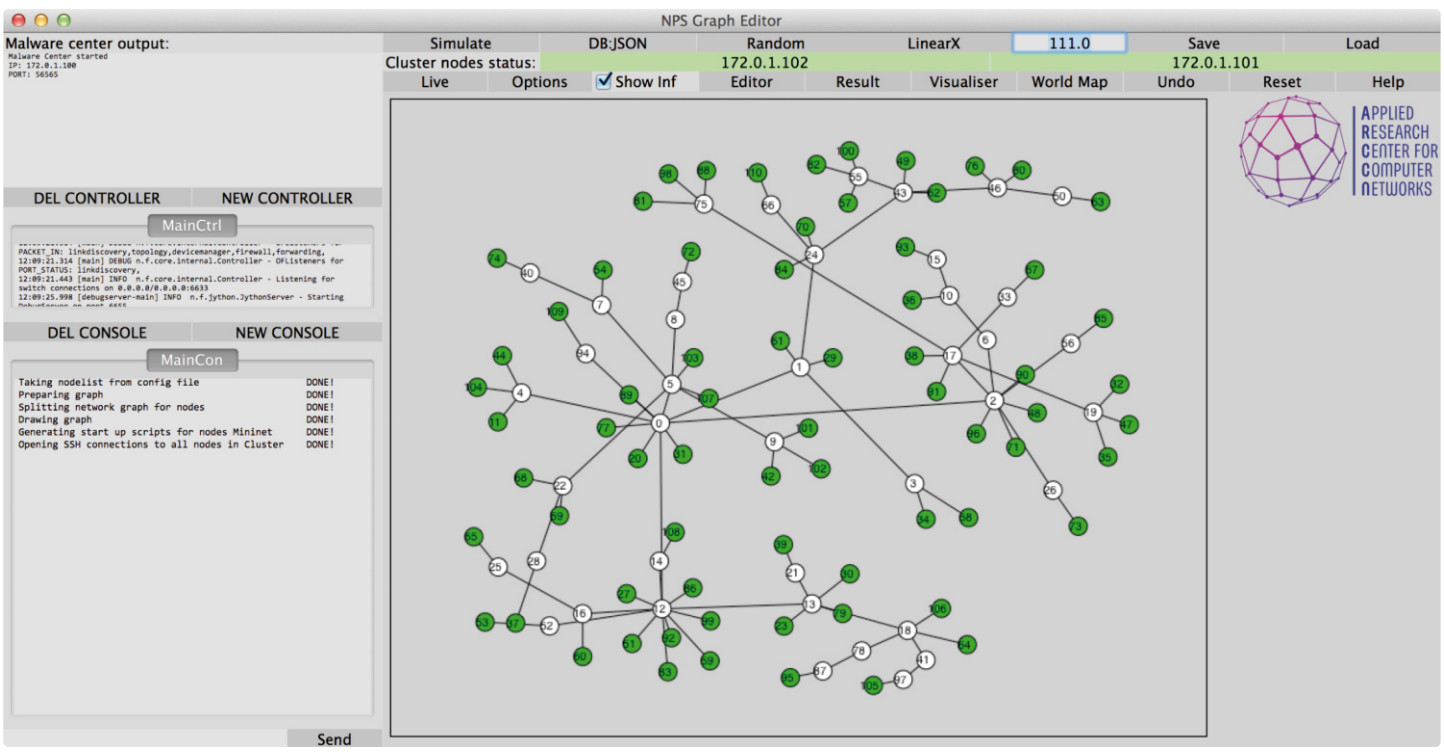
Network Prototype Simulator (NPS)

The NPS system is intended for large scale network operation analysis, network forwarding protocols developing and network control application (e.g. the SDN controller applications) developing, to gain sandbox for complex experiments. The NPS system is scalable solution to perform a simulation experiment with network from tens of thousands hosts. It is the great alternative between network emulators and the network analytic models.



NPS Key Features

- With NPS it is no needs to prove correctness of network simulation model, because the model is actually prototype of the simulated network.
- The NPS runs on distributed computer environment (e.g. servers cluster) that provides resources for large-scale network simulation. As any distributed system the NPS has to provide the time synchronization between cluster servers that helps to prevent errors during network simulation.
- The rapid and flexiable deployment of network prototypes (as traditional as SDN network architectures).
- The ability to analyze network performance (for example, maximum throughput, average delay/loss level).
- The ability to test and debug new forwarding network protocols.
- The ability to analyze malware propagation in network.
- The ability to test SDN controller applications.

NPS advantages

- NPS is based on OS Linux lightweight virtualization containers (LXC) technics.
- NPS GUI greatly accelerates the process of creating models, and visualizing the simulation results.
- NPS NSC (Network Service Configuration framework) allows to automatize network services (ex. FTP, DHCP, SSH, SMTP) configuration and laun ching in complex experiments.
- NPS is the scalable system, which allows deploying the network model on multiple machines (cluster architecture).
- NPS is a multiplatform software (can be launched on Mac and Linux OSes)

Applied Research Center for Computer Networks (ARCCN) - is a research project for the development of technologies and products for next-generation computer networks in Russia. ARCCN was established in February 2012.

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