# **BEV DC 2.0**

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## Data Center (DC) Why do we need it?

- A DC is an integral part of any large GNSS network.
- Its purpose is to:
  - collect RINEX data from the stations.
  - **check** the data for errors and consistency.
  - provide a single endpoint, where the networks. data can be accessed
- Must facilitate easy data access.

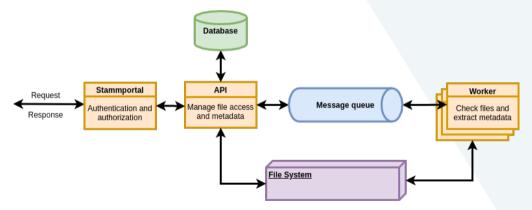
#### DC Challenges

- **Speed** data must be processed within 10 minutes.
- **Reliability** service must be highly available.
- Integrity data must be consistent.
- Quality quality standards must be enforced.
- Standards easy data access for users.

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#### DC 2.0 Application structure



### DC 2.0 What is new?

#### Speed

- Event-driven architecture.
- Scalable workers.

#### • Reliability

- Redundancy with load balancer.
- Asynchronous micro service architecture with messaging queue.
- Containerization with Docker.

#### Integrity

- Authentication and authorization.
- Quality
  - Data check at API and Worker level.
- Standards
  - RESTful API design.

## **API** design

- API follows **REST conventions**.
  - Accept and respond JSON.
  - Item and list views.
  - ...
- Metadata of RINEX files can be filtered and searched.
  - Name filter.
  - Station filter.
  - Date and time filter.
  - ...
- API supports file download and file upload via HTTPS.
- User authentication and authorization with certificate.

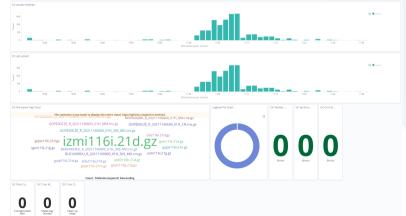
# **API** design

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# Logging

#### Application monitoring with ELK stack.



DC 2.0

## How can I access it?

Data upload

https://sti.bev.gv.at/at.gv.bev.dc/

Certificate is needed for upload. Please send an Email to david.mayer@bev.gv.at.

Data filter, search, download

https://www.gnss.bev.gv.at/api/

Can be accessed by anonymous user.

## What will happen to the FTP server?

- API and FTP server will **run in parallel** for now.
- However, we plan to retire the FTP server in the future.

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**Future work** 

- Design a **responsive front-end**, that will guide the user.
- Adding more data quality checks to the worker.
- Migrating historical data.

# **BEV DC 2.0**

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