INFORMATION SHEET

VPN server WireGuard
[VpnPi]

VPN Virtual Private Network Protocol is a set of instructions for creating safe and ciphered connection between an terminal and VPN server used for transmitting information.

WireGuard is a brand new interesting protocol with the potential of bringing about impressive changes in the industrial safety. Compared to existing VPN protocols such as OpenVPN and IPSec, WireGuard offers higher speed, security and reliability with state-of-the-art cryptography as well as improved encryption standards.

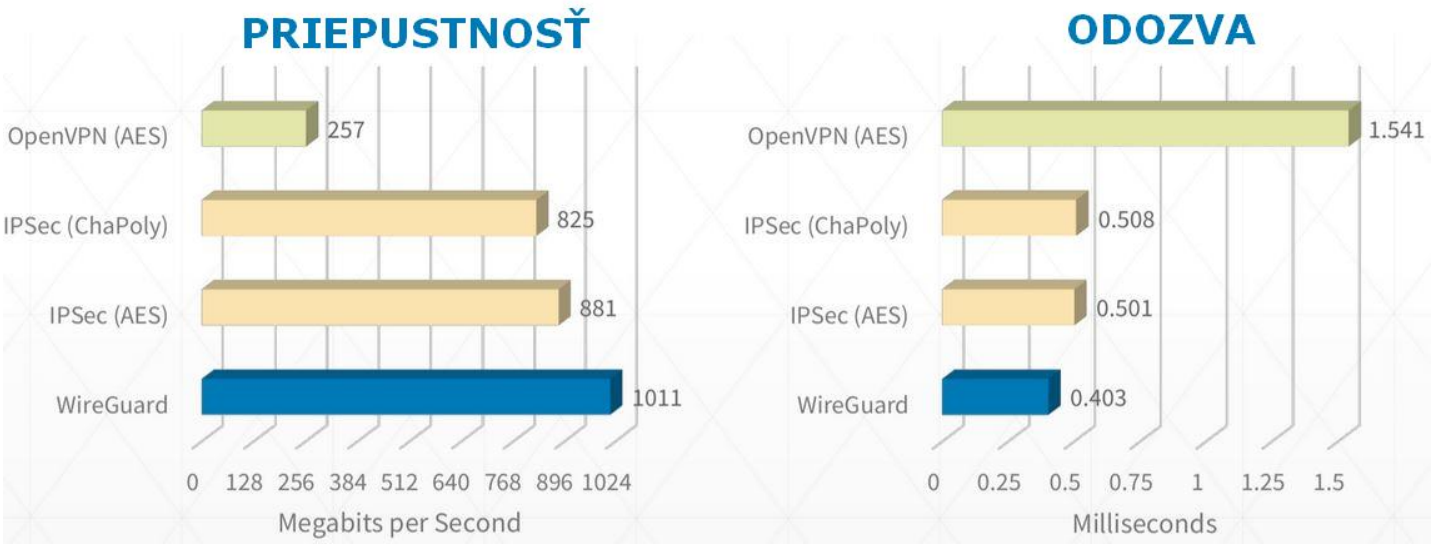
WireGuard technology provides:

Extended ciphering

- ChaCha20 for symmetric encryption verified by Poly1305 (RFC7539)
- Curve25519 pre ECDH
- BLAKE2s hashing (RFC7693)
- SipHash24 hashtable keys
- HKDF key derivation (RFC5869)

High efficiency because of:

- Brilliant permeability
- high reliability
- Optimization for battery-powered devices
- Roaming support
- Faster reach or renewal of the increase in speed and renewal of the connection



Graph comparing the performance of the known VPN protocols.

Application/useable on multiple platforms:

- Android
- Debian / Ubuntu
- FreeBSD
- iOS
- macOS
- NixOS
- OpenSUSE
- OpenWRT
- Red Hat / CentOS / Fedora
- Slackware
- Windows
- and others

Characteristics of the model VpnPi v1:

- Safe connection via efficient VPN technology WireGuard
  - unlimited number of users
  - definable profiles
- VPN state available via web page
  - monitoring of connected users
  - monitoring of transported data
  - real-time activity monitoring
- Automatic monitoring and cooling of the components
- Automatic backup of configuration files
- Monitoring the hardware with SNMP protocol
- Monitoring internal processes with autonomous repair
- Wireless hotspot for the purpose of tuning

Operating and indications of the model VpnPi v1:

- Smart switch
  - Turn-on – briefly pressing the microswitch
  - Power-off – briefly pressing the microswitch
- State LED
  - Green light signal indicates turn-on state of the device
    - constant lighting: the device is in normal operating regime
    - interrupted light flashing: there is an increased activity of the device
  - Yellow light signal indicates active use of VPN
- Configuration tools
  - script for the purpose of generating VPN users
  - script for the purpose of generating clientele profile/profile of a client
  - script for the purpose of reporting statistics of VPN connections

Hardware:

- Efficient SBC based on ARM platform is dedicated to running the VPN sensor
- Certified EPS switch-mode network power supply source
- Components tested within the frame of CE and FCC

ARM - Advanced RISC Machine
EPS - External power supply
SBC – Single board computer