"FireX" – A Low Cost Raspberry Pi Based Open-Source Firewall Appliance for Sri Lanka Post

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Abstract

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Recent statistics on data breach shows millions of data get stolen or lost every year and larger organizations are moving in to complex IT security solutions to protect their data from the intruders. However, organizations with limited financial capabilities remain unprotected to lack of available funds to invest on decent IT security solution for their organization. Department of Posts Sri Lanka (Sri Lanka POST) is also in a situation where seeking a low cost IT security firewall solution to protect their post offices located around the country. The open source firewall solutions are the most popular world-wide methodology for used to empower the overall security of a medium scale home and office computing network as well as large scale cooperate networks without spending a large amount of funds. Open Source Firewall Controls embedded to a hardware device provides more centralized approach for IT Engineers when managing a network. Furthermore, most of other Government Organizations in Sri Lanka faces the same issues when protecting their cooperate network infrastructure due to financial capabilities. As a solution, The Researcher designed an open source low cost embedded hardware device to act as a corporate firewall where the device can govern the network access while catering the business requirements whereas protecting the IT assets from the intruders. The designed firewall solution is based on multiple open source packages which can run on a raspberry pi model 3b+ single-board computer (SBC). The open source firewall package 'IPFire' was used to act as the firewalling module for this project. At the end of this research project the Researcher is planning to locate on post offices around Sri Lanka.

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