Virtualization &

Compilation Pipeline

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Introduction

Me:

- Bachelor's degree in Electrical Engg.
- Master's degree in Computer Engg.
- Ph.D. in Computer Science (ongoing)
- Research: Real-Time Operating Systems; currently scheduling and synchronization
- Labs: will cover any topics/practical aspects related to assignments



Virtualization

- Kernel: essential components to keep the system running; OS: kernel + user interface
- Virtualization:
 - imitating underlying hardware
 - Managers: VirtualBox, Quest-V
- Emulation: imitating different hardware



Virtualization





Virtualization



Fig. 1. Example Quest-V architecture overview.



Compilation Pipeline





References

- 1. Computer Systems: A Programmer's Perspective (Third Edition), Randal E. Bryant & David R. O'Hallaron
- 2. Installing Ubuntu 22.04 on VirtualBox for Windows 11
- 3. Installing Ubuntu 22.04 on UTM
- 4. <u>Ubuntu 22.04 for x86</u>
- 5. Linux shell Cheat sheet
- 6. gdb: Introduction, Documentation

