



# Design and Implementation of the Warning System for the TechTIDE-Horizon2020 project for the identification of traveling ionospheric disturbances in real-time

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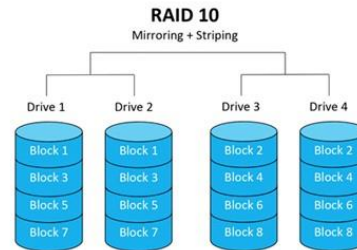
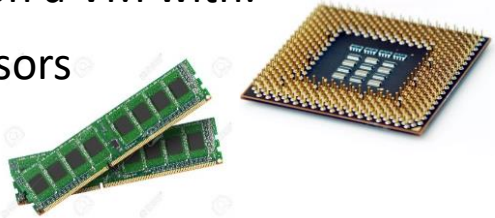


# TechTIDE infrastructure



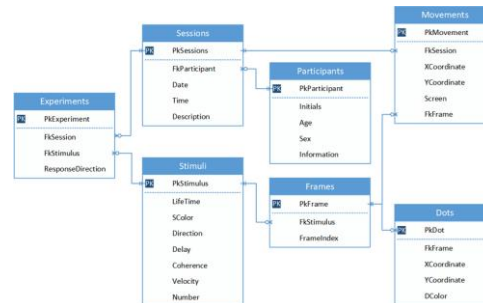
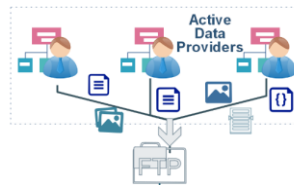
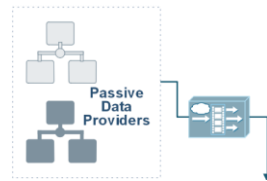
TechTIDE is hosted on a VM with:

- 12 logical processors
- 62 GB of RAM
- 3.6 TB of storage implemented utilizing the RAID 10 protocol offering balanced speed and fault tolerance capabilities



## Products Storage Structure:

- Data Providers: 21
- Categories: 62 Individual Product Categories
- Current data volume utilized: **1.5 TB**
- Number of distinct products: **8.100.000**



	product character varying (24)	method character varying (24)
1	aatr	Smin
2	aatr	Smining
3	aatr	dayimg
4	aatr	eulmg
5	aatr	sum
6	cdss	cdss
7	cdss	cdssimg
8	cdss	cdsspm
9	densfof2	fof2cond
10	densfof2	fof2hm2img
11	densfof2	fof2medi
12	densmaps	diffcond
13	densmaps	diffheight_D200
14	densmaps	diffheight_D300
15	densmaps	diffheight_D400
16	densmaps	diffheight_D500
17	densmaps	diffheight_DD200
18	densmaps	diffheight_DD300
19	densmaps	diffheight_DD400
20	densmaps	diffheight_DD500
21	densmaps	diffmedi
22	ed	ed
23	eddistrav	eddisting_AT138
24	eddistrav	eddisting_DB049
25	eddistrav	eddisting_EB040
26	eddistrav	eddisting_GR131



# TechTIDE core components



## TechTIDE RDBMS:

The RDBMS (Relational database management system) of choice is the **PostgreSQL** Database, a powerful, open source object-relational database system with over 30 years of active development providing reliability, feature robustness, and performance.

## Database statistics:

- Total number of files recorded: **5.184.511**
- Total number of warnings/alerts recorded: **97.479**
- Total records in Database: approx. **100.000.000**
- Hosted data time-signatures span:
  - 1994-01-01 (Kp Index)
  - 2017-01-01 (TechTIDE Products)



YEAR	Number of Products
2017	1484069
2018	1560439
2019	3077642
2020	2052245



**Volume** of Products per month:  
approx. **92 GB**



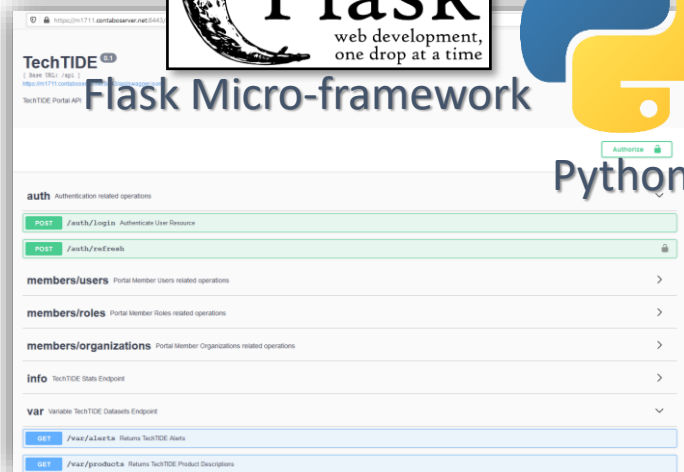
# TechTIDE core components



## TechTIDE API:

The TechTIDE API (Application Programming Interface):

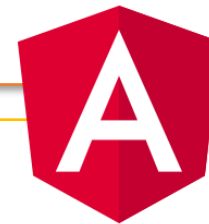
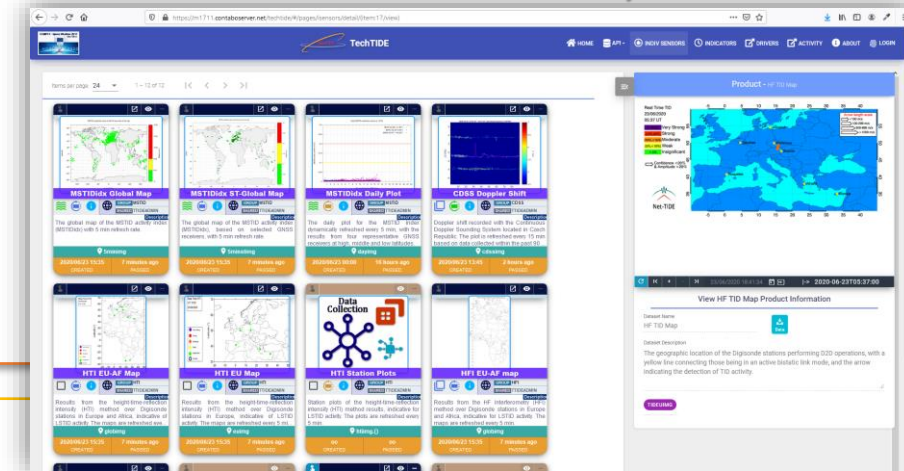
- Provides methods for querying and disseminating TechTIDE data and metadata.
- Allows access to the diachronic archive by following the RestFUL architecture.
- Optimal access via programming.



## Data Monitoring:

Data synchronizer and data processing components:

- Monitor active data providers for new data
- Fetch new data from passive data providers
- Process & produce new datasets
- Catalogue and archive products.

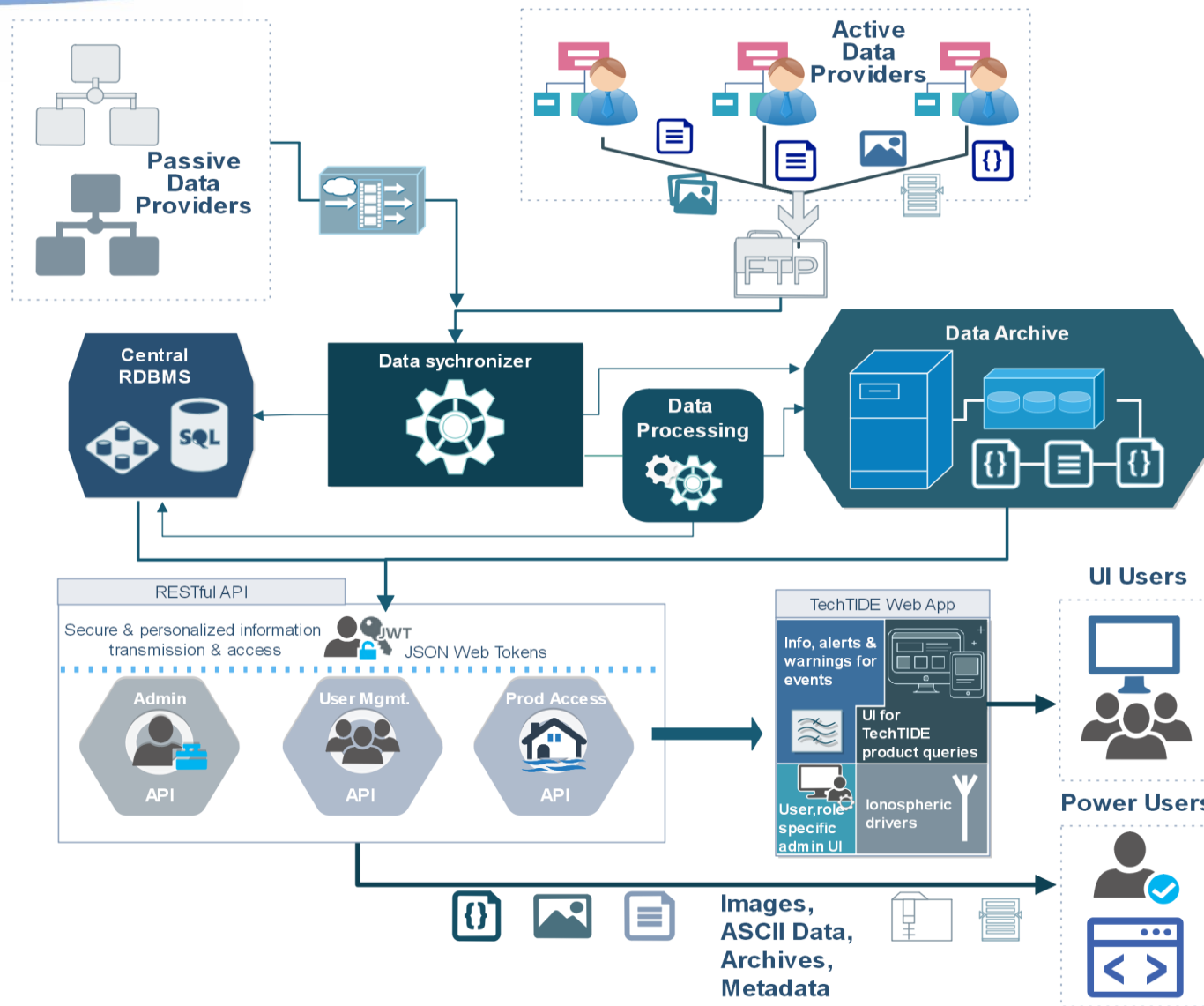


## TechTIDE UI:

The TechTIDE UI (User Interface):

- Provides graphical user friendly methods for previewing querying and disseminating TechTIDE data and metadata.
- It is build using the Angular TypeScript-based open-source web application framework led by Google.

# TechTIDE Architecture





## TechTIDE Links



## TechTIDE API

<https://m1711.contaboserver.net:8443/api/>

## TechTIDE UI

<https://m1711.contaboserver.net/techtide/#/pages/intro>



# Thank you for your attention!

**TechTIDE Project**



WEB: <http://tech-tide.eu>

Twitter: @ Tech\_TIDE



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