



VOIce-based Community-cEntric mobile Services for social development

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**Prototype – Final release of the platform and voice services toolbox
Production report**

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1 CHANGE LOG

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2 DISCLAIMER

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4 ACRONYMS

API: APPLICATION PROGRAMMING INTERFACE
ASR: AUTOMATIC SPEECH RECOGNITION
FLOSS: FREE LIBRE OPEN SOURCE SOFTWARE
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 final release of the platform supporting VOICES services.

This report deals with the installed components on the platform; it shows the evolution from the first version, the problems found and the solutions achieved. This report also describes the content of 'Emerginov Standalone', the first release of the Emerginov platform published under a free license, and the content of 'Emerginov Enhanced', the second release of the platform for bigger deployments.

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.

6.1 Actual architecture

The Emerginov platform is composed of one core platform and several gateways 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 innovation platform hosted and operated by Sonatel in Senegal.

Due to the reasons previously mentioned D2.3, the Malian gateway was connected to the French core platform.

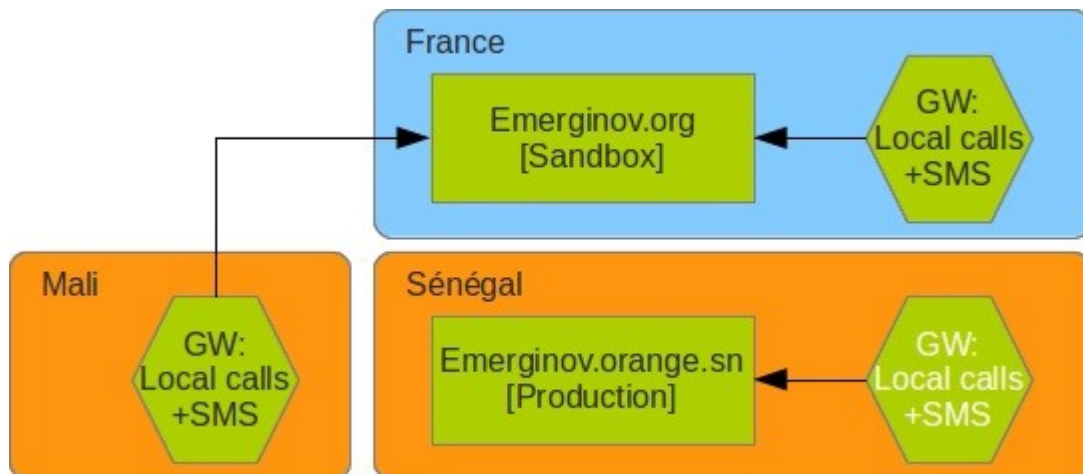


Illustration 1: Actual architecture

6.2 Support of m-Health pilot

The link between the Senegalese gateway and platform was established end of March 2012 by Sonatel. At this date, the Senegalese platform was 'up and running' and can host the m-Health pilot.

6.3 Support of m-Agro pilot

The m-Agri pilot first tests relied on this configuration in November 2011; feedbacks from users and developers was positive, in term of reliability and sound quality.

When the 'Sonatel platform' was available end of March 2012, we choose to not migrate to the Senegalese platform to avoid any perturbation on the m-Agri pilot.

6.4 Status of requirements

	Requirements		actual status (06/2013)
Multi channel accessibility	Analogic and mobile calls - Senegal	R.1.1	OK
	SMS - Senegal	R.1.2	OK
	Internet - Senegal	R.1.3	OK
	Analogic and mobile calls - Mali	R.1.4	OK
	SMS - Mali	R.1.5	OK
	Internet - Mali	R.1.6	OK
Platform capacities	Platform capacities	R.7.1	OK

Table 1: Status of requirements - Platform

7 TOOL BOX

As required in D.1.5[2], the VOICES platform must provide several capacities. All the functions provided in the version 1 of the platform are available. The functions 'Digital Asset Management' [R2.4] and Crowd-sourcing[R4.5] have been merged. These functions are seen as 'services' hosted by Emerginov, like any other services.

	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	Hosted as a service
	Crowd sourcing tool	R.2.5		
Voices tools	IVR	R.3.1	OK	
	ASR	R.3.2	OK	
	TTS	R.3.3	OK	
Developers needs		R.4.1	OK	
Administration needs		R.5.1	OK	
Mobile Applications		R.6.1	OK	
Platform capacities		R.7.1	OK	

Table 2: Status of requirements - Toolbox

8 ENHANCEMENTS

Some enhancements were planned for the second version of the platform:

- TTS/ASR: Availability of Bambara (ASR/TTS) and Bomu (TTS)

This enhancement is postponed to M23 with the release of the D3.2 'Language packs for local languages'

[http://projects.emerginov.org/voices_snftts/]

- Availability of the crowd-sourcing tool

The crowd-sourcing tool is not any more a part of Emerginov, but hosted by Emerginov as a service

[<http://projects.emerginov.org/Vocs/>]

9 EMERGINOV MONITORING AND MANAGEMENT

9.1 Goals:

As all IT platform, Emerginov is based on servers that must be supervised and managed. Day to day actions must be performed:

- Monitoring
 - Hardware monitoring
 - Virtualisation monitoring
 - System monitoring
- Management:
 - Users management
 - Projects management
 - API management

The induced actions must be handled quickly to keep a good service level for all the projects. Postponing operations may lead to severe damage on the whole platform.

9.2 Repartition

During the VOICES project, the both Emerginov platform were managed and monitored separately. The repartition between Orange Labs and Sonatel was:

- Sonatel:
 - The Senegalese platform
 - The Senegalese gateway
- Orange Labs:
 - The French platform
 - The Malian Gateway

9.3 Pilot issues

During the WP4 pilot phase, the platform managed by Sonatel was offline for about 3 cumulated weeks. This problem was due to severe power outages and the lack of supervision and administration of this platform: the downtime of the server could have been dramatically reduced.

During the WP5, the downtime of the services was only two week end days because of a power issue and assuming that the supervision was only during working hours.

The Emerginov product was not directly responsible for those incidents (electrical shortage) and platforms were always restored properly without any data loss.

9.4 Proposed solution

Like any other IT platform, the Emerginov platform and gateways must be managed and monitored daily, by available and well trained team.

Training had been performed during VOICeS for the platform administrator mid 2012. 2 colleagues from Sonatel were trained. Their technical skills were good and at the end of the training, they were ready to ensure the support. However the support was not as good as expected. Several reasons may explain this lack of support:

- The platform was installed in a datacenter that was not considered as a priority datacenter by Sonatel due to regular electrical power outages (used for solutions not covered by SLA). Their critical IT applications have been migrated to a more robust datacenter.
- Sonatel IT support team was reduced (Sonatel internal reorganisation) and, as the project was considered as a pilot project, the remaining resource was always considered as best effort
- The Emerginov platform was not considered as part of Sonatel and thus out of their standard process scope

Appropriate and trained Resources shall be really allocated to the supervision in order to ensure prompt operations.

Since the incidents, new colleagues from Sofrecom - an IT company from Orange specialized on IT supervision - have been involved. 6 people have been trained. We may notice that no major incidents has been reported since end of April.

Moreover Sonatel has planned to instanciate a new version of Emerginov within a production environment so the pilots managed on this new platform will be managed and secured as any commercial product.

10 EMERGINOV - OPEN SOURCE VERSION.

At the beginning, Emerginov was an Orange project with 95% of its content originated from FLOSS products. Indeed, Emerginov re-uses well-known mature free softwares, such as Apache, MySQL, PHP, Asterisk. The main work of the Emerginov team consisted in integrating the different components to create a new product, all in one, that can be somehow considered as a PHP platform As A Service [PASS]. All the customized configurations, the installation procedures, and some of the end-user interfaces (web portals) were not publically available.

10.1 Emerginov products.

Emerginov was released as a 100% FLOSS project under 'Apache License 2.0' [<http://www.apache.org/licenses/LICENSE-2.0.txt>] at the end of 2012. The project hosts 4 products: Emerginov Standalone platform, Emerginov Enhanced platform, Emerginov Gateway and Emerginov 'All in one':

- Emerginov Standalone platform:
This product is an Emerginov platform concentrated on a standalone server. It aims is to make a 'plug and play' installation of Emerginov that will host few services without an heavy CPU/Memory load. The source code of this product was released at beginning of October 2012.
- Emerginov Enhanced platform:
This product is an Emerginov platform distributed on several servers with the possibility to scale-up and some additional supervision features. This version will be the closest version to the platform used for the pilots of the VOICES project.
- Emerginov Gateway:
The open source gateways used for the project are already open source. However the configuration to connect this product will contain the 'gateway' functions, to provide calls and SMS to the platform based on Kannel (SMS) and Asterisk (Voice) gateways. This product is optional and can be replaced by any SMS or PSTN/SIP gateways or even SMS or SIP broker. The source code of this product was released at beginning of October 2012.
- Emerginov 'All in one':
This version is the union of 'Standalone' and 'Gateway' in a single server. The source code of this product was released at beginning of February 2013.

10.2 Emerginov Standalone, Gateway and All-in-one

Emerginov first open source version relies on Emerginov 'Standalone' product, a condensed version of Emerginov, more plug-and-play and easy to install. A 'Standalone' version contains all the Emerginov functions except the telecom connectors; that is why the server must be connected to a 'Gateway' to use phone calls or SMS.

The architecture of the full Emerginov ecosystem can be described as follow:

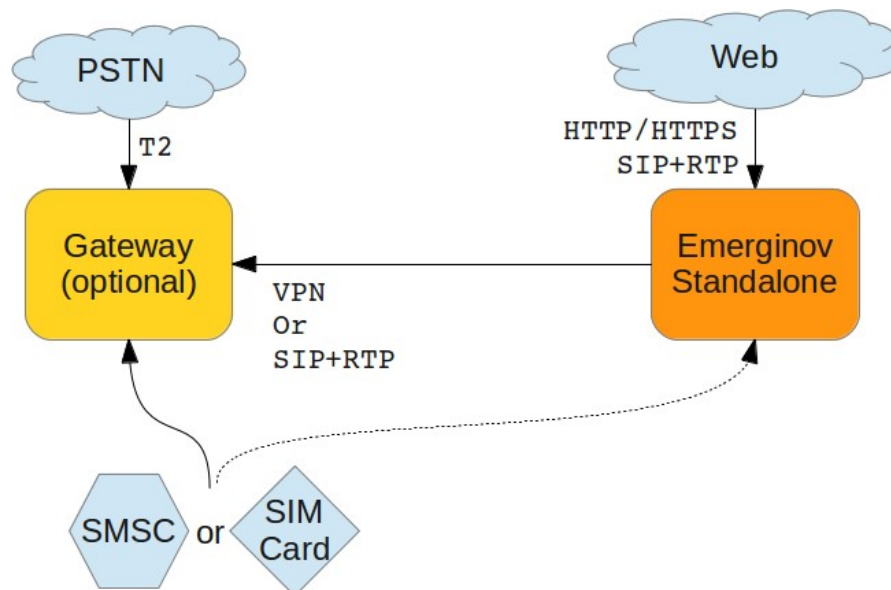


Illustration 2: Emerginov standalone architecture

To have also a full package, we have created the All-in-one version, containing all the functions of a Standalone plus a Gateway. This version prevents from using two different servers, but is built only for testing purpose.

10.3 Emerginov Enhanced

Emerginov 'Enhanced' has all functionalities of 'All-in-one' but also contains some new features like supervision or mailing lists. To be as close as possible to a production product, this version is built to be split on several servers (or virtual machines) to have better performances, and supports scalability.

The firsts development of this version have already started but this product is not fully stable yet. The end of development is delayed to the third quarter of 2013 but will be done independently from the planned end of the VOICES project.

The architecture of the full Emerginov Enhanced ecosystems can be described like this:

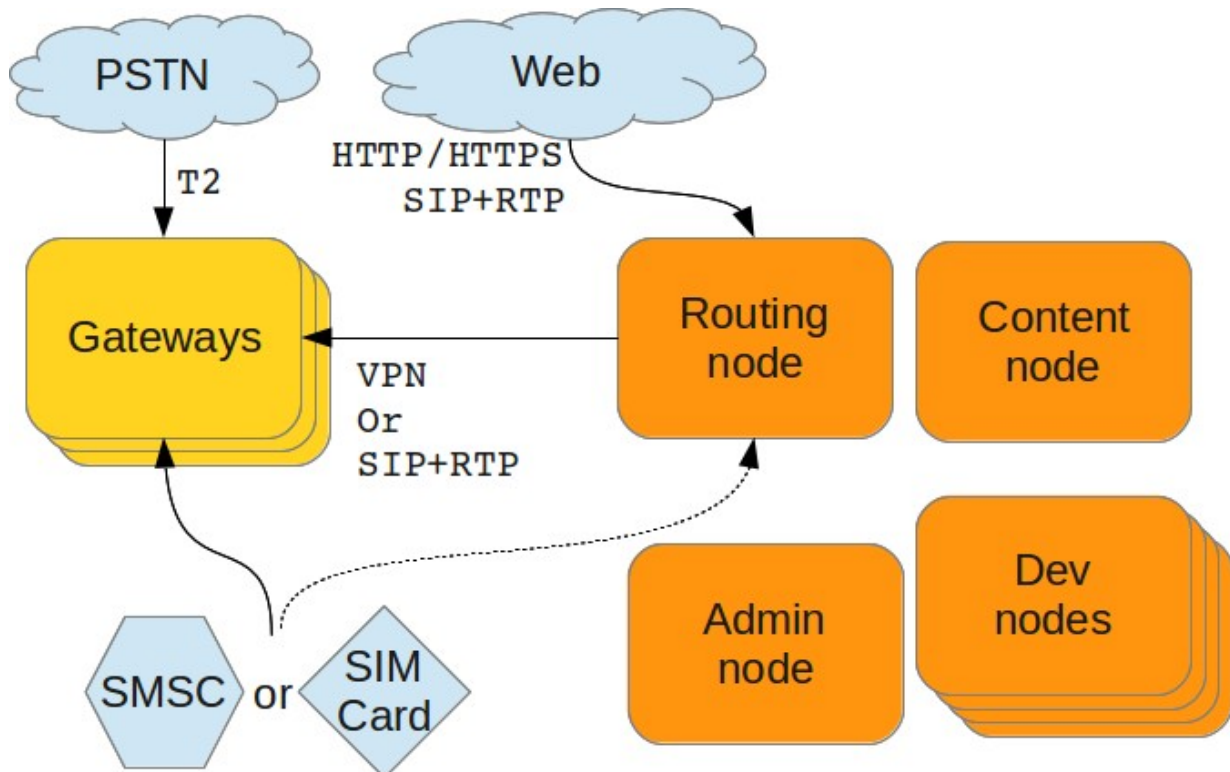


Illustration 3: Emerginov Enhanced architecture

10.4 Emerginov portal

Emerginov community project is hosted by OW2.org, a middleware open source forge. The site is available since end of October 2012. The URL of the portal is: <http://emerginov.ow2.org>

This portal contains:

- The description of the project
- The documentation about
 - Installation of Emerginov
 - User guide
 - Administration guide
- The downloadable softwares

Emerginov
Let's emerge your ideas

Home Overview Support Download About

Export More actions

Wiki Home

Emerginov Home Page

Emerginov home page
Welcome to the Emerginov community web site. The Emerginov solution consists in a PHP toolkit to quickly develop mobile micro services. A micro service is a simple mobile service bridging mobile users to the richnesses of the Internet. The Emerginov solution is not an application shop but can be considered as an operator back end API shop. It concentrates in one place the web hosting, the database storage, the Telecom access API (e.g. SMS) and the media server. The developers can create Telco-web services over the top of the local operators by coding few lines of PHP.

Originally Emerginov had been designed to help developers in emerging countries. The idea was to provide a all-in-one toolkit to develop vocal kiosk, web and SMS based services.

The Emerginov project was born in Orange laboratories in 2010. The decision to open the code was taken in 2012. Several academic entities such as the University of Technology of Mauritius, ESMT or UCAD in Dakar already contributed to the evolution of the solution and constitute the seeds of the community.

activity

Visible to **Everyone**

SHARE

Today

- Skin** Emerginov edited an attachment less than one hour ago
- Skin** 2 changes by one user less than one hour ago
- XWiki Preferences** 2 hours ago

PARTNERS

- orange
- VOICES
- EUROPEAN UNION
- OW2

Illustration 4: Emerginov OW2 website

11 STATUS ON PROBLEMS AND SOLUTIONS

11.1 Senegalese platform availability

See Section 9

11.2 Delay on 'Enhanced' version development

Due to technical issues on function splitting on Emerginov, and unplanned corrections on Emerginov "standalone", the release of the final version of the Enhanced platform is delayed to the third semester of 2013.

12 CONCLUSION

As shown in this production report of the final release of the platform, the toolbox is functional and fits the pilots' requirements. The feedback from developers and field tests of m-Agro and m-Health have confirmed that the platform fulfills the pilot's needs. Emerginov has been released as an open source project, and will continue to live as an open source project after the end of the VOICES project.

13 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.Blaissoneau
[3]: D2.2 – Prototype - Version 2 of the platform and voice services toolbox - VOICES WP2 Deliverable D2.2 - author D.Blaissoneau

Other references:

- Emerginov community portal: <http://emerginov.ow2.org>
- Technical documentation: <http://emerginov.ow2.org/xwiki/>
- 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