RÉPUBLIQUE FRANÇAISE
Ministère de l'écologie, du Développement durable, des Transports et du Logement

RÉPUBLIQUE FRANÇAISE
MINISTERE DE L'INTERIEUR, DE L'OUTRE-MER, DES COLLECTIVITES TERRITORIALES ET DE L'IMMIGRATION

CNrS INSU
Observer & comprendre

SHOM

CENALT (CENtre d'ALerte aux Tsunamis)

pierre.duperray@cea.fr

IGN (espagne)

GFZ
Helmholtz-Zentrum POTSDAM

VLIZ

Intergovernmental Oceanographic Commission

INGV

INSTITUTO DE METEOROLOGIA, IP PORTUGAL

Universidad Complutense de Madrid

Real Instituto y Observatotio de la Arrmada (ROA)

- Mission

- People

- Network

- Data feed

  - Seismic network

  - Tide gauge network

- Hardware architecture

- Software used (alert workflow)

- Mandated by IOC (international project aspect)

- Mandated by Ministère de l'intérieur and Ministere de l'ecologie

- Monitoring different basin

- Pre-operational early 2012

- Fully operational July 1rst 2012

- 24/7 staff (7 operators)

- 15' to deliver the first alert message after the earthquake

- New building available October 2011

- Full time

    - National and international coordinator Francois Schindele

    - soft. engineer (telecom. data) Nicolas Alabrune

    - soft. engineer Pierre Duperray

    - scientist Audrey Gailler

    - 7 operators

- Part time (CEA people)

    - Project Manager Remy Bossu (EMSC Manager)

    - scientist (tsunami) Helene Hebert

    - scientist (tsunami modeling) Florence Defief
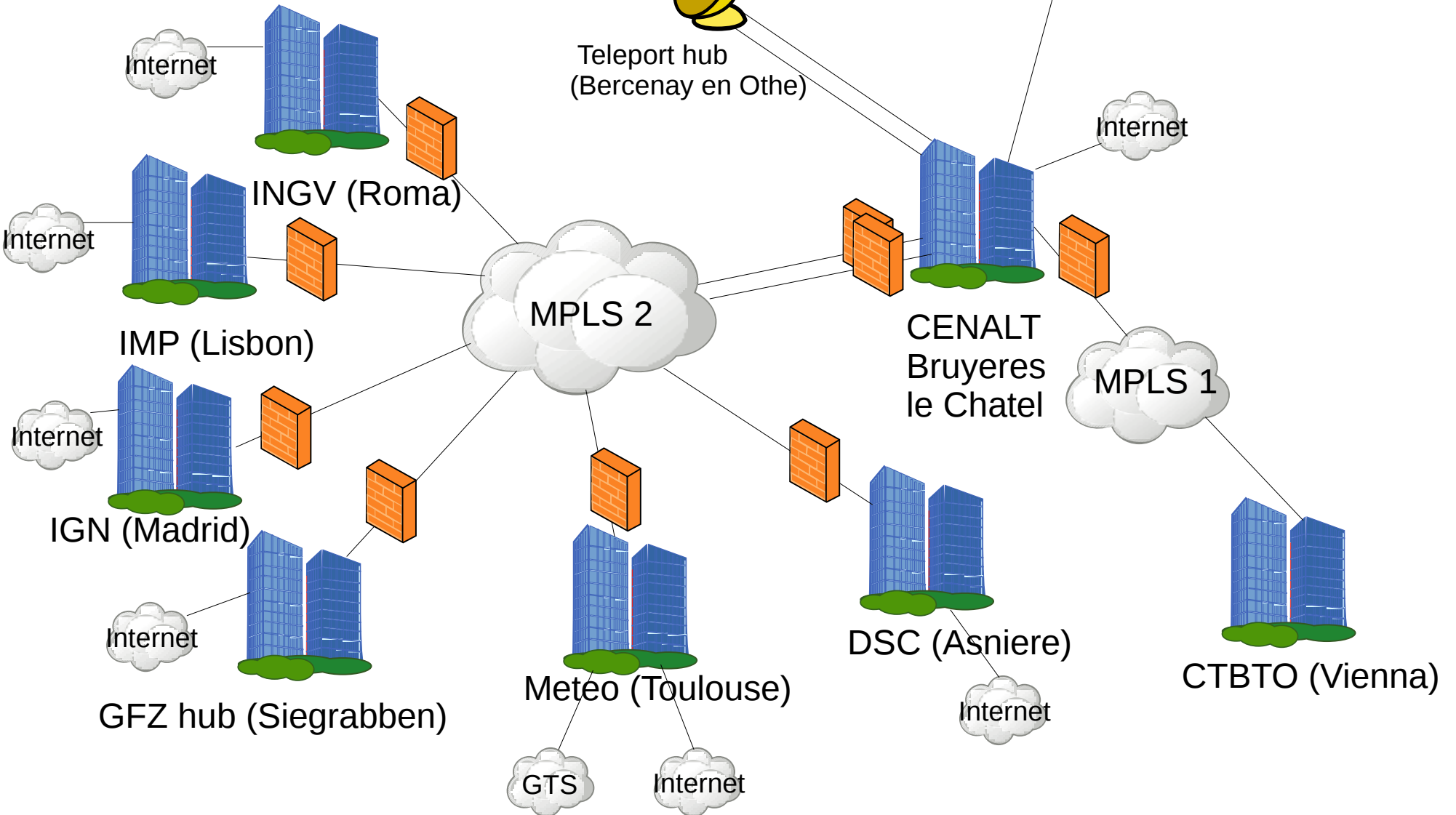
    - ...

Seiscomp User Group 2011 – CENALT (CEA)

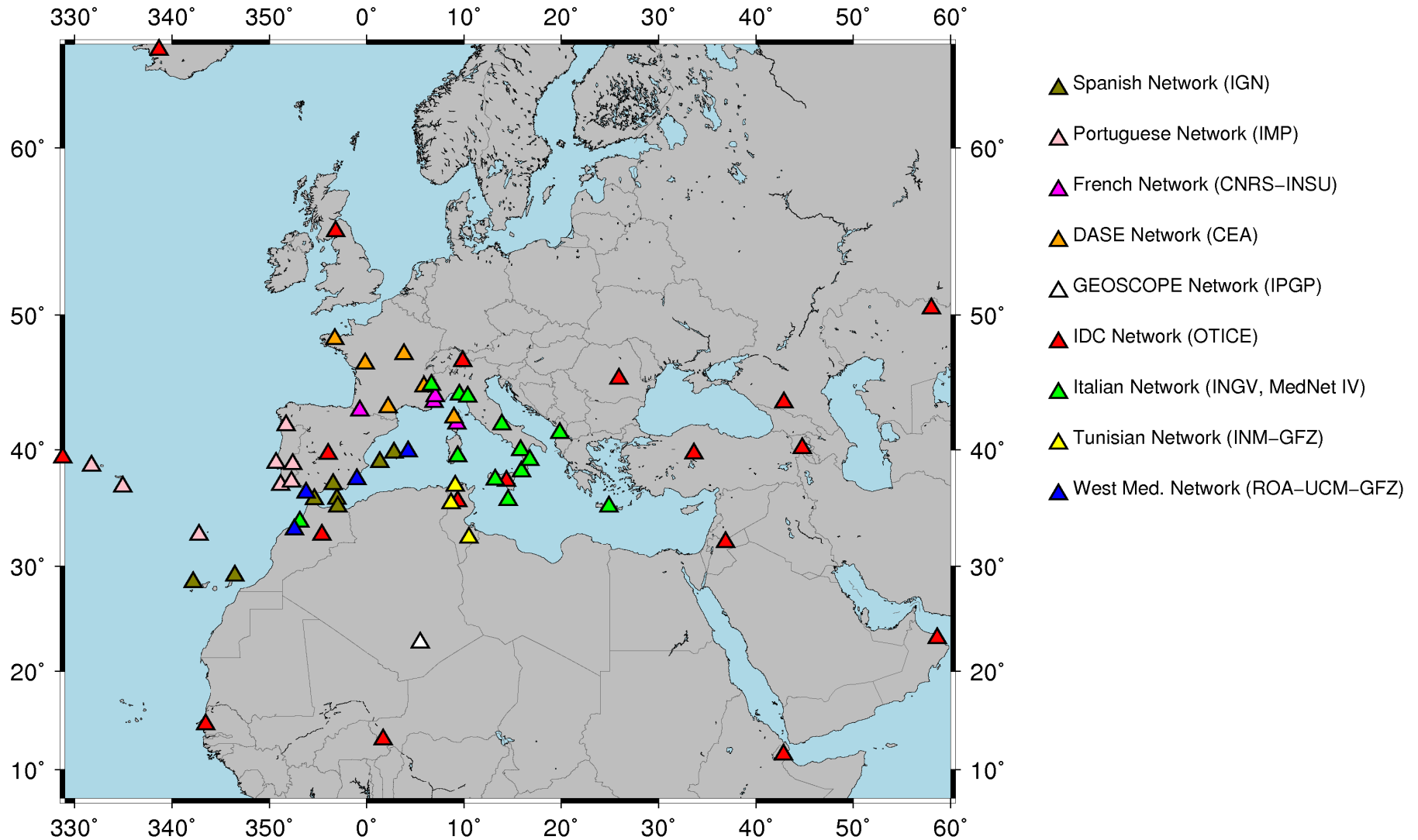6 vsat (STS2 stations+GPRS backup link)
+
4 vsat CNRS/INSU

SHOM tide gauges
ADSL or GPRS

Teleport hub
(Bercenay en Othe)
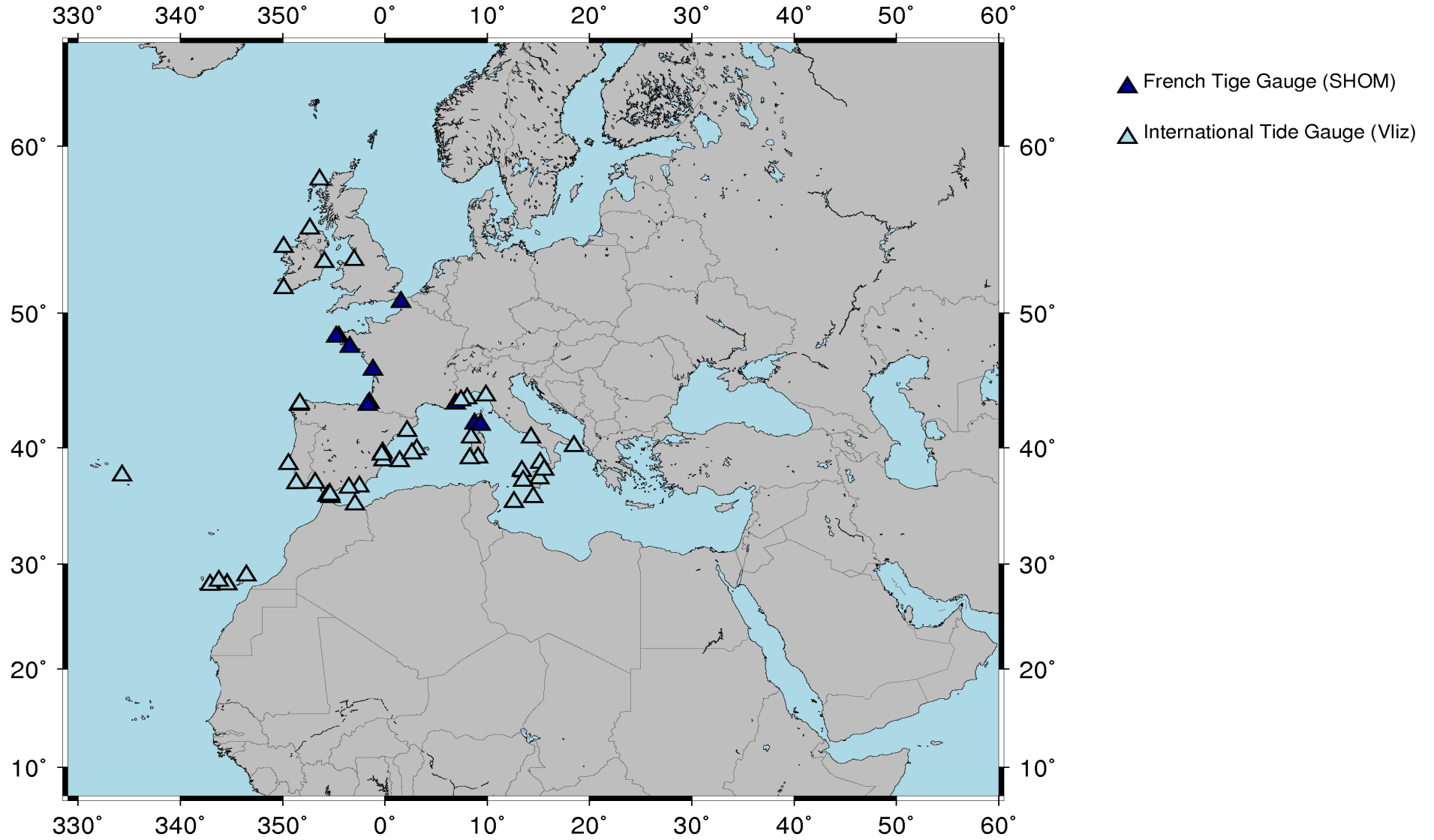
Internet

INGV (Roma)

Internet

IMP (Lisbon)

MPLS 2

CENALT
Bruyeres
le Chatel

MPLS 1

Internet

Internet

IGN (Madrid)

Internet

DSC (Asniere)

CTBTO (Vienna)

Internet

GFZ hub (Siegrabben)

Meteo (Toulouse)

Internet

GTS

Internet

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▲ Spanish Network (IGN)

△ Portuguese Network (IMP)

▲ French Network (CNRS–INSU)

▲ DASE Network (CEA)

△ GEOSCOPE Network (IPGP)

▲ IDC Network (OTICE)

▲ Italian Network (INGV, MedNet IV)

▲ Tunisian Network (INM–GFZ)

▲ West Med. Network (ROA–UCM–GFZ)

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Legend:
- ▲ French Tige Gauge (SHOM)
- △ International Tide Gauge (Vliz)

Client1 (operator)

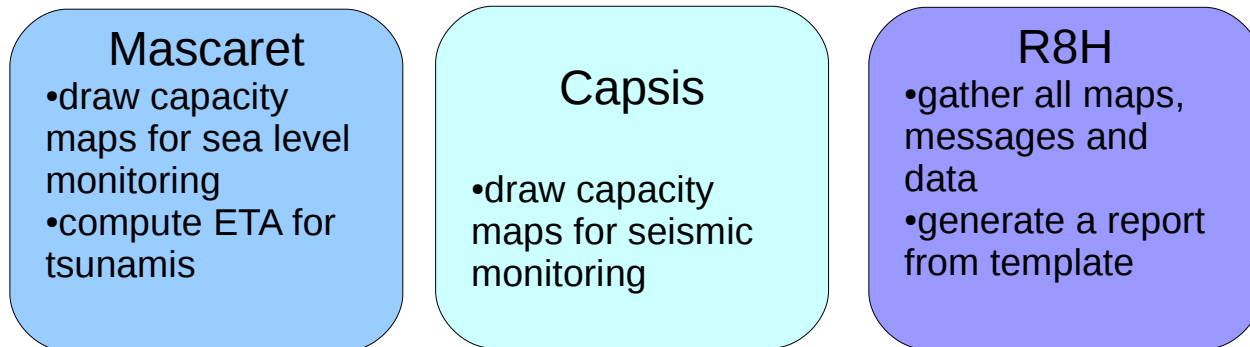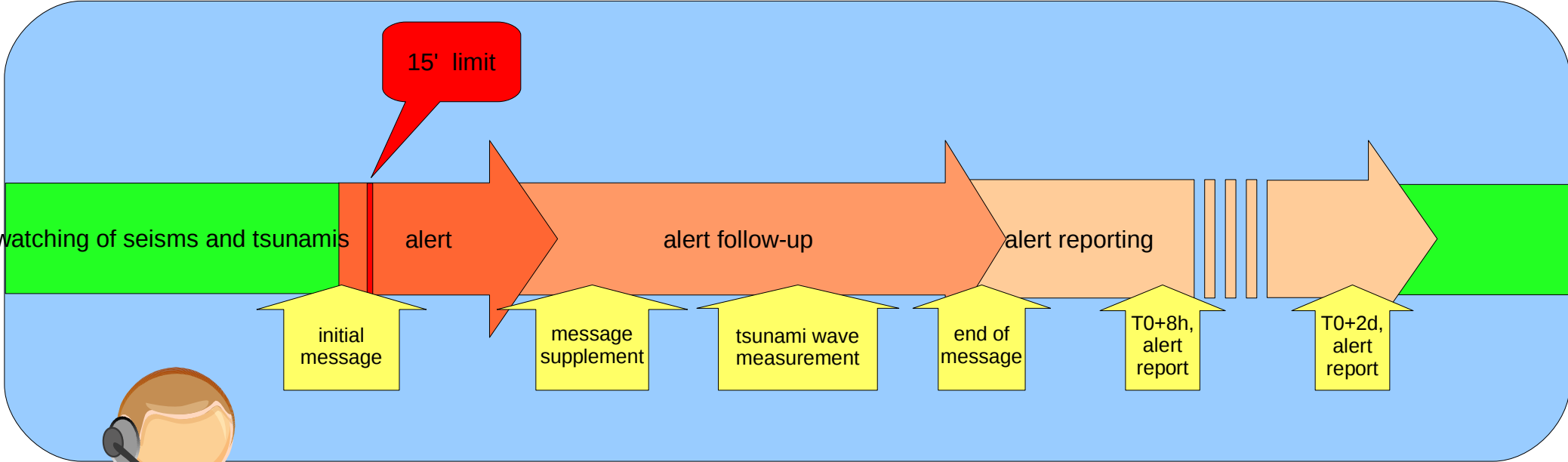Client2
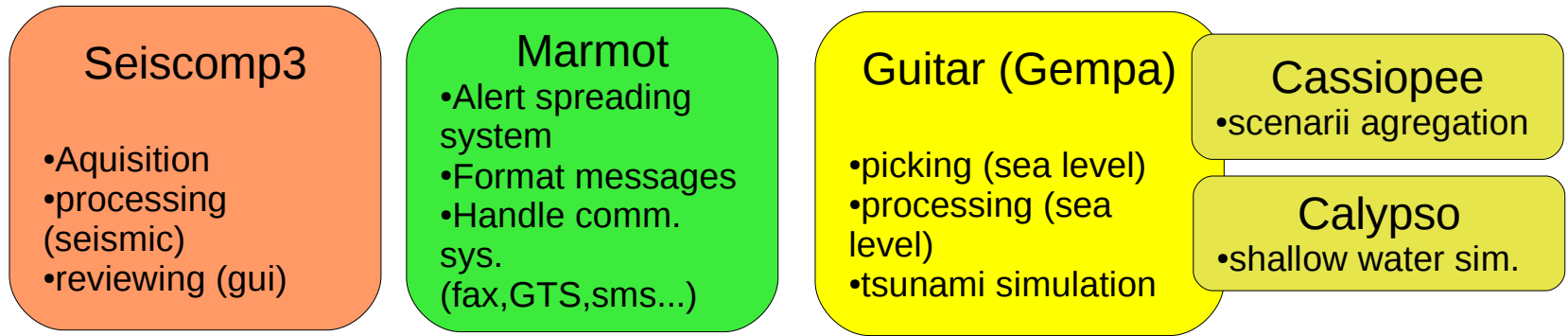
Node1   Node2

Filer
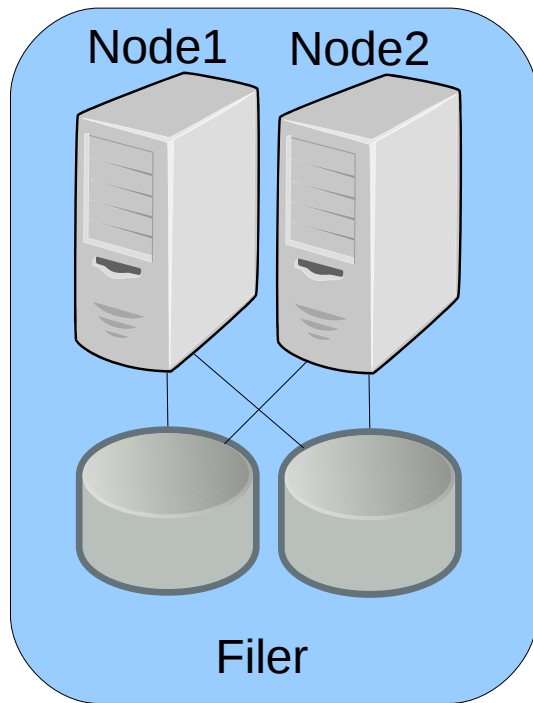
Cluster

- Clustering Goals:
  - restart service in case it is stopped
  - migrate service in case of hardware faillure
  - => High availability (master/slave)
  - transparent for the application
- bonding
- multipath for storage (fiber channel)
- fencing
- electric redundancy
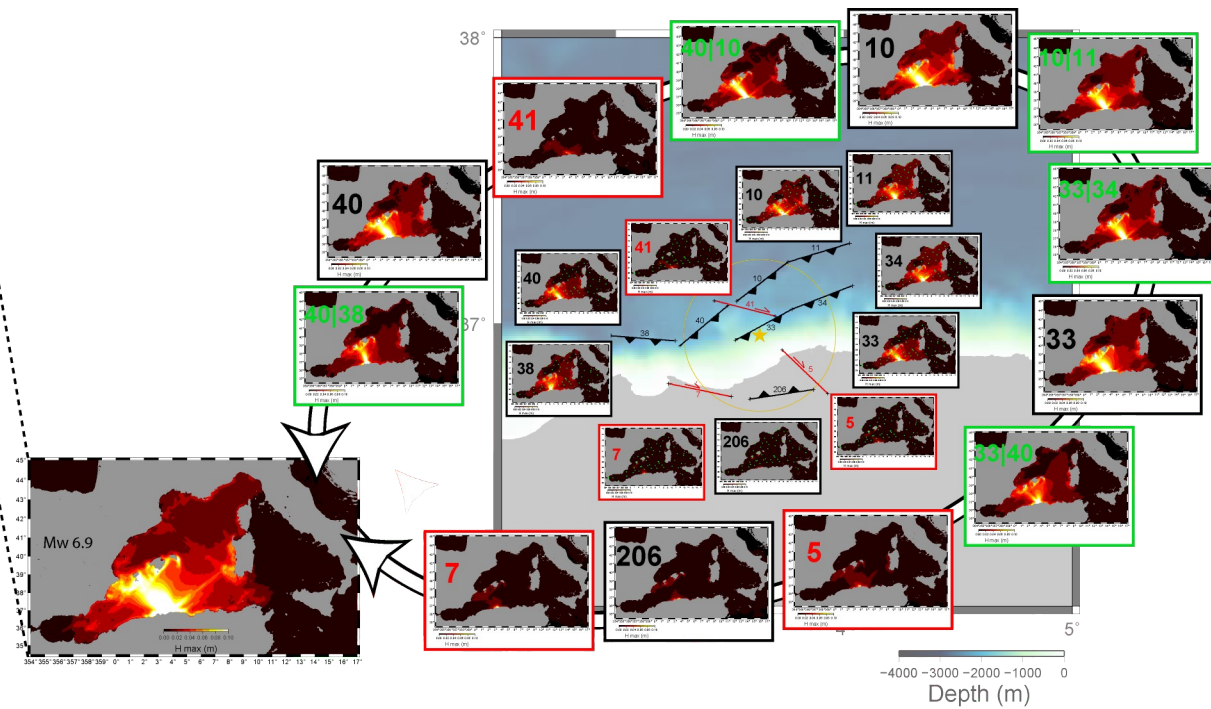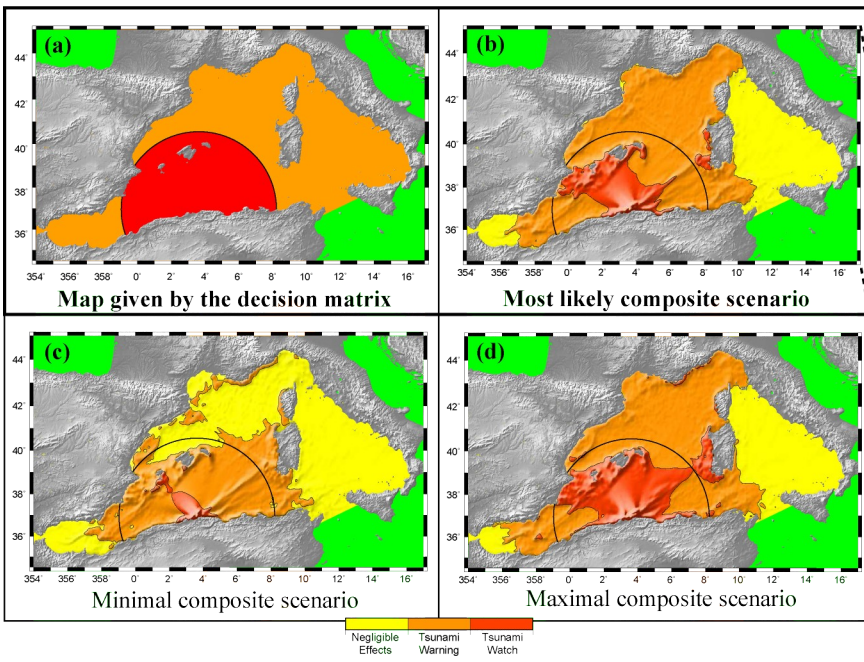- monitoring (cristal, Nagios?)

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Seiscomp3
- Aquisition
- processing (seismic)
- reviewing (gui)

Marmot
- Alert spreading system
- Format messages
- Handle comm. sys. (fax,GTS,sms...)

Guitar (Gempa)
- picking (sea level)
- processing (sea level)
- tsunami simulation

Cassiopee
- scenarii agregation

Calypso
- shallow water sim.

15' limit

watching of seisms and tsunamis | alert | alert follow-up | alert reporting

- initial message
- message supplement
- tsunami wave measurement
- end of message
- T0+8h, alert report
- T0+2d, alert report

Mascaret
- draw capacity maps for sea level monitoring
- compute ETA for tsunamis

Capsis
- draw capacity maps for seismic monitoring

R8H
- gather all maps, messages and data
- generate a report from template

Cassiopee (scenarii agregation)

Seiscomp User Group 2011 – CENALT (CEA)

decision matrix for the mediterranean basin						
depth	location	Mw	potential threat	type of bulletin	threat	
					Regional	Basin wide
< 100 km	under the sea or very near the sea <= 40 km	5.5 to 6.0	small potential for a destructive local tsunami	Information	Information	Information
		6.0 to 6.5	potential for a destructive local tsunami	Advisory	Advisory	Information
	under the sea or near the sea <= 100 km	6.5 to 7.0	potential for a destructive regional tsunami	Watch	Watch	Advisory
		>= 7.0	potential for a destructive basin-wide tsunami	Watch	Watch	Watch
>= 100 km	under the sea or near the sea <= 100 km	>= 5.5	null potential	Information	Information	Information

Thank you for your attention