

“Weekend Workshop on Linux Network Drivers” by Anil Pugalia

Day 1

+ **Session 1: Programming the PCI**

- Understanding the x86 processor bus: PCI
- PCI Core & Programming the PCI
- Finding & Interacting with a PCI Device
- The First PCI driver

+ **Session 2: Interrupt Handling & DMA**

- Interrupt Handling w/ PCI
- The First Interrupt handler
- Understanding the DMA w/ PCI
- The First DMA transaction

Day 2

+ **Session 3: Getting started with Network Drivers**

- OSI Layers & the Network (TCP/IP) Stack Placement
- Network Driver & Device Registrations
- Kernel Data Structures & Buffer Management
- Network Device Operations

+ **Session 4: Developing the PCI based Network Driver**

- Programming the Network Device Registers
- Integrating the PCI horizontal with the Network vertical
- Implementing the PCI Network Driver

+ **Wrap Up**

- Conclusion
- What Next?

Caution: All sessions are highly interactive & hands-on with hardware

Hands-On Details

+ **Writing the first PCI Driver**

- Registering & Finding a PCI device
- Mapping & Accessing the PCI device regions
- Getting the Ethernet MAC Id

+ **Writing the first Interrupt Handler**

- Registering an Interrupt Handler
- Triggering an Interrupt Handler for a PCI device
- Getting the Link Status Change

+ **Doing the first DMA Transaction**

- Setting up the DMA Buffers
- Initiating and Completion of DMA for a PCI device
- Transacting data using DMA

+ **Writing the PCI Network Driver**

- Programming the Network Device Registers
- Implementing the Transmission & Reception with the actual device
- Setting up the network across computers
- Communicating over the network