Turris MOX

Another Open Souce HW



Ondřej Filip • 17 Apr 2018 • RIPE-76 • Marseille



Project Turris

- Started 2013 project of shared cyber defence
- Security research, improve the situation of SOHO routers
- First two generations Turris 1.0 and Turris 1.1
 (2x1000) mainly in Czech Republic
- Later crowdfunding campaign Turris Omnia
- Presented at RIPE-68, RIPE-71 and RIPE-74
- Open Source SW and HW



Turris 1.0



Turris 1.1







Turris Omnia





Turris Omnia



- Open source SW & HW, powerful HW
- Turris OS (based on OpenWRT) automated updates and security fixes
- Secure configuration crypto chip
- Many security features honeypots, flow analysis, adaptive firewall, VPNs, ...
- Many other features IPv6, LXC, ...



Turris Omnia is great, but...



- Complex device many HW features
- Higher price
- Not all features required
- Not flexible for special projects



 New project – modular router – Turris MOX – and again crowdfunding



Turris MOX

- Modular design 4 (+3) boards "router like a sandwich"
- Multiple use router, AP, NAS, media converter, IoT GW,....





Turris MOX – first batch of boards











Turris MOX – CPU module

- CPU Marvell Armada 3720@1.2Ghz, dual core, Cortex-A53 ARMv8
- Memory: 512/1024 MB
- USB3, 2x eth (1x RJ45, 1x 2.5Gb bus), SDIO (WiFi), 1x PCIe - bus, microSD slot
- CPU module power consumption 2-3W
- Full 1Gbps through-put
- PoE ready



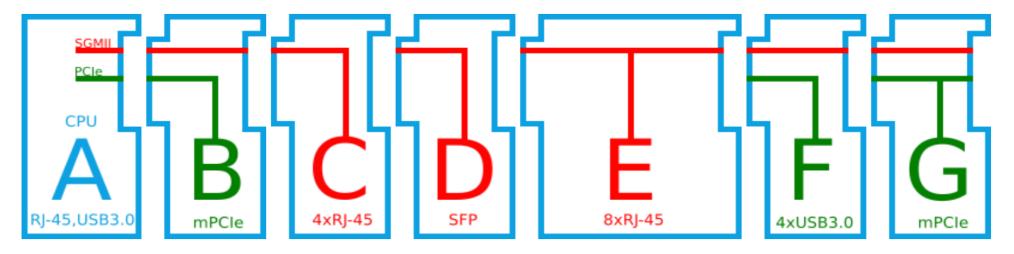
Turris MOX – later in the campaign

- Communication with supporters
 - 8x Ethernet module (double size) can be added multiple times, compatible with SPF and 4x Ethernet module
 - 4x USB3 module partnership with Nextcloud – easy RAID and Nextcloud setup
 - miniPCle pass-through compatible with simple miniPCle and 4xUSB
- MOX configurator
 - https://mox-configurator.turris.cz/

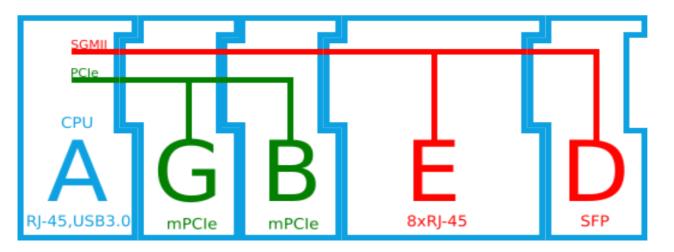


Turris MOX configurator

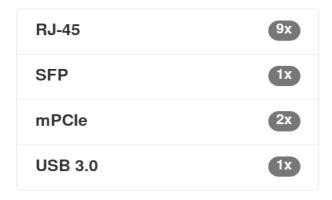
Modules



Result



Overview



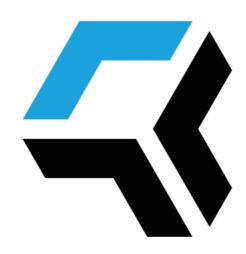


Software challenges

- Support of common linux distributions
- OpenWRT upstreaming modular configuration
 number of combination
- Secure setup LAN/WAN problem
- Diskless boot & slave APs



THANK YOU!



Ondřej Filip https://mox.turris.cz/en/



