Don't forget to sign in!

signin.ritlug.com

RITLUG

nic vim /proc/mem ls rm

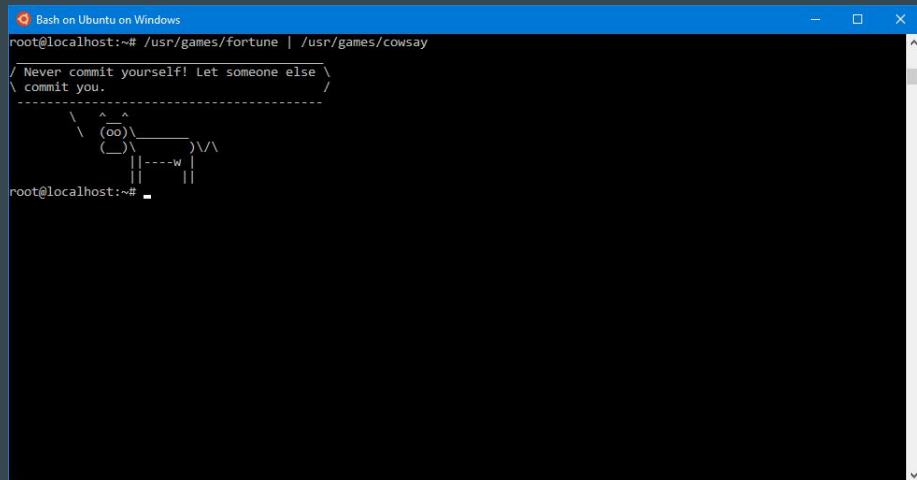# Windows Subsystem For Linux

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RITlug - Week 4!
Solomon Rubin

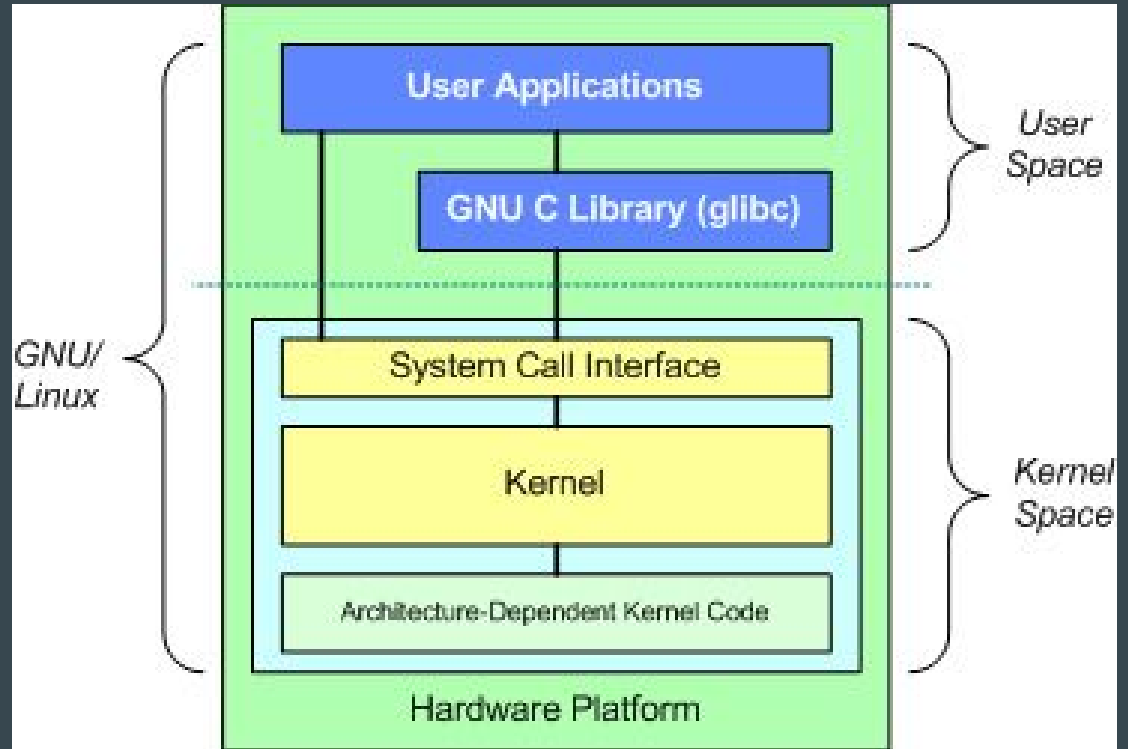Hold up. Linux... on windows?

Overview

- What is it? Literally, Linux on Windows
- Allows for actual ELF Binaries to be executed natively
- No, this is not a virtual machine!
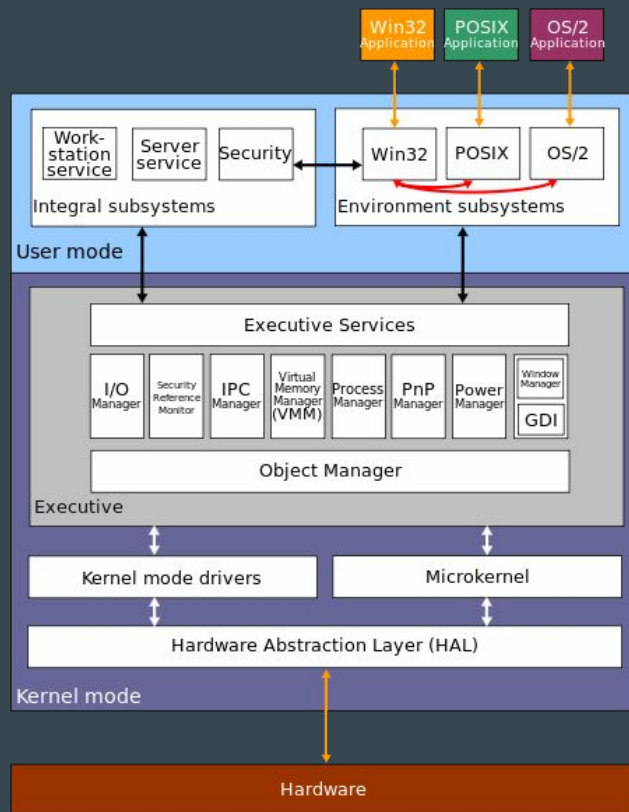- Low resource, native emulation

Let's Review - The Linux Kernel

- Linux Kernel

Something new - Windows NT Kernel

Where does WSL fall in?

- Replacement for previous User Mode Unix utilities. (Windows Services for UNIX)

So how does this work?

- User mode services for Linux instance life cycle
- "Pico" Process as a Kernel/User mode interface
- So what's Pico?

Pico

- Hosts the unmodified user mode Linux applications
- A Linux kernel emulator
- Translates Linux syscalls to Windows NT syscalls
  - Provider for Kernel Mode Drivers (LXCore, LXSS)
  - Host for the unmodified user mode Linux applications.
 - Process flow diagram incoming.

Pico Process Diagram
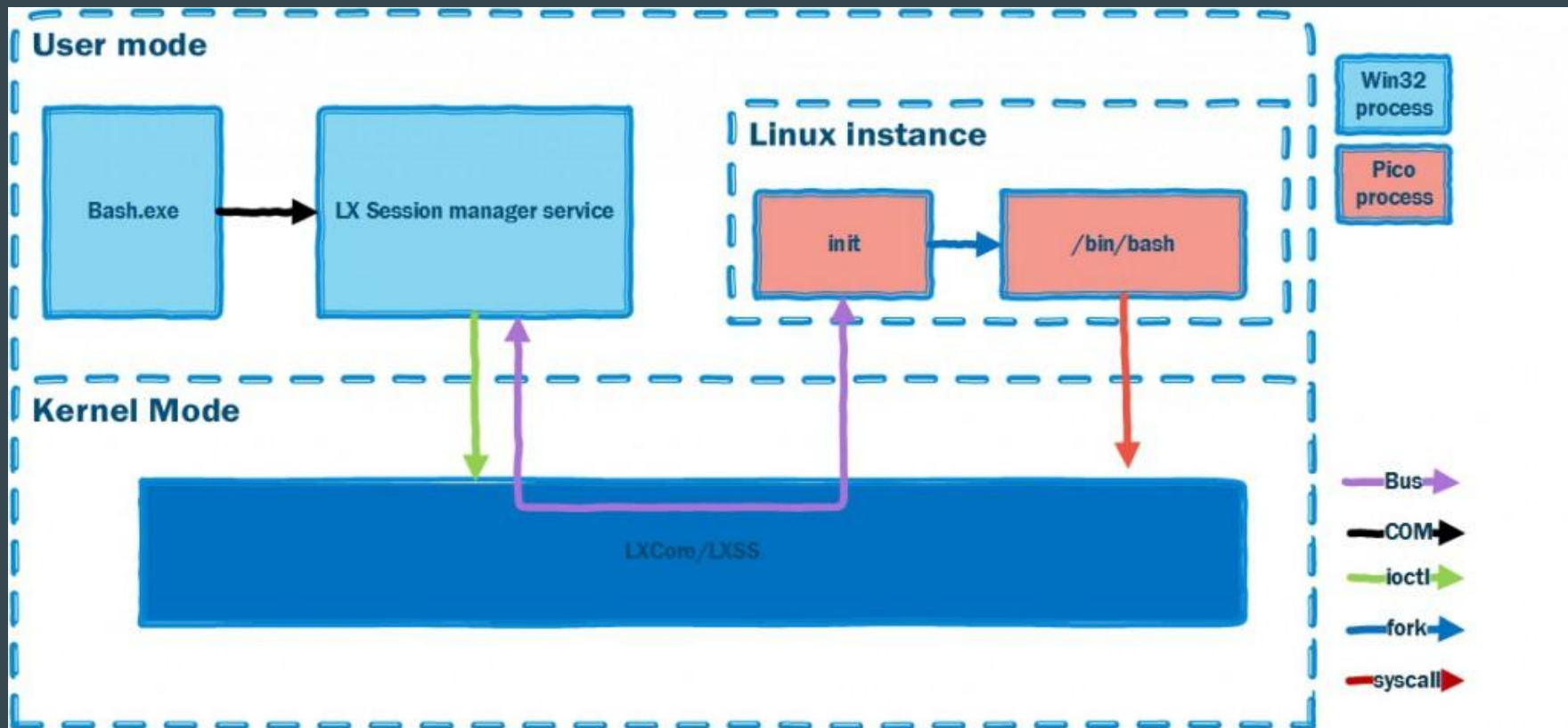
Where and How Does WSL get stored?

- NTFS doesn't use iNode like objects
  - By default, does not store: Owner/Group, Permissions, File times, etc
- NTFS Extended Attributes
  - Allows for iNode like behavior using extended attribute files
- How does WSL read/write these? Pico!
  - VolFS - Equivalent to rootfs (/, /etc, /home, etc)
  - DrvFS - Handles NTFS/Windows Drive mounting (/mnt/c)
  - TmpFS - Handles /dev and /tmp
  - ProcFS/SysFS - Handles /proc and /sys

Pico File Handling
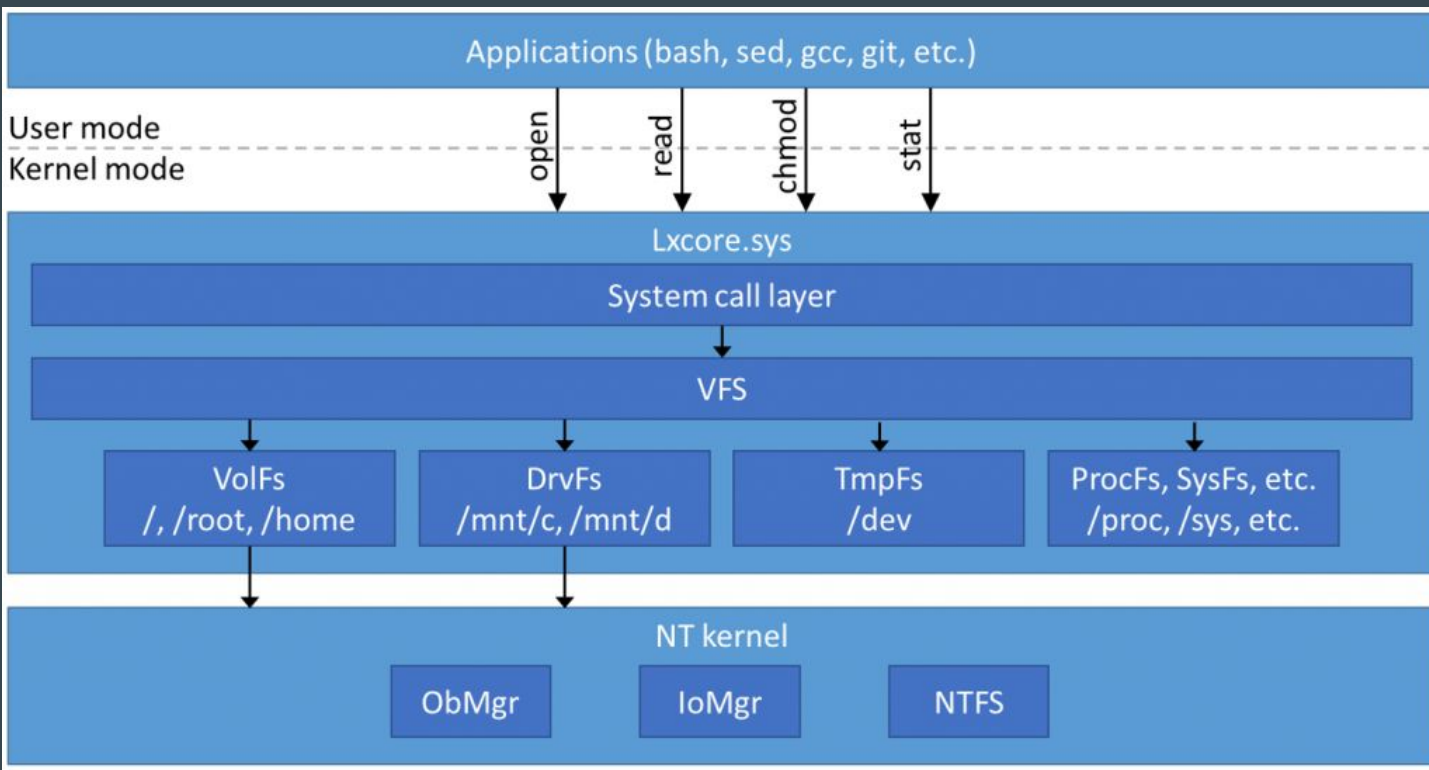
Where is Linux Stored?

- No admin rights required:
  - %LocalAppData% --> /Users/Serubin/AppData/Local/lxss
- Hidden by default - this should NOT be modified by windows.
- Windows does not respect or modify NTFS extended attributes
- Microsoft warns modifying lxss will break your rootfs/wsl install.

So why use WSL?

- Removes the need for tools like Cygwin or Git Bash
- Allows for the native use of Unix Tools like Ssh, Wget, Curl, Vim, Emacs
- Helps linux beginners start the migration to linux tools without changing their entire OS.
- It's just kind of cool?

Upcoming events!

Weekly!

- RITLug, 4-6pm every friday!
  - GOL-2620
- FOSS Hours, 4-6pm Wednesdays
  - GOL-2500

Join our Club Mailing List!

- ⟹ http://link.ritlug.com <==

One off Events!

- WiCHacks February 25-26, 2017.
  - Wic-hacks.rit.edu
- Imagine RIT May 6th - More to come
- FOSSTALKS - Wednedsays 4-6pm
  - Magic Center on : . 3/22, 4/19
  - Women in FOSS!

Demo? Demo.