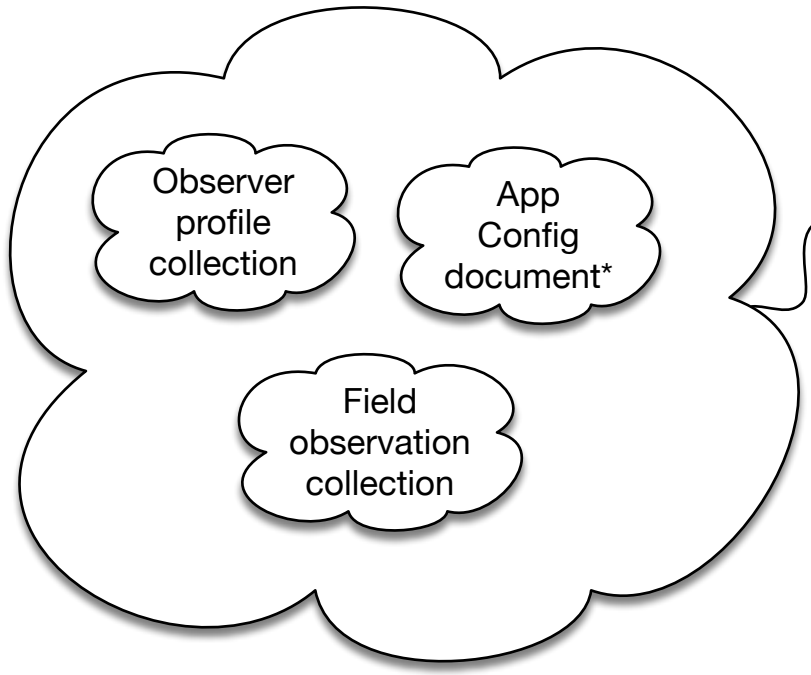
MongoDB Cloud



* Common set for all observers. It's essentially the menu entries for the app.

PostgreSQL / PostGIS Backroom

Extract schema

Copy documents from each collection to target tables, as unnormalized data. Retrieve per date range.

- App config
- Observer profiles
- Field observations

Transform schema

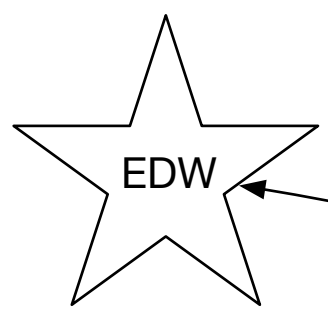
1. Normalize the app configuration data; merge with historic data tables and compute SCDs, which feed SCDs in the EDW. Examples:
- species
- calling codes, noise levels, etc
- observer profiles

2. Normalize and standardize the "sites."
- spatialize the sites; eliminate "suspect" sites.
- smooth the sites (to avoid excessive duplication)
- enhance sites with spatial attributes (e.g., watershed)

3. Normalize and standardize the field observations.
- flag suspect or thin observations.

Load schema

Views corresponding to the SCD dimensions in the EDW.
View corresponding to the Fact table
Work table of new date records to add to date dim.



Draft 1.2

Data transformations, in PostgreSQL

1. **App Data Synchronization**

The Cloud collection of App Data contains one document per value picker (e.g., calling codes, wind scale, land use type, etc.). It's the current, official dataset, used by the application. For the ETL and EDW, it's been "downloaded" to the Extract schema in PostgreSQL as an unnormalized table. The "previous copy" is in the Transform schema. Sync it with the Cloud copy just downloaded to the Extract schema.

Extract Schema

Unnormalized Dataset
Collection name
Key
Value Description

Transform Schema

Species
Key
Family
Genus
Species
Common Name
Date Added

(EDW is Type 3 SCD)

Calling Codes
Code
Description
Date Added

(Type 2 SCD)

Land Use
Code
Description
Date Added

(Type 2 SCD)

Wind Scale
Code
Description
Date Added

(Type 2 SCD)

etc.

2**. Observer Profile Synchronization**

The cloud collection contains one document per unique observer (named or anonymous). Each observer document also contains a sub-document of the geographic sites that have been observed by this observer.

Extract Schema

Observer Documents
Observer Unique ID
Affiliation
Contact data if provided
Date Added / Updated

Site Sub-Documents
Observer Unique ID
Site Unique ID Map coodinates Land use Date Added / Updated
Habitat Sub-document Water level Date/Time Added/Updated

Transform Schema

Observer Documents
Observer Unique ID
Affiliation
Date Added / Updated

(EDW is a Type 3 SCD.
Affiliation only.)

Site per observer
Observer Unique ID (foreign key)
Site Unique ID
Map Coordinates
Land Use code
Water shed ID
Geo Admin ID (s)
Date Added / Updated

Habitats within Observer Site
Site Unique ID
Habitat label
Water Level
Date Added / Updated

(EDW is a Type 4 SCD that combines the two)

3**. Observations Synchronization**

Extract Schema

Observation Documents
Observer…
Site…
Species
Calling Code
tba
tba

Transform Schema

Observation Records
Observer…
tba
Species
Calling Code
tba
tba
Date Added / Updated

(This table becomes the basis
of the fact table.)

(Next step. Enhance to standard iOS symbology.)