

I wrote a "Hello World" Kernel module. What Next???

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# Why you started Kernel Programming?

- As an hobby
- To know how Kernel works
- For college projects
- You are employed to do that

- Where will Kernel Programming take me?
- Does it really worth that much time?
- What will I get?

# Why people leave it in-between

- It's difficult
- It's time consuming
- Lack of guidance

- Code browsing
- Books
- Using debugging tools for understanding kernel
- Support from community

- [cscope/ctags](#)
- [LXR](#)

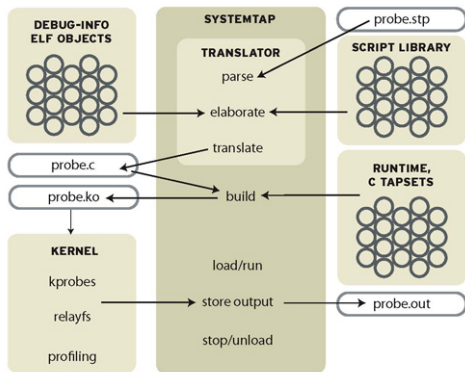
- Professional Linux Kernel Architecture - Wolfgang Mauerer
- Linux Kernel Development - Robert Love
- Understanding the Linux Kernel - Daniel P. Bovet, Marco Cesati
- Linux Device Drivers, Third Edition

- SystemTap
- KDB
- crash



# How SystemTap works?

- SystemTap tool goes through 5 passes:
  - pass 1: parsing parsed user script
  - pass 2: semantic analysis analyzed script
  - pass 3: translation translated into C
  - pass 4: compilation compiled C into \*.ko
  - pass 5: run starting run.

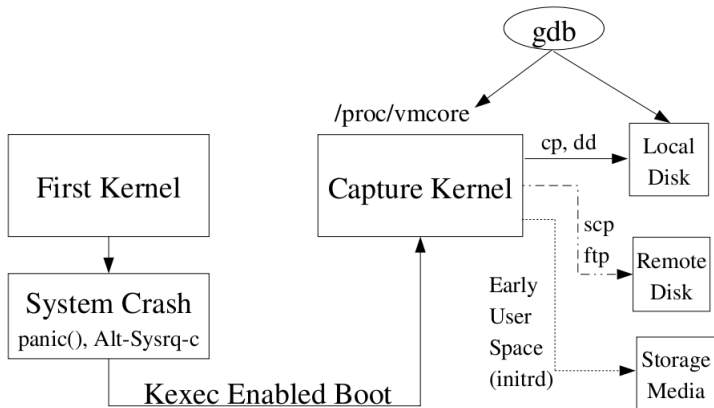


# Where to probe

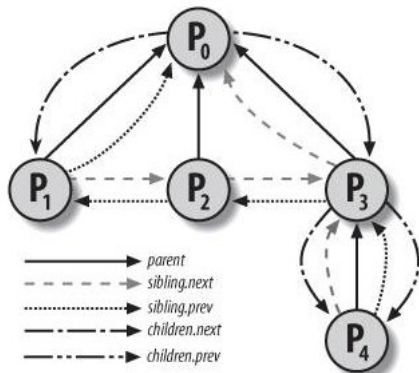
```
kernel.function("foo")
kernel.function("foo").return
module{"ext3"}.function("ext3_*")
kernel.function("no_such_function") ?
syscall.*
end
timer.ms(5000)
```

- Entry on oops or <Break>
- Help prints all commands
- md/mm - display/modify memory
- Kernel symbol resolution and completion
- bt/bta - Print stack traces specific or all
- Hands on
- Adding kdb modules

- A new kernel, often called capture kernel, is booted after the crash
- Previous kernel's memory is preserved
- Dump is captured from the context of capture kernel
- Kernel to kernel boot loader enables booting a new kernel after a crash
- Kexec is underlying kernel to kernel boot loader



# Understanding relationships amongst Process



- <http://kernelnewbies.org/>
  - <http://kernelnewbies.org/FAQ/WhereDoIBegin>
  - <http://kernelnewbies.org/CompleteNewbiesClickHere>
  - <http://kernelnewbies.org/MailingList>
  - <http://janitor.kernelnewbies.org/>
- <http://lkml.org/>
- <http://www.kernelpodcast.org/>
- <http://www.linux.com/search/kernel+newbie+corner/>
- IRC

Questions ??



Thank you