
Subject: [PATCH 12/12] fuse: optimize __fuse_direct_io()
Posted by [Maxim Patlasov](#) on Fri, 26 Oct 2012 15:50:36 GMT
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__fuse_direct_io() allocates fuse-requests by calling fuse_get_req(fc, n). The patch calculates 'n' based on iov[] array. This is useful because allocating FUSE_MAX_PAGES_PER_REQ page pointers and descriptors for each fuse request would be waste of memory in case of iov-s of smaller size.

Signed-off-by: Maxim Patlasov <mpatlasov@parallels.com>

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---
fs/fuse/file.c | 25 ++++++-----
1 files changed, 21 insertions(+), 4 deletions(-)

diff --git a/fs/fuse/file.c b/fs/fuse/file.c
index fad8c7b..1a9ae5a 100644
--- a/fs/fuse/file.c
+++ b/fs/fuse/file.c
@@ -1088,14 +1088,14 @@ static int fuse_get_user_pages(struct fuse_req *req, struct iov_iter
 *ii,
     return 0;
 }

- while (nbytes < *nbytesp && req->num_pages < FUSE_MAX_PAGES_PER_REQ) {
+ while (nbytes < *nbytesp && req->num_pages < req->max_pages) {
     unsigned npages;
     unsigned long user_addr = fuse_get_user_addr(ii);
     unsigned offset = user_addr & ~PAGE_MASK;
     size_t frag_size = fuse_get_frag_size(ii, *nbytesp - nbytes);
     int ret;

- unsigned n = FUSE_MAX_PAGES_PER_REQ - req->num_pages;
+ unsigned n = req->max_pages - req->num_pages;
     frag_size = min_t(size_t, frag_size, n << PAGE_SHIFT);

     npages = (frag_size + offset + PAGE_SIZE - 1) >> PAGE_SHIFT;
@@ -1131,6 +1131,23 @@ static int fuse_get_user_pages(struct fuse_req *req, struct iov_iter *ii,
     return 0;
 }

+static inline int fuse_iter_npages(const struct iov_iter *ii_p)
+{
+ struct iov_iter ii = *ii_p;
+ int npages = 0;
+
+ while (iov_iter_count(&ii) && npages < FUSE_MAX_PAGES_PER_REQ) {
+ unsigned long user_addr = fuse_get_user_addr(&ii);
+ unsigned offset = user_addr & ~PAGE_MASK;
```

```

+ size_t frag_size = iov_iter_single_seg_count(&ii);
+
+ npages += (frag_size + offset + PAGE_SIZE - 1) >> PAGE_SHIFT;
+ iov_iter_advance(&ii, frag_size);
+ }
+
+ return min(npages, FUSE_MAX_PAGES_PER_REQ);
+}
+
static ssize_t __fuse_direct_io(struct file *file, const struct iovec *iov,
    unsigned long nr_segs, size_t count,
    loff_t *ppos, int write)
@@ -1145,7 +1162,7 @@ static ssize_t __fuse_direct_io(struct file *file, const struct iovec *iov,

    iov_iter_init(&ii, iov, nr_segs, count, 0);

- req = fuse_get_req(fc, FUSE_MAX_PAGES_PER_REQ);
+ req = fuse_get_req(fc, fuse_iter_npages(&ii));
    if (IS_ERR(req))
        return PTR_ERR(req);

@@ -1180,7 +1197,7 @@ static ssize_t __fuse_direct_io(struct file *file, const struct iovec *iov,
    break;
    if (count) {
        fuse_put_request(fc, req);
- req = fuse_get_req(fc, FUSE_MAX_PAGES_PER_REQ);
+ req = fuse_get_req(fc, fuse_iter_npages(&ii));
        if (IS_ERR(req))
            break;
    }

```
