



Web visualization using ParaView

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 - ParaView and some examples
- **Web visualization**
 - Tools and strategies
 - How does it work?
 - Web implementation
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- **What lays ahead**



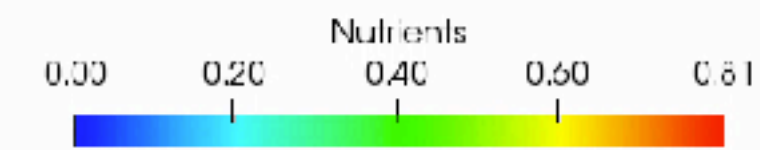
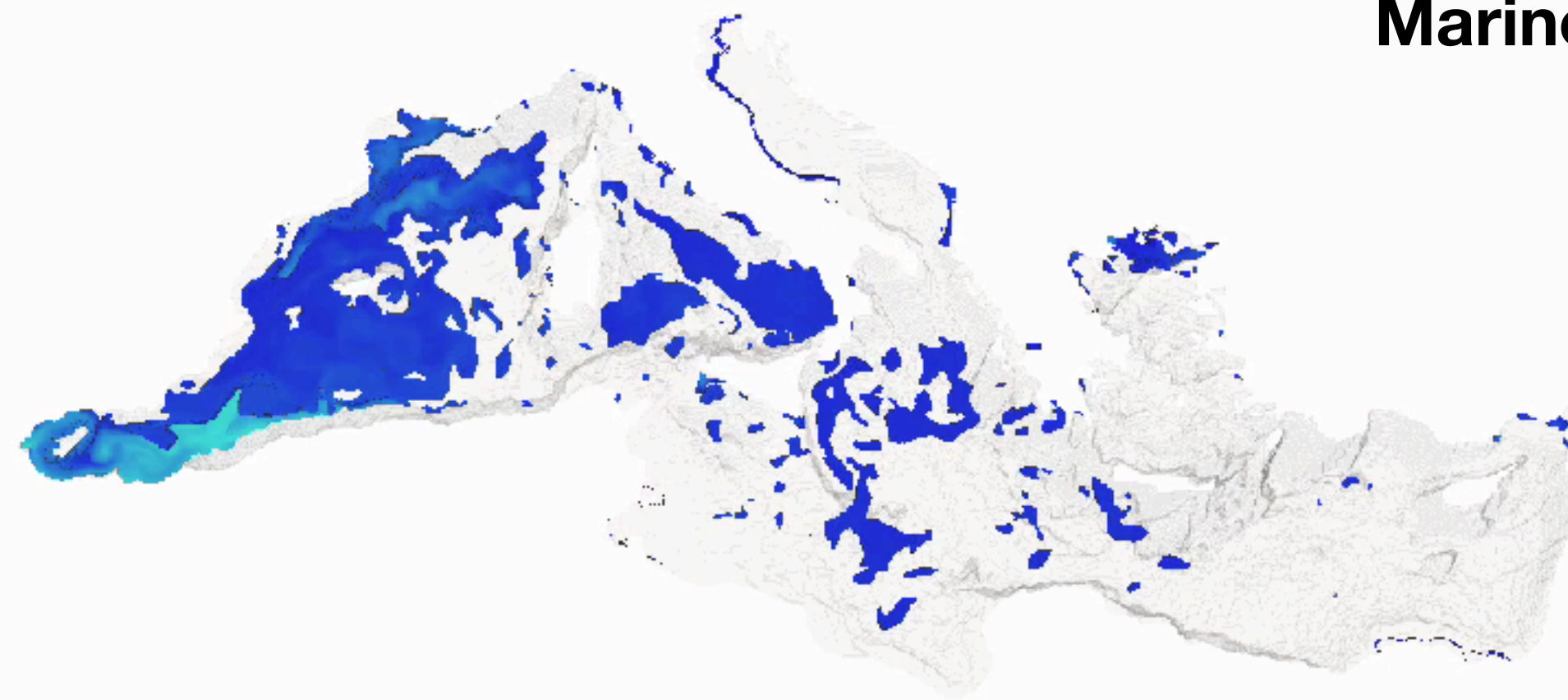
Why data visualization?

- Codes generate a large amount of data
- Data needs to be explored by researchers
- Data needs to be presented to:
 - Other researchers
 - General public

Need for an efficient way to visualize the data

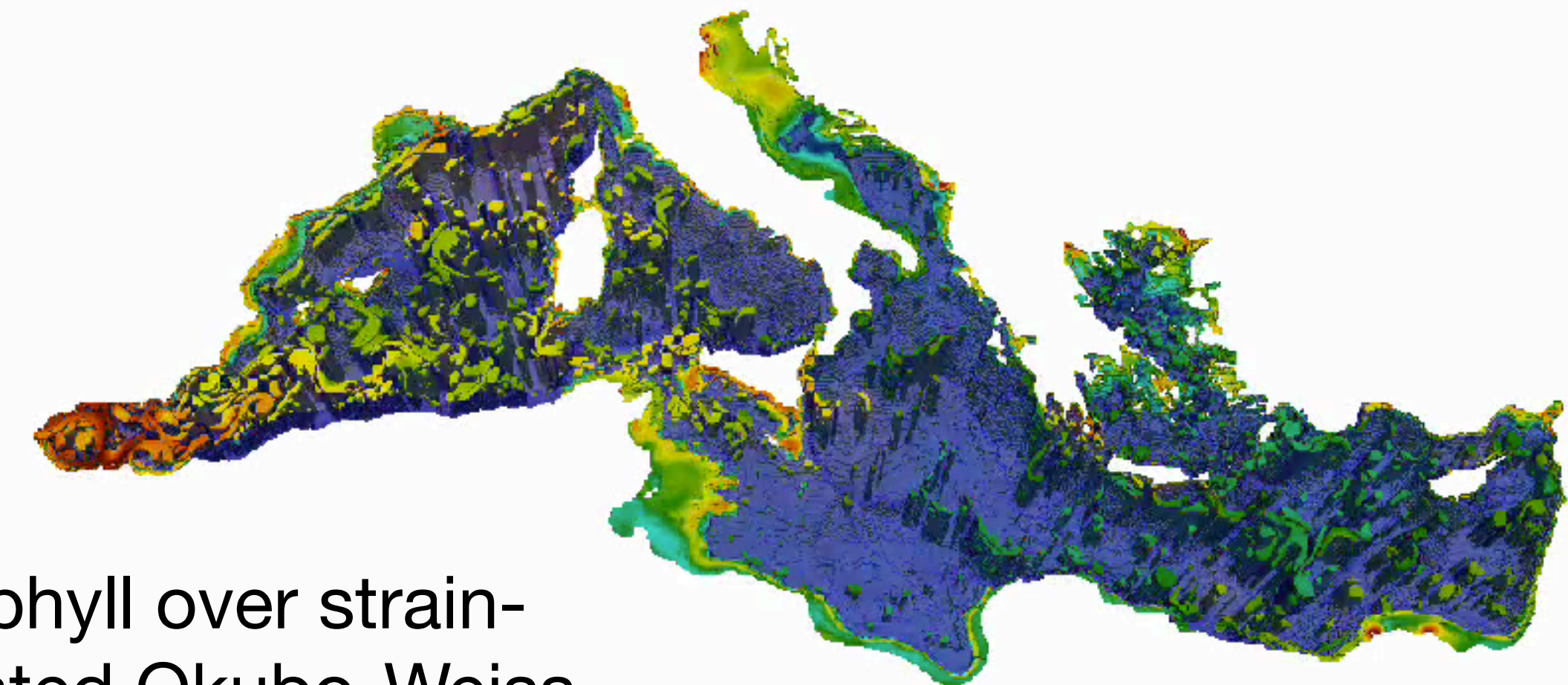
Date: 20150410-12:00:00

Credits: "Generated with E.U. Copernicus Marine Service Information"



Nutrients (N1p) over Chlorophyll iso-contours

Date: 20140502-12:00:00

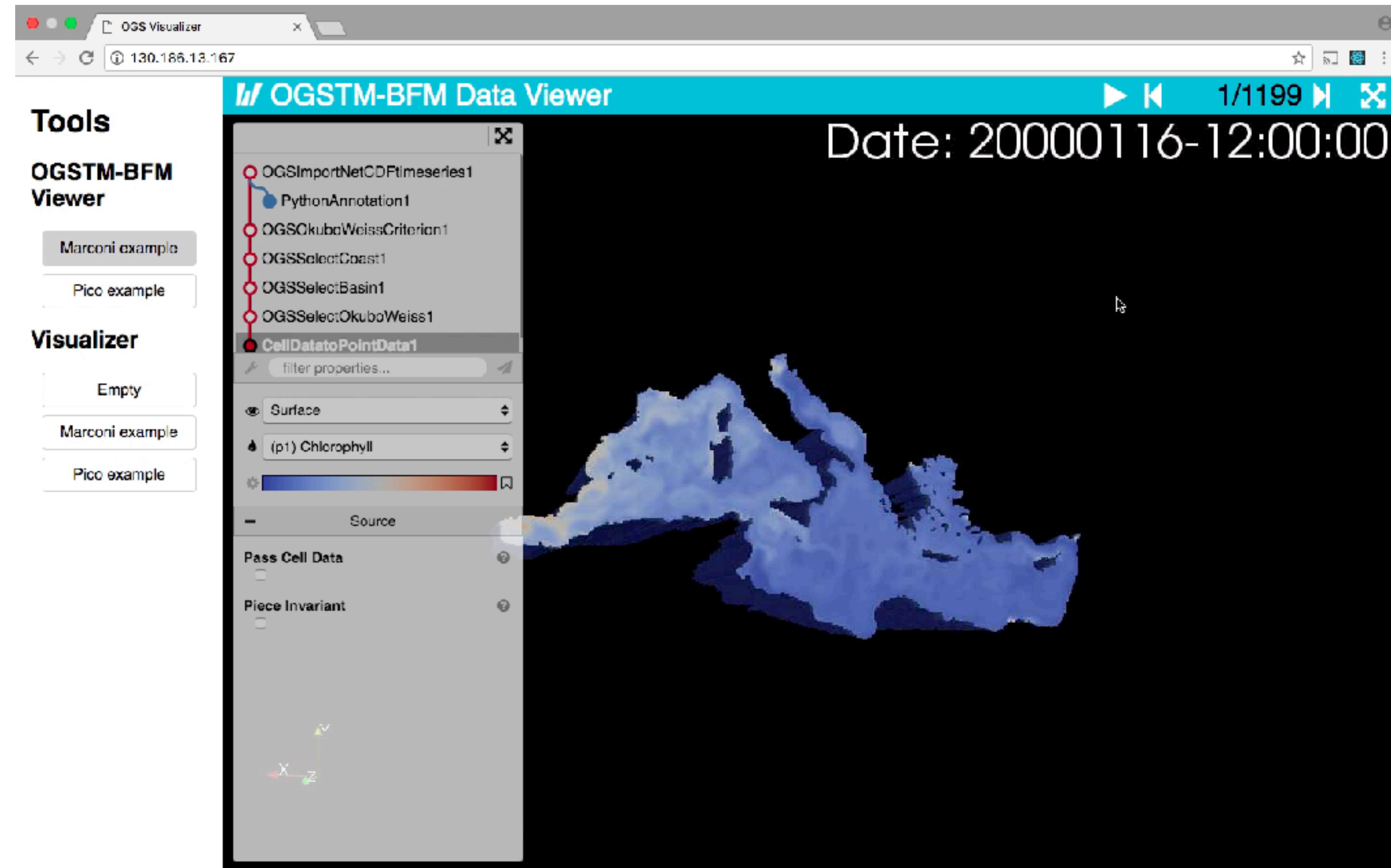


Chlorophyll over strain-dominated Okubo-Weiss field

Web visualization?

- Make data more accessible
- Easier for researchers to explore the data
- Possibility to open to general public

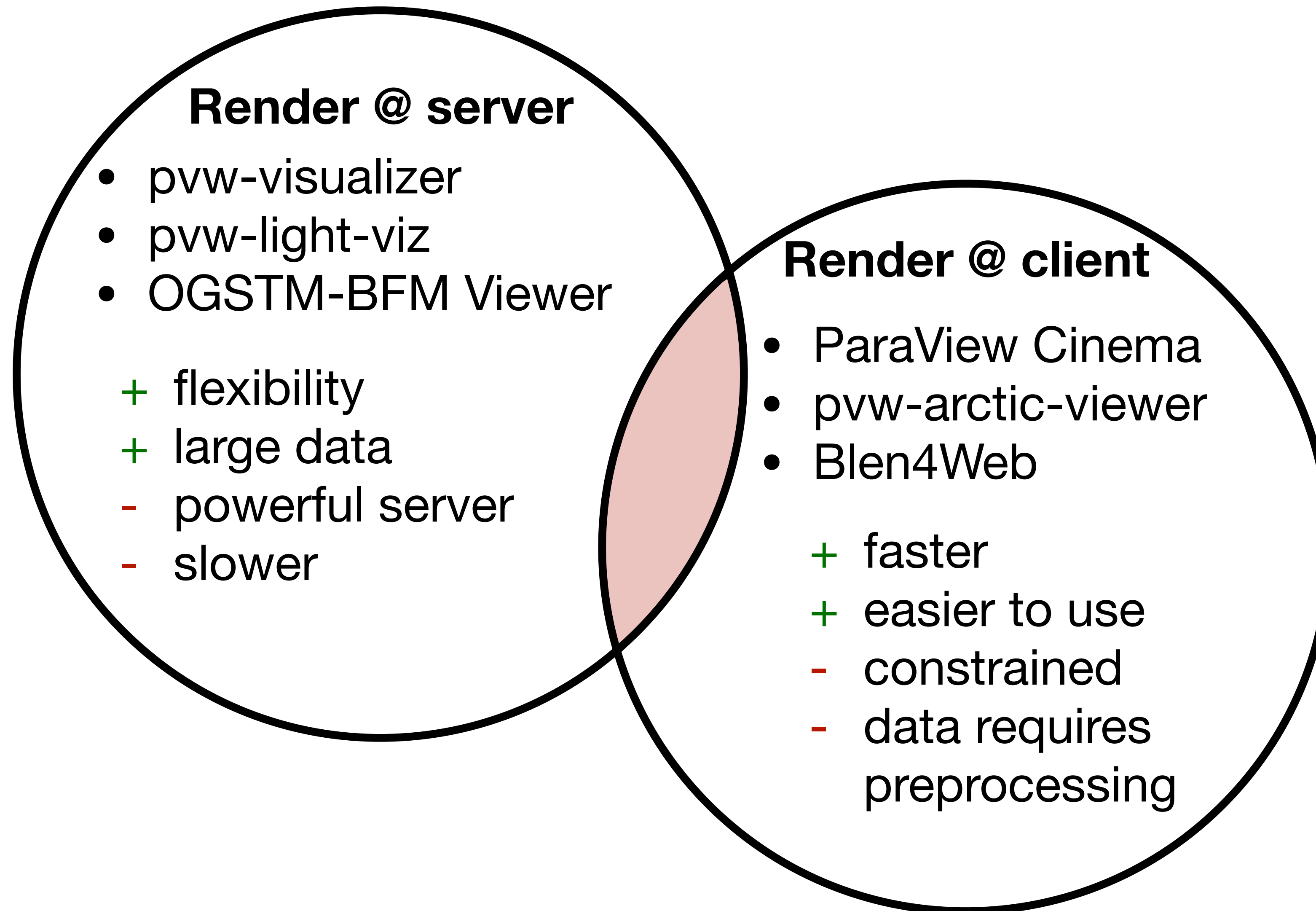
OGSTM-BFM Viewer teaser



ParaViewWeb provides an API to develop web visualization applications

Tools & strategies in web visualization

Depends on when the rendering is performed...



How does it work?

The Italian *ristorante* example:



Chlorophyll
concentration on the
Mediterranean Sea



How does it work?

The Italian *ristorante* example:



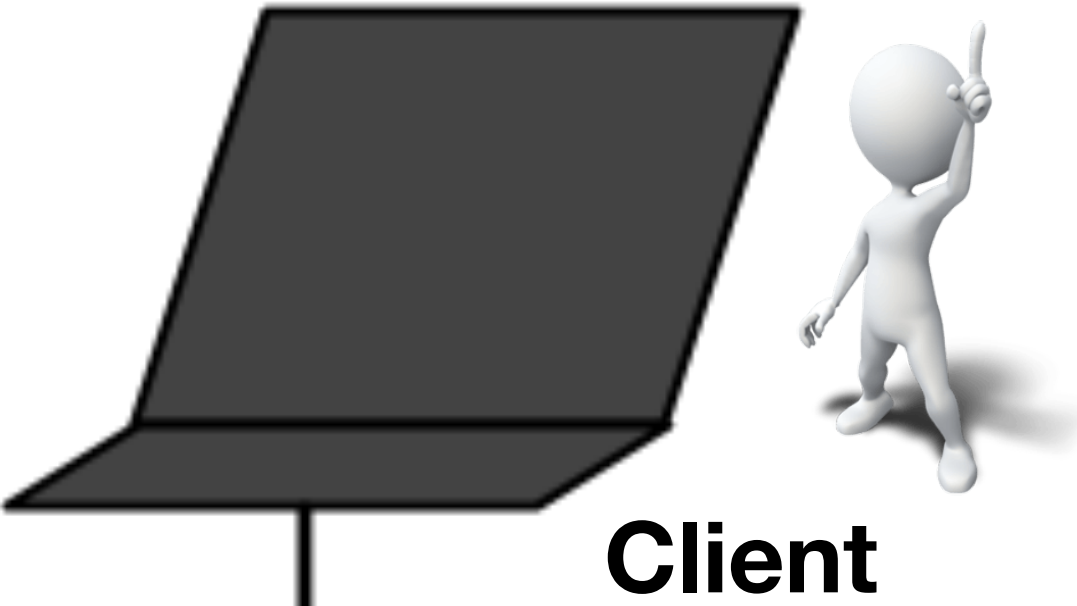
How does it work?

The Italian *ristorante* example:

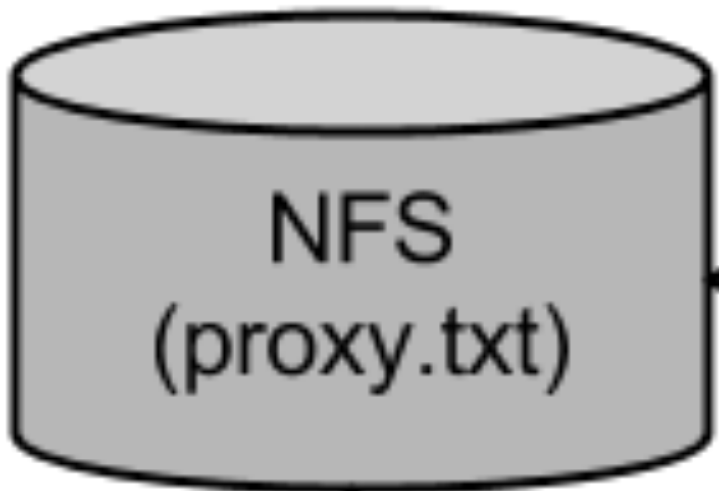


How does it work?

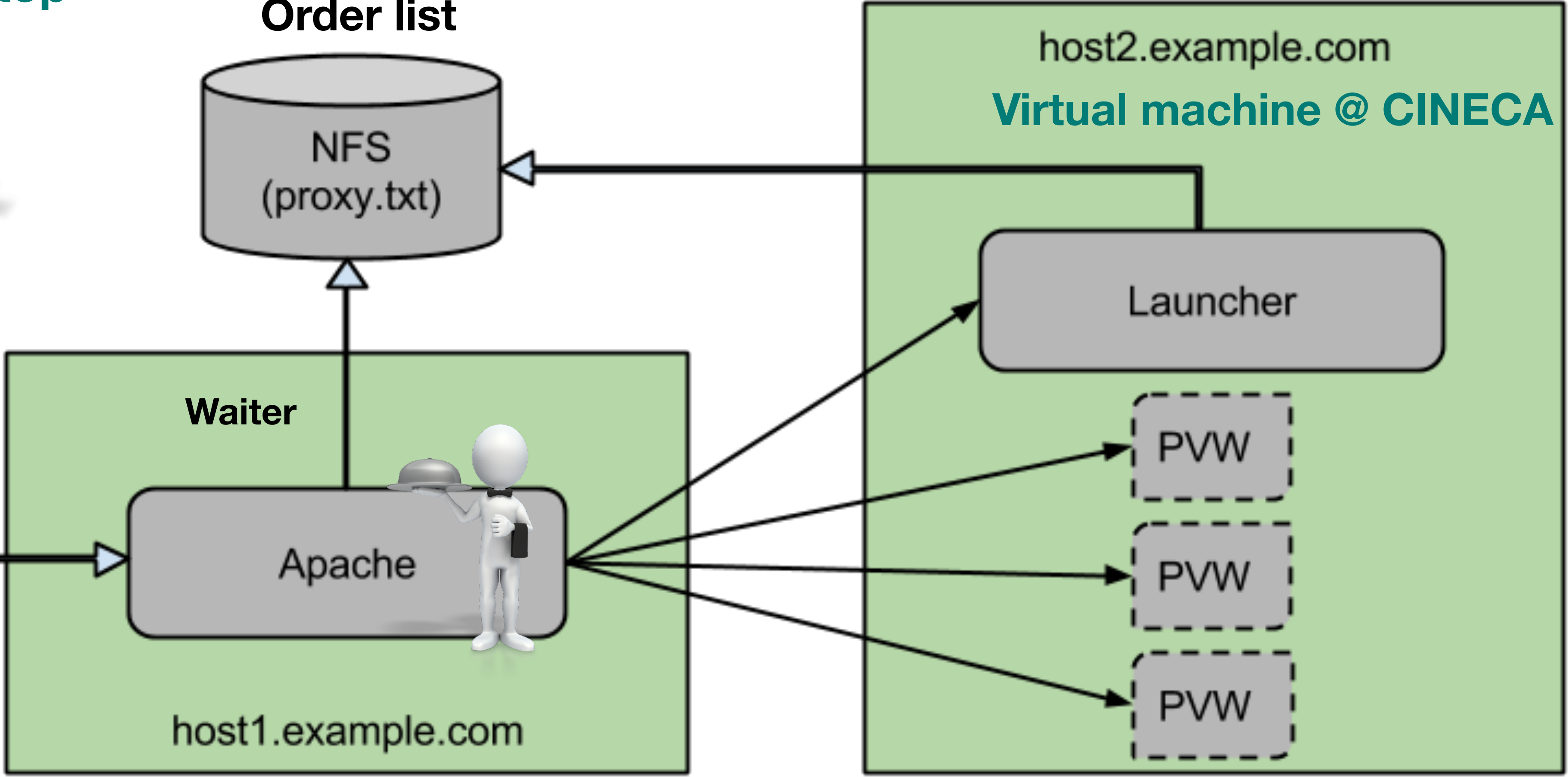
Your computer/laptop



Order list



Chef



Virtual machine @ CINECA

Final implementation

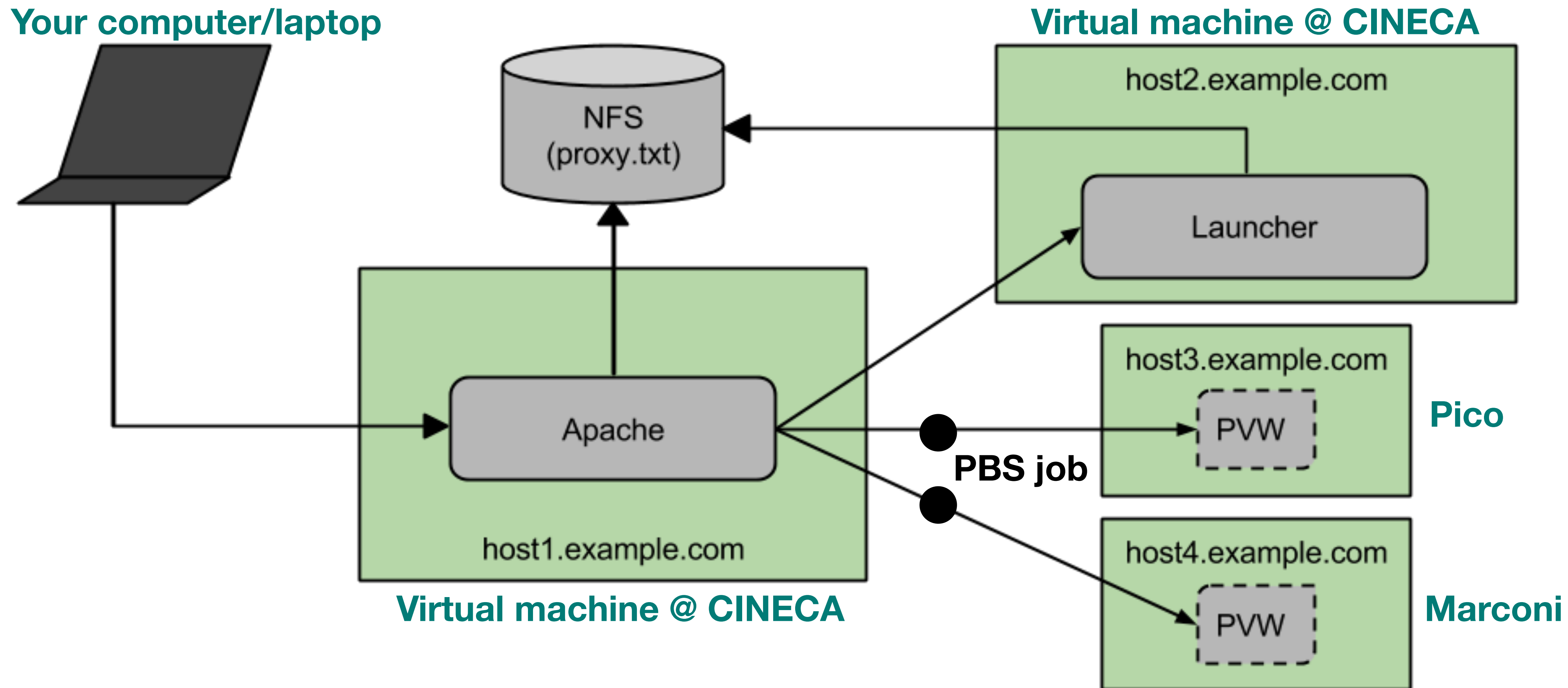


Image extracted from ParaView Web documentation

ParaViewWeb deployment on gitlab:

https://gitlab.hpc.cineca.it/amiro000/ParaViewWeb_deployment.git

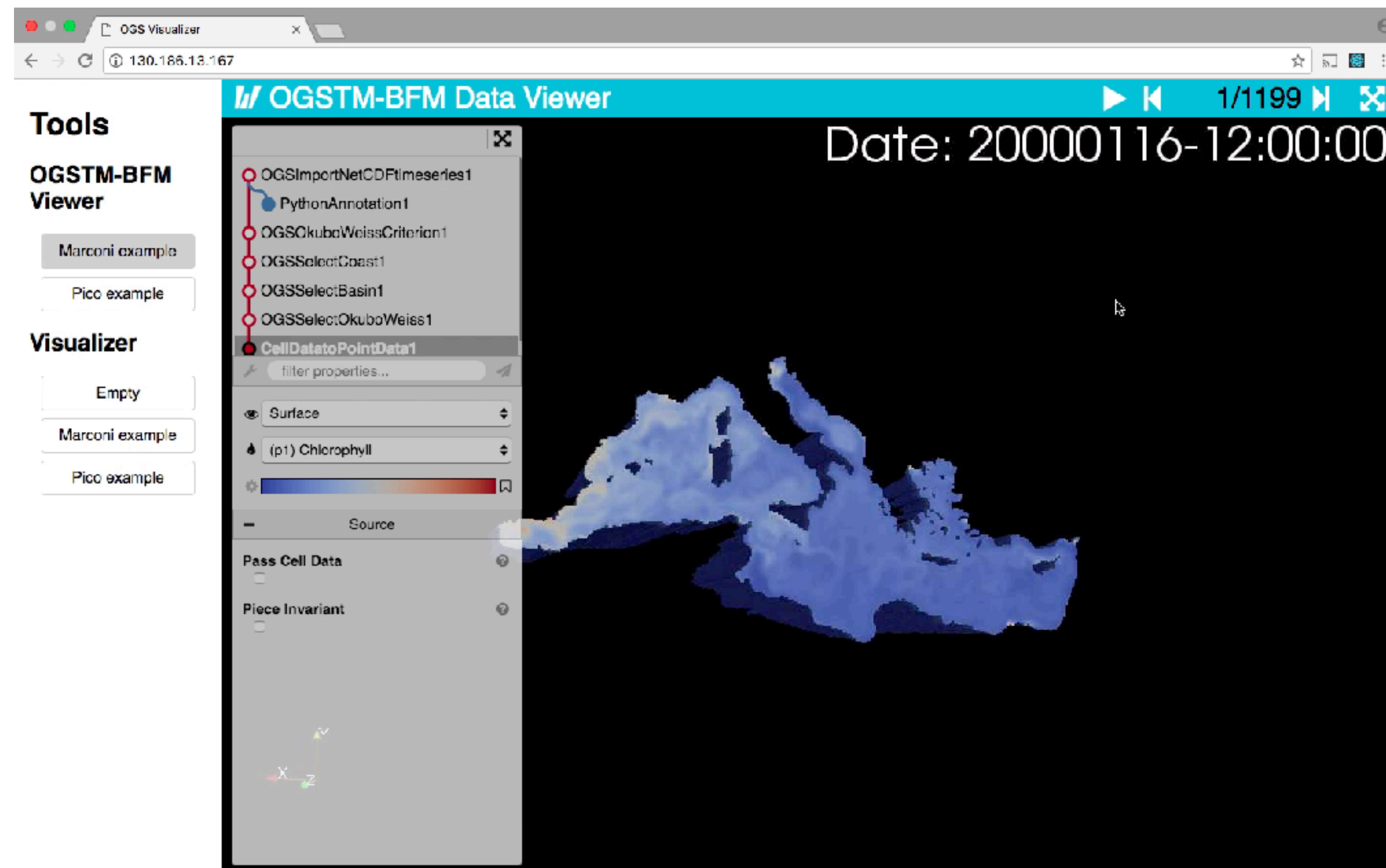
Web implementation

OGSTM-BFM Viewer:

https://gitlab.hpc.cineca.it/amiro000/OGSTM-BFM_Viewer.git

ParaView Visualizer:

<https://github.com/Kitware/visualizer.git>



Frontend: webpage
using ParaViewWeb
API working in
REACT (javascript)

Backend: server
running ParaView
python where the
pipeline is defined

ParaView side: custom plugins

In XML format from python programmable filters.

https://gitlab.hpc.cineca.it/amiro000/ParaViewWeb_deployment/tree/master/plugins

Data importing plugins:

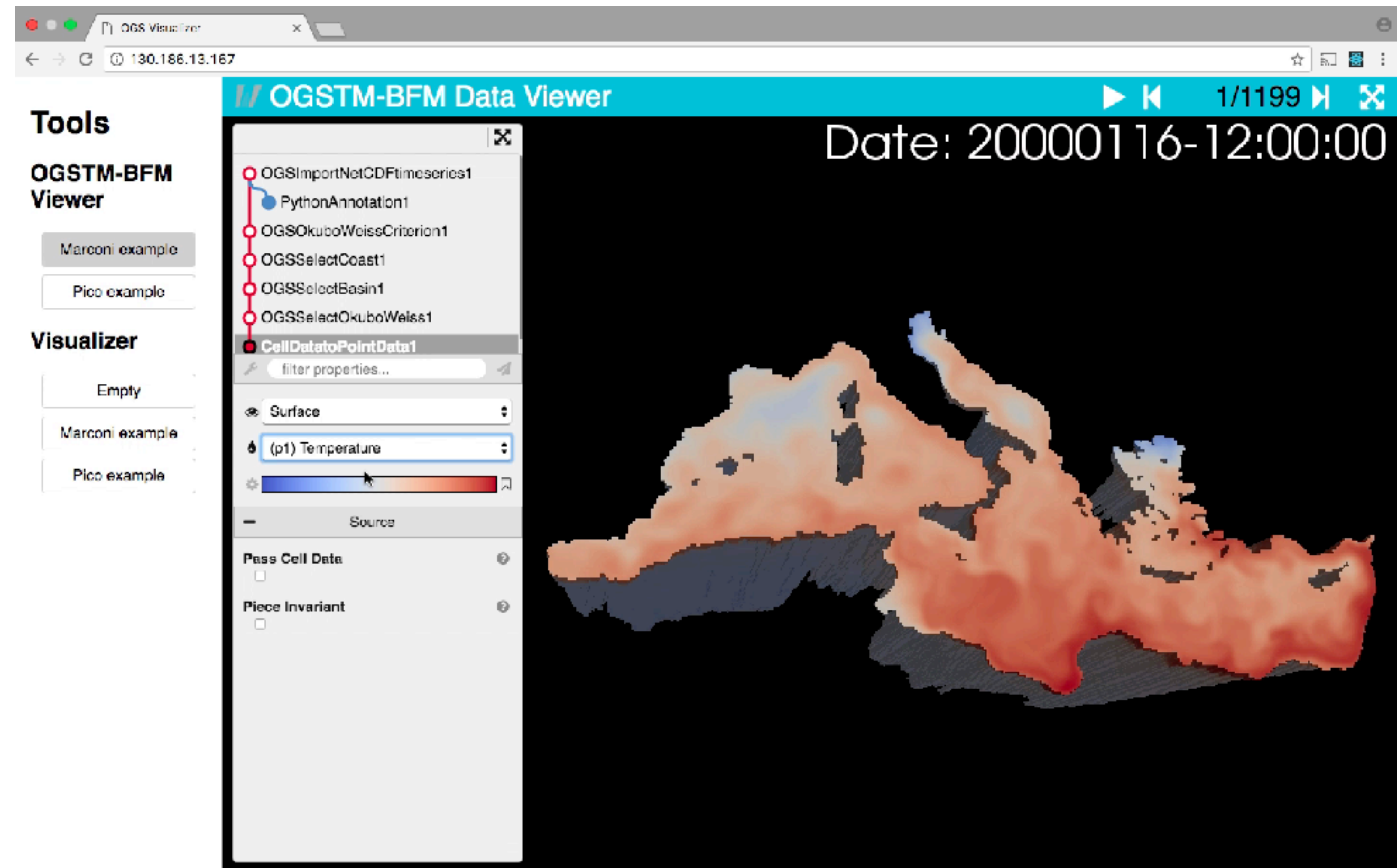
- OGSImportNetCDF
- OGSImportNetCDFTime

Pre-processing plugins:

- OGSOkuboWeiss

Selection plugins:

- OGSSelectCoast
- OGSSelectBasin
- OGSSelectOkuboWeiss



**Thank you for your
attention!**

