WINE and HID (Update)

HID Device and Wine (Update)

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Overview

- HID is working
  - Platforms, technologies and devices
  - Why would you care?
    - TL;DR - you likely don't
- Fun Demonstrations
- Looking forward
  - Dinput, winmm, xinput, rawinput, etc...
- Overly Technical bits

HID Device Native Platforms

Working Platforms

- Linux Hidraw
  - Udev device permissions need to be set on the /dev/hidraw<X> device
- OS/X IOHID
  - Working by default

Future Platforms

- Linux Event
- Android

Working HID device technologies

- Hid.dll
  - HidD_ and HidP_ functions
  - Sparse but functioning
- Direct Device Access
  - IOCTLS and FileRead/FileWrite
  - Functional
- Setupapi
  - Device detection and enumeration works

Devices

- Most development focused on Gamepad and Joystick (usages 0x04 and 0x05)
- Keyboards, devices with keys as opposed to buttons, are not working yet
- Mice appear to work
- Oculus HID parts working
- Need more devices tested!

Takeaways

- Programs that directly access HID will now do something
  - Anyone have any?
  - Custom Hardware likely required.
- Programs trying to directly talk to HID devices will now have a chance to success
  - E-cig programs, some dongles
  - Anyone have more?
- Broad range of HID device and program testing is desired

Devices

- Most development focused on Gamepad and Joystick (usages 0x04 and 0x05)
- Mice appear to work
- Oculus HID parts working
- Need more devices tested!
- Keyboards, devices with keys as opposed to buttons, are not working yet.
  - Including the Steam Controller, which reports itself as a keyboard.

Fun Technical Demonstrations.

Looking Forward

- Dinput
  - Native can work! It uses HID
  - ForceFeedback Problems
- Xinput
  - Also client of HID investigation needed
- Winmm
  - Should be able to be fully supported
- RawInput
  - A user level wrapper around HID

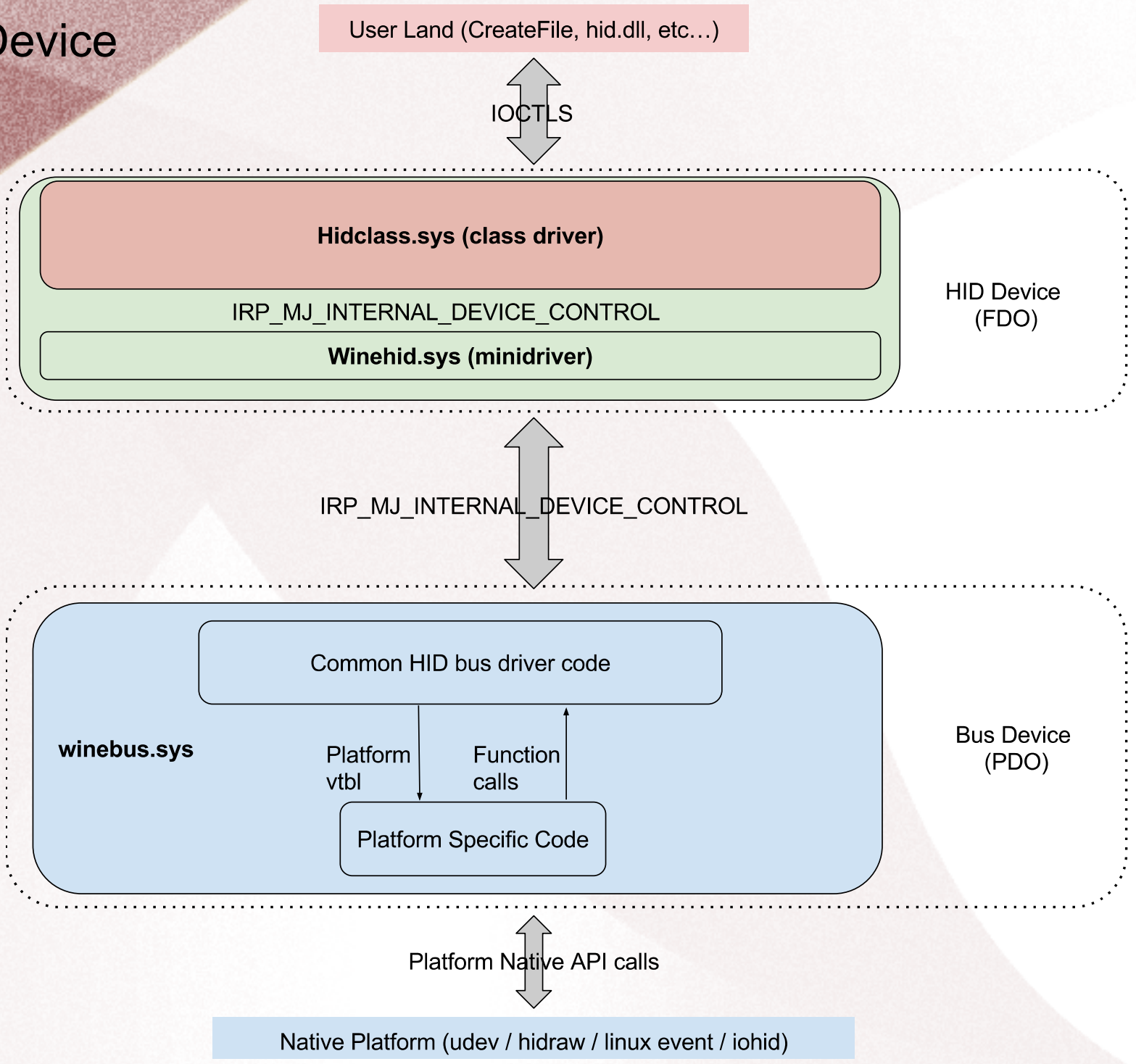
Questions?

- No Plug and Play discussion?
  - Complicated enough it warrants its own discussion when required
- Native Drivers?
  - Can theoretically be made to work
  - Lots of ntoskrnl.exe work, setupapi and likely plug and play work
- Questions?
- Comments?

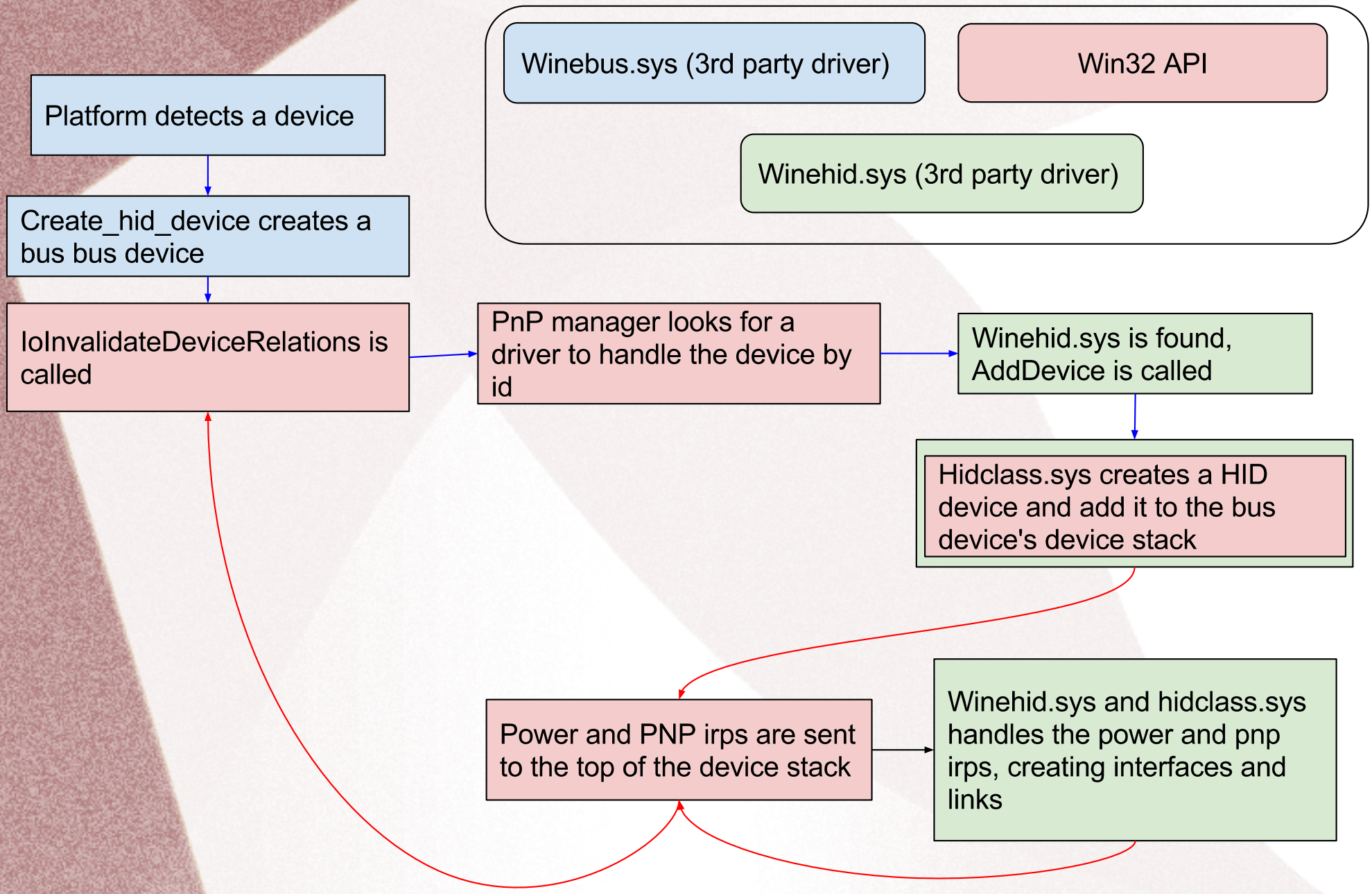
Overly Technical Bits

- Feel free to examine these in the published slides at your own leasure

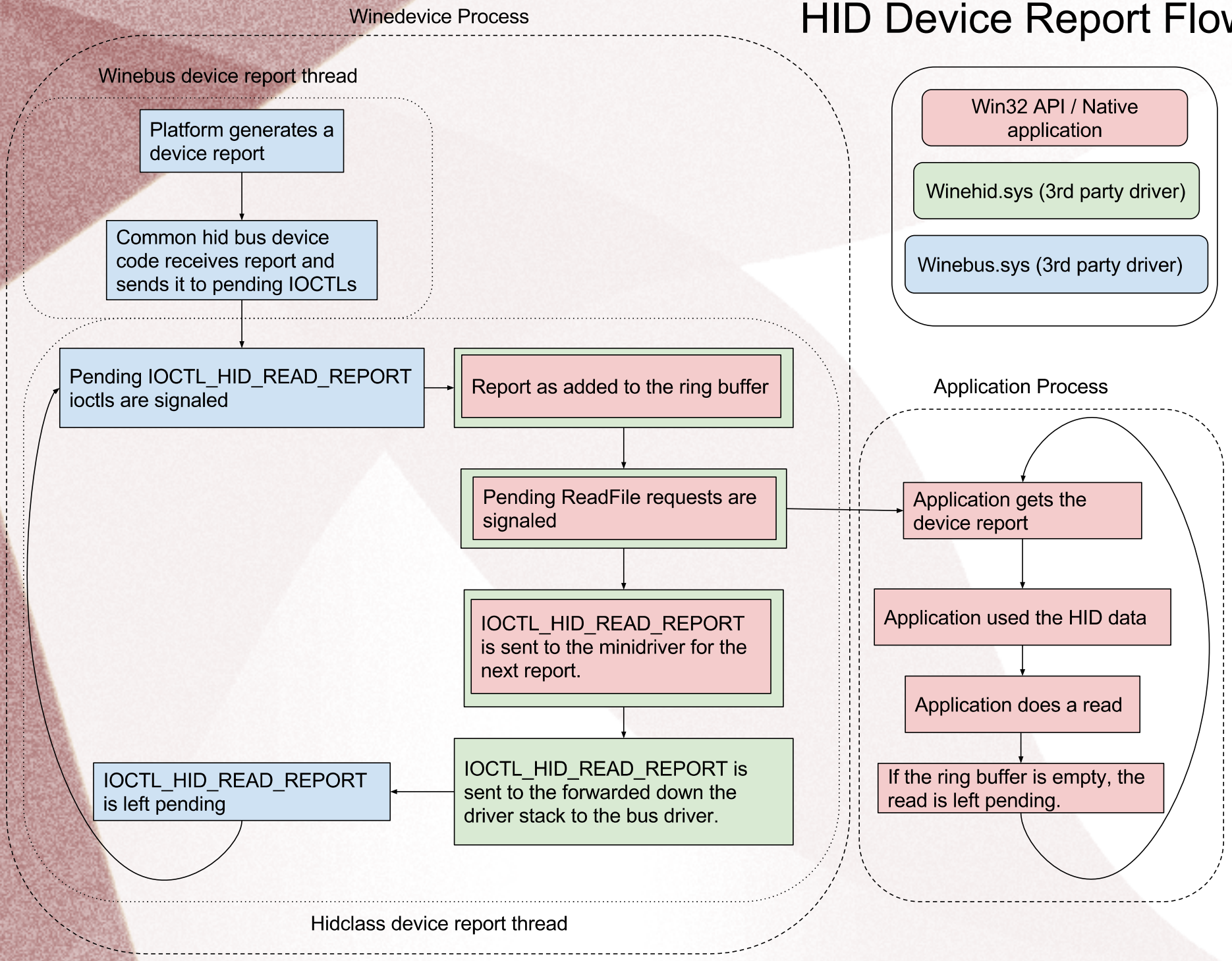
Wine's HID Device Stack



WINE Plug and Play flow for HID devices



HID Device Report Flow



HID IOCTL communication flow