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INNOVATIVE SOLUTIONS
BY OPEN SOURCE EXPERTS

GEOMAPFISH USER GROUP

TECHNICAL AND COMMERCIAL OFFER

2.7 POC and
Migration Kickstart

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1 INTRODUCTION

1.1 DOCUMENT PURPOSE

This document constitutes the technical and commercial offer of Camptocamp SA, hereinafter referred to as Camptocamp for the 2.7 Proof-of-Concept (POC) and no-AngularJS Migration Kickstart on behalf of the GeoMapFish User Group.

1.2 CONTACT

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1.3 DOCUMENT VERSIONS

VERSION	DATE	AUTHOR	COMMENTS
1.0	30.04.2021	Yves Bolognini	Initial version
1.1	04.06.2021	Yves Bolognini	Several little changes, feedback window, POC report, estimates split, WFS 3

2 GEOMAPFISH 2.7

Most of the NGEO/GeoMapFish components and services are based on the AngularJS framework which is reaching End Of Life at the end of December 2021. It is therefore necessary to think of an alternative for the future of the client part of the GeoMapFish solution.

An analysis was conducted by Camptocamp and presented to the GeoMapFish User Group. It was documented in the GMF 3 Evolution Analysis Report.

Based on this document and following several sessions with the GeoMapFish PSC, the chosen strategy was a progressive migration. In this scenario, the migration will be progressive, the application will stay operational and continue to be deployed to production, there will be GeoMapFish releases coming regularly.

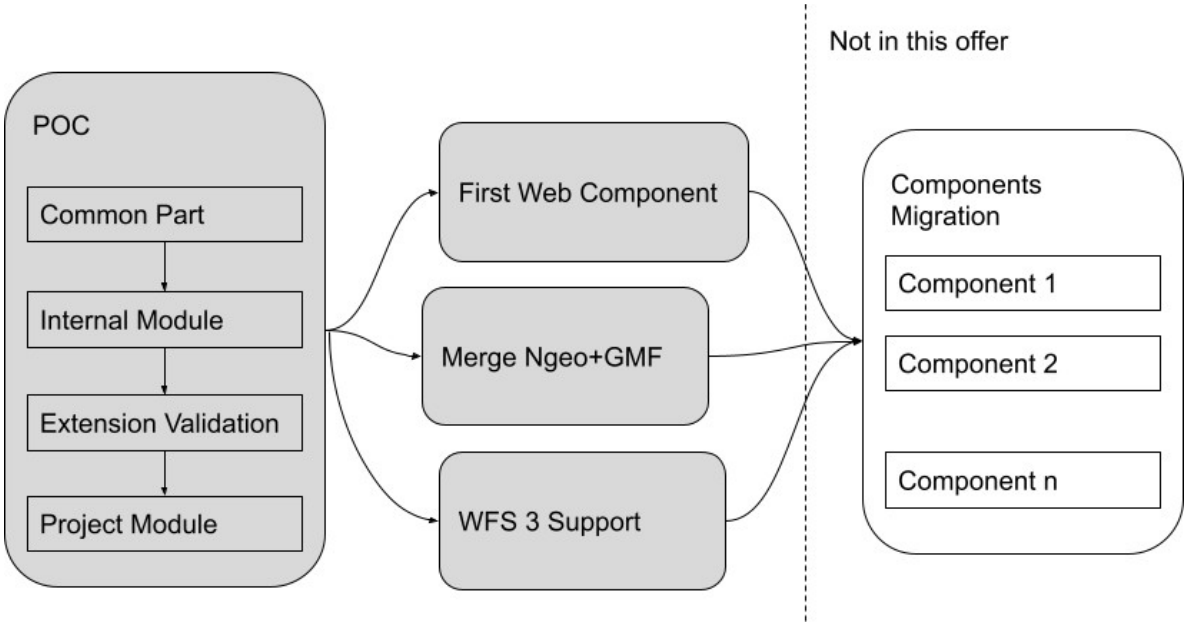
The 2.7 version goes in this direction. It includes:

- A reusable Proof-of-Concept (POC) for the implementation of a web component[1] architecture and, if the POC result is conclusive;

and, if the POC results are good:

- The development of a first web component based on the POC architecture;
- The merging of the Ngeo and GMF client libraries, with a view to simplification;
- The addition of WFS 3 support

The first three points above are a first step towards the migration to an AngularJS-free architecture. They lay the foundation for the realization of the progressive migration strategy. The WFS 3 support can be seen as a new feature.



1 https://www.webcomponents.org/

3 TASKS

3.1 WEB COMPONENTS POC

The first goal is to set up the structure for the development of the web components and to validate the concepts. This is the Proof-of-Concept (POC) stage. The developments will be carried out with the objective that the totality of the code is reusable. This is not a disposable demonstration, but the beginning of the development of an application based on web components.

It should be noted that a part of the migration to an AngularJS-free application consists in migrating the Ngeo services. This work will be done as needed, depending on the modules that will be transformed into web components. As many web components will be implemented after the version 2.7, it is very likely that some services will be migrated during the development of the 2.8 or even later.

The 2.7 POC consists of four parts:

Common part

These are the basic bricks of the architecture. Technically, it is planned to:

- Add a state (probably based on RxJS)
- Instanciate new internationalisation stack (probably i18next)
- Instanciate the webcomponent stack (litelement and lithtml)
- Create a singleton object to dispatch the configuration

Implementation of the authentication module

The first component that will use the new architecture will be authentication. It is a pure Ngeo module, which was chosen because it has few dependencies with other modules or services. The theme selector was initially a candidate, but after analysis it turned out to be too linked to the layer tree, and therefore too complex.

The following points will be validated with the migration of this component:

- State management
- Internationalization
- Configuration
- Template replacement

Component extension validation

The components, once migrated to the new architecture, must be extendable. This phase of development will consist in the development of an example of extension of the authentication module, which will modify its JavaScript behavior.

Implementation of the feedback window

The second component to be migrated will be the feedback window, as seen on the SITN geoportal. This feature allows users to send some feedback about their geoportal experience. Only the front-end part of this module will be migrated and then tested using an existing back-end (SITN, for instance).

The goal here is to put in place all the necessary mechanisms for the creation of project specific components. This will include two separate compilations: one for the Ngeo components (generic) and one for the project components (specific).

The following points will be validated with the migration of this component:

- State management
- Configuration
- Separate build for custom component

Report on results

At the end of the POC development, a short report will be written. It will include at least the work done, the choices made and the impacts of the new architecture on the future migration to this version.

3.2 AFTER THE POC

Once the POC is completed, it will be proven that the chosen strategy was the right one. Only then can we continue in this direction. This chapter and the next one describe tasks to be done after the POC.

3.2.1 First Web Component

As the complete migration of all GeoMapFish components is a complex and long task, it is important to start with the realization of another relatively simple web component. This task will allow to estimate the cost of the rest of the migration.

The choice was made for the profile component. It is a widely used component and has the advantage of having few links with other GeoMapFish modules.

The development of this component is independent of the Ngeo+GMF merge (next chapter). The two tasks can be done in any order or even in parallel.

3.2.2 Merge Ngeo+GMF

For historical reasons, the GeoMapFish client code is partly separated between Ngeo and GMF specific code. This is no longer necessary today. An important simplification is therefore planned. This simplification will allow, later, to save time when migrating to the AngularJS-free architecture.

Technically, this work consists of:

- Merge work at the layer tree level
- Code shift work from Ngeo to GMF
- Renaming of configuration variables for consistency

Note: the Angular names will still be a mix of gmf and ngeo until migration of the corresponding modules to web component architecture.

3.2.3 WFS 3 Support

QGIS Service provides services that use the new WFS 3 standard (renamed OGC API Features)[2]. The addition of WFS 3 support to GeoMapFish involves two developments.

First, the base QGIS Server Docker container provided by GeoMapFish must be updated. In order to work with the new standard.

Then, GeoMapFish's QGIS security proxy will need to include an option to be able to handle the new standard. It will stay backward compatible.

2 https://docs.qgis.org/3.16/en/docs/server_manual/services.html#wfs3-ogc-api-features

4 COMMERCIAL PROPOSAL

4.1 COSTS

FEATURE	DEV Hours	TESTING Hours	PROJECT MNGMT Hours	COST CHF excl. taxes
Web components POC				
Common part	76.0	22.8	14.8	17'040
Component extension validation	25.3	7.6	4.9	5'670
Authentication component	50.7	15.2	9.9	11'370
Feedback window component	62.7	18.8	12.2	14'055
Total Web components POC	**214.7**	**64.4**	**41.8**	**48'135**

FEATURE	DEV Hours	TESTING Hours	PROJECT MNGMT Hours	COST CHF excl. taxes
After the POC				
First Web component				
Profile	50.7	15.2	9.9	11'370
Merge Ngeo+GMF				
Merge Ngeo+GMF	101.3	30.4	19.8	22'725
WFS 3 support				
Docker container	21.3	6.4	4.2	4'785
Security proxy	25.3	7.6	4.9	5'670
Total WFS 3 support	**46.6**	**14.0**	**9.1**	**10'455**
Total After the POC	**198.6**	**59.6**	**38.8**	**44'550**

4.2 WHAT IS INCLUDED/NOT INCLUDED

The offer includes:

- Project management, coordination and meetings
- The general specifications of the final application
- The development of the functionalities described in this document
- Integration of test data
- The development and demonstration environment
- Project monitoring tools

The offer doesn't include:

- Hardware supply
- Not selected options
- Training of users, administrators and end users of the application
- Generally speaking, all services not described in this offer

4.3 VALIDITY OF THE OFFER

The technical and financial offer formulated by Camptocamp is valid until the end of July 2021. From this date, the technical and commercial offer may be modified.

4.4 DEADLINES

Camptocamp needs one month to mobilize the teams.

Based on the final scope of the project, deadlines may be set.