freeknowledgemission-list@meetup.com

Raspberry Pi and Blockchains

OR…

freeknowledgemission-list@meetup.com

After a week nothing even compiles…

What went wrong ?!

freeknowledgemission-list@meetup.com

- Raspberry Pi 3
  - Small platform Linux system that costs less than $40
  - Model 3 has four core, 64-bit ARM Cortex A53 clocked at 1.2 GHz
  - No graphic card but has DVI provided by VideoCore IV GPU built in
  - 1GB of LPDDR2-900 SDRAM
  - Boots from a SD card
  - Runs a special version of Debian known as Raspbian. Available as a card image.
  - There are Pi 2 and zeros (I find them too slow to use for much)
- Pi-top
  - Company that produces laptop footprint for Raspberry Pi 2 or 3
  - Allows to carry and work on Raspberry Pi without all the wires everywhere
  - Uses yet another distro of Rasbian on SD card

freeknowledgemission-list@meetup.com

- First Disaster
  - Used existing ancient Pi-top distro to try to create blockchain image
  - SD card was 8G and had not been expanded so had only 4G
  - Ran Linux version out of space
  - Unable to start Pi-top software
  - What was that password anyway
- Pi-top recovery
  - Buy new 32G SD card (larger ones sometimes are slow and it takes forever to image. And if you need 64G, why are you using a Raspberry Pi!?
  - New image from 2017 for Pi-top and expands automatically to 32G!
  - Down load yet-another-SD-card writer
  - Where is that SD card thingee for my Apple.
  - Why does it keep falling out!
  - Use really old one, works!

freeknowledgemission-list@meetup.com

- First Mistake (and reason for first disaster)
  - Decide it would be cool to connect three Raspberry Pi as peers
  - Set-up as version of Bitshares called Graphene and do Monopoly
  - Discovered build instructions: https://github.com/cryptonomex/graphene/wiki
  - How hard could this be?
- Pi-top failures
  - Graphene cannot be built on newer software
  - Pi-top is based on older Debian version and stripped down to fit on SD cards
  - Pi-top is not too new and not new enough
  - The distro is flawed and crashes when doing long processes that update SD card.

freeknowledgemission-list@meetup.com

- Why Graphene and Bitshares are painful
  - Cannot build Graphene with current version of C “Boost” libraries
  - Raspbain comes with 56 Boost and Graphene can only use 57
  - Bitshares can be only compiled with 57-63 “Boost” libraries
  - SSH must be older version
  - Curses, Doxygen, and various other obscure comm libraries must be installed
  - So to build either Graphene or Bitshares need a special image of partially updated software
- Pi-top fix
  - New distro for Rasbian available Nov2017 and so built yet another image on SD card (lucky I bought two on discount at Walgreens (my goto source for cheap fast SD)
  - Pi-top still works with new distro with slight screen sizing issue.
  - Crashes stop now. Two nights to 1AM trying to get previous version to work.

freeknowledgemission-list@meetup.com

- The Doomed Build
  - Use directions for install on old Ubuntu version 14.07 as this is well documented
  - Generally Ubuntu instructions work for Raspberry Pi distros
  - Finally managed to compile a Boost 57.
  - Remember this is ARM A53 so the binaries must be built
  - Rebuild time for Boost 57 is about four hours
  - Finally get to run Make on Graphene
- 2nd Disaster
  - Compile fails. Syntax issues!
  - Forked code from original code from Bitcoin (yes that one) crypto code blows.
  - Appears that definition of Big Number is undefined now
  - The compiler is too modern to compile old Bitcoin, but we are using C++ 4.9

freeknowledgemission-list@meetup.com

- Graphene!
  - Cool version of Bitshares that can do assets
  - No mining
  - Graphene is a fork of Bitshares which is a fork of Bitcoin
  - All code and instructions available in GitHub
  - As not graphical and basic C code
- Disaster 3
  - Bitshares re-forked Graphene back (OMG)
  - Graphene is abandoned. How did I miss that!
  - Bitshares requires again strange image to compile
  - Look at others like Ethereum (ETH) (requires Ubunto not Debian and newest version)
  - There are images for SD from various websites for Ethereum for Raspberry Pi
  - Not willing to run an image of SD card not from a known source and most appear to be for version 2 not version 3 so two to three years out-of-date

freeknowledgemission-list@meetup.com

- Write one
  - Found cool Python example!
  - Even has proof-of-work (mining)
  - https://medium.com/crypto-currently/lets-build-the-tiniest-blockchain-e70965a248b
  - Only works on Python 3.6.4 but have 3.6.2 (Apple) and much worse on Raspberian
  - Decide to write small example in Go language
- Disaster 4
  - Visual Studio Code appears to have issues with Go for Apple (works perfect on Windows)
  - Other editors are available but all seem to have issues (loaded three different ones)
  - Go just is a no-go for Linux based systems
- Surrender
  - Saturday morning 1AM

freeknowledgemission-list@meetup.com

Questions?