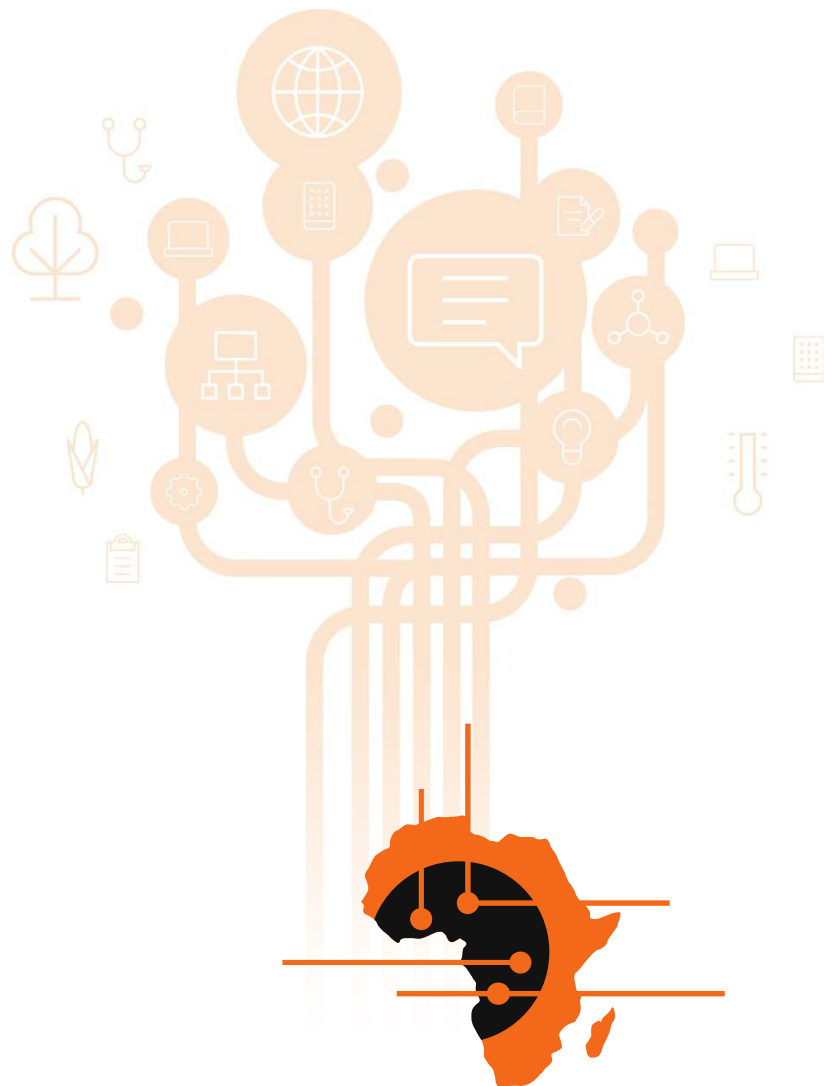




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D4.1

Virtual Collaboration Platform



TANDEM
TRANSAFRICAN NETWORK DEVELOPMENT

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Executive summary

This document is a deliverable of the TANDEM project, which is funded by the European Union's Horizon 2020 Programme under Grant Agreement #654206.

The document describes the architecture of the Colaboratorio and how it is integrated with the NRENs as a service provider. Colaboratorio is RedCLARA's initiative of a global service that allows the end-user to create, and manage user communities. The result is a social network for work.

A WACREN instance of Colaboratorio has been implemented and is accessible at <http://community.wacren.net>. The platform has integrated the Nigerian NREN Catch-all Identity Provider as a first step. Soon the WACREN Federation, eduID will be integrated. The WACREN Colaboratorio has been implemented with several services, including a community management, large file transfer, wiki and web conferencing

Further work will eventually migrate the WACREN Colaboratorio to WACREN servers. In the immediate and short term, the service is going to be enhanced and translated to French.

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GLOSSARY OF TERMS / LIST OF ACRONYMS

ACRONYM	DEFINITION
ICT	Information and Communication Technologies
IdF	Identity Federation
IdP	[Identity Provider] Is a system that allows an end user to authenticate, i.e. Identify itself using, usually, an username and password.
SAML	
SAML 2.0	Security Assertion Markup Language [SAML 2 SAML] Is an XML-based protocol that uses security tokens containing assertions to pass information about a principal (usually an end user) between a SAML authority, that is, an identity provider, and a SAML consumer, that is, a service provider. [R1]
SP	[Service Provider] Is a system that an end user can use after authenticate using an authorized Identity Provider.
Catchall IdP	And IdP that allows the registration of users whose institution doesn't have an IdP or whose IdP is not yet authorized by the SP.

INTRODUCTION

This document, *D4.1 – Virtual Collaboration Platform* is a deliverable of the TANDEM project, which is funded by the European Union's Horizon 2020 Programme under Grant Agreement #654206. TANDEM aims at supporting dialogue between the EU and African Research and Education Networks, with special attention to Western and Central Africa, which at e-Infrastructure level is coordinated by the Western and Central African Research and Education Network (WACREN). The scope of the project is to promote cooperation by exploiting the interconnection between the European research and education network (GEANT) and the established African regional networks.

Within WP4, which is concerned with reinforcing the NREN Community and to create the favourable conditions for incubating communities, Task 4.1 led by CLARA is aimed at creating a virtual collaborative platform for WACREN based on Colaboratorio, which was developed by CLARA within the framework of the EUFP7 ELCIRA Project (Grant Agreement #313180). Colaboratorio is a global service that allows End-users to create, and manage User Communities. The result is a social network for work.

This deliverable therefore provides technical specifications and an overview of the Virtual Collaboration Platform for WACREN. It also describes the architecture of Colaboratorio, and how it was integrated to the WACREN's Identity Provider (initially NgREN Catch-all IdP) so the services became federated. During the course of the project, the WACREN Federation, eduID will be integrated, bringing with it more Identity providers from the region. Initially, an instance of the Collaborative Platform has been created on the CLARA infrastructure, which will then be migrated to the WACREN infrastructure during the course of the project.

D4.1 has been structured into 4 main parts: The first section is an overview of the virtual collaboration platform; the second section gives an architectural overview of the WACREN Colaboratorio including what was done to deploy the instance; the third describes the services available on the WACREN Colaboratorio; and the final section outlines the next steps that will follow in further development of the WACREN Colaboratorio to enhance it.

1- VIRTUAL COLLABORATION PLATFORM FOR WACREN

A Virtual Collaboration Platform for WACREN has been deployed by engineers from RedCLARA and WACREN to serve the research and education community in West and Central Africa. The platform accessible at <http://community.wacren.net>, is based on Colaboratorio, a global service developed and maintained by RedCLARA that allows end users in the research and education community to create and manage user communities. The service allows the WACREN users to access a communities management service, a web conference system, a big file transfer tool, and wiki services; all them focused on serving the communities. Figure 1 shows a screen capture of the WACREN Colaboratorio.

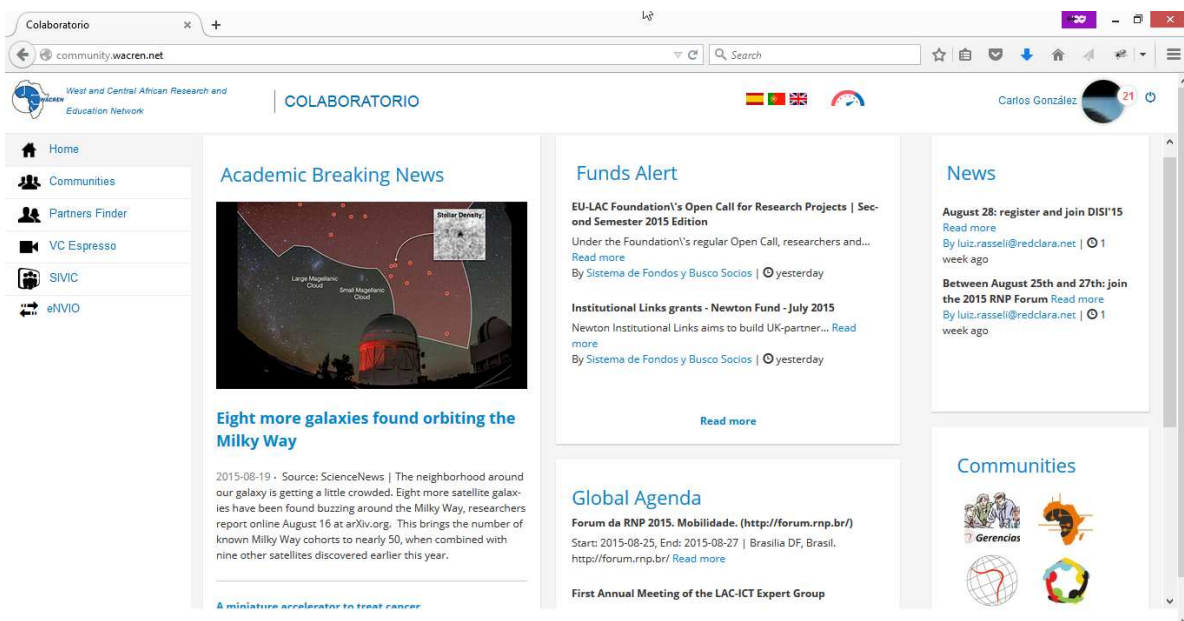


Figure 1: Screen capture of the WACREN Colaboratorio Instance.

The WACREN instance of Colaboratorio is initially integrated with the Nigerian NREN Catch-all Identity Provider (NgREN IdP) allowing users to log in and access the services. This exercise was completed 30th July 2015, achieving Milestone #5 according to the Description of Work. Now, WACREN has a virtual collaboration platform complete with collaborative, allowing the creation of online communities according to needs. In addition to Communities that WACREN may create, the WACREN Colaboratorio also comes with Communities created by other users from across the world. In the same way, WACREN Communities will also be visible to the rest of the world.

2- TECHNICAL ARCHITECTURE AND SPECIFICATIONS

As already noted and as provided in the Description of Work, this initial deployment of Colaboratorio for WACREN is an instance of the service, with the core running on RedCLARA infrastructure, and the interface running on WACREN servers. Figure 2 shows the components in a typical integration. As shown, there are basically 3 layers demarcated by the dotted lines. In the base, which is hosted at RedCLARA, there are the Service Providers (SP) from the Colaboratorio, one for each service in the platform. The Colaboratorio service handles the user communities, while the Wiki, FileSender and Webconference are services associated within it, working integrated with the user community.

The middle layer is typically what is and/or would be hosted by WACREN. This includes the IdP and any other services that WACREN may want to integrate. Currently, it is the NgREN Catch-all IdP and soon the WACREN IdF. The top layer is the interface, basically a Colaboratorio iFrame based on HTML and Javascript. It is integrated with Colaboratio service and the rest of the SPs. This is hosted by WACREN and is what is visible at community.wacren.net.

Therefore, the service integration was done through 2 mechanisms: a) Identity federation integration (SAML2), i.e. integrating the NgREN Catch-all IdP; and b) HTML/JS/Iframe integration – linking Colaboratorio Services and the WACREN container/iFrame. This is shown in Figure 2 by red lines.

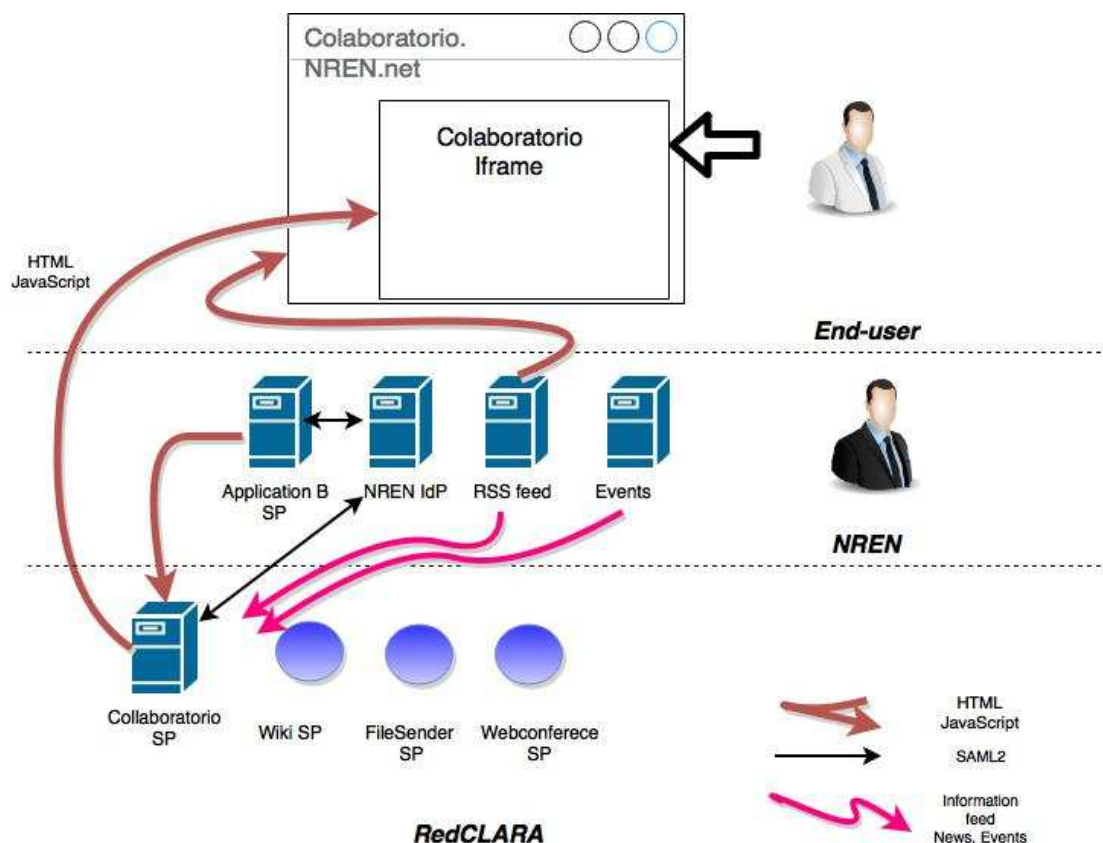


Figure 2: Colaboratorio architectural description.

In order to deploy the WACREN Container, which is in charge of embed the Colaboratorio’s services, the following actions were performed:

- 1- The NgREN Catch-all IdP was fed, by WACREN, with the Colaboratorio Service Provider (SP) Metadata.
- 2- The metadata of NgREN Catch-all IdP was added, by RedCLARA, to the central point of Colaboratorio Identity Providers (IdP) and then, it was spread to SPs.
- 3- A base WACREN Container was developed by RedCLARA as an example and was uploaded to the RedCLARA’s Control Version System. This example was configured with English as the default language,
- 4- The base Container was used by WACREN to create its own WACREN Container, deployed on its infrastructure and then, added to the DNS as community.wacren.net

A summary of the main technologies used for the implementation and where each component is hosted shown in the Table 1.

Table 1: Main technical systems of each service

Service	Hosted by	O.S.	Main technologies
WACREN Container	WACREN	Linux	HTML
Catch-all IdP	WACREN	Linux	Shibboleth
Communities	RedCLARA	Ubuntu	Joomla, PHP, MySQL
Wiki	RedCLARA	Ubuntu	Mediawiki, PHP, SAMLAuth - MediaWiki, MySQL
eNVIO	RedCLARA	Ubuntu	Filesender, Assembla
Webconference	RedCLARA	Ubuntu	mconf (Big Blue Button), PHP, MySQL
Sivic (H323 Conference Booking System)	RedCLARA	Ubuntu	PHP, MySQL

Figure 3 shows screen capture of the WACREN Colaboratorio login page with the NgREN Catch-all IdP. Currently, the NgREN Catch-all IdP is the only one integrated and so users have to first register with the Catch-all IdP to use the platform. The WACREN Identity Federation is being developed and will soon be integrated, bringing with it more IdPs. In addition, discussion was initiated with the Grid ID Pool (GrIDP) a catch-all test federation that federates a number of African IdPs that were developed in ei4Africa FP7 project.

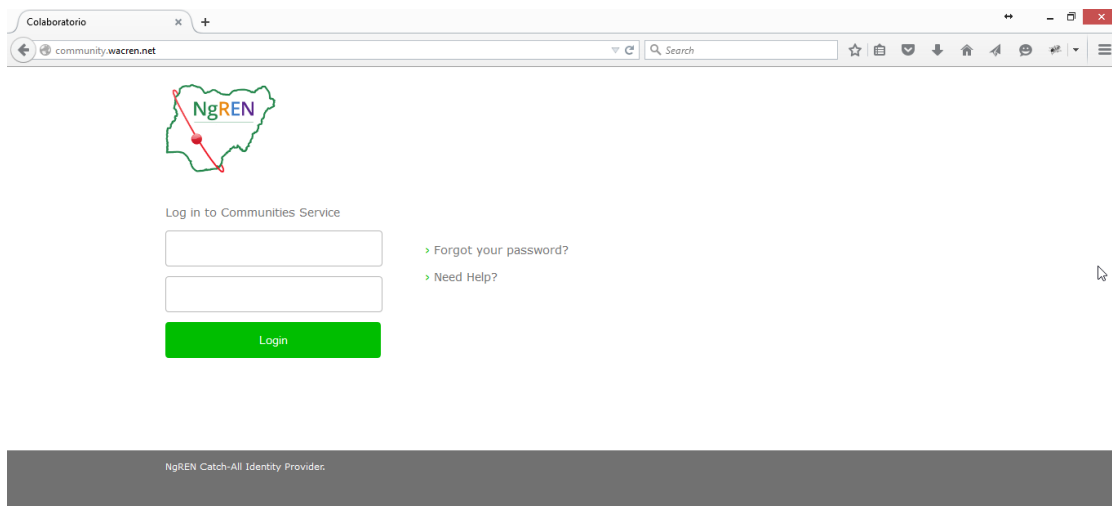


Figure 3: WACREN Colaboratorio login page with NgREN Catch-all IdP

3- SERVICES

The WACREN Colaboratorio already has all the features and services of the RedCLARA Colaboratorio. These are: Communities, Wiki, FileSender, and WebConference. Below we describe the services in some detail.

3.1 Communities

The Communities service is central to Colaboratorio. It allows end users to create and manage online groups for collaboration and information sharing. The service is based on Joomla and seamlessly integrates with Mailman, the result of which is that when Community is created, a Mailman list is also created. When a user posts a message onto the Community, the message is automatically sent to the rest of the Community members via email. In the same way emails posted to the Community email address are automatically posted to the Community page on Colaboratorio. This feature enables end users not to miss messages even when they do not log into Colaboratorio. Currently, the WACREN Colaboratorio is using RedCLARA mailman, but the team is working on integrating with the WACREN mailman.

3.2 Wiki

A Wiki service based on MediaWiki is available on the WACREN Colaboratorio for users to collaboratively work on documents. This is handy for communities that have to provide input into documents. The same also is used for sharing documents within communities.

3.3 FileSender

FileSender, called eNVIO on Colaboratorio, is a unique service that allows end users to send large files that would otherwise not be able to go through via email. The service is based on FileSender and Assemblia. Users wanting to send large files upload them on the platform and the file is available for a time to the recipient. This is a useful service especially for the research community who often times need to send large files to their peers and collaborators.

3.4 Web conference

The WACREN Colaboratorio also comes with a web conferencing service, which allows users to conduct web conferences with peers and collaborators from anywhere. Each user, upon registration automatically has a private room that can be used for web conferences. Each Community also has a web conferencing room. The service uses MCONF, which is hosted in RedCLARA infrastructure. In addition, the service comes with SIVIC, an H232 videoconference scheduling system that point to an MCU. Currently, this service is pointing to RedCLARA's MCU.

4- FURTHER WORK

With the achieved implementation, WACREN users can access Colaboratorio services in no time. Furthermore, there are some actions that will contribute to enhance and extend the platform:

1. Connection of Colaboratorio - WACREN Container from other IdPs (GridP, WACREN EduID) – WACREN is developing additional IdPs, and all of them shall be integrated to the Colaboratorio instance.
2. Development of components to allow WACREN to write custom content on “News”, “Academic Breaking News” and “Global Agenda” Colaboratorio’s Main page components. The Colaboratorio has some components that can have localized content. For instance, when people enter to the WACREN Colaboratorio, they would like to see the most recent News, and Agenda from their regional network. Colaboratorio design will allow to integrated RSS channels or news feeds per integrated partner.
3. Development of a Learning Management System (LMS) based on Moodle. This was included in the Description of Work. A needs analysis will be conducted to collect the most needed features and services for inclusion into the WACREN Colaboratorio.
4. Translation into the French language. The majority of West and Central African countries are Francophone. To ensure that there is ease of use of Colaboratorio, the service will be translated to French.
5. Further customisation of the WACREN Colaboratorio – The WACREN Colaboratorio will be further customized and branded for WACREN. This includes the landing page and the Community email lists.

5. REFERENCES

[R1] https://en.wikipedia.org/wiki/SAML_2.0

[R2] WACREN Colaboratorio URL: <http://community.wacren.net>