Plug and Play Multiseat

Linux Plumbers Conference 2009
BoF Session
Bernie Thompson
About the speaker

- “Linux vs. NT and OS/2” (Issue 1 LJ, 1994)
- S3's graphics driver guy on-site at Msft
- Cosource & Applix Linux Division
- Windows Development Manager @ Msft
- DisplayLink and now plugable

- Clearly a checkered past!
Multiseat

- Awareness
- What defines multiseat
  - “Terminals” are just collections of devices
  - Sharing computing power of central PC
- Size of multiseat deployments
  - Linux: hundreds of thousands
  - Windows: over a million (nComputing, etc.)
4 computers for the family
Dr. Quentin Stafford-Fraser and others

Vision for low-cost computing for the last few billion people on the planet

Good background at http://ndyio.org/

Founded DisplayLink as commercial arm

Q one of the original developers of VNC
Internet Cafe scenario
South Africa
No more fighting over PCs
Dirt cheap

- $299 Atom 1.6Ghz netbook (2GB RAM)
- Driving 4 USB terminals
- Good enough for web browsing and most of Edubuntu collection of apps

- Wormux a favorite app – explosions, joy!
- Also good for Open Office and Plumbers Conference presentations
Real Experiences at Home

- With kids, with Edubuntu applications
- Windows → Linux easy from UI perspective
- Tough from app compat perspective
- USB seats: Still some things to improve
- Deploy at school? A lot to think about.
USB Multiseat

Traditional
- PCIe Graphics
- Higher Gfx Perf
- Similar hw cost
- Must open box
- VGA/Display cable
- Limited – free slots

USB
- All devices on USB
- Limited until USB3
- +$20 to USB dock
- Plug and play
- WUSB, CAT5
- Go crazy!
Demo

(Murphy begone)
Zero-state, No CPU, All USB
5V 2.5A (~7 port USB hub)
USB Graphics

- DisplayLink (displaylink_drv.so - GPL)
- MCT (sisusb_drv.so - GPL)
- Both have drivers for the adventurous
- More vendors coming, esp with USB 3.0

- Different from traditional 2D/3D graphics controller. Think remote framebuffer.
Still early days

• Many todos and outstanding problems
• Common issues across all multiseat
• Unique issues/opportunities for udev integration – taking advantage of USB plug and play, getting power management right
• Integration with new ConsoleKit
Code/script walkthrough

- This is a kernel developer's conference
- Only I'm probably least qualified in room …

- [http://libdlo.freedesktop.org/wiki/MultiSeatTerminal](http://libdlo.freedesktop.org/wiki/MultiSeatTerminal)
  - End-user instructions
  - And some helpful scripts

- Notes on opportunities to improve very welcome!
Q&A
A “next generation device company”

$99 zero-state dock/thin client
- http://www.amazon.com/gp/product/B002PONXAI

USB2 multifunction device with graphics, audio, eth, etc.

Every chip/function on it has some level of open source driver – enabling interesting new uses for the device

http://getsatisfaction.com/ support

More products coming with this kind of philosophy
BoFing (time permitting)

• Break into four groups
  – udev/kernel ideas
  – GDM/X ideas
  – Distro integration ideas
  – Interesting use case ideas

• Group leader reports back with top 3