# Software Defined
# Network Address Translator

by Denis Plotnikov

# What is a Network Address Translator (NAT)?

- Component of data networking equipment
- Standard and integral equipment for Internet Service Provider (ISP) data networks
- If high performance is needed – a specially designed device is used **which costs a lot**

# A typical high-performance NAT device looks like this

# The problem

## A high-performance NAT costs a lot:

### Around $6000 per 10G packet per second at minimum

# How can we make it cheaper?

A cheap regular server

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Our software package

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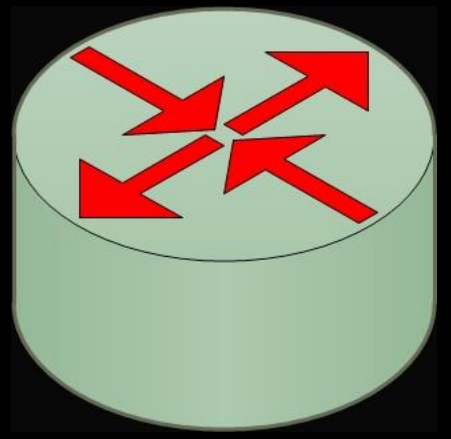
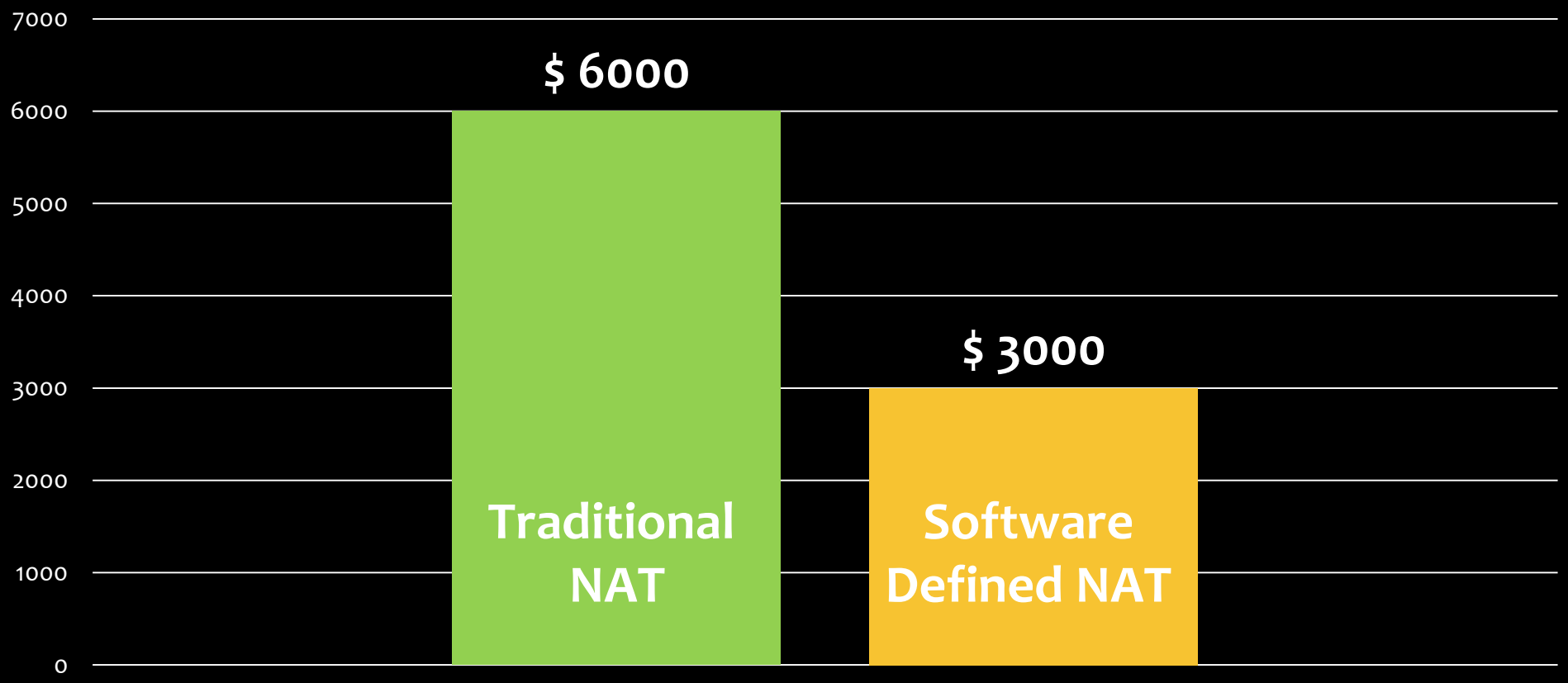


Software Defined NAT

# Which will look like this

…and will cost
around $1800

# Market Price Comparison



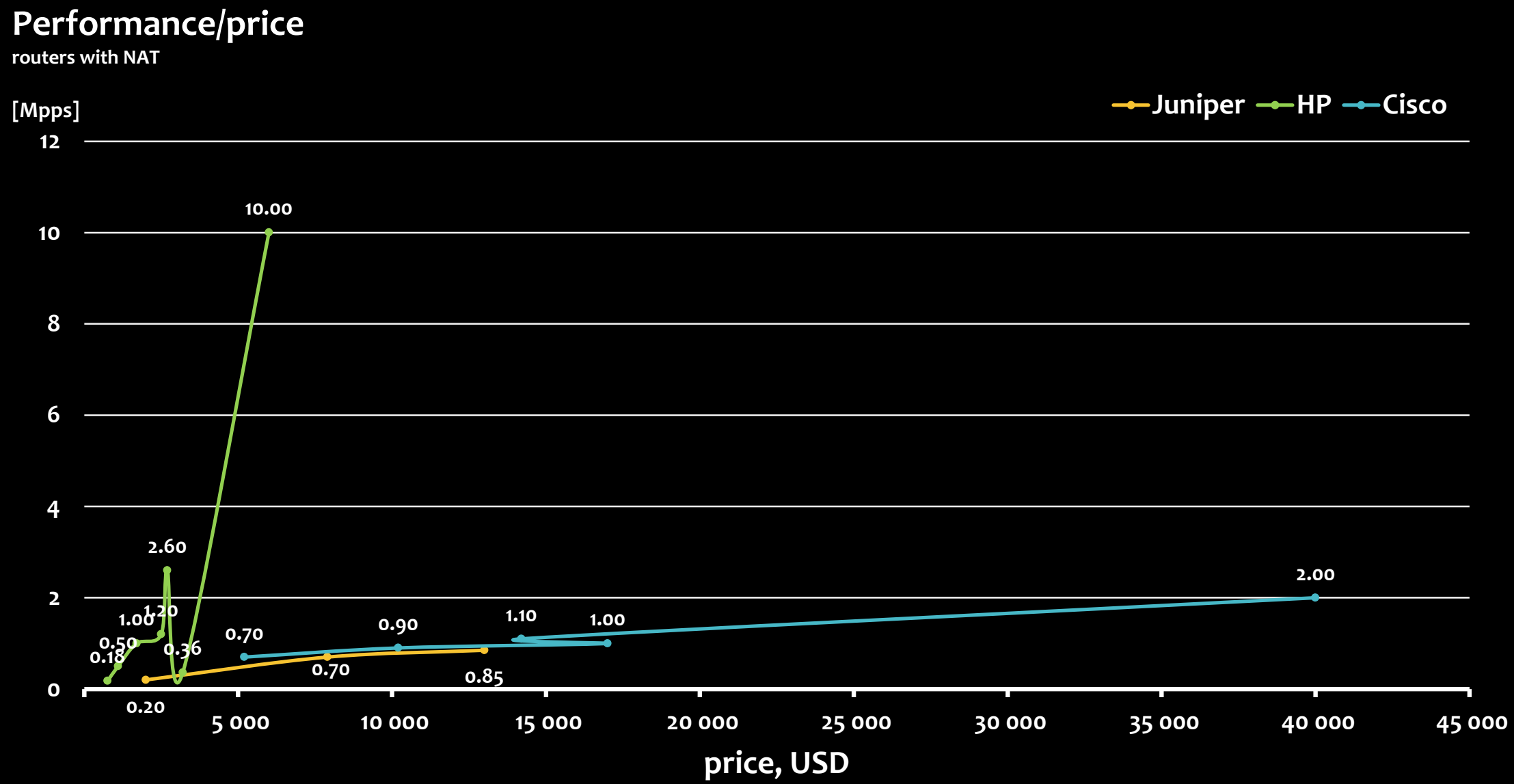

Our Software Defined NAT costs 50% less than a traditional NAT

# Benefits of using a Software Defined NAT?

- Costs 50% less than a traditional NAT, but has the same performance characteristics
- Easily upgradable
- Easily maintainable
- More performance on upcoming processors

# THANK YOU!

# Traditional NAT prices



# Software Defined NAT Target Characteristics

- Throughput: 10G bits per sec
- Packet processing rate: 10M packets per sec
- Connection setup rate: 3M sessions per sec
- Concurrent session support: 65.5M sessions

# What makes our software work so fast?

- High-performance software design principles
- Specially designed for fast processing of packet data
- Parallel computations
- Intel© DPDK framework

# Software Defined NAT cost estimation

| Component name | Model | Price, $ |
|---|---|---|
| Processor | Intel Core i5-4690 | 220 |
| RAM Modules | SiliconPower SP016GXLYU16ANDA x2 | 320 |
| Motherboard | SuperMicro X10SLL-S (Intel C222) | 200 |
| Hard Disk | Intel DC S3610 | 275 |
| Network Interface Card | Lenovo 10Gb X540-T2 | 600 |
| System Unit | SuperMicro CSE-732D2-500B | 200 |

**TOTAL: $1815**

# Development Team

**Denis Plotnikov** – a Skoltech student

under the supervision of two Intel© professionals:

**Vadim Sukhomlinov** – Strategic Business Development Manager

**Areg Melik-Adamyan** – PhD, GNU Toolchain Manager