Netml is a cloud based analysis, design and simulation tool developed at USQ and City University of Hong Kong [1]. Its objective enables students to create networks easily, and to understand multi-layer networks.
Ns3 [2] includes simulation and emulation. It can interface to real or virtual hardware. The Gns3 system makes uses ns3 virtualised routers [3].
The Click modular router [4] can be used to implement or simulate a router. The Click design principle is that modules are specified as packet transformations. The ns3 system does not include its own native model of routers or router protocols, but instead has the capacity to model routers using the Click modular router system [4], or to use other router implementations, including commercial software. Simulation of routers in ns3 can be done very effectively with Click [5].
IPTables [6]. is an industry standard firewall system. An IPTables firewall can be graphically specified in Netml and will be simulated by means of Click. It is much easier to specify a firewall this way than directly by using a Click script.
Each *rule* in an IP chain can be easily specified. This avoids the need for users to specify their own Click scripts.
Traffic is a well established concept in scientific literature, but not in the networking community. The netml user-interface makes traffic very expressive. Traffic can also be randomly generated, modified by transformations, and graphically visualised and edited.
It is very easy to generate complex plots which display a collection of the internal details of the operation of a network, like throughput, loss, congestion windows, as they evolve over time. Everything which can be traced can easily be plotted.
The combination of ns3, netml, and Click makes it much easier for newcomers to networking to understand, and makes it much easier for old hands to undertake complex experiments and generate the results that are needed to explore ideas about how to design better networks.


[4] Eddie Kohler, 
*The Click Modular Router*, 

[5] Lalith Suresh P. and Ruben Merz, 
“Ns-3-click: Click modular router integration for ns-3,” 
in *Wns3*, 2011.

[6] Oskar Andreasson, 
“Iptables Tutorial,” 