Subject: [PATCH 3/6] fuse: rework fuse_retrieve()
Posted by Maxim Patlasov on Fri, 07 Sep 2012 17:41:32 GMT
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The patch reworks fuse_retrieve() to allocate only so many page pointers
as needed. The core part of the patch is the following calculation:

 num_pages = (num + offset + PAGE_SIZE - 1) >> PAGE_SHIFT;

(thanks Miklos for formula). All other changes are moslty shuffling lines.

The patch also contains one-line fix suggested by Miklos: the loop iterating
over pages from inode mapping should interpret 'offset' as offset in the very
first page only.
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 fs/fuse/dev.c | 26 ++++++++++++++++++----------
 1 files changed, 16 insertions(+), 10 deletions(-)

```
diff --git a/fs/fuse/dev.c b/fs/fuse/dev.c
index 6e38af5..cf69df3 100644
--- a/fs/fuse/dev.c
+++ b/fs/fuse/dev.c
@@ -1562,13 +1562,24 @@ static int fuse_retrieve(struct fuse_conn *fc, struct inode *inode,
  unsigned int num;
  unsigned int offset;
  size_t total_len = 0;
+ int num_pages;

- req = fuse_get_req_multipage(fc, FUSE_MAX_PAGES_PER_REQ);
+ offset = outarg->offset & ~PAGE_CACHE_MASK;
+ file_size = i_size_read(inode);
+
+ num = outarg->size;
+ if (outarg->offset > file_size)
+  num = 0;
+ else if (outarg->offset + num > file_size)
+  num = file_size - outarg->offset;
+
+ num_pages = (num + offset + PAGE_SIZE - 1) >> PAGE_SHIFT;
+ num_pages = min(num_pages, FUSE_MAX_PAGES_PER_REQ);
+
+ req = fuse_get_req_multipage(fc, num_pages);
  if (IS_ERR(req))
   return PTR_ERR(req);

- offset = outarg->offset & ~PAGE_CACHE_MASK;
-
  req->in.h.opcode = FUSE_NOTIFY_REPLY;
```

```
  req->in.h.nodeid = outarg->nodeid;
  req->in.numargs = 2;
@@ -1577,14 +1588,8 @@ static int fuse_retrieve(struct fuse_conn *fc, struct inode *inode,
  req->end = fuse_retrieve_end;

  index = outarg->offset >> PAGE_CACHE_SHIFT;
- file_size = i_size_read(inode);
- num = outarg->size;
- if (outarg->offset > file_size)
-  num = 0;
- else if (outarg->offset + num > file_size)
-  num = file_size - outarg->offset;

- while (num && req->num_pages < FUSE_MAX_PAGES_PER_REQ) {
+ while (num && req->num_pages < num_pages) {
   struct page *page;
   unsigned int this_num;

@@ -1596,6 +1601,7 @@ static int fuse_retrieve(struct fuse_conn *fc, struct inode *inode,
   req->pages[req->num_pages] = page;
   req->num_pages++;

+  offset = 0;
   num -= this_num;
   total_len += this_num;
   index++;
```