How and Why You Should Become a Kernel Hacker

James Morris
jmorris@namei.org

FOSS.IN/2007 – Bengaluru, India

Introduction

Only Three Essential Requirements

- Genuine interest

- Common sense

- Willing to work hard

Kernel Hacking Myths

Myth: Kernel hacking is bizarrely difficult and mysterious.

Reality: It's just software.

Kernel Hacking Myths

Myth: Kernel hackers are mutant super geniuses.

Reality: There are a few of those, but most are just good engineers.

How – Getting Started

- Dreaded mailing list: lkml

- Books

- Online resources

How – Getting Started

- Learn C

- Become familiar with kernel build environment

- Test and submit bug reports

How – Getting Started

- Fix bugs

- Scratch an itch

- Try many ideas

How – Getting Started

- Get the Basics Right!

- Coding Style

- Patch Submission

How – Getting Started

- Seek Mentors

- Follow Your Interests

- Initial learning curve is steep: be persistent!

How – Technical Tips

- Keep it simple

- Read the code of good programmers

- Review others' code

"I always listen for what I can leave out" -- Miles Davis

How – Technical Tips

Study Kernel Primitives

- Locking
- Modes, contexts
- Timers
- Data structures
- Library code

How - Process Tips

- Don't defend bad code

- Show, don't tell

"Talk is cheap. Show me the code." -- Linus

How - Process Tips

- Incremental changes

- Small, logically contained patches

- Release early and often

- Respond to feedback

How - Process Tips

- Respect maintainer decisions

- Encourage contributions

- Mentor & delegate

How - Social Tips

- Kernel community is a relic of USENET culture

- Getting flamed is an occupational hazard

- No excuse to do it to others

- Majority are professional

How - Social Tips

- If you find yourself arguing with Alan Cox, you're *probably* wrong

- Demonstrate your ideas and politely defend them if needed

- When you're wrong, admit it and move on

Resources

- "Being a Moron on linux-kernel"
- LWN
- KernelTrap
- Documentation directory
- Online books ("ldd3")
- The perfect patch
- GIT for kernel hackers
- Kernel Mentors
- Kernel Newbies
- LXR