V3ct3D

Structuring project

École nationale des sciences géographiques

09 december 2016

Brainware

Method Scrum

- ▶ Daily sprints
- ▶ group of 14 people

FIGURE: Brainware

Personal report

- ▶ Scrum master and part of a big team
- ▶ Tools
- ▶ 3D world
- ▶ Advanced thinking

BD UNI & BD TOPO

BD uni

- ▶ Is a database of vector data for the whole of France containing all the themes that constitute the commercial products of the IGN.
- ▶ Its regroup 10 domains : The road network, The building, the vegetation etc. . .
- ▶ The vector component of the RGE

BD TOPO

- ▶ Is the topographic component of the RGE

iTowns

- ▶ IGN technology platform : viewing and exploiting 3D geographic data
- ▶ Writen in Javascript/WebGl
- ▶ Collective intelligence : Several companies are participating in the project :
  - ▶ IGN
  - ▶ Oslandia
  - ▶ AtolCD
- ▶ Github : https ://github.com/iTowns/itowns
- ▶ Supported data types :
  - ▶ Panoramic images
  - ▶ Point Clouds
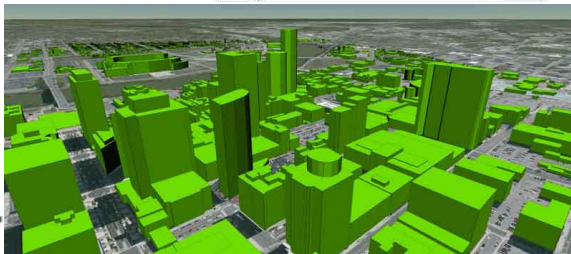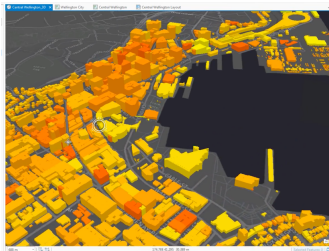 - ▶ 3D textured models
  - ▶ WFS Vector

Personnal report

This project allowed me to :

- Discover iTowns ;
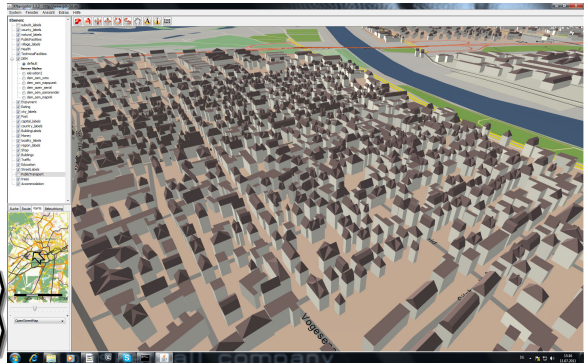- Discover cesium ;
- And be able to write in Markdown.

Different kind of data to do 3D

Different kind of data to do 3D (2)

Personal report - Victor BRINON

Computer skills

- ► Markdown
- ► Github
- ► Taiga
- ► Slack

Social skills

- ► Work in a big group
- ► Communication
- ► Relationships
- ► Daily meeting

Libraries to display 3D

parallax js

Cesium

FIGURE: Cesium

Transverse view of a project

projectsteps

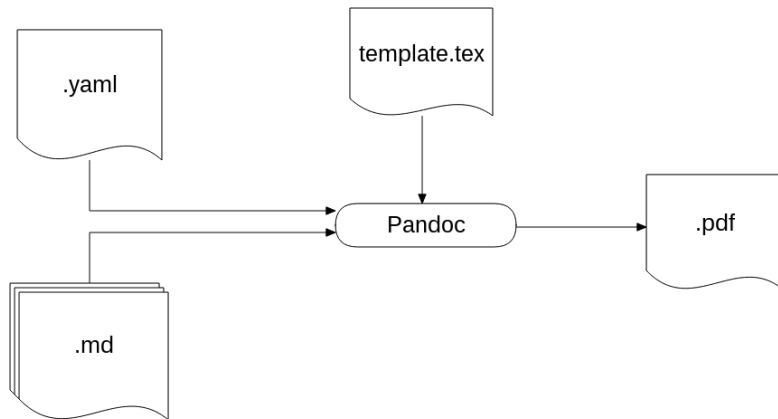# Processing chain md => pdf

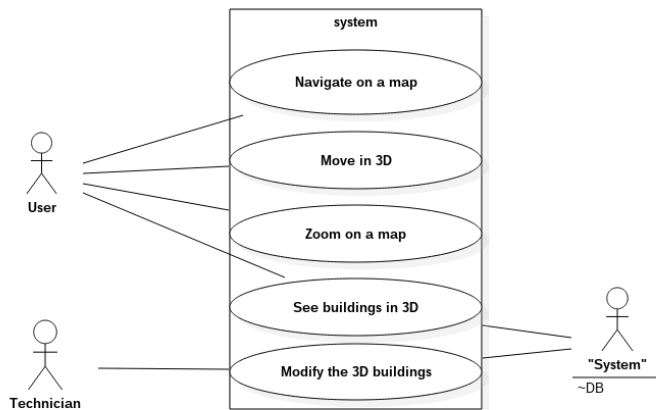FIGURE: Processing chain

Use case diagramm

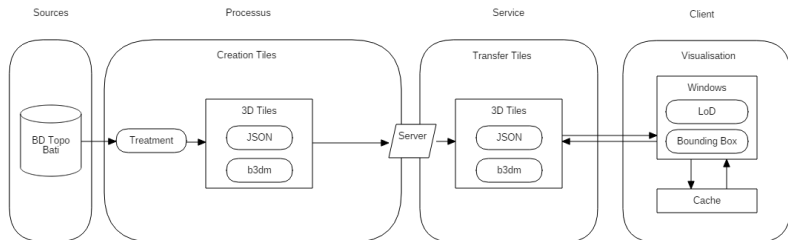FIGURE: Use case diagram

Personal report - Hugo BALTZ

Computer skills

- ▶ Pandoc
- ▶ Markdown
- ▶ UML diagrams
- ▶ 3D-Viewer

Social skills

- ▶ Organization
- ▶ Relationships
- ▶ Communication
- ▶ Efficiency

Production chain : global

FIGURE: Production chain

Personal report - Julie MARCUZZI

- Learn Markdown methods
- UML diagrams
- Communication
- Discover Cesium, file format & library
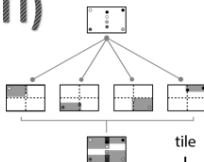
FIGURE: 3DTileGen

FIGURE: 3DTileGen

Personal report

Improved knowledge in Geomatic

- ▶ Vocabulary, geolocation, data representation

Discovery of current standards and libraries

- ▶ Cesium, 3D Tiles, webGL, postGres, . . .

Team work

- ▶ Large team, tiny sprints $=$ hard work

BDTopo

- ▶ Select the *bati* Shapefiles
- ▶ MultiPolygonZM

Import

- Using shp2psql
- Result #Data Processing

Bounding Box

- Creation

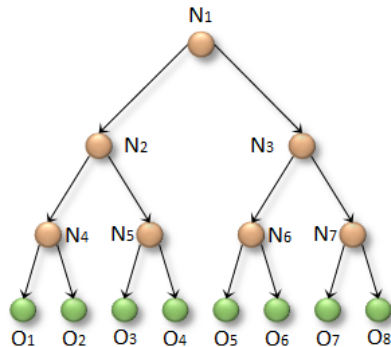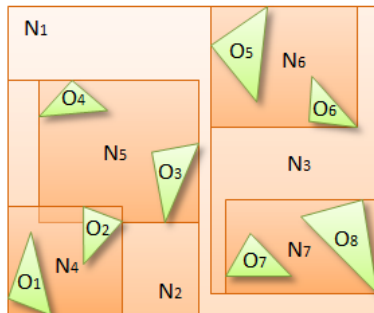# Object

- ▶ geometry
- ▶ relative positioning

Result

The global processing

SQL

Organization

- Team
- Sprint ## Data Hierarchization and display improvement

Bounding Volume Hierarchy (BVH) method

b3dm *Batched 3D Model*

OGC is considering a proposed work item for 3D Tiles as a Community

The Batched 3D Models is an initial tile format proposed by **Open Geospatial Consortium (OGC®)** for **buildings**, terrain, massive models, etc. and the transfer of **3DTiles**.
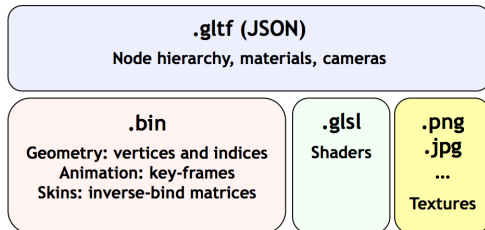
A tile is composed of two sections : a **header** immediately followed by a **body**, i.e. Binary glTF.
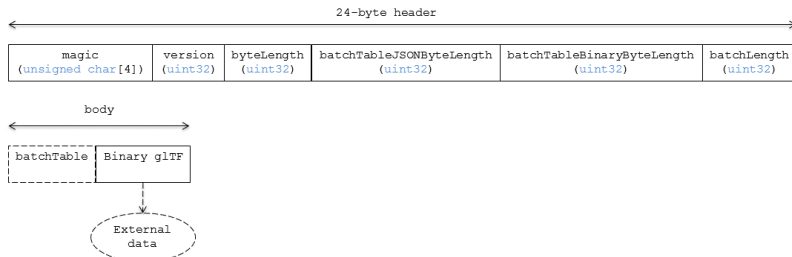
glTF *GL Transmission Format*

Used by 3DTiles

- Efficient, extensible, interoperable format (3D transmission and loading)
- Preserve full hierarchical scenes
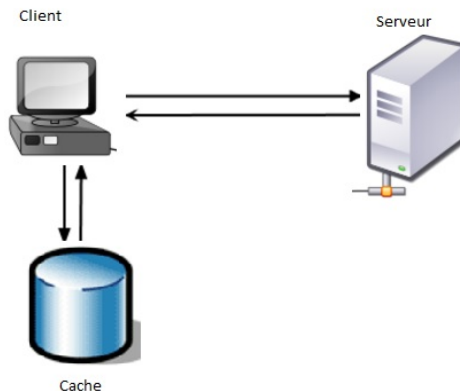- Making no assumptions about the target application or 3D engine.

Personal report

- Rediscovery of **Cesium** & Node js
- Discovery of streams (WMTS) and **file transfers** (gltf, b3dm . . .) + library js like OpenLayers
- Knowledge about **Markdown**
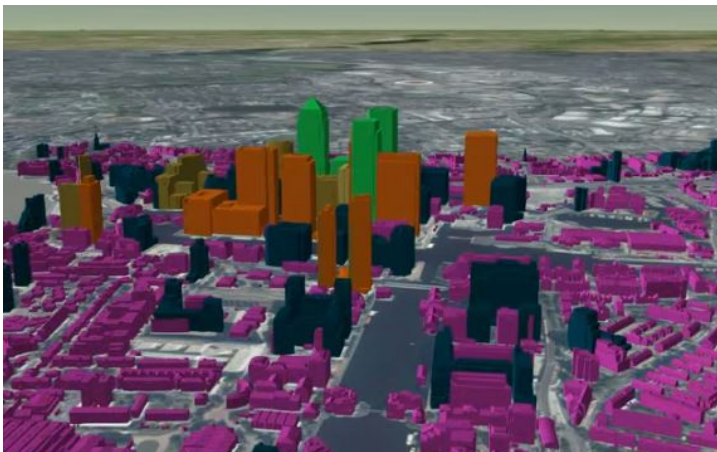- Curious and Analytical mind

Visualisation : Process

- ▶ Initialisation : Global tileset
- ▶ Request : Bounding Box, LOD
- ▶ Cache

Visualisation :Response
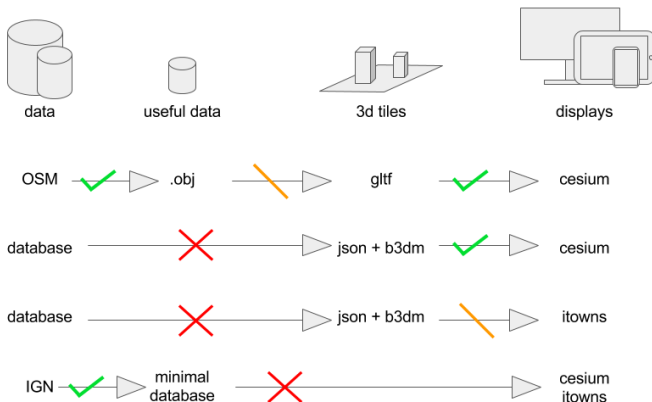
- ▶ 3d tiles format : gltf
- ▶ GLTFLoader : three.js

Personal report - Hind HAMYA

- ▶ Discovery of 3D libraries
- ▶ Discovery of an open standard XML schema : Collada
- ▶ Writing standard : Markdown

Demonstrator

Explainations

Demonstrator

Movie time

Personal report

Relationship

- ▶ Oslandia team
- ▶ IGN team

Technical skills

- ▶ 3d data mechanisms
- ▶ cesium exploration
- ▶ iTowns exploration

Team skills

- ▶ team splitting
- ▶ feedbacks

Conclusion

- ▶ Suggestion of a chain of production
- ▶ Creation of an interest