

Natural disasters and IT infrastructure in Vietnam

Le Xuan Cau

Department of Information
Technology, MONRE, Vietnam

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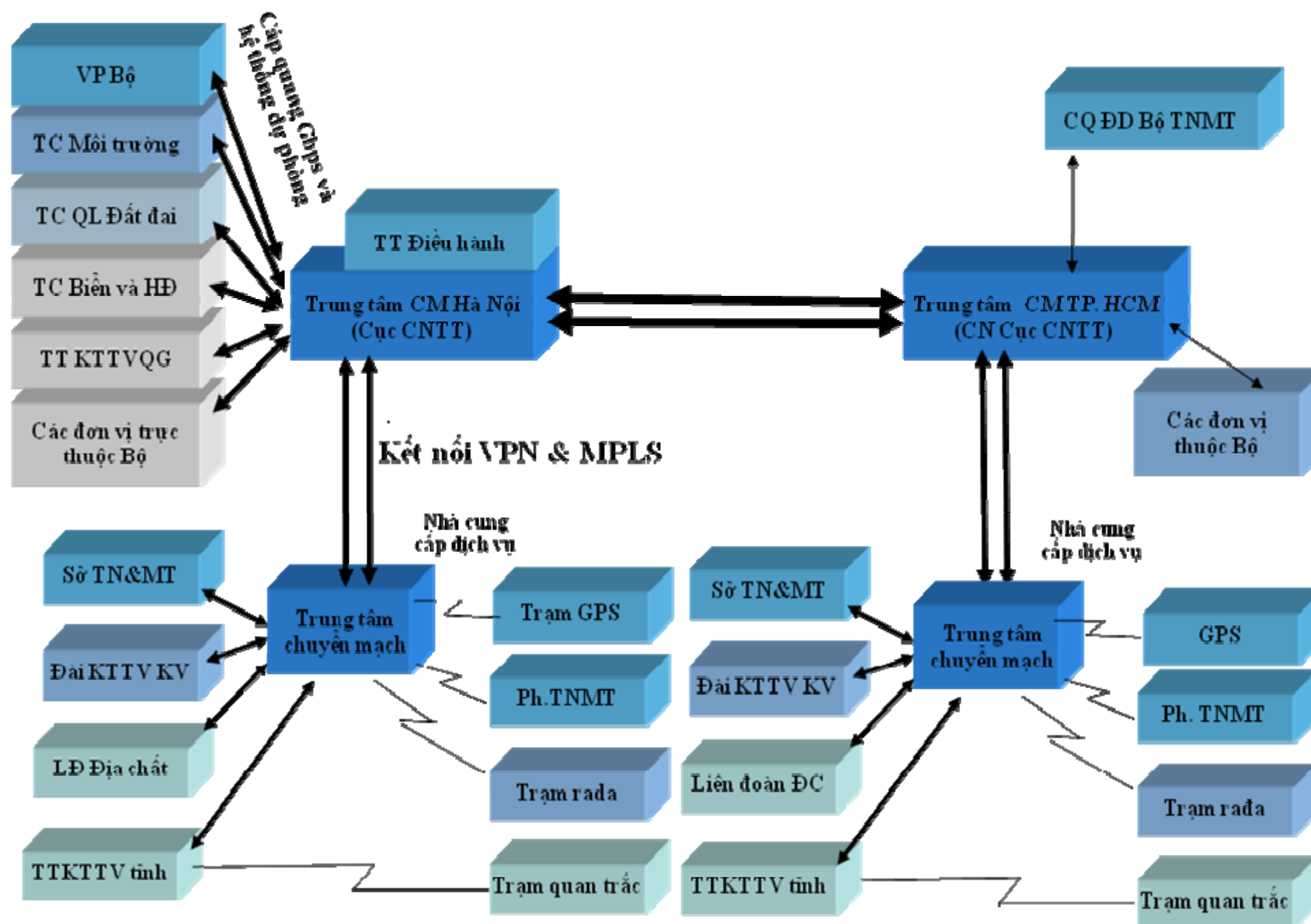
Natural disasters and IT infrastructure

- Natural disasters:
 - around 400 people killed by natural disasters in Vietnam every year, thousands of households have fallen into poverty because of
 - Typhoon, whirlwinds, hailstorms, flash floods and landslides, sea level rise, tsunami, drought, etc.

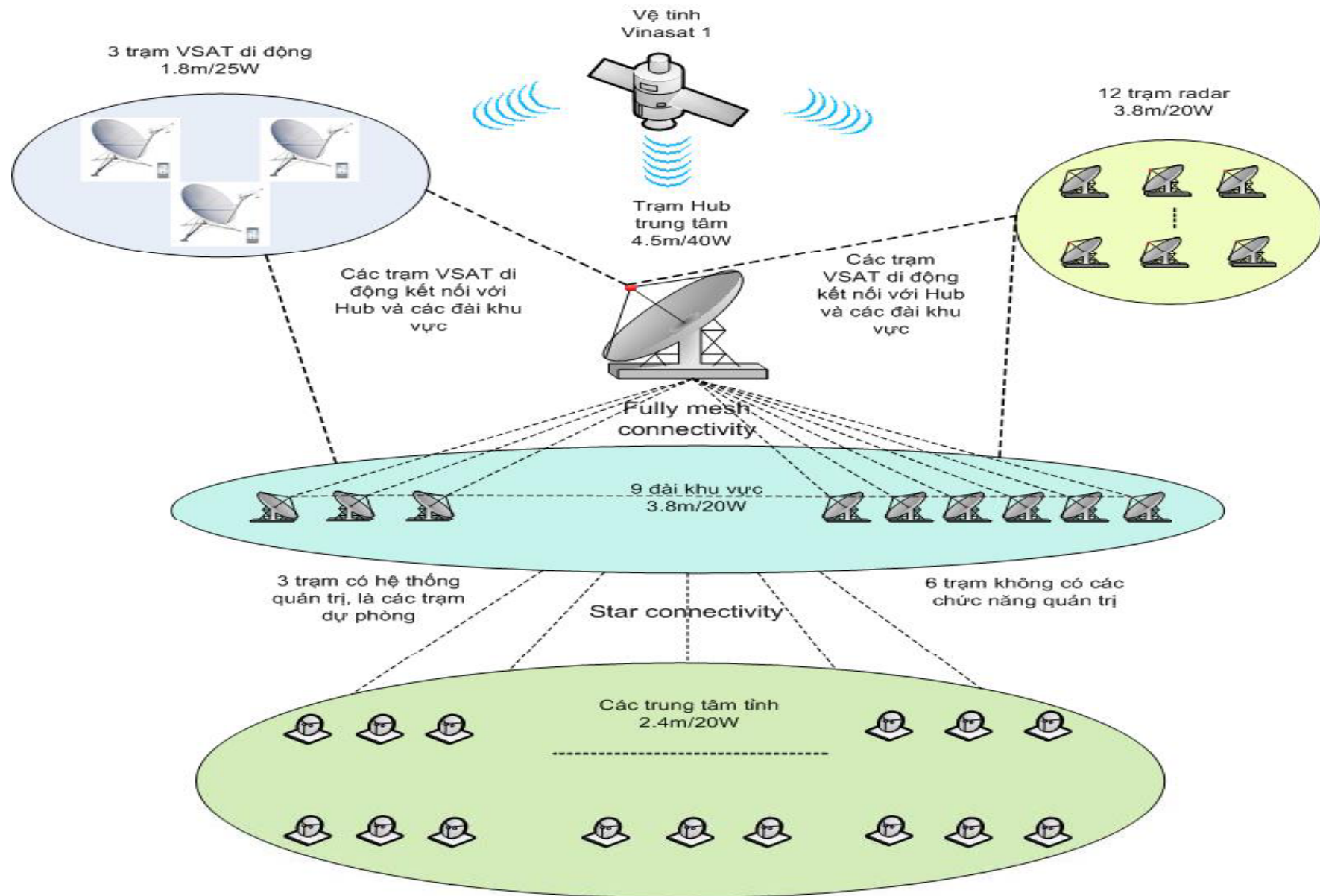
IT Infrastructure in Ministry of Natural Resources and Environment (MONRE)

- + Backbone
- + VSAT network (Very Small Aperture Terminal Network) using VINASAT-1
- + National Database System of Natural resources and Environmental
- + HPC for Numerical Weather Model

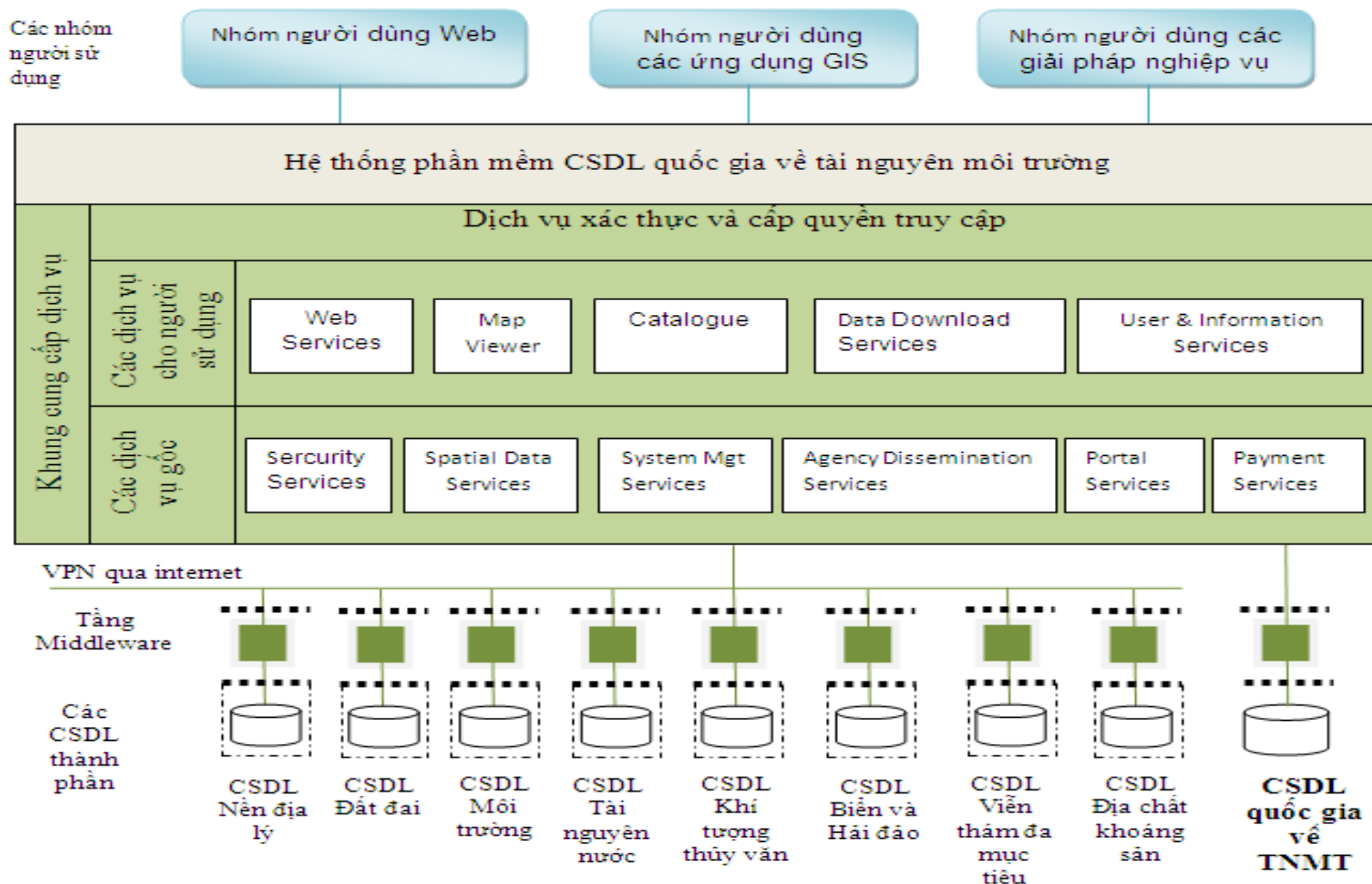
IT Infrastructure in Ministry of Natural Resources and Environment (MONRE) : Backbone



IT Infrastructure in Ministry of Natural Resources and Environment (MONRE): VSAT network



IT Infrastructure in Ministry of Natural Resources and Environment (MONRE): National Database System of Natural resources and Environmental



Application HPC to Hydrometeorological Prediction for migrating effect of Natural disaster:

HPC for Numerical Weather Model

SYSTEM I : PC Clusters 8 nodes (bought in December 2006)

SYSTEM II : PC Clusters 16 nodes (bought in March 2008)

I	Global Models
1	Global Environmental Multiscale model (GEM)
2	Global Forecasting System (GFS)
3	Global Model for Europe (GME)
4	Global Spectral Model (GSM)
5	<i>Navy Operational Global Atmospheric Prediction System (NOGAPS)</i>
II	Regional Model
1	Tropical eXtended Area Prediction System) (TXLAPS)
III	Ensemble Forecast
1	20 GEPS members (GFS as control)
2	20 GEPS members (GEM as control)

Some important problems to migrating effect of natural disaster in Vietnam (solving.....)

- *Improving accuracy of Satelite Rainfall estimation and rainfall prediction of outputs of numerical weather model*
- *Rainfall prediction using a statistical method*
- *Flood prediction*
- *Multiobjective Optimization for Reservoir System operation*

Application of IT infrastructure to migrating effect of natural disaster in future

- How to use IT infrastructure for observing monitoring and distributing information related to natural disaster and data mining etc.)
- Building information system for various domain (National Database, Decision Support System for natural disaster)
- How to use HPC in natural disaster forecast (Typhoon monitoring, storm, flood, land slide, sea level rise, earthquake , ...)?

Thank you for your attention