Визуализация логов. Наука видеть иначе

О себе

Вячеслав Смирнов

Эксперт по тестированию

Занимаюсь тестированием производительности, автоматизацией тестирования, DevOps-практиками

Читаю почту:

Vyacheslav.A.SMIRNOV@raiffeisen.ru

Публикую код:

https://github.com/polarnik/

В этой презентации …

LOG

BASH
THE BOURNE-AGAIN SHELL

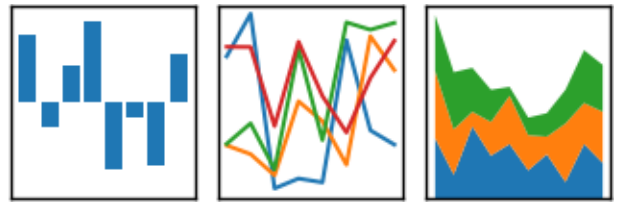
AWK
Aho, Winberger, Kernigman

influxdb

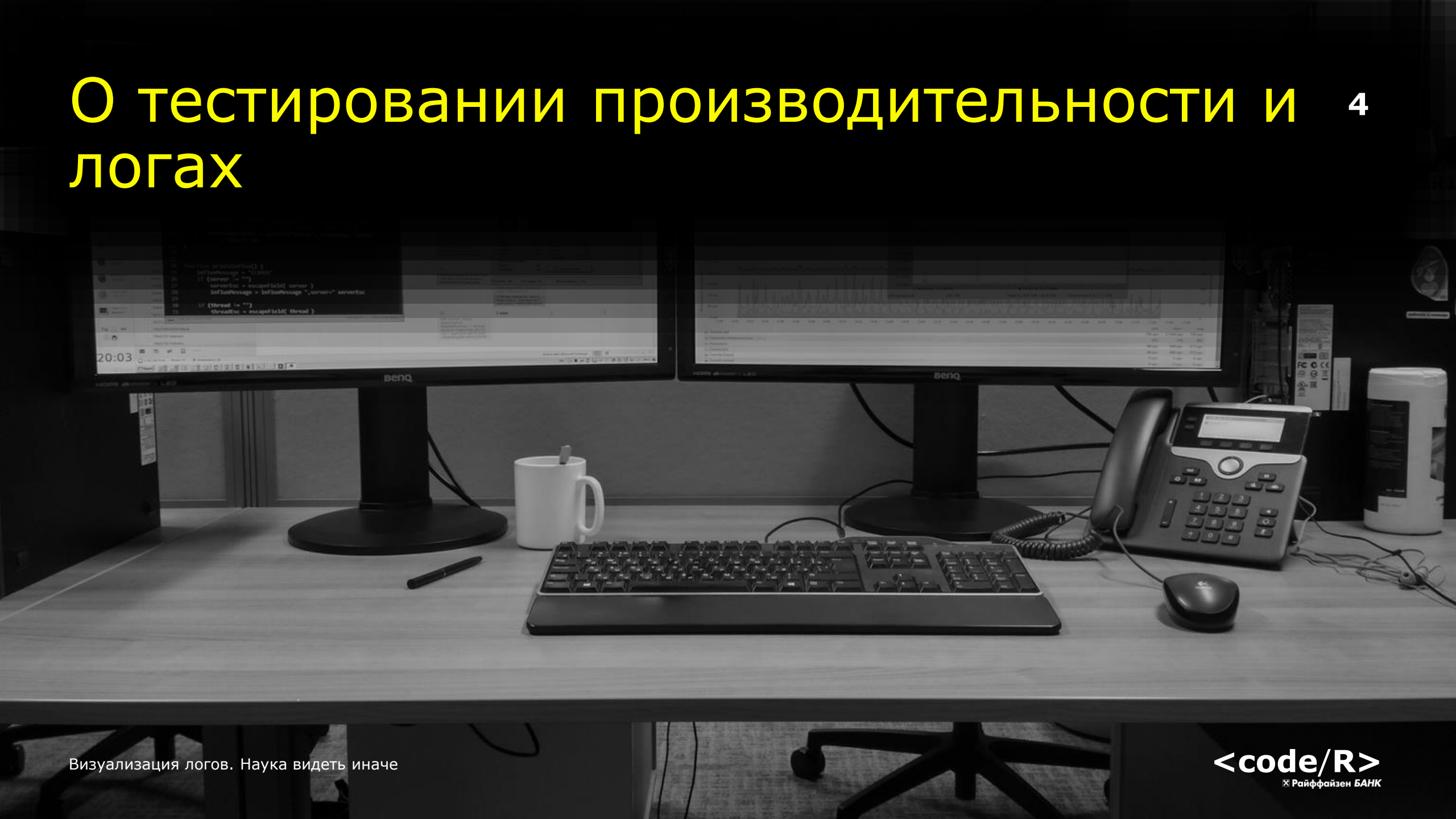
Grafana

pandas

$$y_{it} = \beta' x_{it} + \mu_i + \epsilon_{it}$$



О тестировании производительности и логах



Процесс тестирования

Процесс тестирования

Confluence

Процесс тестирования

Confluence

pandas

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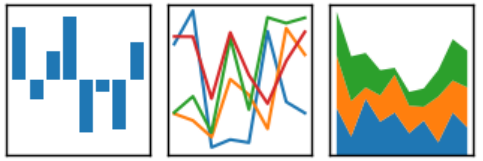
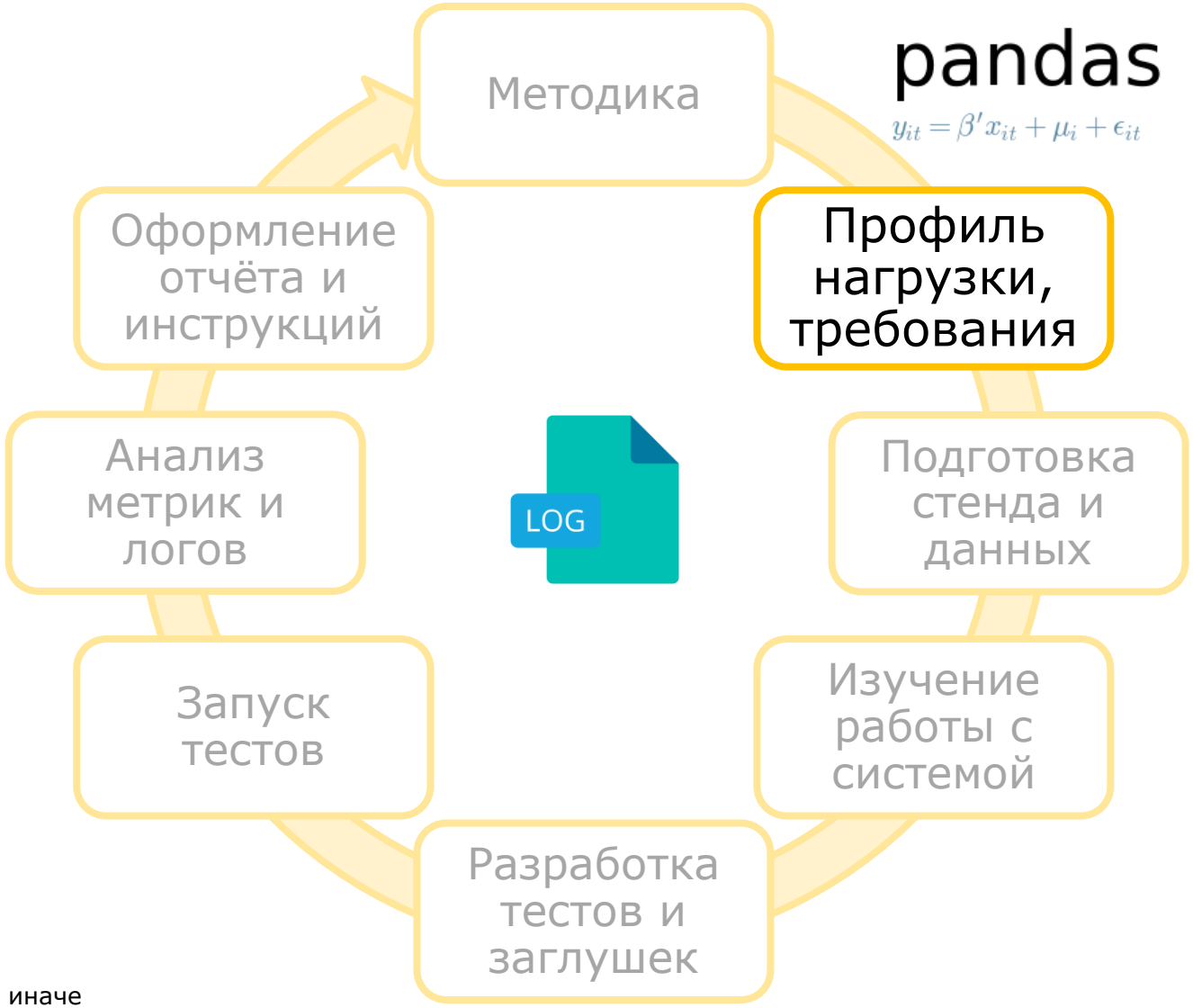
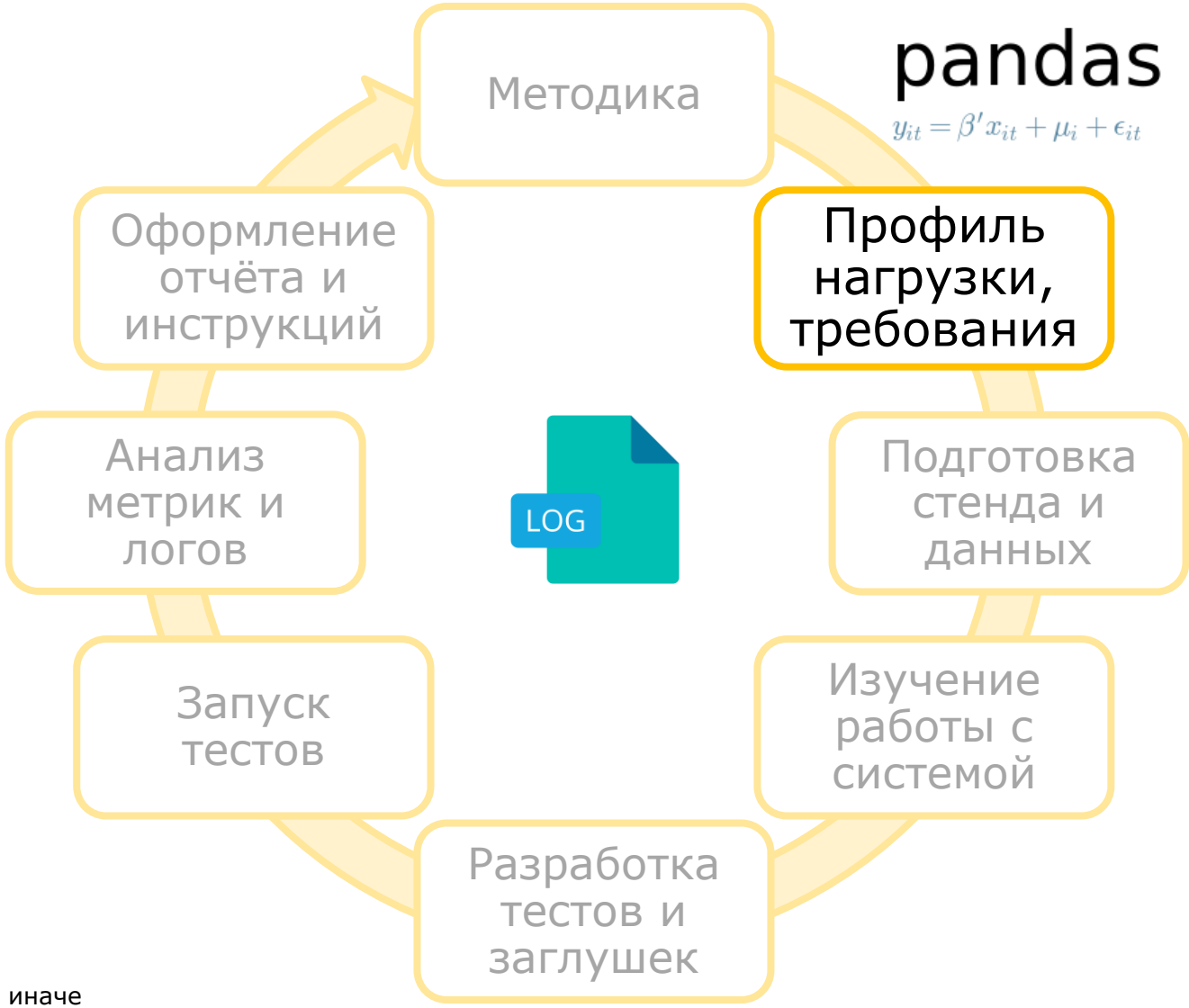




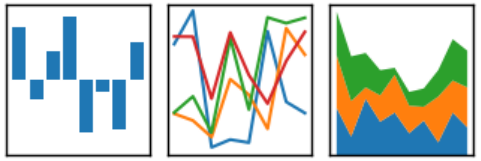
Процесс тестирования

Confluence



pandas

$$y_{it} = \beta' x_{it} + \mu_i + \epsilon_{it}$$



BASH
THE BOURNE-AGAIN SHELL

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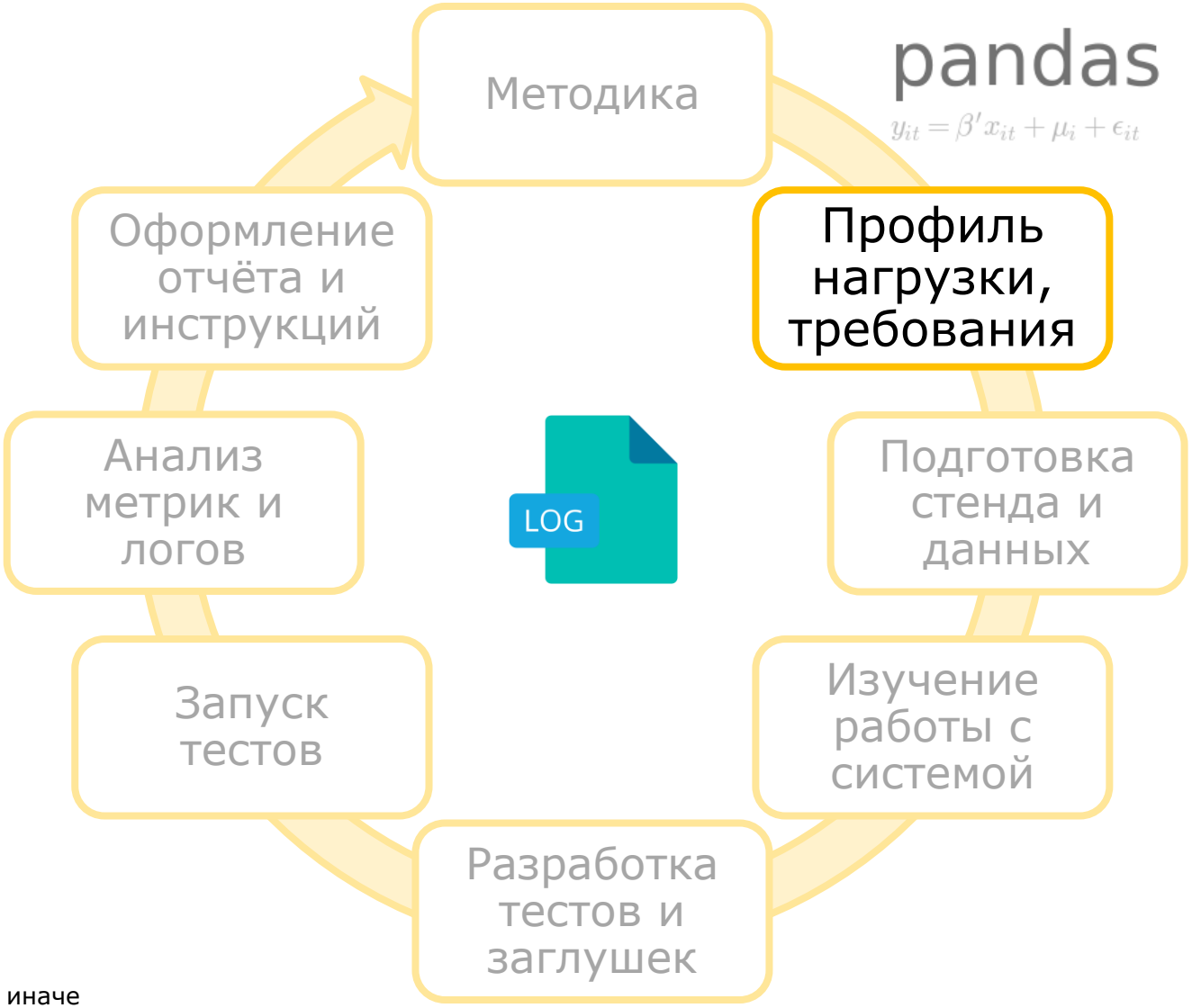
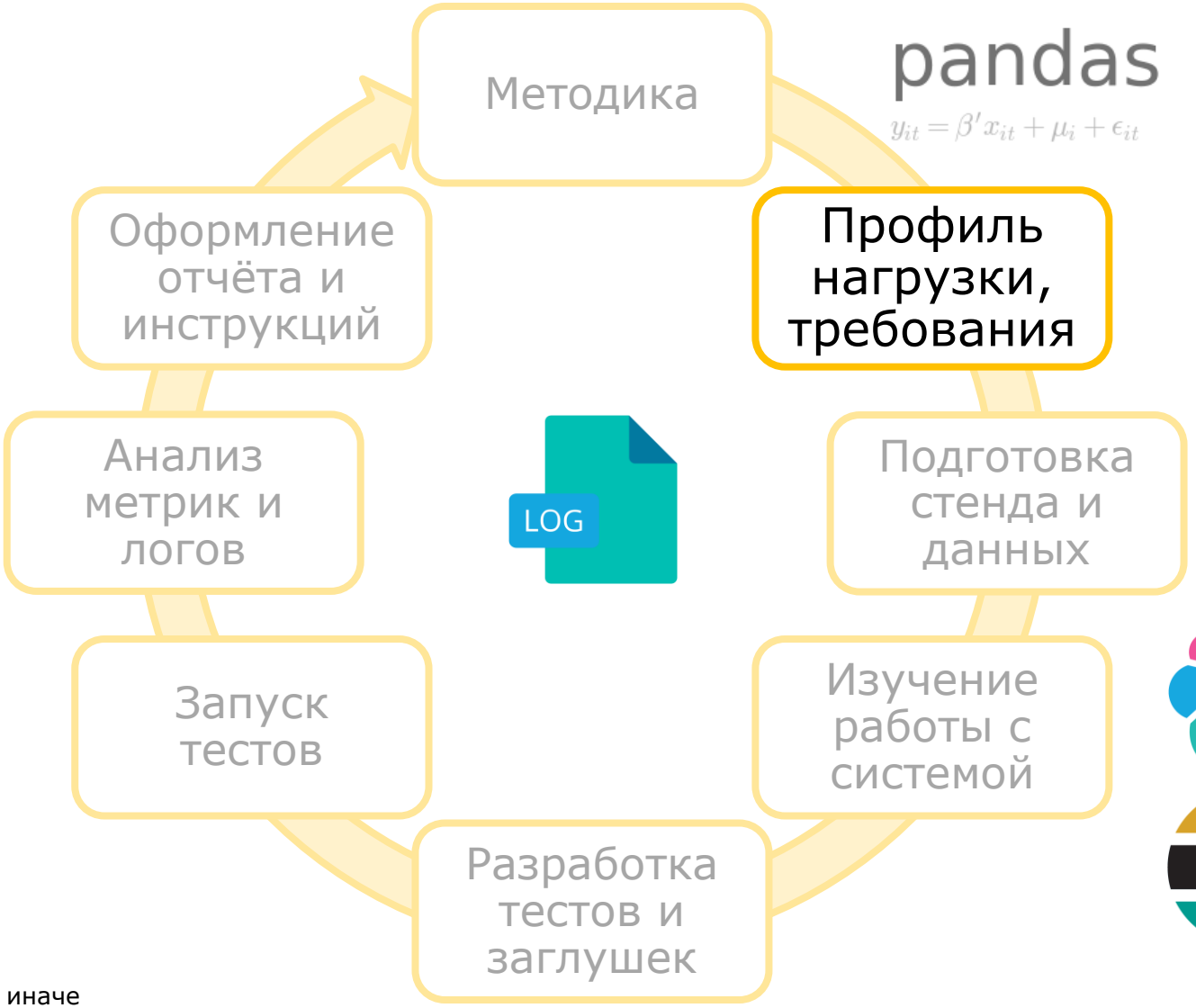
Aho, Winberger, Kernigman

Процесс тестирования



Процесс тестирования



Confluence

pandas

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BASH
THE BOURNE-AGAIN SHELL

AWK
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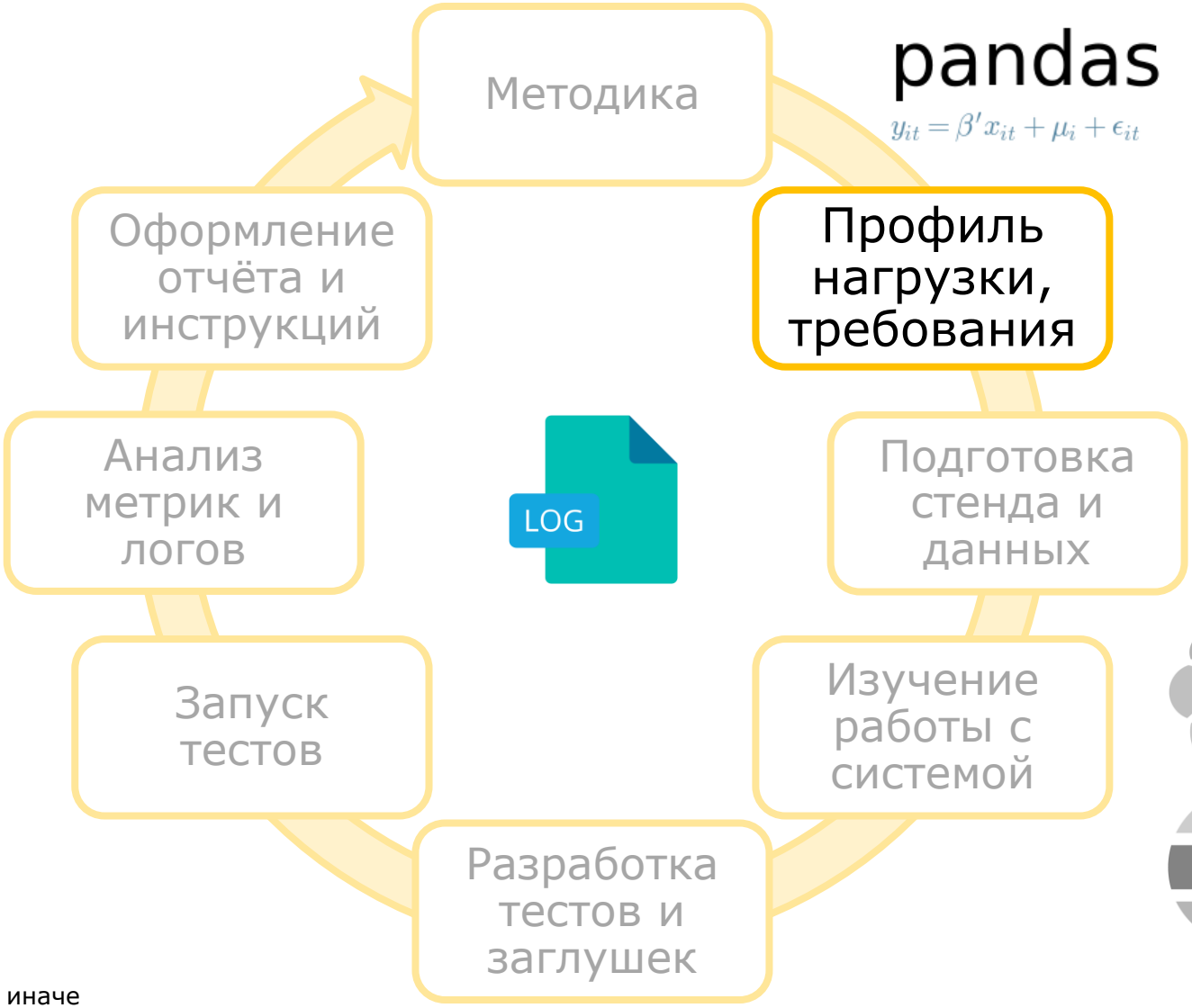
SQL

elastic

Процесс тестирования



Confluence

pandas

$y_{it} = \beta' x_{it} + \mu_i + \epsilon_{it}$

BASH
THE BOURNE-AGAIN SHELL

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Процесс тестирования

Confluence

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$y_{it} = \beta' x_{it} + \mu_i + \epsilon_{it}$

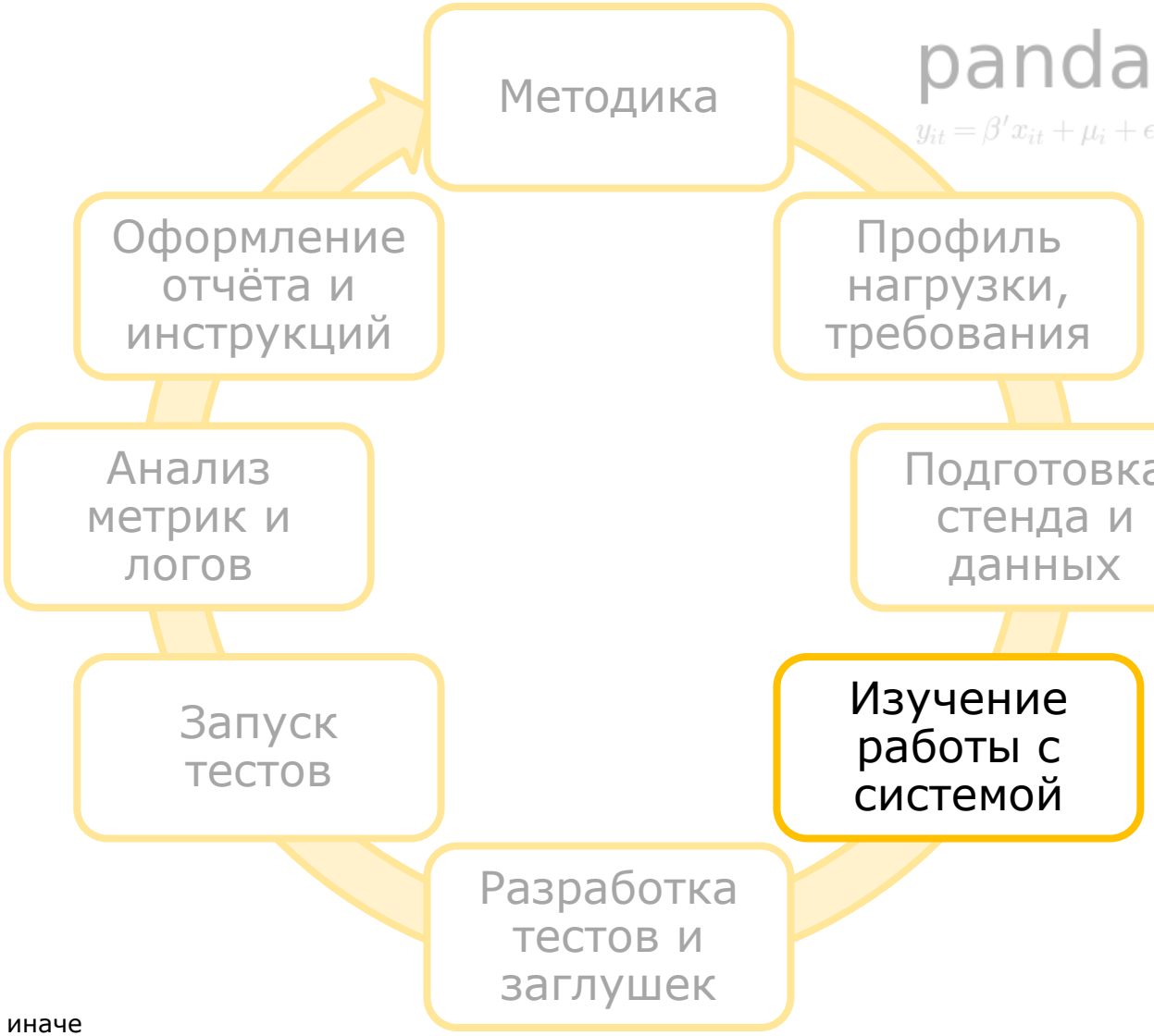
BASH
THE BOURNE-AGAIN SHELL

AWK
Aho, Winberger, Kernigman

ANSIBLE

SQL

Процесс тестирования



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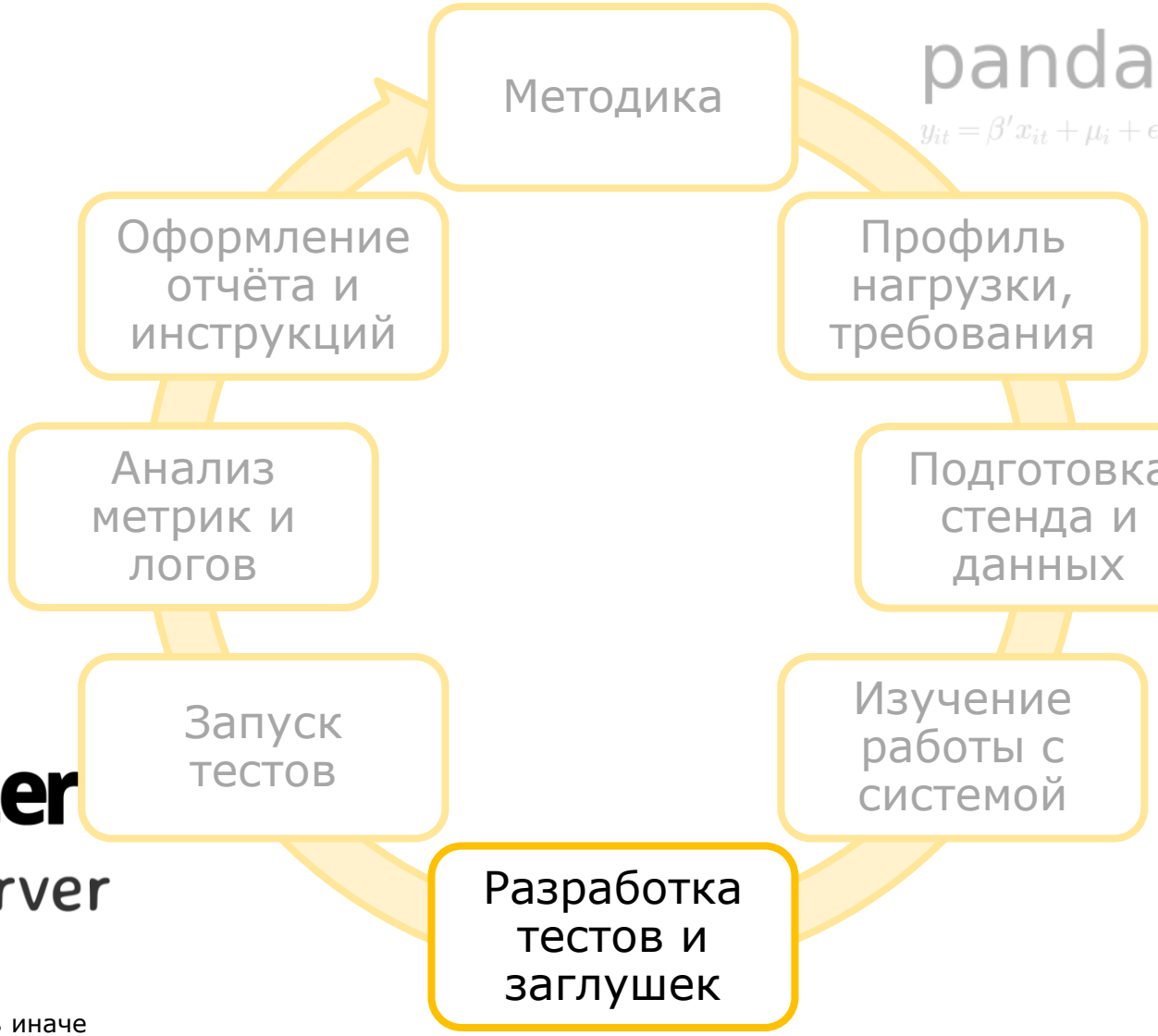

Процесс тестирования

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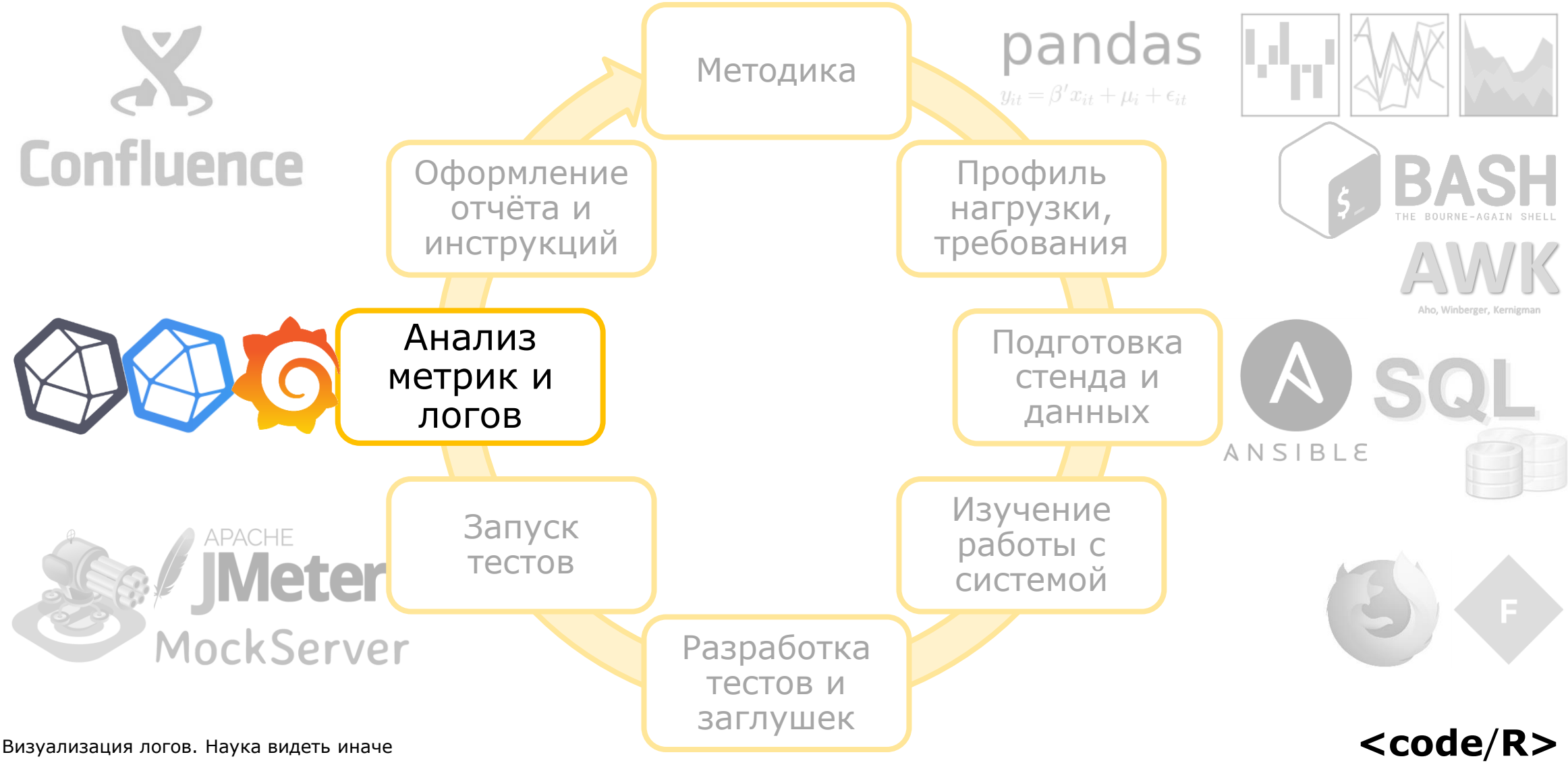

Процесс тестирования

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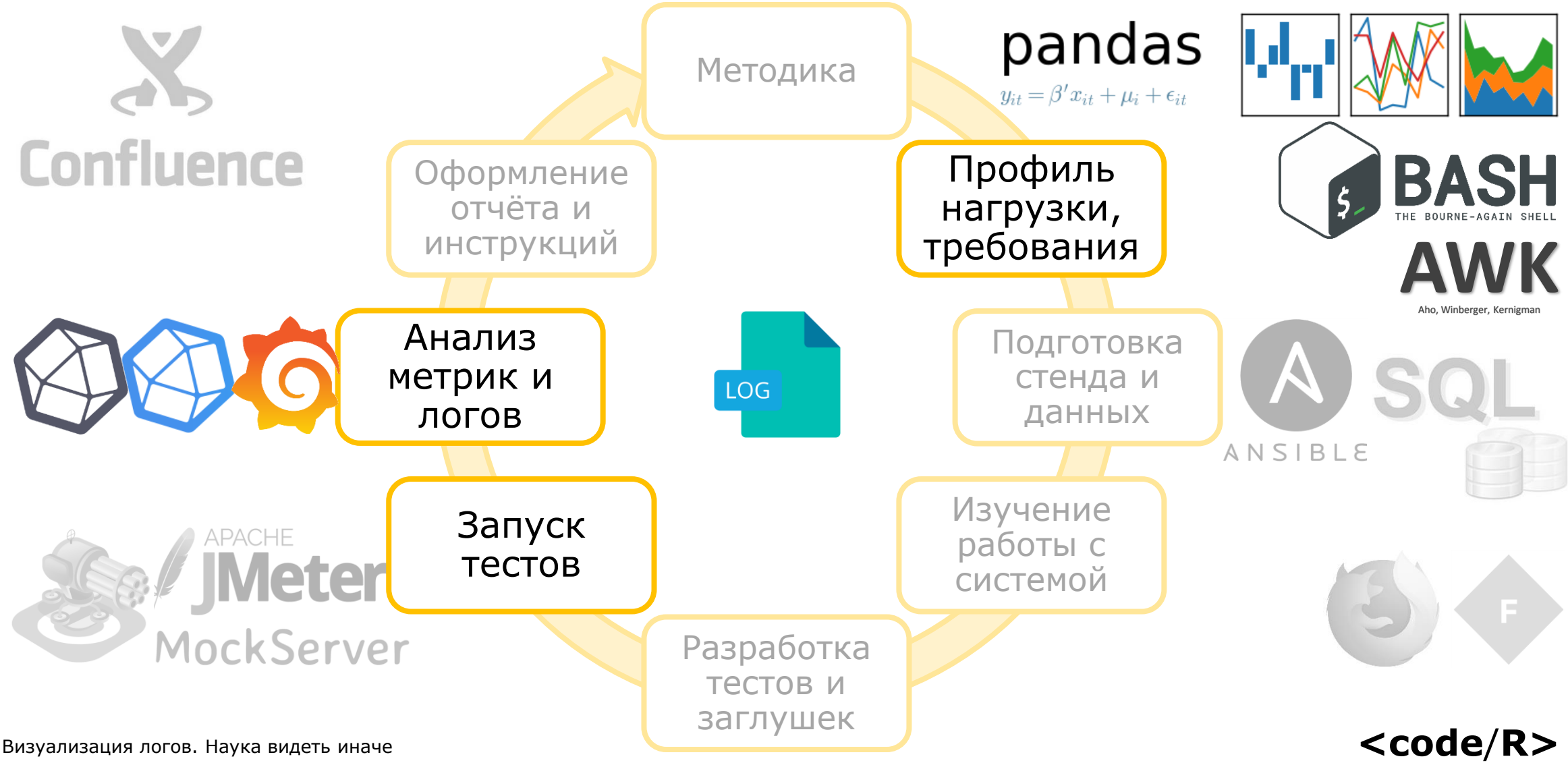

Процесс тестирования

Telegraf

Профиль нагрузки, требования

Анализ метрик и логов

Запуск тестов

AWK

Aho, Winberger, Kernigman

Процесс тестирования

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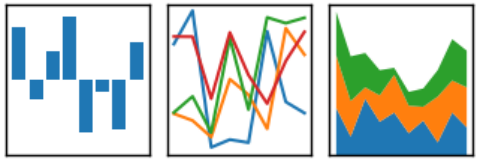

Анализ метрик и логов

Запуск тестов

AWK

Aho, Winberger, Kernigman

Сильные стороны инструментов

Telegraf

pandas

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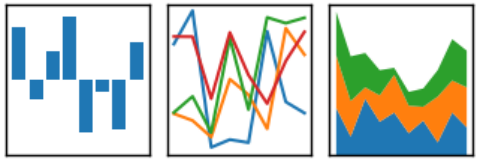

influxdb

Гибкость

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Сильные стороны инструментов

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pandas

$y_{it} = \beta' x_{it} + \mu_i + \epsilon_{it}$

influxdb

Скорость

BASH
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AWK
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pandas

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Простота

AWK

Aho, Winberger, Kernigman

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influxdb

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$y_{it} = \beta' x_{it} + \mu_i + \epsilon_{it}$

Красота

AWK

Aho, Winberger, Kernigman

Сильные стороны инструментов

Простота

Гибкость

Красота

Скорость

О логах и их форматах


```
uld not get JDBC Connection; nested exception is java.sql.SQLException: Connections could not be acquired from the unde
rlying database!]
        at com.bssys.sbns.dispatcher.ToolDispatcherImpl.handleCall(ToolDispatcherImpl.java:53)
--
2018-02-09 22:11:28.915 [r_Worker-1] ERROR com.bssys.sbns.scheduler.JobImpl                    -
java.lang.RuntimeException: org.quartz.JobExecutionException: Exception in execution job with id = Raif-midas-gate-list
ener for stmtType=3 in execution trigger name: Raif-midas-gate-listener for stmtType=30 group: GATES SCANNERS and start
 time Fri Feb 09 13:10:10 MSK 2018 [See nested exception: org.springframework.jdbc.CannotGetJdbcConnectionException: Co
uld not get JDBC Connection; nested exception is java.sql.SQLException: Connections could not be acquired from the unde
rlying database!]
        at com.bssys.sbns.dispatcher.ToolDispatcherImpl.handleCall(ToolDispatcherImpl.java:53)
[user@host Application.Logs]$
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[user@host Application.Logs]$
[user@host Application.Logs]$
[user@host Application.Logs]$
[user@host Application.Logs]$
[user@host Application.Logs]$
[user@host Application.Logs]$ grep ERROR -A 2  application.log
```

Логирование в Java

Логирование в Java

1995

Simple Logger

Первый релиз java

```
/**
 * Возвращает значение по заданному ключу
 * @param key
 * @return
 */
public static Object get(String key)
{
    Object value = null;

    try {
        value = map.get(key);
        // Логирование в system out
        System.out.println(
                "Get value from HashMap. Key: "
                        + key);
    } catch (Exception exception) {
        // Логирование в system error
        System.err.println(
                "Error in get. Key: " + key);

        // Распечатка исключения в system error
        exception.printStackTrace();
    }
    return value;
}

/**
```

1999

Apache **log4j**

logging.apache.org/log4j/1.2/

заложена основа

```
log4j.rootLogger=DEBUG, A1
log4j.appender.A1=org.apache.log4j.ConsoleAppender
log4j.appender.A1.layout=org.apache.log4j.PatternLayout

#Печать даты в формате ISO 8601
log4j.appender.A1.layout.ConversionPattern=%d [%t] %-5p %c - %m%n

# Печать только сообщений уровня WARN или выше для пакета ru.raiffeisen.
log4j.logger.ru.raiffeisen=WARN
```

```
package ru.raiffeisen;
import java.util.concurrent.ConcurrentHashMap;
import org.apache.log4j.Logger;
/**...*/
public class SharedMap {
    static Logger logger = Logger.getLogger(SharedMap.class);
    private static final ConcurrentHashMap map = new ConcurrentHashMap();

    /**...*/
    public static Object get(String key)
    {
        Object value = null;

        try {
            value = map.get(key);
            logger.debug(
                    "Get value from HashMap. Key: " + key);
        } catch (Exception exception) {
            // Логирование в system error
            logger.error(
                    message: "Error in get. Key: " + key,
                    exception);
        }
        return value;
    }
}
```

1999

Apache **log4j**

logging.apache.org/log4j/1.2/

заложена основа

```
log4j.rootLogger=DEBUG, A1
log4j.appender.A1=org.apache.log4j
 .ConsoleAppender
log4j.appender.A1.layout=org.apache.log4j
 .PatternLayout

# Печать даты в формате ISO 8601
log4j.appender.A1.layout2
.ConversionPattern=%d [%t] %-5p %c - %m%n

# Печать только сообщений уровня WARN или
 выше для пакета ru.raiffeisen.
log4j.logger.ru.raiffeisen=WARN
```

```
package ru.raiffeisen;
import java.util.concurrent.ConcurrentHashMap;
import org.apache.log4j.Logger;
/**...*/
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    static Logger logger = Logger.getLogger(SharedMap.class);
    private static final ConcurrentHashMap map = new ConcurrentHashMap();

    /**...*/
    public static Object get(String key)
    {
        Object value = null;
```

%d [%t] %-5p %c - %m%n

1999

Apache **log4j**

logging.apache.org/log4j/1.2/

заложена основа

```
log4j.rootLogger=DEBUG, A1
log4j.appender.A1=org.apache.log4j
.ConsoleAppender
log4j.appender.A1.layout=org.apache.log4j
.PatternLayout

# Печать даты в формате ISO 8601
log4j.appender.A1.layout2
.ConversionPattern=%d [%t] %-5p %c - %m%n

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log4j.logger.ru.raiffeisen=WARN
```

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import java.util.concurrent.ConcurrentHashMap;
import org.apache.log4j.Logger;
/**...*/
public class SharedMap {
    static Logger logger = Logger.getLogger(SharedMap.class);
    private static final ConcurrentHashMap map = new ConcurrentHashMap();

    /**...*/
    public static Object get(String key)
    {
        Object value = null;
```

2002

JUL

java.util.logging

jdk 1.4

```
log4j.rootLogger=DEBUG, A1
log4j.appender.A1=org.apache.log4j
 .ConsoleAppender
log4j.appender.A1.layout=org.apache.log4j
 .PatternLayout

# Печать даты в формате ISO 8601
log4j.appender.A1.layout
.ConversionPattern=%d [%t] %-5p %c - %m%n

# Печать только сообщений уровня WARN или
 выше для пакета ru.raiffeisen.
```

2002

Apache Commons Logging

Jakarta Commons Logging

JCL

```
#Log4j
org.apache.commons.logging.Log=org
    .apache.commons.logging.impl.Log4JLogger
org.apache.commons.logging.Log.configuration=log4j.properties

#JUL
org.apache.commons.logging.Log=org
.apache.commons.logging.impl.Jdk14Logger
handlers=java.util.logging.FileHandler
```

2005

SLF4J
Simple Logging Facade for Java

www.slf4j.org

2006

Logback
встроенный в SLF4J
потомок log4j

logback.qos.ch

```
                                = None)
    extends DefaultHttpErrorHandler(environment,
                                    configuration,
                                    sourceMapper,
                                    optionRouter) {

  private val logger =
    org.slf4j.LoggerFactory.getLogger("application
    .ErrorHandler")

  // This maps through Guice so that the above
   constructor can call methods.
  @Inject
```

ErrorHandler

```
<configuration>

  <conversionRule conversionWord="coloredLevel"
   converterClass="play.api.libs.logback.ColoredLevel" />

  <appender name="FILE" class="ch.qos.logback.core
   .FileAppender">
    <file>${application.home:-.}/logs/application.log</file>
    <encoder>
      <pattern>%date [%level] from %logger in %thread -
       %message%n%xException</pattern>
    </encoder>
  </appender>
```

configuration › appender

Визуализация логов. Наука видеть иначе

Apache LOG4J™

2012

log4j 2

logging.apache.org

Форматы логов - разные

Логгер	Файл настроек	Документация
log4j	log4j.properties	logging.apache.org/log4j/1.2/apidocs/org/apache/log4j/PatternLayout.html
JUL	Java_home/jre/lib/logging.properties	docs.oracle.com/javase/7/docs/api/java/util/Formatter.html
JCL	commons-logging.properties	commons.apache.org/proper/commons-logging/guide.html
SLF4J	(logback.xml)	logback.qos.ch/manual/layouts.html
Logback	logback.xml	logback.qos.ch/manual/layouts.html#ClassicPatternLayout
log4j 2	log4j2.xml	logging.apache.org/log4j/2.x/manual/layouts.html#PatternLayout

Logback #ClassicPatternLayout

C{*length*}
class{*length*}

Outputs the fully-qualified class name of the caller issuing the logging request.

… an integer as an option to short… …mple class name to be printed with…ut the package name prefix. By default the class name is printed in full.

Generating the caller class information is not particularly fast. Thus, its use should be avoided unless execution speed is not an issue.

contextName
cn

Outputs the name of the logger context to which the logger at the origin of the event was attached to.

d{*pattern*}
date{*pattern*}
d{*pattern*, *timezone*}
date{*pattern*, *timezone*}

Used to output the date of the logging event. The date conversion word admits a pattern string as a parameter. The pattern syntax is compatible with the format accepted by `java.text.SimpleDateFormat`.

You can specify the string *"ISO8601"* for the ISO8601 date format. Note that the %date conversion word defaults to the ISO 8601 date format in the absence of a pattern parameter.

Here are some sample parameter values. They assume that the actual date is Friday 20th of October, 2006 and that the author has returned to working on this document just after lunch.

Conversion Pattern	Result
%d	2006-10-20 14:06:49,812
%date	2006-10-20 14:06:49,812
%date{ISO8601}	2006-10-20 14:06:49,812
%date{HH:mm:ss.SSS}	14:06:49.812
%date{dd MMM yyyy;HH:mm:ss.SSS}	20 oct. 2006;14:06:49.812

О bash и консольных утилитах для работы с текстом


```
2018-02-09 22:11:28.915 [r_Worker-1] ERROR com.bssys.sbns.scheduler.JobImpl
java.lang.RuntimeException: org.quartz.JobExecutionException: Exception in execution job with id = Raif-midas-gate-list
ener for stmtType=3 in execution trigger name: Raif-midas-gate-listener for stmtType=30 group: GATES SCANNERS and start
 time Fri Feb 09 13:10:10 MSK 2018 [See nested exception: org.springframework.jdbc.CannotGetJdbcConnectionException: Co
uld not get JDBC Connection; nested exception is java.sql.SQLException: Connections could not be acquired from the unde
rlying database!]
        at com.bssys.sbns.dispatcher.ToolDispatcherImpl.handleCall(ToolDispatcherImpl.java:53)
[user@host Application.Logs]$
[user@host Application.Logs]$
[user@host Application.Logs]$
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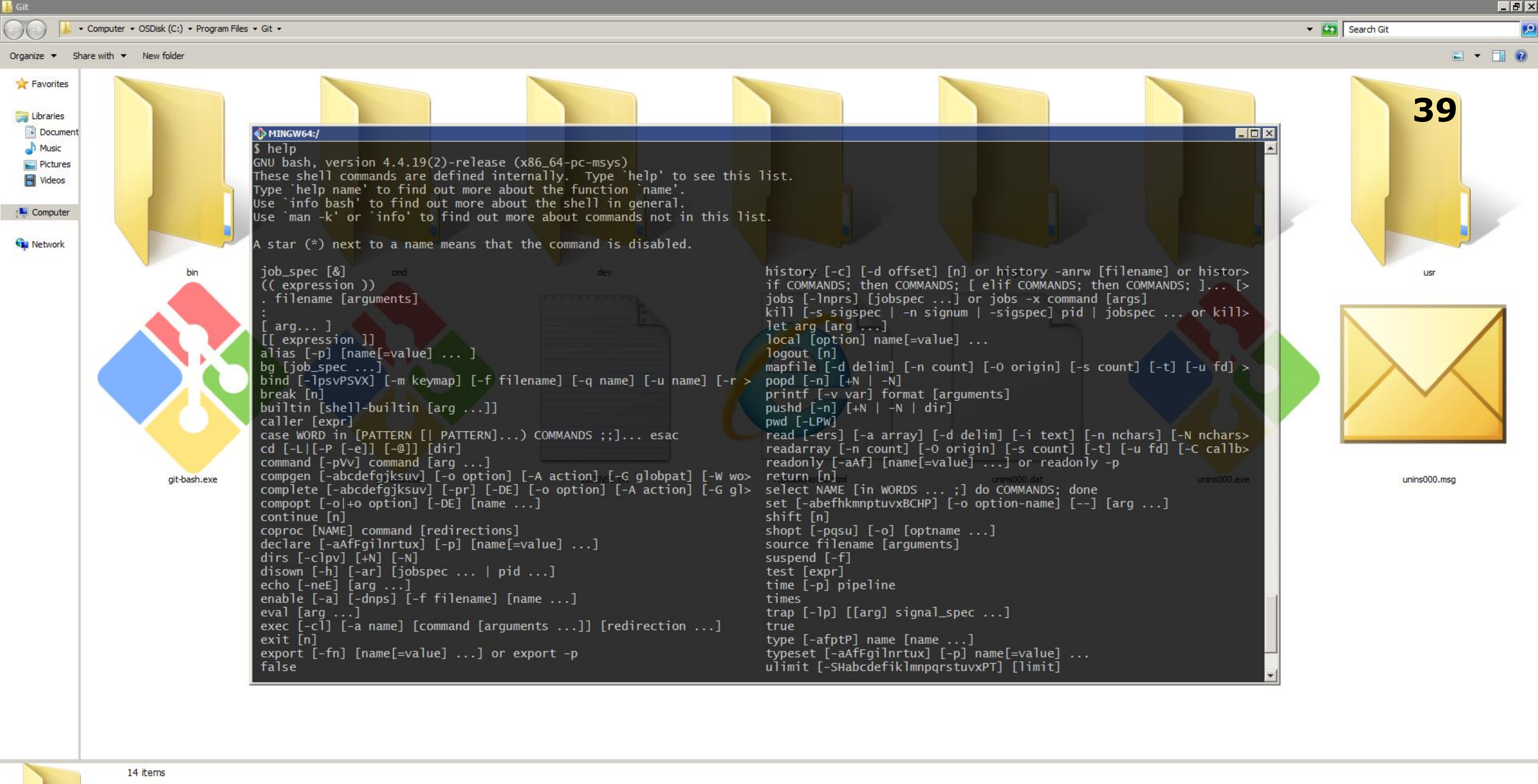
[user@host Application.Logs]$
[user@host Application.Logs]$
[user@host Application.Logs]$
[user@host Application.Logs]$
[user@host Application.Logs]$ grep ERROR -A 2  application.log
```

Визуализация логов. Наука видеть иначе


Computer ▸ OSDisk (C:) ▸ Program Files ▸ Git
Search Git
Organize
Share with
New folder
Favorites
Libraries
Documents
Music
Pictures
Videos
Computer
Network
MINGW64:/
$ help
GNU bash, version 4.4.19(2)-release (x86_64-pc-msys)
These shell commands are defined internally. Type `help' to see this list.
Type `help name' to find out more about the function `name'.
Use `info bash' to find out more about the shell in general.
Use `man -k' or `info' to find out more about commands not in this list.
A star (*) next to a name means that the command is disabled.
job_spec [&]
((expression))
. filename [arguments]
:
[arg...]
[[expression]]
alias [-p] [name[=value] ...]
bg [job_spec ...]
bind [-lpsvPSVX] [-m keymap] [-f filename] [-q name] [-u name] [-r >
break [n]
builtin [shell-builtin [arg ...]]
caller [expr]
case WORD in [PATTERN [| PATTERN]...) COMMANDS ;;]... esac
cd [-L|[-P [-e]] [-@]] [dir]
command [-pVv] command [arg ...]
compgen [-abcdefgjksuv] [-o option] [-A action] [-G globpat] [-W wo>
complete [-abcdefgjksuv] [-pr] [-DE] [-o option] [-A action] [-G gl>
compopt [-o|+o option] [-DE] [name ...]
continue [n]
coproc [NAME] command [redirections]
declare [-aAfFgilnrtux] [-p] [name[=value] ...]
dirs [-clpv] [+N] [-N]
disown [-h] [-ar] [jobspec ... | pid ...]
echo [-neE] [arg ...]
enable [-a] [-dnps] [-f filename] [name ...]
eval [arg ...]
exec [-cl] [-a name] [command [arguments ...]] [redirection ...]
exit [n]
export [-fn] [name[=value] ...] or export -p
false
history [-c] [-d offset] [n] or history -anrw [filename] or histor>
if COMMANDS; then COMMANDS; [elif COMMANDS; then COMMANDS;]... [>
jobs [-lnprs] [jobspec ...] or jobs -x command [args]
kill [-s sigspec | -n signum | -sigspec] pid | jobspec ... or kill>
let arg [arg ...]
local [option] name[=value] ...
logout [n]
mapfile [-d delim] [-n count] [-O origin] [-s count] [-t] [-u fd] >
popd [-n] [+N | -N]
printf [-v var] format [arguments]
pushd [-n] [+N | -N | dir]
pwd [-LPW]
read [-ers] [-a array] [-d delim] [-i text] [-n nchars] [-N nchars>
readarray [-n count] [-O origin] [-s count] [-t] [-u fd] [-C callb>
readonly [-aAf] [name[=value] ...] or readonly -p
return [n]
select NAME [in WORDS ... ;] do COMMANDS; done
set [-abefhkmnptuvxBCHP] [-o option-name] [--] [arg ...]
shift [n]
shopt [-pqsu] [-o] [optname ...]
source filename [arguments]
suspend [-f]
test [expr]
time [-p] pipeline
times
trap [-lp] [[arg] signal_spec ...]
true
type [-afptP] name [name ...]
typeset [-aAfFgilnrtux] [-p] name[=value] ...
ulimit [-SHabcdefiklmnpqrstuvxPT] [limit]
bin
cmd
dev
usr
git-bash.exe
unins000.dat
unins000.exe
unins000.msg
14 items

```
MINGW64:/
$ grep --help
Usage: grep [OPTION]... PATTERN [FILE]...
Search for PATTERN in each FILE or standard input.
PATTERN is, by default, a basic regular expression (BRE).
Example: grep -i 'hello world' menu.h main.c

Regexp selection and interpretation:
  -E, --extended-regexp     PATTERN is an extended regular expression (ERE)
  -F, --fixed-strings       PATTERN is a set of newline-separated strings
  -G, --basic-regexp        PATTERN is a basic regular expression (BRE)
  -P, --perl-regexp         PATTERN is a Perl regular expression
  -e, --regexp=PATTERN      use PATTERN for matching
  -f, --file=FILE           obtain PATTERN from FILE
  -i, --ignore-case         ignore case distinctions
  -w, --word-regexp         force PATTERN to match only whole words
  -x, --line-regexp         force PATTERN to match only whole lines
  -z, --null-data           a data line ends in 0 byte, not newline

Miscellaneous:
  -s, --no-messages         suppress error messages
  -v, --invert-match        select non-matching lines
  -V, --version             display version information and exit
      --help                display this help text and exit

Output control:
  -m, --max-count=NUM       stop after NUM matches
  -b, --byte-offset         print the byte offset with output lines
  -n, --line-number         print line number with output lines
```

Mintty — Cygwin Terminal emulator

```
polarnik@<code/R> MINGW64 /c/Temp
$ find *.log
```

iconv: из Windows-1251 в UTF-8

MINGW64:/c/Temp

```
polarnik@<code/R> MINGW64 /c/Temp
$ find *.log
application.2018-09-07.log
application.2018-09-08.log
application.log

polarnik@<code/R> MINGW64 /c/Temp
$
```

```
polarnik@<code/R> MINGW64 /c/Temp
$ find *.log
application.2018-09-07.log
application.2018-09-08.log
application.log

polarnik@<code/R> MINGW64 /c/Temp
$ iconv -f CP1251 -t UTF-8 *.log
```

MINGW64:/c/Temp


```
polarnik@<code/R> MINGW64 /c/Temp
$ find *.log
application.2018-09-07.log
application.2018-09-08.log
application.log

polarnik@<code/R> MINGW64 /c/Temp
$ iconv -f CP1251 -t UTF-8 *.log > utf-8.log
```

```
polarnik@<code/R> MINGW64 /c/Temp
$ find *.log
application.2018-09-07.log
application.2018-09-08.log
application.log

polarnik@<code/R> MINGW64 /c/Temp
$ time iconv -f CP1251 -t UTF-8 *.log > utf-8.log
```

```
polarnik@<code/R> MINGW64 /c/Temp
$ find *.log
application.2018-09-07.log
application.2018-09-08.log
application.log

polarnik@<code/R> MINGW64 /c/Temp
$ time iconv -f CP1251 -t UTF-8 *.log > utf-8.log

real    0m1.829s
user    0m0.841s
sys     0m0.966s

polarnik@<code/R> MINGW64 /c/Temp
$
```

Решаемые задачи

Статистика по типам сообщения в логе

Статистика по источнику сообщения в логе

Фильтрация сообщений и построение статистики

Конвертация лога в формат InfluxLine для InfluxDB

Решаемые задачи

Статистика по типам сообщения в логе

Статистика по источнику сообщения в логе

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Фильтрация сообщений и построение статистики

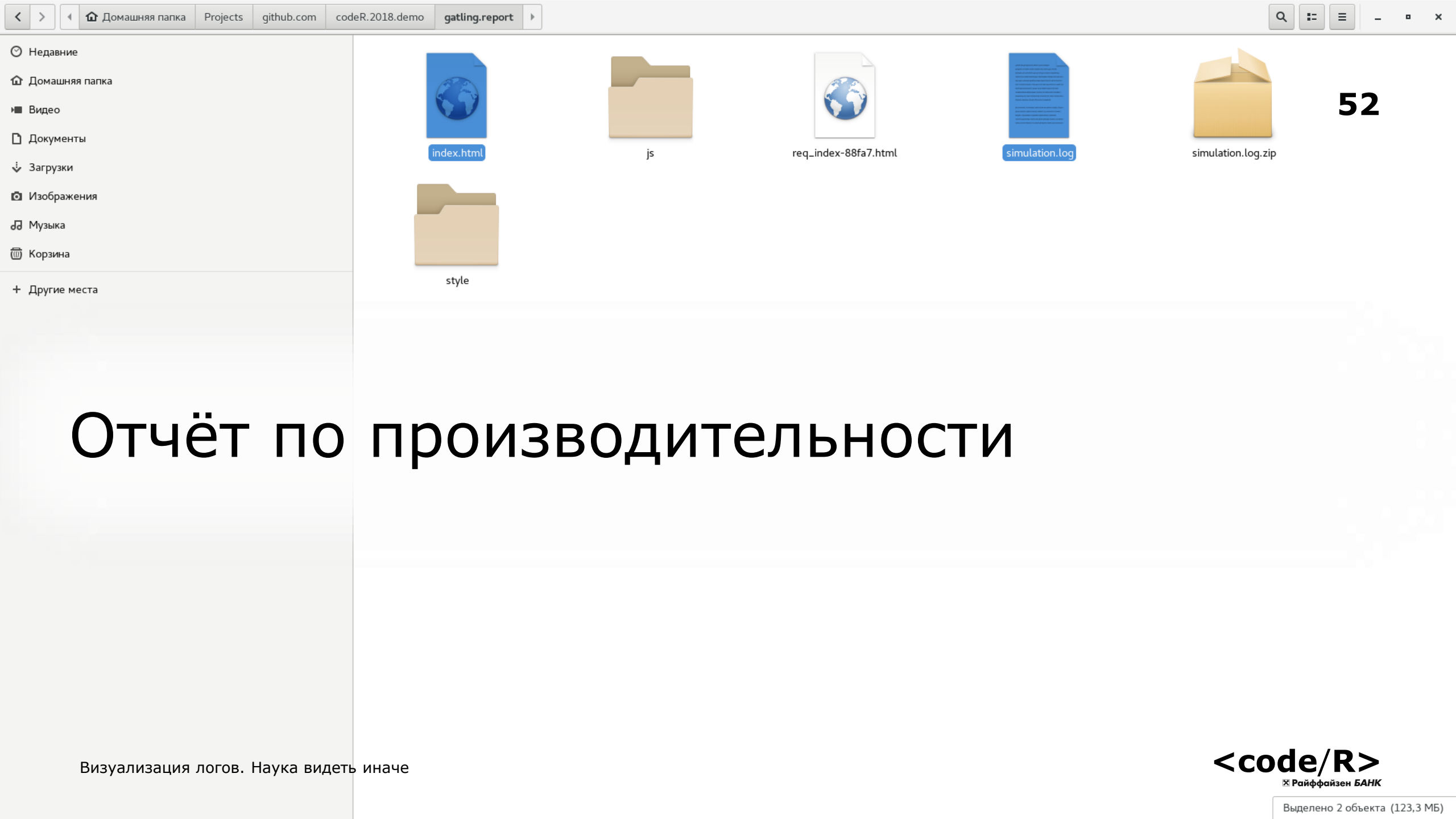
Конвертация лога в формат InfluxLine для InfluxDB

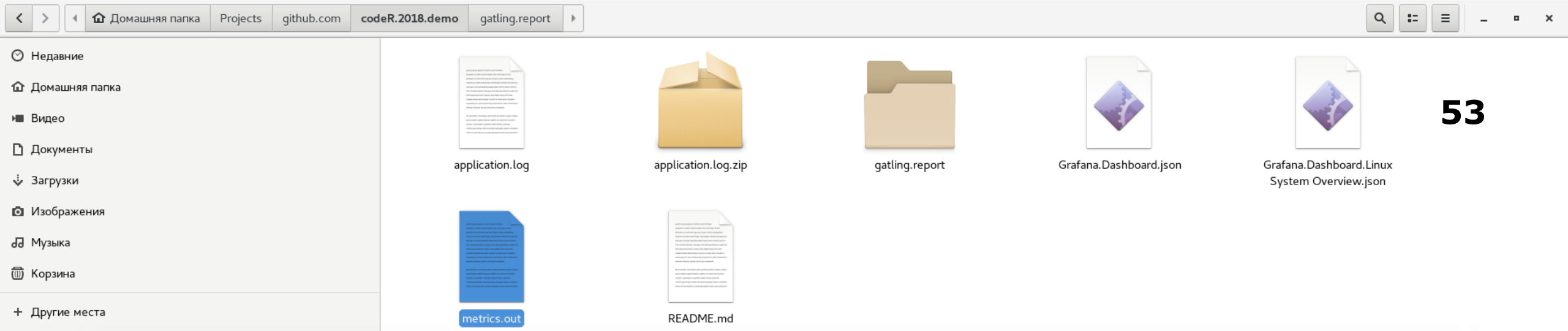
Демо проект

https://github.com/polarnik/

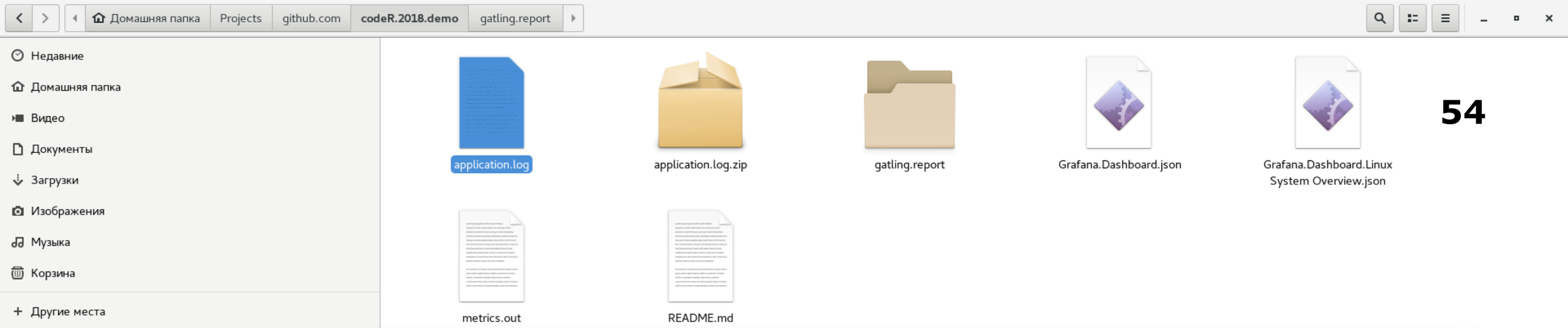
codeR.2018.demo – логи и отчёты

play-scala-rest-api-example – сервис и тест производительности


Домашняя папка
Projects
github.com
codeR.2018.demo
gatling.report
Недавние
Домашняя папка
Видео
Документы
Загрузки
Изображения
Музыка
Корзина
Другие места
index.html
js
req_index-88fa7.html
simulation.log
simulation.log.zip
style
52
Отчёт по производительности
Визуализация логов. Наука видеть иначе
<code/R>
Райффайзен БАНК
Выделено 2 объекта (123,3 МБ)



Метрики metrics.out (5 Mb)



Лог приложений application.log (650 Mb)

```
[polarnik@<code/R> codeR.2018.demo]$ \
> head application.log -n 7
```


Просмотреть большой лог

```
[polarnik@<code/R> codeR.2018.demo]$ \
> head application.log -n 7
2018-09-10 01:48:52,505 [INFO] from play.api.http.EnabledFi
lters in play-dev-mode-akka.actor.default-dispatcher-8 - En
abled Filters (see <https://www.playframework.com/documenta
tion/latest/Filters>):

    play.filters.csrf.CSRFFilter
    play.filters.headers.SecurityHeadersFilter
    play.filters.hosts.AllowedHostsFilter

2018-09-10 01:48:52,509 [INFO] from play.api.Play in play-d
ev-mode-akka.actor.default-dispatcher-8 - Application start
ed (Dev)
[polarnik@<code/R> codeR.2018.demo]$
```

```
smirnov_va@W-MSK60-LNXSVVJ:~/Projects/github.com/codeR.2018.demo
Файл Правка Вид Поиск Терминал Справка
[polarnik@<code/R> codeR.2018.demo]$ \
> head application.log -n 7
2018-09-10 01:48:52,505 [INFO] from play.api.http.EnabledFi
lters in play-dev-mode-akka.actor.default-dispatcher-8 - En
abled Filters (see <https://www.playframework.com/documenta
tion/latest/Filters>):

    play.filters.csrf.CSRFFilter
    play.filters.headers.SecurityHeadersFilter
    play.filters.hosts.AllowedHostsFilter

2018-09-10 01:48:52,509 [INFO] from play.api.Play in play-d
ev-mode-akka.actor.default-dispatcher-8 - Application start
ed (Dev)
[polarnik@<code/R> codeR.2018.demo]$
```

smirnov_va@W-MSK60-LNXSVVJ:~/Projects/github.com/codeR.2018.demo

Файл Правка Вид Поиск Терминал Справка

```
[polarnik@<code/R> codeR.2018.demo]$ \
> head application.log -n 7
2018-09-10 01:48:52,505 [INFO] from play.api.http.EnabledFi
lters in play-dev-mode-akka.actor.default-dispatcher-8 - En
abled Filters (see <https://www.playframework.com/documenta
tion/latest/Filters>):

        play.filters.cs
        play.filters.he                                  lter
        play.filters.hosts.AllowedHostsFilter

2018-09-10 01:48:52,509 [INFO] from play.api.Play in play-d
ev-mode-akka.actor.default-dispatcher-8 - Application start
ed (Dev)
[polarnik@<code/R> codeR.2018.demo]$
```

3-й элемент

smirnov_va@W-MSK60-LNXSVVJ:~/Projects/github.com/codeR.2018.demo

Файл Правка Вид Поиск Терминал Справка

```
[polarnik@<code/R> codeR.2018.demo]$ \
> head application.log -n 7
2018-09-10 01:48:52,505 [INFO] from play.api.http.EnabledFi
lters in play-dev-mode-akka.actor.default-dispatcher-8 - En
abled Filters (see <https://www.playframework.com/documenta
tion/latest/Filters>):

        play.filters.cs
        play.filters.he                                  lter
        play.filters.hosts.AllowedHostsFilter

2018-09-10 01:48:52,509 [INFO] from play.api.Play in play-d
ev-mode-akka.actor.default-dispatcher-8 - Application start
ed (Dev)
[polarnik@<code/R> codeR.2018.demo]$
```

5-й элемент

```
smirnov_va@W-MSK60-LNXSVVJ:~/Projects/github.com/codeR.2018.demo
Файл Правка Вид Поиск Терминал Справка
[polarnik@<code/R> codeR.2018.demo]$ \
> head application.log -n 7
2018-09-10 01:48:52,505 [INFO] from play.api.http.EnabledFi
lters in play-dev-mode-akka.actor.default-dispatcher-8 - En
abled Filters (see <https://www.playframework.com/documenta
tion/latest/Filters>):

    play.filters.cs
    play.filters.he                                    lter
    play.filters.hosts.AllowedHostsFilter

2018-09-10 01:48:52,509 [INFO] from play.api.Play in play-d
ev-mode-akka.actor.default-dispatcher-8 - Application start
ed (Dev)
[polarnik@<code/R> codeR.2018.demo]$
```

7-й элемент

smirnov_va@W-MSK60-LNXSVVJ:~/Projects/github.com/codeR.2018.demo

Файл Правка Вид Поиск Терминал Справка

```
[polarnik@<code/R> codeR.2018.demo]$ \
> head application.log -n 7
2018-09-10 01:48:52,505 [INFO] from play.api.http.EnabledFi
lters in play-dev-mode-akka.actor.default-dispatcher-8 - En
abled Filters (see <https://www.playframework.com/documenta
tion/latest/Filters>):

        play.filters.cs
        play.filters.he                              lter
        play.filters.hosts.AllowedHostsFilter

2018-09-10 01:48:52,509 [INFO] from play.api.Play in play-d
ev-mode-akka.actor.default-dispatcher-8 - Application start
ed (Dev)
[polarnik@<code/R> codeR.2018.demo]$
```

9-й элемент

```
[polarnik@<code/R> codeR.2018.demo]$ \
> awk '{ print $3 }' application.log | head
```


3-й элемент

```
[polarnik@<code/R> codeR.2018.demo]$ \
> awk '{ print $3 }' application.log | head
[INFO]
[INFO]
[TRACE]
[TRACE]
[TRACE]
[polarnik@<code/R> codeR.2018.demo]$
```

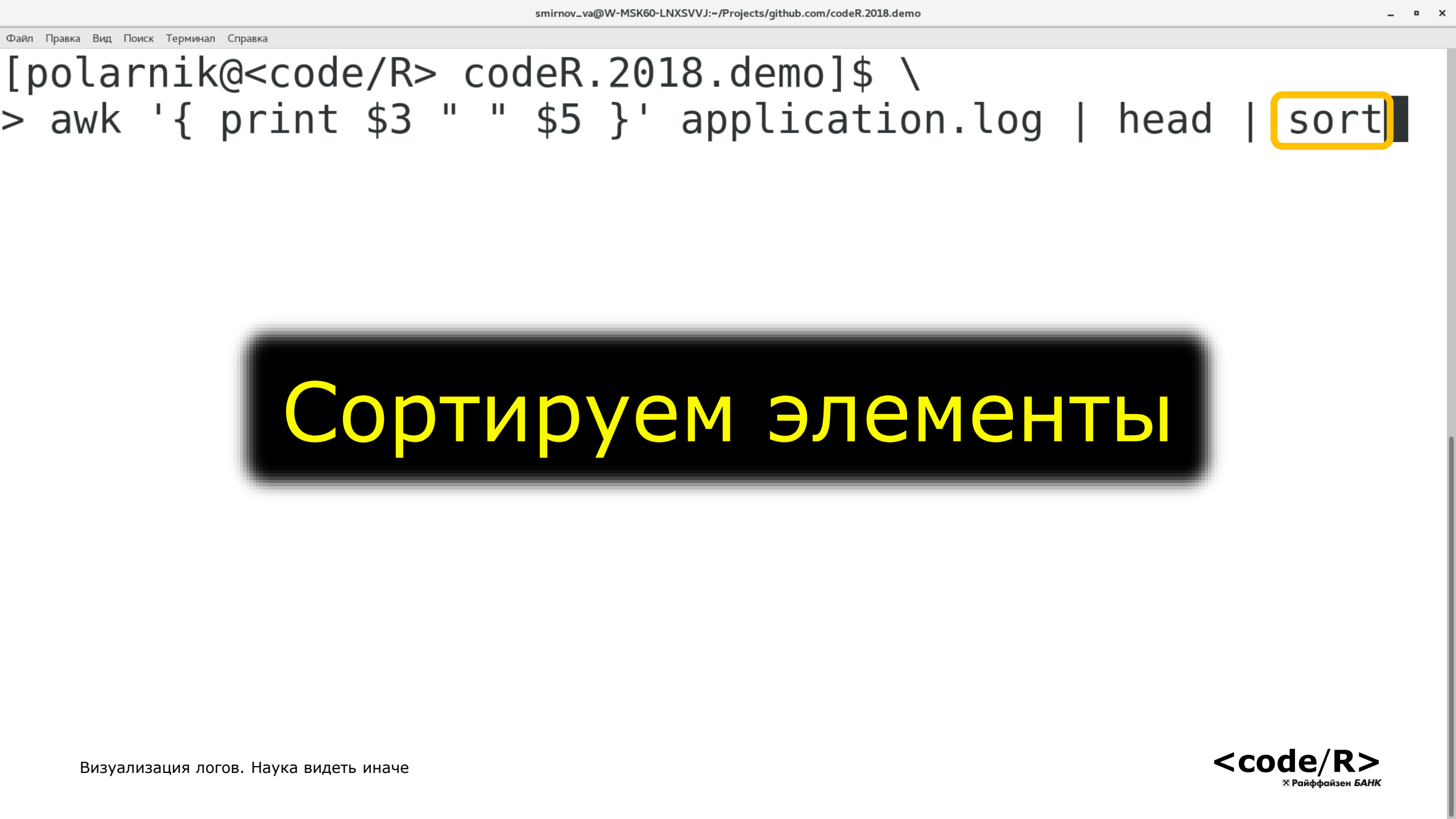
```
[polarnik@<code/R> codeR.2018.demo]$ \
> awk '{ print $3 " " $5 }' application.log | head
```

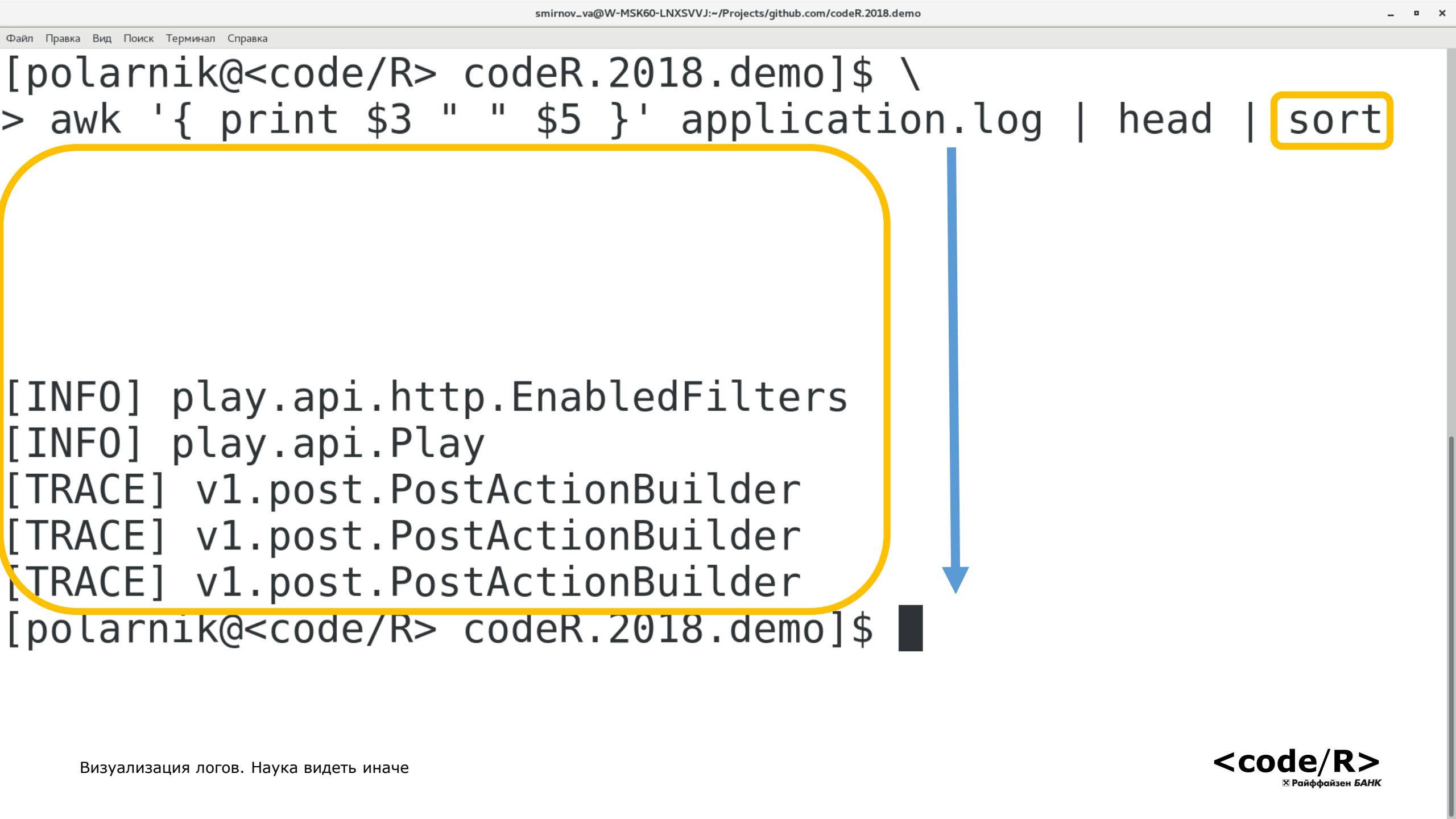

3-й и 5-й элементы

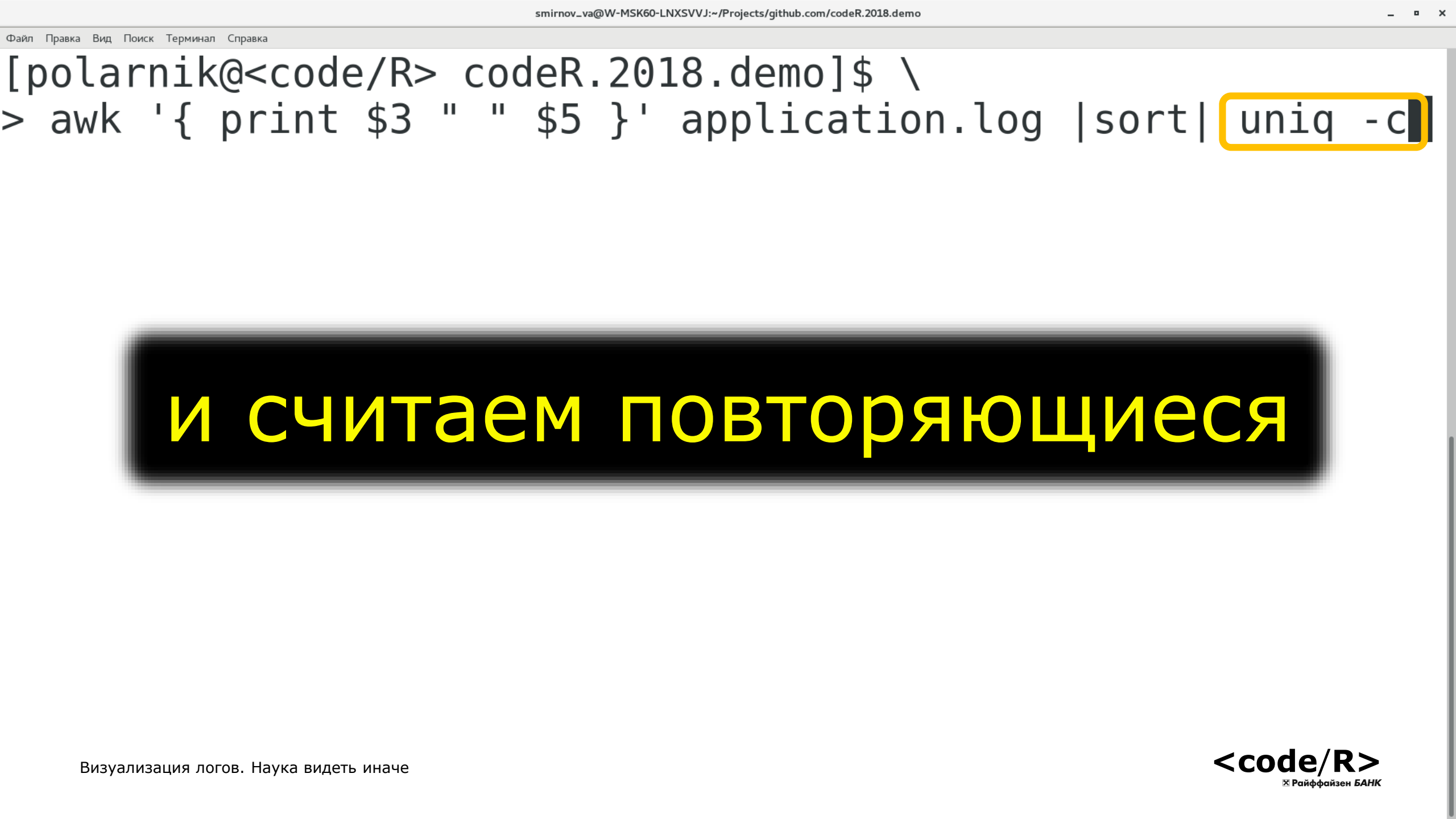
```
[polarnik@<code/R> codeR.2018.demo]$ \
> awk '{ print $3 " " $5 }' application.log | head
[INFO] play.api.http.EnabledFilters

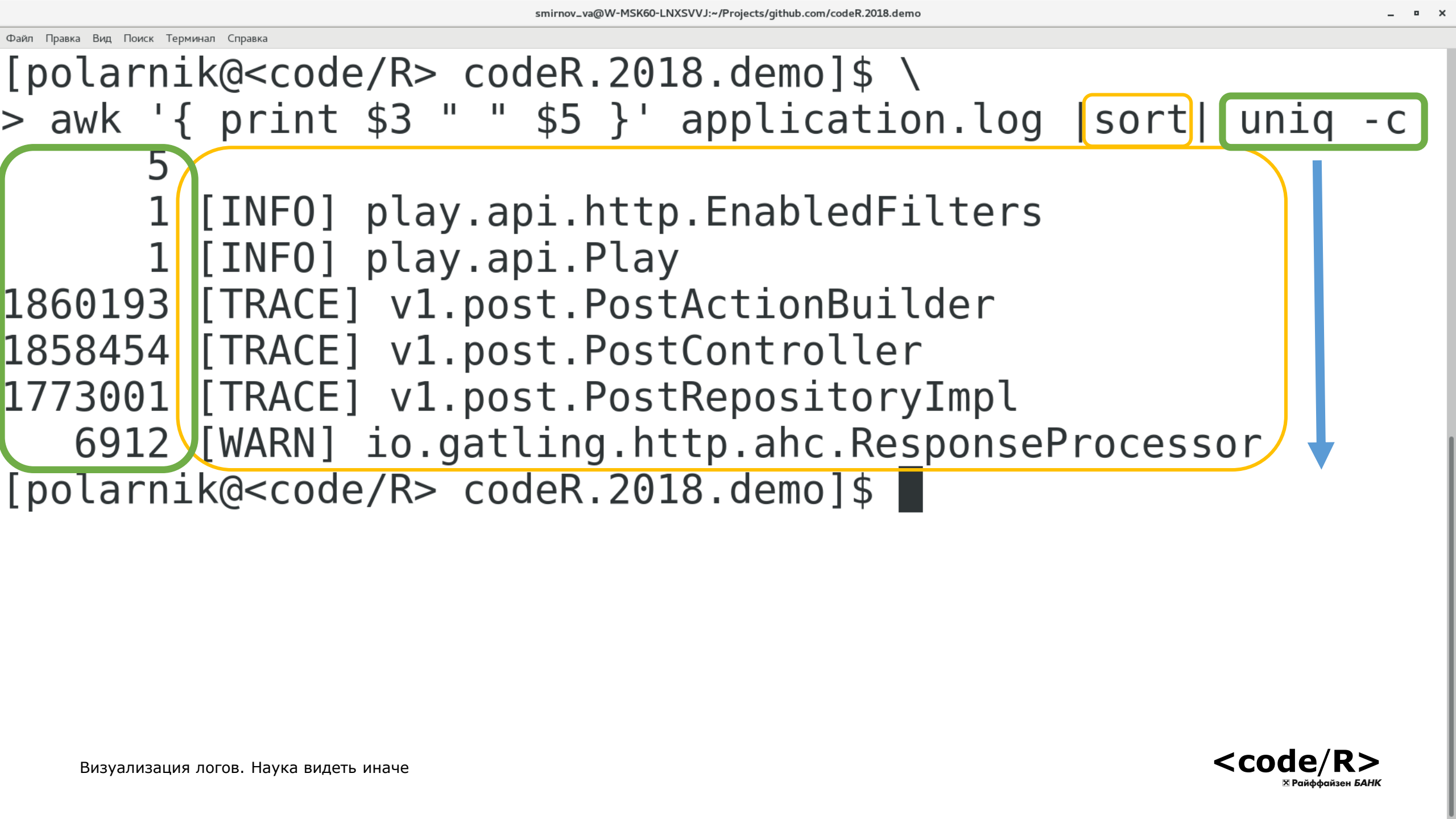



[INFO] play.api.Play
[TRACE] v1.post.PostActionBuilder
[TRACE] v1.post.PostActionBuilder
[TRACE] v1.post.PostActionBuilder
[polarnik@<code/R> codeR.2018.demo]$
```


smirnov_va@W-MSK60-LNXSVVJ:~/Projects/github.com/codeR.2018.demo
Файл Правка Вид Поиск Терминал Справка
[polarnik@<code/R> codeR.2018.demo]$ \
> awk '{ print $3 " " $5 }' application.log | head | sort
Сортируем элементы
Визуализация логов. Наука видеть иначе
<code/R>
Райффайзен БАНК


smirnov_va@W-MSK60-LNXSVVJ:~/Projects/github.com/codeR.2018.demo
Файл Правка Вид Поиск Терминал Справка
[polarnik@<code/R> codeR.2018.demo]$ \
> awk '{ print $3 " " $5 }' application.log | head | sort
[INFO] play.api.http.EnabledFilters
[INFO] play.api.Play
[TRACE] v1.post.PostActionBuilder
[TRACE] v1.post.PostActionBuilder
[TRACE] v1.post.PostActionBuilder
[polarnik@<code/R> codeR.2018.demo]$


smirnov_va@W-MSK60-LNXSVVJ:~/Projects/github.com/codeR.2018.demo
Файл Правка Вид Поиск Терминал Справка
[polarnik@<code/R> codeR.2018.demo]$ \
> awk '{ print $3 " " $5 }' application.log |sort| uniq -c
и считаем повторяющиеся
Визуализация логов. Наука видеть иначе
<code/R>
Райффайзен БАНК


smirnov_va@W-MSK60-LNXSVVJ:~/Projects/github.com/codeR.2018.demo
Файл Правка Вид Поиск Терминал Справка
[polarnik@<code/R> codeR.2018.demo]$ \
> awk '{ print $3 " " $5 }' application.log |sort| uniq -c
5
1 [INFO] play.api.http.EnabledFilters
1 [INFO] play.api.Play
1860193 [TRACE] v1.post.PostActionBuilder
1858454 [TRACE] v1.post.PostController
1773001 [TRACE] v1.post.PostRepositoryImpl
6912 [WARN] io.gatling.http.ahc.ResponseProcessor
[polarnik@<code/R> codeR.2018.demo]$

Файл Правка Вид Поиск Терминал Справка

```
[polarnik@<code/R> codeR.2018.demo]$ \
> awk '{ print $3 " " $5 }' application.log |sort| uniq -c
| sort -nr
```

70

сортируем по количеству

Файл Правка Вид Поиск Терминал Справка

```
[polarnik@<code/R> codeR.2018.demo]$ \
> awk '{ print $3 " " $5 }' application.log |sort| uniq -c
| sort -nr
1860193 [TRACE] v1.post.PostActionBuilder
1858454 [TRACE] v1.post.PostController
1773001 [TRACE] v1.post.PostRepositoryImpl
   6912 [WARN] io.gatling.http.ahc.ResponseProcessor
      5
      1 [INFO] play.api.Play
      1 [INFO] play.api.http.EnabledFilters
[polarnik@<code/R> codeR.2018.demo]$
```

```
[polarnik@<code/R> codeR.2018.demo]$ \
> awk '{a[$3 " " $5]++}END{for(i in a){ printf "%9s %s\n",
a[i] ,i} }' application.log | sort -rn
```

более быстрый вариант

```
awk '{a[$3 " " $5]++}END
{for(i in a){ printf "%9s %s\n", a[i] ,i} }'
application.log | sort -rn
```

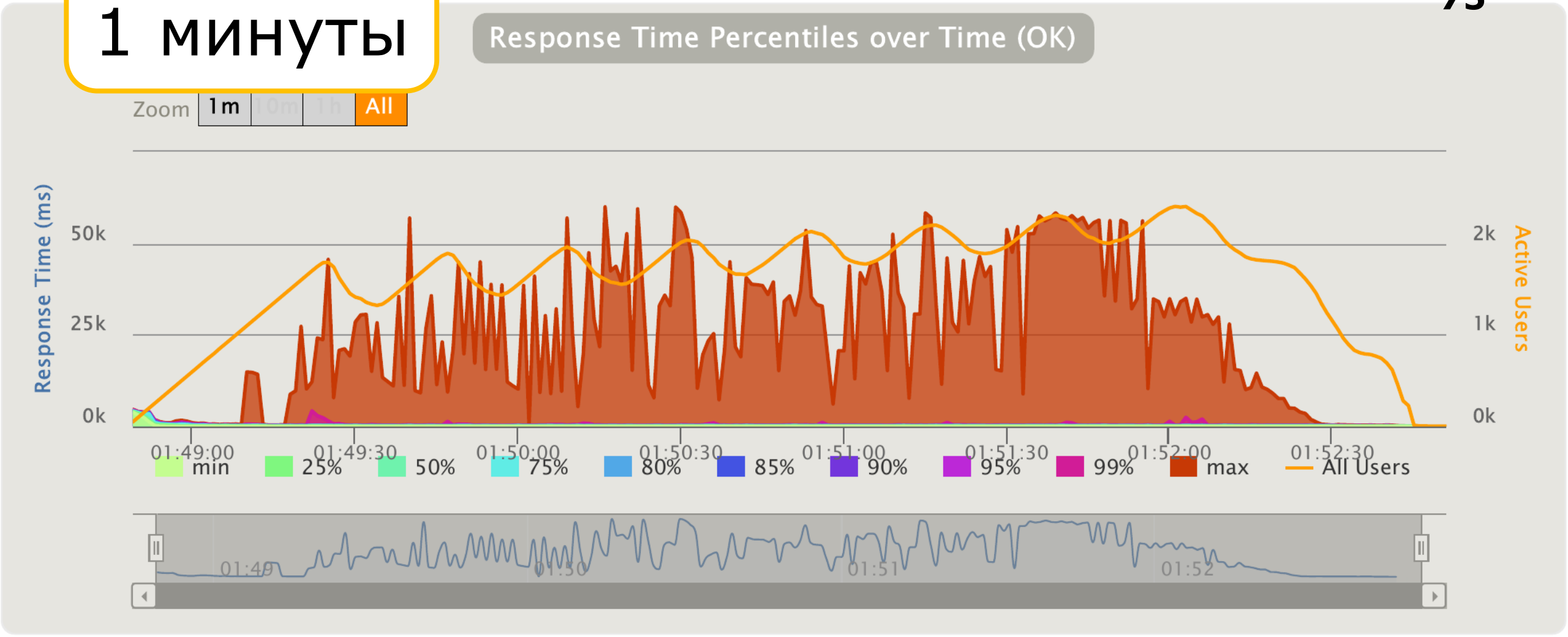
```
[polarnik@<code/R> codeR.2018.demo]$ \
> awk '{a[$3 " " $5]++}END{for(i in a){ printf "%9s %s\n",
a[i] ,i} }' application.log | sort -rn
  1860193 [TRACE] v1.post.PostActionBuilder
  1858454 [TRACE] v1.post.PostController
  1773001 [TRACE] v1.post.PostRepositoryImpl
     6912 [WARN] io.gatling.http.ahc.ResponseProcessor
        5
        1 [INFO] play.api.Play
        1 [INFO] play.api.http.EnabledFilters
[p
```

```
awk '{a[$3 " " $5]++}END
{for(i in a){ printf "%9s %s\n", a[i] ,i} }'
application.log | sort -rn
```

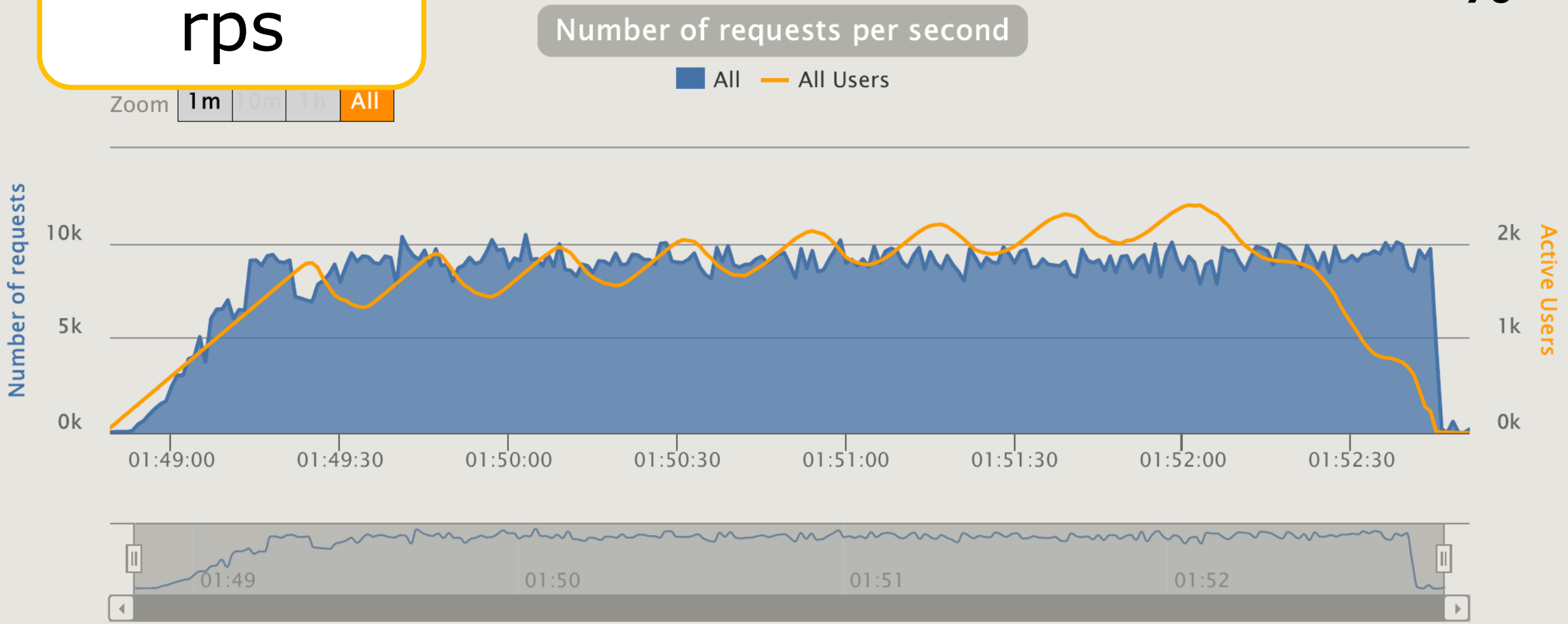
Об AWK и конвертации текстов


```
}
{
  if ($0 ~ startPattern ) {
    print $0
    isPrintLogDetail = "true"
  } else {
    if ($0 ~ pattern ) {
      isPrintLogDetail = "false"
    } else {
      if ( isPrintLogDetail == "true" ) {
        print $0
      }
    }
  }
}
END {
}
```

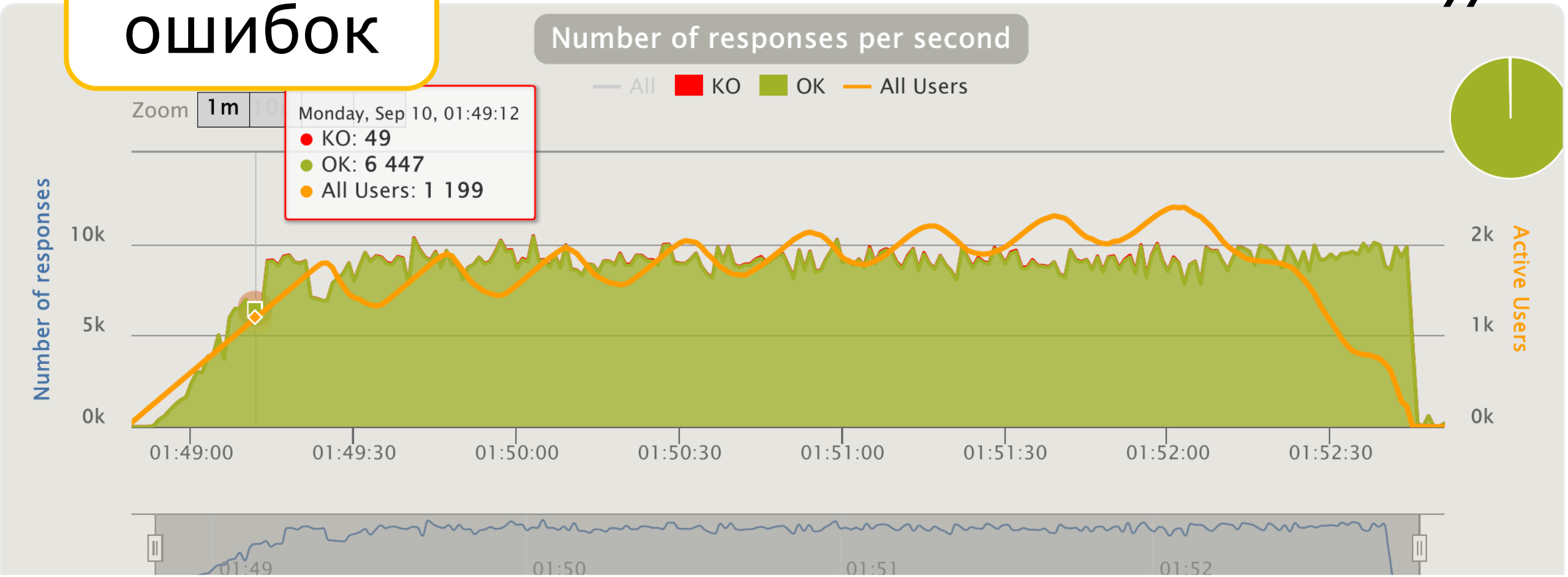
Время до 1 минуты



~ 10 000 rps


Number of requests per second
All
All Users
Zoom
1m
10m
1h
All
Number of requests
Active Users
10k
5k
0k
2k
1k
0k
01:49:00
01:49:30
01:50:00
01:50:30
01:51:00
01:51:30
01:52:00
01:52:30
01:49
01:50
01:51
01:52

Немного ошибок



Три вида ошибок

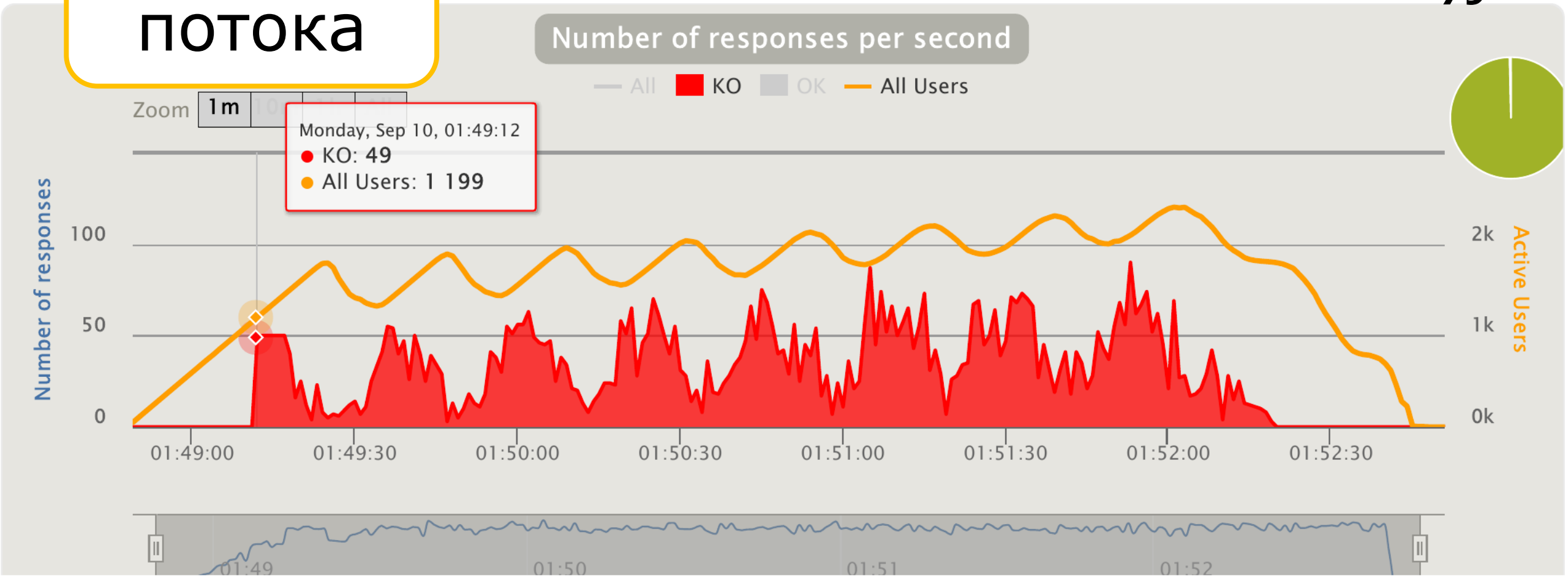
Expand all groups | Collapse all groups

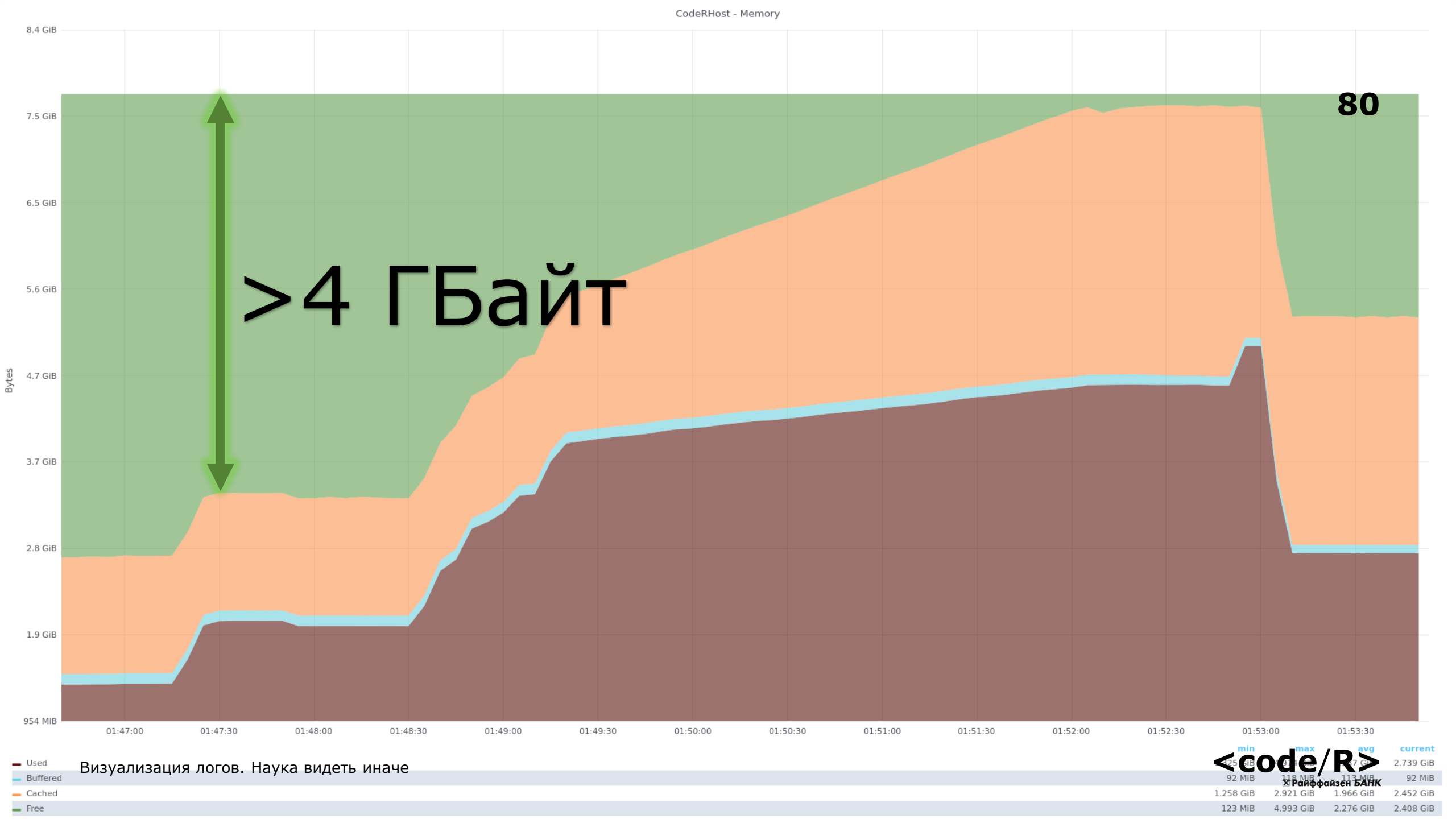
Requests	Executions					Response Time (ms)							
	Total	OK	KO	% KO	Req/s	Min	50th pct	75th pct	95th pct	99th pct	Max	Mean	Std Dev
Global Information	2000000	1993088	6912	0%	8230.453	0	101	158	260	389	59996	142	735
Index	2000000	1993088	6912	0%	8230.453	0	101	158	260	389	59996	142	735

ERRORS

Error	Count	Percentage
j.n.ConnectException: connection timed out: localhost/127.0.0.1:9000	6459	93.446 %
j.u.c.TimeoutException: Request timeout to localhost/127.0.0.1:9000 after 60000 ms	445	6.438 %
j.i.IOException: Соединение разорвано другой стороной	8	0.116 %

С 1200-го потока

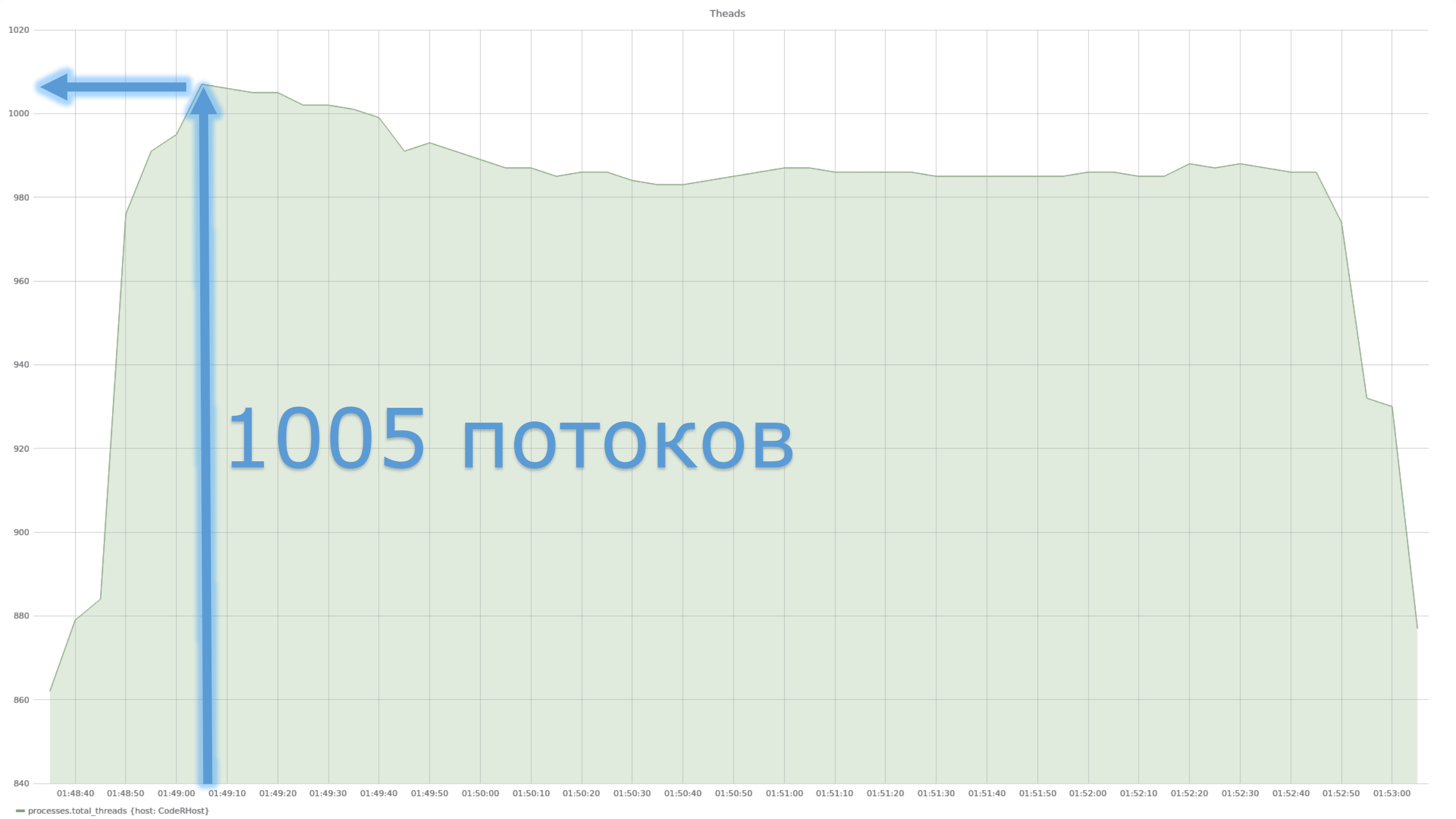




Визуализация логов. Наука видеть иначе

<code/R>

Райффайзен БАНК


Theads
1020
1000
980
960
940
920
900
880
860
840
1005 потоков
01:48:40
01:48:50
01:49:00
01:49:10
01:49:20
01:49:30
01:49:40
01:49:50
01:50:00
01:50:10
01:50:20
01:50:30
01:50:40
01:50:50
01:51:00
01:51:10
01:51:20
01:51:30
01:51:40
01:51:50
01:52:00
01:52:10
01:52:20
01:52:30
01:52:40
01:52:50
01:53:00
processes.total_threads {host: CodeRHost}

File Edit Selection Find View Goto Tools Project Preferences Help

untitled

```
#!/bin/awk -v level=ERROR -f
BEGIN {
  pattern = "^20[0-9][0-9]-[0-9][0-9]-[0-9][0-9] [0-9][0-9]:[0-9][0-9]:[0-9][0-9],[0-9]*"
  startPattern = pattern "[" level "]"
  isPrintLogDetail = "false"
  print startPattern
}
{
  if ($0 ~ startPattern ) {
    print $0
    isPrintLogDetail = "true"
  } else {
    if ($0 ~ pattern ) {
      isPrintLogDetail = "false"
    } else {
      if ( isPrintLogDetail == "true" ) {
        print $0
      }
    }
  }
}
END {
}
```


Визуализация логов. Наука видеть иначе

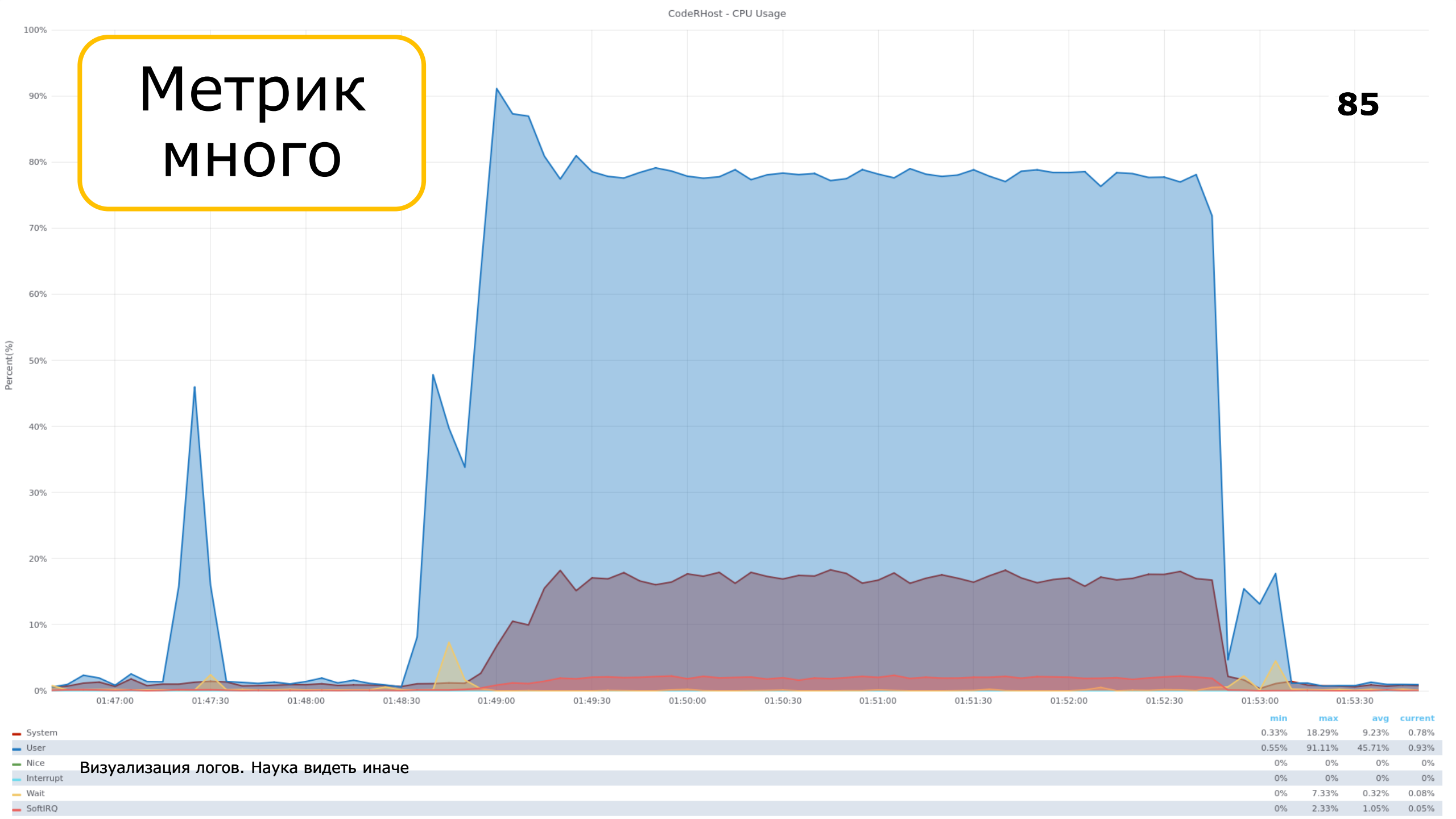
Line 8, Column 2 Spaces: 8 Batch File

untitled

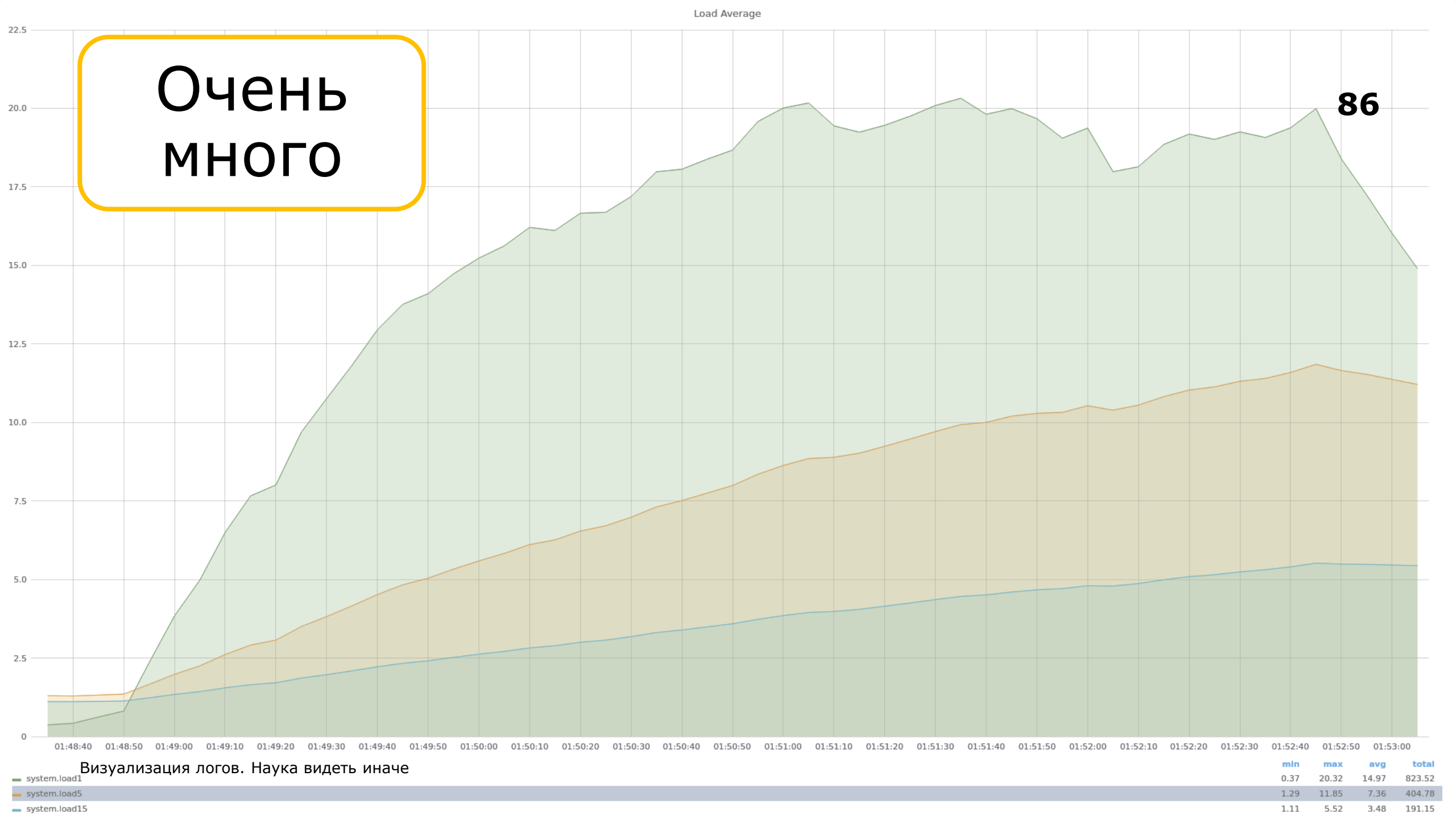
```
#!/bin/awk -v level=ERROR -f
BEGIN {
  pattern = "^20[0-9][0-9]-[0-9][0-9]-[0-9][0-9] [0-9][0-9]:[0-9][0-9]:[0-9][0-9],[0-9]*
  startPattern = pattern "[" level "]"
  isPrintLogDetail = "false"
  print startPattern
}
{
  if ($0 ~ startPattern ) {
    print $0
    isPrintLogDetail = "true"
  } else {
    if ($0 ~ pattern ) {
      isPrintLogDetail = "false"
    } else {
      if ( isPrintLogDetail == "true" ) {
        print $0
      }
    }
  }
}
END {
}
```

Об InfluxDB и группировке данных

```
name: system
time                 mean
----                 ----
1536750100000000000  0.07
1536750200000000000  0.382
1536750300000000000  1.2674999999999998
1536750400000000000  3.1665
1536750500000000000  4.430999999999999
1536750600000000000  4.824
1536750700000000000  5.2835
1536750800000000000  4.364500000000005
1536750900000000000  5.6005
1536751000000000000  5.989000000000001
1536751100000000000  5.414499999999999
1536751200000000000  5.997500000000005
1536751300000000000  8.236
1536751400000000000  8.531499999999998
1536751500000000000  7.590999999999999
```



Визуализация логов. Наука видеть иначе



Визуализация логов. Наука видеть иначе

Функции InfluxDB

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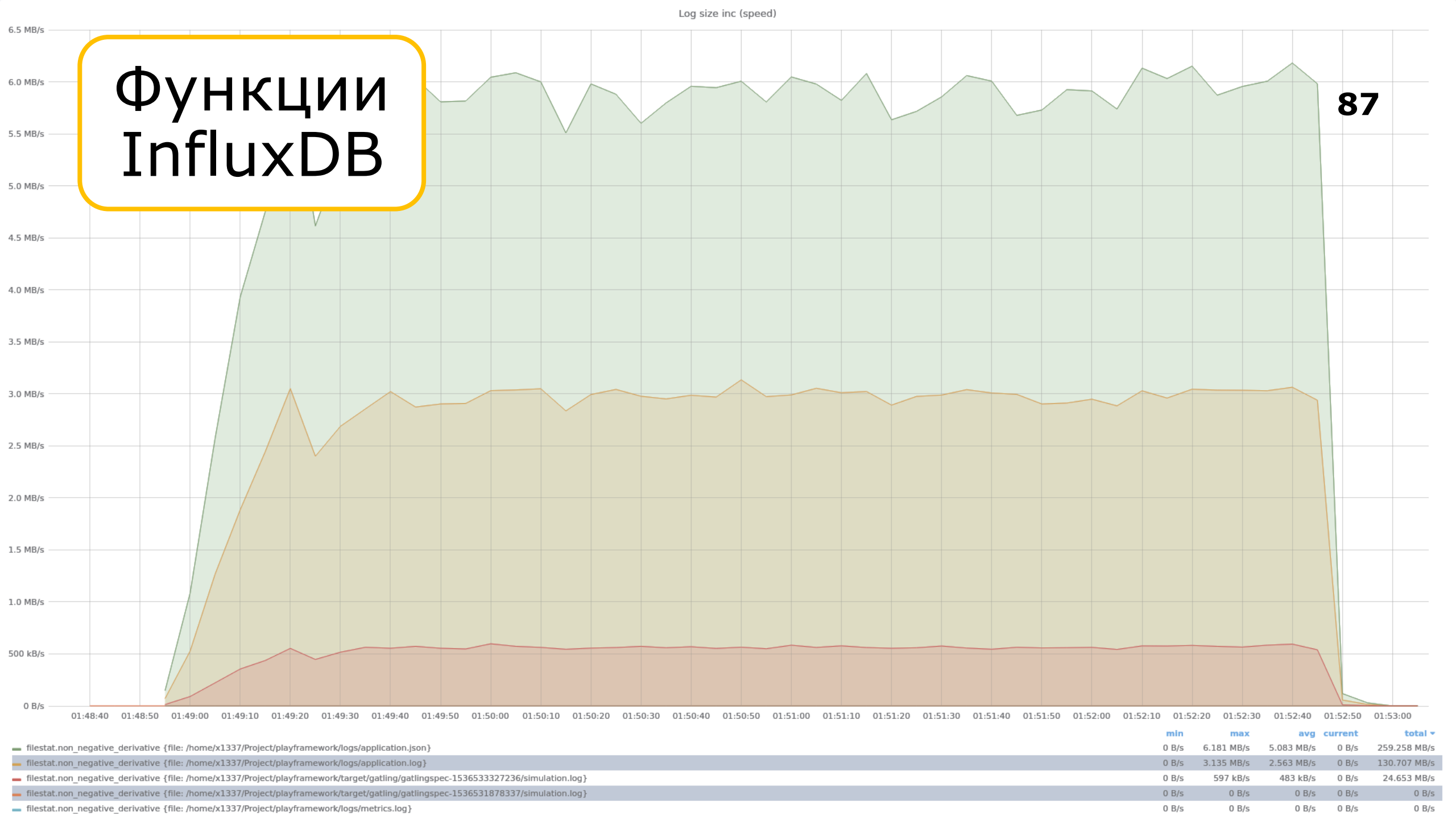
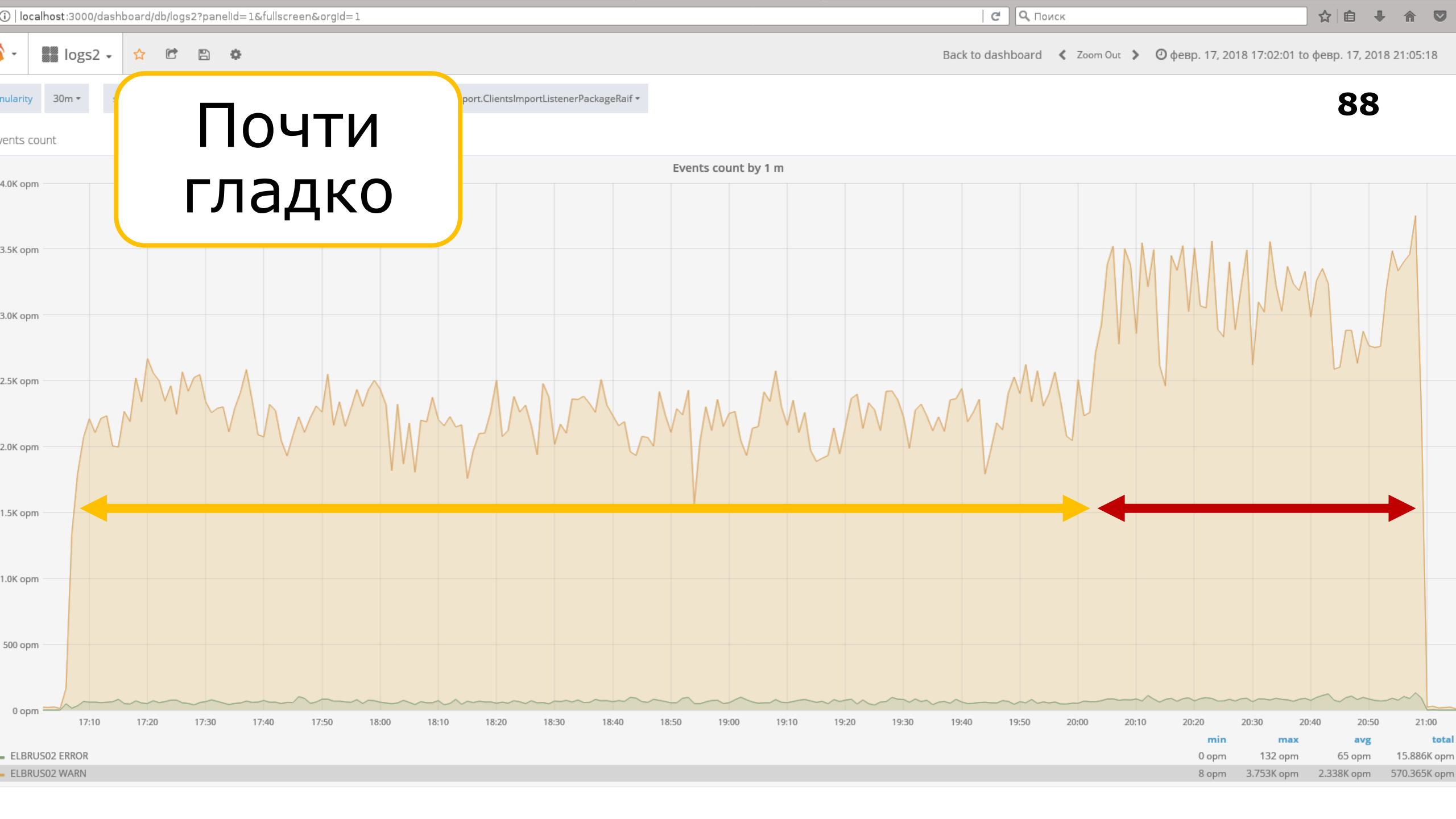
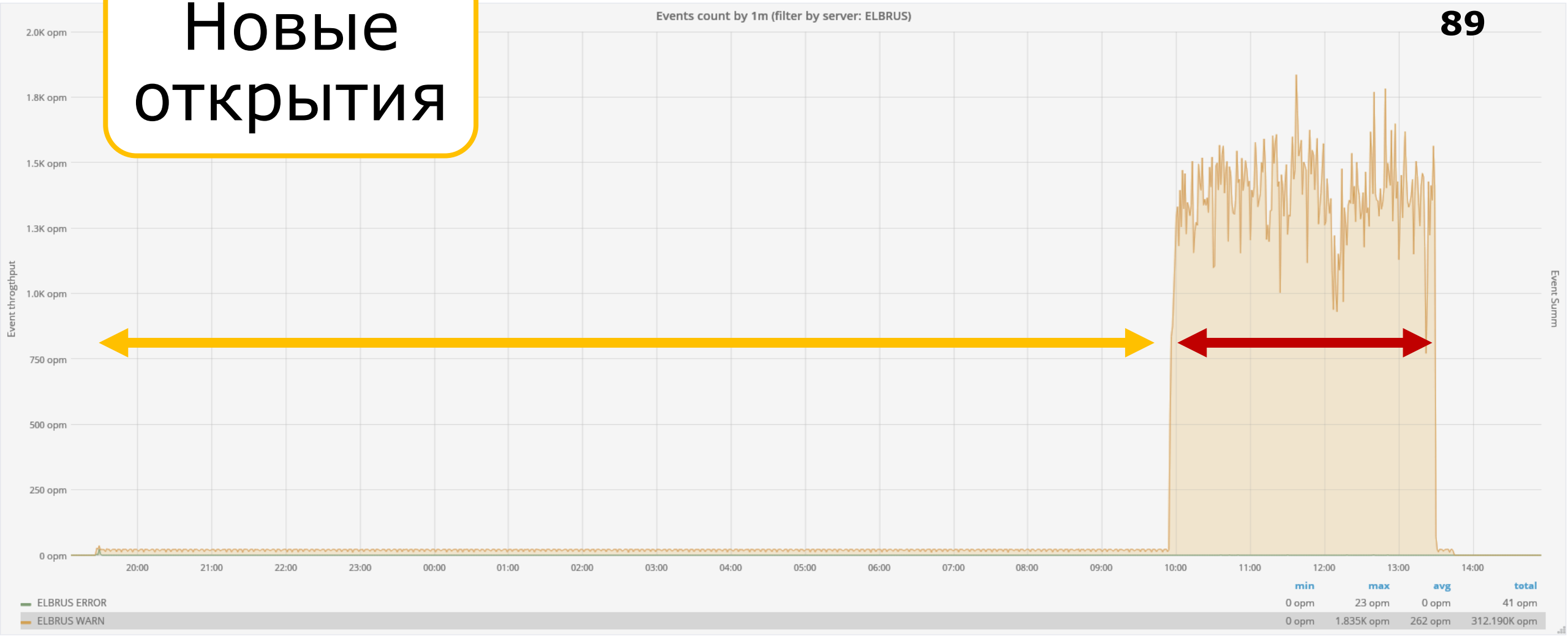



localhost:3000/dashboard/db/logs2?panelId=1&fullscreen&orgId=1
Поиск
logs2
Back to dashboard
Zoom Out
февр. 17, 2018 17:02:01 to февр. 17, 2018 21:05:18
30m
Почти гладко
88
Events count by 1 m
4.0K opm
3.5K opm
3.0K opm
2.5K opm
2.0K opm
1.5K opm
1.0K opm
500 opm
0 opm
17:10
17:20
17:30
17:40
17:50
18:00
18:10
18:20
18:30
18:40
18:50
19:00
19:10
19:20
19:30
19:40
19:50
20:00
20:10
20:20
20:30
20:40
20:50
21:00
min
max
avg
total
ELBRUS02 ERROR
0 opm
132 opm
65 opm
15.886K opm
ELBRUS02 WARN
8 opm
3.753K opm
2.338K opm
570.365K opm

Новые открытия



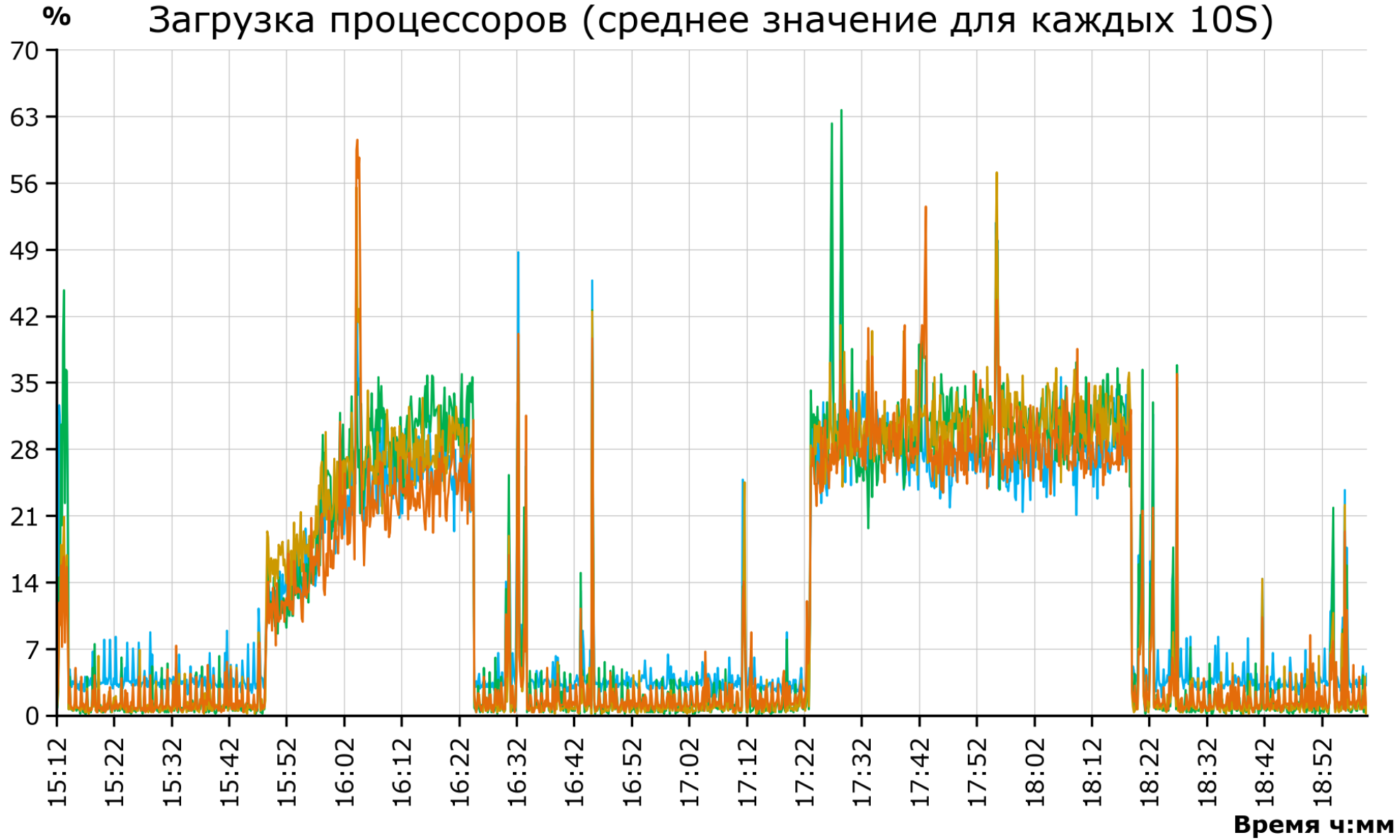
О Pandas и научном подходе к обработке данных

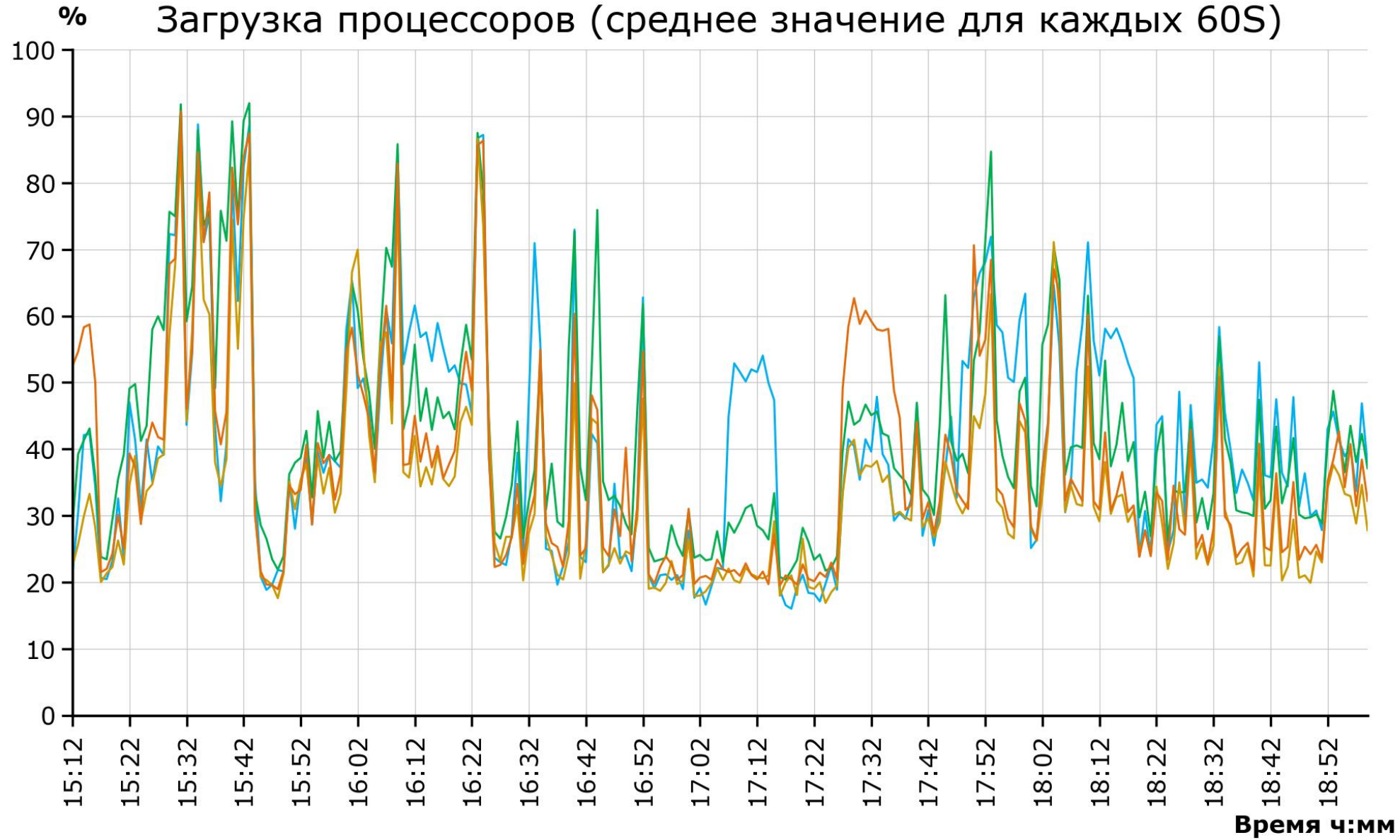

```
# Загрузить уже разобранные логи (пропустить повторный парсинг для скорости)
allLogs.restore_from_pickle()

# Взять первое сообщение об ошибке
firstText = allLogs.errorlog["error_text"][1]

# Для всех прочих сообщений об ошибке рассчитать степень схожести с первым сообщением
allLogs.errorlog["ratio"] = allLogs.errorlog["error_text"]\
    .apply(lambda x: SequenceMatcher(None, x, firstText).ratio())

# выделить все, у которых степень схожести выше 90% и сохранить в Excel
allLogs.errorlog[allLogs.errorlog["ratio"] > 0.9].to_excel("Errors1.xlsx")
```


%
Загрузка процессоров (среднее значение для каждых 10S)
70
63
56
49
42
35
28
21
14
7
0
15:12
15:22
15:32
15:42
15:52
16:02
16:12
16:22
16:32
16:42
16:52
17:02
17:12
17:22
17:32
17:42
17:52
18:02
18:12
18:22
18:32
18:42
18:52
Время ч:мм
Processor(0): 13.34%
Processor(1): 12.92%
Processor(2): 12.58%
Processor(3): 11.67%


%
Загрузка процессоров (среднее значение для каждых 60S)
100
90
80
70
60
50
40
30
20
10
0
15:12
15:22
15:32
15:42
15:52
16:02
16:12
16:22
16:32
16:42
16:52
17:02
17:12
17:22
17:32
17:42
17:52
18:02
18:12
18:22
18:32
18:42
18:52
Время ч:мм
Processor(0): 40.90%
Processor(1): 41.95%
Processor(2): 33.60%
Processor(3): 37.36%

```python
from difflib import SequenceMatcher

# Парсер логов
allLogs = LogParser.LogParser("C:\\Logs")

# Распарсить логи и сохранить результат парсинга в pickle-формате
# allLogs.parse_all_logs()
# allLogs.save_to_pickle()

# Загрузить уже разобранные логи (пропустить повторный парсинг для скорости)
allLogs.restore_from_pickle()

# Взять первое сообщение об ошибке
firstText = allLogs.errorlog["error_text"][1]

# Для всех прочих сообщений об ошибке рассчитать степень схожести с первым сообщением
allLogs.errorlog["ratio"] = allLogs.errorlog["error_text"]\
    .apply(lambda x: SequenceMatcher(None, x, firstText).ratio())

# выделить все, у которых степень схожести выше 90% и сохранить в Excel
allLogs.errorlog[allLogs.errorlog["ratio"] > 0.9].to_excel("Errors1.xlsx")
```

Мало кода

Много смысла

```python
from difflib import SequenceMatcher

# Парсер логов
allLogs = LogParser.

# Распарсить логи и
# allLogs.parse_all_logs()
# allLogs.save_to_pickle()

# Загрузить уже разобранные логи (пропустить повторный парсинг для скорости)
allLogs.restore_from_pickle()

# Взять первое сообщение об ошибке
firstText = allLogs.errorlog["error_text"][1]

# Для всех прочих сообщений об ошибке рассчитать степень схожести с первым сообщением
allLogs.errorlog["ratio"] = allLogs.errorlog["error_text"]\
    .apply(lambda x: SequenceMatcher(None, x, firstText).ratio())

# выделить все, у которых степень схожести выше 90% и сохранить в Excel
allLogs.errorlog[allLogs.errorlog["ratio"] > 0.9].to_excel("Errors1.xlsx")
```

Демо проект

https://github.com/polarnik/

codeR.2018.demo

play-scala-rest-api-example

Спасибо
за внимание!

info@raiffeisen.ru
raiffeisen.ru