Sistemas Operacionais II - P1

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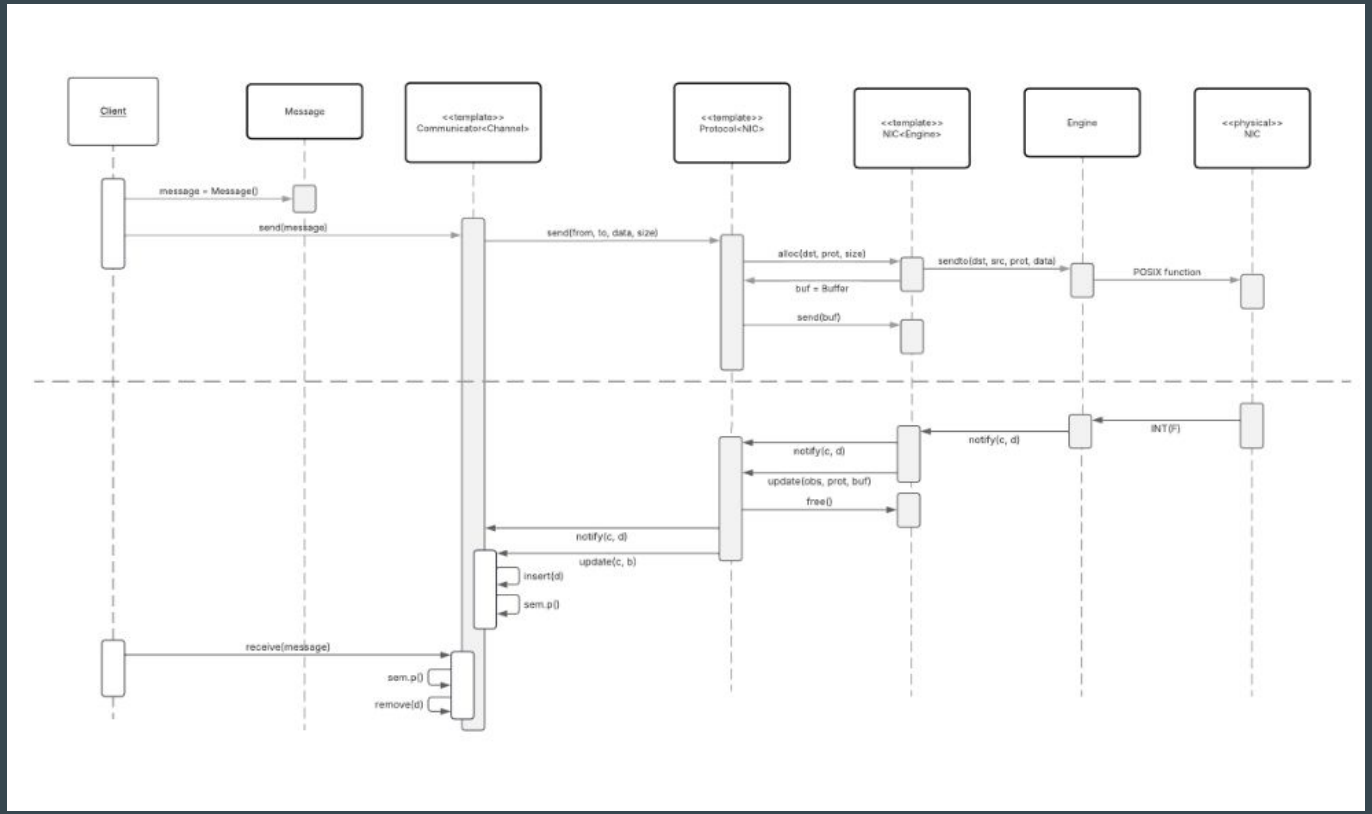
Diagrama de Sequência



Communicator.send()

```
bool send(const Message * message) {
    return (_channel->send(_address, Channel::Address::BROADCAST, message->data(),
        message->size()) > 0);
}
```

Protocol.send()

```
static int send(Address from, Address to, const void * data, unsigned int size) {
    if (size > MTU) {
        return -1;
    }

    Buffer* buf = _nic->alloc(to._paddr(), PROTO, sizeof(Header) + size);
    if (!buf) {
        return -1;
    }

    Packet* packet = reinterpret_cast::<Packet*>(buf->frame()->data());
    packet->Header::operator=(Header(from.port(), to.port(), size));
    memcpy(packet->data<void>(), data, size);

    int result = _nic->send(buf);
    _nic->free(buf);

    return result;
}
```

NIC.alloc()

```
Buffer * alloc(Address dst, Protocol_Number prot, unsigned int size) {
    if (_buffer_count >= BUFFER_SIZE) {
        return nullptr;
    }

    Buffer* buf = _buffer[_buffer_count++];
    Ethernet::Frame* frame = buf->frame();
    memcpy(frame->header()->h_dest, dst, ETH_ALEN);
    memcpy(frame->header()->h_source, Engine::_addr, ETH_ALEN);
    frame->header()->h_proto = htons(prot);
    buf->size(size + sizeof(Ethernet::Header));

    return buf;
}
```

NIC.send()

```
int send(Buffer * buf) {
    Ethernet::Frame* frame = buf->frame();
    int result = Engine::raw_send(
        frame->header()->h_dest,
        ntohs(frame->header()->h_proto),
        frame->data(),
        buf->size() - sizeof(Ethernet::Header)
    );

    return result;
}
```

Communicator.receive()

```
bool receive(Message * message) {
    Buffer * buf = Observer::updated(); // block until a notification is triggered
    if (!buf) return false;

    Channel::Address from;
    int size = _channel->receive(buf, &from, message->data(), message->size());
    _channel->free(buf);

    if(size > 0) {
        message->size(size);
        return true;
    }       pablolteixeira, 2 days ago • feat: implement communicator receive method

    return false;
}
```