
Subject: [PATCH 2/4] fuse: re-work fuse_get_user_pages() to operate on iovec[]

Posted by [Maxim Patlasov](#) on Fri, 20 Jul 2012 11:50:33 GMT

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Now fuse_get_user_pages() takes iovec[] as argument and packs so much data from it to req->pages[] as possible.

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fs/fuse/file.c | 64 +++-----

1 files changed, 47 insertions(+), 17 deletions(-)

diff --git a/fs/fuse/file.c b/fs/fuse/file.c

index b321a68..d84416d 100644

--- a/fs/fuse/file.c

+++ b/fs/fuse/file.c

```
@@ -1020,41 +1020,71 @@ static void fuse_release_user_pages(struct fuse_req *req, int write)
 }
 }
```

```
-static int fuse_get_user_pages(struct fuse_req *req, const char __user *buf,
```

```
+static int fuse_get_user_pages(struct fuse_req *req,
```

```
+    const struct iovec **iov_pp,
```

```
+    unsigned long *nr_segs_p,
```

```
+    size_t *iov_offset_p,
```

```
    size_t *nbytesp, int write)
```

```
{
```

```
- size_t nbytes = *nbytesp;
```

```
- unsigned long user_addr = (unsigned long) buf;
```

```
- unsigned offset = user_addr & ~PAGE_MASK;
```

```
- int npages;
```

```
+ size_t nbytes = 0; /* # bytes already packed in req */
```

```
/* Special case for kernel I/O: can copy directly into the buffer */
```

```
if (segment_eq(get_fs(), KERNEL_DS)) {
```

```
+ BUG_ON(*iov_offset_p);
```

```
    if (write)
```

```
- req->in.args[1].value = (void *) user_addr;
```

```
+ req->in.args[1].value = (*iov_pp)->iov_base;
```

```
    else
```

```
- req->out.args[0].value = (void *) user_addr;
```

```
+ req->out.args[0].value = (*iov_pp)->iov_base;
```

```
+ (*iov_pp)++;
```

```
+ (*nr_segs_p)--;
```

```
    return 0;
```

```
}
```

```

- nbytes = min_t(size_t, nbytes, FUSE_MAX_PAGES_PER_REQ << PAGE_SHIFT);
- npages = (nbytes + offset + PAGE_SIZE - 1) >> PAGE_SHIFT;
- npages = clamp(npages, 1, FUSE_MAX_PAGES_PER_REQ);
- npages = get_user_pages_fast(user_addr, npages, !write, req->pages);
- if (npages < 0)
- return npages;
+ req->iovec = *iov_pp;
+ req->iov_offset = *iov_offset_p;

- req->num_pages = npages;
- req->page_offset = offset;
+ while (nbytes < *nbytesp && req->num_pages < FUSE_MAX_PAGES_PER_REQ) {
+ int npages;
+ unsigned long user_addr = (unsigned long)(*iov_pp)->iov_base +
+     *iov_offset_p;
+ unsigned offset = user_addr & ~PAGE_MASK;
+ size_t frag_size = min_t(size_t,
+     (*iov_pp)->iov_len - *iov_offset_p,
+     *nbytesp - nbytes);
+
+ int n = FUSE_MAX_PAGES_PER_REQ - req->num_pages;
+ frag_size = min_t(size_t, frag_size, n << PAGE_SHIFT);
+
+ npages = (frag_size + offset + PAGE_SIZE - 1) >> PAGE_SHIFT;
+ npages = clamp(npages, 1, n);
+
+ npages = get_user_pages_fast(user_addr, npages, !write,
+     &req->pages[req->num_pages]);
+ if (npages < 0)
+ return npages;
+
+ frag_size = min_t(size_t, frag_size,
+     (npages << PAGE_SHIFT) - offset);
+ nbytes += frag_size;
+
+ if (frag_size < (*iov_pp)->iov_len - *iov_offset_p) {
+     *iov_offset_p += frag_size;
+ } else {
+     (*iov_pp)++;
+     (*nr_segs_p)--;
+     *iov_offset_p = 0;
+ }
+
+ req->num_pages += npages;
+ }

if (write)
    req->in.argpages = 1;

```

```
else
    req->out.argpages = 1;

- nbytes = (req->num_pages << PAGE_SHIFT) - req->page_offset;
- *nbytesp = min(*nbytesp, nbytes);
+ *nbytesp = nbytes;

    return 0;
}
```
