



CamptoCamp

State of the art of the creation of GIS rich internet application

OGRS 2009, Nantes, Cédric Moullet, CTO CamptoCamp

Agenda

Web 2.0

Creation of RIA

- Web Services
- Client UI

Cloud computing

Labs and demo during the presentation

Camptocamp

Editor and integrator of Open Source software

40 Open Source Advocates



Rennes



Lausanne

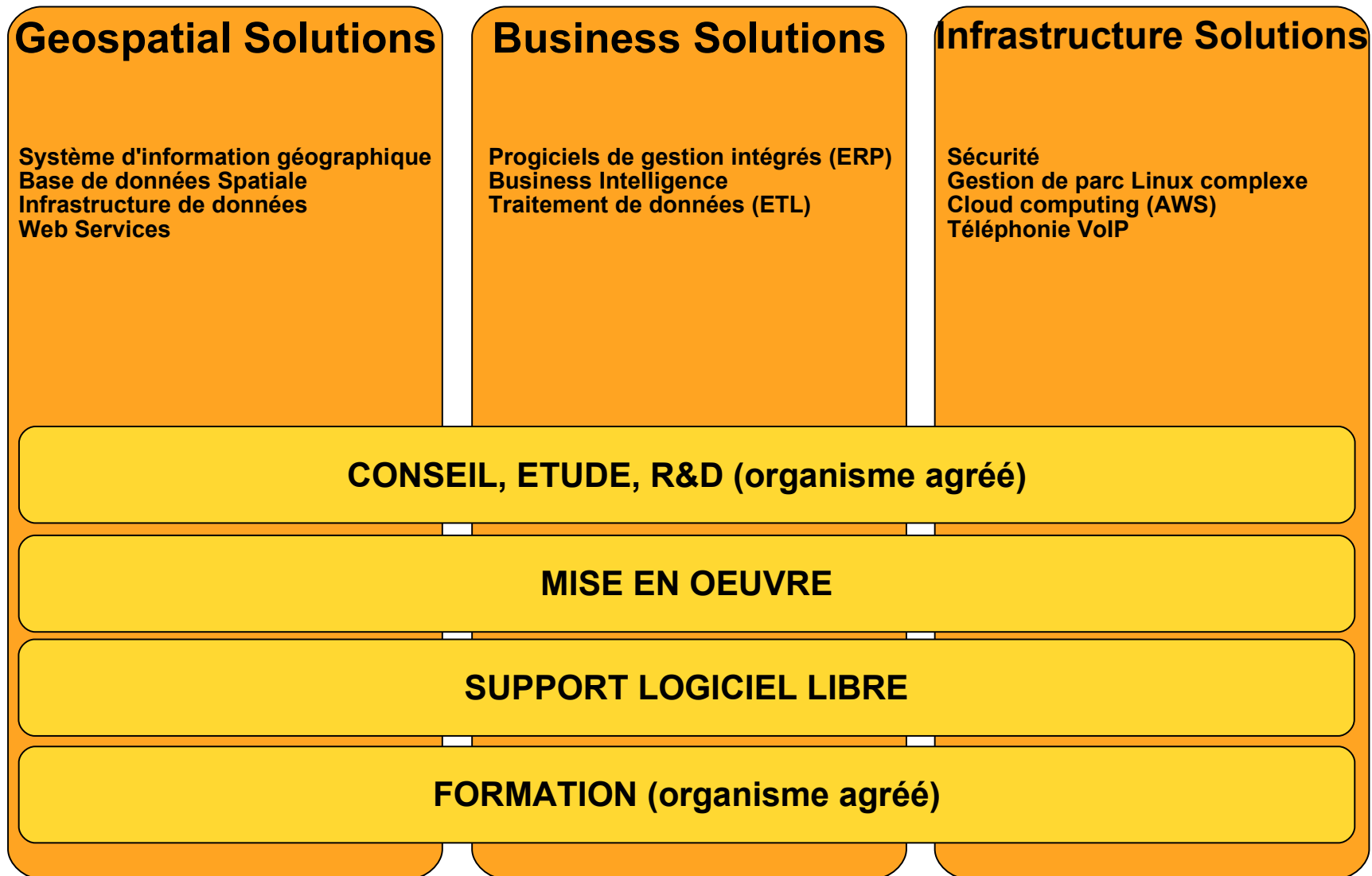


Chambéry



Toulouse

Des produits et services complémentaires



Strong involvement in major projects

Member of several Project Steering Committee (PSC)
« Committer » in major projects



Web 2.0

Web 2.0 : one definition

Web 2.0 is a set of social, economic, and technology trends that collectively form the basis for the generation of the Internet – a more mature distinct, distinct medium characterized by user participation, openness and network effects.

O'Reilly Media



Web 2.0?

Community
Technology
User experience



Web 2.0 - Community

Community:
From diffusion..
... to participation

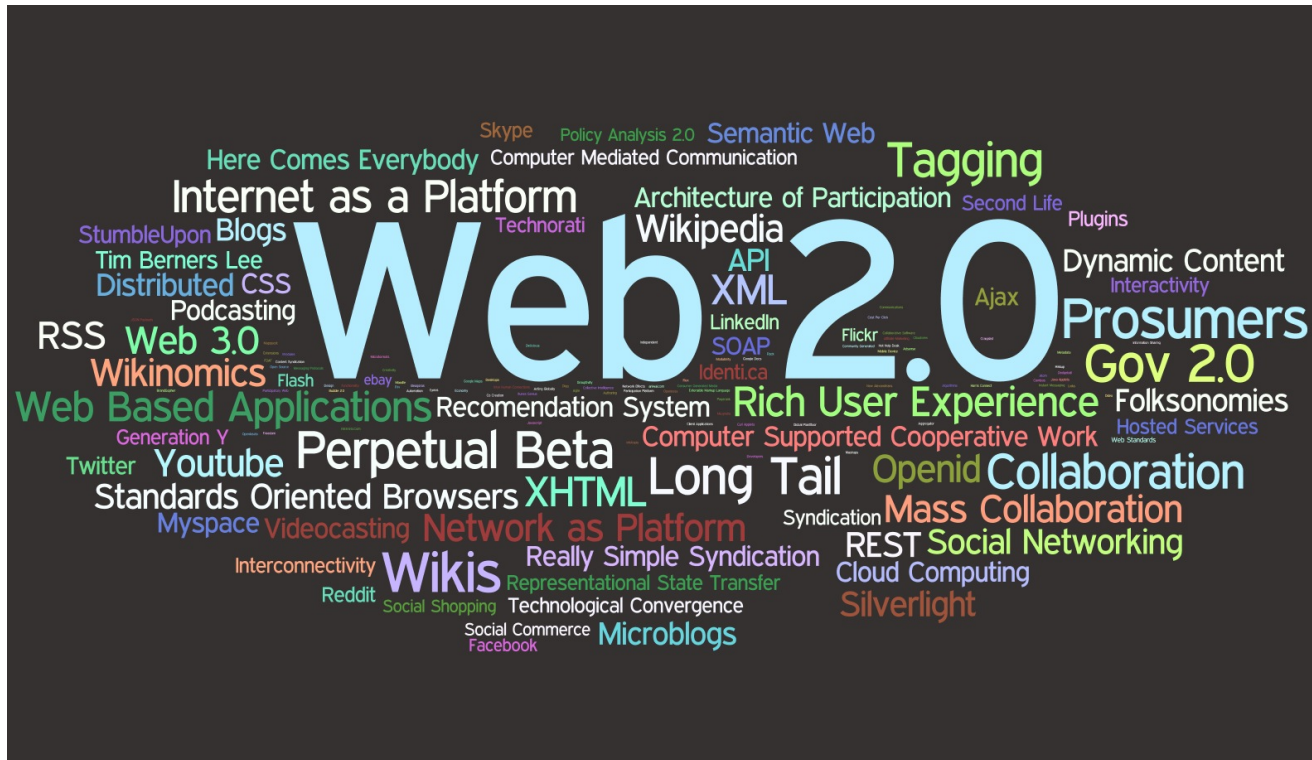


Web 2.0 - Technology

Javascript

AJAX (Asynchronous JavaScript + XML)

Asynchronous load of page areas



Web 2.0 – User experience

From page paradigm...
... to Rich Internet Application

Wikipedia: RIA are web applications that have some of the characteristics of desktop applications



GIS RIA

GIS RIA: principles

From web page to web application

Asynchronous mode for data

- Pre-generated tiles
- Client and server caching
- Image server instead of cartographic server

GIS RIA: general architecture

Serveur



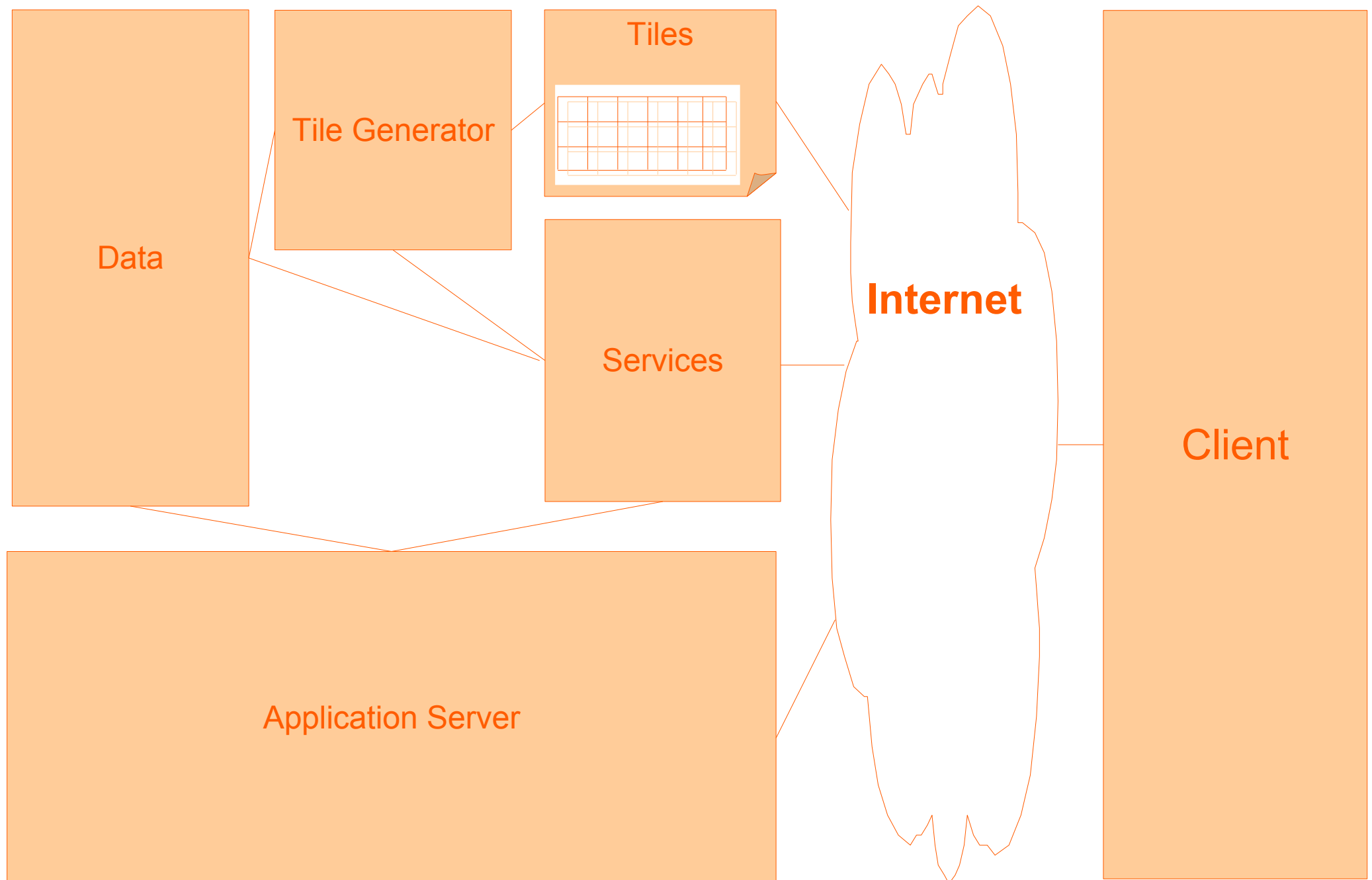
Internet



Client



GIS RIA: architecture



GIS RIA



MapFish



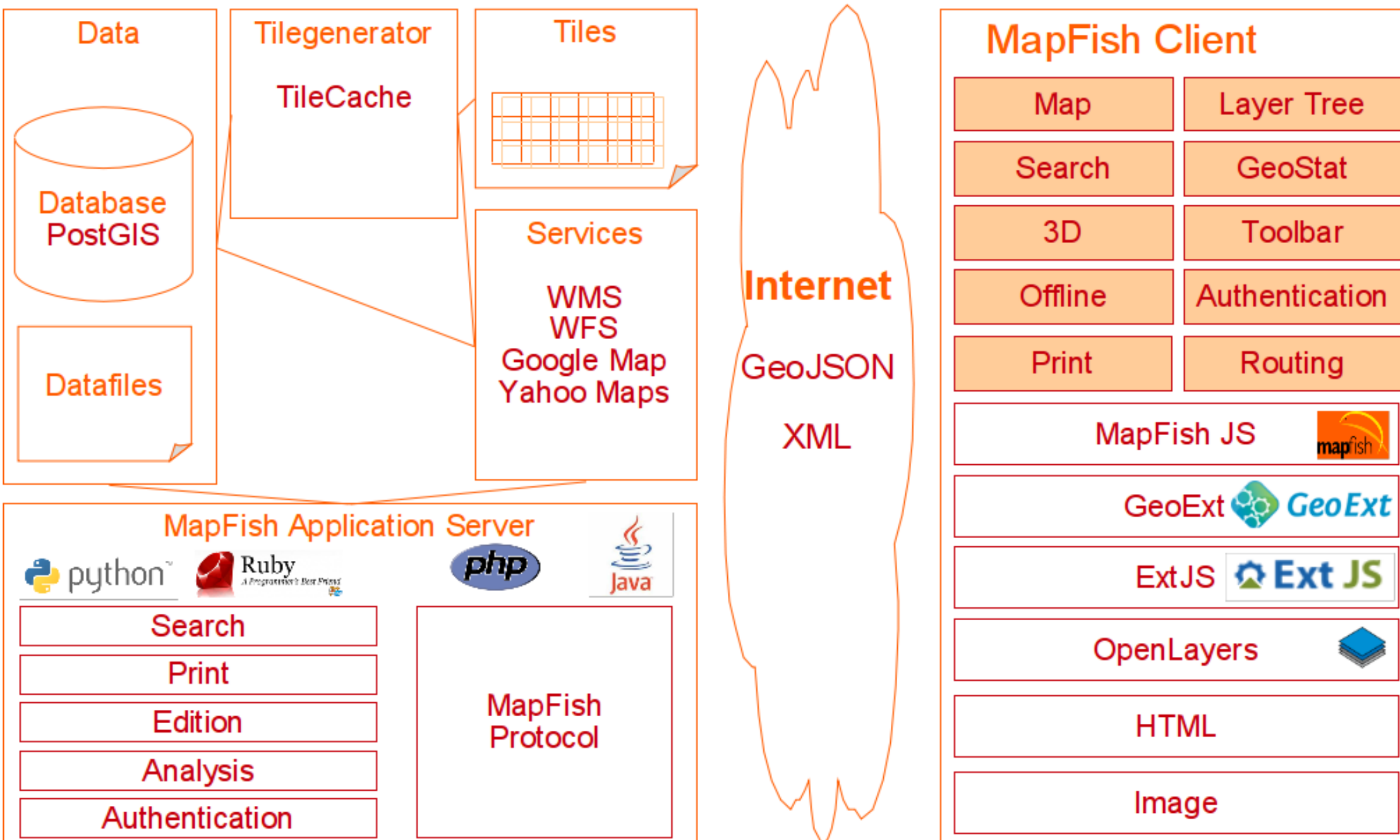
GIS RIA: MapFish

MapFish is an easy-to-use and extensible **web 2.0 mapping application framework**.

MapFish Client is a JavaScript framework based on OpenLayers for the mapping part, on ExtJS and GeoExt for the GUI part.

MapFish Server is responsible for server side treatments and is composed of several modules which can be implemented in several languages such as Python, Java, Ruby, PHP or others.

GIS RIA: MapFish Architecture



GIS RIA



Studio



GIS RIA: Studio

MapFish Application Generator

3 main functions:

- Data import
- Define symbology, WMS / WFS services and et edit MapFile
- Create MapFish Site
 - Map
 - Layer Tree
 - Tooltip
 - Search
 - Edition
 - Print

No development, no file edition !

Lab documentation

- http://dev.mapfish.org/sandbox/website/.build/html/ogrs2009_lab.html

LAB 1

Create a WMS service

GIS RIA: Tiling

Speed

User experience

AJAX for maps

Support high load

GIS RIA: Tiling client side

Applications Places System ven avr 17, 11:40 Cedric Moullet

Carte La Suisse à vélo - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://map.veloland.ch/ sdi logo

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italiano
english

Fermer les thèmes

Carte Photo aérienne Recherche...

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- Itinéraires
 - National
 - Régional
- Etapas
 - Offres locales
 - Vélo de location
 - Service vélo

La Suisse à pied

La Suisse à VTT

La Suisse en rollers

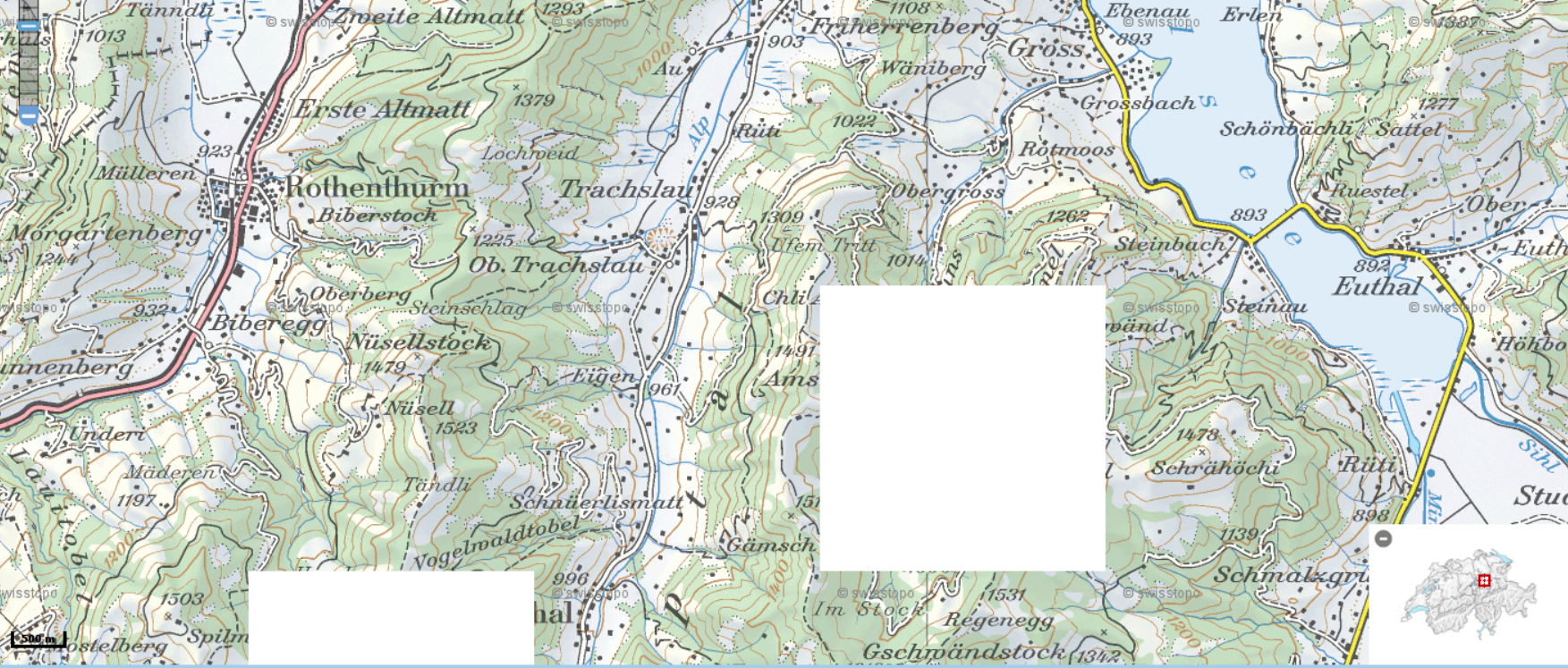
La Suisse en canoë

Trains, bus, bateaux

Lieux

Hébergements

Curiosités



Coordonnées (m): 699215, 216858

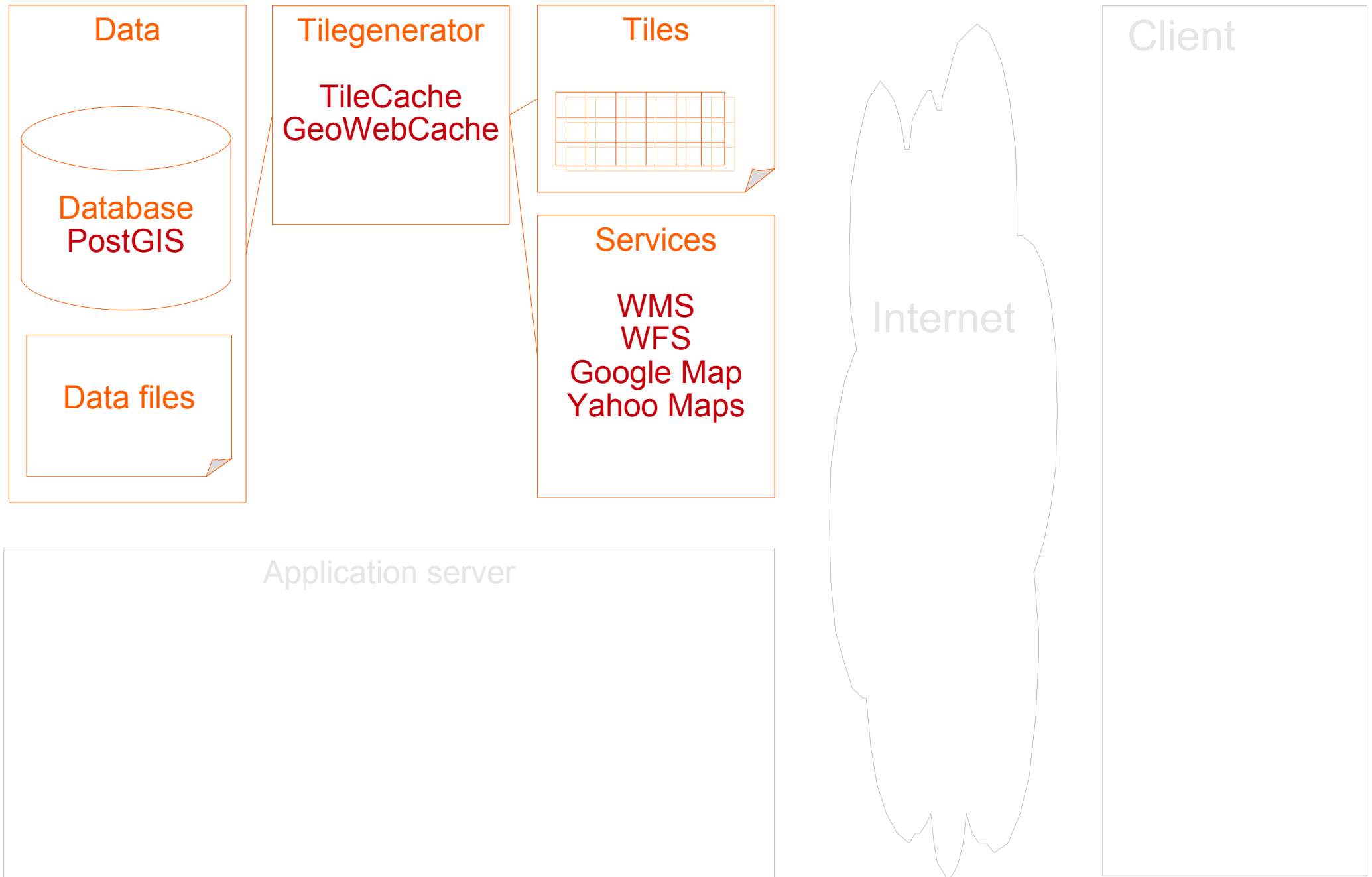
Transferring data from tile0.bgdi.admin.ch...

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YSLOW

Carte La Suisse à vél... seminaire_2009 - File... 2009_Seminaire_We... Documents - File Bro... GIMP Downloads

GIS RIA: Tiling Server Side

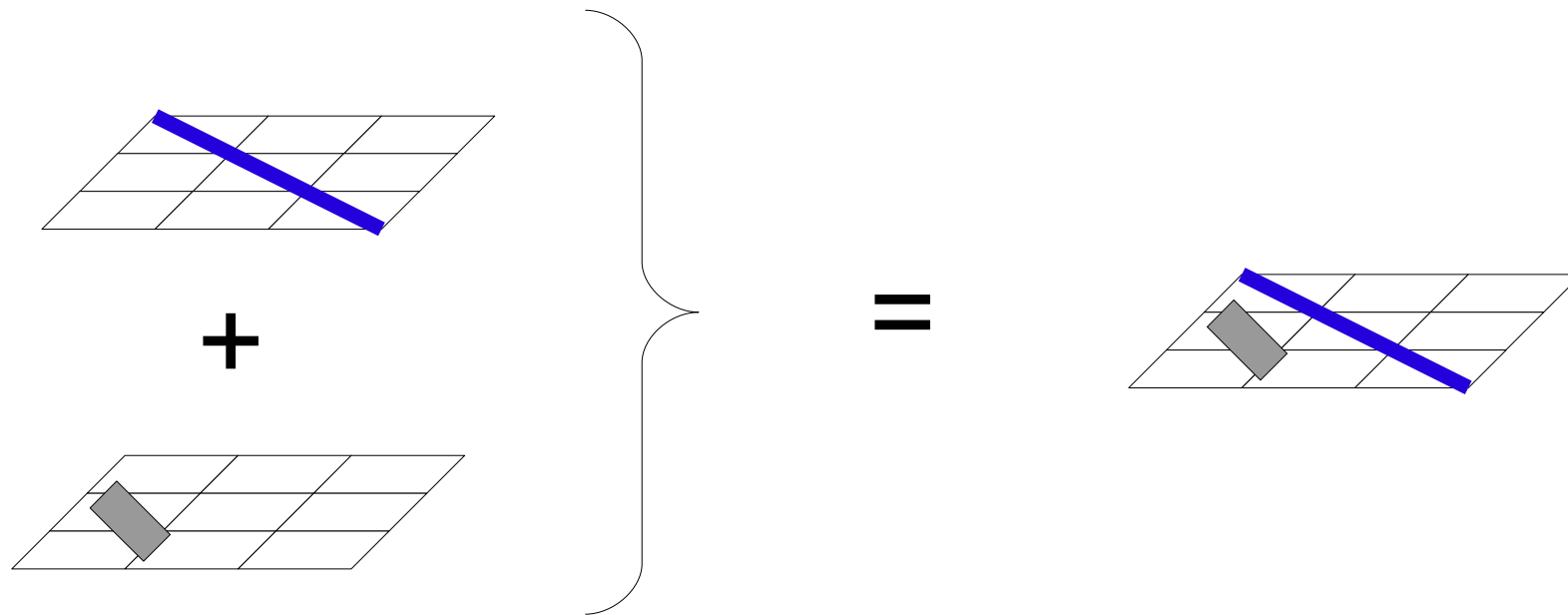


GIS RIA: Tiling limitations

Predefined zoom levels

WMS mode to avoid

Problem if too many layers client side (max 5-8) -> solution
tile merger



TileCache: optimization

- Generate tiles only where it is necessary:
 - Vector layer: generation dependent of objects
 - Raster layer: generation dependent of index file
- Tilecache throws a 204 status code if no tile
- OpenLayers supports status code 204 (no content)

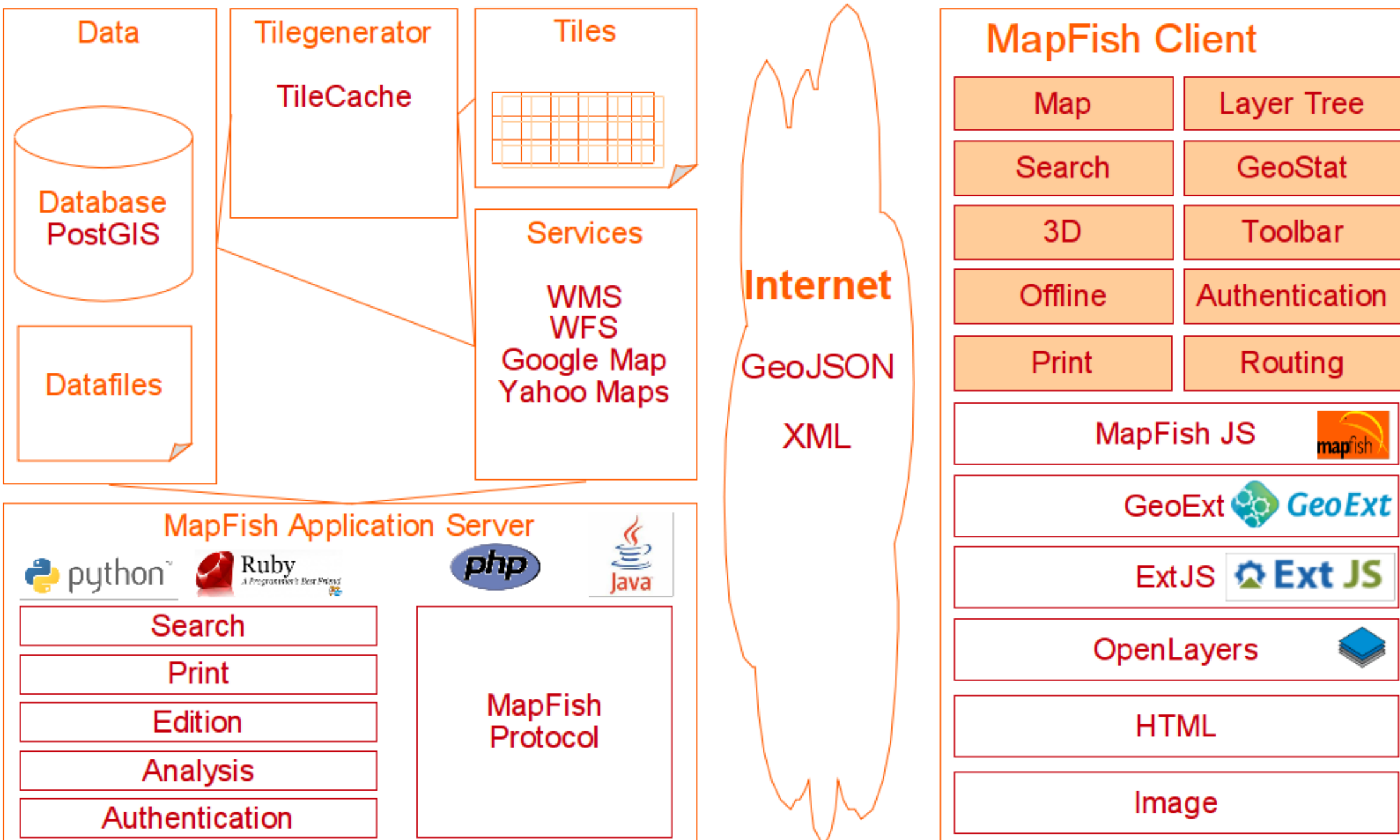
Demo

Generate tiles with TileCache

Lab 2

Create a Map Viewer

GIS RIA: MapFish Architecture



Lab 3

Create a MapFish application

GIS RIA: Flex

- Adobe Flex is a software development kit released by Adobe Systems for the development and deployment of cross-platform rich Internet applications based on the Adobe Flash platform.
- Flex applications can be written using Adobe Flex Builder (windows / mac os) or by using the freely available Flex compiler from Adobe.

Flex showcase

- Elixir Maps:
<http://visudemos.ilog.com/webdemos/sales/sales.html>
- MapFish Flex Client:
<http://dev.mapfish.org/sandbox/labs/FlexDashboard/bin-rele>

OpenScales

- OpenScales is a user-friendly and fast interface designed to manipulate spatial data : geographic raster viewing, data-vector editing, management of smooth transitions between scales and positions, ...
- 1:1 port of OpenLayers
- Ongoing refactoring to adapt code to Flex/Action Script capabilities
- First release (very) soon

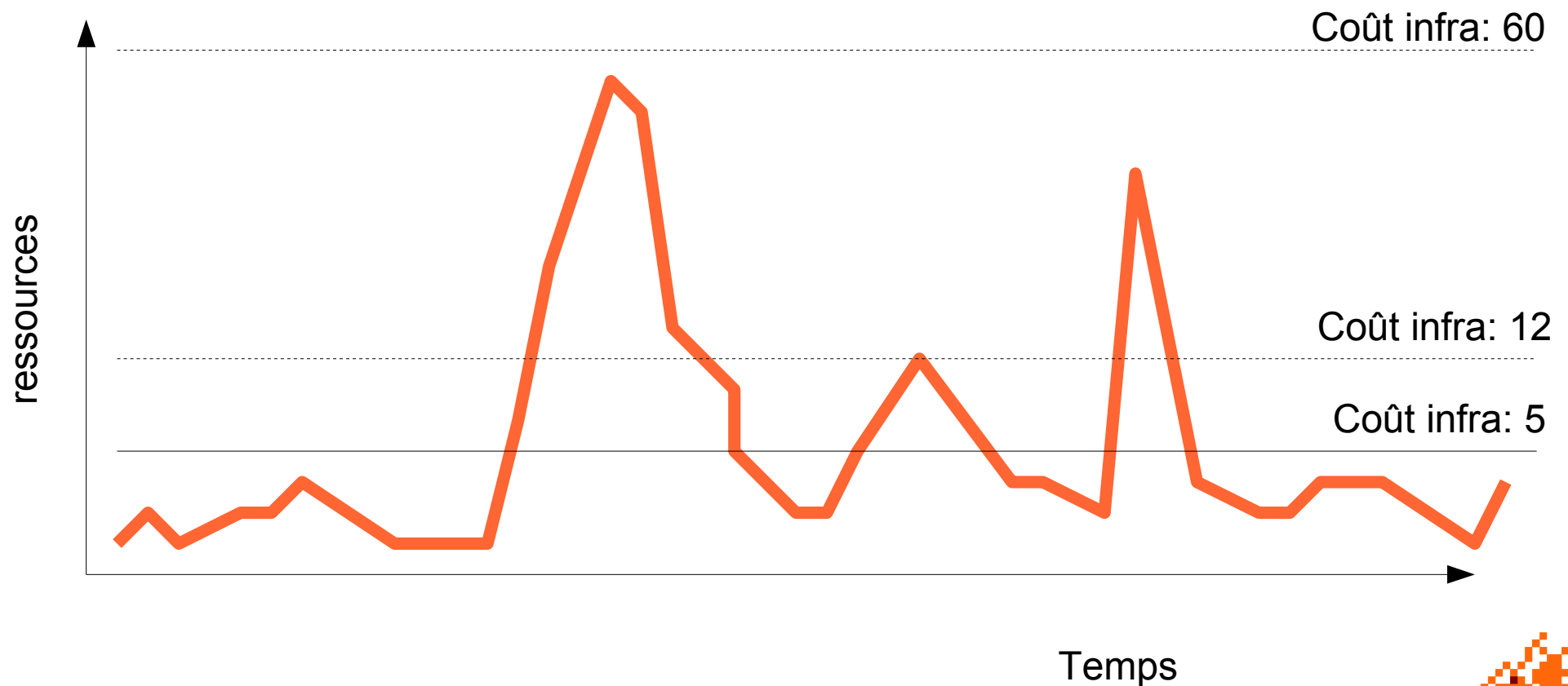
Lab 4

Test OpenScales

Cloud computing for GIS RIA

GIS RIA Infrastructure

Grandes fluctuations des ressources possibles



Architecture dématérialisée : Evolution

Hébergement sur serveur physique

- Une application, un serveur

Hébergement sur serveur virtualisé

- Plusieurs serveurs virtuels sur une machine physique
- Partage des ressources entre les serveurs virtuels

Hébergement sur serveur dématérialisé (cloud computing)

- Abstraction des ressources informatiques génériques disponibles à la demande au travers de services web.
- Infrastructure as a service
- Hardware as a service

Apparition du cloud computing

Apparition du SaaS (software as a service)

Concept de virtualisation

Philosophie Web 2.0

Force du cloud computing

Zéro investissement

Just-in-time infrastructure

Efficiency d'utilisation des ressources

On paie ce que l'on consomme

Potentiel de parallélisation

Adaptation à la montée en charge

Amazon Web Services (AWS)

Mise à disposition d'un large gamme de ressources serveurs:

Stockage : Amazon Simple Storage Service (S3)

Serveur : Amazon Elastic Compute Cloud (Amazon EC2)

Base de données : Amazon SimpleDB

Charge distribuée : Amazon CloudFront

Parallélisation des traitements : Amazon Elastic MapReduce



Amazon Simple Storage Service (S3)

Stockage de données

Protocole http pour accéder au stockage

Amazon Elastic Compute Cloud (EC2)

Location de ressources serveurs dématérialisées



Augmentation ou diminution de la capacité en quelques minutes



Serveurs virtuels Xen

Amazon: tarifs

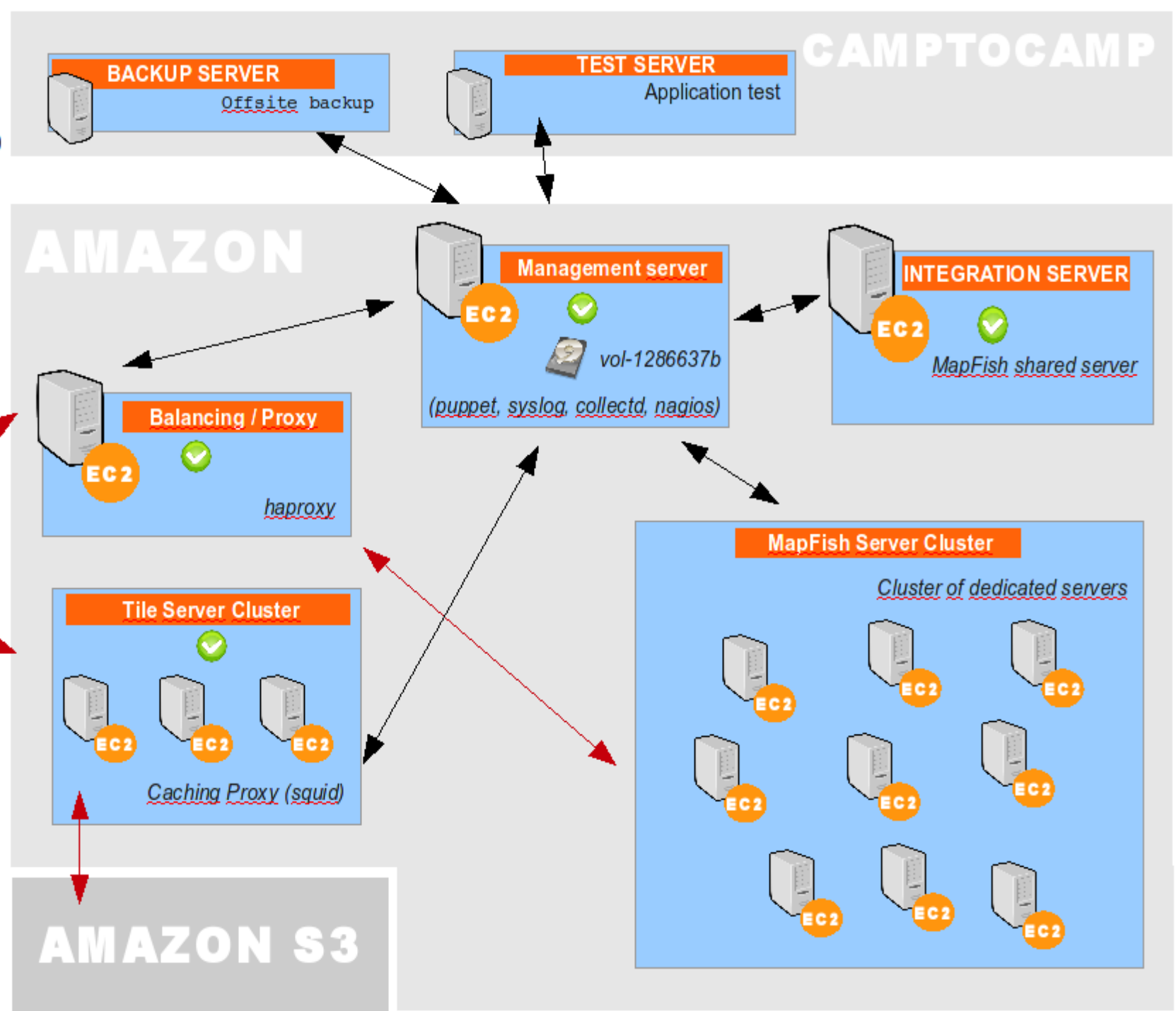
Type	RAM	CPU EC2 compute unit	Stockage	€/heure	€/an pré-réservé
Small	1.7 GB	1 Unit 32-bit	160 GB	0.08	480
Large	7.5 GB	4 Unit 64-bit	850 GB	0.30	1800
Extra Large	15 GB	8 Unit 64-bit	1690 GB	0.60	3600

Stockage S3: environ 0.10 € par GB et par mois

-  Elastic IP
-  Permanent Storage (EBS)

-  TCP Connection
-  HTTP Connection


Clients
(web browsers)



SuisseMobile.ch sur AWS

Willkommen im Veloland Schweiz

Themen schliessen

Veloland

☒ Routen

☐ Etappen

☐ Lokale Angebote

☐ Mietvelo

☐ Veloservice

Wanderland

Mountainbikeland

Skatingland

Kanuland

Bahn - Bus - Schiff

Orte

☒ Orte

Übernachten

2 Treffer

Rhone-Route

Die Rhone-Route durchmisst das Wallis vor imposanter Bergkulisse auf reizvollen und ruhigen Wegen entlang der Rhone. Sie führt vorbei an den Palmenpromenaden des Lac Léman und den malerischen Lavaux-Rebbergen und endet in der Weltstadt Genf.

Mehr Information

Seen-Route

Die Seen-Route nimmt Sie mit auf eine Reise quer durch die Postkartenschweiz. Vom Lac Léman bis zum Bodensee führt sie vorbei an zehn grösseren und kleineren Seen und offeriert herrliche Ausblicke übers Wasser auf die Alpen und Voralpen.

Mehr Information

Karte

Luftbild

1000 m

Koordinaten (m): 555000, 145110

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Questions et discussion



Merci de votre attention

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