

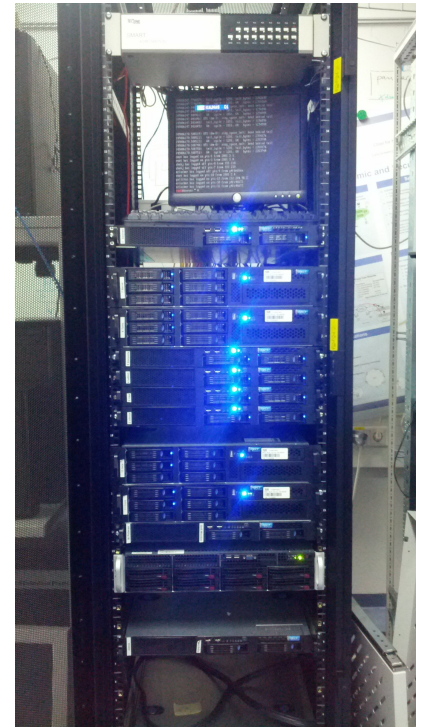
Developing a Virtualized Measurement Testbed

Motivation

The baltikum testbed is a state of the art testbed used for performance measurements of packet processing systems. It consists of a dozen servers equipped with different network cards up to 40 Gbit/s from different vendors. We use the testbed to perform reproducible black and white-box measurements. The workflow is to define the network experiment on a dedicated management server. This server in turn boots and configures the test servers according to the experiment specification. The hosts then run the experiment and upload all data back to the management server.

To simplify this workflow, we implemented a framework that allows us to manage the experiment servers, called the plain orchestrating service (pos). It provides an easy to use command line interface and python library, interacting with the webserver orchestrating the test nodes. Implementing new features for pos is difficult as changing the running system can negatively impact running experiments.

The goal of this thesis is to build a fully virtualized version of the testbed for development purposes. The testbed controller uses a standardized server administration interface called IPMI. The virtualized testbed should replace real machines with VMs using the IPMI interface. Therefore a virtualized IPMI interface is available [1]. In addition, separate instances of pos have to be used for each virtualized testbed.



References

- [1] <https://github.com/openstack/virtualbmc>

Your Task

- Create virtual machines bootable via IPMI
- Integrate virtual machines with pos
- Create separated instances of pos

Contact

Sebastian Gallenmüller gallenmu@net.in.tum.de
Dominik Scholz scholz@net.in.tum.de

