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4 ACRONYMS

API: APPLICATION PROGRAMMING INTERFACE

ASR: AUTOMATIC SPEECH RECOGNITION

HTTP: HYPERTEXT TRANSFER PROTOCOL

PLMN: PUBLIC LAND MOBILE NETWORK

PSTN: PUBLIC SWITCHED TELEPHONE NETWORK

SMS: SHORT MESSAGE SERVICE

SSML: SPEECH SYNTHESIS MARKUP LANGUAGE

SVN: SUBVERSION

TTS: TEXT-TO-SPEECH

USB: UNIVERSAL SERIAL BUS

VM: VIRTUAL MACHINE

VXML: VOICE EXTENSIBLE MARKUP LANGUAGE

5 SUMMARY

The VOICES project intends to deliver a toolbox for the development of voice services enabling a voice-based access to content and mobile ICT services. This production report shows the state of the production for the first version of the platform supporting VOICES services.

This report deals with the installed components on the platform; it shows the achievements, the problems and the solutions. This report also describes the expected enhancements for the next release.

6 PLATFORM

As described in deliverable D2.1 – Technical requirements [1], the platform used to host VOICES services is an Orange Labs platform called 'Emerginov'. This platform has been enhanced for VOICES needs.

The Emerginov platform is composed of one core platform and several gateways distributed in targeted countries. In the VOICES context, two core platforms are used: 'Emerginov.org', and 'Emerginov.orange.sn'. The first one is a sandbox platform, hosted in France. It can be used by VOICES partners during the development phase of services. The second one is the target production platform hosted by Sonatel in Senegal. This platform aims to host VOICES services during the field tests in Senegal or Mali.

For the end of December, the targeted architecture is the following:

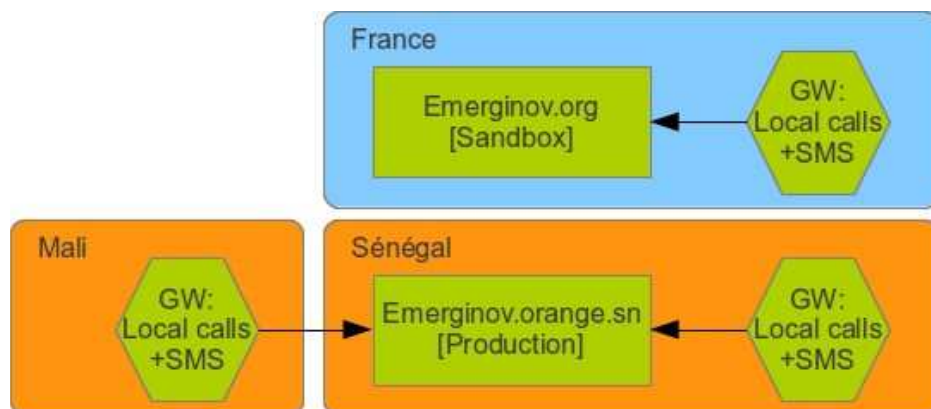


Illustration 1: Target architecture

For several reasons (see part 8.1 - in page 15), the Senegalese platform is not available at this time (28/11/2011) and the Emerginov.org was chosen to support the services of the m-Agro pilot. The following illustration shows the actual architecture.

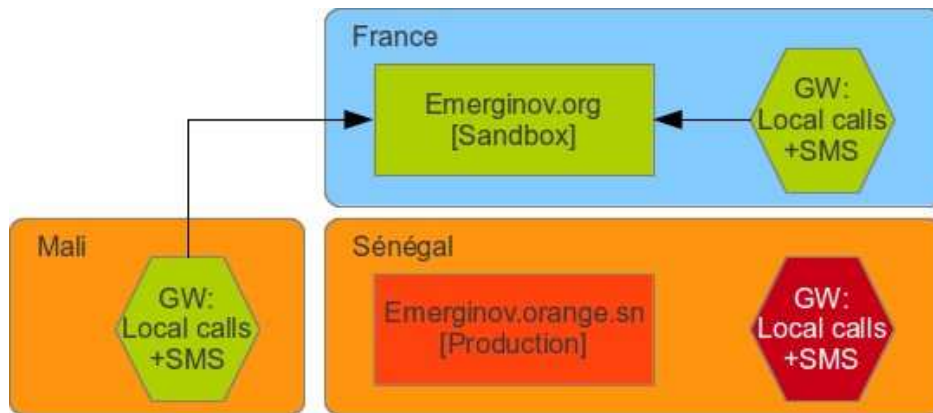


Illustration 2: Actual architecture

Test fields have been done with this configuration during the first-cycle roll out and field validation of pilot WP5 (November 2011). Feedbacks were positive, in term of reliability and sound quality.

Some issues have been reported anyway and will require a tuning of the platform:

1. Few problems of reliability occurred, an analysis is in progress to get the source of the problem (mobile network, gateway or core platform).
2. The gateway is only available from local Orange mobile. This problem is described page 15 in 8.2 -

At this time, some specific components in the Senegal platform are not working, so it can not support m-Health services through local numbers or SMS (Moreover, m-Health services are not deployed yet).

The status of 'Multi channel accessibility' requirements (see D.1.5[2]) is in the following table.

	Requirements		Actual status (01/12/2011)	Target status (31/12/2011)	Note
Multi chan nel acce ssibili ty	Analogic and mobile calls - Senegal	R.1.1	Not ready	OK	See 8.1
	SMS - Senegal	R.1.2	Not ready	OK	See 8.1
	Internet - Senegal	R.1.3	OK	OK	
	Analogic and mobile calls - Mali	R.1.4	≈ OK	OK	See 8.2
	SMS - Mali	R.1.5	OK	OK	
	Internet - Mali	R.1.6	OK	OK	
Platf orm capa cities	Platform capacities	R.7.1	OK	OK	

Tableau 1: Status of requirements - Platform

7 TOOL BOX

As required in D.1.5[2], the VOICES platform must provide several capacities. This is the list and the status of all those capacities.

7.1 Service hosting and execution

7.1.1. Service execution

Requirement: *"The service must be executable on the platform. The service development language will depend on the components used, but open and well known development languages such as PHP are recommended."*

The platform provides an execution environment in PHP. All needed libraries can be added for VOICES needs if they are compatible with PHP and Debian, and compatible with other hosted services. From the beginning of 2011, the development on telephony services was enhanced to rely on either a PHP API or a VXML server. It does not require Asterisk knowledge anymore. VXML should be privileged by developers as a portable solution.

7.1.2. File Hosting

Requirement: *"All files needed for the services or created by them shall be hostable by the platform and sharable between the components (in the limit of a fair usage)."*

All files are hostable by the platform and sharable between the components

7.1.3. Database

Requirement: *"A database must be available for each service. A relational database management system such as MySQL is recommended."*

A MySQL database is available for each project.

7.1.4. Digital Asset Management

Requirement: *"A DAM is needed to manage the corpus of words, the sentences and the recordings from the crowd sourcing tool"*

The support of a DAM tool in the platform is linked with the availability of the crowd sourcing tool from WP3. Beside, the CRS4 DAM, called 'NotreDam' was installed and tested on Emerginov at the beginning of the year. All the technical details has been resolved and NotreDam is ready to be used as part of emerginov to host WP3 crowd sourcing platform.

7.1.5. Crowd sourcing

Requirement: *"A crowd sourcing tool is needed for WP3 needs"*

The crowd-sourcing tool is not available at this time, but developers take in account the Emerginov environment. This is part of WP3 development and targeted for the second version of the platform.

7.2 Voices tools

7.2.1. IVR

Requirement: *"An Interactive Voice Responder function must be available for each service. The IVR function can be piloted from several ways: VoiceXML, PHP Scripts or Asterisk language. The recommended one is to use the VoiceXML."*

An IVR server is available on Emerginov. It relies on Asterisk, and can be piloted with VXML (using voiceglue), or a PHP API directly with Asterisk scripts.

7.2.2. ASR

Requirement: *"An Automatic Speech Recognition function shall be available for services hosted by the platform. The languages packages shall be updated during the project. The openness recommendation applies here for both the ASR engine and its compliance with open integration of new language. For this purpose, de-facto open standard such as HTK acoustic models shall be used."*

An ASR called 'Julius' is available on the platform.

7.2.3. TTS

Requirement: *"A Text To Speech function shall be available for services hosted by the platform. This TTS must propose different languages to fit the use cases needs. This function shall be compliant with Speech Synthesis Markup Language (SSML) and Pronunciation Lexicon Specification (PLS)"*

Two TTS functions are available on Emerginov. An open source one, named 'Festival' and an Orange solution called 'Baratinoo' can be used through an API.

Available languages are French and Wolof.

7.3 Developers needs

Requirement: *"Development tools such as versioning tools, logs or sandboxes shall be available for all developers."*

Development tools are available:

- ⤴ Subversion (SVN): versioning and service deployment
- ⤴ Logs: Apache/PHP logs are available for each project
- ⤴ Wiki: a wiki contains all needed documentation for developers
- ⤴ Social Network: A social network is available to enhance communication between Emerginov users
- ⤴ TV: a video sharing tool is available to share "How to...?" screencasts.
- ⤴ USB Key and VirtualMachine: A live USB key and a Virtual Machine are available to simplify the development. They contain a preconfigured environment and tools to push the developments on the platform.

7.4 Administration needs

Requirement: *"The platform must contains all tools needed to administrate, supervise, and manage developer's needs."*

The platform contains all needed tool to administrate, supervise, and manage developers needs.

7.5 Mobile Applications

Requirement: *"The Use-case 4.1 needs a mobile application to be installed on the mobile."*

Mobile widgets are not a part of the Emerginov platform. In fact mobile widgets are directly executed on the mobile. However Mobile widgets can use the Emerginov framework for all the back end server side functions.

	Requirements		Actual status	Note
Service hosting	Service execution	R.2.1	OK	
	File hosting	R.2.2	OK	
	Database	R.2.3	OK	
	DAM	R.2.4	OK	Version 2 of platform
	Crowd sourcing tool	R.2.5	Not Applicable	Version 2 of platform
Voices tools	IVR	R.3.1	OK	
	ASR	R.3.2	OK	
	TTS	R.3.3	OK	
Developpers needs		R.4.1	OK	
Administration needs		R.5.1	OK	
Mobile Applications		R.6.1	OK	
Platform capacities		R.7.1	OK	

Tableau 2: Status of requirements - Toolbox

8 PROBLEMS AND SOLUTIONS

8.1 Availability of Emerginov.orange.sn

Due to internal administrative problems and social issues in Sonatel, the platform hosted in Senegal is still not available despite an installation of the core platform at the end of april 2011. The web part is thus up and running since May but the telecom parts are still not connected. The local telecom links are missing (T2 for calls and SMSC connection). The last date announced by Sonatel for those links is the end of December 2011. A training for the local administrator will be done after the end of the installation.

At this date, this is not impacting WP4 and WP5. WP5 is using th Malian gateway to the French platform and this is reliable so far, and WP4 developers are able to work and develop there services. The deployment of WP4 would be more problematic, but current schedule, deployment in January, fits with resolution timeframe. This is not impacting other Wps.

8.2 Inter operator issue on Malian Gateway

Due to the migration of an Mobile Switch Center (MSC) in the Malian Sonatel network, the local numbers available on our Malian gateway are only reachable from Orange mobile network in Mali (technical numbers). This is a regression as the numbers were previously reachable from any phone. This problem shall be analysed and corrected by local Sonatel teams.

Given that all the areas of WP5 deployment are well covered by Orange, this is not impacting deployment of WP5, just constraining the use of Orange subscription by targeted end-user (In Use Case 1, the users are 2 radios to which WP5 gave Orange subscription)

9 PRIMARY LIST OF ENHANCEMENTS

Some enhancements are planned for the next version of the platform (M21):

- ⤴ TTS/ASR: Availability of Bambara (ASR/TTS) and Bomu (TTS)
- ⤴ Availability of the crowd-sourcing tool
- ⤴ Orange Money API

About Open Source, we planned to release Emerginov as a FLOSS product for the end of 2012. It should have its own website with source, installation scripts, and documentation.

10 REFERENCES

- ⤴ Emerginov.org portal: <http://www.emerginov.org>
- ⤴ Presentation of Emerginov (FR):
<https://tv.emerginov.org/video/YD981YKGM76H/Pr%C3%A9sentation-Orange-Labs-Research-Exhibition>
- ⤴ Emerginov TV: <https://tv.emerginov.org/>
- ⤴ Emerginov components: <http://www.emerginov.org/components.php>
- ⤴ List of projects hosted by Emerginov: <http://www.emerginov.org/projects-list.php>
 - With actual available VOICES projects:
 - Pilot in Mali:
http://projects.emerginov.org/V_webInt/
 - Radio interface for radiomarché:
http://projects.emerginov.org/VOICES_radioint/
- ⤴ Emerginov social network: <https://elgg.emerginov.org/>
- ⤴ Emerginov documentation:
https://developers.emerginov.org/wiki/index.php/Main_Page
- ⤴ Emerginov projects sources: <https://svn.emerginov.org/>
- ⤴ Emerginov Mailing lists:
 - emerginov_news@emerginov.org
 - emerginov_dev@emerginov.org

For restricted access, a login/password can be requested at: admin@emerginov.org

11 CONCLUSION

As seen in this production report of the version 1 of the platform, the toolbox is functional and fit the pilots' requirements. The firsts feedbacks from developers and the firsts field tests of m-Agri have shown the platform fulfil the pilot's needs. However, to have a platform reachable from all operators in Mali and Senegal, we have to solve the telecom problems with our partners in local; but despite this delay this is not impacting other WP.

12 REFERENCES

[1]: D2.1 – Technical requirements - VOICES WP2 Deliverable D2.1 - author M.Richomme

[2]: D1.5 – First iteration of High Level Architecture - VOICES WP1 Deliverable D1.5 - author D.Blaisonneau