That's the sound of hell freezing over: Linux binaries running on Windows 10

How? Why? WHAT?

OSCON 2017 – May 11th 2017

Rich Turner | Sr. Program Manager | Microsoft
@richturn_ms | richturn@microsoft.com
Wow!

- Bash on Windows is only ~13 months old!
  - Unveiled during //Build 2016
  - Released in Win10 Insiders
  - Shipped in Win10 Anniversary Update
  - HUGE update in Creators Update

- Reception has been AMAZING!
What IS Bash/WSL?

- Runs Linux binaries on Windows
  - No VM’s!

- Bash on Windows
  - Genuine Ubuntu user-mode distro’
  - PicoProcess lightweight processes
  - Loads & executes Linux ELF-64 binaries

- Windows Subsystem for Linux (WSL)
  - NT Kernel feature & supporting tools
  - Exposes Linux-compatible System Call Interface (SCI)
  - Utilizes many NT Kernel API’s & features
What & who is WSL for?

- WSL is for Developers
  - Open source developers
  - Web site & service developers
  - App developers
  - X-Plat developers
- WSL also useful to DevOps, Build Masters, Script junkies, etc.
What’s new in Bash/WSL?
Bash/WSL in Win10 Creators Update

• MOAR SYSCALLS!
  • More & deeper syscalls
  • Unlocks several new features & tools

• Network improvements
  • ifconfig & network connection enumeration outbound
  • Supporting Linux socket & network features
  • File-change notifications

• Ubuntu 16.04/Xenial support
Interop in Bash/WSL in Win10 CU

• Call Windows exe’s from within Bash
• Call Bash & Linux tools from Windows
Run your favorite dev tools

- Run useful tools
  - tmux, vim, emacs, htop
  - git, grunt, gulp, etc.

- Run common services
  - sshd
  - Apache, nginx
  - MySQL, Postgres, etc.
  - Redis, etc.

- Run sites/services/apps built using:
  - Ruby, Python, node.js,
  - C/C++, Go, Rust, Erlang, etc.
  - Haskell, Erlang, etc.
  - C# & F#, ASP.NET Core, etc. on CoreCLR
What’s next for Bash/WSL?
What’s next for Bash/WSL?

• EVEN MOAR SYSCALLS!
  • Prioritizing based on feedback & telemetry
• Disk perf improvements
• More networking improvements
• USB/serial comms
• Mount USB storage devices
• Mount network shares
Windows Console Reborn!

Architecture & Roadmap for the Windows Console
Console Reborn

- **Win10**: Console Reboot
  + Copy/Paste
  + Reflow
  + Filter on Paste
  + Line-Wrap Selection
  + Transparency
  + High DPI

- **Win10 AU**: Light-up Bash, OpenSSH & Docker
  + Virtual Terminal
  + Expanded Font Support
  + Modern IME support
  + Full Color
  + UTF-8
Console Overhaul

• Modernizing a 30 year old codebase!
  • Understanding how it works!
  • Modularizing subsystems
  • Replacing legacy/private API usage
    • E.g. Modern input stack
  • Adding safety

• Without breaking the world
Console Improvements in Win10 CU

- Glorious 24-bit TrueColor
- Improved VT support
  - Renders vim, emacs, tmux, mc, etc.
- Mouse Support!
- Lots of bug fixes & improvements
Thank you!
One more thing ...
Ubuntu in the store

• Store benefits
  • Faster downloads
  • More reliable downloads
  • Install to alternate drive

• Side-loading
  • Experimentation!
But wait ...
MOAR distro’s

- Coming soon
  - Ubuntu
  - openSUSE
  - Fedora

- Download from Store
- Install one or more!
- Run side-by-side!!

- Coming later
  - MOAR distro’s
Thank you!
(for reals this time)
We can’t wait to hear from you!

• Test all the things

• FILE BUGS ON US:
  • https://github.com/microsoft/bashOnWindows
Thank You

Rich Turner
Sr. Program Manager
Windows, Microsoft

richturner@microsoft.com
@richturn_ms

Learn WSL
https://aka.ms/learnwsl

Docs
https://aka.ms/wsldocs

Command Line Blog
https://aka.ms/cliblog

Git Hub (Issues)
http://aka.ms/winbashgithub

UserVoice (Feature Asks)
http://aka.ms/winbashuv

© 2015 Microsoft Corporation. All rights reserved. Microsoft, Windows, Windows Vista and other product names are or may be registered trademarks and/or trademarks in the U.S. and/or other countries. The information herein is for informational purposes only and represents the current view of Microsoft Corporation as of the date of this presentation. Because Microsoft must respond to changing market conditions, it should not be interpreted to be a commitment on the part of Microsoft, and Microsoft cannot guarantee the accuracy of any information provided after the date of this presentation. MICROSOFT MAKES NO WARRANTIES, EXPRESS, IMPLIED OR STATUTORY, AS TO THE INFORMATION IN THIS PRESENTATION.