Subject: [PATCH -mm 3/3] cgroup: remove the css_set linked-list
Posted by Li Zefan on Wed, 02 Apr 2008 02:16:58 GMT
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Now we can run through the hash table instead of running through
the linked-list.

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---
 include/linux/cgroup.h | 6 ------
 kernel/cgroup.c | 40 ++++++++++++++++++++++++----------------
 2 files changed, 20 insertions(+), 26 deletions(-)

diff --git a/include/linux/cgroup.h b/include/linux/cgroup.h
index c15c5e0..72f3911 100644
--- a/include/linux/cgroup.h
+++ b/include/linux/cgroup.h
@@ -150,12 +150,6 @@ struct css_set {
  struct kref ref;

  /*
- * List running through all cgroup groups. Protected by
- * css_set_lock
- */
- struct list_head list;
-
- /*
   * List running through all cgroup groups in the same hash
   * slot. Protected by css_set_lock
   */
diff --git a/kernel/cgroup.c b/kernel/cgroup.c
index 2b72346..c444e6e 100644
--- a/kernel/cgroup.c
+++ b/kernel/cgroup.c
@@ -241,7 +241,6 @@ static void unlink_css_set(struct css_set *cg)
 {
  write_lock(&css_set_lock);
  hlist_del(&cg->hlist);
- list_del(&cg->list);
  css_set_count--;
  while (!list_empty(&cg->cg_links)) {
   struct cg_cgroup_link *link;
@@ -476,8 +475,6 @@ static struct css_set *find_css_set(

  BUG_ON(!list_empty(&tmp_cg_links));

- /* Link this cgroup group into the list */
- list_add(&res->list, &init_css_set.list);

```
  css_set_count++;

  /* Add this cgroup group to the hash table */
@@ -962,7 +959,7 @@ static int cgroup_get_sb(struct file_system_type *fs_type,
  int ret = 0;
  struct super_block *sb;
  struct cgroupfs_root *root;
- struct list_head tmp_cg_links, *l;
+ struct list_head tmp_cg_links;
  INIT_LIST_HEAD(&tmp_cg_links);

  /* First find the desired set of subsystems */
@@ -1004,6 +1001,7 @@ static int cgroup_get_sb(struct file_system_type *fs_type,
   /* New superblock */
   struct cgroup *cgrp = &root->top_cgroup;
   struct inode *inode;
+  int i;

   BUG_ON(sb->s_root != NULL);

@@ -1048,22 +1046,25 @@ static int cgroup_get_sb(struct file_system_type *fs_type,
   /* Link the top cgroup in this hierarchy into all
    * the css_set objects */
   write_lock(&css_set_lock);
-  l = &init_css_set.list;
-  do {
+  for (i = 0; i < CSS_SET_TABLE_SIZE; i++) {
+   struct hlist_head *hhead = &css_set_table[i];
+   struct hlist_node *node;
    struct css_set *cg;
-   struct cg_cgroup_link *link;
-   cg = list_entry(l, struct css_set, list);
-   BUG_ON(list_empty(&tmp_cg_links));
-   link = list_entry(tmp_cg_links.next,
-       struct cg_cgroup_link,
-       cgrp_link_list);
-   list_del(&link->cgrp_link_list);
-   link->cg = cg;
-   list_add(&link->cgrp_link_list,
-     &root->top_cgroup.css_sets);
-   list_add(&link->cg_link_list, &cg->cg_links);
-   l = l->next;
-  } while (l != &init_css_set.list);
+
+   hlist_for_each_entry(cg, node, hhead, hlist) {
+    struct cg_cgroup_link *link;
+
+    BUG_ON(list_empty(&tmp_cg_links));
```

```
+    link = list_entry(tmp_cg_links.next,
+        struct cg_cgroup_link,
+        cgrp_link_list);
+    list_del(&link->cgrp_link_list);
+    link->cg = cg;
+    list_add(&link->cgrp_link_list,
+      &root->top_cgroup.css_sets);
+    list_add(&link->cg_link_list, &cg->cg_links);
+   }
+  }
   write_unlock(&css_set_lock);

   free_cg_links(&tmp_cg_links);
@@ -2499,7 +2500,6 @@ int __init cgroup_init_early(void)
  int i;
  kref_init(&init_css_set.ref);
  kref_get(&init_css_set.ref);
- INIT_LIST_HEAD(&init_css_set.list);
  INIT_LIST_HEAD(&init_css_set.cg_links);
  INIT_LIST_HEAD(&init_css_set.tasks);
  INIT_HLIST_NODE(&init_css_set.hlist);
--
1.5.4.rc3
```