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«Национальный исследовательский университет ИТМО»
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Отчет по предмету:

«Администрирование компьютерных сетей»

Лабораторная работа №1. Loki + Zabbix + Grafana

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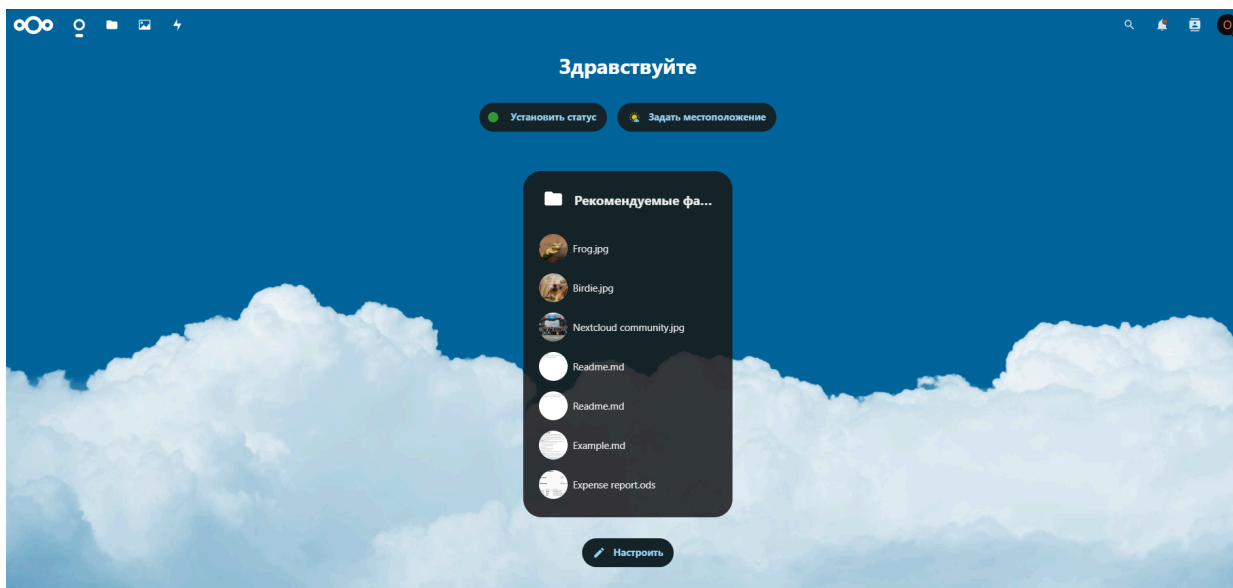
Проверил:
Самохин Никита Юрьевич

Логирование

- 1) Создали файлы *docker-compose.yml*, *promtail_config.yml*
- 2) Запустили *compose* файл командой `docker-compose up -d`

```
✓ Network comnet_default      Created
✓ Volume "comnet_nc-data"     Created
✓ Volume "comnet_zabbix-db"   Created
✓ Container nextcloud         Started
✓ Container promtail          Started
✓ Container postgres-zabbix   Started
✓ Container loki               Started
✓ Container grafana           Started
✓ Container zabbix-back       Started
✓ Container zabbix-front      Started
```

- 3) Заходим на *nextcloud*, создаем аккаунт с админкой



4) Прописываем команду `docker exec -it nextcloud cat data/nextcloud.log`, затем смотрим логи

```
Terminal
S C:\Users\ospel\GitHub\ComNet> docker exec -it nextcloud cat data/nextcloud.log
{"reqId":"awwYUsDqr0MJMo4C0C1F","level":2,"time":"2024-12-07T19:39:06+00:00","remoteAddr":"172.18.0.1","user":"","app":"no app in context","method":"GET","url":"/","message":"Host localhost was not connected to because it violates local access rules","userAgent":"Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/131.0.0.0 Safari/537.36 Edg/131.0.0.0","version":"","data":[]}
{"reqId":"awwYUsDqr0MJMo4C0C1F","level":2,"time":"2024-12-07T19:39:06+00:00","remoteAddr":"172.18.0.1","user":"","app":"no app in context","method":"GET","url":"/","message":"Host localhost was not connected to because it violates local access rules","userAgent":"Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/131.0.0.0 Safari/537.36 Edg/131.0.0.0","version":"","data":[]}
{"reqId":"awwYUsDqr0MJMo4C0C1F","level":3,"time":"2024-12-07T19:39:06+00:00","remoteAddr":"172.18.0.1","user":"","app":"PHP","method":"GET","url":"/","message":"fopen(/var/www/html/config/config.php): Failed to open stream: No such file or directory at /var/www/html/lib/private/Config.php#221","userAgent":"Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/131.0.0.0 Safari/537.36 Edg/131.0.0.0","version":"","data":{"app":"PHP"}}
{"reqId":"Po8Ks25LPuBipFdr4xGg","level":2,"time":"2024-12-07T19:40:58+00:00","remoteAddr":"172.18.0.1","user":"","app":"no app in context","method":"POST","url":"/","message":"Host localhost was not connected to because it violates local access rules","userAgent":"Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/131.0.0.0 Safari/537.36 Edg/131.0.0.0","version":"","data":[]}
{"reqId":"Po8Ks25LPuBipFdr4xGg","level":2,"time":"2024-12-07T19:40:58+00:00","remoteAddr":"172.18.0.1","user":"","app":"no app in context","method":"POST","url":"/","message":"Host localhost was not connected to because it violates local access rules","userAgent":"Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/131.0.0.0 Safari/537.36 Edg/131.0.0.0","version":"","data":[]}
```

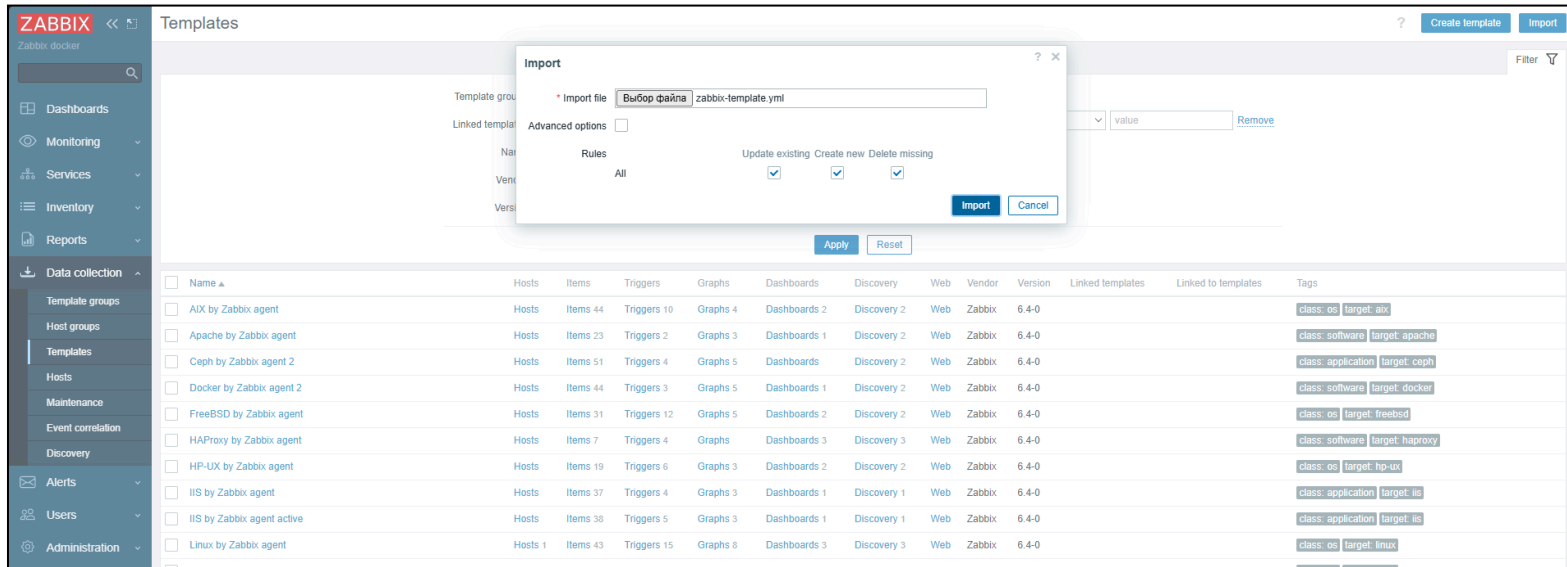
5) Проверяем, нашел ли *promtail* файл с логами от *nextcloud*

```
Terminal
NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/131.0.0.0 Safari/537.36 Edg/131.0.0.0","version":"","data":[]}
{"reqId":"Po8Ks25LPuBipFdr4xGg","level":2,"time":"2024-12-07T19:40:58+00:00","remoteAddr":"172.18.0.1","user":"","app":"no app in context","method":"POST","url":"/","message":"Host localhost was not connected to because it violates local access rules","userAgent":"Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/131.0.0.0 Safari/537.36 Edg/131.0.0.0","version":"","data":[]}
S C:\Users\ospel\GitHub\ComNet> docker logs promtail
level=info ts=2024-12-07T19:33:18.115368823Z caller=promtail.go:133 msg="Reloading configuration file" md5sum=2c8ba9ad5647669e9f64bdad5fed7eae
level=info ts=2024-12-07T19:33:18.118697725Z caller=server.go:322 http[::]:9080 grpc[::]:39905 msg="server listening on addresses"
level=info ts=2024-12-07T19:33:18.119522568Z caller=main.go:174 msg="Starting Promtail" version="(version=2.9.0, branch=HEAD, revision=2feb64f6)"
level=warn ts=2024-12-07T19:33:18.11990147Z caller=promtail.go:263 msg="enable watchConfig"
level=info ts=2024-12-07T19:33:23.117408201Z caller=filetargetmanager.go:361 msg="Adding target" key="/opt/nc_data/*.log:{job=\"nextcloud_logs\"}"
level=info ts=2024-12-07T19:39:13.105719967Z caller=filetarget.go:313 msg="watching new directory" directory=/opt/nc_data
level=info ts=2024-12-07T19:39:13.117078534Z caller=tailer.go:145 component=tailer msg="tail routine: started" path=/opt/nc_data/nextcloud.log
s=2024-12-07T19:39:13.117868578Z caller=log.go:168 level=info msg="Seeked /opt/nc_data/nextcloud.log - &{Offset:0 Whence:0}"
level=info ts=2024-12-07T19:40:58.951312019Z caller=filetargetmanager.go:181 msg="received file watcher event" name=/opt/nc_data/htaccessstest.t
t op=CREATE

Engine running || : RAM 2.07 GB CPU 0.42% Disk 1020.64 GB avail. of 1081.10 GB
```

Мониторинг

1) Заходим в zabbix, импортируем template



2) Разрешаем zabbix подключиться к nextcloud командой `docker exec -u www-data nextcloud php occ config:system:set trusted_domains 1 --value="nextcloud"`

```
S C:\Users\ospel\GitHub\ComNet> docker exec -u www-data -it nextcloud bash
ww-data@a8ed1fe3ecda:~/html$ ^[[200~
ash: $'\E[200~': command not found
ww-data@a8ed1fe3ecda:~/html$ php occ config:system:set trusted_domains 1 --value="nextcloud"
system config value trusted_domains => 1 set to string nextcloud
ww-data@a8ed1fe3ecda:~/html$
```

3) Создаем хост-аккаунт и применяем к нему template

New host

Host IPMI Tags Macros Inventory Encryption Value mapping

* Host name

Visible name

Templates

* Host groups

Interfaces No interfaces are defined.
[Add](#)

Description

Monitored by proxy

Enabled ☒

4) Проверим работу

Latest data

Host groups

Tags

Hosts

Name

Show tags Tag name

Tag display priority

Show details ☐

Subfilter affects only filtered data

HOSTS

nextcloud	Zabbix server
-----------	---------------

TAGS

component	104
-----------	-----

TAG VALUES

component:	application 1	cpu 17	data-collector 13	environment 1	internal-process 22	memory 7	os 3	raw 3	security 1	storage 3	system 36
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DATA

With data Without data

<input type="checkbox"/> Host	Name	Last check	Last value	Change	Tags	Info
<input type="checkbox"/> nextcloud	Nextcloud ping service	32s	healthy			History

Визуализация

1) Устанавливаем плагин на zabbix для grafana

```
S C:\Users\ospel\GitHub\ComNet> docker exec -it grafana bash -c "grafana cli plugins install alexanderzobnin-zabbix-app"
Downloaded and extracted alexanderzobnin-zabbix-app v4.5.7 zip successfully to /var/lib/grafana/plugins/alexanderzobnin-zabbix-app

Please restart Grafana after installing or removing plugins. Refer to Grafana documentation for instructions if necessary.

S C:\Users\ospel\GitHub\ComNet> docker restart grafana
grafana
```

2) Подключаем Loki к Grafana

loki Type: Loki Alerting Supported

Type: Loki

Settings

Configure your Loki data source below
Or skip the effort and get Loki (and Prometheus) as fully-managed, scalable, and hosted data sources from Grafana Labs with the free-forever Grafana Cloud plan.

Name Default ☒

Before you can use the Loki data source, you must configure it below or in the config file. For detailed instructions, [view the documentation](#).

Connection

URL *

✓ Data source successfully connected.

Next, you can start to visualize data by [building a dashboard](#), or by querying data in the [Explore view](#).

Delete Save & test

s/ce6a2i060omiod

3) Подключаем zabbix к Grafana

alexanderzobnin-zabbix-datasource

Type: Zabbix

Settings

Dashboards

Name

alexanderzobnin-zabbix-datasource

Default

☐

Before you can use the Zabbix data source, you must configure it below or in the config file. For detailed instructions, [view the documentation](#).

Fields marked with * are required

Connection

URL *

http://zabbix-front:8080/api_jsonrpc.php

Authentication

Authentication methods

Choose an authentication method to access the data source

No Authentication

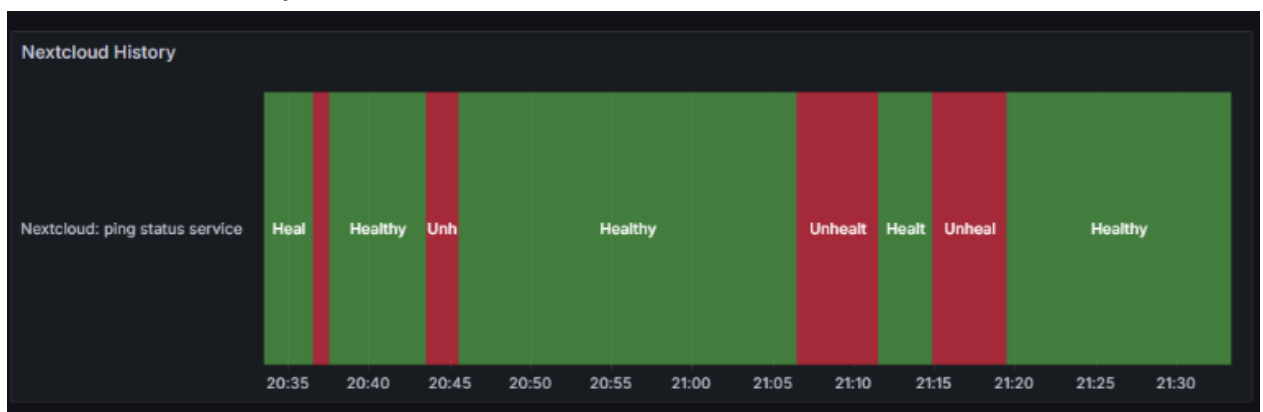
✓ Zabbix API version: 6.4.20

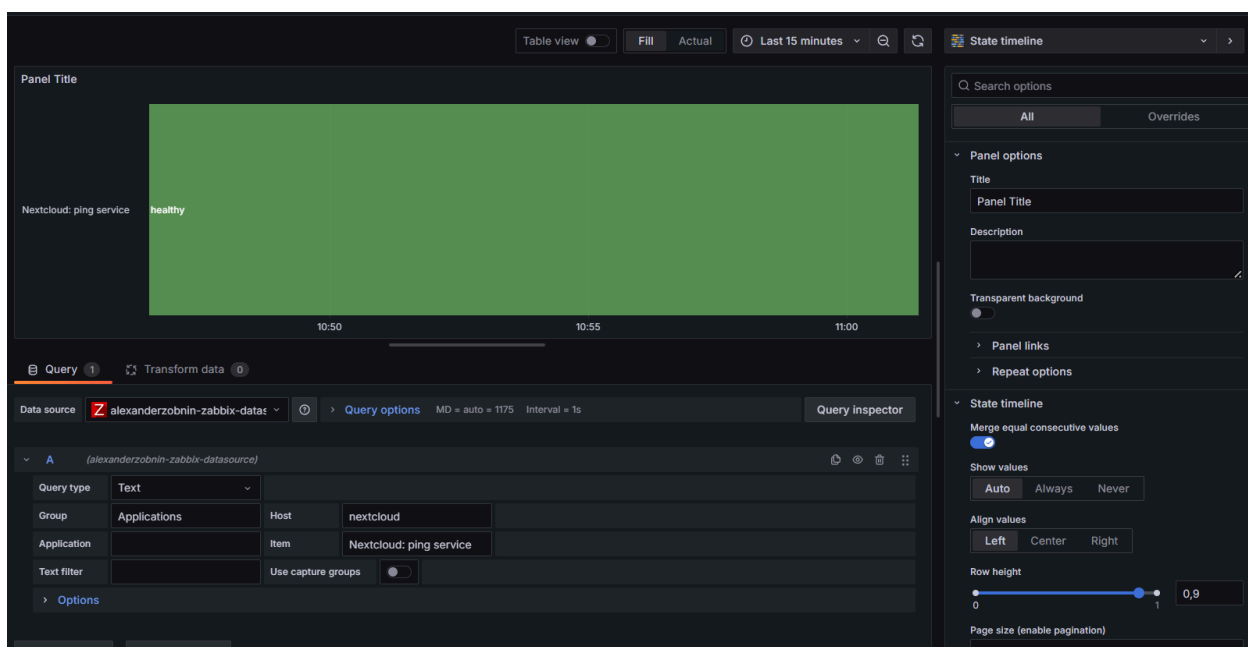
Next, you can start to visualize data by [building a dashboard](#), or by querying data in the [Explore view](#).

Delete

Save & test

4) Создаем дашборд с логами из Loki и zabbix





Ответы на вопросы

1) Чем SLO отличается от SLA?

SLO (цель уровня обслуживания) — это желаемый уровень производительности сервиса, заявленный для клиента.

SLA (соглашение об уровне обслуживания) — это договор, определяющий действия в случае, если фактическая производительность (SLI) не соответствует заявленной цели (SLO).

2) Чем отличается инкрементальный бэкап от дифференциального?

Инкрементальное резервное копирование сохраняет только изменения, внесённые с момента последнего бэкапа. Дифференциальное резервное копирование же сохраняет все изменения, сделанные с момента последнего полного бэкапа.

3) В чем разница между мониторингом и observability?

Мониторинг фокусируется на отслеживании ключевых метрик системы, отвечая на вопрос “что произошло?”. Observability же идёт дальше,

предоставляя полную картину внутреннего состояния системы, включая метрики, логи и события, позволяя ответить на вопросы “почему” и “как” произошла проблема.