

# INDONESIA'S GEOSPATIAL DATA INFRASTRUCTURE



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**GEOSPATIAL INFORMATION AGENCY**

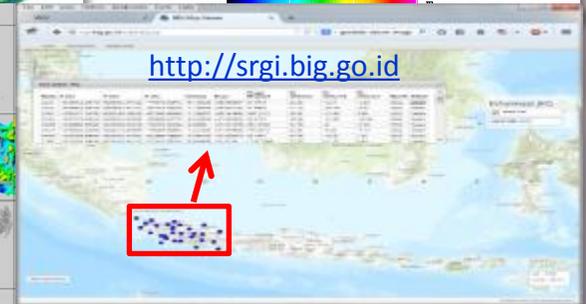
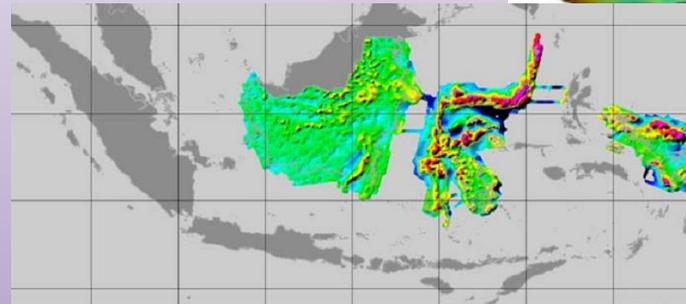
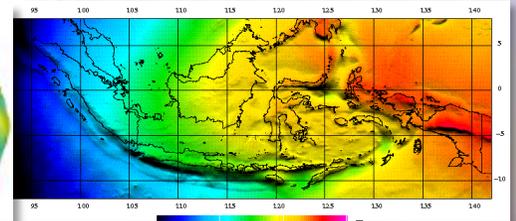
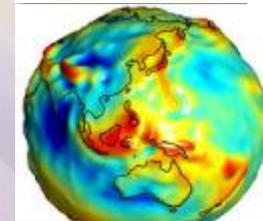
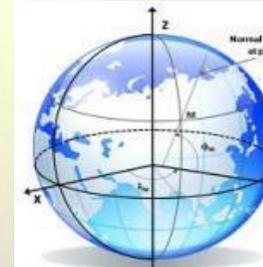
**[srgi@big.go.id](mailto:srgi@big.go.id)**

# ONE GEO.REFERENCE (One Map Policy)

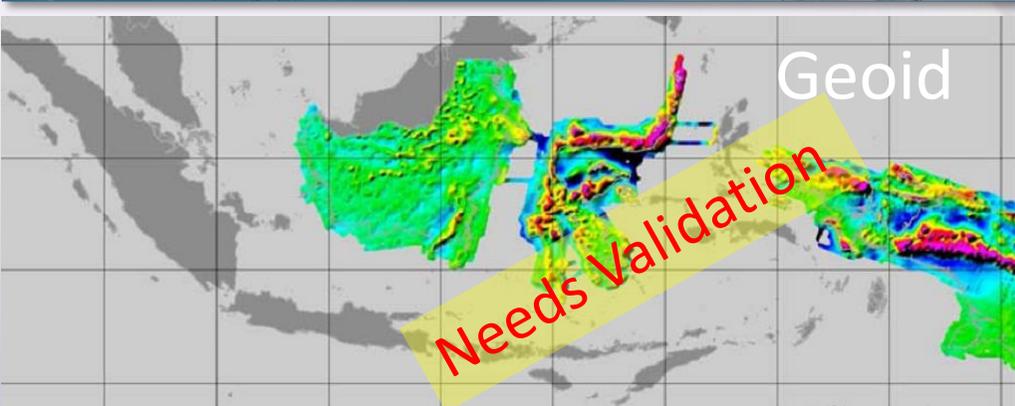
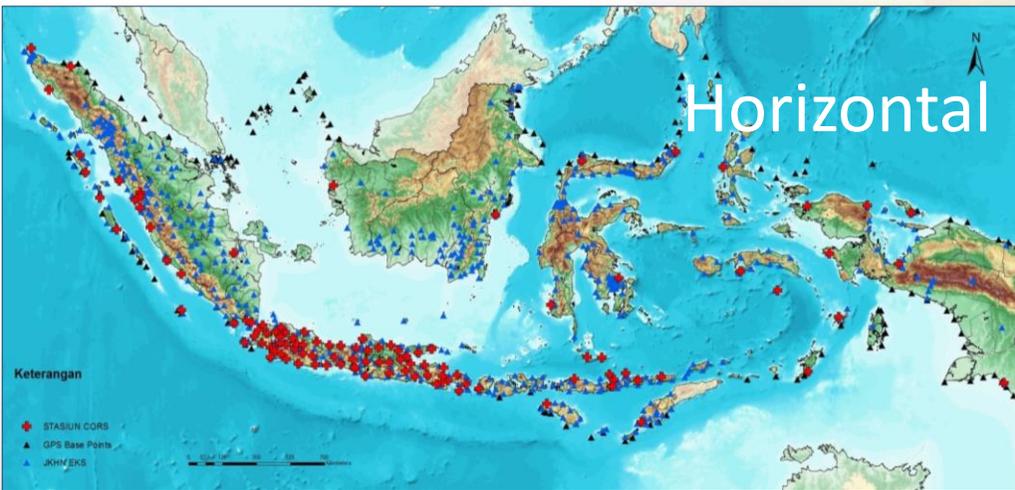
**SRGI2013** take into account changes in the value of the coordinates of the function of time as a result of the influence of tectonic plate movement and deformation of the earth's crust in the region of Indonesia :

1. **SRGI2013 - Horizontal Datum :**
2. **SRGI2013 - Vertical Datum;**
3. **SRGI2013 - Web Service**

<http://srgi.big.go.id/>



# EXISTING NETWORK DISTRIBUTIONS



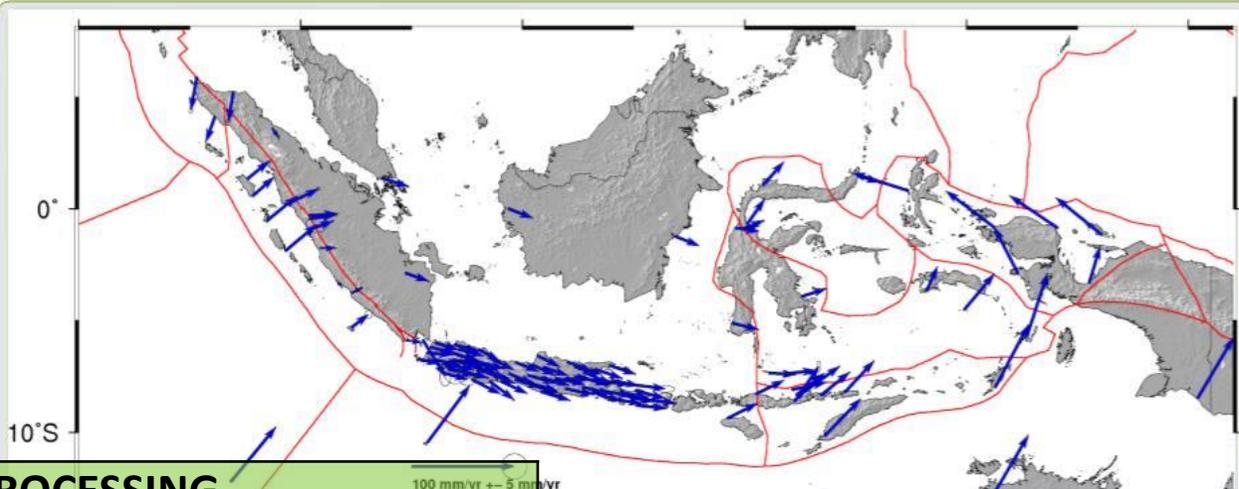
## TIDE GAUGES:

- 10 GERMANY
- 10 IOC/UHSLC
- 105 INDONESIA

## HORIZONTAL:

- >3000 Monuments
- 135 CORS (BIG)
- 183 CORS (BPN)

# INA-CORS USE



## REAL-TIME POST-PROCESSING

Early warning system for various natural hazards in Indonesia

The coordinate reference frame for various positioning, surveying and mapping applications in Indonesia.

The Network-RTK system for surveying and mapping applications.

The coordinate reference frame for monitoring and studying natural hazard phenomena in Indonesia

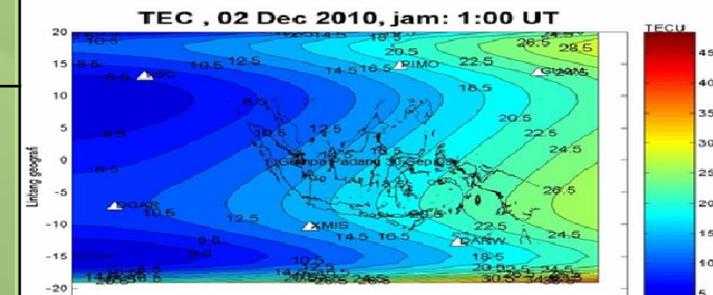
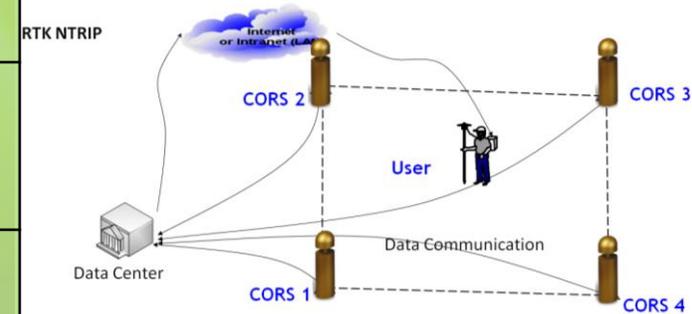
The reference stations for supporting various navigation and transportation applications (land, marine, air).

The monitoring network for geodynamics and tectonic studies in Indonesian region.

Integration, checking and validation for various coordination reference systems

Studying and mapping the characteristics of troposphere and ionosphere above Indonesian territory.

Maintain Geodetic Control Network (Deformation Models)

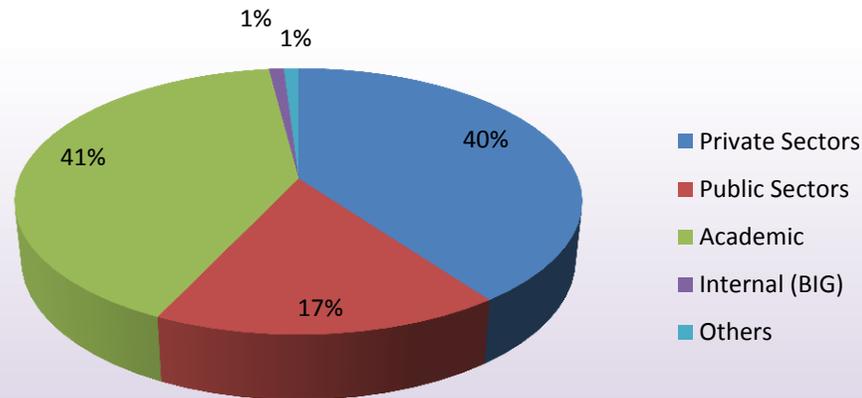


Total Electron Content (TEC) Study

# USERS

- **RINEX Data Sales (IDR 200,000/doy/station)**

**User Distribution**



Source : InaCORS as of January-June 2016

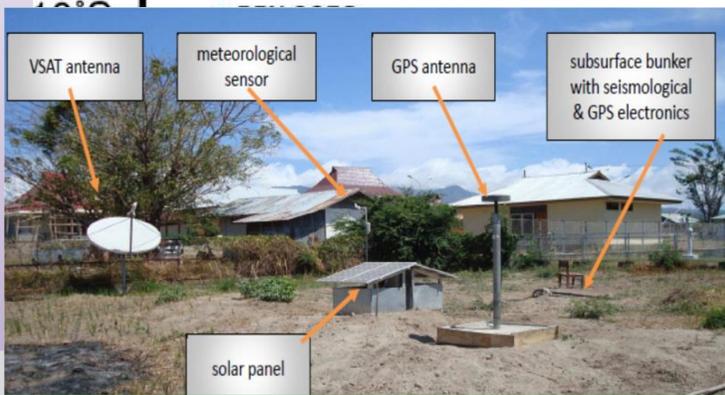
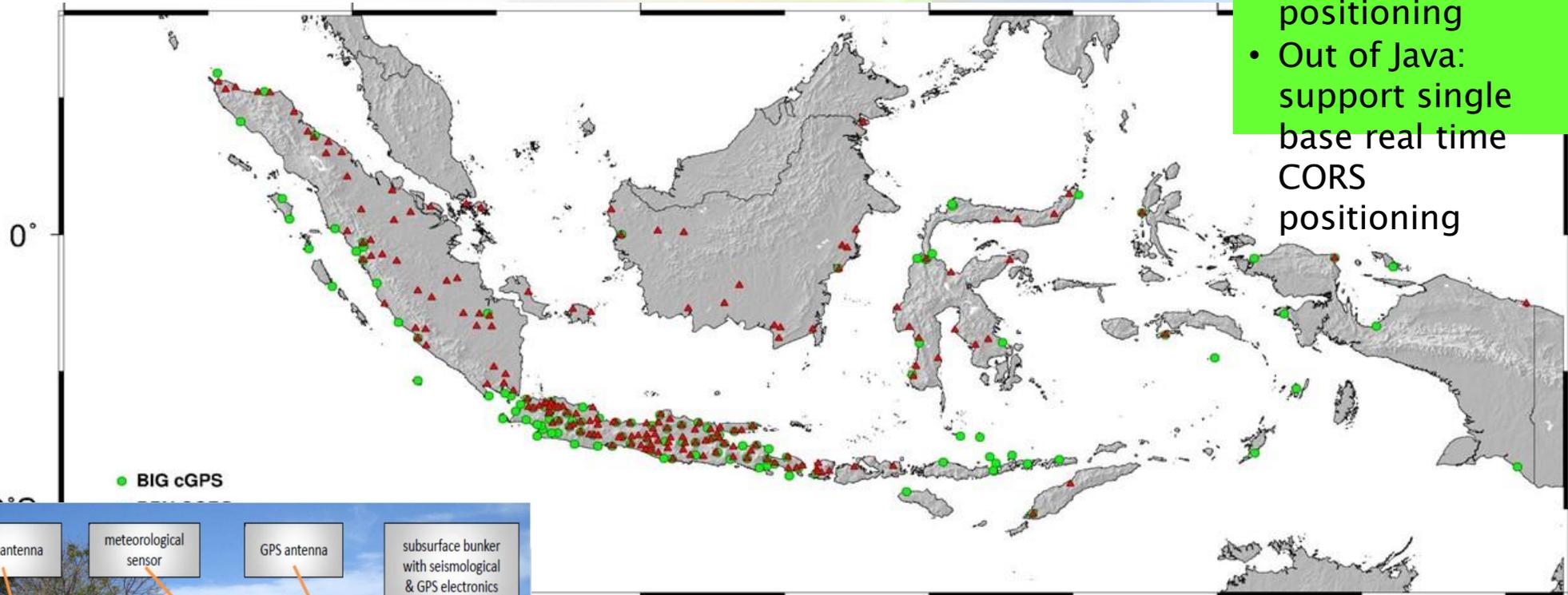
- **RTK NTRIP Users (Still Free of Charge, Charge will be applied 2017)**  
Now we have 495 active users around country with several purposes

# BIG – BPN CORS



## CORS Services:

- Java (distances ~ 100 km) support network real time CORS positioning
- Out of Java: support single base real time CORS positioning



GPS Ina – TEWS ( 18 STATION BUILD BY GERMANY)

## INA-CORS NEEDS

- **CORS Coverage:** Ideal condition is in every municipality in Indonesia covered with CORS for Large Scale Mapping
- **Services:** Ideal services is 24/7
- **Budget:** Charging too much or just for free

## DENSIFICATION OF CORS

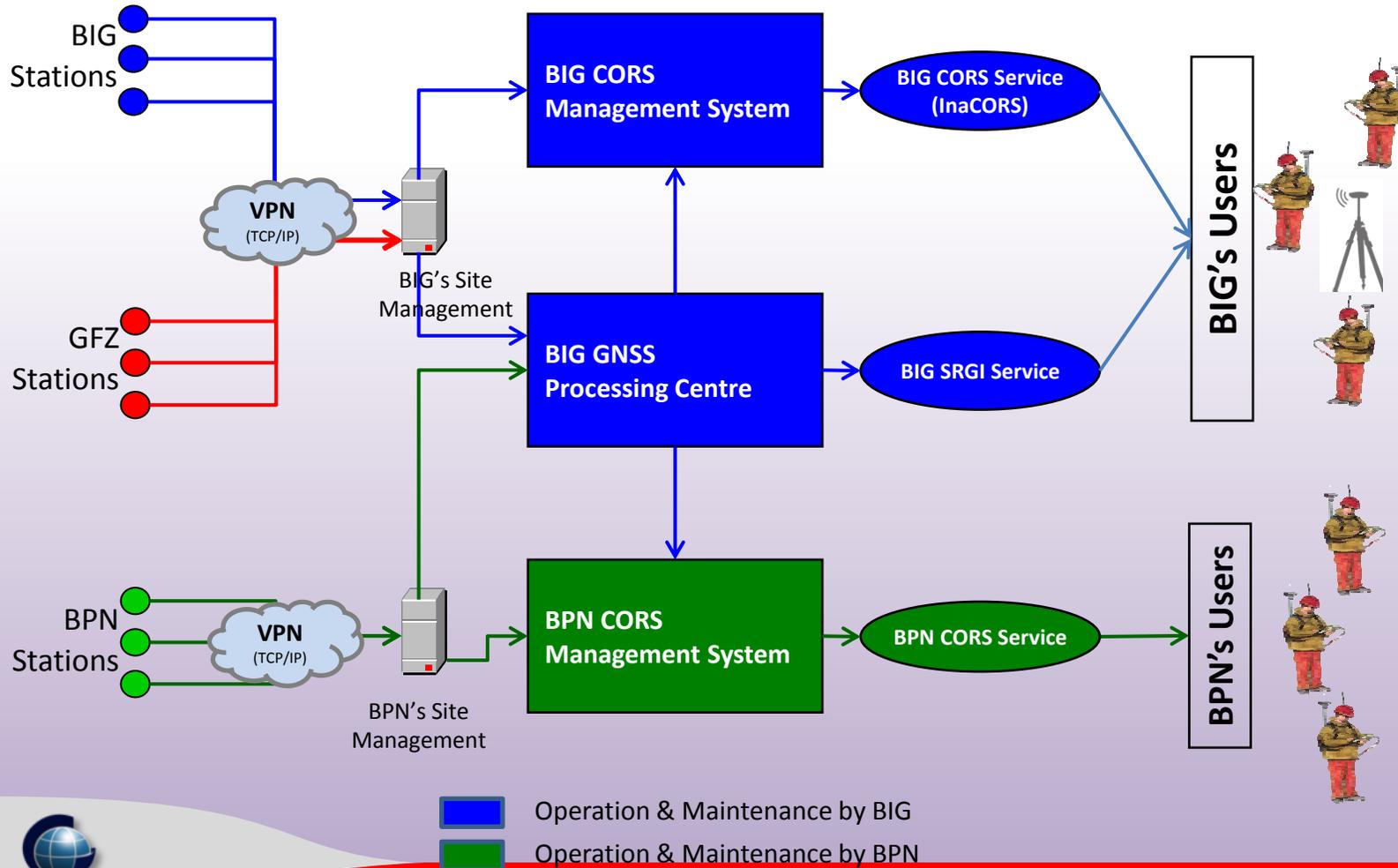
- ❑ Higher station distribution (50 km) in dynamic zone
- ❑ Integration between BIG-BPN CORS
- ❑ Densify the network from existing 300 stations to 2,000 stations
- ❑ Develop an affordable receiver, as an alternative to speed up the densification
- ❑ Affordable receiver with high local content will greatly facilitate system customization and reliability

# DATA FLOW - BUSINESS MODEL (EXISTING)



BIG & BPN each responsible for:

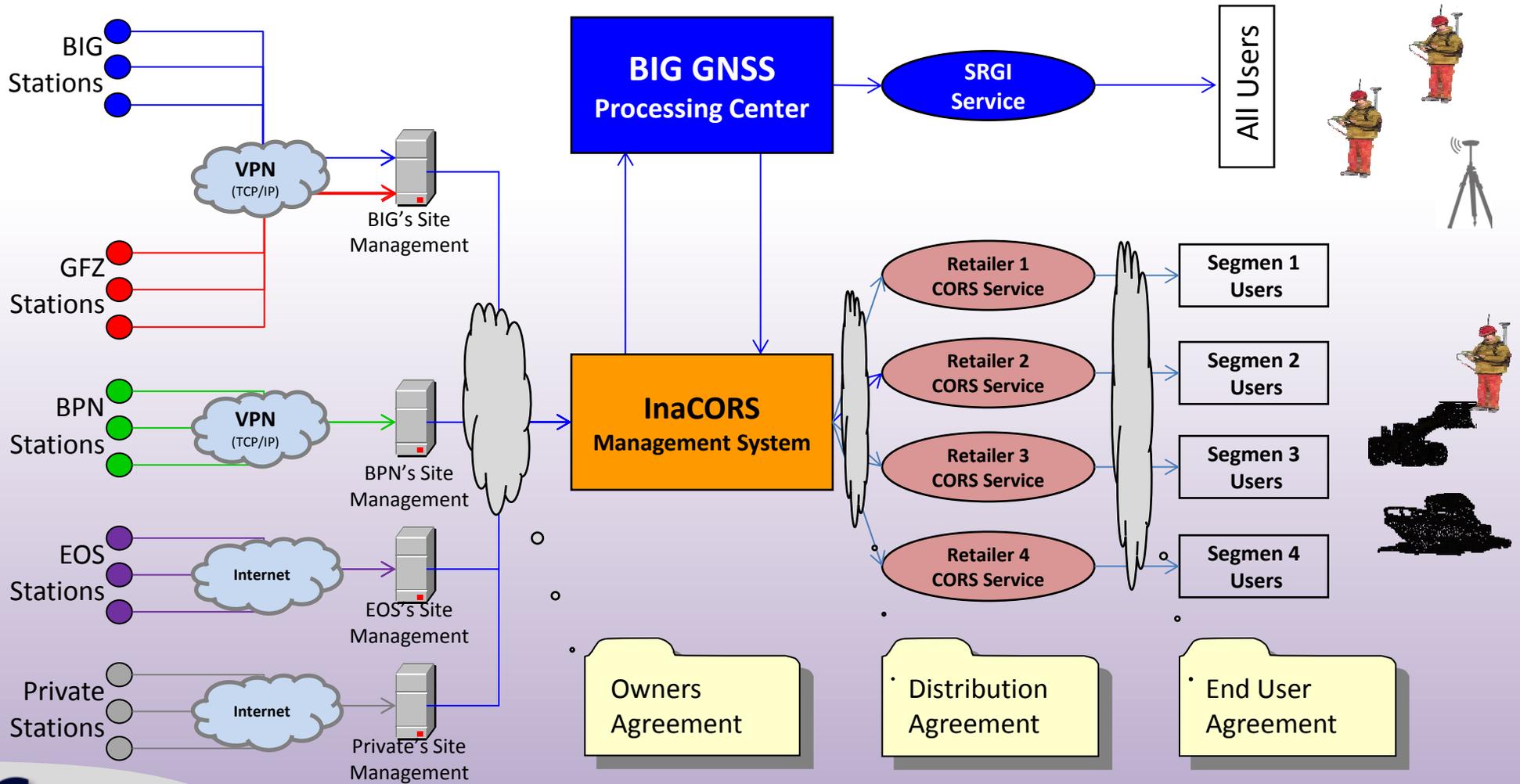
- Managing Site Stations,
- Managing CORS System,
- Managing Service to Users.



BIG is responsible for GNSS Data Management for Geodetic Control Network as a function of time (velocity rate) in the National Geospatial Reference System 2013 (NGRS 2013).

BIG is responsible for Managing NGRS Services.

# DATA FLOW - BUSINESS MODEL (PROPOSED)



Operation & Maintenance by BIG

Operation & Maintenance by Third Party on behalf of Owners

# CHALLENGES

## Improve Data Communication Reliability

- ❑ Multi channel broad band data communications
- ❑ Enabling high speed data streaming
- ❑ VPN (broad band but locations are constrained by availability of telecommunication nodes)
- ❑ Radio (free air time but problem on line of sight)
- ❑ Satellite (flexible site selection but expensive air time)

## High Speed and Automatic Processing Centre

- ❑ Improve automatic data base protocol
- ❑ Improve reliability of data processing automation
- ❑ Enabled system of system monitoring
- ❑ Fast troubleshooting and recovery
- ❑ Towards 95% Service Level of Agreement

**thankyou**