Preparation for "Data Challenge 24"

Tigran Mkrtchyan for dCache team

DC24 Objectives

- Objectives

  - To monitor system performance, stability, scalability

  - To identify existing or potential bottlenecks

  - To identify operational overhead

  - To collect site experience and best practices

- Non-Objectives

  - Fixing on-the-flight sites issues

    - Some configuration changes might apply, though

dCache Built-in Java Flight Recorder

- A low overhead profiler built into JVM

- Starting dCache 7.2 attach listener is enabled by default

- Starting dCache 9.1 added simple admin commands to start/stop recording

- The collected recordings can be shared with developers for later analysis
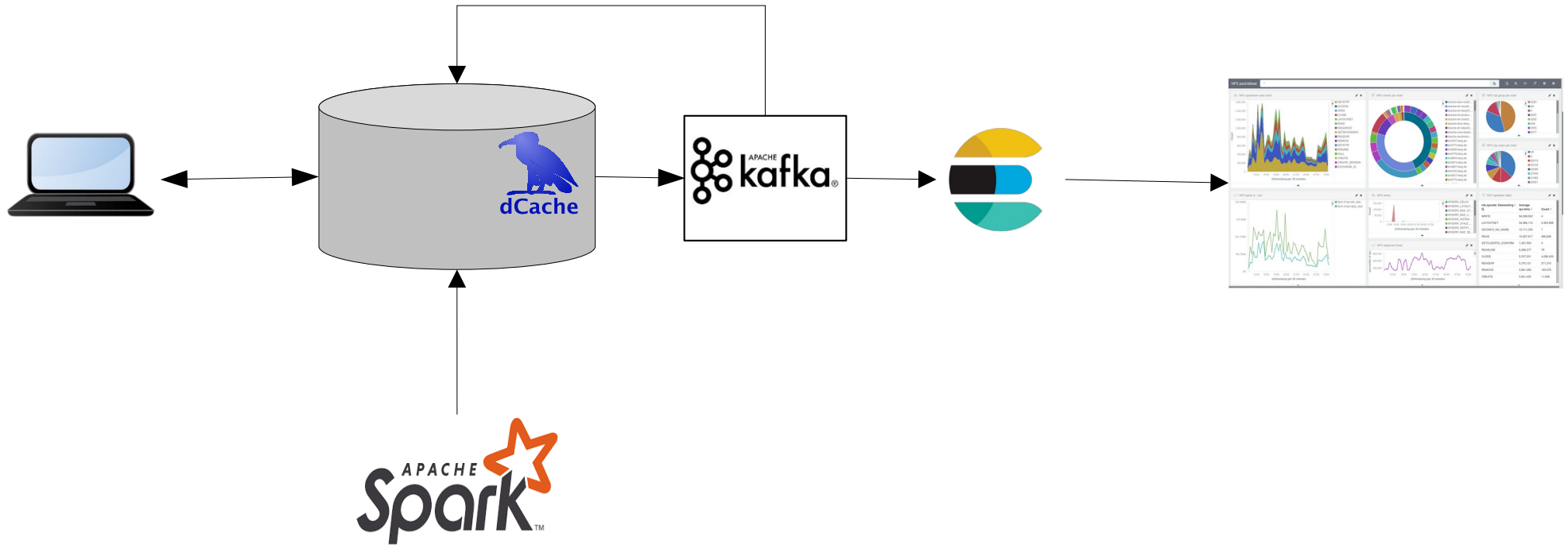
- Grid is currently X.509 based, using VOMS to identify groups of people

- Mapping between X.509 and site-local resource identifiers (typically uids / gids) is often lousy and difficult to predict.

- Updating permissions can be a slow, manual process.

- Jobs often run with delegated credentials that have full permissions

  - A stolen credential can do anything the user is allowed to do.

Tokens ...

- ID Tokens

  - Provides user identity and/or group membership

    eduPersonPrincipalName: tigran@desy.de

- Access Tokens

  - Tells what token holder can do

    storage.read:/users/tigran

The Mapping and Access Handling

```
"wlcg.ver": "1.0",
"sub": "2ea41db8-ecd7-47a1-8f86-7ac97ebcc466",
"aud": "https://wlcg.cern.ch/jwt/v1/any",
"nbf": 1662472763,
"scope": "openid profile storage.read:/ storage.create:/",
"iss": "https://cms-auth.web.cern.ch/",
"exp": 1662476363,
"iat": 1662472763,
"jti": "88a1f764-8311-4210-a8cd-d5604b942d8c",
"client_id": "106ceb94-e89c-421a-9c7d-1424e2fa4668",
"wlcg.groups": [
  "/cms",
  "/cms/dcms",
  "/cms/integration"
]
```

Tokens carrying **storage.*** OR **compute.*** scopes are explicit AuthZ tokens and suspend from any further permission checks

dCache Config

```
gplazma.oidc.provider!\
  cms=https://cms-auth.web.cern.ch/ \
  -profile=wlcg \
  -authz-id="group:cmsuser gid:4050" \
  -prefix=/pnfs/desy.de/cms/tier2/
```

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- Bulk-API for deleting test data

  - We want get rid on SRM, isn't it?

- dCache services on RHEL9 and clones

  - Developer tests ever scale to production size

- Java 17 as runtime

  - Better performance, low CPU usage

- Container-based deployments

- Different dCache pools deployments

  - CephFS, ZFS-DRAID

Summary
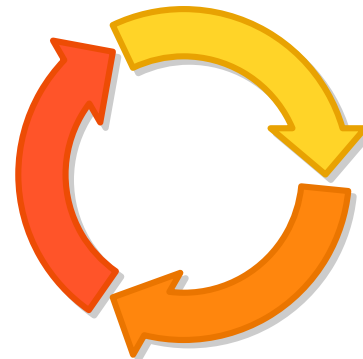
- dCache dev team sees DC24 as an opportunity for large-scale data transfer test (no tape-api tests 🙁)

- Token support is available for all token capable protocols: HTTP, REST (TAPE-API), Xroot

- We recommend sites to run dCache version 9.2 to benefit from the latest developments

- We recommend sites to collect as much log information as possible for later analysis

Thank You!

More info:

   https://dcache.org

To steal and contribute:

   https://github.com/dCache/dcache

Help and support:

   support@dcache.org, user-forum@dcache.org