684ccfb..05a71d7 100644
> --- a/init/Kconfig
> +++ b/init/Kconfig
> @@ -369,6 +360,23 @@ config RELAY
>
>   If unsure, say N.
>
> +config NAMESPACES
> + bool "The namespaces support" if EMBEDDED
> + default !EMBEDDED
> + help
> +   Provides the way to make tasks work with different objects using
> +   the same id. For example same IPC id may refer to different objects
> +   or same user id or pid may refer to different tasks when used in
> +   different namespaces.
> +
> +config NAMESPACES_EXPERIMENTAL
> + bool "Add the experimantal namespaces support" if EMBEDDED

Hi Pavel,

Overall this patchset looks good.

However the NAMESPACES_EXPERIMENTAL option should not have the
'if EMBEDDED', right? This is about EXPERIMENTAL, not about
EMBEDDED, unlike the plain NAMESPACES option.

-serge

> + depends on NAMESPACES && EXPERIMENTAL
> + default !EMBEDDED
> + help
> +   Also include the support for the namespaces that are not fnished
> +   or well developed yet
> +
> config BLK_DEV_INITRD
>   bool "Initial RAM filesystem and RAM disk (initramfs/initrd) support"
>   depends on BROKEN || !FRV

_____

Subject: Re: [PATCH 1/5] The config option itself
Posted by serue on Wed, 26 Sep 2007 17:06:21 GMT
View Forum Message <> Reply to Message

Quoting Serge E. Hallyn (serue@us.ibm.com):
> Quoting Pavel Emelyanov (xemul@openvz.org):
> > The option is called NAMESPACES. It can be selectable only
> > if EMBEDDED is chosen (this was Eric's requisition). When
> > the EMBEDDED is off namespaces will be on automatically.
> >
> > One more option (NAMESPACES_EXPERIMENTAL) was added by
> > Serge's request to move there all the namespaces that are
> > not finished yet. Currently only the user and the network
> > namespaces are such.
> >
> > Signed-off-by: Pavel Emelyanov <xemul@openvz.org>
> >
> > ---
> >
> > diff --git a/init/Kconfig b/init/Kconfig
> > index 684ccfb..05a71d7 100644
> > --- a/init/Kconfig
> > +++ b/init/Kconfig
> > @@ -369,6 +360,23 @@ config RELAY
> >
> > If unsure, say N.
> >
> > +config NAMESPACES
> > + bool "The namespaces support" if EMBEDDED
> > + default !EMBEDDED
> > + help
> > + Provides the way to make tasks work with different objects using
> > + the same id. For example same IPC id may refer to different objects
> > + or same user id or pid may refer to different tasks when used in
> > + different namespaces.
> > +
> > +config NAMESPACES_EXPERIMENTAL
> > + bool "Add the experimantal namespaces support" if EMBEDDED
>
> Hi Pavel,
>
> Overall this patchset looks good.
>

> However the NAMESPACES_EXPERIMENTAL option should not have the
> 'if EMBEDDED', right? This is about EXPERIMENTAL, not about
> EMBEDDED, unlike the plain NAMESPACES option.
>
> -serge

Actually that doesn't seem to work either. Even though
SECURITY_NAMESPACES=y, the config system seems to infer that
since NAMESPACES is not user-selectable, NAMESPACES_EXPERIMENTAL
shouldn't be either. So we end up with NAMESPACES_EXPERIMENTAL
being on and not un-selectable if !EMBEDDED.

> > + depends on NAMESPACES && EXPERIMENTAL
> > + default !EMBEDDED
> > + help
> > +   Also include the support for the namespaces that are not fnished
> > +   or well developed yet
> > +
> > config BLK_DEV_INITRD
> >   bool "Initial RAM filesystem and RAM disk (initramfs/initrd) support"
> >   depends on BROKEN || !FRV

_____
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Subject: Re: [PATCH 1/5] The config option itself
Posted by Sukadev Bhattiprolu on Thu, 27 Sep 2007 02:30:24 GMT
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Serge E. Hallyn [serue@us.ibm.com] wrote:
| Quoting Serge E. Hallyn (serue@us.ibm.com):
| > Quoting Pavel Emelyanov (xemul@openvz.org):
| > > The option is called NAMESPACES. It can be selectable only
| > > if EMBEDDED is chosen (this was Eric's requisition). When
| > > the EMBEDDED is off namespaces will be on automatically.
| > >
| > > One more option (NAMESPACES_EXPERIMENTAL) was added by
| > > Serge's request to move there all the namespaces that are
| > > not finished yet. Currently only the user and the network
| > > namespaces are such.
| > >
| > > Signed-off-by: Pavel Emelyanov <xemul@openvz.org>
| > >
| > > ---
| > >
| > > diff --git a/init/Kconfig b/init/Kconfig

| > > index 684ccfb..05a71d7 100644
| > > --- a/init/Kconfig
| > > +++ b/init/Kconfig
| > > @@ -369,6 +360,23 @@ config RELAY
| > >
| > >   If unsure, say N.
| > >
| > > +config NAMESPACES
| > > + bool "The namespaces support" if EMBEDDED
| > > + default !EMBEDDED
| > > + help
| > > +   Provides the way to make tasks work with different objects using
| > > +   the same id. For example same IPC id may refer to different objects
| > > +   or same user id or pid may refer to different tasks when used in
| > > +   different namespaces.
| > > +
| > > +config NAMESPACES_EXPERIMENTAL
| > > + bool "Add the experimantal namespaces support" if EMBEDDED
| >
| > Hi Pavel,
| >
| > Overall this patchset looks good.
| >
| > However the NAMESPACES_EXPERIMENTAL option should not have the
| > 'if EMBEDDED', right? This is about EXPERIMENTAL, not about
| > EMBEDDED, unlike the plain NAMESPACES option.
| >
| > -serge
|
| Actually that doesn't seem to work either. Even though
| SECURITY_NAMESPACES=y, the config system seems to infer that
| since NAMESPACES is not user-selectable, NAMESPACES_EXPERIMENTAL
| shouldn't be either. So we end up with NAMESPACES_EXPERIMENTAL
| being on and not un-selectable if !EMBEDDED.

Yes. Given that NAMESPACES depends on EMBEDDED, NAMESPACES_EXPERIMENTAL
can simply depend on NAMESPACES and EXPERIMENTAL with a default of N.

BTW, does the position of 'config NAMESPACES' in init/Kconfig file
matter ? If it is dependent on EMBEDDED, should it not come later
in the file, after 'config EMBEDDED' ?

|
| > > + depends on NAMESPACES && EXPERIMENTAL
| > > + default !EMBEDDED
| > > + help
| > > +   Also include the support for the namespaces that are not fnished
| > > +   or well developed yet

| > > +
| > > config BLK_DEV_INITRD
| > >   bool "Initial RAM filesystem and RAM disk (initramfs/initrd) support"
| > >   depends on BROKEN || !FRV
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Subject: Re: [PATCH 1/5] The config option itself
Posted by Pavel Emelianov on Thu, 27 Sep 2007 08:22:03 GMT
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sukadev@us.ibm.com wrote:
> Serge E. Hallyn [serue@us.ibm.com] wrote:
> | Quoting Serge E. Hallyn (serue@us.ibm.com):
> | > Quoting Pavel Emelyanov (xemul@openvz.org):
> | > > The option is called NAMESPACES. It can be selectable only
> | > > if EMBEDDED is chosen (this was Eric's requisition). When
> | > > the EMBEDDED is off namespaces will be on automatically.
> | > >
> | > > One more option (NAMESPACES_EXPERIMENTAL) was added by
> | > > Serge's request to move there all the namespaces that are
> | > > not finished yet. Currently only the user and the network
> | > > namespaces are such.
> | > >
> | > > Signed-off-by: Pavel Emelyanov <xemul@openvz.org>
> | > >
> | > > ---
> | > >
> | > > diff --git a/init/Kconfig b/init/Kconfig
> | > > index 684ccfb..05a71d7 100644
> | > > --- a/init/Kconfig
> | > > +++ b/init/Kconfig
> | > > @@ -369,6 +360,23 @@ config RELAY
> | > >
> | > >   If unsure, say N.
> | > >
> | > > +config NAMESPACES
> | > > + bool "The namespaces support" if EMBEDDED
> | > > + default !EMBEDDED
> | > > + help
> | > > +   Provides the way to make tasks work with different objects using

> | > > +   the same id. For example same IPC id may refer to different objects
> | > > +   or same user id or pid may refer to different tasks when used in
> | > > +   different namespaces.
> | > > +
> | > > +config NAMESPACES_EXPERIMENTAL
> | > > + bool "Add the experimantal namespaces support" if EMBEDDED
> | >
> | > Hi Pavel,
> | >
> | > Overall this patchset looks good.
> | >
> | > However the NAMESPACES_EXPERIMENTAL option should not have the
> | > 'if EMBEDDED', right? This is about EXPERIMENTAL, not about
> | > EMBEDDED, unlike the plain NAMESPACES option.
> | >
> | > -serge
> |
> | Actually that doesn't seem to work either. Even though
> | SECURITY_NAMESPACES=y, the config system seems to infer that
> | since NAMESPACES is not user-selectable, NAMESPACES_EXPERIMENTAL
> | shouldn't be either. So we end up with NAMESPACES_EXPERIMENTAL
> | being on and not un-selectable if !EMBEDDED.
>
> Yes. Given that NAMESPACES depends on EMBEDDED, NAMESPACES_EXPERIMENTAL
> can simply depend on NAMESPACES and EXPERIMENTAL with a default of N.

Nope. The intention is that the NAMESPACES and NAMESPACES_EXPERIMENTAL
must not be selectable if EMBEDDED=n, but if we make NS_EXPERIMENTAL
depend on NAMESPACES only we'll have to make a choice in !EMBEDDED.

> BTW, does the position of 'config NAMESPACES' in init/Kconfig file
> matter ? If it is dependent on EMBEDDED, should it not come later
> in the file, after 'config EMBEDDED' ?
>
> |
> | > > + depends on NAMESPACES && EXPERIMENTAL
> | > > + default !EMBEDDED
> | > > + help
> | > > +   Also include the support for the namespaces that are not fnished
> | > > +   or well developed yet
> | > > +
> | > > config BLK_DEV_INITRD
> | > >   bool "Initial RAM filesystem and RAM disk (initramfs/initrd) support"
> | > >   depends on BROKEN || !FRV
> | _____
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> | Containers@lists.linux-foundation.org
> | https://lists.linux-foundation.org/mailman/listinfo/containers

>

_____

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---

Subject: Re: [PATCH 1/5] The config option itself
Posted by Cedric Le Goater on Thu, 27 Sep 2007 12:28:31 GMT
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Pavel Emelyanov wrote:
> The option is called NAMESPACES. It can be selectable only
> if EMBEDDED is chosen (this was Eric's requisition). When
> the EMBEDDED is off namespaces will be on automatically.
>
> One more option (NAMESPACES_EXPERIMENTAL) was added by
> Serge's request to move there all the namespaces that are
> not finished yet. Currently only the user and the network
> namespaces are such.
>
> Signed-off-by: Pavel Emelyanov <xemul@openvz.org>

Acked-by: Cedric Le Goater <clg@fr.ibm.com>

Thanks !

C.
>
> ---
>
> diff --git a/init/Kconfig b/init/Kconfig
> index 684ccfb..05a71d7 100644
> --- a/init/Kconfig
> +++ b/init/Kconfig
> @@ -369,6 +360,23 @@ config RELAY
>
> If unsure, say N.
>
> +config NAMESPACES
> + bool "The namespaces support" if EMBEDDED
> + default !EMBEDDED
> + help
> + Provides the way to make tasks work with different objects using
> + the same id. For example same IPC id may refer to different objects
> + or same user id or pid may refer to different tasks when used in
> + different namespaces.

> +
> +config NAMESPACES_EXPERIMENTAL
> + bool "Add the experimantal namespaces support" if EMBEDDED
> + depends on NAMESPACES && EXPERIMENTAL
> + default !EMBEDDED
> + help
> +   Also include the support for the namespaces that are not fnished
> +   or well developed yet
> +
> config BLK_DEV_INITRD
>   bool "Initial RAM filesystem and RAM disk (initramfs/initrd) support"
>   depends on BROKEN || !FRV
>

_____
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---

Subject: Re: [PATCH 2/5] Move the UST namespace under the option
Posted by Cedric Le Goater on Thu, 27 Sep 2007 12:29:33 GMT
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Pavel Emelyanov wrote:
> Currently all the namespace management code is in the
> kernel/utsname.c file, so just compile it out and make
> stub in .h file.
>
> The init namespace itself is in init/version.c and is
> left in the kernel.
>
> Signed-off-by: Pavel Emelyanov <xemul@openvz.org>

Acked-by: Cedric Le Goater <clg@fr.ibm.com>

Thanks !

C.
>
> ---
>
> diff --git a/include/linux/utsname.h b/include/linux/utsname.h
> index 923db99..52b9116 100644
> --- a/include/linux/utsname.h
> +++ b/include/linux/utsname.h
> @@ -35,6 +35,7 @@ struct new_utsname {
> #include <linux/sched.h>

> #include <linux/kref.h>
> #include <linux/nsproxy.h>
> +#include <linux/err.h>
> #include <asm/atomic.h>
>
> struct uts_namespace {
> @@ -43,6 +44,7 @@ struct uts_namespace {
> };
> extern struct uts_namespace init_uts_ns;
>
> +#ifdef CONFIG_NAMESPACES
> static inline void get_uts_ns(struct uts_namespace *ns)
> {
>   kref_get(&ns->kref);
> @@ -56,6 +58,25 @@ static inline void put_uts_ns(struct uts
> {
>   kref_put(&ns->kref, free_uts_ns);
> }
> +#else
> +static inline void get_uts_ns(struct uts_namespace *ns)
> +{
> +}
> +
> +static inline void put_uts_ns(struct uts_namespace *ns)
> +{
> +}
> +
> +static inline struct uts_namespace *copy_utsname(unsigned long flags,
> +   struct uts_namespace *ns)
> +{
> + if (flags & CLONE_NEWUTS)
> + return ERR_PTR(-EINVAL);
> +
> + return ns;
> +}
> +#endif
> +
> static inline struct new_utsname *utsname(void)
> {
>   return &current->nsproxy->uts_ns->name;
> diff --git a/kernel/Makefile b/kernel/Makefile
> index 76f782f..5817bfe 100644
> --- a/kernel/Makefile
> +++ b/kernel/Makefile
> @@ -4,8 +4,7 @@
>   signal.o sys.o kmod.o workqueue.o pid.o \
>   rcupdate.o extable.o params.o posix-timers.o \
>   kthread.o wait.o kfifo.o sys_ni.o posix-cpu-timers.o mutex.o \

> -   hrtimer.o rwsem.o latency.o nsproxy.o srcu.o \
> -   utsname.o notifier.o sysctl.o
> +   hrtimer.o rwsem.o latency.o nsproxy.o srcu.o notifier.o sysctl.o
>
> obj-$(CONFIG_SYSCTL) += sysctl_check.o
> obj-$(CONFIG_STACKTRACE) += stacktrace.o
> @@ -50,6 +49,7 @@ obj-$(CONFIG_AUDITSYSCALL) += auditsc.o
> obj-$(CONFIG_AUDIT_TREE) += audit_tree.o
> obj-$(CONFIG_KPROBES) += kprobes.o
> obj-$(CONFIG_KGDB) += kgdb.o
> +obj-$(CONFIG_NAMESPACES) += utsname.o
> obj-$(CONFIG_SYSFS) += ksysfs.o
> obj-$(CONFIG_DETECT_SOFTLOCKUP) += softlockup.o
> obj-$(CONFIG_GENERIC_HARDIRQS) += irq/
>
> -
> To unsubscribe from this list: send the line "unsubscribe linux-kernel" in
> the body of a message to majordomo@vger.kernel.org
> More majordomo info at http://vger.kernel.org/majordomo-info.html
> Please read the FAQ at http://www.tux.org/lkml/
>

Subject: Re: [PATCH 4/5] Move the user namespace under the option
Posted by Cedric Le Goater on Thu, 27 Sep 2007 12:31:32 GMT
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Pavel Emelyanov wrote:
> We currently have a CONFIG_USER_NS option. Just rename it
> into CONFIG_NAMESPACES_EXPERIMANTAL and move the init_user_ns
> into user.c file to make the kernel compile and work without
> the namespaces support.
>
> Signed-off-by: Pavel Emelyanov <xemul@openvz.org>

Acked-by: Cedric Le Goater <clg@fr.ibm.com>

Thanks !

C.

> ---

>
> diff --git a/include/linux/user_namespace.h b/include/linux/user_namespace.h
> index b5f41d4..dda160c 100644
> --- a/include/linux/user_namespace.h
> +++ b/include/linux/user_namespace.h
> @@ -17,7 +17,7 @@ struct user_namespace {
>
> extern struct user_namespace init_user_ns;
>
> -#ifdef CONFIG_USER_NS
> +#ifdef CONFIG_NAMESPACES_EXPERIMENTAL
>
> static inline struct user_namespace *get_user_ns(struct user_namespace *ns)
> {
> diff --git a/init/Kconfig b/init/Kconfig
> index 684ccfb..0db1c3b 100644
> --- a/init/Kconfig
> +++ b/init/Kconfig
> @@ -206,15 +206,6 @@ config TASK_IO_ACCOUNTING
>
>   Say N if unsure.
>
> -config USER_NS
> - bool "User Namespaces (EXPERIMENTAL)"
> - default n
> - depends on EXPERIMENTAL
> - help
> -   Support user namespaces. This allows containers, i.e.
> -   vservers, to use user namespaces to provide different
> -   user info for different servers. If unsure, say N.
> -
> config AUDIT
>   bool "Auditing support"
>   depends on NET
> diff --git a/kernel/Makefile b/kernel/Makefile
> index 76f782f..5817bfe 100644
> --- a/kernel/Makefile
> +++ b/kernel/Makefile
> @@ -4,7 +4,7 @@
>
> obj-y   = sched.o fork.o exec_domain.o panic.o printk.o profile.o \
>   exit.o itimer.o time.o softirq.o resource.o \
> -   sysctl.o capability.o ptrace.o timer.o user.o user_namespace.o \
> +   sysctl.o capability.o ptrace.o timer.o user.o \
>   signal.o sys.o kmod.o workqueue.o pid.o \
>   rcupdate.o extable.o params.o posix-timers.o \
>   kthread.o wait.o kfifo.o sys_ni.o posix-cpu-timers.o mutex.o \
> @@ -50,6 +49,7 @@ obj-$(CONFIG_AUDITSYSCALL) += auditsc.o

> obj-$(CONFIG_KPROBES) += kprobes.o
> obj-$(CONFIG_KGDB) += kgdb.o
> obj-$(CONFIG_NAMESPACES) += utsname.o
> +obj-$(CONFIG_NAMESPACES_EXPERIMENTAL) += user_namespace.o
> obj-$(CONFIG_SYSFS) += ksysfs.o
> obj-$(CONFIG_DETECT_SOFTLOCKUP) += softlockup.o
> obj-$(CONFIG_GENERIC_HARDIRQS) += irq/
> diff --git a/kernel/user.c b/kernel/user.c
> index b45f55f..d7c0831 100644
> --- a/kernel/user.c
> +++ b/kernel/user.c
> @@ -17,6 +17,15 @@
> #include <linux/module.h>
> #include <linux/user_namespace.h>
>
> +struct user_namespace init_user_ns = {
> + .kref = {
> + .refcount = ATOMIC_INIT(2),
> + },
> + .root_user = &root_user,
> +};
> +
> +EXPORT_SYMBOL_GPL(init_user_ns);
> +
> /*
>   * UID task count cache, to get fast user lookup in "alloc_uid"
>   * when changing user ID's (ie setuid() and friends).
> @@ -199,6 +208,7 @@ void switch_uid(struct user_struct *new_
>   suid_keys(current);
> }
>
> +#ifdef CONFIG_NAMESPACES_EXPERIMENTAL
> void release_uids(struct user_namespace *ns)
> {
>   int i;
> @@ -223,6 +233,7 @@ void release_uids(struct user_namespace
>
>   free_uid(ns->root_user);
> }
> +#endif
>
> static int __init uid_cache_init(void)
> {
> diff --git a/kernel/user_namespace.c b/kernel/user_namespace.c
> index 7af90fc..4c90062 100644
> --- a/kernel/user_namespace.c
> +++ b/kernel/user_namespace.c
> @@ -10,17 +10,6 @@

> #include <linux/nsproxy.h>
> #include <linux/user_namespace.h>
>
> -struct user_namespace init_user_ns = {
> - .kref = {
> - .refcount = ATOMIC_INIT(2),
> - },
> - .root_user = &root_user,
> -};
> -
> -EXPORT_SYMBOL_GPL(init_user_ns);
> -
> -#ifdef CONFIG_USER_NS
> -
> /*
>   * Clone a new ns copying an original user ns, setting refcount to 1
>   * @old_ns: namespace to clone
> @@ -84,5 +73,3 @@ void free_user_ns(struct kref *kref)
>   release_uids(ns);
>   kfree(ns);
> }
> -
> -#endif /* CONFIG_USER_NS */
>
>

_____
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Subject: Re: [PATCH 3/5] Move the IPC namespace under the option
Posted by Cedric Le Goater on Thu, 27 Sep 2007 12:38:51 GMT
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Pavel Emelyanov wrote:
> Currently all the IPC namespace management code is in
> ipc/util.c. I moved this code into ipc/namespace.c file
> which is compiled out when needed.
>
> The linux/ipc_namespace.h file is used to store the
> prototypes of the functions in namespace.c and the stubs
> for NAMESPACES=n case. This is done so, because the stub
> for copy_ipc_namespace requires the knoweledge of the
> CLONE_NEWIPC flag, which is in sched.h. But the linux/ipc.h
> file itself in included into many many .c files via the
> sys.h->sem.h sequence so adding the sched.h into it will

> make all these .c depend on sched.h which is not that good.
> On the other hand the knowledge about the namespaces stuff
> is required in 4 .c files only.
>
> Besides, this patch compiles out some auxiliary functions
> from ipc/sem.c, msg.c and shm.c files.
>
> Signied-off-by: Pavel Emelyanov <xemul@openvz.org>
      ^
that sounds french :)

Also, for the code aesthetic,

I think that ipc/ipc_namespace.c is a better name which fits
the header file ipc/ipc_namespace.h.

I'm wondering if it possible to move the init routines :

```
#ifdef CONFIG_NAMESPACES
int {msg,sem,shm}_init_ns(struct ipc_namespace *ns)
{
 ...
}
#endif
```

from the ipc/{msg,sem,shm}.c file to the ipc/ipc_namespace.c file.
It would look better in the code than using ugly #ifdef.

Thanks !

C.

>
> ---
>
> diff --git a/include/linux/ipc.h b/include/linux/ipc.h
> index 96988d1..b882610 100644
> --- a/include/linux/ipc.h
> +++ b/include/linux/ipc.h
> @@ -100,56 +100,6 @@ struct kern_ipc_perm
>   void *security;
> };
>
> -struct ipc_ids;
> -struct ipc_namespace {
> - struct kref kref;
> - struct ipc_ids *ids[3];

```
> -
> - int  sem_ctls[4];
> - int  used_sems;
> -
> - int  msg_ctlmax;
> - int  msg_ctlmnb;
> - int  msg_ctlmni;
> -
> - size_t  shm_ctlmax;
> - size_t  shm_ctlall;
> - int  shm_ctlmni;
> - int  shm_tot;
> -};
> -
> -extern struct ipc_namespace init_ipc_ns;
> -
> -#ifdef CONFIG_SYSVIPC
> -#define INIT_IPC_NS(ns)  .ns  = &init_ipc_ns,
> -extern void free_ipc_ns(struct kref *kref);
> -extern struct ipc_namespace *copy_ipcs(unsigned long flags,
> -      struct ipc_namespace *ns);
> -#else
> -#define INIT_IPC_NS(ns)
> -static inline struct ipc_namespace *copy_ipcs(unsigned long flags,
> -      struct ipc_namespace *ns)
> -{
> - return ns;
> -}
> -#endif
> -
> -static inline struct ipc_namespace *get_ipc_ns(struct ipc_namespace *ns)
> -{
> -#ifdef CONFIG_SYSVIPC
> - if (ns)
> -  kref_get(&ns->kref);
> -#endif
> - return ns;
> -}
> -
> -static inline void put_ipc_ns(struct ipc_namespace *ns)
> -{
> -#ifdef CONFIG_SYSVIPC
> - kref_put(&ns->kref, free_ipc_ns);
> -#endif
> -}
> -
>  #endif /* __KERNEL__ */
>
```

```
>  #endif /* _LINUX_IPC_H */
> diff --git a/include/linux/ipc_namespace.h b/include/linux/ipc_namespace.h
> new file mode 100644
> index 0000000..3d8a516
> --- /dev/null
> +++ b/include/linux/ipc_namespace.h
> @@ -0,0 +1,67 @@
> +#ifndef __IPC_NAMESPACE_H__
> +#define __IPC_NAMESPACE_H__
> +
> +#include <linux/err.h>
> +
> +struct ipc_ids;
> +struct ipc_namespace {
> + struct kref kref;
> + struct ipc_ids *ids[3];
> +
> + int  sem_ctls[4];
> + int  used_sems;
> +
> + int  msg_ctlmax;
> + int  msg_ctlmnb;
> + int  msg_ctlmni;
> +
> + size_t  shm_ctlmax;
> + size_t  shm_ctlall;
> + int  shm_ctlmni;
> + int  shm_tot;
> +};
> +
> +extern struct ipc_namespace init_ipc_ns;
> +
> +#ifdef CONFIG_SYSVIPC
> +#define INIT_IPC_NS(ns)  .ns  = &init_ipc_ns,
> +#else
> +#define INIT_IPC_NS(ns)
> +#endif
> +
> +#if defined(CONFIG_SYSVIPC) && defined(CONFIG_NAMESPACES)
> +extern void free_ipc_ns(struct kref *kref);
> +extern struct ipc_namespace *copy_ipcs(unsigned long flags,
> +      struct ipc_namespace *ns);
> +
> +static inline struct ipc_namespace *get_ipc_ns(struct ipc_namespace *ns)
> +{
> + if (ns)
> +  kref_get(&ns->kref);
> + return ns;
```

```
> +}
> +
> +static inline void put_ipc_ns(struct ipc_namespace *ns)
> +{
> + kref_put(&ns->kref, free_ipc_ns);
> +}
> +#else
> +static inline struct ipc_namespace *copy_ipcs(unsigned long flags,
> +  struct ipc_namespace *ns)
> +{
> + if (flags & CLONE_NEWIPC)
> +  return ERR_PTR(-EINVAL);
> +
> + return ns;
> +}
> +
> +static inline struct ipc_namespace *get_ipc_ns(struct ipc_namespace *ns)
> +{
> + return ns;
> +}
> +
> +static inline void put_ipc_ns(struct ipc_namespace *ns)
> +{
> +}
> +#endif
> +#endif
> diff --git a/ipc/util.c b/ipc/util.c
> index fd29246..44fb843 100644
> --- a/ipc/util.c
> +++ b/ipc/util.c
> @@ -32,6 +32,7 @@
>  #include <linux/proc_fs.h>
>  #include <linux/audit.h>
>  #include <linux/nsproxy.h>
> +#include <linux/ipc_namespace.h>
>
>  #include <asm/unistd.h>
>
> @@ -50,66 +51,6 @@ struct ipc_namespace init_ipc_ns = {
>   },
>  };
>
> -static struct ipc_namespace *clone_ipc_ns(struct ipc_namespace *old_ns)
> -{
> - int err;
> - struct ipc_namespace *ns;
> -
> - err = -ENOMEM;
```

> - ns = kmalloc(sizeof(struct ipc_namespace), GFP_KERNEL);
> - if (ns == NULL)
> - goto err_mem;
> -
> - err = sem_init_ns(ns);
> - if (err)
> - goto err_sem;
> - err = msg_init_ns(ns);
> - if (err)
> - goto err_msg;
> - err = shm_init_ns(ns);
> - if (err)
> - goto err_shm;
> -
> - kref_init(&ns->kref);
> - return ns;
> -
> -err_shm:
> - msg_exit_ns(ns);
> -err_msg:
> - sem_exit_ns(ns);
> -err_sem:
> - kfree(ns);
> -err_mem:
> - return ERR_PTR(err);
> -}
> -
> -struct ipc_namespace *copy_ipcs(unsigned long flags, struct ipc_namespace *ns)
> -{
> - struct ipc_namespace *new_ns;
> -
> - BUG_ON(!ns);
> - get_ipc_ns(ns);
> -
> - if (!(flags & CLONE_NEWIPC))
> - return ns;
> -
> - new_ns = clone_ipc_ns(ns);
> -
> - put_ipc_ns(ns);
> - return new_ns;
> -}
> -
> -void free_ipc_ns(struct kref *kref)
> -{
> - struct ipc_namespace *ns;
> -
> - ns = container_of(kref, struct ipc_namespace, kref);

> - sem_exit_ns(ns);
> - msg_exit_ns(ns);
> - shm_exit_ns(ns);
> - kfree(ns);
> -}
> -
> /**
>   * ipc_init - initialise IPC subsystem
>   *
> diff --git a/ipc/namespace.c b/ipc/namespace.c
> new file mode 100644
> index 0000000..cef1139
> --- /dev/null
> +++ b/ipc/namespace.c
> @@ -0,0 +1,73 @@
> +/*
> + * linux/ipc/namespace.c
> + * Copyright (C) 2006 Pavel Emelyanov <xemul@openvz.org> OpenVZ, SWsoft Inc.
> + */
> +
> +#include <linux/ipc.h>
> +#include <linux/msg.h>
> +#include <linux/ipc_namespace.h>
> +#include <linux/rcupdate.h>
> +#include <linux/nsproxy.h>
> +#include <linux/slab.h>
> +
> +#include "util.h"
> +
> +static struct ipc_namespace *clone_ipc_ns(struct ipc_namespace *old_ns)
> +{
> + int err;
> + struct ipc_namespace *ns;
> +
> + err = -ENOMEM;
> + ns = kmalloc(sizeof(struct ipc_namespace), GFP_KERNEL);
> + if (ns == NULL)
> + goto err_mem;
> +
> + err = sem_init_ns(ns);
> + if (err)
> + goto err_sem;
> + err = msg_init_ns(ns);
> + if (err)
> + goto err_msg;
> + err = shm_init_ns(ns);
> + if (err)
> + goto err_shm;

```
> +
> + kref_init(&ns->kref);
> + return ns;
> +
> +err_shm:
> + msg_exit_ns(ns);
> +err_msg:
> + sem_exit_ns(ns);
> +err_sem:
> + kfree(ns);
> +err_mem:
> + return ERR_PTR(err);
> +}
> +
> +struct ipc_namespace *copy_ipcs(unsigned long flags, struct ipc_namespace *ns)
> +{
> + struct ipc_namespace *new_ns;
> +
> + BUG_ON(!ns);
> + get_ipc_ns(ns);
> +
> + if (!(flags & CLONE_NEWIPC))
> +  return ns;
> +
> + new_ns = clone_ipc_ns(ns);
> +
> + put_ipc_ns(ns);
> + return new_ns;
> +}
> +
> +void free_ipc_ns(struct kref *kref)
> +{
> + struct ipc_namespace *ns;
> +
> + ns = container_of(kref, struct ipc_namespace, kref);
> + sem_exit_ns(ns);
> + msg_exit_ns(ns);
> + shm_exit_ns(ns);
> + kfree(ns);
> +}
> diff --git a/ipc/Makefile b/ipc/Makefile
> index b93bba6..d81fb35 100644
> --- a/ipc/Makefile
> +++ b/ipc/Makefile
> @@ -7,4 +7,5 @@ obj-$(CONFIG_SYSVIPC) += util.o msgutil.
>  obj-$(CONFIG_SYSVIPC_SYSCTL) += ipc_sysctl.o
>  obj_mq-$(CONFIG_COMPAT) += compat_mq.o
>  obj-$(CONFIG_POSIX_MQUEUE) += mqueue.o msgutil.o $(obj_mq-y)
```

> +obj-$(CONFIG_NAMESPACES) += namespace.o
>
> diff --git a/ipc/ipc_sysctl.c b/ipc/ipc_sysctl.c
> index 79e24e8..7f4235b 100644
> --- a/ipc/ipc_sysctl.c
> +++ b/ipc/ipc_sysctl.c
> @@ -14,6 +14,7 @@
> #include <linux/nsproxy.h>
> #include <linux/sysctl.h>
> #include <linux/uaccess.h>
> +#include <linux/ipc_namespace.h>
>
> static void *get_ipc(ctl_table *table)
> {
> diff --git a/ipc/msg.c b/ipc/msg.c
> index b7274db..eb74965 100644
> --- a/ipc/msg.c
> +++ b/ipc/msg.c
> @@ -36,6 +36,7 @@
> #include <linux/seq_file.h>
> #include <linux/mutex.h>
> #include <linux/nsproxy.h>
> +#include <linux/ipc_namespace.h>
>
> #include <asm/current.h>
> #include <asm/uaccess.h>
> @@ -92,6 +93,7 @@ static void __msg_init_ns(struct ipc_nam
>   ipc_init_ids(ids);
> }
>
> +#ifdef CONFIG_NAMESPACES
> int msg_init_ns(struct ipc_namespace *ns)
> {
>   struct ipc_ids *ids;
> @@ -127,6 +129,7 @@ void msg_exit_ns(struct ipc_namespace *n
>   kfree(ns->ids[IPC_MSG_IDS]);
>   ns->ids[IPC_MSG_IDS] = NULL;
> }
> +#endif
>
> void __init msg_init(void)
> {
> diff --git a/ipc/sem.c b/ipc/sem.c
> index 45c7e57..2e9f449 100644
> --- a/ipc/sem.c
> +++ b/ipc/sem.c
> @@ -82,6 +82,7 @@
> #include <linux/seq_file.h>

> #include <linux/mutex.h>
> #include <linux/nsproxy.h>
> +#include <linux/ipc_namespace.h>
>
> #include <asm/uaccess.h>
> #include "util.h"
> @@ -130,6 +131,7 @@ static void __sem_init_ns(struct ipc_nam
>   ipc_init_ids(ids);
> }
>
> +#ifdef CONFIG_NAMESPACES
> int sem_init_ns(struct ipc_namespace *ns)
> {
>   struct ipc_ids *ids;
> @@ -165,6 +167,7 @@ void sem_exit_ns(struct ipc_namespace *n
>   kfree(ns->ids[IPC_SEM_IDS]);
>   ns->ids[IPC_SEM_IDS] = NULL;
> }
> +#endif
>
> void __init sem_init (void)
> {
> diff --git a/ipc/shm.c b/ipc/shm.c
> index f28f2a3..2717cbc 100644
> --- a/ipc/shm.c
> +++ b/ipc/shm.c
> @@ -38,6 +38,7 @@
> #include <linux/mutex.h>
> #include <linux/nsproxy.h>
> #include <linux/mount.h>
> +#include <linux/ipc_namespace.h>
>
> #include <asm/uaccess.h>
>
> @@ -97,6 +98,7 @@ static void do_shm_rmid(struct ipc_names
>   shm_destroy(ns, shp);
> }
>
> +#ifdef CONFIG_NAMESPACES
> int shm_init_ns(struct ipc_namespace *ns)
> {
>   struct ipc_ids *ids;
> @@ -132,6 +134,7 @@ void shm_exit_ns(struct ipc_namespace *n
>   kfree(ns->ids[IPC_SHM_IDS]);
>   ns->ids[IPC_SHM_IDS] = NULL;
> }
> +#endif
>

> void __init shm_init (void)
> {
> diff --git a/ipc/util.h b/ipc/util.h
> index 99414a3..8972402 100644
> --- a/ipc/util.h
> +++ b/ipc/util.h
> @@ -20,6 +20,8 @@ void sem_init (void);
> void msg_init (void);
> void shm_init (void);
>
> +struct ipc_namespace;
> +
> int sem_init_ns(struct ipc_namespace *ns);
> int msg_init_ns(struct ipc_namespace *ns);
> int shm_init_ns(struct ipc_namespace *ns);
> diff --git a/kernel/nsproxy.c b/kernel/nsproxy.c
> index ee68964..5a27426 100644
> --- a/kernel/nsproxy.c
> +++ b/kernel/nsproxy.c
> @@ -20,6 +20,7 @@
> #include <linux/mnt_namespace.h>
> #include <linux/utsname.h>
> #include <linux/pid_namespace.h>
> +#include <linux/ipc_namespace.h>
>
> static struct kmem_cache *nsproxy_cachep;
>
>
>

_____

Containers mailing list
Containers@lists.linux-foundation.org
https://lists.linux-foundation.org/mailman/listinfo/containers

---

Subject: Re: [PATCH 4/5] Move the user namespace under the option
Posted by rpjday on Thu, 27 Sep 2007 12:38:54 GMT
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On Thu, 27 Sep 2007, Cedric Le Goater wrote:

> > diff --git a/include/linux/user_namespace.h b/include/linux/user_namespace.h
> > index b5f41d4..dda160c 100644
> > --- a/include/linux/user_namespace.h
> > +++ b/include/linux/user_namespace.h
> > @@ -17,7 +17,7 @@ struct user_namespace {
> >

> > extern struct user_namespace init_user_ns;
> >
> > -#ifdef CONFIG_USER_NS
> > +#ifdef CONFIG_NAMESPACES_EXPERIMENTAL

is really a good precedent to introduce Kconfig variables that
literally include the word "EXPERIMENTAL"?

rday
--
==
Robert P. J. Day
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Waterloo, Ontario, CANADA

http://crashcourse.ca
==

_____
Containers mailing list
Containers@lists.linux-foundation.org
https://lists.linux-foundation.org/mailman/listinfo/containers

---

Subject: Re: [PATCH 3/5] Move the IPC namespace under the option
Posted by Pavel Emelianov on Mon, 01 Oct 2007 07:52:53 GMT
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Cedric Le Goater wrote:
> Pavel Emelyanov wrote:
>> Currently all the IPC namespace management code is in
>> ipc/util.c. I moved this code into ipc/namespace.c file
>> which is compiled out when needed.
>>
>> The linux/ipc_namespace.h file is used to store the
>> prototypes of the functions in namespace.c and the stubs
>> for NAMESPACES=n case. This is done so, because the stub
>> for copy_ipc_namespace requires the knoweledge of the
>> CLONE_NEWIPC flag, which is in sched.h. But the linux/ipc.h
>> file itself in included into many many .c files via the
>> sys.h->sem.h sequence so adding the sched.h into it will
>> make all these .c depend on sched.h which is not that good.
>> On the other hand the knowledge about the namespaces stuff
>> is required in 4 .c files only.
>>
>> Besides, this patch compiles out some auxiliary functions
>> from ipc/sem.c, msg.c and shm.c files.
>>
>> Signied-off-by: Pavel Emelyanov <xemul@openvz.org>

>   ^
> that sounds french :)

:)

> Also, for the code aesthetic,
>
> I think that ipc/ipc_namespace.c is a better name which fits
> the header file ipc/ipc_namespace.h.

Well, it already resides in ipc/ directory. I think it's a
mess to add one more ipc_ prefix.

> I'm wondering if it possible to move the init routines :
>
> #ifdef CONFIG_NAMESPACES
> int {msg,sem,shm}_init_ns(struct ipc_namespace *ns)
> {
>   ...
> }
> #endif
>
> from the ipc/{msg,sem,shm}.c file to the ipc/ipc_namespace.c file.
> It would look better in the code than using ugly #ifdef.

Hm... Looks like it is. I will remake the patches.

> Thanks !
>
> C.
>
>> ---
>>
>> diff --git a/include/linux/ipc.h b/include/linux/ipc.h
>> index 96988d1..b882610 100644
>> --- a/include/linux/ipc.h
>> +++ b/include/linux/ipc.h
>> @@ -100,56 +100,6 @@ struct kern_ipc_perm
>>   void *security;
>> };
>>
>> -struct ipc_ids;
>> -struct ipc_namespace {
>> - struct kref kref;
>> - struct ipc_ids *ids[3];
>> -
>> - int sem_ctls[4];
>> - int used_sems;

```
>> -
>> - int  msg_ctlmax;
>> - int  msg_ctlmnb;
>> - int  msg_ctlmni;
>> -
>> - size_t  shm_ctlmax;
>> - size_t  shm_ctlall;
>> - int  shm_ctlmni;
>> - int  shm_tot;
>> -};
>> -
>> -extern struct ipc_namespace init_ipc_ns;
>> -
>> -#ifdef CONFIG_SYSVIPC
>> -#define INIT_IPC_NS(ns)  .ns  = &init_ipc_ns,
>> -extern void free_ipc_ns(struct kref *kref);
>> -extern struct ipc_namespace *copy_ipcs(unsigned long flags,
>> -      struct ipc_namespace *ns);
>> -#else
>> -#define INIT_IPC_NS(ns)
>> -static inline struct ipc_namespace *copy_ipcs(unsigned long flags,
>> -      struct ipc_namespace *ns)
>> -{
>> - return ns;
>> -}
>> -#endif
>> -
>> -static inline struct ipc_namespace *get_ipc_ns(struct ipc_namespace *ns)
>> -{
>> -#ifdef CONFIG_SYSVIPC
>> - if (ns)
>> -  kref_get(&ns->kref);
>> -#endif
>> - return ns;
>> -}
>> -
>> -static inline void put_ipc_ns(struct ipc_namespace *ns)
>> -{
>> -#ifdef CONFIG_SYSVIPC
>> - kref_put(&ns->kref, free_ipc_ns);
>> -#endif
>> -}
>> -
>>  #endif /* __KERNEL__ */
>>
>>  #endif /* _LINUX_IPC_H */
>> diff --git a/include/linux/ipc_namespace.h b/include/linux/ipc_namespace.h
>> new file mode 100644
```

```
>> index 0000000..3d8a516
>> --- /dev/null
>> +++ b/include/linux/ipc_namespace.h
>> @@ -0,0 +1,67 @@
>> +#ifndef __IPC_NAMESPACE_H__
>> +#define __IPC_NAMESPACE_H__
>> +
>> +#include <linux/err.h>
>> +
>> +struct ipc_ids;
>> +struct ipc_namespace {
>> + struct kref kref;
>> + struct ipc_ids *ids[3];
>> +
>> + int  sem_ctls[4];
>> + int  used_sems;
>> +
>> + int  msg_ctlmax;
>> + int  msg_ctlmnb;
>> + int  msg_ctlmni;
>> +
>> + size_t  shm_ctlmax;
>> + size_t  shm_ctlall;
>> + int  shm_ctlmni;
>> + int  shm_tot;
>> +};
>> +
>> +extern struct ipc_namespace init_ipc_ns;
>> +
>> +#ifdef CONFIG_SYSVIPC
>> +#define INIT_IPC_NS(ns)  .ns  = &init_ipc_ns,
>> +#else
>> +#define INIT_IPC_NS(ns)
>> +#endif
>> +
>> +#if defined(CONFIG_SYSVIPC) && defined(CONFIG_NAMESPACES)
>> +extern void free_ipc_ns(struct kref *kref);
>> +extern struct ipc_namespace *copy_ipcs(unsigned long flags,
>> +      struct ipc_namespace *ns);
>> +
>> +static inline struct ipc_namespace *get_ipc_ns(struct ipc_namespace *ns)
>> +{
>> + if (ns)
>> +  kref_get(&ns->kref);
>> + return ns;
>> +}
>> +
>> +static inline void put_ipc_ns(struct ipc_namespace *ns)
```

```
>> +{
>> + kref_put(&ns->kref, free_ipc_ns);
>> +}
>> +#else
>> +static inline struct ipc_namespace *copy_ipcs(unsigned long flags,
>> +  struct ipc_namespace *ns)
>> +{
>> + if (flags & CLONE_NEWIPC)
>> +  return ERR_PTR(-EINVAL);
>> +
>> + return ns;
>> +}
>> +
>> +static inline struct ipc_namespace *get_ipc_ns(struct ipc_namespace *ns)
>> +{
>> + return ns;
>> +}
>> +
>> +static inline void put_ipc_ns(struct ipc_namespace *ns)
>> +{
>> +}
>> +#endif
>> +#endif
>> diff --git a/ipc/util.c b/ipc/util.c
>> index fd29246..44fb843 100644
>> --- a/ipc/util.c
>> +++ b/ipc/util.c
>> @@ -32,6 +32,7 @@
>>  #include <linux/proc_fs.h>
>>  #include <linux/audit.h>
>>  #include <linux/nsproxy.h>
>> +#include <linux/ipc_namespace.h>
>>
>>  #include <asm/unistd.h>
>>
>> @@ -50,66 +51,6 @@ struct ipc_namespace init_ipc_ns = {
>>   },
>>  };
>>
>> -static struct ipc_namespace *clone_ipc_ns(struct ipc_namespace *old_ns)
>> -{
>> - int err;
>> - struct ipc_namespace *ns;
>> -
>> - err = -ENOMEM;
>> - ns = kmalloc(sizeof(struct ipc_namespace), GFP_KERNEL);
>> - if (ns == NULL)
>> -  goto err_mem;
```

```
>> -
>> - err = sem_init_ns(ns);
>> - if (err)
>> -  goto err_sem;
>> - err = msg_init_ns(ns);
>> - if (err)
>> -  goto err_msg;
>> - err = shm_init_ns(ns);
>> - if (err)
>> -  goto err_shm;
>> -
>> - kref_init(&ns->kref);
>> - return ns;
>> -
>> -err_shm:
>> - msg_exit_ns(ns);
>> -err_msg:
>> - sem_exit_ns(ns);
>> -err_sem:
>> - kfree(ns);
>> -err_mem:
>> - return ERR_PTR(err);
>> -}
>> -
>> -struct ipc_namespace *copy_ipcs(unsigned long flags, struct ipc_namespace *ns)
>> -{
>> - struct ipc_namespace *new_ns;
>> -
>> - BUG_ON(!ns);
>> - get_ipc_ns(ns);
>> -
>> - if (!(flags & CLONE_NEWIPC))
>> -  return ns;
>> -
>> - new_ns = clone_ipc_ns(ns);
>> -
>> - put_ipc_ns(ns);
>> - return new_ns;
>> -}
>> -
>> -void free_ipc_ns(struct kref *kref)
>> -{
>> - struct ipc_namespace *ns;
>> -
>> - ns = container_of(kref, struct ipc_namespace, kref);
>> - sem_exit_ns(ns);
>> - msg_exit_ns(ns);
>> - shm_exit_ns(ns);
```

```
>> - kfree(ns);
>> -}
>> -
>>  /**
>>   * ipc_init - initialise IPC subsystem
>>   *
>> diff --git a/ipc/namespace.c b/ipc/namespace.c
>> new file mode 100644
>> index 0000000..cef1139
>> --- /dev/null
>> +++ b/ipc/namespace.c
>> @@ -0,0 +1,73 @@
>> +/*
>> + * linux/ipc/namespace.c
>> + * Copyright (C) 2006 Pavel Emelyanov <xemul@openvz.org> OpenVZ, SWsoft Inc.
>> + */
>> +
>> +#include <linux/ipc.h>
>> +#include <linux/msg.h>
>> +#include <linux/ipc_namespace.h>
>> +#include <linux/rcupdate.h>
>> +#include <linux/nsproxy.h>
>> +#include <linux/slab.h>
>> +
>> +#include "util.h"
>> +
>> +static struct ipc_namespace *clone_ipc_ns(struct ipc_namespace *old_ns)
>> +{
>> + int err;
>> + struct ipc_namespace *ns;
>> +
>> + err = -ENOMEM;
>> + ns = kmalloc(sizeof(struct ipc_namespace), GFP_KERNEL);
>> + if (ns == NULL)
>> +  goto err_mem;
>> +
>> + err = sem_init_ns(ns);
>> + if (err)
>> +  goto err_sem;
>> + err = msg_init_ns(ns);
>> + if (err)
>> +  goto err_msg;
>> + err = shm_init_ns(ns);
>> + if (err)
>> +  goto err_shm;
>> +
>> + kref_init(&ns->kref);
>> + return ns;
```

```
>> +
>> +err_shm:
>> + msg_exit_ns(ns);
>> +err_msg:
>> + sem_exit_ns(ns);
>> +err_sem:
>> + kfree(ns);
>> +err_mem:
>> + return ERR_PTR(err);
>> +}
>> +
>> +struct ipc_namespace *copy_ipcs(unsigned long flags, struct ipc_namespace *ns)
>> +{
>> + struct ipc_namespace *new_ns;
>> +
>> + BUG_ON(!ns);
>> + get_ipc_ns(ns);
>> +
>> + if (!(flags & CLONE_NEWIPC))
>> +  return ns;
>> +
>> + new_ns = clone_ipc_ns(ns);
>> +
>> + put_ipc_ns(ns);
>> + return new_ns;
>> +}
>> +
>> +void free_ipc_ns(struct kref *kref)
>> +{
>> + struct ipc_namespace *ns;
>> +
>> + ns = container_of(kref, struct ipc_namespace, kref);
>> + sem_exit_ns(ns);
>> + msg_exit_ns(ns);
>> + shm_exit_ns(ns);
>> + kfree(ns);
>> +}
>> diff --git a/ipc/Makefile b/ipc/Makefile
>> index b93bba6..d81fb35 100644
>> --- a/ipc/Makefile
>> +++ b/ipc/Makefile
>> @@ -7,4 +7,5 @@ obj-$(CONFIG_SYSVIPC) += util.o msgutil.
>>  obj-$(CONFIG_SYSVIPC_SYSCTL) += ipc_sysctl.o
>>  obj_mq-$(CONFIG_COMPAT) += compat_mq.o
>>  obj-$(CONFIG_POSIX_MQUEUE) += mqueue.o msgutil.o $(obj_mq-y)
>> +obj-$(CONFIG_NAMESPACES) += namespace.o
>>
>> diff --git a/ipc/ipc_sysctl.c b/ipc/ipc_sysctl.c
```

>> index 79e24e8..7f4235b 100644
>> --- a/ipc/ipc_sysctl.c
>> +++ b/ipc/ipc_sysctl.c
>> @@ -14,6 +14,7 @@
>> #include <linux/nsproxy.h>
>> #include <linux/sysctl.h>
>> #include <linux/uaccess.h>
>> +#include <linux/ipc_namespace.h>
>>
>> static void *get_ipc(ctl_table *table)
>> {
>> diff --git a/ipc/msg.c b/ipc/msg.c
>> index b7274db..eb74965 100644
>> --- a/ipc/msg.c
>> +++ b/ipc/msg.c
>> @@ -36,6 +36,7 @@
>> #include <linux/seq_file.h>
>> #include <linux/mutex.h>
>> #include <linux/nsproxy.h>
>> +#include <linux/ipc_namespace.h>
>>
>> #include <asm/current.h>
>> #include <asm/uaccess.h>
>> @@ -92,6 +93,7 @@ static void __msg_init_ns(struct ipc_nam
>>   ipc_init_ids(ids);
>> }
>>
>> +#ifdef CONFIG_NAMESPACES
>> int msg_init_ns(struct ipc_namespace *ns)
>> {
>>   struct ipc_ids *ids;
>> @@ -127,6 +129,7 @@ void msg_exit_ns(struct ipc_namespace *n
>>   kfree(ns->ids[IPC_MSG_IDS]);
>>   ns->ids[IPC_MSG_IDS] = NULL;
>> }
>> +#endif
>>
>> void __init msg_init(void)
>> {
>> diff --git a/ipc/sem.c b/ipc/sem.c
>> index 45c7e57..2e9f449 100644
>> --- a/ipc/sem.c
>> +++ b/ipc/sem.c
>> @@ -82,6 +82,7 @@
>> #include <linux/seq_file.h>
>> #include <linux/mutex.h>
>> #include <linux/nsproxy.h>
>> +#include <linux/ipc_namespace.h>

```
>>
>>  #include <asm/uaccess.h>
>>  #include "util.h"
>> @@ -130,6 +131,7 @@ static void __sem_init_ns(struct ipc_nam
>>   ipc_init_ids(ids);
>>  }
>>
>> +#ifdef CONFIG_NAMESPACES
>>  int sem_init_ns(struct ipc_namespace *ns)
>>  {
>>   struct ipc_ids *ids;
>> @@ -165,6 +167,7 @@ void sem_exit_ns(struct ipc_namespace *n
>>   kfree(ns->ids[IPC_SEM_IDS]);
>>   ns->ids[IPC_SEM_IDS] = NULL;
>>  }
>> +#endif
>>
>>  void __init sem_init (void)
>>  {
>> diff --git a/ipc/shm.c b/ipc/shm.c
>> index f28f2a3..2717cbc 100644
>> --- a/ipc/shm.c
>> +++ b/ipc/shm.c
>> @@ -38,6 +38,7 @@
>>  #include <linux/mutex.h>
>>  #include <linux/nsproxy.h>
>>  #include <linux/mount.h>
>> +#include <linux/ipc_namespace.h>
>>
>>  #include <asm/uaccess.h>
>>
>> @@ -97,6 +98,7 @@ static void do_shm_rmid(struct ipc_names
>>    shm_destroy(ns, shp);
>>  }
>>
>> +#ifdef CONFIG_NAMESPACES
>>  int shm_init_ns(struct ipc_namespace *ns)
>>  {
>>   struct ipc_ids *ids;
>> @@ -132,6 +134,7 @@ void shm_exit_ns(struct ipc_namespace *n
>>   kfree(ns->ids[IPC_SHM_IDS]);
>>   ns->ids[IPC_SHM_IDS] = NULL;
>>  }
>> +#endif
>>
>>  void __init shm_init (void)
>>  {
>> diff --git a/ipc/util.h b/ipc/util.h
```

>> index 99414a3..8972402 100644
>> --- a/ipc/util.h
>> +++ b/ipc/util.h
>> @@ -20,6 +20,8 @@ void sem_init (void);
>> void msg_init (void);
>> void shm_init (void);
>>
>> +struct ipc_namespace;
>> +
>> int sem_init_ns(struct ipc_namespace *ns);
>> int msg_init_ns(struct ipc_namespace *ns);
>> int shm_init_ns(struct ipc_namespace *ns);
>> diff --git a/kernel/nsproxy.c b/kernel/nsproxy.c
>> index ee68964..5a27426 100644
>> --- a/kernel/nsproxy.c
>> +++ b/kernel/nsproxy.c
>> @@ -20,6 +20,7 @@
>> #include <linux/mnt_namespace.h>
>> #include <linux/utsname.h>
>> #include <linux/pid_namespace.h>
>> +#include <linux/ipc_namespace.h>
>>
>> static struct kmem_cache *nsproxy_cachep;
>>
>>
>>
>
>

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Subject: Re: [PATCH 4/5] Move the user namespace under the option
Posted by Pavel Emelianov on Mon, 01 Oct 2007 07:54:45 GMT
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Robert P. J. Day wrote:
> On Thu, 27 Sep 2007, Cedric Le Goater wrote:
>
>>> diff --git a/include/linux/user_namespace.h b/include/linux/user_namespace.h
>>> index b5f41d4..dda160c 100644
>>> --- a/include/linux/user_namespace.h
>>> +++ b/include/linux/user_namespace.h
>>> @@ -17,7 +17,7 @@ struct user_namespace {
>>>

>>> extern struct user_namespace init_user_ns;
>>>
>>> -#ifdef CONFIG_USER_NS
>>> +#ifdef CONFIG_NAMESPACES_EXPERIMENTAL
>
> is it really a good precedent to introduce Kconfig variables that
> literally include the word "EXPERIMENTAL"?

How else can we call it? I proposed one config option for
each namespace with "depends on EXPERIMENTAL" dependency,
but everyone else said that two options are much better.

> rday

Subject: Re: [PATCH 4/5] Move the user namespace under the option
Posted by rpjday on Mon, 01 Oct 2007 08:42:18 GMT
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On Mon, 1 Oct 2007, Pavel Emelyanov wrote:

> Robert P. J. Day wrote:
> > On Thu, 27 Sep 2007, Cedric Le Goater wrote:
> >
> >>> diff --git a/include/linux/user_namespace.h b/include/linux/user_namespace.h
> >>> index b5f41d4..dda160c 100644
> >>> --- a/include/linux/user_namespace.h
> >>> +++ b/include/linux/user_namespace.h
> >>> @@ -17,7 +17,7 @@ struct user_namespace {
> >>>
> >>> extern struct user_namespace init_user_ns;
> >>>
> >>> -#ifdef CONFIG_USER_NS
> >>> +#ifdef CONFIG_NAMESPACES_EXPERIMENTAL
> >
> > is it really a good precedent to introduce Kconfig variables that
> > literally include the word "EXPERIMENTAL"?
>
> How else can we call it? I proposed one config option for each
> namespace with "depends on EXPERIMENTAL" dependency, but everyone
> else said that two options are much better.

i don't know -- perhaps something as trivially obvious as

NAMESPACES_V2 or something. i just think it's awkward to take a word
like "EXPERIMENTAL" that already has a long and established history,
and start jamming it into config variable names. but it's just an
observation.

rday
--
==
Robert P. J. Day
Linux Consulting, Training and Annoying Kernel Pedantry
Waterloo, Ontario, CANADA

http://crashcourse.ca
==

Subject: Re: [PATCH 4/5] Move the user namespace under the option
Posted by serue on Mon, 01 Oct 2007 14:14:26 GMT
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Quoting Robert P. J. Day (rpjday@mindspring.com):
> On Mon, 1 Oct 2007, Pavel Emelyanov wrote:
>
> > Robert P. J. Day wrote:
> > > On Thu, 27 Sep 2007, Cedric Le Goater wrote:
> > >
> > >> diff --git a/include/linux/user_namespace.h b/include/linux/user_namespace.h
> > >> index b5f41d4..dda160c 100644
> > >> --- a/include/linux/user_namespace.h
> > >> +++ b/include/linux/user_namespace.h
> > >> @@ -17,7 +17,7 @@ struct user_namespace {
> > >>
> > >> extern struct user_namespace init_user_ns;
> > >>
> > >> -#ifdef CONFIG_USER_NS
> > >> +#ifdef CONFIG_NAMESPACES_EXPERIMENTAL
> > >
> > > is it really a good precedent to introduce Kconfig variables that
> > > literally include the word "EXPERIMENTAL"?
> >
> > How else can we call it? I proposed one config option for each
> > namespace with "depends on EXPERIMENTAL" dependency, but everyone
> > else said that two options are much better.
>

> i don't know -- perhaps something as trivially obvious as
> NAMESPACES_V2 or something. i just think it's awkward to take a word
> like "EXPERIMENTAL" that already has a long and established history,
> and start jamming it into config variable names. but it's just an
> observation.

But these really are EXPERIMENTAL, not just 'v2'. They are not yet safe
to use except for testing. Once they are more complete and safe to use,
they will fall under just CONFIG_NAMESPACES.

-serge

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Subject: Re: [PATCH 1/5] The config option itself
Posted by serue on Mon, 01 Oct 2007 14:27:41 GMT
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Quoting Pavel Emelyanov (xemul@openvz.org):
> sukadev@us.ibm.com wrote:
> > Serge E. Hallyn [serue@us.ibm.com] wrote:
> > | Quoting Serge E. Hallyn (serue@us.ibm.com):
> > | > Quoting Pavel Emelyanov (xemul@openvz.org):
> > | > > The option is called NAMESPACES. It can be selectable only
> > | > > if EMBEDDED is chosen (this was Eric's requisition). When
> > | > > the EMBEDDED is off namespaces will be on automatically.
> > | > >
> > | > > One more option (NAMESPACES_EXPERIMENTAL) was added by
> > | > > Serge's request to move there all the namespaces that are
> > | > > not finished yet. Currently only the user and the network
> > | > > namespaces are such.
> > | > >
> > | > > Signed-off-by: Pavel Emelyanov <xemul@openvz.org>
> > | > >
> > | > > ---
> > | > >
> > | > > diff --git a/init/Kconfig b/init/Kconfig
> > | > > index 684ccfb..05a71d7 100644
> > | > > --- a/init/Kconfig
> > | > > +++ b/init/Kconfig
> > | > > @@ -369,6 +360,23 @@ config RELAY
> > | > >
> > | > > 	 If unsure, say N.
> > | > >
> > | > > +config NAMESPACES

> > | > > + bool "The namespaces support" if EMBEDDED
> > | > > + default !EMBEDDED
> > | > > + help
> > | > > +   Provides the way to make tasks work with different objects using
> > | > > +   the same id. For example same IPC id may refer to different objects
> > | > > +   or same user id or pid may refer to different tasks when used in
> > | > > +   different namespaces.
> > | > > +
> > | > > +config NAMESPACES_EXPERIMENTAL
> > | > > + bool "Add the experimantal namespaces support" if EMBEDDED
> > | >
> > | > Hi Pavel,
> > | >
> > | > Overall this patchset looks good.
> > | >
> > | > However the NAMESPACES_EXPERIMENTAL option should not have the
> > | > 'if EMBEDDED', right? This is about EXPERIMENTAL, not about
> > | > EMBEDDED, unlike the plain NAMESPACES option.
> > | >
> > | > -serge
> > |
> > | Actually that doesn't seem to work either. Even though
> > | SECURITY_NAMESPACES=y, the config system seems to infer that
> > | since NAMESPACES is not user-selectable, NAMESPACES_EXPERIMENTAL
> > | shouldn't be either. So we end up with NAMESPACES_EXPERIMENTAL
> > | being on and not un-selectable if !EMBEDDED.
> >
> > Yes. Given that NAMESPACES depends on EMBEDDED, NAMESPACES_EXPERIMENTAL
> > can simply depend on NAMESPACES and EXPERIMENTAL with a default of N.
>
> Nope. The intention is that the NAMESPACES and NAMESPACES_EXPERIMENTAL

No, Eric wanted NAMESPACES to only be unselecteable if EMBEDDED=y, but
NAMESPACES_EXPERIMENTAL should always be unselectable. If current
config logic can't do that then we should forget about the EMBEDDED
requirement altogether.

The rest of this patchset looks great. Thanks, Pavel.

-serge

> must not be selectable if EMBEDDED=n, but if we make NS_EXPERIMENTAL
> depend on NAMESPACES only we'll have to make a choice in !EMBEDDED.
>
> > BTW, does the position of 'config NAMESPACES' in init/Kconfig file
> > matter ? If it is dependent on EMBEDDED, should it not come later
> > in the file, after 'config EMBEDDED' ?
> >

> > |
> > | > > + depends on NAMESPACES && EXPERIMENTAL
> > | > > + default !EMBEDDED
> > | > > + help
> > | > > +   Also include the support for the namespaces that are not fnished
> > | > > +   or well developed yet
> > | > > +
> > | > > config BLK_DEV_INITRD
> > | > >   bool "Initial RAM filesystem and RAM disk (initramfs/initrd) support"
> > | > >   depends on BROKEN || !FRV
> > | _____
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> >

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---

Subject: Re: [PATCH 1/5] The config option itself
Posted by Pavel Emelianov on Mon, 01 Oct 2007 14:28:51 GMT
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Serge E. Hallyn wrote:
> Quoting Pavel Emelyanov (xemul@openvz.org):
>> sukadev@us.ibm.com wrote:
>>> Serge E. Hallyn [serue@us.ibm.com] wrote:
>>> | Quoting Serge E. Hallyn (serue@us.ibm.com):
>>> | > Quoting Pavel Emelyanov (xemul@openvz.org):
>>> | > > The option is called NAMESPACES. It can be selectable only
>>> | > > if EMBEDDED is chosen (this was Eric's requisition). When
>>> | > > the EMBEDDED is off namespaces will be on automatically.
>>> | > >
>>> | > > One more option (NAMESPACES_EXPERIMENTAL) was added by
>>> | > > Serge's request to move there all the namespaces that are
>>> | > > not finished yet. Currently only the user and the network
>>> | > > namespaces are such.
>>> | > >
>>> | > > Signed-off-by: Pavel Emelyanov <xemul@openvz.org>
>>> | > >
>>> | > > ---
>>> | > >
>>> | > > diff --git a/init/Kconfig b/init/Kconfig
>>> | > > index 684ccfb..05a71d7 100644
>>> | > > --- a/init/Kconfig
>>> | > > +++ b/init/Kconfig

>>> | > > @@ -369,6 +360,23 @@ config RELAY
>>> | > >
>>> | > >   If unsure, say N.
>>> | > >
>>> | > > +config NAMESPACES
>>> | > > + bool "The namespaces support" if EMBEDDED
>>> | > > + default !EMBEDDED
>>> | > > + help
>>> | > > +   Provides the way to make tasks work with different objects using
>>> | > > +   the same id. For example same IPC id may refer to different objects
>>> | > > +   or same user id or pid may refer to different tasks when used in
>>> | > > +   different namespaces.
>>> | > > +
>>> | > > +config NAMESPACES_EXPERIMENTAL
>>> | > > + bool "Add the experimantal namespaces support" if EMBEDDED
>>> | >
>>> | > Hi Pavel,
>>> | >
>>> | > Overall this patchset looks good.
>>> | >
>>> | > However the NAMESPACES_EXPERIMENTAL option should not have the
>>> | > 'if EMBEDDED', right? This is about EXPERIMENTAL, not about
>>> | > EMBEDDED, unlike the plain NAMESPACES option.
>>> | >
>>> | > -serge
>>> |
>>> | Actually that doesn't seem to work either. Even though
>>> | SECURITY_NAMESPACES=y, the config system seems to infer that
>>> | since NAMESPACES is not user-selectable, NAMESPACES_EXPERIMENTAL
>>> | shouldn't be either. So we end up with NAMESPACES_EXPERIMENTAL
>>> | being on and not un-selectable if !EMBEDDED.
>>>
>>> Yes. Given that NAMESPACES depends on EMBEDDED, NAMESPACES_EXPERIMENTAL
>>> can simply depend on NAMESPACES and EXPERIMENTAL with a default of N.
>> Nope. The intention is that the NAMESPACES and NAMESPACES_EXPERIMENTAL
>
> No, Eric wanted NAMESPACES to only be unselecteable if EMBEDDED=y, but
> NAMESPACES_EXPERIMENTAL should always be unselectable. If current
> config logic can't do that then we should forget about the EMBEDDED
> requirement altogether.

OK, I see and agree :) I will remake the patches shortly.

> The rest of this patchset looks great. Thanks, Pavel.

You're welcome.

> -serge

>
>> must not be selectable if EMBEDDED=n, but if we make NS_EXPERIMENTAL
>> depend on NAMESPACES only we'll have to make a choice in !EMBEDDED.
>>
>>> BTW, does the position of 'config NAMESPACES' in init/Kconfig file
>>> matter ? If it is dependent on EMBEDDED, should it not come later
>>> in the file, after 'config EMBEDDED' ?
>>>
>>> |
>>> | > > + depends on NAMESPACES && EXPERIMENTAL
>>> | > > + default !EMBEDDED
>>> | > > + help
>>> | > > +   Also include the support for the namespaces that are not fnished
>>> | > > +   or well developed yet
>>> | > > +
>>> | > > config BLK_DEV_INITRD
>>> | > >   bool "Initial RAM filesystem and RAM disk (initramfs/initrd) support"
>>> | > >   depends on BROKEN || !FRV
>>> | _____
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>>> | Containers@lists.linux-foundation.org
>>> | https://lists.linux-foundation.org/mailman/listinfo/containers
>>>
> -
> To unsubscribe from this list: send the line "unsubscribe linux-kernel" in
> the body of a message to majordomo@vger.kernel.org
> More majordomo info at http://vger.kernel.org/majordomo-info.html
> Please read the FAQ at http://www.tux.org/lkml/
>

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