

An aerial photograph of a town, likely in a mountainous region, is shown from a high angle. The town is surrounded by green hills and valleys. Overlaid on the bottom half of the image is a white contour map showing pressure lines with numerical values such as 1010, 1015, 1020, 1025, 1030, 1035, 1040, and 1045. The background is a dark blue gradient with a white sun icon in the top left corner.

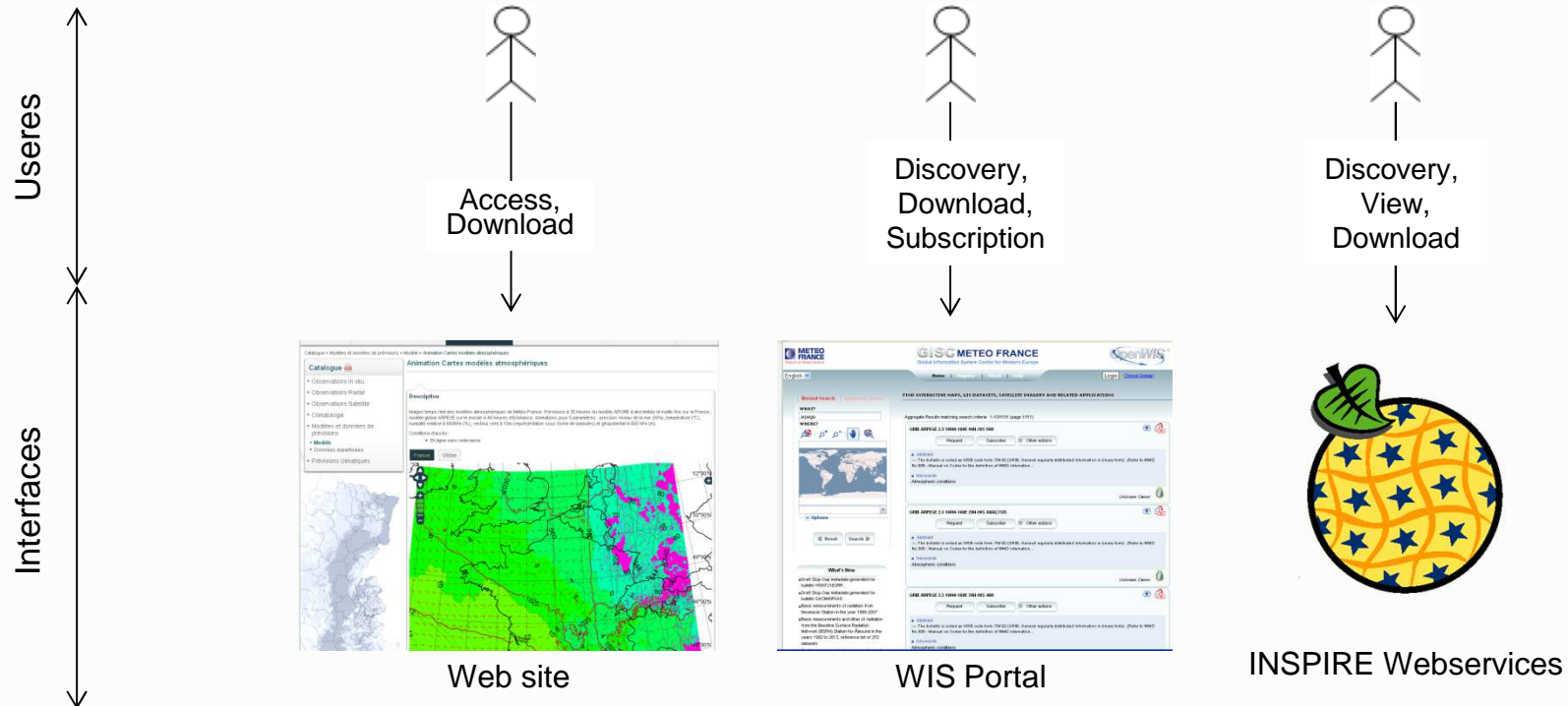
The technical
infrastructure for
mobile applications
and INSPIRE
compliant web
services
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Context

- Evolution in our data distribution strategy, Open-data, WMO Information System and INSPIRE Directive are various incentive leading Meteo-France to work on a solution providing ubiquitous access to data
- In addition, for our commercial activities, we are working on solutions also requiring standard access to our data
- The idea is to make the most of OGC webservices and use these solutions as a base to offer services to our users, independently of their method of accessing the data

What does this mean?



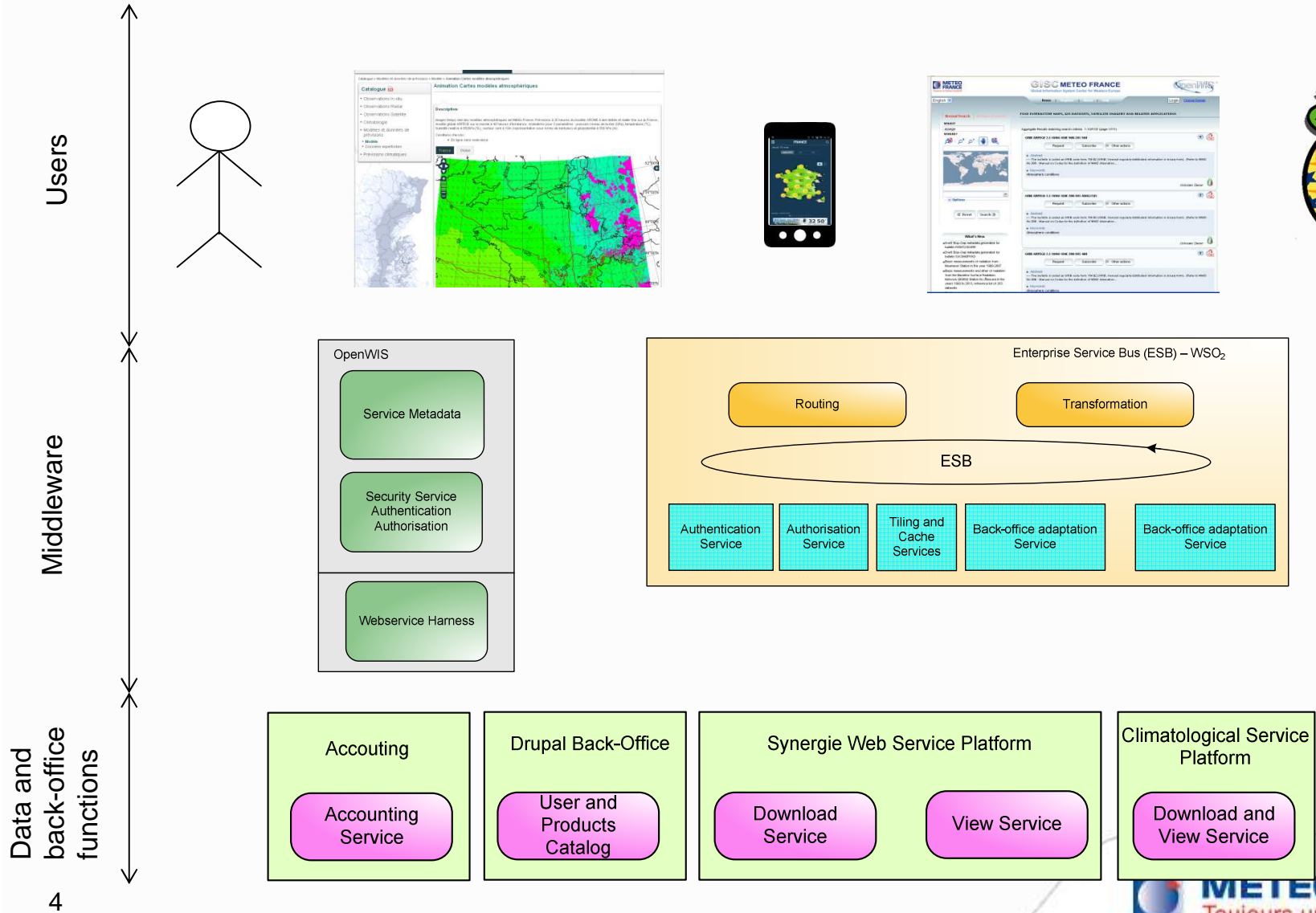
Implementing a service oriented platform with authentication, autorisation, accounting, subscription, transformation of data for all kind of users and usage.



The same data can be discovered, viewed, dowloaded with different tools (web browser, GIS, programs) with various formats and protocols that will require some transformation of the data.



Service Oriented Architecture



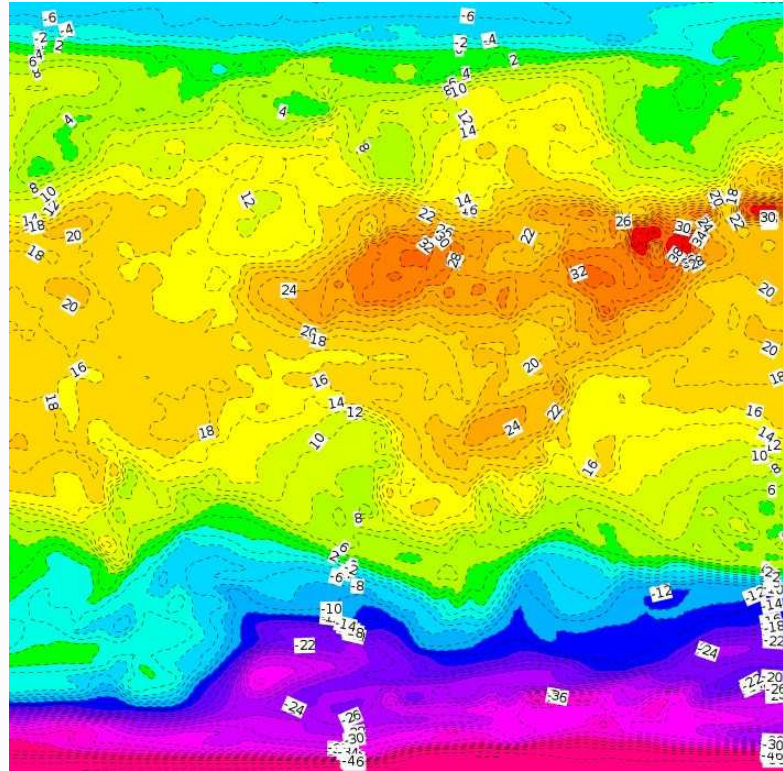
The components of the architecture

- **Back-Office:**
 - Synergie web for real time data
 - Climatological system for access to archive
 - Drupal for data catalog management
 - Accounting mechanism still under study

- **Middleware:**
 - Openwis for Authentication, Authorisation, User management
 - ESB WSO2 Carbon for transformation and routing of requests

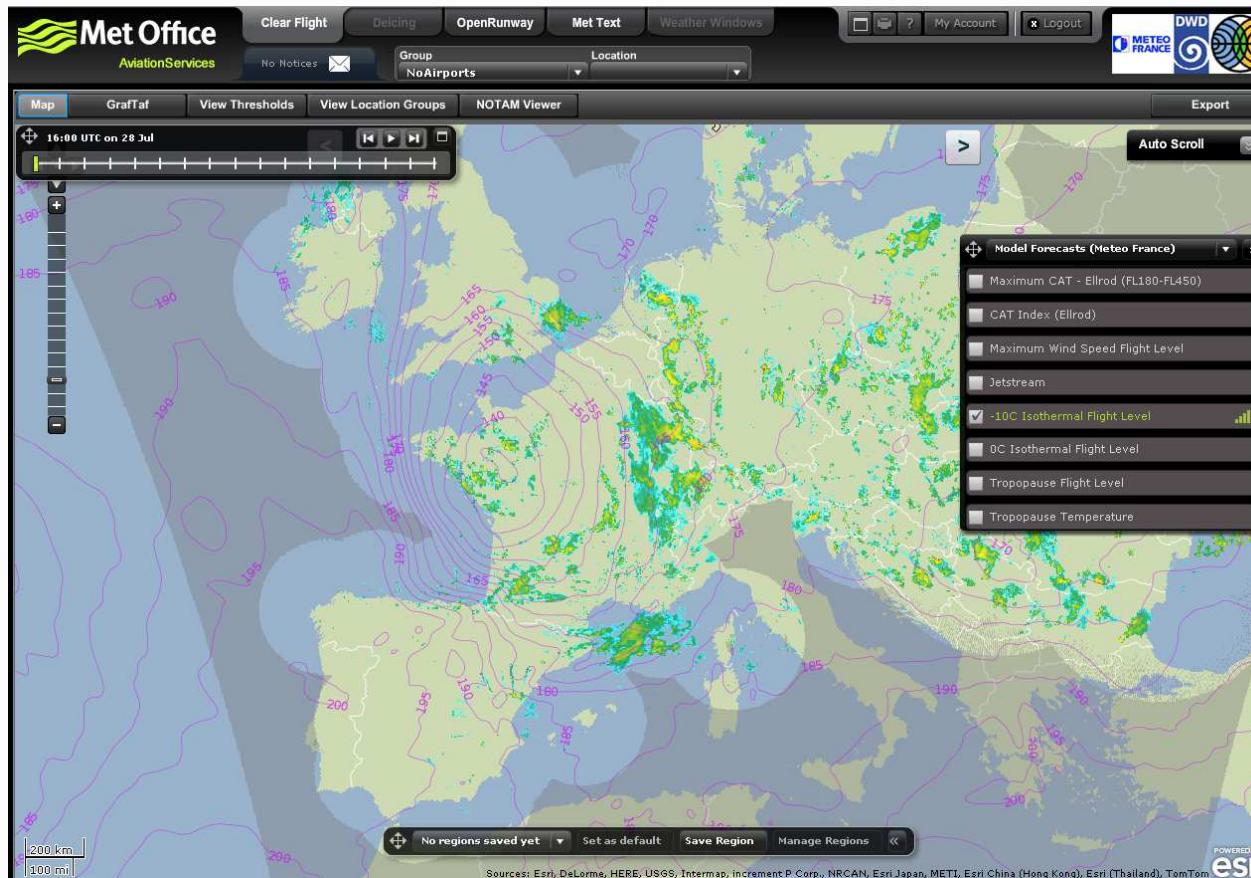
Use case (1): INSPIRE compliant services

- Access to NWP product through the service oriented architecture



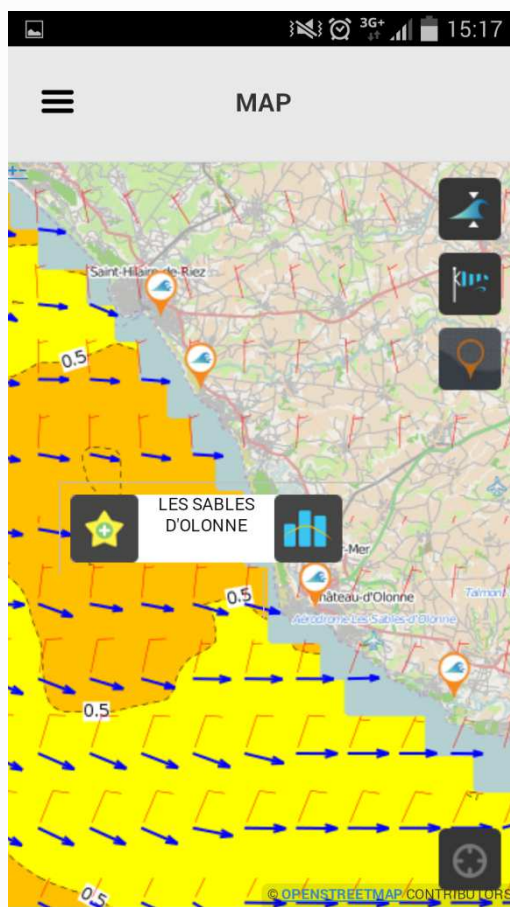
Use case (2): ClearFlight

- ClearFlight (application developed by UKMO) gives access to data from various sources (DWD, Météo-France, FMI) and gives the user the opportunity to stack layers from different sources.



Use case (3): SurfFactor mobile App

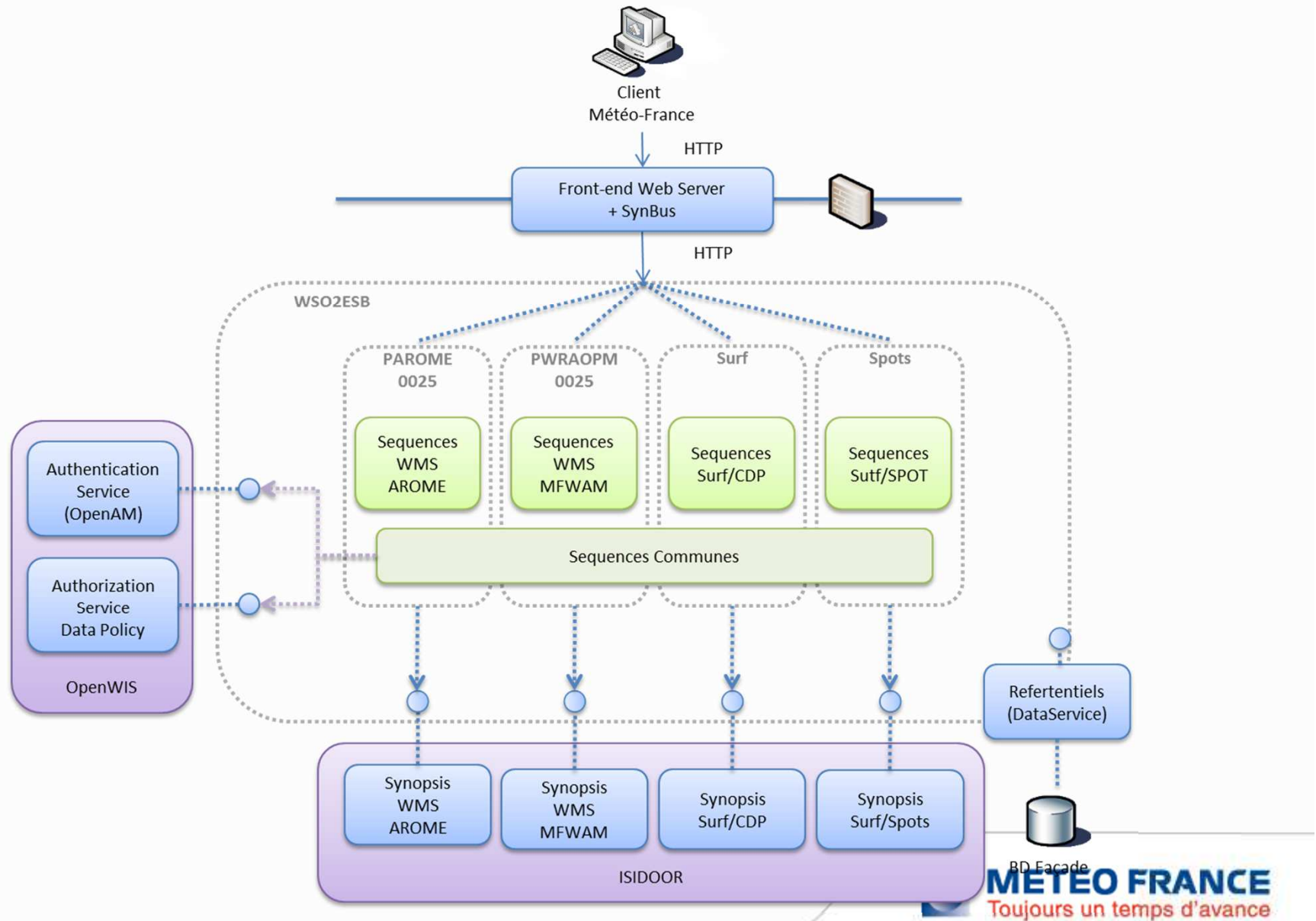
- We are going to have dedicated mobile apps for various usage
- The first mobile app using this architecture is called SurfFactor. The target audience is the windsurfers that are always looking for the « right spot »



Services for SurFactor

- 3 types of interfaces are available for the mobile application in the Meteo France DMZ:
 - SI-FA-I: Access the 2D map display - 2 WMS
 - Wind 10 m: Average strength and direction.
 - Swell: height, period and direction.
 - SI-FA-D: Access to time series of spots (JSON service)
 - SI-FA-S: Access to the spots characteristics (JSON service)
- Each interface is implemented by Web Services. These services are published on the WSO2 Enterprise Bus and presented in DMZ. The WSO2 bus relies on backoffice services (end points)

Another view of the architecture



AROME: Layers Mapping Example

PAROME_0,0025		Synergie Web	Back Office	
Layer	Style	Color V_WIND_COLOUR	Symbol spaces V_WIND_SPACING	Symbols thickness V_WIND_THICKNESS
UV_HEIGHT	UV_HEIGHT_NO_SHADING + RED (Front Office)	Red (255,0,0)	30	1
	UV_HEIGHT_NO_SHADING + BLACK (Front Office)	Black (0,0,0)	35	2

Performances

- **Step 1, now**
 - we can respond to 1000-2000 users connected at the same time on the application SurFactor due to the current infrastructure used for Inspire
 - These figures are appropriate on the basis of early studies with the service opening in August, the end of summer time with unreinforced advertising.
- **Step 2**
 - To increase these figures, we are going to tile (with MapCache) the maps and cache on the WSO2 ESB the other services.
 - Thanks to the WMTS it will be possible to have 10 000 clients connected or more.
 - SurFactor will have to rebuild the image from the tiles.
- **Step 3**
 - To go beyond the 10,000 clients connected, part of the architecture (WSO2 ESB part) highly modular could be outsourced (Cloud etc ...).

Surf Factor on the App Stores

- Surf Factor, has been published on google play store (for Android phones and tablets) on September 1, 2014 and the Apple app store a week later.
- Link to google play store:
<<https://play.google.com/store/apps/details?id=com.meteofrance.surf&hl=fr>>

Another example of map

