Московский Авиационный Институт

(Национальный Исследовательский Университет)

Институт №8 “Компьютерные науки и прикладная математика”

Кафедра №806 “Вычислительная математика и программирование”

Курсовой проект по курсу

«Операционные системы»

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Оценка: _____

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Постановка задачи

Вариант 4.

Консоль-серверная игра. Необходимо написать консоль-серверную игру. Необходимо написать 2 программы: сервер и клиент. Сначала запускается сервер, а далее клиенты соединяются с сервером. Сервер координирует клиентов между собой. При запуске клиента игрок может выбрать одно из следующих действий (возможно больше, если предусмотрено вариантом): Морской бой. Общение между сервером и клиентом необходимо организовать при помощи очередей сообщений (например, ZeroMQ). Каждый игрок должен при запуске ввести свой логин. Должна быть предоставлена возможность отправить приглашение на игру другому игроку по логину

Общий метод и алгоритм решения

Использованные системные вызовы:

- void *zmq_socket(void *context, int type) - Создает клиентский ZMQ-сокет
- int zmq_connect(void *socket, const char *endpoint) - Подключается к серверу
- int zmq_send(void *socket, const void *buf, size_t len, int) - Возвращает: количество отправленных байтов или -1 при ошибке
- int zmq_recv(void *socket, void *buf, size_t len, int flags) - Возвращает: количество полученных байтов или -1 при ошибке

Я разработал клиент-серверную систему для игры "Морской бой", использующую механизм очередей сообщений ZeroMQ для сетевого взаимодействия: клиентская программа предоставляет интерфейс для игроков с возможностью приглашения по логину и поочередных выстрелов, серверная программа обрабатывает игровую логику, управляя состоянием игр и проверяя попадания. Реализация демонстрирует два подхода к архитектуре распределенных приложений — использование высокоуровневого API ZeroMQ, который абстрагирует работу с сокетами, предоставляя паттерн "запрос-ответ", и возможность организации интерактивного многопользовательского взаимодействия через текстовый протокол обмена сообщениями.

Код программы

Server.c

```
#include <zmq.h>

#include <stdio.h>

#include <string.h>

#include <stdlib.h>

int main() {

    void *context = zmq_ctx_new();

    void *socket = zmq_socket(context, ZMQ_REP);

    zmq_bind(socket, "tcp://*:5555");

     printf("Сервер запущен\n");
```

```
char game_player1[50] = "";
char game_player2[50] = "";
int game_active = 0;
char turn[50] = "";
int ships1[10][10] = {0};
int ships2[10][10] = {0};

while (1) {
    char buffer[256];
    memset(buffer, 0, sizeof(buffer));
    int size = zmq_recv(socket, buffer, 255, 0);

    char cmd[20] = "";
    char login[50] = "";
    char target[50] = "";
    char reply[256];
    memset(reply, 0, sizeof(reply));

    if (size > 0) {
        buffer[size] = '\0';
        sscanf(buffer, "%s %s %s", cmd, login, target);
    }

    if (strcmp(cmd, "LOGIN") == 0) {
        sprintf(reply, "OK %s", login);
    }

    else if (strcmp(cmd, "INVITE") == 0) {
        if (game_active) {
            sprintf(reply, "ERROR Уже есть игра");
        }

        else if (strcmp(login, target) == 0) {
```

```
            sprintf(reply, "ERROR Нельзя пригласить себя");
    }
        else {
            strcpy(game_player1, login);
            strcpy(game_player2, target);
            strcpy(turn, login);
            game_active = 1;

            for (int i = 0; i < 5; i++) {
                ships1[i][i] = 1;
                ships2[i][9-i] = 1;
            }

            sprintf(reply, "OK Игра с %s создана", target);
        }
    }

    else if (strcmp(cmd, "SHOT") == 0) {
        int x, y;
        sscanf(buffer, "%*s %*s %d %d", &x, &y);

        if (!game_active) {
            sprintf(reply, "ERROR Нет игры");
        }
        else if (x < 0 || x >= 10 || y < 0 || y >= 10) {
            sprintf(reply, "ERROR Координаты 0-9");
        }
        else if (strcmp(turn, login) != 0) {
            sprintf(reply, "ERROR Ход %s", turn);
        }

        else {
            int hit = 0;
```

```
        if (strcmp(login, game_player1) == 0) {
            if (ships2[x][y]) {
                ships2[x][y] = 0;
                hit = 1;
            }
            strcpy(turn, game_player2);
        }

        else {
            if (ships1[x][y]) {
                ships1[x][y] = 0;
                hit = 1;
            }
            strcpy(turn, game_player1);
        }

        sprintf(reply, "%s Ход: %s", hit ? "HIT" : "MISS", turn);
    }
}

else if (strcmp(cmd, "STATUS") == 0) {
    if (!game_active) {
        sprintf(reply, "IDLE");
    }
    else if (strcmp(login, game_player1) == 0 ||
             strcmp(login, game_player2) == 0) {
        if (strcmp(turn, login) == 0) {
            sprintf(reply, "YOUR_TURN");
        } else {
            sprintf(reply, "ENEMY_TURN");
        }
    } else {
```

```
                sprintf(reply, "IDLE");
            }
        }
        else {
            sprintf(reply, "ERROR");
        }

        zmq_send(socket, reply, strlen(reply), 0);
    }

    zmq_close(socket);
    zmq_ctx_destroy(context);
    return 0;
}
```

Client.c

```
#include <zmq.h>
#include <stdio.h>
#include <string.h>
int main() {
    void *context = zmq_ctx_new();
    void *socket = zmq_socket(context, ZMQ_REQ);
    zmq_connect(socket, "tcp://localhost:5555");
    char login[50];
    memset(login, 0, sizeof(login));
    printf("Введите логин: ");
    scanf("%49s", login);
    char msg[256];
    char reply[256];
    memset(msg, 0, sizeof(msg));
    sprintf(msg, "LOGIN %s", login);
    zmq_send(socket, msg, strlen(msg), 0);
```

```
    memset(reply, 0, sizeof(reply));
    int size = zmq_recv(socket, reply, 255, 0);
    if (size > 0) {
        reply[size] = '\0';
        printf("Сервер: %s\n", reply);
    }
  while (1) {
        printf("\n1. Пригласить игрока\n");
        printf("2. Сделать выстрел\n");
        printf("3. Проверить статус\n");
        printf("4. Выход\n> ");
        int choice;
        scanf("%d", &choice);
        memset(msg, 0, sizeof(msg));  // Очищаем перед каждым использованием
        if (choice == 1) {
            char target[50];
            memset(target, 0, sizeof(target));
            printf("Логин игрока: ");
            scanf("%49s", target);
            sprintf(msg, "INVITE %s %s", login, target);
        }
        else if (choice == 2) {
            int x, y;
            printf("Координаты x y: ");
            scanf("%d %d", &x, &y);
            sprintf(msg, "SHOT %s %d %d", login, x, y);
        }

        else if (choice == 3) {
            sprintf(msg, "STATUS %s", login);
```

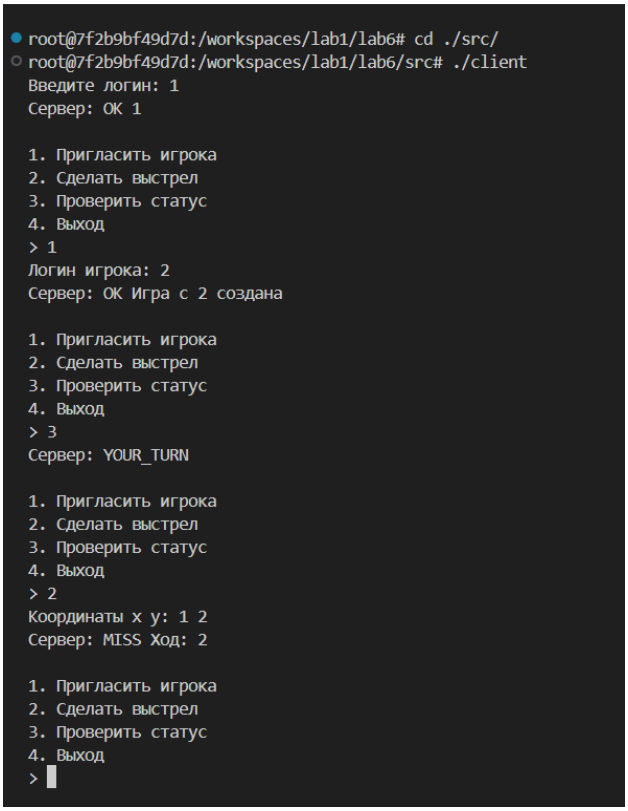
```
        }
        else if (choice == 4) {
            break;
        }
        else {
            printf("Неверный выбор\n");
            continue;
        }

        zmq_send(socket, msg, strlen(msg), 0);
        memset(reply, 0, sizeof(reply));  // Очищаем reply
        size = zmq_recv(socket, reply, 255, 0);
        if (size > 0) {
            reply[size] = '\0';
            printf("Сервер: %s\n", reply);
        }
    }
    zmq_close(socket);
    zmq_ctx_destroy(context);
    return 0;
}
```

Протокол работы программы

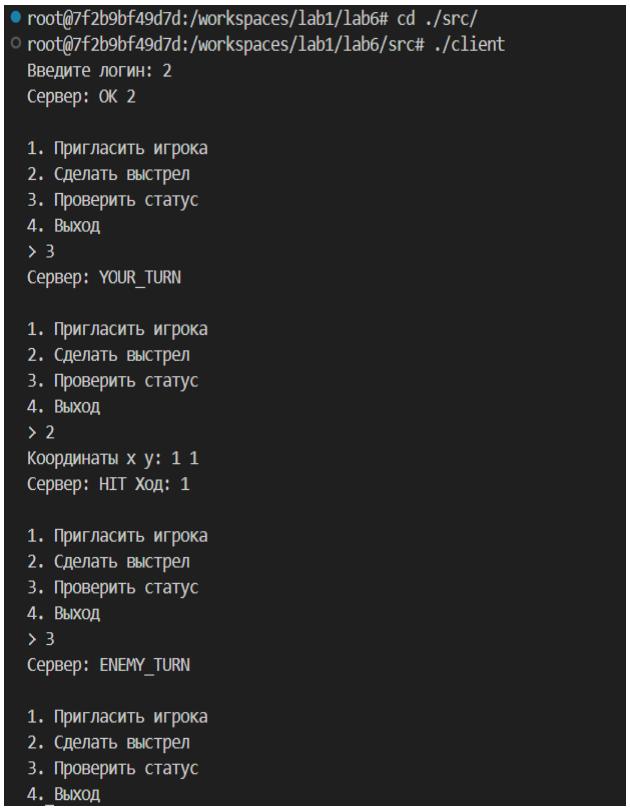
```
Тестирование:
Терминал 1:
./server
Сервер запущен
```

Терминал 2:



Терминал 2:

Терминал 3:



Терминал 3:

strace -f ./client

```
execve("./client", ["./client"], 0x7ffcc59f3c98 /* 31 vars */) = 0
brk(NULL)                               = 0x18a49000
mmap(NULL, 8192, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_ANONYMOUS, -1, 0) = 0x7eb6a1560000
access("/etc/ld.so.preload", R_OK)      = -1 ENOENT (No such file or directory)
openat(AT_FDCWD, "/etc/ld.so.cache", O_RDONLY|O_CLOEXEC) = 3
newfstatat(3, "", {st_mode=S_IFREG|0644, st_size=33619, ...}, AT_EMPTY_PATH) = 0
mmap(NULL, 33619, PROT_READ, MAP_PRIVATE, 3, 0) = 0x7eb6a1557000
close(3)                                = 0
openat(AT_FDCWD, "/lib/x86_64-linux-gnu/libzmq.so.5", O_RDONLY|O_CLOEXEC) = 3
read(3, "\177ELF\2\1\1\0\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\0\0\0\0\0\0\0\0"..., 832) = 832
newfstatat(3, "", {st_mode=S_IFREG|0644, st_size=774184, ...}, AT_EMPTY_PATH) = 0
mmap(NULL, 772088, PROT_READ, MAP_PRIVATE|MAP_DENYWRITE, 3, 0) = 0x7eb6a149a000
mmap(0x7eb6a14b3000, 487424, PROT_READ|PROT_EXEC, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3,
0x19000) = 0x7eb6a14b3000
mmap(0x7eb6a152a000, 147456, PROT_READ, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x90000) =
0x7eb6a152a000
```

```
mmap(0x7eb6a154e000, 36864, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0xb4000) = 0x7eb6a154e000

close(3)                                = 0

openat(AT_FDCWD, "/lib/x86_64-linux-gnu/libc.so.6", O_RDONLY|O_CLOEXEC) = 3

read(3, "\177ELF\2\1\1\3\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\20t\2\0\0\0\0"..., 832) = 832

pread64(3, "\6\0\0\0\4\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0"..., 784, 64) = 784

newfstatat(3, "", {st_mode=S_IFREG|0755, st_size=1926232, ...}, AT_EMPTY_PATH) = 0

pread64(3, "\6\0\0\0\4\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0"..., 784, 64) = 784

mmap(NULL, 1974096, PROT_READ, MAP_PRIVATE|MAP_DENYWRITE, 3, 0) = 0x7eb6a12b8000

mmap(0x7eb6a12de000, 1400832, PROT_READ|PROT_EXEC, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x26000) = 0x7eb6a12de000

mmap(0x7eb6a1434000, 339968, PROT_READ, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x17c000) = 0x7eb6a1434000

mmap(0x7eb6a1487000, 24576, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x1cf000) = 0x7eb6a1487000

mmap(0x7eb6a148d000, 53072, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|MAP_ANONYMOUS, -1, 0) = 0x7eb6a148d000

close(3)                                = 0

openat(AT_FDCWD, "/lib/x86_64-linux-gnu/libbsd.so.0", O_RDONLY|O_CLOEXEC) = 3

read(3, "\177ELF\2\1\1\0\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\0\0\0\0\0\0\0\0"..., 832) = 832

newfstatat(3, "", {st_mode=S_IFREG|0644, st_size=84840, ...}, AT_EMPTY_PATH) = 0

mmap(NULL, 86224, PROT_READ, MAP_PRIVATE|MAP_DENYWRITE, 3, 0) = 0x7eb6a12a2000

mmap(0x7eb6a12a6000, 49152, PROT_READ|PROT_EXEC, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x4000) = 0x7eb6a12a6000

mmap(0x7eb6a12b2000, 12288, PROT_READ, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x10000) = 0x7eb6a12b2000

mmap(0x7eb6a12b5000, 8192, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x13000) = 0x7eb6a12b5000

mmap(0x7eb6a12b7000, 208, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|MAP_ANONYMOUS, -1, 0) = 0x7eb6a12b7000

close(3)                                = 0

openat(AT_FDCWD, "/lib/x86_64-linux-gnu/libsodium.so.23", O_RDONLY|O_CLOEXEC) = 3

read(3, "\177ELF\2\1\1\0\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0 \314\0\0\0\0\0\0"..., 832) = 832

newfstatat(3, "", {st_mode=S_IFREG|0644, st_size=363208, ...}, AT_EMPTY_PATH) = 0

mmap(NULL, 365576, PROT_READ, MAP_PRIVATE|MAP_DENYWRITE, 3, 0) = 0x7eb6a1248000
```

```
mprotect(0x7eb6a1254000, 311296, PROT_NONE) = 0

mmap(0x7eb6a1254000, 233472, PROT_READ|PROT_EXEC, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3,
0xc000) = 0x7eb6a1254000

mmap(0x7eb6a128d000, 73728, PROT_READ, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x45000) =
0x7eb6a128d000

mmap(0x7eb6a12a0000, 8192, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3,
0x57000) = 0x7eb6a12a0000

close(3)                                = 0

openat(AT_FDCWD, "/lib/x86_64-linux-gnu/libpgm-5.3.so.0", O_RDONLY|O_CLOEXEC) = 3

read(3, "\177ELF\2\1\1\0\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\220I\0\0\0\0\0\0"..., 832) = 832

newfstatat(3, "", {st_mode=S_IFREG|0644, st_size=306400, ...}, AT_EMPTY_PATH) = 0

mmap(NULL, 326096, PROT_READ, MAP_PRIVATE|MAP_DENYWRITE, 3, 0) = 0x7eb6a11f8000

mmap(0x7eb6a11fc000, 167936, PROT_READ|PROT_EXEC, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3,
0x4000) = 0x7eb6a11fc000

mmap(0x7eb6a1225000, 118784, PROT_READ, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x2d000) =
0x7eb6a1225000

mmap(0x7eb6a1242000, 8192, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3,
0x49000) = 0x7eb6a1242000

mmap(0x7eb6a1244000, 14800, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|MAP_ANONYMOUS, -1,
0) = 0x7eb6a1244000

close(3)                                = 0

openat(AT_FDCWD, "/lib/x86_64-linux-gnu/libnorm.so.1", O_RDONLY|O_CLOEXEC) = 3

read(3, "\177ELF\2\1\1\0\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\300\246\0\0\0\0\0\0"..., 832) = 832

newfstatat(3, "", {st_mode=S_IFREG|0644, st_size=489480, ...}, AT_EMPTY_PATH) = 0

mmap(NULL, 8192, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_ANONYMOUS, -1, 0) = 0x7eb6a11f6000

mmap(NULL, 1214976, PROT_READ, MAP_PRIVATE|MAP_DENYWRITE, 3, 0) = 0x7eb6a10cd000

mprotect(0x7eb6a10d7000, 438272, PROT_NONE) = 0

mmap(0x7eb6a10d7000, 278528, PROT_READ|PROT_EXEC, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3,
0xa000) = 0x7eb6a10d7000

mmap(0x7eb6a111b000, 155648, PROT_READ, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x4e000) =
0x7eb6a111b000

mmap(0x7eb6a1142000, 16384, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3,
0x74000) = 0x7eb6a1142000

mmap(0x7eb6a1146000, 719360, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|MAP_ANONYMOUS, -1,
0) = 0x7eb6a1146000

close(3)                                = 0

openat(AT_FDCWD, "/lib/x86_64-linux-gnu/libgssapi_krb5.so.2", O_RDONLY|O_CLOEXEC) = 3
```

```
read(3, "\177ELF\2\1\1\0\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\0\0\0\0\0\0\0\0"..., 832) = 832

newfstatat(3, "", {st_mode=S_IFREG|0644, st_size=338680, ...}, AT_EMPTY_PATH) = 0

mmap(NULL, 337152, PROT_READ, MAP_PRIVATE|MAP_DENYWRITE, 3, 0) = 0x7eb6a107a000

mmap(0x7eb6a1086000, 221184, PROT_READ|PROT_EXEC, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3,
0xc000) = 0x7eb6a1086000

mmap(0x7eb6a10bc000, 53248, PROT_READ, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x42000) =
0x7eb6a10bc000

mmap(0x7eb6a10c9000, 16384, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3,
0x4f000) = 0x7eb6a10c9000

close(3)                                = 0

openat(AT_FDCWD, "/usr/local/lib64/libstdc++.so.6", O_RDONLY|O_CLOEXEC) = 3

read(3, "\177ELF\2\1\1\3\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\0\0\0\0\0\0\0\0"..., 832) = 832

newfstatat(3, "", {st_mode=S_IFREG|0755, st_size=2530008, ...}, AT_EMPTY_PATH) = 0

mmap(NULL, 2543808, PROT_READ, MAP_PRIVATE|MAP_DENYWRITE, 3, 0) = 0x7eb6a0e0c000

mmap(0x7eb6a0eb1000, 1216512, PROT_READ|PROT_EXEC, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3,
0xa5000) = 0x7eb6a0eb1000

mmap(0x7eb6a0fda000, 581632, PROT_READ, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x1ce000) =
0x7eb6a0fda000

mmap(0x7eb6a1068000, 57344, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3,
0x25c000) = 0x7eb6a1068000

mmap(0x7eb6a1076000, 12480, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|MAP_ANONYMOUS, -1,
0) = 0x7eb6a1076000

close(3)                                = 0

openat(AT_FDCWD, "/usr/local/lib64/libgcc_s.so.1", O_RDONLY|O_CLOEXEC) = 3

read(3, "\177ELF\2\1\1\0\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\0\0\0\0\0\0\0\0"..., 832) = 832

newfstatat(3, "", {st_mode=S_IFREG|0644, st_size=906528, ...}, AT_EMPTY_PATH) = 0

mmap(NULL, 181160, PROT_READ, MAP_PRIVATE|MAP_DENYWRITE, 3, 0) = 0x7eb6a0ddf000

mmap(0x7eb6a0de3000, 143360, PROT_READ|PROT_EXEC, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3,
0x4000) = 0x7eb6a0de3000

mmap(0x7eb6a0e06000, 16384, PROT_READ, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x27000) =
0x7eb6a0e06000

mmap(0x7eb6a0e0a000, 8192, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3,
0x2b000) = 0x7eb6a0e0a000

close(3)                                = 0

openat(AT_FDCWD, "/lib/x86_64-linux-gnu/libmd.so.0", O_RDONLY|O_CLOEXEC) = 3

read(3, "\177ELF\2\1\1\0\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\0\0\0\0\0\0\0\0"..., 832) = 832

newfstatat(3, "", {st_mode=S_IFREG|0644, st_size=47312, ...}, AT_EMPTY_PATH) = 0
```

```
mmap(NULL, 49384, PROT_READ, MAP_PRIVATE|MAP_DENYWRITE, 3, 0) = 0x7eb6a0dd2000

mmap(0x7eb6a0dd4000, 28672, PROT_READ|PROT_EXEC, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3,
0x2000) = 0x7eb6a0dd4000

mmap(0x7eb6a0ddb000, 8192, PROT_READ, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x9000) =
0x7eb6a0ddb000

mmap(0x7eb6a0ddd000, 8192, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3,
0xa000) = 0x7eb6a0ddd000

close(3)                                = 0

openat(AT_FDCWD, "/lib/x86_64-linux-gnu/libpthread.so.0", O_RDONLY|O_CLOEXEC) = 3

read(3, "\177ELF\2\1\1\0\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\0\0\0\0\0\0\0\0"..., 832) = 832

newfstatat(3, "", {st_mode=S_IFREG|0644, st_size=14480, ...}, AT_EMPTY_PATH) = 0

mmap(NULL, 8192, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_ANONYMOUS, -1, 0) = 0x7eb6a0dd0000

mmap(NULL, 16400, PROT_READ, MAP_PRIVATE|MAP_DENYWRITE, 3, 0) = 0x7eb6a0dcb000

mmap(0x7eb6a0dcc000, 4096, PROT_READ|PROT_EXEC, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3,
0x1000) = 0x7eb6a0dcc000

mmap(0x7eb6a0dcd000, 4096, PROT_READ, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x2000) =
0x7eb6a0dcd000

mmap(0x7eb6a0dce000, 8192, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3,
0x2000) = 0x7eb6a0dce000

close(3)                                = 0

openat(AT_FDCWD, "/lib/x86_64-linux-gnu/libm.so.6", O_RDONLY|O_CLOEXEC) = 3

read(3, "\177ELF\2\1\1\3\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\0\0\0\0\0\0\0\0"..., 832) = 832

newfstatat(3, "", {st_mode=S_IFREG|0644, st_size=911904, ...}, AT_EMPTY_PATH) = 0

mmap(NULL, 913680, PROT_READ, MAP_PRIVATE|MAP_DENYWRITE, 3, 0) = 0x7eb6a0ceb000

mmap(0x7eb6a0cfb000, 475136, PROT_READ|PROT_EXEC, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3,
0x10000) = 0x7eb6a0cfb000

mmap(0x7eb6a0d6f000, 368640, PROT_READ, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x84000) =
0x7eb6a0d6f000

mmap(0x7eb6a0dc9000, 8192, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3,
0xdd000) = 0x7eb6a0dc9000

close(3)                                = 0

openat(AT_FDCWD, "/lib/x86_64-linux-gnu/libkrb5.so.3", O_RDONLY|O_CLOEXEC) = 3

read(3, "\177ELF\2\1\1\0\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\0\0\0\0\0\0\0\0"..., 832) = 832

newfstatat(3, "", {st_mode=S_IFREG|0644, st_size=888080, ...}, AT_EMPTY_PATH) = 0

mmap(NULL, 890784, PROT_READ, MAP_PRIVATE|MAP_DENYWRITE, 3, 0) = 0x7eb6a0c11000

mmap(0x7eb6a0c34000, 389120, PROT_READ|PROT_EXEC, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3,
0x23000) = 0x7eb6a0c34000
```

```
mmap(0x7eb6a0c93000, 294912, PROT_READ, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x82000) =
0x7eb6a0c93000

mmap(0x7eb6a0cdb000, 65536, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3,
0xc9000) = 0x7eb6a0cdb000

close(3)                                = 0

openat(AT_FDCWD, "/lib/x86_64-linux-gnu/libk5crypto.so.3", O_RDONLY|O_CLOEXEC) = 3

read(3, "\177ELF\2\1\1\0\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\0\0\0\0\0\0\0\0"..., 832) = 832

newfstatat(3, "", {st_mode=S_IFREG|0644, st_size=183048, ...}, AT_EMPTY_PATH) = 0

mmap(NULL, 180952, PROT_READ, MAP_PRIVATE|MAP_DENYWRITE, 3, 0) = 0x7eb6a0be4000

mmap(0x7eb6a0be8000, 106496, PROT_READ|PROT_EXEC, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3,
0x4000) = 0x7eb6a0be8000

mmap(0x7eb6a0c02000, 53248, PROT_READ, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x1e000) =
0x7eb6a0c02000

mmap(0x7eb6a0c0f000, 8192, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3,
0x2b000) = 0x7eb6a0c0f000

close(3)                                = 0

openat(AT_FDCWD, "/lib/x86_64-linux-gnu/libcom_err.so.2", O_RDONLY|O_CLOEXEC) = 3

read(3, "\177ELF\2\1\1\0\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\0\0\0\0\0\0\0\0"..., 832) = 832

newfstatat(3, "", {st_mode=S_IFREG|0644, st_size=18344, ...}, AT_EMPTY_PATH) = 0

mmap(NULL, 20552, PROT_READ, MAP_PRIVATE|MAP_DENYWRITE, 3, 0) = 0x7eb6a0bde000

mmap(0x7eb6a0be0000, 4096, PROT_READ|PROT_EXEC, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3,
0x2000) = 0x7eb6a0be0000

mmap(0x7eb6a0be1000, 4096, PROT_READ, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x3000) =
0x7eb6a0be1000

mmap(0x7eb6a0be2000, 8192, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3,
0x3000) = 0x7eb6a0be2000

close(3)                                = 0

openat(AT_FDCWD, "/lib/x86_64-linux-gnu/libkrb5support.so.0", O_RDONLY|O_CLOEXEC) = 3

read(3, "\177ELF\2\1\1\0\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\0\0\0\0\0\0\0\0"..., 832) = 832

newfstatat(3, "", {st_mode=S_IFREG|0644, st_size=52224, ...}, AT_EMPTY_PATH) = 0

mmap(NULL, 54632, PROT_READ, MAP_PRIVATE|MAP_DENYWRITE, 3, 0) = 0x7eb6a0bd0000

mmap(0x7eb6a0bd3000, 24576, PROT_READ|PROT_EXEC, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3,
0x3000) = 0x7eb6a0bd3000

mmap(0x7eb6a0bd9000, 12288, PROT_READ, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x9000) =
0x7eb6a0bd9000

mmap(0x7eb6a0bdc000, 8192, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3,
0xb000) = 0x7eb6a0bdc000
```

```
close(3)                                = 0

openat(AT_FDCWD, "/lib/x86_64-linux-gnu/libkeyutils.so.1", O_RDONLY|O_CLOEXEC) = 3

read(3, "\177ELF\2\1\1\0\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\0\0\0\0\0\0\0\0"..., 832) = 832

newfstatat(3, "", {st_mode=S_IFREG|0644, st_size=22448, ...}, AT_EMPTY_PATH) = 0

mmap(NULL, 8192, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_ANONYMOUS, -1, 0) = 0x7eb6a0bce000

mmap(NULL, 24592, PROT_READ, MAP_PRIVATE|MAP_DENYWRITE, 3, 0) = 0x7eb6a0bc7000

mmap(0x7eb6a0bc9000, 8192, PROT_READ|PROT_EXEC, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3,
0x2000) = 0x7eb6a0bc9000

mmap(0x7eb6a0bcb000, 4096, PROT_READ, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x4000) =
0x7eb6a0bcb000

mmap(0x7eb6a0bcc000, 8192, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3,
0x4000) = 0x7eb6a0bcc000

close(3)                                = 0

openat(AT_FDCWD, "/lib/x86_64-linux-gnu/libresolv.so.2", O_RDONLY|O_CLOEXEC) = 3

read(3, "\177ELF\2\1\1\0\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\0\0\0\0\0\0\0\0"..., 832) = 832

newfstatat(3, "", {st_mode=S_IFREG|0644, st_size=60328, ...}, AT_EMPTY_PATH) = 0

mmap(NULL, 68136, PROT_READ, MAP_PRIVATE|MAP_DENYWRITE, 3, 0) = 0x7eb6a0bb6000

mmap(0x7eb6a0bb9000, 32768, PROT_READ|PROT_EXEC, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3,
0x3000) = 0x7eb6a0bb9000

mmap(0x7eb6a0bc1000, 8192, PROT_READ, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0xb000) =
0x7eb6a0bc1000

mmap(0x7eb6a0bc3000, 8192, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3,
0xd000) = 0x7eb6a0bc3000

mmap(0x7eb6a0bc5000, 6696, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|MAP_ANONYMOUS, -1, 0)
= 0x7eb6a0bc5000

close(3)                                = 0

mmap(NULL, 8192, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_ANONYMOUS, -1, 0) = 0x7eb6a0bb4000

mmap(NULL, 12288, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_ANONYMOUS, -1, 0) = 0x7eb6a0bb1000

arch_prctl(ARCH_SET_FS, 0x7eb6a0bb19c0) = 0

set_tid_address(0x7eb6a0bb1c90)         = 20666

set_robust_list(0x7eb6a0bb1ca0, 24)     = 0

rseq(0x7eb6a0bb22e0, 0x20, 0, 0x53053053) = 0

mprotect(0x7eb6a1487000, 16384, PROT_READ) = 0

mprotect(0x7eb6a0bc3000, 4096, PROT_READ) = 0

mprotect(0x7eb6a0bcc000, 4096, PROT_READ) = 0

mprotect(0x7eb6a0bdc000, 4096, PROT_READ) = 0
```

```
mprotect(0x7eb6a0be2000, 4096, PROT_READ) = 0
mprotect(0x7eb6a0c0f000, 4096, PROT_READ) = 0
mprotect(0x7eb6a0cdb000, 53248, PROT_READ) = 0
mprotect(0x7eb6a0dc9000, 4096, PROT_READ) = 0
mprotect(0x7eb6a0dce000, 4096, PROT_READ) = 0
mprotect(0x7eb6a0ddd000, 4096, PROT_READ) = 0
mprotect(0x7eb6a0e0a000, 4096, PROT_READ) = 0
mmap(NULL, 8192, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_ANONYMOUS, -1, 0) = 0x7eb6a0baf000
mprotect(0x7eb6a1068000, 45056, PROT_READ) = 0
mprotect(0x7eb6a10c9000, 8192, PROT_READ) = 0
mprotect(0x7eb6a1142000, 12288, PROT_READ) = 0
mprotect(0x7eb6a1242000, 4096, PROT_READ) = 0
mprotect(0x7eb6a12a0000, 4096, PROT_READ) = 0
mprotect(0x7eb6a12b5000, 4096, PROT_READ) = 0
mprotect(0x7eb6a154e000, 32768, PROT_READ) = 0
mprotect(0x403000, 4096, PROT_READ)     = 0
mprotect(0x7eb6a1593000, 8192, PROT_READ) = 0
prlimit64(0, RLIMIT_STACK, NULL, {rlim_cur=8192*1024, rlim_max=RLIM64_INFINITY}) = 0
munmap(0x7eb6a1557000, 33619)           = 0
futex(0x7eb6a107673c, FUTEX_WAKE_PRIVATE, 2147483647) = 0
getrandom("\xbd\x10\x1c\x45\xc2\x67\x40\x3c", 8, GRND_NONBLOCK) = 8
brk(NULL)                               = 0x18a49000
brk(0x18a6a000)                         = 0x18a6a000
openat(AT_FDCWD, "/sys/devices/system/cpu/online", O_RDONLY|O_CLOEXEC) = 3
read(3, "0-19\n", 1024)                 = 5
close(3)                                = 0
openat(AT_FDCWD, "/sys/devices/system/cpu/possible", O_RDONLY|O_CLOEXEC) = 3
read(3, "0-19\n", 1024)                 = 5
close(3)                                = 0
getpid()                                = 20666
sched_getaffinity(20666, 128, [0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19]) = 8
newfstatat(AT_FDCWD, "/etc/nsswitch.conf", {st_mode=S_IFREG|0644, st_size=494, ...}, 0) = 0
newfstatat(AT_FDCWD, "/", {st_mode=S_IFDIR|0755, st_size=4096, ...}, 0) = 0
```

```
openat(AT_FDCWD, "/etc/nsswitch.conf", O_RDONLY|O_CLOEXEC) = 3

newfstatat(3, "", {st_mode=S_IFREG|0644, st_size=494, ...}, AT_EMPTY_PATH) = 0

read(3, "# /etc/nsswitch.conf\n#\n# Example"..., 4096) = 494

read(3, "", 4096)                       = 0

newfstatat(3, "", {st_mode=S_IFREG|0644, st_size=494, ...}, AT_EMPTY_PATH) = 0

close(3)                                = 0

openat(AT_FDCWD, "/etc/ld.so.cache", O_RDONLY|O_CLOEXEC) = 3

newfstatat(3, "", {st_mode=S_IFREG|0644, st_size=33619, ...}, AT_EMPTY_PATH) = 0

mmap(NULL, 33619, PROT_READ, MAP_PRIVATE, 3, 0) = 0x7eb6a1557000

close(3)                                = 0

openat(AT_FDCWD, "/lib/x86_64-linux-gnu/glibc-hwcaps/x86-64-v3/libnss_db.so.2",
O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or directory)

newfstatat(AT_FDCWD, "/lib/x86_64-linux-gnu/glibc-hwcaps/x86-64-v3", 0x7fff96c6f6f0, 0) = -1
ENOENT (No such file or directory)

openat(AT_FDCWD, "/lib/x86_64-linux-gnu/glibc-hwcaps/x86-64-v2/libnss_db.so.2",
O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or directory)

newfstatat(AT_FDCWD, "/lib/x86_64-linux-gnu/glibc-hwcaps/x86-64-v2", 0x7fff96c6f6f0, 0) = -1
ENOENT (No such file or directory)

openat(AT_FDCWD, "/lib/x86_64-linux-gnu/tls/haswell/x86_64/libnss_db.so.2",
O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or directory)

newfstatat(AT_FDCWD, "/lib/x86_64-linux-gnu/tls/haswell/x86_64", 0x7fff96c6f6f0, 0) = -1
ENOENT (No such file or directory)

openat(AT_FDCWD, "/lib/x86_64-linux-gnu/tls/haswell/libnss_db.so.2", O_RDONLY|O_CLOEXEC) = -
1 ENOENT (No such file or directory)

newfstatat(AT_FDCWD, "/lib/x86_64-linux-gnu/tls/haswell", 0x7fff96c6f6f0, 0) = -1 ENOENT (No
such file or directory)

openat(AT_FDCWD, "/lib/x86_64-linux-gnu/tls/x86_64/libnss_db.so.2", O_RDONLY|O_CLOEXEC) = -1
ENOENT (No such file or directory)

newfstatat(AT_FDCWD, "/lib/x86_64-linux-gnu/tls/x86_64", 0x7fff96c6f6f0, 0) = -1 ENOENT (No
such file or directory)

openat(AT_FDCWD, "/lib/x86_64-linux-gnu/tls/libnss_db.so.2", O_RDONLY|O_CLOEXEC) = -1 ENOENT
(No such file or directory)

newfstatat(AT_FDCWD, "/lib/x86_64-linux-gnu/tls", 0x7fff96c6f6f0, 0) = -1 ENOENT (No such
file or directory)

openat(AT_FDCWD, "/lib/x86_64-linux-gnu/haswell/x86_64/libnss_db.so.2", O_RDONLY|O_CLOEXEC)
= -1 ENOENT (No such file or directory)

newfstatat(AT_FDCWD, "/lib/x86_64-linux-gnu/haswell/x86_64", 0x7fff96c6f6f0, 0) = -1 ENOENT
(No such file or directory)
```

```
openat(AT_FDCWD, "/lib/x86_64-linux-gnu/haswell/libnss_db.so.2", O_RDONLY|O_CLOEXEC) = -1
ENOENT (No such file or directory)

newfstatat(AT_FDCWD, "/lib/x86_64-linux-gnu/haswell", 0x7fff96c6f6f0, 0) = -1 ENOENT (No
such file or directory)

openat(AT_FDCWD, "/lib/x86_64-linux-gnu/x86_64/libnss_db.so.2", O_RDONLY|O_CLOEXEC) = -1
ENOENT (No such file or directory)

newfstatat(AT_FDCWD, "/lib/x86_64-linux-gnu/x86_64", 0x7fff96c6f6f0, 0) = -1 ENOENT (No such
file or directory)

openat(AT_FDCWD, "/lib/x86_64-linux-gnu/libnss_db.so.2", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No
such file or directory)

newfstatat(AT_FDCWD, "/lib/x86_64-linux-gnu", {st_mode=S_IFDIR|0755, st_size=4096, ...}, 0)
= 0

openat(AT_FDCWD, "/usr/lib/x86_64-linux-gnu/glibc-hwcaps/x86-64-v3/libnss_db.so.2",
O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or directory)

newfstatat(AT_FDCWD, "/usr/lib/x86_64-linux-gnu/glibc-hwcaps/x86-64-v3", 0x7fff96c6f6f0, 0)
= -1 ENOENT (No such file or directory)

openat(AT_FDCWD, "/usr/lib/x86_64-linux-gnu/glibc-hwcaps/x86-64-v2/libnss_db.so.2",
O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or directory)

newfstatat(AT_FDCWD, "/usr/lib/x86_64-linux-gnu/glibc-hwcaps/x86-64-v2", 0x7fff96c6f6f0, 0)
= -1 ENOENT (No such file or directory)

openat(AT_FDCWD, "/usr/lib/x86_64-linux-gnu/tls/haswell/x86_64/libnss_db.so.2",
O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or directory)

newfstatat(AT_FDCWD, "/usr/lib/x86_64-linux-gnu/tls/haswell/x86_64", 0x7fff96c6f6f0, 0) = -1
ENOENT (No such file or directory)

openat(AT_FDCWD, "/usr/lib/x86_64-linux-gnu/tls/haswell/libnss_db.so.2", O_RDONLY|O_CLOEXEC)
= -1 ENOENT (No such file or directory)

newfstatat(AT_FDCWD, "/usr/lib/x86_64-linux-gnu/tls/haswell", 0x7fff96c6f6f0, 0) = -1 ENOENT
(No such file or directory)

openat(AT_FDCWD, "/usr/lib/x86_64-linux-gnu/tls/x86_64/libnss_db.so.2", O_RDONLY|O_CLOEXEC)
= -1 ENOENT (No such file or directory)

newfstatat(AT_FDCWD, "/usr/lib/x86_64-linux-gnu/tls/x86_64", 0x7fff96c6f6f0, 0) = -1 ENOENT
(No such file or directory)

openat(AT_FDCWD, "/usr/lib/x86_64-linux-gnu/tls/libnss_db.so.2", O_RDONLY|O_CLOEXEC) = -1
ENOENT (No such file or directory)

newfstatat(AT_FDCWD, "/usr/lib/x86_64-linux-gnu/tls", 0x7fff96c6f6f0, 0) = -1 ENOENT (No
such file or directory)

openat(AT_FDCWD, "/usr/lib/x86_64-linux-gnu/haswell/x86_64/libnss_db.so.2",
O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or directory)

newfstatat(AT_FDCWD, "/usr/lib/x86_64-linux-gnu/haswell/x86_64", 0x7fff96c6f6f0, 0) = -1
ENOENT (No such file or directory)

openat(AT_FDCWD, "/usr/lib/x86_64-linux-gnu/haswell/libnss_db.so.2", O_RDONLY|O_CLOEXEC) = -
1 ENOENT (No such file or directory)
```

```
newfstatat(AT_FDCWD, "/usr/lib/x86_64-linux-gnu/haswell", 0x7fff96c6f6f0, 0) = -1 ENOENT (No such file or directory)

openat(AT_FDCWD, "/usr/lib/x86_64-linux-gnu/x86_64/libnss_db.so.2", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or directory)

newfstatat(AT_FDCWD, "/usr/lib/x86_64-linux-gnu/x86_64", 0x7fff96c6f6f0, 0) = -1 ENOENT (No such file or directory)

openat(AT_FDCWD, "/usr/lib/x86_64-linux-gnu/libnss_db.so.2", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or directory)

newfstatat(AT_FDCWD, "/usr/lib/x86_64-linux-gnu", {st_mode=S_IFDIR|0755, st_size=4096, ...}, 0) = 0

openat(AT_FDCWD, "/lib/glibc-hwcaps/x86-64-v3/libnss_db.so.2", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or directory)

newfstatat(AT_FDCWD, "/lib/glibc-hwcaps/x86-64-v3", 0x7fff96c6f6f0, 0) = -1 ENOENT (No such file or directory)

openat(AT_FDCWD, "/lib/glibc-hwcaps/x86-64-v2/libnss_db.so.2", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or directory)

newfstatat(AT_FDCWD, "/lib/glibc-hwcaps/x86-64-v2", 0x7fff96c6f6f0, 0) = -1 ENOENT (No such file or directory)

openat(AT_FDCWD, "/lib/tls/haswell/x86_64/libnss_db.so.2", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or directory)

newfstatat(AT_FDCWD, "/lib/tls/haswell/x86_64", 0x7fff96c6f6f0, 0) = -1 ENOENT (No such file or directory)

openat(AT_FDCWD, "/lib/tls/haswell/libnss_db.so.2", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or directory)

newfstatat(AT_FDCWD, "/lib/tls/haswell", 0x7fff96c6f6f0, 0) = -1 ENOENT (No such file or directory)

openat(AT_FDCWD, "/lib/tls/x86_64/libnss_db.so.2", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or directory)

newfstatat(AT_FDCWD, "/lib/tls/x86_64", 0x7fff96c6f6f0, 0) = -1 ENOENT (No such file or directory)

openat(AT_FDCWD, "/lib/tls/libnss_db.so.2", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or directory)

newfstatat(AT_FDCWD, "/lib/tls", 0x7fff96c6f6f0, 0) = -1 ENOENT (No such file or directory)

openat(AT_FDCWD, "/lib/haswell/x86_64/libnss_db.so.2", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or directory)

newfstatat(AT_FDCWD, "/lib/haswell/x86_64", 0x7fff96c6f6f0, 0) = -1 ENOENT (No such file or directory)

openat(AT_FDCWD, "/lib/haswell/libnss_db.so.2", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or directory)

newfstatat(AT_FDCWD, "/lib/haswell", 0x7fff96c6f6f0, 0) = -1 ENOENT (No such file or directory)
```

```
openat(AT_FDCWD, "/lib/x86_64/libnss_db.so.2", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or directory)

newfstatat(AT_FDCWD, "/lib/x86_64", 0x7fff96c6f6f0, 0) = -1 ENOENT (No such file or directory)

openat(AT_FDCWD, "/lib/libnss_db.so.2", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or directory)

newfstatat(AT_FDCWD, "/lib", {st_mode=S_IFDIR|0755, st_size=4096, ...}, 0) = 0

openat(AT_FDCWD, "/usr/lib/glibc-hwcaps/x86-64-v3/libnss_db.so.2", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or directory)

newfstatat(AT_FDCWD, "/usr/lib/glibc-hwcaps/x86-64-v3", 0x7fff96c6f6f0, 0) = -1 ENOENT (No such file or directory)

openat(AT_FDCWD, "/usr/lib/glibc-hwcaps/x86-64-v2/libnss_db.so.2", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or directory)

newfstatat(AT_FDCWD, "/usr/lib/glibc-hwcaps/x86-64-v2", 0x7fff96c6f6f0, 0) = -1 ENOENT (No such file or directory)

openat(AT_FDCWD, "/usr/lib/tls/haswell/x86_64/libnss_db.so.2", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or directory)

newfstatat(AT_FDCWD, "/usr/lib/tls/haswell/x86_64", 0x7fff96c6f6f0, 0) = -1 ENOENT (No such file or directory)

openat(AT_FDCWD, "/usr/lib/tls/haswell/libnss_db.so.2", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or directory)

newfstatat(AT_FDCWD, "/usr/lib/tls/haswell", 0x7fff96c6f6f0, 0) = -1 ENOENT (No such file or directory)

openat(AT_FDCWD, "/usr/lib/tls/x86_64/libnss_db.so.2", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or directory)

newfstatat(AT_FDCWD, "/usr/lib/tls/x86_64", 0x7fff96c6f6f0, 0) = -1 ENOENT (No such file or directory)

openat(AT_FDCWD, "/usr/lib/tls/libnss_db.so.2", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or directory)

newfstatat(AT_FDCWD, "/usr/lib/tls", 0x7fff96c6f6f0, 0) = -1 ENOENT (No such file or directory)

openat(AT_FDCWD, "/usr/lib/haswell/x86_64/libnss_db.so.2", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or directory)

newfstatat(AT_FDCWD, "/usr/lib/haswell/x86_64", 0x7fff96c6f6f0, 0) = -1 ENOENT (No such file or directory)

openat(AT_FDCWD, "/usr/lib/haswell/libnss_db.so.2", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or directory)

newfstatat(AT_FDCWD, "/usr/lib/haswell", 0x7fff96c6f6f0, 0) = -1 ENOENT (No such file or directory)

openat(AT_FDCWD, "/usr/lib/x86_64/libnss_db.so.2", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or directory)
```

```
newfstatat(AT_FDCWD, "/usr/lib/x86_64", 0x7fff96c6f6f0, 0) = -1 ENOENT (No such file or
directory)

openat(AT_FDCWD, "/usr/lib/libnss_db.so.2", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or
directory)

newfstatat(AT_FDCWD, "/usr/lib", {st_mode=S_IFDIR|0755, st_size=4096, ...}, 0) = 0

munmap(0x7eb6a1557000, 33619)           = 0

openat(AT_FDCWD, "/etc/protocols", O_RDONLY|O_CLOEXEC) = 3

newfstatat(3, "", {st_mode=S_IFREG|0644, st_size=3144, ...}, AT_EMPTY_PATH) = 0

lseek(3, 0, SEEK_SET)                   = 0

read(3, "# Internet (IP) protocols\n#\n# Up"..., 4096) = 3144

read(3, "", 4096)                       = 0

close(3)                                = 0

eventfd2(0, EFD_CLOEXEC)                = 3

fcntl(3, F_GETFL)                       = 0x2 (flags O_RDWR)

fcntl(3, F_SETFL, O_RDWR|O_NONBLOCK)    = 0

fcntl(3, F_GETFL)                       = 0x802 (flags O_RDWR|O_NONBLOCK)

fcntl(3, F_SETFL, O_RDWR|O_NONBLOCK)    = 0

getpid()                                = 20666

getpid()                                = 20666

getrandom("\x27\x94\xe3\x9f\x0f\x72\x15\xc6\xaa\x23\x1a\x9a\x3a\x68\xc1\xcc", 16, 0) = 16

getrandom("\x9f\xa0\xc3\x7e\xda\x87\xd6\xa9\xf3\x90\x8f\x77\x9a\x65\x05\xb7", 16, 0) = 16

eventfd2(0, EFD_CLOEXEC)                = 4

fcntl(4, F_GETFL)                       = 0x2 (flags O_RDWR)

fcntl(4, F_SETFL, O_RDWR|O_NONBLOCK)    = 0

fcntl(4, F_GETFL)                       = 0x802 (flags O_RDWR|O_NONBLOCK)

fcntl(4, F_SETFL, O_RDWR|O_NONBLOCK)    = 0

getpid()                                = 20666

epoll_create1(EPOLL_CLOEXEC)            = 5

epoll_ctl(5, EPOLL_CTL_ADD, 4, {events=0, data={u32=413513312, u64=413513312}}) = 0

epoll_ctl(5, EPOLL_CTL_MOD, 4, {events=EPOLLIN, data={u32=413513312, u64=413513312}}) = 0

getpid()                                = 20666

rt_sigaction(SIGRT_1, {sa_handler=0x7eb6a133e720, sa_mask=[],
sa_flags=SA_RESTORER|SA_ONSTACK|SA_RESTART|SA_SIGINFO, sa_restorer=0x7eb6a12f4050}, NULL, 8)
= 0

rt_sigprocmask(SIG_UNBLOCK, [RTMIN RT_1], NULL, 8) = 0
```

```
mmap(NULL, 8392704, PROT_NONE, MAP_PRIVATE|MAP_ANONYMOUS|MAP_STACK, -1, 0) = 0x7eb6a03ae000

mprotect(0x7eb6a03af000, 8388608, PROT_READ|PROT_WRITE) = 0

rt_sigprocmask(SIG_BLOCK, ~[], [], 8)   = 0

clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSVSEM|CLONE_S
ETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID, child_tid=0x7eb6a0bae990,
parent_tid=0x7eb6a0bae990, exit_signal=0, stack=0x7eb6a03ae000, stack_size=0x7ffd00,
tls=0x7eb6a0bae6c0}, 88) = -1 ENOSYS (Function not implemented)

clone(child_stack=0x7eb6a0badcf0,
flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSVSEM|CLONE_SETTLS|CL
ONE_PARENT_SETTID|CLONE_CHILD_CLEARTIDstrace: Process 20667 attached

, parent_tid=[20667], tls=0x7eb6a0bae6c0, child_tidptr=0x7eb6a0bae990) = 20667

[pid 20667] rseq(0x7eb6a0baefe0, 0x20, 0, 0x53053053 <unfinished ...>

[pid 20666] rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0

[pid 20667] <... rseq resumed>)         = 0

[pid 20666] eventfd2(0, EFD_CLOEXEC <unfinished ...>

[pid 20667] set_robust_list(0x7eb6a0bae9a0, 24 <unfinished ...>

[pid 20666] <... eventfd2 resumed>)     = 6

[pid 20667] <... set_robust_list resumed>) = 0

[pid 20666] fcntl(6, F_GETFL <unfinished ...>

[pid 20667] rt_sigprocmask(SIG_SETMASK, [],  <unfinished ...>

[pid 20666] <... fcntl resumed>)        = 0x2 (flags O_RDWR)

[pid 20667] <... rt_sigprocmask resumed>NULL, 8) = 0

[pid 20666] fcntl(6, F_SETFL, O_RDWR|O_NONBLOCK <unfinished ...>

[pid 20667] rt_sigprocmask(SIG_BLOCK, ~[RTMIN RT_1],  <unfinished ...>

[pid 20666] <... fcntl resumed>)        = 0

[pid 20667] <... rt_sigprocmask resumed>NULL, 8) = 0

[pid 20666] fcntl(6, F_GETFL <unfinished ...>

[pid 20667] sched_getparam(20667,  <unfinished ...>

[pid 20666] <... fcntl resumed>)        = 0x802 (flags O_RDWR|O_NONBLOCK)

[pid 20667] <... sched_getparam resumed>[0]) = 0

[pid 20666] fcntl(6, F_SETFL, O_RDWR|O_NONBLOCK <unfinished ...>

[pid 20667] sched_getscheduler(20667 <unfinished ...>

[pid 20666] <... fcntl resumed>)        = 0

[pid 20667] <... sched_getscheduler resumed>) = 0 (SCHED_OTHER)

[pid 20666] getpid( <unfinished ...>
```

```
[pid 20667] sched_setscheduler(20667, SCHED_OTHER, [0] <unfinished ...>

[pid 20666] <... getpid resumed>)       = 20666

[pid 20667] <... sched_setscheduler resumed>) = 0

[pid 20666] epoll_create1(EPOLL_CLOEXEC <unfinished ...>

[pid 20667] prctl(PR_SET_NAME, "ZMQbg/Reaper" <unfinished ...>

[pid 20666] <... epoll_create1 resumed>) = 7

[pid 20667] <... prctl resumed>)        = 0

[pid 20666] epoll_ctl(7, EPOLL_CTL_ADD, 6, {events=0, data={u32=413517232, u64=413517232}}
<unfinished ...>

[pid 20667] epoll_wait(5,  <unfinished ...>

[pid 20666] <... epoll_ctl resumed>)    = 0

[pid 20666] epoll_ctl(7, EPOLL_CTL_MOD, 6, {events=EPOLLIN, data={u32=413517232,
u64=413517232}}) = 0

[pid 20666] mmap(NULL, 8392704, PROT_NONE, MAP_PRIVATE|MAP_ANONYMOUS|MAP_STACK, -1, 0) =
0x7eb69fbad000

[pid 20666] mprotect(0x7eb69fbae000, 8388608, PROT_READ|PROT_WRITE) = 0

[pid 20666] rt_sigprocmask(SIG_BLOCK, ~[], [], 8) = 0

[pid 20666]
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSVSEM|CLONE_S
ETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID, child_tid=0x7eb6a03ad990,
parent_tid=0x7eb6a03ad990, exit_signal=0, stack=0x7eb69fbad000, stack_size=0x7ffd00,
tls=0x7eb6a03ad6c0}, 88) = -1 ENOSYS (Function not implemented)

[pid 20666] clone(child_stack=0x7eb6a03accf0,
flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSVSEM|CLONE_SETTLS|CL
ONE_PARENT_SETTID|CLONE_CHILD_CLEARTIDstrace: Process 20668 attached

, parent_tid=[20668], tls=0x7eb6a03ad6c0, child_tidptr=0x7eb6a03ad990) = 20668

[pid 20668] rseq(0x7eb6a03adfe0, 0x20, 0, 0x53053053 <unfinished ...>

[pid 20666] rt_sigprocmask(SIG_SETMASK, [],  <unfinished ...>

[pid 20668] <... rseq resumed>)         = 0

[pid 20666] <... rt_sigprocmask resumed>NULL, 8) = 0

[pid 20668] set_robust_list(0x7eb6a03ad9a0, 24 <unfinished ...>

[pid 20666] eventfd2(0, EFD_CLOEXEC <unfinished ...>

[pid 20668] <... set_robust_list resumed>) = 0

[pid 20666] <... eventfd2 resumed>)     = 8

[pid 20668] rt_sigprocmask(SIG_SETMASK, [],  <unfinished ...>

[pid 20666] fcntl(8, F_GETFL <unfinished ...>

[pid 20668] <... rt_sigprocmask resumed>NULL, 8) = 0
```

```
[pid 20666] <... fcntl resumed>)        = 0x2 (flags O_RDWR)

[pid 20668] rt_sigprocmask(SIG_BLOCK, ~[RTMIN RT_1],  <unfinished ...>

[pid 20666] fcntl(8, F_SETFL, O_RDWR|O_NONBLOCK <unfinished ...>

[pid 20668] <... rt_sigprocmask resumed>NULL, 8) = 0

[pid 20666] <... fcntl resumed>)        = 0

[pid 20666] fcntl(8, F_GETFL <unfinished ...>

[pid 20668] sched_getparam(20668,  <unfinished ...>

[pid 20666] <... fcntl resumed>)        = 0x802 (flags O_RDWR|O_NONBLOCK)

[pid 20668] <... sched_getparam resumed>[0]) = 0

[pid 20666] fcntl(8, F_SETFL, O_RDWR|O_NONBLOCK <unfinished ...>

[pid 20668] sched_getscheduler(20668 <unfinished ...>

[pid 20666] <... fcntl resumed>)        = 0

[pid 20668] <... sched_getscheduler resumed>) = 0 (SCHED_OTHER)

[pid 20666] getpid( <unfinished ...>

[pid 20668] sched_setscheduler(20668, SCHED_OTHER, [0] <unfinished ...>

[pid 20666] <... getpid resumed>)       = 20666

[pid 20668] <... sched_setscheduler resumed>) = 0

[pid 20666] getpid( <unfinished ...>

[pid 20668] prctl(PR_SET_NAME, "ZMQbg/IO/0" <unfinished ...>

[pid 20666] <... getpid resumed>)       = 20666

[pid 20666] poll([{fd=8, events=POLLIN}], 1, 0 <unfinished ...>

[pid 20668] <... prctl resumed>)        = 0

[pid 20666] <... poll resumed>)         = 0 (Timeout)

[pid 20668] epoll_wait(7,  <unfinished ...>

[pid 20666] brk(0x18a8b000)             = 0x18a8b000

[pid 20666] futex(0x7eb6a1076748, FUTEX_WAKE_PRIVATE, 2147483647) = 0

[pid 20666] getpid()                    = 20666

[pid 20666] write(6, "\1\0\0\0\0\0\0\0", 8) = 8

[pid 20668] <... epoll_wait resumed>[{events=EPOLLIN, data={u32=413517232, u64=413517232}}],
256, -1) = 1

[pid 20666] getpid( <unfinished ...>

[pid 20668] getpid( <unfinished ...>

[pid 20666] <... getpid resumed>)       = 20666
```

```
[pid 20668] <... getpid resumed>)       = 20666

[pid 20666] write(8, "\1\0\0\0\0\0\0\0", 8 <unfinished ...>

[pid 20668] poll([{fd=6, events=POLLIN}], 1, 0 <unfinished ...>

[pid 20666] <... write resumed>)        = 8

[pid 20668] <... poll resumed>)         = 1 ([{fd=6, revents=POLLIN}])

[pid 20666] newfstatat(1, "",  <unfinished ...>

[pid 20668] getpid( <unfinished ...>

[pid 20666] <... newfstatat resumed>{st_mode=S_IFCHR|0620, st_rdev=makedev(0x88, 0x5), ...},
AT_EMPTY_PATH) = 0

[pid 20668] <... getpid resumed>)       = 20666

[pid 20666] newfstatat(0, "",  <unfinished ...>

[pid 20668] read(6,  <unfinished ...>

[pid 20666] <... newfstatat resumed>{st_mode=S_IFCHR|0620, st_rdev=makedev(0x88, 0x5), ...},
AT_EMPTY_PATH) = 0

[pid 20668] <... read resumed>"\1\0\0\0\0\0\0\0", 8) = 8

[pid 20666] write(1, "\320\222\320\262\320\265\320\264\320\270\321\202\320\265
\320\273\320\276\320\263\320\270\320\275: ", 27 <unfinished ...>

Введите логин: [pid 20668] mmap(NULL, 134217728, PROT_NONE,
MAP_PRIVATE|MAP_ANONYMOUS|MAP_NORESERVE, -1, 0 <unfinished ...>

[pid 20666] <... write resumed>)        = 27

[pid 20668] <... mmap resumed>)         = 0x7eb697bad000

[pid 20666] read(0,  <unfinished ...>

[pid 20668] munmap(0x7eb697bad000, 4534272) = 0

[pid 20668] munmap(0x7eb69c000000, 62574592) = 0

[pid 20668] mprotect(0x7eb698000000, 135168, PROT_READ|PROT_WRITE) = 0

[pid 20668] newfstatat(AT_FDCWD, "/etc/resolv.conf", {st_mode=S_IFREG|0644, st_size=222,
...}, 0) = 0

[pid 20668] openat(AT_FDCWD, "/etc/host.conf", O_RDONLY|O_CLOEXEC) = 9

[pid 20668] newfstatat(9, "", {st_mode=S_IFREG|0644, st_size=9, ...}, AT_EMPTY_PATH) = 0

[pid 20668] read(9, "multi on\n", 4096) = 9

[pid 20668] read(9, "", 4096)           = 0

[pid 20668] close(9)                    = 0

[pid 20668] futex(0x7eb6a149442c, FUTEX_WAKE_PRIVATE, 2147483647) = 0

[pid 20668] openat(AT_FDCWD, "/etc/resolv.conf", O_RDONLY|O_CLOEXEC) = 9

[pid 20668] newfstatat(9, "", {st_mode=S_IFREG|0644, st_size=222, ...}, AT_EMPTY_PATH) = 0
```

```
[pid 20668] read(9, "# Generated by Docker Engine.\n# "..., 4096) = 222

[pid 20668] read(9, "", 4096)           = 0

[pid 20668] uname({sysname="Linux", nodename="7f2b9bf49d7d", ...}) = 0

[pid 20668] newfstatat(9, "", {st_mode=S_IFREG|0644, st_size=222, ...}, AT_EMPTY_PATH) = 0

[pid 20668] close(9)                    = 0

[pid 20668] socket(AF_UNIX, SOCK_STREAM|SOCK_CLOEXEC|SOCK_NONBLOCK, 0) = 9

[pid 20668] connect(9, {sa_family=AF_UNIX, sun_path="/var/run/nscd/socket"}, 110) = -1
ENOENT (No such file or directory)

[pid 20668] close(9)                    = 0

[pid 20668] socket(AF_UNIX, SOCK_STREAM|SOCK_CLOEXEC|SOCK_NONBLOCK, 0) = 9

[pid 20668] connect(9, {sa_family=AF_UNIX, sun_path="/var/run/nscd/socket"}, 110) = -1
ENOENT (No such file or directory)

[pid 20668] close(9)                    = 0

[pid 20668] newfstatat(AT_FDCWD, "/etc/nsswitch.conf", {st_mode=S_IFREG|0644, st_size=494,
...}, 0) = 0

[pid 20668] openat(AT_FDCWD, "/etc/hosts", O_RDONLY|O_CLOEXEC) = 9

[pid 20668] newfstatat(9, "", {st_mode=S_IFREG|0644, st_size=172, ...}, AT_EMPTY_PATH) = 0

[pid 20668] lseek(9, 0, SEEK_SET)       = 0

[pid 20668] read(9, "127.0.0.1\tlocalhost\n::1\tlocalhos"..., 4096) = 172

[pid 20668] read(9, "", 4096)           = 0

[pid 20668] close(9)                    = 0

[pid 20668] openat(AT_FDCWD, "/etc/gai.conf", O_RDONLY|O_CLOEXEC) = 9

[pid 20668] newfstatat(9, "", {st_mode=S_IFREG|0644, st_size=2584, ...}, AT_EMPTY_PATH) = 0

[pid 20668] newfstatat(9, "", {st_mode=S_IFREG|0644, st_size=2584, ...}, AT_EMPTY_PATH) = 0

[pid 20668] read(9, "# Configuration for getaddrinfo("..., 4096) = 2584

[pid 20668] read(9, "", 4096)           = 0

[pid 20668] close(9)                    = 0

[pid 20668] futex(0x7eb6a14932e4, FUTEX_WAKE_PRIVATE, 2147483647) = 0

[pid 20668] socket(AF_NETLINK, SOCK_RAW|SOCK_CLOEXEC, NETLINK_ROUTE) = 9

[pid 20668] bind(9, {sa_family=AF_NETLINK, nl_pid=0, nl_groups=00000000}, 12) = 0

[pid 20668] getsockname(9, {sa_family=AF_NETLINK, nl_pid=20666, nl_groups=00000000}, [12]) =
0

[pid 20668] sendto(9, [{nlmsg_len=20, nlmsg_type=RTM_GETADDR,
nlmsg_flags=NLM_F_REQUEST|NLM_F_DUMP, nlmsg_seq=1766280235, nlmsg_pid=0},
{ifa_family=AF_UNSPEC, ...}], 20, 0, {sa_family=AF_NETLINK, nl_pid=0, nl_groups=00000000},
12) = 20
```

```
[pid 20668] recvmsg(9, {msg_name={sa_family=AF_NETLINK, nl_pid=0, nl_groups=00000000},
msg_namelen=12, msg_iov=[{iov_base=[[{nlmsg_len=76, nlmsg_type=RTM_NEWADDR,
nlmsg_flags=NLM_F_MULTI, nlmsg_seq=1766280235, nlmsg_pid=20666}, {ifa_family=AF_INET,
ifa_prefixlen=8, ifa_flags=IFA_F_PERMANENT, ifa_scope=RT_SCOPE_HOST,
ifa_index=if_nametoindex("lo")}, [[{nla_len=8, nla_type=IFA_ADDRESS},
inet_addr("127.0.0.1")], [{nla_len=8, nla_type=IFA_LOCAL}, inet_addr("127.0.0.1")],
[{nla_len=7, nla_type=IFA_LABEL}, "lo"], [{nla_len=8, nla_type=IFA_FLAGS}, IFA_F_PERMANENT],
[{nla_len=20, nla_type=IFA_CACHEINFO}, {ifa_prefered=4294967295, ifa_valid=4294967295,
cstamp=2379190, tstamp=2379190}]]], [{nlmsg_len=88, nlmsg_type=RTM_NEWADDR,
nlmsg_flags=NLM_F_MULTI, nlmsg_seq=1766280235, nlmsg_pid=20666}, {ifa_family=AF_INET,
ifa_prefixlen=16, ifa_flags=IFA_F_PERMANENT, ifa_scope=RT_SCOPE_UNIVERSE,
ifa_index=if_nametoindex("eth0")}, [[{nla_len=8, nla_type=IFA_ADDRESS},
inet_addr("172.17.0.2")], [{nla_len=8, nla_type=IFA_LOCAL}, inet_addr("172.17.0.2")],
[{nla_len=8, nla_type=IFA_BROADCAST}, inet_addr("172.17.255.255")], [{nla_len=9,
nla_type=IFA_LABEL}, "eth0"], [{nla_len=8, nla_type=IFA_FLAGS}, IFA_F_PERMANENT],
[{nla_len=20, nla_type=IFA_CACHEINFO}, {ifa_prefered=4294967295, ifa_valid=4294967295,
cstamp=2379200, tstamp=2379200}]]]], iov_len=4096}], msg_iovlen=1, msg_controllen=0,
msg_flags=0}, 0) = 164

[pid 20668] recvmsg(9, {msg_name={sa_family=AF_NETLINK, nl_pid=0, nl_groups=00000000},
msg_namelen=12, msg_iov=[{iov_base=[{nlmsg_len=80, nlmsg_type=RTM_NEWADDR,
nlmsg_flags=NLM_F_MULTI, nlmsg_seq=1766280235, nlmsg_pid=20666}, {ifa_family=AF_INET6,
ifa_prefixlen=128, ifa_flags=IFA_F_PERMANENT, ifa_scope=RT_SCOPE_HOST,
ifa_index=if_nametoindex("lo")}, [[{nla_len=20, nla_type=IFA_ADDRESS}, inet_pton(AF_INET6,
"::1")], [{nla_len=20, nla_type=IFA_CACHEINFO}, {ifa_prefered=4294967295,
ifa_valid=4294967295, cstamp=2379190, tstamp=2379190}], [{nla_len=8, nla_type=IFA_FLAGS},
IFA_F_PERMANENT], [{nla_len=5, nla_type=IFA_PROTO}, "\x01"]]], iov_len=4096}], msg_iovlen=1,
msg_controllen=0, msg_flags=0}, 0) = 80

[pid 20668] recvmsg(9, {msg_name={sa_family=AF_NETLINK, nl_pid=0, nl_groups=00000000},
msg_namelen=12, msg_iov=[{iov_base=[{nlmsg_len=20, nlmsg_type=NLMSG_DONE,
nlmsg_flags=NLM_F_MULTI, nlmsg_seq=1766280235, nlmsg_pid=20666}, 0], iov_len=4096}],
msg_iovlen=1, msg_controllen=0, msg_flags=0}, 0) = 20

[pid 20668] close(9)                    = 0

[pid 20668] socket(AF_INET, SOCK_DGRAM|SOCK_CLOEXEC, IPPROTO_IP) = 9

[pid 20668] connect(9, {sa_family=AF_INET, sin_port=htons(0),
sin_addr=inet_addr("127.0.0.1")}, 16) = 0

[pid 20668] getsockname(9, {sa_family=AF_INET, sin_port=htons(40210),
sin_addr=inet_addr("127.0.0.1")}, [28 => 16]) = 0

[pid 20668] close(9)                    = 0

[pid 20668] socket(AF_INET, SOCK_STREAM|SOCK_CLOEXEC, IPPROTO_TCP) = 9

[pid 20668] fcntl(9, F_GETFL)           = 0x2 (flags O_RDWR)

[pid 20668] fcntl(9, F_SETFL, O_RDWR|O_NONBLOCK) = 0

[pid 20668] connect(9, {sa_family=AF_INET, sin_port=htons(5555),
sin_addr=inet_addr("127.0.0.1")}, 16) = -1 EINPROGRESS (Operation now in progress)

[pid 20668] epoll_ctl(7, EPOLL_CTL_ADD, 9, {events=0, data={u32=2550146784,
u64=139322699294432}}) = 0

[pid 20668] epoll_ctl(7, EPOLL_CTL_MOD, 9, {events=EPOLLOUT, data={u32=2550146784,
u64=139322699294432}}) = 0
```

```
[pid 20668] getpid()                    = 20666

[pid 20668] poll([{fd=6, events=POLLIN}], 1, 0) = 0 (Timeout)

[pid 20668] epoll_wait(7, [{events=EPOLLOUT, data={u32=2550146784, u64=139322699294432}}],
256, -1) = 1

[pid 20668] epoll_ctl(7, EPOLL_CTL_DEL, 9, 0x7eb6980026e4) = 0

[pid 20668] getsockopt(9, SOL_SOCKET, SO_ERROR, [0], [4]) = 0

[pid 20668] setsockopt(9, SOL_TCP, TCP_NODELAY, [1], 4) = 0

[pid 20668] getsockname(9, {sa_family=AF_INET, sin_port=htons(56614),
sin_addr=inet_addr("127.0.0.1")}, [128 => 16]) = 0

[pid 20668] getpeername(9, {sa_family=AF_INET, sin_port=htons(5555),
sin_addr=inet_addr("127.0.0.1")}, [128 => 16]) = 0

[pid 20668] fcntl(9, F_GETFL)           = 0x802 (flags O_RDWR|O_NONBLOCK)

[pid 20668] fcntl(9, F_SETFL, O_RDWR|O_NONBLOCK) = 0

[pid 20668] getpid()                    = 20666

[pid 20668] write(6, "\1\0\0\0\0\0\0\0", 8) = 8

[pid 20668] epoll_wait(7, [{events=EPOLLIN, data={u32=413517232, u64=413517232}}], 256, -1)
= 1

[pid 20668] getpid()                    = 20666

[pid 20668] poll([{fd=6, events=POLLIN}], 1, 0) = 1 ([{fd=6, revents=POLLIN}])

[pid 20668] getpid()                    = 20666

[pid 20668] read(6, "\1\0\0\0\0\0\0\0", 8) = 8

[pid 20668] epoll_ctl(7, EPOLL_CTL_ADD, 9, {events=0, data={u32=2550146784,
u64=139322699294432}}) = 0

[pid 20668] epoll_ctl(7, EPOLL_CTL_MOD, 9, {events=EPOLLIN, data={u32=2550146784,
u64=139322699294432}}) = 0

[pid 20668] epoll_ctl(7, EPOLL_CTL_MOD, 9, {events=EPOLLIN|EPOLLOUT, data={u32=2550146784,
u64=139322699294432}}) = 0

[pid 20668] recvfrom(9, "\377\0\0\0\0\0\0\1\177", 12, 0, NULL, NULL) = 10

[pid 20668] recvfrom(9, 0x7eb698001f72, 2, 0, NULL, NULL) = -1 EAGAIN (Resource temporarily
unavailable)

[pid 20668] getpid()                    = 20666

[pid 20668] poll([{fd=6, events=POLLIN}], 1, 0) = 0 (Timeout)

[pid 20668] epoll_wait(7, [{events=EPOLLOUT, data={u32=2550146784, u64=139322699294432}}],
256, 29999) = 1

[pid 20668] sendto(9, "\377\0\0\0\0\0\0\1\177\3", 11, 0, NULL, 0) = 11

[pid 20668] epoll_ctl(7, EPOLL_CTL_MOD, 9, {events=EPOLLIN, data={u32=2550146784,
u64=139322699294432}}) = 0
```

```
[pid 20668] epoll_wait(7, [{events=EPOLLIN, data={u32=2550146784, u64=139322699294432}}],
256, 29999) = 1

[pid 20668] recvfrom(9, "\3\1", 2, 0, NULL, NULL) = 2

[pid 20668] epoll_ctl(7, EPOLL_CTL_MOD, 9, {events=EPOLLIN|EPOLLOUT, data={u32=2550146784,
u64=139322699294432}}) = 0

[pid 20668] recvfrom(9, "NULL\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0"...,
52, 0, NULL, NULL) = 52

[pid 20668] recvfrom(9, 0x7eb698004788, 8192, 0, NULL, NULL) = -1 EAGAIN (Resource
temporarily unavailable)

[pid 20668] epoll_wait(7, [{events=EPOLLOUT, data={u32=2550146784, u64=139322699294432}}],
256, 29998) = 1

[pid 20668] sendto(9, "\1NULL\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0"..., 53,
0, NULL, 0) = 53

[pid 20668] epoll_wait(7, [{events=EPOLLIN|EPOLLOUT, data={u32=2550146784,
u64=139322699294432}}], 256, 29997) = 1

[pid 20668] sendto(9, "\4&\5READY\vSocket-Type\0\0\0\3REQ\10Iden"..., 40, 0, NULL, 0) = 40

[pid 20668] recvfrom(9, "\4\31\5READY\vSocket-Type\0\0\0\3REP", 8192, 0, NULL, NULL) = 27

[pid 20668] epoll_wait(7, [{events=EPOLLOUT, data={u32=2550146784, u64=139322699294432}}],
256, -1) = 1

[pid 20668] epoll_ctl(7, EPOLL_CTL_MOD, 9, {events=EPOLLIN, data={u32=2550146784,
u64=139322699294432}}) = 0

[pid 20668] epoll_wait(7, ^C <unfinished ...>

[pid 20666] <... read resumed>0x18a6a9b0, 1024) = ? ERESTARTSYS (To be restarted if
SA_RESTART is set)

strace: Process 20666 detached

strace: Process 20667 detached

strace: Process 20668 detached
```

Вывод

Данная лабораторная работа демонстрирует механизм клиент-серверного взаимодействия с использованием системы очередей сообщений ZeroMQ. Основная программа реализует игру "Морской бой", где сервер и клиенты обмениваются командами через асинхронные сообщения, используя паттерн "запрос-ответ". Реализация показывает эффективность использования промежуточного слоя сообщений для организации сетевого взаимодействия, абстрагирующего программиста от низкоуровневых деталей работы с сокетами.