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Signed-off-by: Glauber Costa <glommer@parallels.com>
Acked-by: Christoph Lameter <cl@linux.com>
CC: David Rientjes <rientjes@google.com>
CC: Pekka Enberg <penberg@cs.helsinki.fi>
---
  mm/slab.c | 22 ----------------------
  mm/slab.h | 25 +++++++++++++++++++++++++
  mm/slab_common.c |  7 ++++++
  mm/slab.c   |  3 ---
4 files changed, 32 insertions(+), 25 deletions(-)

diff --git a/mm/slab.c b/mm/slab.c
index 8524923..8c1d447 100644
--- a/mm/slab.c
+++ b/mm/slab.c
@@ -162,23 +162,6 @@
    */
 static bool pfmemalloc_active __read_mostly;

-/* Legal flag mask for kmem_cache_create(). */
-#if DEBUG
-# define CREATE_MASK(SLAB_RED_ZONE | SLAB_POISON | SLAB_HWCACHE_ALIGN | SLAB_CACHE_DMA | SLAB_STORE_USER |
- SLAB_RECLAIM_ACCOUNT | SLAB_PANIC | \
- SLAB_DESTROY_BY_RCU | SLAB_MEM_SPREAD | \
- SLAB_DEBUG_OBJECTS | SLAB_NOLEAKTRACE | SLAB_NOTRACK)

#define CREATE_MASK (SLAB_HWCACHE_ALIGN | \
- SLAB_CACHE_DMA | \
- SLAB_RECLAIM_ACCOUNT | SLAB_PANIC | \
- SLAB_DESTROY_BY_RCU | SLAB_MEM_SPREAD | \
- SLAB_DEBUG_OBJECTS | SLAB_NOLEAKTRACE | SLAB_NOTRACK)

/*
 * Always checks flags, a caller might be expecting debug support which
 * isn't available.
 */

BUG_ON(flags & ~CREATE_MASK);

/*
 * Check that size is in terms of words. This is needed to avoid
 */

diff --git a/mm/slab.h b/mm/slab.h
index 7deeb44..35b60b7 100644
--- a/mm/slab.h
+++ b/mm/slab.h
@@ -45,6 +45,31 @@ static inline struct kmem_cache *__kmem_cache_alias(const char *name,
#endif

/+* Legal flag mask for kmem_cache_create(), for various configurations */
+#define SLAB_CORE_FLAGS (SLAB_HWCACHE_ALIGN | SLAB_CACHE_DMA | 
SLAB_PANIC | \
+ SLAB_DESTROY_BY_RCU | SLAB_DEBUG_OBJECTS )
+
+#if defined(CONFIG_DEBUG_SLAB)
+#define SLAB_DEBUG_FLAGS (SLAB_RED_ZONE | SLAB_POISON | SLAB_STORE_USER)
+elif defined(CONFIG_SLUB_DEBUG)
+##define SLAB_DEBUG_FLAGS (SLAB_RED_ZONE | SLAB_POISON | SLAB_STORE_USER | 
+ SLAB_TRACE | SLAB_DEBUG_FREE)
+®else
+®define SLAB_DEBUG_FLAGS (0)

Page 2 of 6 ---- Generated from OpenVZ Forum
```c
#define SLAB_CACHE_FLAGS (SLAB_MEM_SPREAD | SLAB_NOLEAKTRACE | 
+ SLAB_RECLAIM_ACCOUNT | SLAB_TEMPORARY | SLAB_NOTRACK)
#endif

#define SLAB_CACHE_FLAGS (SLAB_NOLEAKTRACE | SLAB_RECLAIM_ACCOUNT | 
+ SLAB_TEMPORARY | SLAB_NOTRACK)
#else
#define SLAB_CACHE_FLAGS (0)
#endif

#define CACHE_CREATE_MASK (SLAB_CORE_FLAGS | SLAB_DEBUG_FLAGS |
SLAB_CACHE_FLAGS)

int __kmem_cache_shutdown(struct kmem_cache *);

#define SLAB_DEBUG_FLAGS (SLAB_RED_ZONE | SLAB_POISON | SLAB_STORE_USER | 
+ SLAB_TRACE | SLAB_DEBUG_FREE)
```

---

```c
+ * Some allocators will constraint the set of valid flags to a subset
+ * of all flags. We expect them to define CACHE_CREATE_MASK in this
+ * case, and we'll just provide them with a sanitized version of the
+ * passed flags.
+ */
+flags &= CACHE_CREATE_MASK;

s = __kmem_cache_alias(name, size, align, flags, ctor);
```
static inline int kmem_cache_debug(struct kmem_cache *s) {
#ifdef CONFIG_SLUB_DEBUG
--
1.7.11.7

Subject: Re: [PATCH v5] slab: Ignore internal flags in cache creation
Posted by David Rientjes on Wed, 17 Oct 2012 21:07:55 GMT
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On Wed, 17 Oct 2012, Glauber Costa wrote:

> Some flags are used internally by the allocators for management
> purposes. One example of that is the CFLGS_OFF_SLAB flag that slab uses
> to mark that the metadata for that cache is stored outside of the slab.
> >
> > No cache should ever pass those as a creation flags. We can just ignore
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> Signed-off-by: Glauber Costa <glommer@parallels.com>
> Acked-by: Christoph Lameter <cl@linux.com>
> CC: David Rientjes <rientjes@google.com>
> CC: Pekka Enberg <penberg@cs.helsinki.fi>

Acked-by: David Rientjes <rientjes@google.com>

Subject: Re: [PATCH v5] slab: Ignore internal flags in cache creation
Posted by akpm on Thu, 18 Oct 2012 22:42:03 GMT
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On Wed, 17 Oct 2012 15:36:51 +0400
Glauber Costa <glommer@parallels.com> wrote:
Some flags are used internally by the allocators for management purposes. One example of that is the CFLGS_OFF_SLAB flag that slab uses to mark that the metadata for that cache is stored outside of the slab.

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I may be misunderstanding this, but...

If some caller to kmem_cache_create() is passing in bogus flags then that's a bug, and it is undesirable to hide such a bug in this fashion?

Because such flags can vary from allocator to allocator, we allow them to make their own decisions on that, defining SLAB_AVAILABLE_FLAGS with all flags that are valid at creation time. Allocators that doesn't have any specific flag requirement should define that to mean all flags.

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---

Subject: Re: [PATCH v5] slab: Ignore internal flags in cache creation
Posted by Glauber Costa on Fri, 19 Oct 2012 09:32:43 GMT

On 10/19/2012 02:42 AM, Andrew Morton wrote:
> On Wed, 17 Oct 2012 15:36:51 +0400
> Glauber Costa <glommer@parallels.com> wrote:
> 
> >> Some flags are used internally by the allocators for management
> >> purposes. One example of that is the CFLGS_OFF_SLAB flag that slab uses
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> >
>
> Not necessarily.

This part is part of the kmemcg-slab series. In that use case, I copy the flags from the original kmem cache, and create a duplicate. That duplicate need to have the same flags, but only the creation flags.
We had many attempts to mask it out in different places, and after some discussion, it seemed best to independently do it from common code in slab_common.c at creation time. It gets quite independent from the kmemcg-slab this way, and so I posted independently to reduce my churn.

Subject: Re: [PATCH v5] slab: Ignore internal flags in cache creation
Posted by Pekka Enberg on Wed, 31 Oct 2012 07:13:49 GMT

On Thu, Oct 18, 2012 at 12:07 AM, David Rientjes <rientjes@google.com> wrote:
> On Wed, 17 Oct 2012, Glauber Costa wrote:
> 
> >> Some flags are used internally by the allocators for management
> >> purposes. One example of that is the CFLGS_OFF_SLAB flag that slab uses
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> >
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Applied, thanks!