

Subject: Re: [PATCH v2 01/13] memcg: Consolidate various flags into a single flags field.

Posted by [Glauber Costa](#) on Sun, 11 Mar 2012 07:50:03 GMT

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On 03/10/2012 12:39 AM, Suleiman Souhlal wrote:

> Since there is an ever-increasing number of flags in the memcg

> struct, consolidate them into a single flags field.

> The flags that we consolidate are:

> - use_hierarchy

> - memsw_is_minimum

> - oom_kill_disable

>

> Signed-off-by: Suleiman Souhlal<suleiman@google.com>

> ---

> mm/memcontrol.c | 112 ++++++-----

> 1 files changed, 78 insertions(+), 34 deletions(-)

>

> diff --git a/mm/memcontrol.c b/mm/memcontrol.c

> index 5585dc3..37ad2cb 100644

> --- a/mm/memcontrol.c

> +++ b/mm/memcontrol.c

> @@ -213,6 +213,15 @@ struct mem_cgroup_eventfd_list {

> static void mem_cgroup_threshold(struct mem_cgroup *memcg);

> static void mem_cgroup_oom_notify(struct mem_cgroup *memcg);

>

> +enum memcg_flags {

> + MEMCG_USE_HIERARCHY, /*

> + * Should the accounting and control be

> + * hierarchical, per subtree?

> + */

Perhaps we should use the opportunity to make this comment shorter, so it can fit in a single line. How about:

/* per-subtree hierarchical accounting */ ?

>

> +static inline bool

> +mem_cgroup_test_flag(const struct mem_cgroup *memcg, enum memcg_flags flag)

> +{

> + return test_bit(flag,&memcg->flags);

> +}

> +

> +static inline void

> +mem_cgroup_set_flag(struct mem_cgroup *memcg, enum memcg_flags flag)

> +{

> + set_bit(flag,&memcg->flags);

```

> +}
> +
> +static inline void
> +mem_cgroup_clear_flag(struct mem_cgroup *memcg, enum memcg_flags flag)
> +{
> + clear_bit(flag,&memcg->flags);
> +}
> +
> + /* Writing them here to avoid exposing memcg's inner layout */
> + #ifdef CONFIG_CGROUP_MEM_RES_CTLR_KMEM
> + #include<net/sock.h>
> + @@ -876,7 +895,8 @@ struct mem_cgroup *mem_cgroup_iter(struct mem_cgroup *root,
> + if (prev&& prev != root)
> + css_put(&prev->css);
> +
> + - if (!root->use_hierarchy&& root != root_mem_cgroup) {
> + + if (!mem_cgroup_test_flag(root, MEMCG_USE_HIERARCHY)&& root !=
> + + root_mem_cgroup) {
> + if (prev)
> + return NULL;
> + return root;

```

Although I like this change in principle, the end result is that many of the lines we are touching, used to be single-lines and now span two rows. I know not everybody cares about that, but maybe we could provide functions specific to each flag?

For the record, that is what cgroup.c does:

```

static int notify_on_release(const struct cgroup *cgrp)
{
    return test_bit(CGRP_NOTIFY_ON_RELEASE, &cgrp->flags);
}

```

```

static int clone_children(const struct cgroup *cgrp)
{
    return test_bit(CGRP_CLONE_CHILDREN, &cgrp->flags);
}

```

```

> @@ -1126,8 +1146,8 @@ static bool mem_cgroup_same_or_subtree(const struct
mem_cgroup *root_memcg,
> struct mem_cgroup *memcg)
> {
> if (root_memcg != memcg) {
> - return (root_memcg->use_hierarchy&&
> - css_is_ancestor(&memcg->css,&root_memcg->css));
> + return mem_cgroup_test_flag(root_memcg, MEMCG_USE_HIERARCHY)&&

```

```

> + css_is_ancestor(&memcg->css,&root_memcg->css);
> }
>
> return true;
> @@ -1460,7 +1480,8 @@ static unsigned long mem_cgroup_reclaim(struct mem_cgroup
*memcg,
>
> if (flags& MEM_CGROUP_RECLAIM_NOSWAP)
> noswap = true;
> - if (!(flags& MEM_CGROUP_RECLAIM_SHRINK)&& memcg->memsw_is_minimum)
> + if (!(flags& MEM_CGROUP_RECLAIM_SHRINK)&& mem_cgroup_test_flag(memcg,
> + MEMCG_MEMSW_IS_MINIMUM))
> noswap = true;
>
> for (loop = 0; loop< MEM_CGROUP_MAX_RECLAIM_LOOPS; loop++) {
> @@ -1813,7 +1834,7 @@ bool mem_cgroup_handle_oom(struct mem_cgroup *memcg, gfp_t
mask)
> * under OOM is always welcomed, use TASK_KILLABLE here.
> */
> prepare_to_wait(&memcg_oom_waitq,&owait.wait, TASK_KILLABLE);
> - if (!locked || memcg->oom_kill_disable)
> + if (!locked || mem_cgroup_test_flag(memcg, MEMCG_OOM_KILL_DISABLE))
> need_to_kill = false;
> if (locked)
> mem_cgroup_oom_notify(memcg);
> @@ -3416,9 +3437,11 @@ static int mem_cgroup_resize_limit(struct mem_cgroup *memcg,
> ret = res_counter_set_limit(&memcg->res, val);
> if (!ret) {
> if (memswlimit == val)
> - memcg->memsw_is_minimum = true;
> + mem_cgroup_set_flag(memcg,
> + MEMCG_MEMSW_IS_MINIMUM);
> else
> - memcg->memsw_is_minimum = false;
> + mem_cgroup_clear_flag(memcg,
> + MEMCG_MEMSW_IS_MINIMUM);
> }
> mutex_unlock(&set_limit_mutex);
>
> @@ -3475,9 +3498,11 @@ static int mem_cgroup_resize_memsw_limit(struct mem_cgroup
*memcg,
> ret = res_counter_set_limit(&memcg->memsw, val);
> if (!ret) {
> if (memlimit == val)
> - memcg->memsw_is_minimum = true;
> + mem_cgroup_set_flag(memcg,
> + MEMCG_MEMSW_IS_MINIMUM);
> else

```

```

> - memcg->memsw_is_minimum = false;
> + mem_cgroup_clear_flag(memcg,
> +     MEMCG_MEMSW_IS_MINIMUM);
> }
> mutex_unlock(&set_limit_mutex);
>
> @@ -3745,7 +3770,8 @@ int mem_cgroup_force_empty_write(struct cgroup *cont, unsigned
int event)
>
> static u64 mem_cgroup_hierarchy_read(struct cgroup *cont, struct cftype *cft)
> {
> - return mem_cgroup_from_cont(cont)->use_hierarchy;
> + return mem_cgroup_test_flag(mem_cgroup_from_cont(cont),
> +     MEMCG_USE_HIERARCHY);
> }
>
> static int mem_cgroup_hierarchy_write(struct cgroup *cont, struct cftype *cft,
> @@ -3768,10 +3794,14 @@ static int mem_cgroup_hierarchy_write(struct cgroup *cont, struct
cftype *cft,
> * For the root cgroup, parent_mem is NULL, we allow value to be
> * set if there are no children.
> */
> - if ((!parent_memcg || !parent_memcg->use_hierarchy)&&
> -     (val == 1 || val == 0)) {
> + if ((!parent_memcg || !mem_cgroup_test_flag(parent_memcg,
> +     MEMCG_USE_HIERARCHY))&& (val == 1 || val == 0)) {
>     if (list_empty(&cont->children))
> - memcg->use_hierarchy = val;
> + if (val)
> +     mem_cgroup_set_flag(memcg, MEMCG_USE_HIERARCHY);
> + else
> +     mem_cgroup_clear_flag(memcg,
> +         MEMCG_USE_HIERARCHY);
>     else
>         retval = -EBUSY;
>     } else
> @@ -3903,13 +3933,13 @@ static void memcg_get_hierarchical_limit(struct mem_cgroup
*memcg,
>     min_limit = res_counter_read_u64(&memcg->res, RES_LIMIT);
>     min_memsw_limit = res_counter_read_u64(&memcg->memsw, RES_LIMIT);
>     cgroup = memcg->css.cgroup;
> - if (!memcg->use_hierarchy)
> + if (!mem_cgroup_test_flag(memcg, MEMCG_USE_HIERARCHY))
>     goto out;
>
> while (cgroup->parent) {
>     cgroup = cgroup->parent;
>     memcg = mem_cgroup_from_cont(cgroup);

```

```

> - if (!memcg->use_hierarchy)
> + if (!mem_cgroup_test_flag(memcg, MEMCG_USE_HIERARCHY))
>     break;
>     tmp = res_counter_read_u64(&memcg->res, RES_LIMIT);
>     min_limit = min(min_limit, tmp);
> @@ -4206,8 +4236,9 @@ static int mem_cgroup_swappiness_write(struct cgroup *cgrp, struct
cftype *cft,
>     cgroup_lock();
>
>     /* If under hierarchy, only empty-root can set this value */
> - if ((parent->use_hierarchy) ||
> -     (memcg->use_hierarchy&& !list_empty(&cgrp->children))) {
> + if (mem_cgroup_test_flag(parent, MEMCG_USE_HIERARCHY) ||
> +     (mem_cgroup_test_flag(memcg, MEMCG_USE_HIERARCHY)&&
> +     !list_empty(&cgrp->children))) {
>     cgroup_unlock();
>     return -EINVAL;
> }
> @@ -4518,7 +4549,8 @@ static int mem_cgroup_oom_control_read(struct cgroup *cgrp,
> {
>     struct mem_cgroup *memcg = mem_cgroup_from_cont(cgrp);
>
>     - cb->fill(cb, "oom_kill_disable", memcg->oom_kill_disable);
> + cb->fill(cb, "oom_kill_disable", mem_cgroup_test_flag(memcg,
> +     MEMCG_OOM_KILL_DISABLE));
>
>     if (atomic_read(&memcg->under_oom))
>         cb->fill(cb, "under_oom", 1);
> @@ -4541,14 +4573,18 @@ static int mem_cgroup_oom_control_write(struct cgroup *cgrp,
>
>     cgroup_lock();
>     /* oom-kill-disable is a flag for subhierarchy. */
> - if ((parent->use_hierarchy) ||
> -     (memcg->use_hierarchy&& !list_empty(&cgrp->children))) {
> + if (mem_cgroup_test_flag(parent, MEMCG_USE_HIERARCHY) ||
> +     (mem_cgroup_test_flag(memcg, MEMCG_USE_HIERARCHY)&&
> +     !list_empty(&cgrp->children))) {
>     cgroup_unlock();
>     return -EINVAL;
> }
> - memcg->oom_kill_disable = val;
> - if (!val)
> + if (val)
> +     mem_cgroup_set_flag(memcg, MEMCG_OOM_KILL_DISABLE);
> + else {
> +     mem_cgroup_clear_flag(memcg, MEMCG_OOM_KILL_DISABLE);
>     memcg_oom_recover(memcg);
> + }

```

```

> cgroup_unlock();
> return 0;
> }
> @@ -4916,11 +4952,19 @@ mem_cgroup_create(struct cgroup_subsys *ss, struct cgroup
*cont)
> hotcpu_notifier(memcg_cpu_hotplug_callback, 0);
> } else {
> parent = mem_cgroup_from_cont(cont->parent);
> - memcg->use_hierarchy = parent->use_hierarchy;
> - memcg->oom_kill_disable = parent->oom_kill_disable;
> +
> + if (mem_cgroup_test_flag(parent, MEMCG_USE_HIERARCHY))
> + mem_cgroup_set_flag(memcg, MEMCG_USE_HIERARCHY);
> + else
> + mem_cgroup_clear_flag(memcg, MEMCG_USE_HIERARCHY);
> +
> + if (mem_cgroup_test_flag(parent, MEMCG_OOM_KILL_DISABLE))
> + mem_cgroup_set_flag(memcg, MEMCG_OOM_KILL_DISABLE);
> + else
> + mem_cgroup_clear_flag(memcg, MEMCG_OOM_KILL_DISABLE);
> }
>
> - if (parent&& parent->use_hierarchy) {
> + if (parent&& mem_cgroup_test_flag(parent, MEMCG_USE_HIERARCHY)) {
> res_counter_init(&memcg->res,&parent->res);
> res_counter_init(&memcg->memsw,&parent->memsw);
> /*

```
