French Forecasters Workstation
Synergie-Next
- Synopsis Project

A. Lasserre-Bigorry
F. Marty
H. Vandeputte
J. Nicolau
P. Salerno
Overview

• Context and Synopsis project
• Functional requirements
• Main functional specifications
• Main technical specifications
• Technical choice
• Users group
• Users documentation, training
• Calendar and …frames
Context

Synergie is smoothly moving to Synergie-Next.

- 200 working positions in Meteo-France and main customers (e.g. Air France, Kourou Space Centre, French forces)
- 200 positions abroad (in more than 60 countries)
A project

SYstème Numérique Orienté Prévision, conSeil et expertISe

(Numerical System Oriented Forecast, Advice and Expert Assessment)
Synopsis Project

Meteo-France National Project

- Started in 2010, end planned in 2015

- Joint development by Météo-France and Météo-France International (MFI) after review and technical investigation of several potential scenarii.

- Aim: a new workstation, developed in the form of interoperable services (SOA) for forecasters from
  - Météo-France
  - Institutional partners (French forces, hydrology, forest fires, …)
  - Commercial clients (CNES, French Electricity board, …)
  - Export with MFI
Functional requirements

- 2011
  - Version 0 of requirements (more than 100 pages)
  - Version 1 after review

- Written by a large group of forecasters
  - General/local forecasters
  - Marine/Aeronautic/hurricanes tracking forecasters

- Contains
  - Synergie functionalities
  - **Plus** new functionalities
  - **Minus** obsolete functionalities
Main functional specifications

1) Interoperability

- superpose synergie-next map in foreign tools

- superpose maps from foreign tools in Synergie-next
Main functional specifications
Main functional specifications
2) Zooming & panning free of geographic area (GIS functionalities)

- Type « Google Maps »

Dynamic cartography

- «the more you zoom in, the more you have of détails»
3) Adaptive User Interface

- **linked** to the forecaster’s profile
- **adapted** to available data in the current context
  ⇒ a necessity with explosion of number of data

Every day:

- > 1 million numerical model fields
- > 1 million observation data
- > 5000 satellite products
- > 5000 radar products
4) GUI « customizable »

Each user can customize a part of the interface:

- organize a part of the GUI to his own method of work
- « bookmark » his favorite data among many data potentially accessible
Main functional specifications

5) Continuous link between past and future data

• useful for the very short range forecast
• difficult on the technical aspect

Example:
- integration of data in the past without stopping animation only by moving the cursor
- Model forecast reflectivity follows RADAR reflectivity.
Main technical specifications

1) « OGC » Rules and SOA (Service-Oriented Architecture)

Users are forecaster but not only…

- SOA is useful to others needs:
  - Extranets
  - Production tasks
  - Spécifics applications (Navimail, Drias...)

With « OGC » rules, interoperability is done.
Main technical specifications
Main technical specifications

2) Client GUI multi-platform and automatic deployment

Usable on flexible way from different environments
Reduction of administration cost

=> Can be used from Synergie (old) workstation
=> Can be used from a PC
Main technical specifications

3) Flexible architecture server

- Standalone
  • Example: dataflow with furniture system like satellite reception

- Centralized clusters
  • High-disponibility
  • Supporting cascading servers
Main technical specifications

4) Horizontal Scalability and high performance

- Increase capacity of system by simply adding servers near the others servers

- « 1 draw = 1 second »

5) Dynamic adaptation to the data flow

- to reduce the costs of administration
- to introduce rapidly new products
Technical choice

- A gravity center on the server side
- Many open source components...
Several layers are requested from the client to the WMS server
Technical choice: *Hardware infrastructure*

- **Part server**: 2 full blade servers enclosure
- **Proxy in DMZ**
Synopsis Users Group – G.U.S.

- Panel of users supporting the project
- Test on development versions with a test plan created by technical team: performance, ergonomics, news and non-regression
- Complete anomaly sheets
- Detail some specifications upon request from developers
- Delivery of stable development version to the group every two months
Synopsis Users Group

- High level arbitration
- Bugs fixing
- New versions delivery
- Novelties listing
- Tests plans
- Clarification request

Steering Comitée
- Arbitration
- Instruction with steering comitee

Functional team
- Tests
- Innovative proposals
- Specifications of details
- Anomaly sheets

Technical team

Users group

GUS
Users documentation

- Choice of an editorial process (SCENARI/DOKIEL)
- Production process of homogeneous structured documents
- Block Writing independent from the final look
- Easy update
- Use of a documentary model which can be adapted to each client
- Easy versioning
- Different outputs (online web, pdf, ppt, …)
Training

- Scheduled training plan with ENM
- Trainees team already gathered
- First trainees training in November 2013
- Complete training of all forecasters in 2014-2015
Timeline

- **October 2011**: Server service
  eg: Products for a radar project RHyTMME

- **End of December 2013**: First release « Synergie-next » with visualization functionalities

- **2015**: First complete Synergie-next (visualization and production functionalities)
Forward with frames ...!
« Le catalogue »

<table>
<thead>
<tr>
<th>Altitude ISO Isobars</th>
<th>Altitude 15° Isobaric</th>
<th>CLD BASEL 1 ISOBARIC</th>
<th>CLD SPACE 1 ISOBARIC</th>
<th>CLD SPACE 2 ISOBARIC</th>
<th>CLO RAIN HEIGHT</th>
<th>CLO RAIN HEIGHT</th>
<th>CLO RAIN HEIGHT</th>
<th>CLO RAIN HEIGHT</th>
<th>CLO RAIN HEIGHT</th>
<th>CLO RAIN HEIGHT</th>
<th>CLO RAIN HEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>850 hpa</td>
<td>850 hpa</td>
<td>850 hpa</td>
<td>850 hpa</td>
<td>850 hpa</td>
<td>850 hpa</td>
<td>850 hpa</td>
<td>850 hpa</td>
<td>850 hpa</td>
<td>850 hpa</td>
<td>850 hpa</td>
<td>850 hpa</td>
</tr>
<tr>
<td>700 hpa</td>
<td>700 hpa</td>
<td>700 hpa</td>
<td>700 hpa</td>
<td>700 hpa</td>
<td>700 hpa</td>
<td>700 hpa</td>
<td>700 hpa</td>
<td>700 hpa</td>
<td>700 hpa</td>
<td>700 hpa</td>
<td>700 hpa</td>
</tr>
<tr>
<td>500 hpa</td>
<td>500 hpa</td>
<td>500 hpa</td>
<td>500 hpa</td>
<td>500 hpa</td>
<td>500 hpa</td>
<td>500 hpa</td>
<td>500 hpa</td>
<td>500 hpa</td>
<td>500 hpa</td>
<td>500 hpa</td>
<td>500 hpa</td>
</tr>
<tr>
<td>300 hpa</td>
<td>300 hpa</td>
<td>300 hpa</td>
<td>300 hpa</td>
<td>300 hpa</td>
<td>300 hpa</td>
<td>300 hpa</td>
<td>300 hpa</td>
<td>300 hpa</td>
<td>300 hpa</td>
<td>300 hpa</td>
<td>300 hpa</td>
</tr>
<tr>
<td>200 hpa</td>
<td>200 hpa</td>
<td>200 hpa</td>
<td>200 hpa</td>
<td>200 hpa</td>
<td>200 hpa</td>
<td>200 hpa</td>
<td>200 hpa</td>
<td>200 hpa</td>
<td>200 hpa</td>
<td>200 hpa</td>
<td>200 hpa</td>
</tr>
<tr>
<td>100 hpa</td>
<td>100 hpa</td>
<td>100 hpa</td>
<td>100 hpa</td>
<td>100 hpa</td>
<td>100 hpa</td>
<td>100 hpa</td>
<td>100 hpa</td>
<td>100 hpa</td>
<td>100 hpa</td>
<td>100 hpa</td>
<td>100 hpa</td>
</tr>
</tbody>
</table>

**Dates de validité** 20/09/2013 07:00 (Date la plus récente de maintien)

**Dates de run AUTO**
Multimap
Satellite and reflectivity RADAR
The more
You zoom in...
The more you see geographic details
Sounding
Model
Radar
Synergie-Next server for our clients web site
Synergie-Next with Metview
Thanks for your attention!