What is IPMI?
Intelligent Platform Maintenance Interface

- BMC
- uC
- Network
- Power Supply
- SDRs
- SELs
- I2C
- FRU Data
- Sensor
- Sensor
- Sensor
- KCS/BT/SSIF
- Reset
- SMI
- NMI
- Host Processor
- FRU Data
Two basic QEMU IPMI emulations

• Internal
  – Basic BMC inside QEMU
  – Supports very basic emulation and a watchdog timer

• External
  – Connects to an external BMC over a chardev
  – OpenIPMI ipmi_sim supports a fairly complete BMC emulation capability
QEMU External BMC
QEMU Internal BMC

Ipmi-bmc-sim

Watchdog Timer

SDRs (watchdog)

SELS

KCS/BT/SSIF

IPMI Interface

QEMU

Reset NMI Shutdown
Why would I want to do this?

- Use existing management software to manage virtual systems.
- Simulate your system to cause events you could never reproduce in a real system.
- Allow the IPMI maintainer to reproduce bad hardware reported by others.
- Fool software that wants IPMI to be there
- Watchdog timer
Starting a BMC in QEMU

• Create a BMC, normally done from ipmi_sim
  – -device ipmi-bmc-sim,id=bmc0
  – -chardev socket,id=ipmichr0,host=localhost,port=9002,reconnect=10
    -device ipmi-bmc-extern,chardev=ipmichr0,id=bmc0

• Attach the BMC to an interface
  – -device isa-ipmi-kcs,bmc=bmc0,irq=5
  – -device isa-ipmi-bt,bmc=bmc0,irq=0
Demos

- Internal simulator with watchdog timer
- External simulator power management
- External simulator with watchdog timer
- External simulator setting sensor value
What's left?

- Upstream the main code
- SSIF (later)
- Where to get it now?
  - https://github.com/cminyard/qemu
  - http://sourceforge.net/projects/openipmi
Issues

• Security

• Users require extensive knowledge of IPMI to set up a BMC. It takes a while to understand the IPMI spec. (However, basic power management is pretty easy: http://apahim.livejournal.com/2395.html)