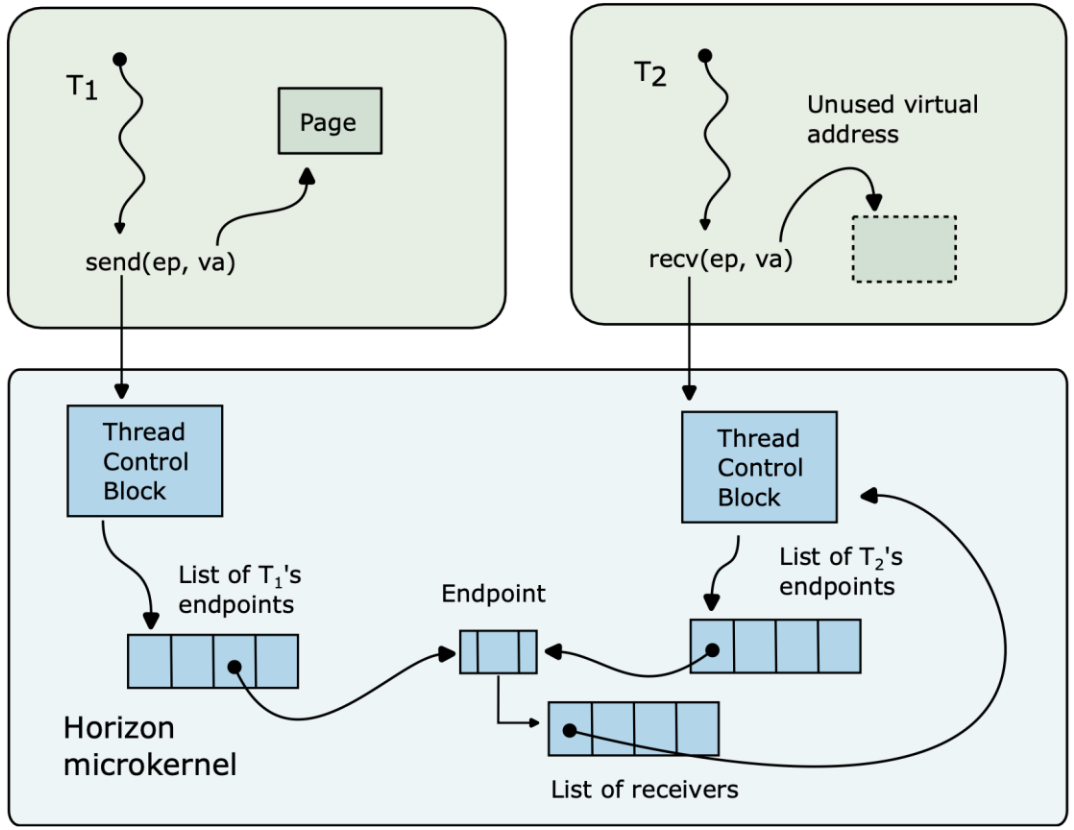
cs5965 Advanced OS Implementation

Lecture 02 – Outline and Booting into Rust

Anton Burtsev

Ok, what is our plan?

We plan to build a small microkernel



- Conceptually, similar to classical microkernels
  - Processes, threads, endpoints for synchronous communication
  - Capability interface
- User-level device drivers

Boot into Rust

Building bootable binary

- We will use Philipp Oppermann’s Blog
- https://os.phil-opp.com/freestanding-rust-binary/
- And some of our custom build setup

No standard library

- No rust::std
- But still core

```
#![no_std]

#[no_mangle]
pub extern "C" fn rust_main() -> ! {
    println!("Hello from Rust!");

    loop {}
}
```

Compiler needs a panic handler

```
use core::panic::PanicInfo;

// This function is called on panic.
#[panic_handler]
fn panic(_info: &PanicInfo) -> ! {
    loop {}
}
```

Thank you!