NAME

vmsplice − splice user pages to/from a pipe

SYNOPSIS

```
#define _GNU_SOURCE         /* See feature_test_macros(7) */
#include <fcntl.h>
#include <sys/uio.h>

ssize_t vmsplice(int fd, const struct iovec *iov,
                 unsigned long nr_segs, unsigned int flags);
```

DESCRIPTION

If *fd* is opened for writing, the **vmsplice**() system call maps *nr_segs* ranges of user memory described by *iov* into a pipe. If *fd* is opened for reading, the **vmsplice**() system call fills *nr_segs* ranges of user memory described by *iov* from a pipe. The file descriptor *fd* must refer to a pipe.

The pointer *iov* points to an array of *iovec* structures as defined in *<sys/uio.h>*:

```
struct iovec {
    void  *iov_base;        /* Starting address */
    size_t iov_len;         /* Number of bytes */
};
```

The *flags* argument is a bit mask that is composed by ORing together zero or more of the following values:

SPLICE_F_MOVE
: Unused for **vmsplice**(); see **splice**(2).

SPLICE_F_NONBLOCK
: Do not block on I/O; see **splice**(2) for further details.

SPLICE_F_MORE
: Currently has no effect for **vmsplice**(), but may be implemented in the future; see **splice**(2).

SPLICE_F_GIFT
: The user pages are a gift to the kernel. The application may not modify this memory ever, otherwise the page cache and on-disk data may differ. Gifting pages to the kernel means that a subsequent **splice**(2) **SPLICE_F_MOVE** can successfully move the pages; if this flag is not specified, then a subsequent **splice**(2) **SPLICE_F_MOVE** must copy the pages. Data must also be properly page aligned, both in memory and length.

RETURN VALUE

Upon successful completion, **vmsplice**() returns the number of bytes transferred to the pipe. On error, **vmsplice**() returns −1 and *errno* is set to indicate the error.

ERRORS

EAGAIN
: **SPLICE_F_NONBLOCK** was specified in *flags*, and the operation would block.

EBADF
: *fd* either not valid, or doesn't refer to a pipe.

EINVAL
: *nr_segs* is greater than **IOV_MAX**; or memory not aligned if **SPLICE_F_GIFT** set.

ENOMEM
: Out of memory.

VERSIONS

The **vmsplice**() system call first appeared in Linux 2.6.17; library support was added to glibc in version 2.5.

CONFORMING TO

This system call is Linux-specific.

NOTES

vmsplice() follows the other vectorized read/write type functions when it comes to limitations on the number of segments being passed in. This limit is **IOV_MAX** as defined in *<limits.h>*. Currently, this limit is 1024.

vmsplice() really supports true splicing only from user memory to a pipe. In the opposite direction, it actually just copies the data to userspace. But this makes the interface nice and symmetric and enables people to build on **vmsplice**() with room for future improvement in performance.

SEE ALSO

splice(2), **tee**(2), **pipe**(7)

COLOPHON

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