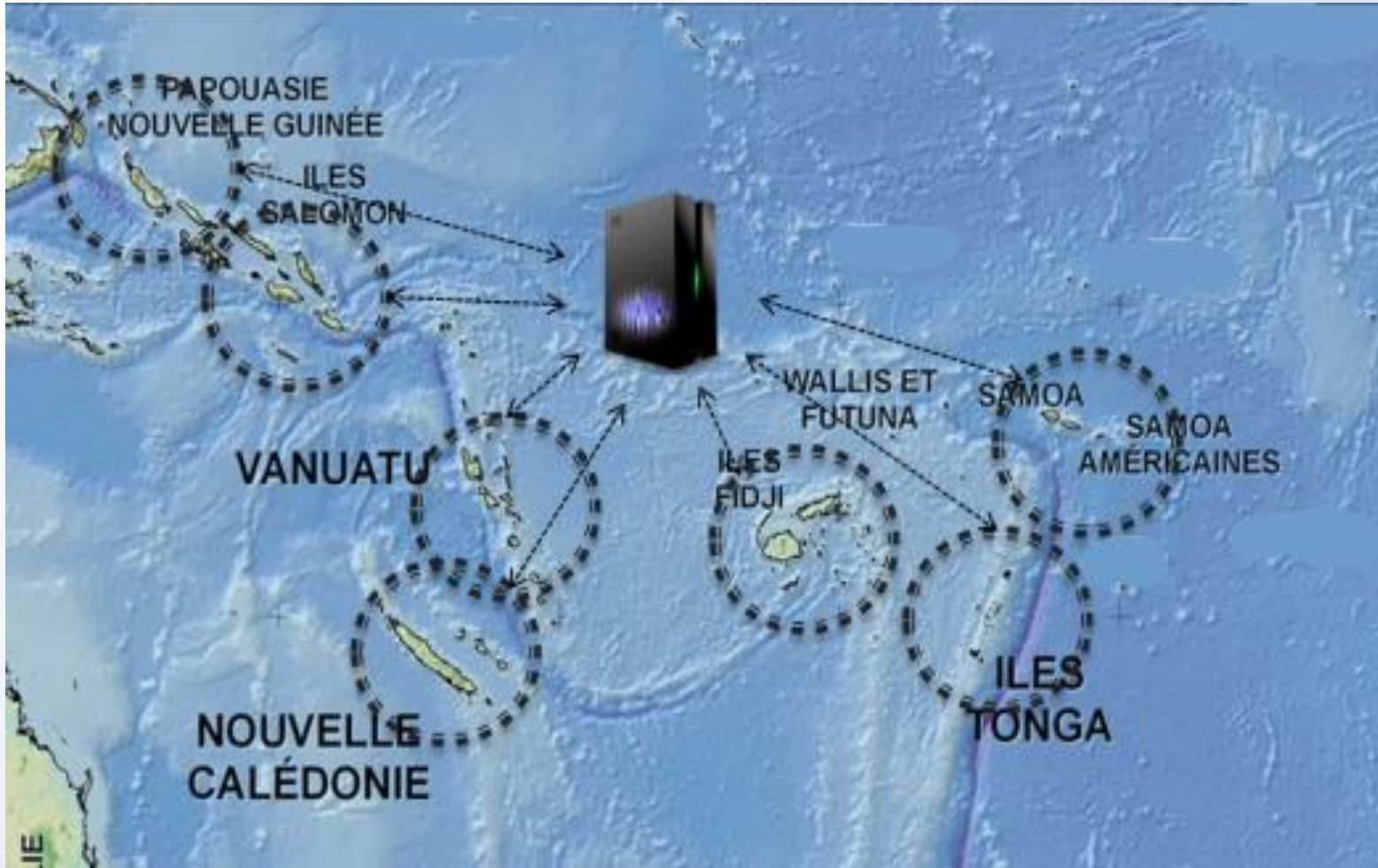# The Oceania Regional Seismic NETwork (ORSNET)

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ORSNET

What is ORSNET and Why ORSNET ?

➢ **Oceania Regional Seismic NETwork**

➢ **Regional Seismic Data sharing between South West Pacific Islands Countries coming from <u>regional needs</u> under the IOC/PTWS discussion**

➢ **<u>Improve</u> each National Early Warning System on <u>Earthquake and Tsunami hazards mitigation through Regional Organization</u>**

➢ **<u>ORSNET</u> support to National Early Warning Center :**

    ➢ *Increase of local Earthquake Detection and Analysis Capacity*

    ➢ *Better Reaction Time to Tsunami Alerts*

    ➢ *Technical Support for Seismic National Monitoring Network*

    ➢ *Seismic Data backup archive*

For which results ?

➢ **1) Increasing <u>coverage</u> of Earthquake Monitoring Stations in the region:**
- ➢ **From < 10 stations to 51 stations**

➢ **2) Decreasing <u>time</u> between earthquake detection/location and effective tsunami alert:**
- ➢ **From > 10 min to < 2 min**

➢ **3) Sharing of <u>resources</u> between South West Pacific Countries:**
- ➢ **< 10 staffs per country -> Regional Expert Team**
- ➢ **Common Early Warning System Framework**

➢ **4) Increasing Early Warning System National <u>capacities</u>:**
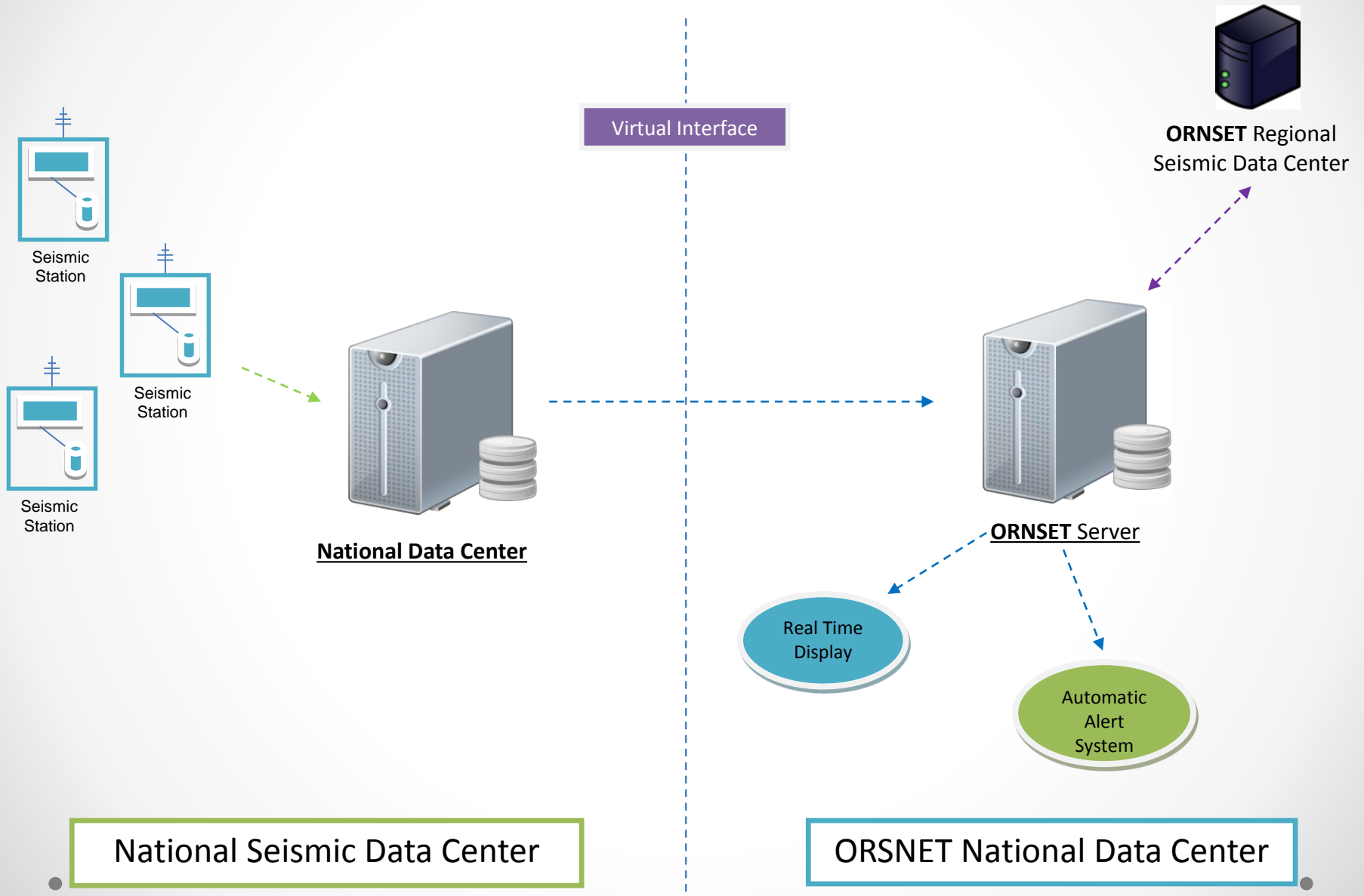- ➢ **ORSNET does not replace PTWC alert system or USGS web service**

How ORSNET is currently implemented?
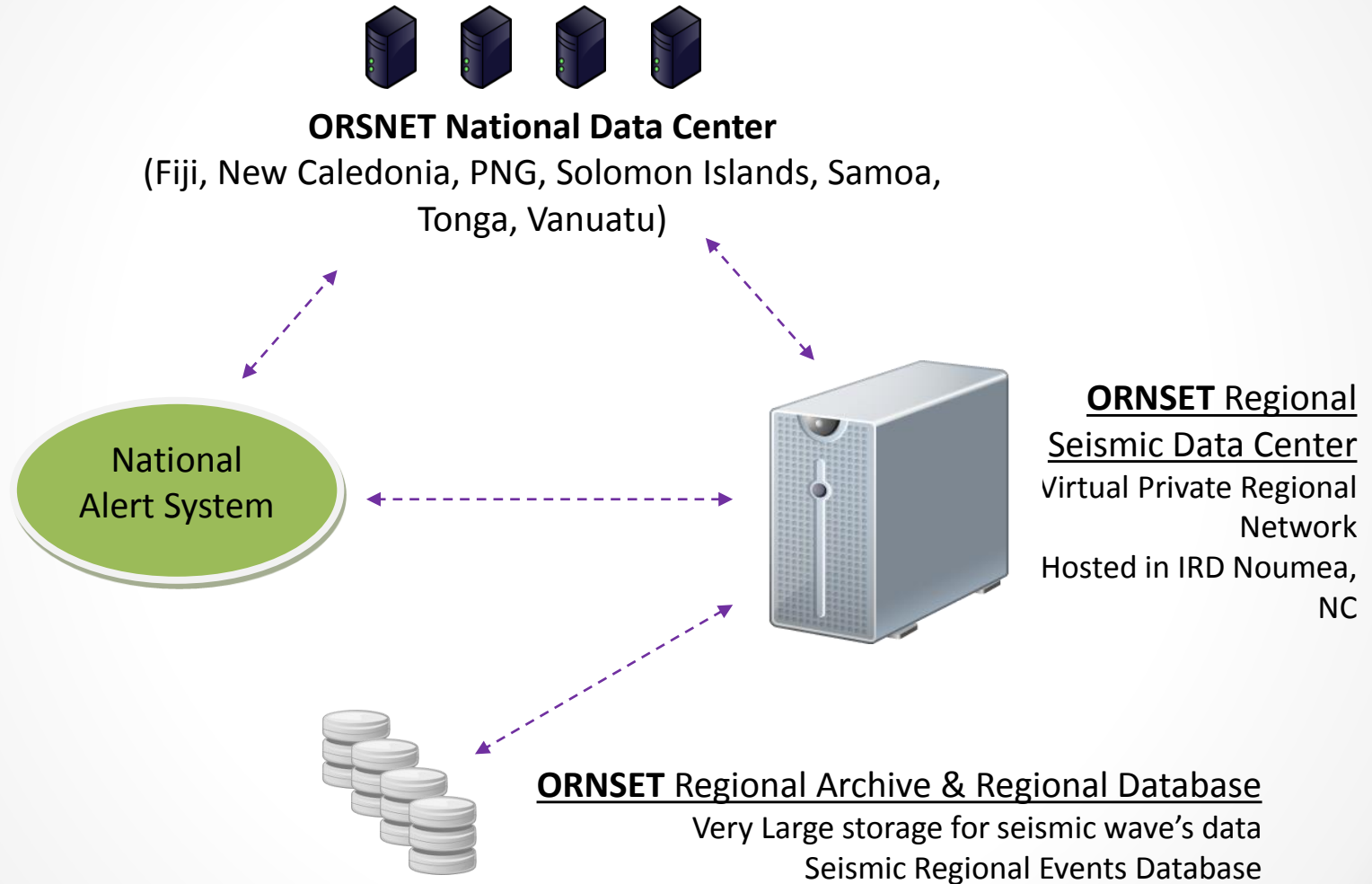
➢ **1) By all countries agreeing to share their Seismic Data into a <u>Private</u> Regional Network through the IOC/PTWS Seismic Data Sharing WG**

➢ **2) By standardizing each National Data Center with identical and compatible <u>Early Warning System</u> (automatic detection and alert system)**

➢ **3) By supporting a <u>Regional Seismic Data Center</u> to manage Regional Data Sharing**

How works ORSNET locally (in National Warning Center) ?

Virtual Interface

ORNSET Regional Seismic Data Center

Seismic Station

Seismic Station

Seismic Station

National Data Center

ORNSET Server

Real Time Display

Automatic Alert System

National Seismic Data Center

ORSNET National Data Center

What is the ORSNET Regional Seismic Data Center ?

ORSNET National Data Center
(Fiji, New Caledonia, PNG, Solomon Islands, Samoa, Tonga, Vanuatu)

National Alert System

ORNSET Regional Seismic Data Center
Virtual Private Regional Network
Hosted in IRD Noumea, NC

ORNSET Regional Archive & Regional Database
Very Large storage for seismic wave's data
Seismic Regional Events Database

ORSNET Updates

ORSNET Regional Server:

➢ *Funded and Supported by French government through Pacific Funds in 2013, 2014 and 2015*

➢ *Installed and supported by ICT Technical Team at IRD Noumea*

➢ *Fully functional since 2013, 99% of running time, 1% defect*

➢ ## ORSNET National Data Center:

➢ *Funded and Supported by French government through Pacific Funds in 2013, 2014 and 2015*

➢ *Vanuatu and New Caledonia Network connected in 2012-13*

➢ *Solomon Islands Seismological station and Western Samoa Seismological Network connected in 2014*

➢ *Fiji Seismological Network connected in 2015*

➢ *Tonga Network connected yet in 2015*

➢ *PNG planned for 2016*

ORSNET Updates

ORSNET National Seismological Network:

- ➢ **TONGA:**
  - ➢ 4 stations
  - ➢ Existing National Data Center
  - ➢ Not onnected to the Regional Data Center, in 2015
- ➢ **WESTERN SAMOA:**
  - ➢ 6 stations
  - ➢ Existing National Data Center
  - ➢ Connected to the Regional Data Center
- ➢ **FIJI:**
  - ➢ 5 stations
  - ➢ Existing National Data Center
  - ➢ Connected to the Regional Data Center

ORSNET Updates

➢ *New CALEDONIA:*

    ➢ **9 stations**

    ➢ **Existing National Data Center**

    ➢ **Connected to the Regional Data Center**

    ➢ **Host of the ORSNET Regional Data Center**

➢ *VANUATU:*

    ➢ **9 stations, 6 more planned for 2016**

    ➢ **Existing National Data Center**

    ➢ **Connected to the Regional Data Center**

➢ *SOLOMON ISLANDS:*

    ➢ **7 stations, 7 more planned for 2016**

    ➢ **No National Data Center**

ORSNET Updates

63 Seismic Stations to be connected to the ORSNET Regional Seismological Network in 2016 !!!

ORSNET Updates

ORSNET Technical Support:

➢ *Decrease of the Earthquakes Detection from 10-12 min in 2010 to less than 2 min in 2015 for the National Data Center connected*

➢ *Technical Support for the setting up of the Solomon Islands Seismological Monitoring Network*

➢ *Technical Support for the setting up of the Fiji Seismological SMS EQs Alert System*

➢ *National Data Center and Data analysis training held in Fiji in Nov. 2015*

➢ *Regional Data Center Archive System*

ORSNET Next Steps

➢ **ORSNET Development Perspective**:

  ➢ *Strengthening of Regional Seismological Observatories Partnerships*

  ➢ *Need support from Regional Institutes for Training, Workshop, Network Maintenance, Standardization Process, Procurement, National funding needs …*

  ➢ *Increase of Technical National Seismological Observatories Capacities through the development of a complete Earthquake Early Warning system:*

    ➢ **Evolution of the current EEW system based on Seiscomp3**

    ➢ **Regional Warning Dissemination system**

    ➢ **Focal Mechanism automatic detection system**

    ➢ **Intensity and Shake maps**

    ➢ **Increase of ICT and engineering local capacities**

Thank you.