

## **Estonian Computer Science Theory Days**

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At the theory-days in Rogosi, I presented my work entitled: "The future of Cyber Security Exercises: more than just education?"

In this talk I discussed how the Internet has become part of our critical communication infrastructure and has revolutionised the lives of many people. However, security in cyberspace is still an underdeveloped field. This is partially due to the fact that the Internet was developed without a clear security concept in mind and also partially due to the fact that it's lucrative now for criminals to find security holes. Overall, cyber security is a critical skill for everyone using the Internet.

I started this talk by suggesting a methodology to improve cyber security training courses. Practical hands-on training courses have proven very valuable in teaching basic concepts, but it's hard to setup and prepare high-quality courses. Among the problems is that each lab needs a realistic environment, configured with a magnitude of services and consisting of complex network technology. To recognise the true value of such labs, we need to reduce the complexity of building, configuring, deploying and monitoring those emulated networks.

I then continued to argue that this can be achieved by translation from a high-level network design into a concrete set of router and service configurations that automatically deploy onto several emulation platforms. I have then shown that such a system is not only be beneficial for teaching cyber security, but can also be used as a large-scale security evaluation platform that studies novel technology in the context of a realistic network environment. Finally, I concluded by outlining how such a high-level configuration framework may change how networks are configured in the future and thus lead towards an Internet design that has a security concept in mind.