### 第二次实验作业

高一凡 2017-3-17

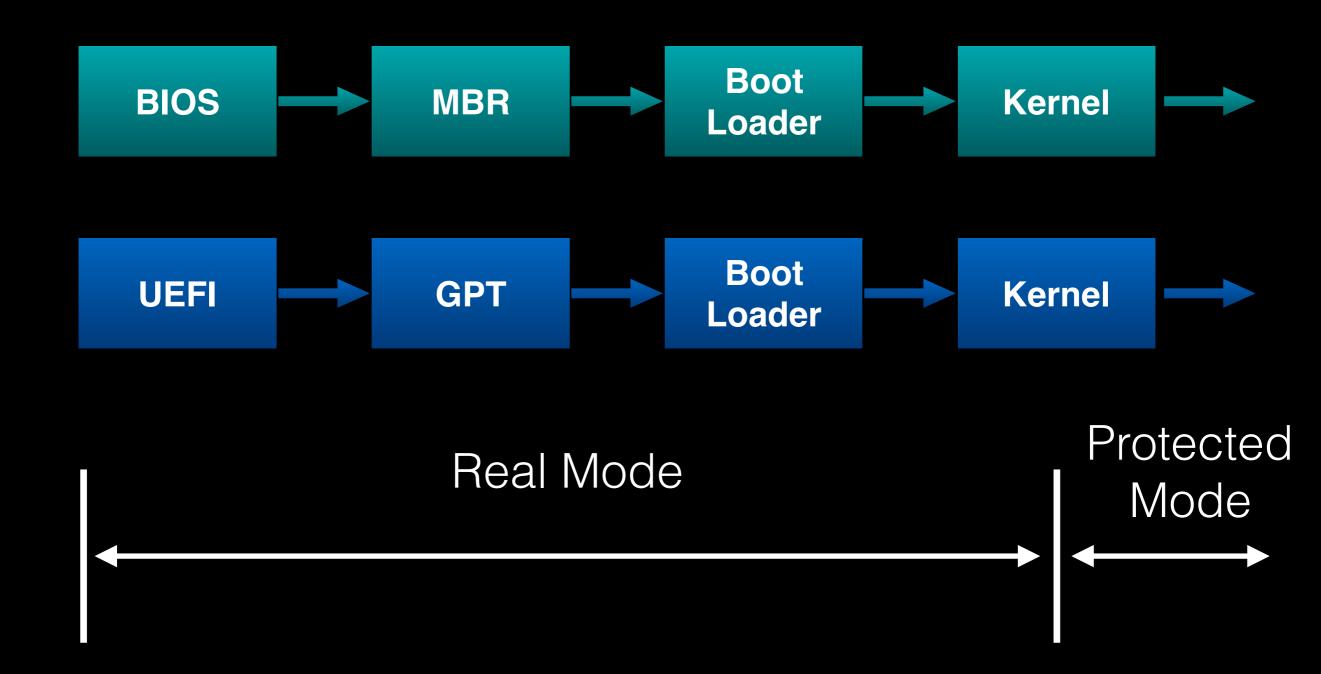
### 实验内容

- 学习从源代码编译操作系统
  - 操作系统裁剪
- 学习使用QEMU/KVM模拟器

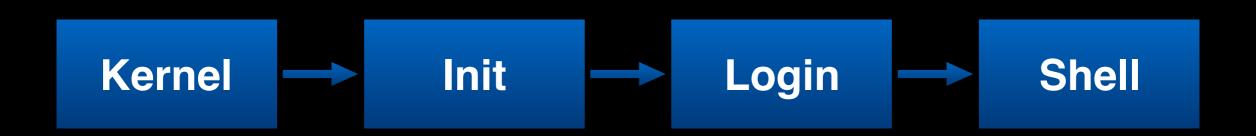
### 启动

Pull oneself up by one's **boot**straps.

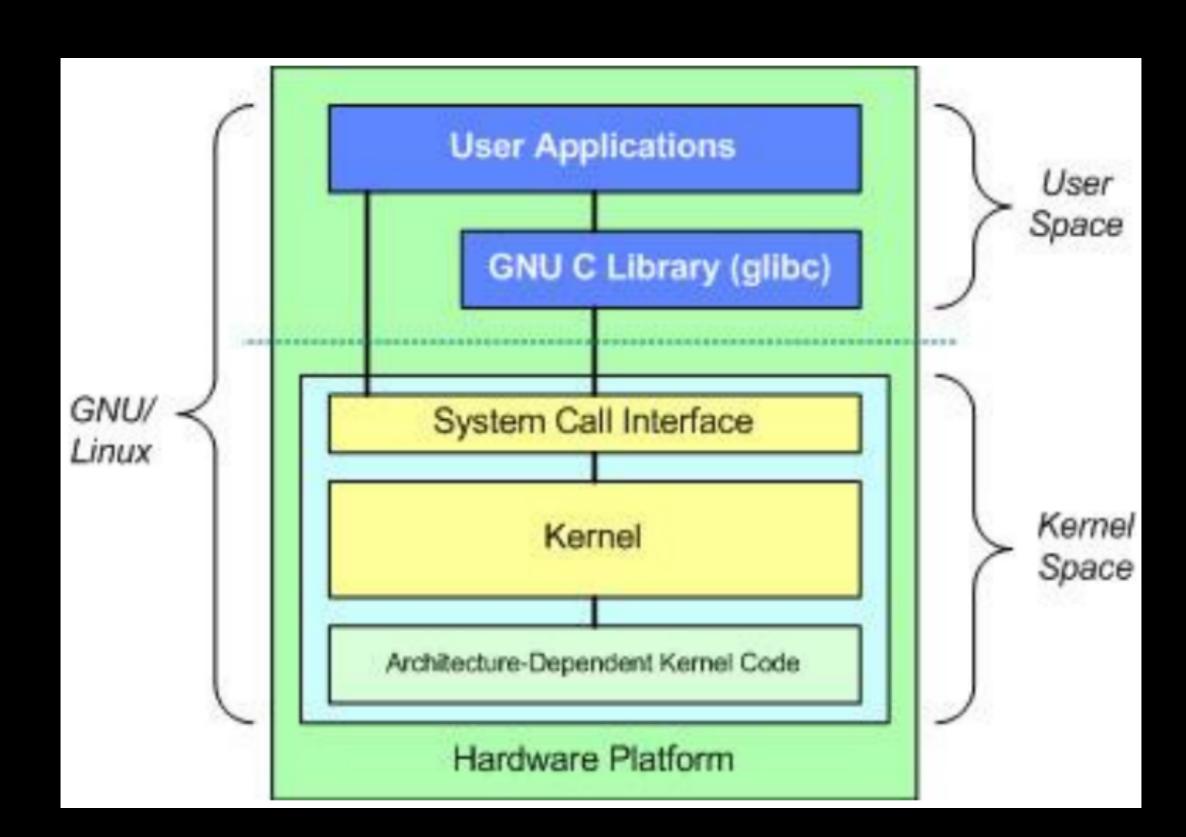
# 冷启动



## 操作系统启动

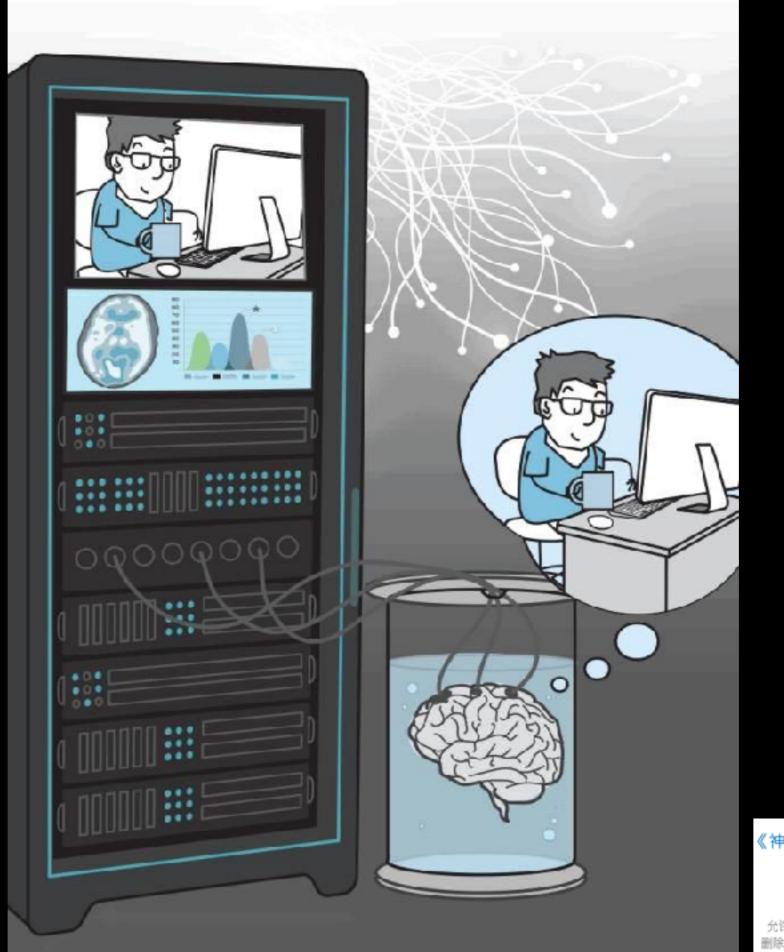


#### Linux Kernel Architecture



## 作业

- 编译
  - Kernel
  - libc
  - busybox
  - •
- Boot Loader



#### 《神秘的程序员们》

by 西乔

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允许转载,禁止修改和演绎 

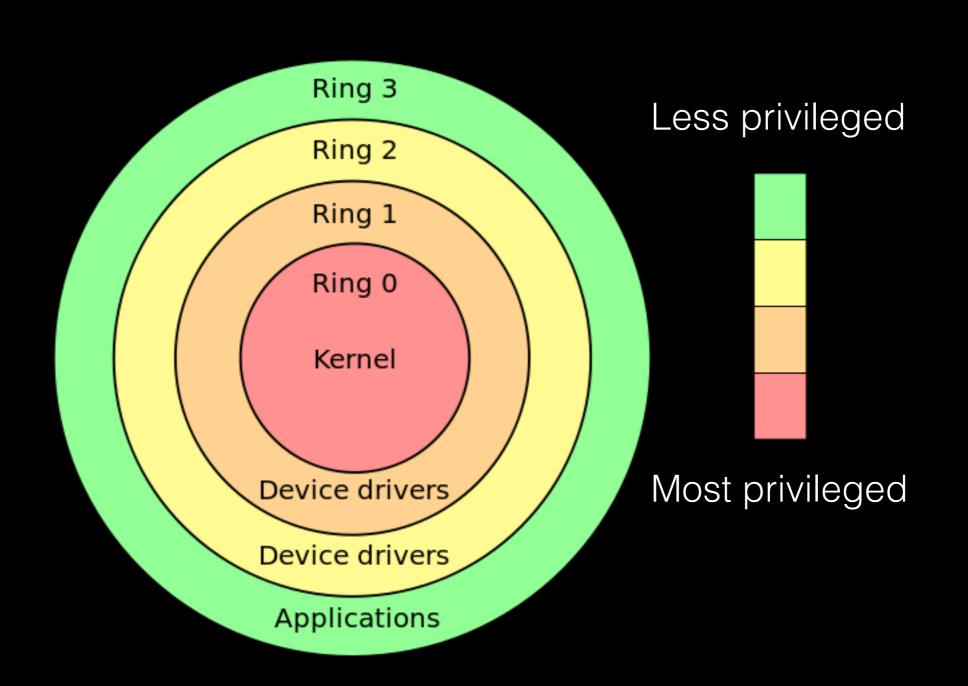
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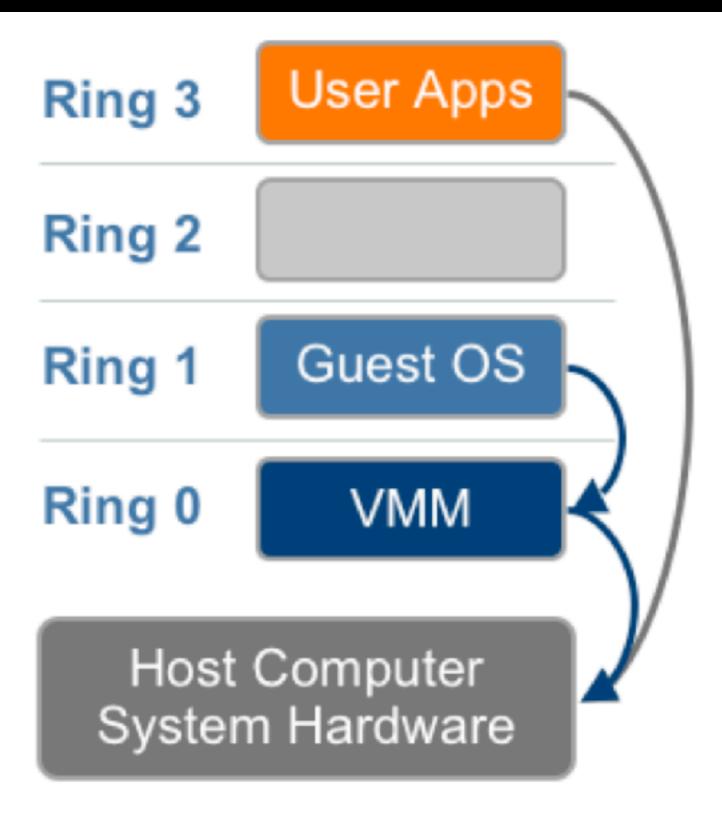


#### Hierarchical Protection Domains



### User Apps Ring 3 Ring 2 Ring 1 OS Ring 0 **Host Computer** System Hardware

Direct Execution of User and OS Requests



Direct Execution of User Requests

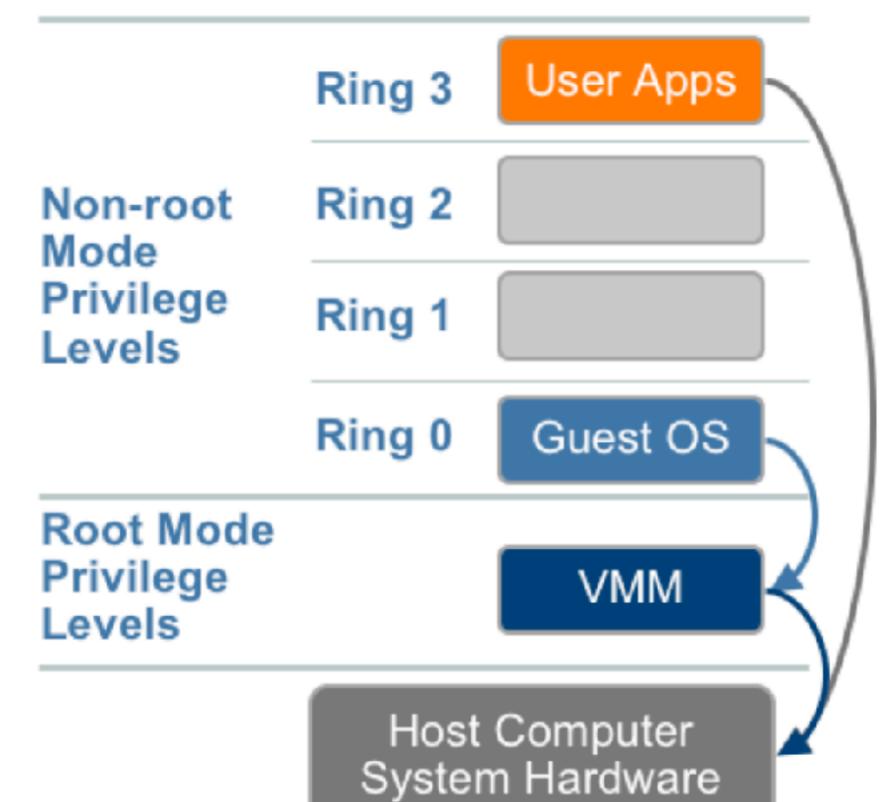
Binary Translation of OS Requests

User Apps Ring 3 Ring 2 Ring 1 Paravirtualized Ring 0 Guest OS Virtualization Layer Host Computer

System Hardware

Direct Execution of User Requests

'Hypercalls' to the Virtualization Layer replace Non-virtualizable OS Instructions



Direct Execution of User Requests

OS Requests
Trap to VMM
without Binary
Translation or
Paravirtualization