

HIGHLY CUSTOMIZED SECURE HOME NETWORK WITH TCR100

SUMMARY

Cyber-attacks on networks continue to grow over the years as developers rush to fix any vulnerabilities that might compromise security. This includes not only company-level IoT setups but also household networks. There are increasingly more safety risks as time goes on. New malware is being developed and new devices provide more loopholes that malicious parties can exploit. Even our phones aren't safe, as mobile malware is becoming one of the leading sources of data breaches.

CHALLENGE

Securing a home network is essential for everyone accessing the internet. Users must make sure that their network is safe from the internet's side and any device that might try to access it locally. The network owner must be in control of any incoming and outgoing traffic.

As any new device that is already infected can spread the malware further, users need an option to partition and separate the home network to increase its security. Enthusiasts might want to take one step further and set custom permission concerning who can access each device or content within that network. This leads them to look for hardware featuring such functionality.

Furthermore, enthusiasts generally do not tolerate any downtime for their network. Despite having high speed wired network, they usually opt to use an LTE connection as a failover option. Usually, consumer routers do not have LTE connectivity or have low cellular speeds.

SOLUTION

Most enthusiasts have more technical know-how than run-off-the-mill users and like to have more complex setups in their homes. They know the possible risks that unauthorized and untrustworthy devices connecting to a network might bring and, because of that, perform various Network Hardening actions.

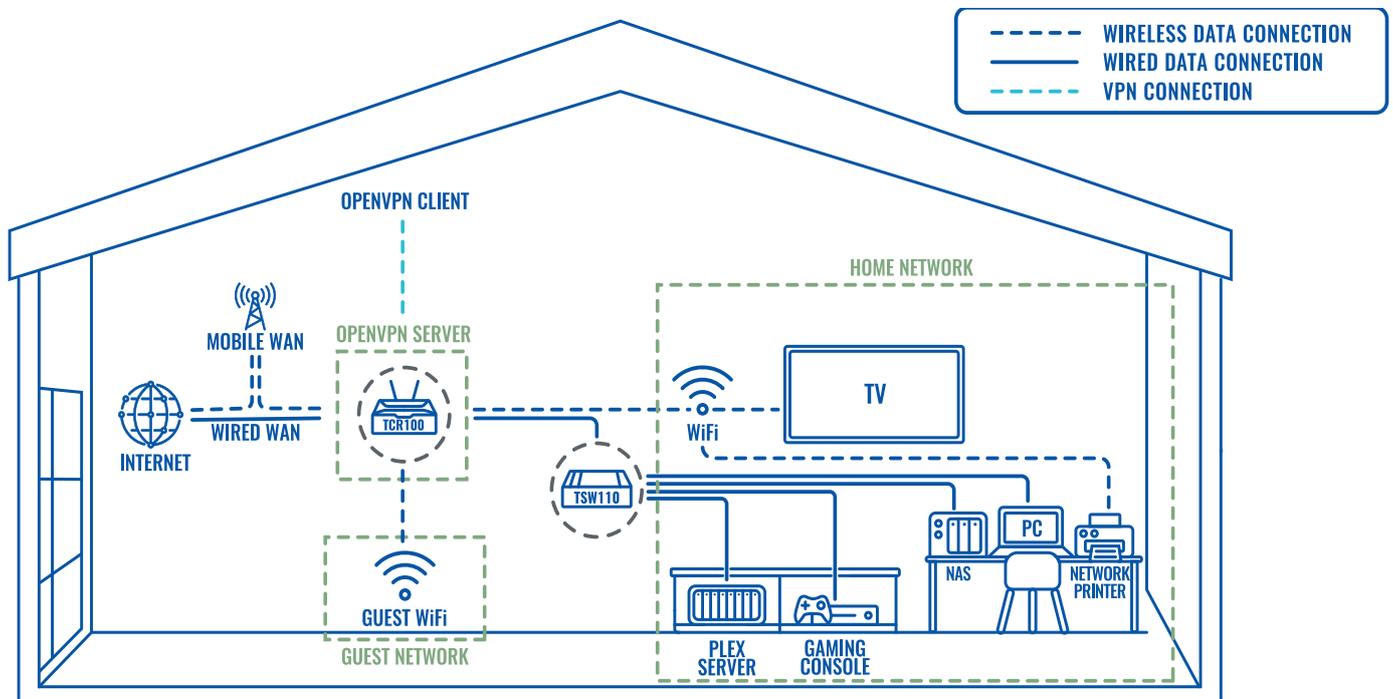
In this use case, we feature our latest product – the TCR100 cellular home router. It allows connecting to the internet with a wired connection and mobile WAN. Furthermore, with a Dynamic DNS service including more than 70 provider configuration templates, users can easily configure a custom domain and ensure that they can still reach their home network after a failover or a change of dynamic IP address.

Here we can see a closed-off guest Wi-Fi network, where connected devices will be separate from the home network. On top of that, clients will not see each other. Such separation ensures that no one from the outside has any access to hardware and even if a device infected by malware will not infect the network.

Next, we have an OpenVPN server that allows reaching the home network while being away. The goal here is to ensure the home network safety, as port forwarding creates vulnerabilities in the Firewall. However, when using OpenVPN, it runs a single server that users can reach only with the proper client configuration and certification to access it from the internet's side. This way, the owner of the VPN can have strict control over the network reach.

Lastly, we have the home network, where with the help of the TSW110 unmanaged switch, we have connected a PLEX server, gaming console, NAS (Network Attached Storage) and PC, making use of the five available LAN ports. The TV and network printer are connected wirelessly within the same network. This setup allows full control on who can access each device and set custom permissions while being closed off to unwanted devices trying to connect to the network. Users can even control which network component can interact with another, making sure that one infected device will not spread the malware.

TOPOLOGY



BENEFITS

- TCR100 supports multiple VPN protocols, allowing the creation of a safe tunnel to and from their home network.
- With DDNS, users can set a static domain name instead of a dynamic IP that might change after a failover.
- Firewall enables creating exceptions on who can access specific networks, websites and which ports can be used by different devices.
- Right out of the box, TCR100 supports many different VPN protocols, allowing users to choose which one they want to use.

WHY TELTONIKA NETWORKS?

Teltonika Networks has many years of experience with industrial IoT solutions where customization and security are crucial elements. Today, we have used what we learned to present a home router that offers safety and flexibility, rivaling industrial products. We strive to provide only the best quality to all of our customers!

