

# Initial experiments with OpenFlow approach

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[http://www.ifmo.ru/faculty/19/fak\\_19.htm](http://www.ifmo.ru/faculty/19/fak_19.htm)

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# Where our team from

- The University (St. Petersburg National Research University of Information Technologies, Mechanics, and Optics - <http://en.ifmo.ru/>) is one of the largest technological Universities in Russia (around 20 thousands students).
- Our team (part of the group **Telecommunications** at the **Department of Infocommunication Technologies** of the **University** consists of around 10 persons (scientists, experts, graduated students, other helpers).



# Our aim on OpenFlow

- First of all we are studying what might be, from practical point of view, the role of OpenFlow approach in large data storage systems .
- What is a real readiness of the approach to use it in a production environment in middle range and large data centers ?

## Initial testbed

- We have started with several network switches of type HP-3500-24G-PoE yl  
The switches do support limited set of features of OpenFlow 1.0.
- Our testbed setup includes storage HP P4300 G2 and server DL380p Gen8
- First several tests (almost on the fly reconfiguration) have shown us potential advantages and limitations of currently available hardware switches.

# OpenFlow software consideration

- Several available packages were used:
  - Controller NOX with OpenFlow 1.2 support CPqD nox12oflib + our application (pls see <https://github.com/itmo-infocom/nox12oflib/tree/master/src/nox/coreapps/switchqos>)
  - OpenFlow switch CPqD of12softswitch with a number of our corrections (pls see <https://github.com/itmo-infocom/of12softswitch>)
  - Framework MiniNet
  - Also a range of visualization and measurement tools
- From the start we have found out that there were many software componenets which were not 100% compatible with each other
  - Partly due to difference of operating platforms (RH, Ubuntu, etc)

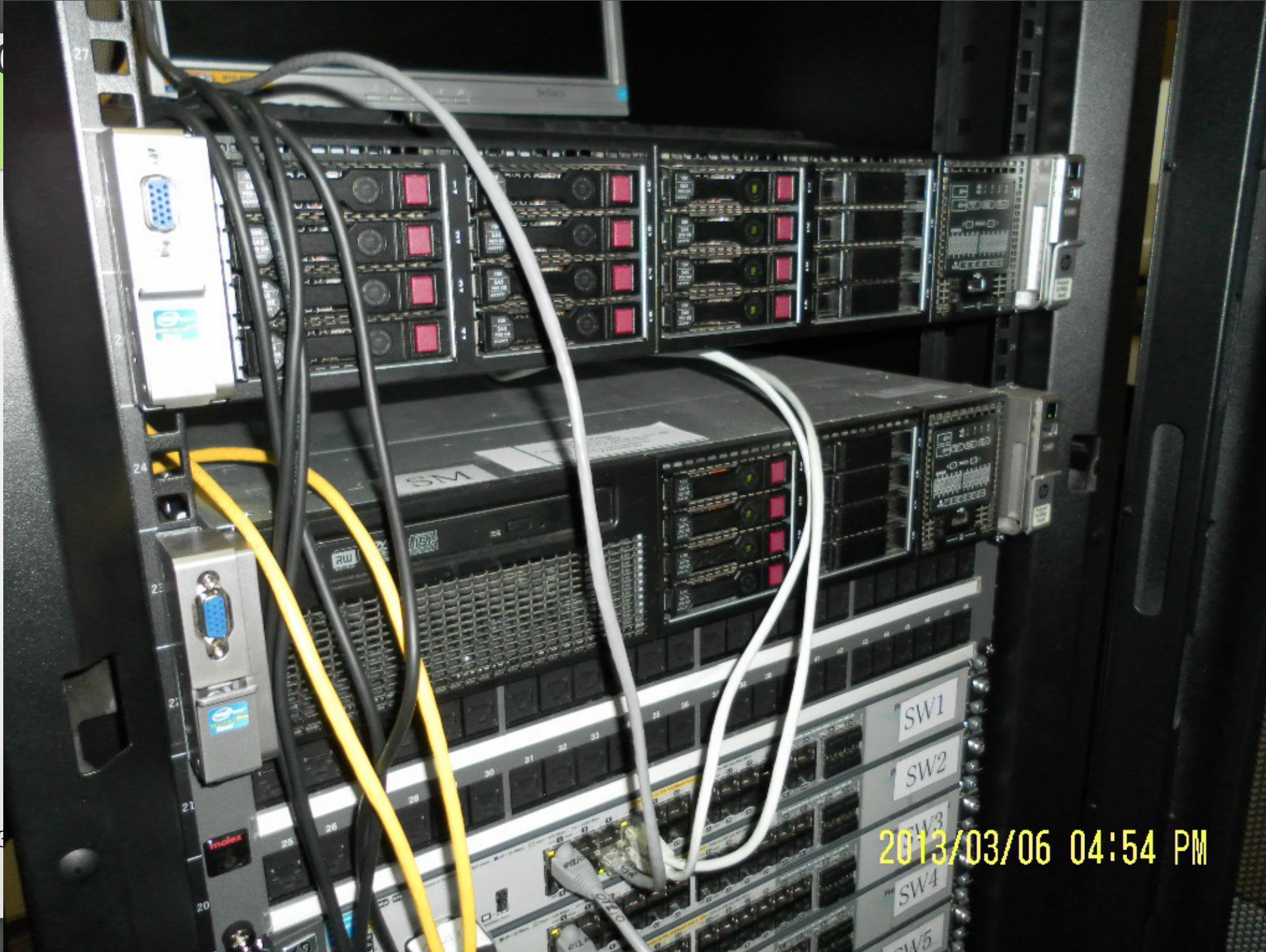
# Operating architecture

- Several OS platforms are in use now:
  - NauLinux (clone of Scientific Linux Cyrillic Edition) and Ubuntu
- A number of virtual machines were created to be used as network traffic generators and traffic receivers:
  - One type of tests is completely virtual (no real hardware switches were involved, only software switches)
  - Second type of tests include real hardware switches

# Consideration of the tests

- Two main aims are addressed in our tests:
  - how to use OpenFlow toolkit to implement QoS in our test network;
  - dynamic reconfiguration of test network with OpenFlow toolkit;
- We keep in mind our nearest plan to use obtained experience in data center environment.

Photo



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# Nearest plans

- To test other hardware switches with the features of OpenFlow inside our testbed
- To test the OpenFlow approach in the production environment.

# Questions ?