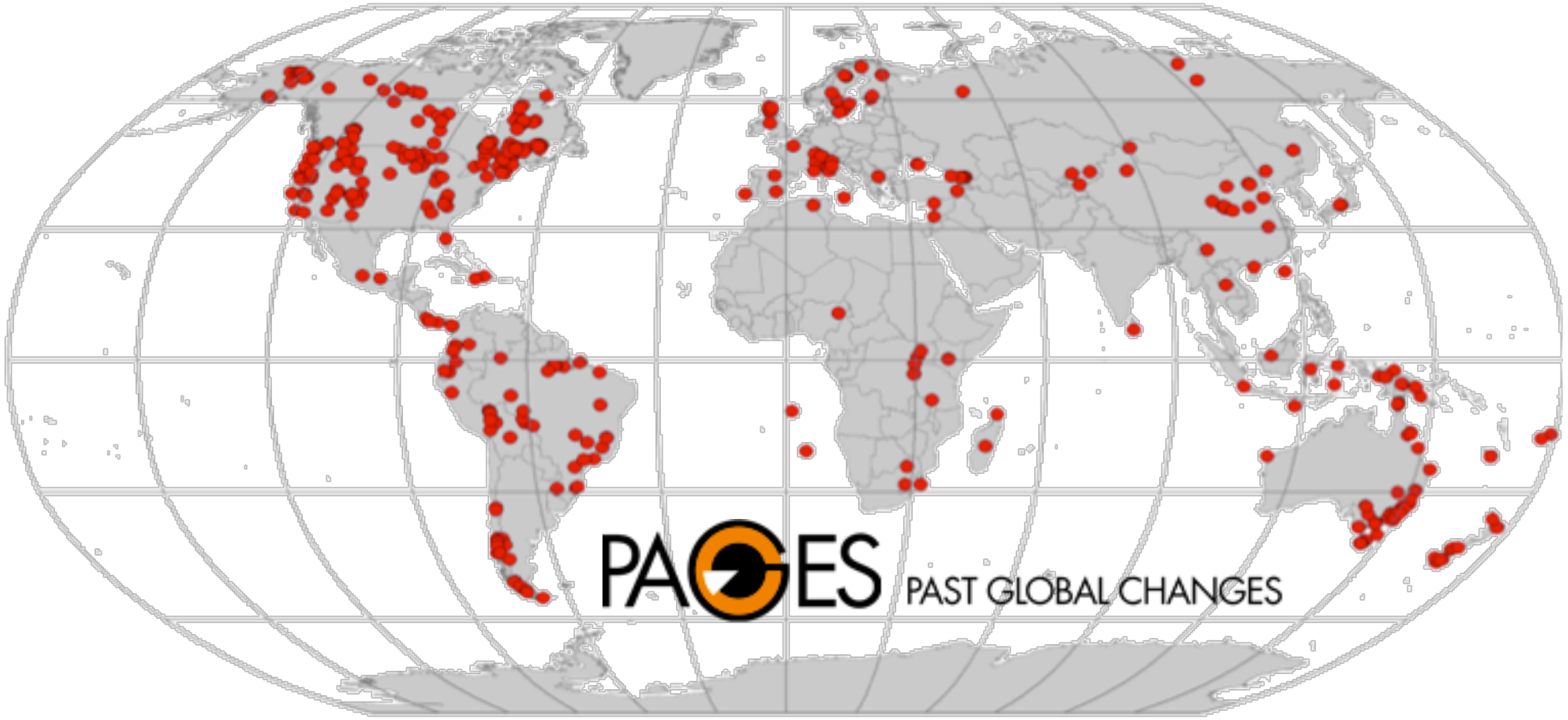
The Global Charcoal Database

The GCD contains information about palaeofire activity in the form of sedimentary charcoal records from sites across the globe since the last 100 000 years



Power et al. 2008 - Daniau et al. 2012 - Marlon et al. 2013 - Vannière et al. 2014

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paleofire: An R package to analyse sedimentary charcoal records from the Global Charcoal Database to reconstruct past biomass burning ☆

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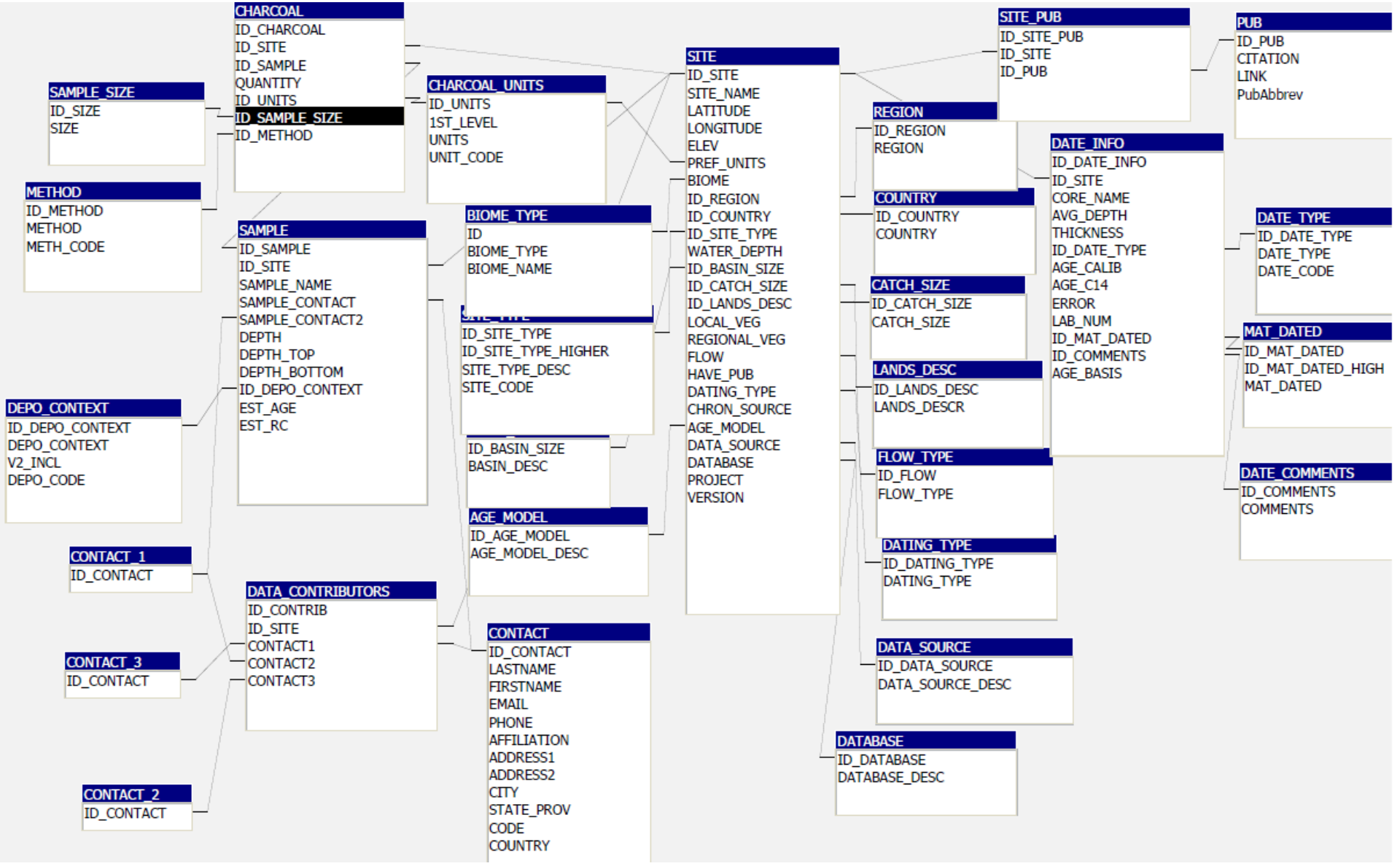
Model in the ACCESS database

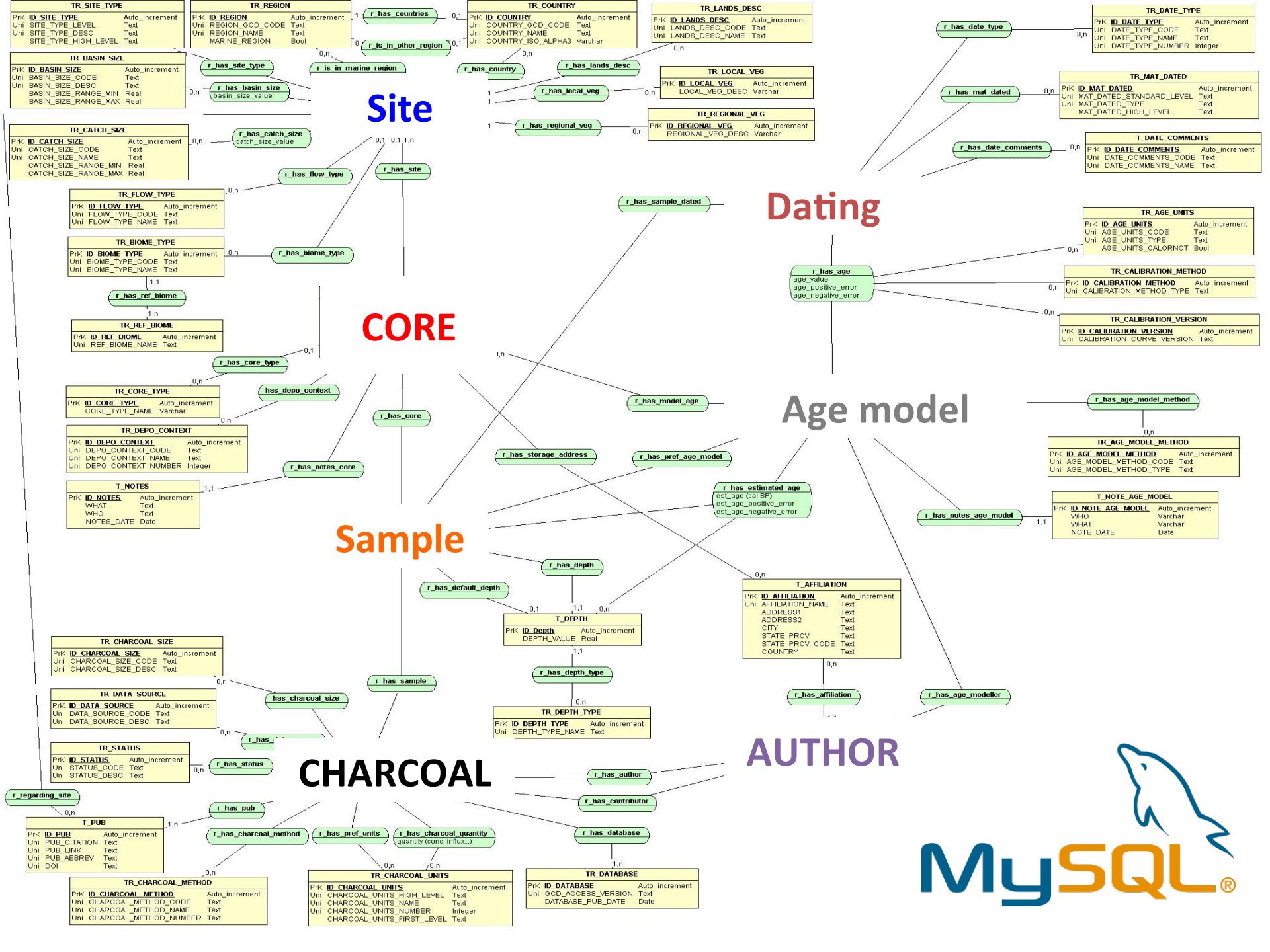


Database needs/features

- Sharing the database
  - Database has to be on a server with concurrent access
  - Database must be accessible with Internet 24/24
  - Offer Graphical User Interface (GUI) instead of spreadsheet to overview the DB / import, export, control & manage the data

- Provide security of the data
  - Network and hardware security
  - Software access management

- Database scalability
  - Use MySQL instead of Access
  - API to communicate with R-package
  - Automatic generation of charts and graphs based on monthly realeases of the database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Uni SITE_TYPE_DESC Text
SITE_TYPE_HIGH_LEVEL Text
TR_REGION
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Uni REGION_NAME Text
MARINE_REGION Bool
r_has_countries
r_is_in_other_region
r_is_in_marine_region
TR_COUNTRY
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Uni BASIN_SIZE_DESC Text
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BASIN_SIZE_RANGE_MAX Real
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r_has_basin_size
basin_size_value
Site
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LOCAL_VEG_DESC Varchar
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CORE_TYPE_NAME Varchar
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WHAT Text
WHO Text
NOTES_DATE Date
Sample
r_has_sample_dated
r_has_model_age
r_has_storage_address
r_has_pref_age_model
r_has_estimated_age
est_age (cal BP)
est_age_positive_error
est_age_negative_error
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r_has_default_depth
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CHARCOAL
r_regarding_site
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Uni PUB_ABBREV Text
Uni DOI Text
r_has_pub
r_has_charcoal_method
r_has_pref_units
r_has_charcoal_quantity
quantity (conc, influx...)
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age_positive_error
age_negative_error
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WHO Varchar
WHAT Varchar
NOTE_DATE Date
T_AFFILIATION
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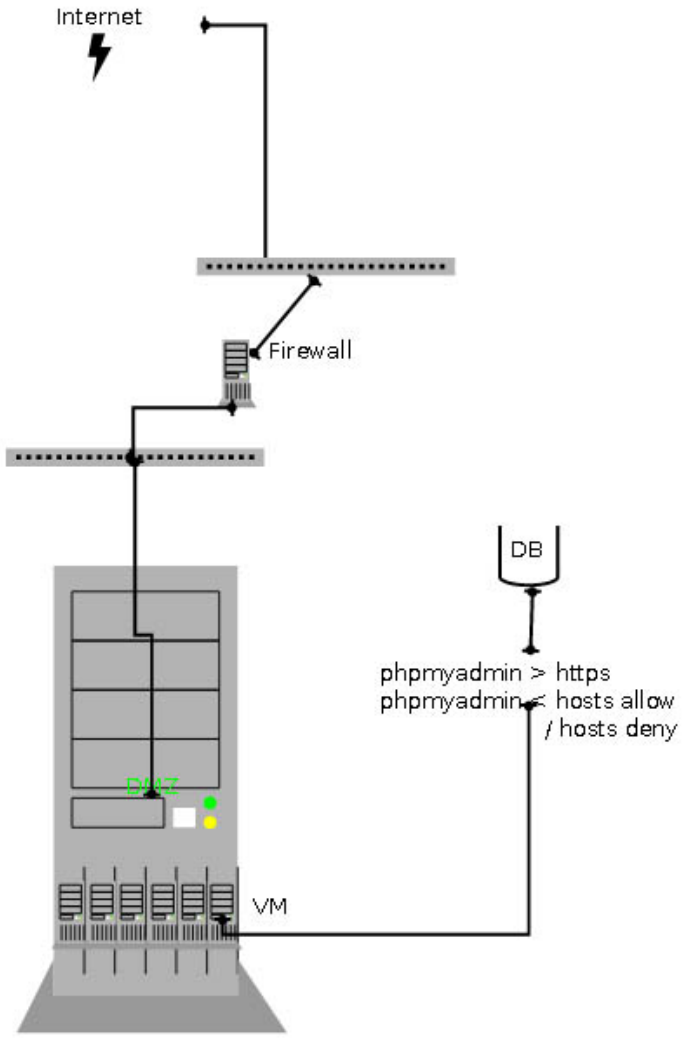
ADDRESS1 Text
ADDRESS2 Text
CITY Text
STATE_PROV Text
STATE_PROV_CODE Text
COUNTRY Text
r_has_affiliation
r_has_age_modeller
AUTHOR
MySQL

Network security

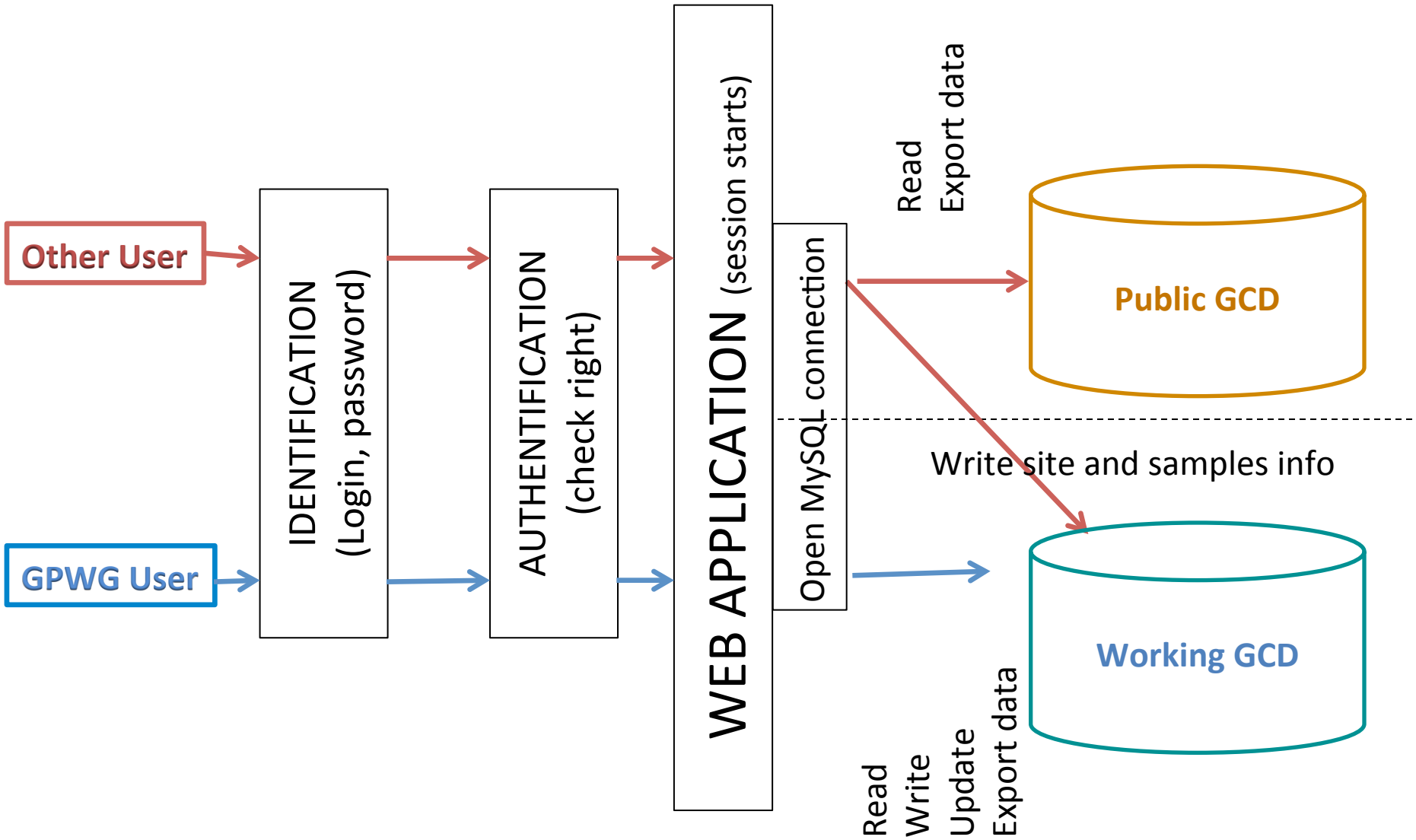


Usage of a **firewall**, barrier to prevent unauthorized or unwanted communications between computer networks or hosts.

Server web virtualization
The best possible utilization of physical web related equipment that is turned in to virtual machines and giving you the complete control. This making your virtual platform extremely reliable, flexible, stable, safe, and secure from the many hazards of the web hosting industry.

We use twin server connected at the University of Franche-Comté (Eastern France) far from any fire risk !

Software security



Access versus MySQL

	ACCESS	MySQL
Cost	Paying	Freeware, Open Source
Concurrent Users	20	More than 255
Operating System	Windows	Windows, Linux , mobile platforms…
Security	Low (just password encrypted)	High (password, SSL-encrypted connections between MySQL clients and servers, accounts with privileges)
Internet	Access isn't designed to create web sites	MySQL was designed and optimized for Web applications
Max Database size	2Go	Unlimited
Database reliability	MDB is easily corrupted (*Faulty Networking Device, write operation abort…)*	Detecting and prevent corruption of the replication stream, automatically recovering the binary log in the event of a crash

www.paleofire.org