Why Open Computing?

Timothy Pearson, CTO
Raptor Computing Systems
Developers

• Linux is arguably the most widely used operating system
  • Most variation, innovation
  • Auditable and secure

• What powered the rise of Linux and related systems?
  • Open platforms on which to work
  • Unfettered access to documentation
  • Collaboration
  • Needs-based development
Open Platforms

- Open, owner-controlled hardware enables innovation
- When open hardware is unavailable, new leaders create it
  - ARM
  - RISC-V
  - OpenPOWER
- Fundamentally a choice of central vs. local control
  - Central control stifles innovation
  - Local control seen as too complex for many users....
    - but is it really?
Cloud and Open Systems

• Cloud brings new paradigm
  • Shift to open source for cloud infrastructure and applications
  • Reliance on platform scale and backend features for revenue
  • Develop locally, deploy to cloud (or vice versa)

• Cloud brings new challenges
  • Trustworthiness of remote systems
  • Platform owner control of remote applications
  • How to solve bidirectional trust problem
    • Open, auditable hardware
    • Distributed, client-interactive trust attestation (FlexVer™)
Raptor and IBM Enable Developers

• First competitive, open, owner-controllable CPUs since 2013
  • POWER8, POWER9
  • Full source and documentation!

• First widely available low-cost POWER9 hardware
  • Up to 44 cores per system, or down to 4 cores per system
  • Standard hardware, easy to get COTS replacements and upgrades

• OpenPOWER Ready allows stable software ecosystem
  • Same kernels / apps run on any OpenPOWER compatible machine
  • c.f. ARM, RISC-V
What’s Next?

• Further ecosystem expansion needed

• Current offerings focus on
  • Professional / sponsored developers and content creators
  • Commodity POWER9 servers and workstations
  • Supercomputing

• Need for target / deployment machines
  • Provide mass market target for OpenPOWER applications
  • Empower smaller developers not needing massive resources
  • Bring open systems back to the desktop sphere...
What’s Next?

• Bring open systems back to the desktop sphere...
Meet Blackbird

• World's first OpenPOWER desktop / appliance system
• MicroATX form factor
• Low power, low cost
• Perfect companion to Talos™ II developer machines
What’s Next?

• Continue working toward open system components
  • GPU, SAS, FPGA
  • Open, owner-controlled CPU provides launching point

• Continue expanding the OpenPOWER software ecosystem
  • FreeBSD
  • Chromium
  • Unreal Engine 4
Conclusions

• Second open computing revolution underway
  • Driven by similar forces, technology vastly different
  • Rapid growth in OpenPOWER ecosystem from our machines
  • Developers re-learning that open systems are best for innovation

• Developer support is key
  • Developers fundamentally choose the platforms that are adopted
  • What kind of computing resources do you want to see dominate?
Come Chat!

• Be sure to stop by our booth
  • Try Linux on OpenPOWER first-hand
  • See Talos II and Blackbird in operation
    • 95%+ Debian archive coverage for OpenPOWER!
  • Take a peek at what PCIe Generation 4 can do for you
    • Networking and storage are key

• And on the lighter side...
  • Try to beat the ‘bots in Unreal Tournament 4!