

Interactions Between Devices and the Operating System

Mason Dinardi
Chris Tompkins
Samuel Forbes
Brady Cornett

History of Device Integration

Mainframe Computing

- Punch Cards
- Magnetic Tape

Integration

- Keyboards - Multics
- Mice - Xerox Alto




Driver Overview

Real Mode Drivers

- Loaded in at Disk Operating System (DOS) level
- No safeguards

Protected Mode Drivers

- User privileges
- Logical Device Driver
- Physical Device Driver



```
Starting MS-DOS...  
C:\>_
```

Network Devices

Types of Network Devices

- External - Routers, Modems, Etc
- Internal - NIC(Network Interface Card), WiFi Card

Drivers

- NDIS(Network Driver Interface Specification) - Windows
- ifnet - Linux

Network Drivers are Kernel Level that process a single packet at a time through network card hardware

Storage Devices

Types of Storage Devices

- Hard Drives, DVD-ROMs, CD-ROMs, Flash Drives

Specs for Storage Device Drivers

- ATA
- ATAPI
- SCSI
- USB

Input/Output Info

- Opcodes, Command Blocks, Sense Information, etc.



Tertiary Devices

What is a Tertiary Device?

- Peripheral(keyboard, mouse, monitor)
 - Printers
 - Bluetooth devices
 - Audio Devices
- Device Identification
 - OS Drivers
 - Proprietary Device Drivers
 - Bluetooth Compatibility

Drivers

- Firmware Embedded
- Downloaded
- Disc
- USB



Wrap Up

- There are many devices that an operating system ideally needs to be able to control.
- Drivers bridge this gap between the OS and the devices.
 - They provide software interface for the OS.
- More extensive and particular research could be done to see the roles that different drivers play.