Kingdom of Morocco
The National Meteorological
Service of Morocco (DMN)

Towards a unified Central information Processing System to operate the various automatic weather stations
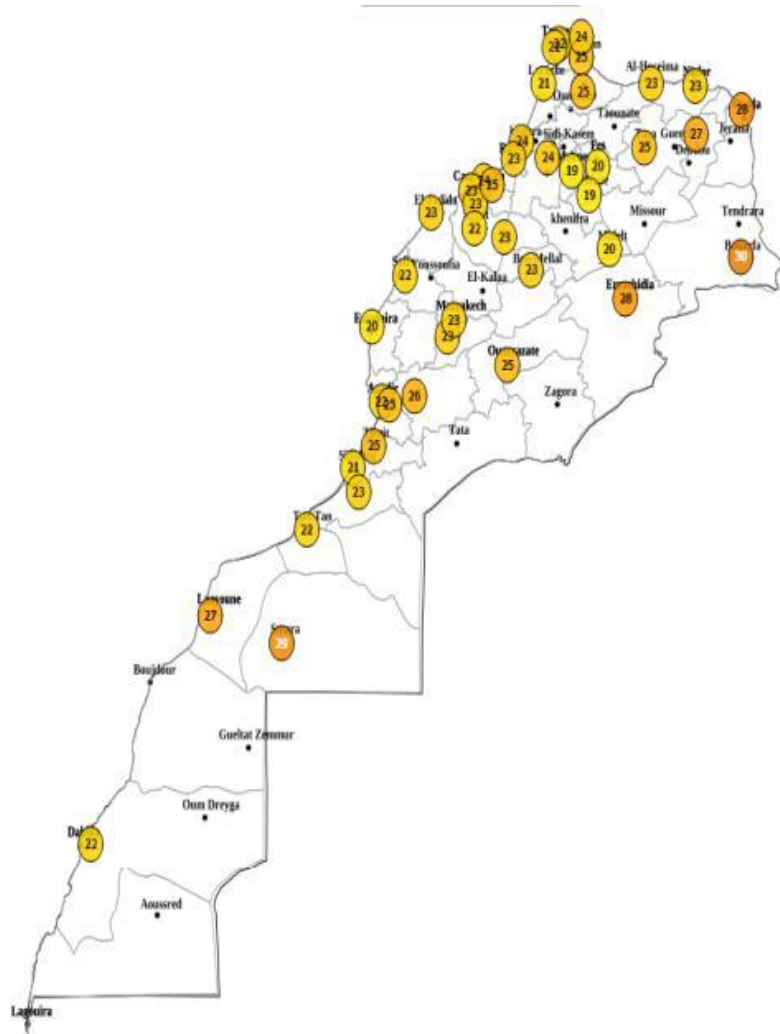
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Plan

1. Introduction
2. Heterogeneity of the AWS network
3. Difficulties to overcome
4. Possible scenarios and technical issues
5. Adopted solutions
6. Lessons learned

Heterogeneity of the network

- 40 Manned synoptic stations,

- All of them are equipped with an AWS,

- Multiple suppliers/brands of AWS,

- The concept of AWS network is not considered,

- Data are processed locally then sent to the AMSS through VPN.

Heterogeneity of the network
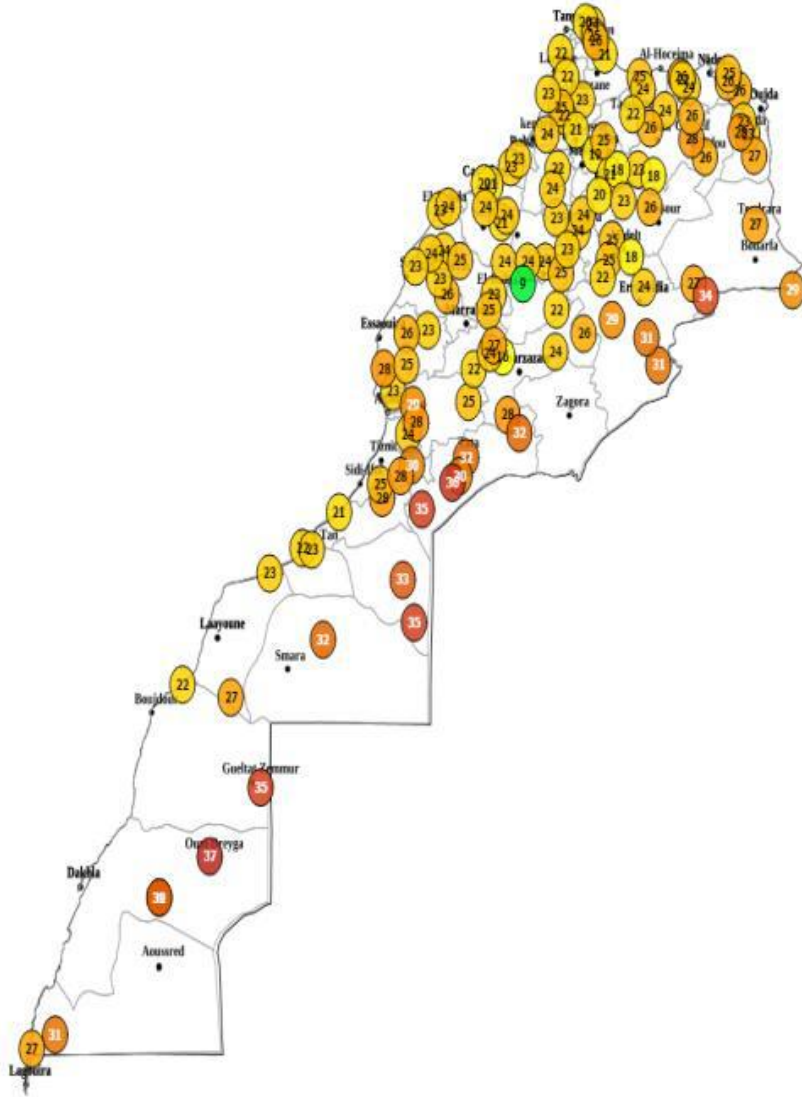
- ❑ 156 AWS,
- ❑ Two different suppliers/brands of AWS,
- ❑ Data are transmitted using GPRS or GSM,
- ❑ For each brand of AWS, there is a dedicated CIPS.

➥ Two different CIPS solutions, each having its own communication protocols & QC procedures.

Heterogeneity of the network

The final user is faced to partial displays and different web interfaces

Openness to partner's observing Networks

- ❑ Owned by Ministry of Agriculture;

- ❑ Bilateral Agreement to manage the network;

- ❑ 285 observing sites including 165 AWS;

- ❑ Multiple suppliers/brands of AWS;

- ❑ A CIPS is available only for a part of this network;

- ❑ Detailed study of the current state of this network was established by DMN.

Difficulties to overcome:

❑ Different centralized solutions for data collection and data processing;

❑ Partial displays ad views are provided to the final user;

❑ Difficulties to monitor the whole network;

❑ Data are archived in two separate databases;

❑ DAR functions are managed differently from one CIPS to the other;

❑ Offered Metadata management solutions are quite different;

❑ Different QC approaches;

❑ The development program of the DMN includes the acquirement of almost 60 AWS by 2019 as a result of various tenders launched in 2018 by the regional offices.

Possible scenarios and technical issues

❑ To what level of integration we inspire?

are we going to try to fully command the AWS
or are we going to just extract data from AWS datalogger ?

- Detailed manufacturer documentation is needed;
- How to communicate with the datalogger?
- Could be easier with new generation of dataloggers;
- We will Rebuilt the CIPS and need to remake the huge quantity of efforts for any new brand of AWS acquired

- Feasible and 3 different scenarios were developed

Possible scenarios and technical issues

Scenario 1: Developed for existing CIPS and it is operational
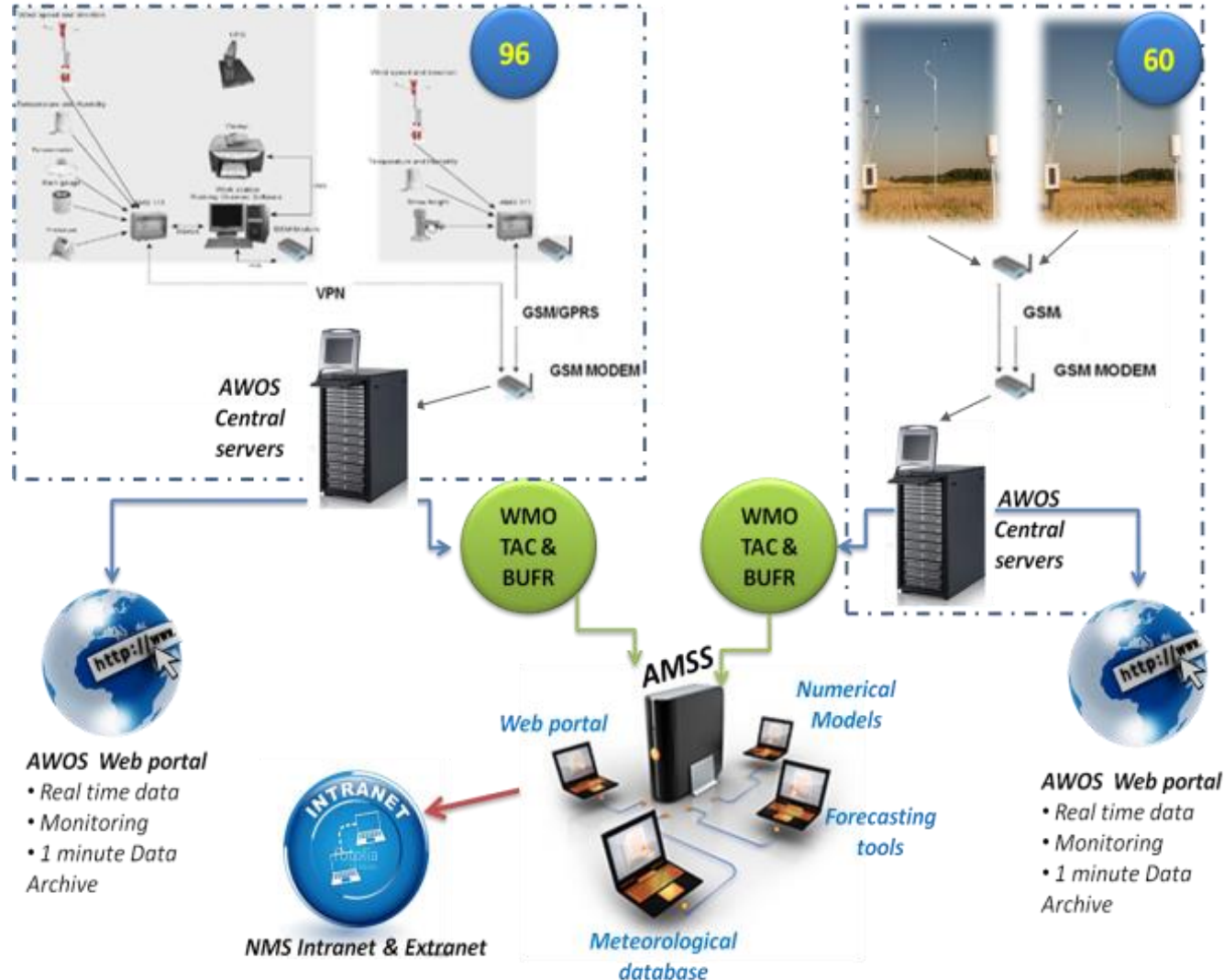
- Lower level of integration based on observing messages prepared automatically by the central servers following the WMO formats (TAC and BUFR).

- The messages are ingested by the automatic message switching system (AMSS) and disseminated to the various customers : numerical models, web portal, weather forecasting tools, climate databases...etc.

- Data is extracted daily from each CIPS database and ingested in the DMN climatological Database
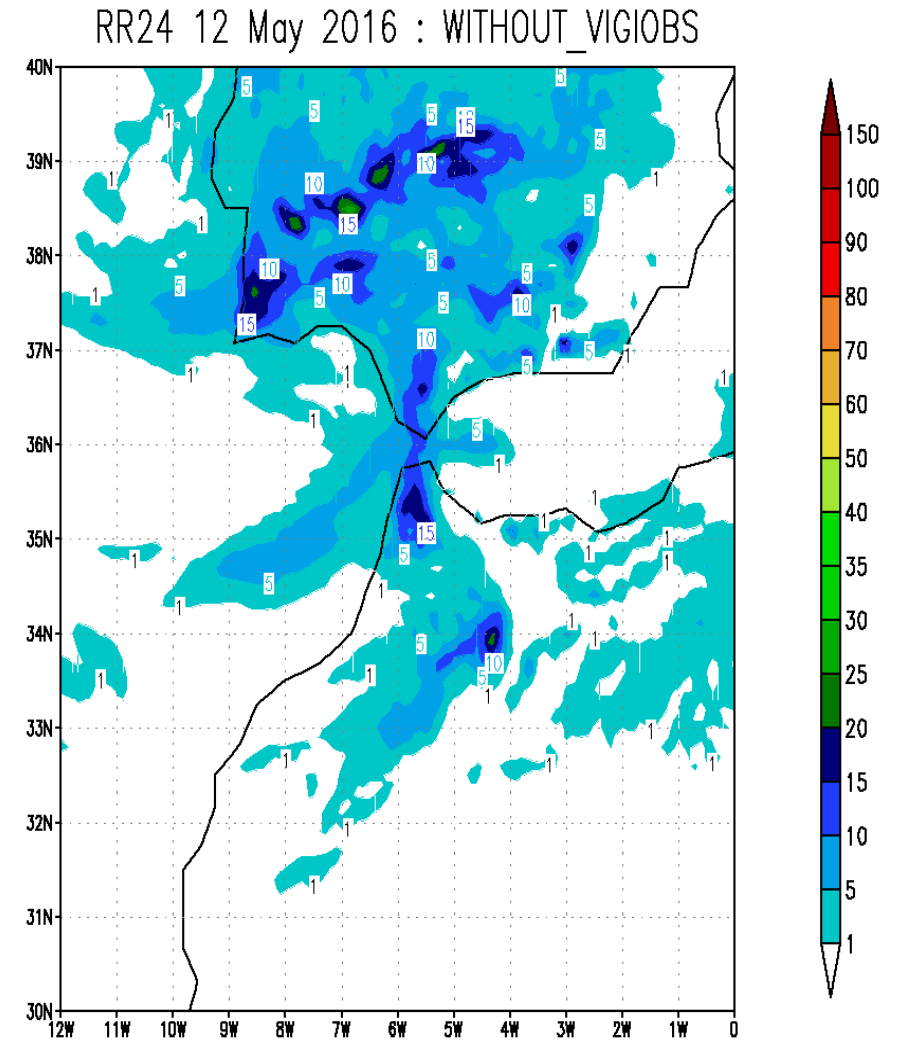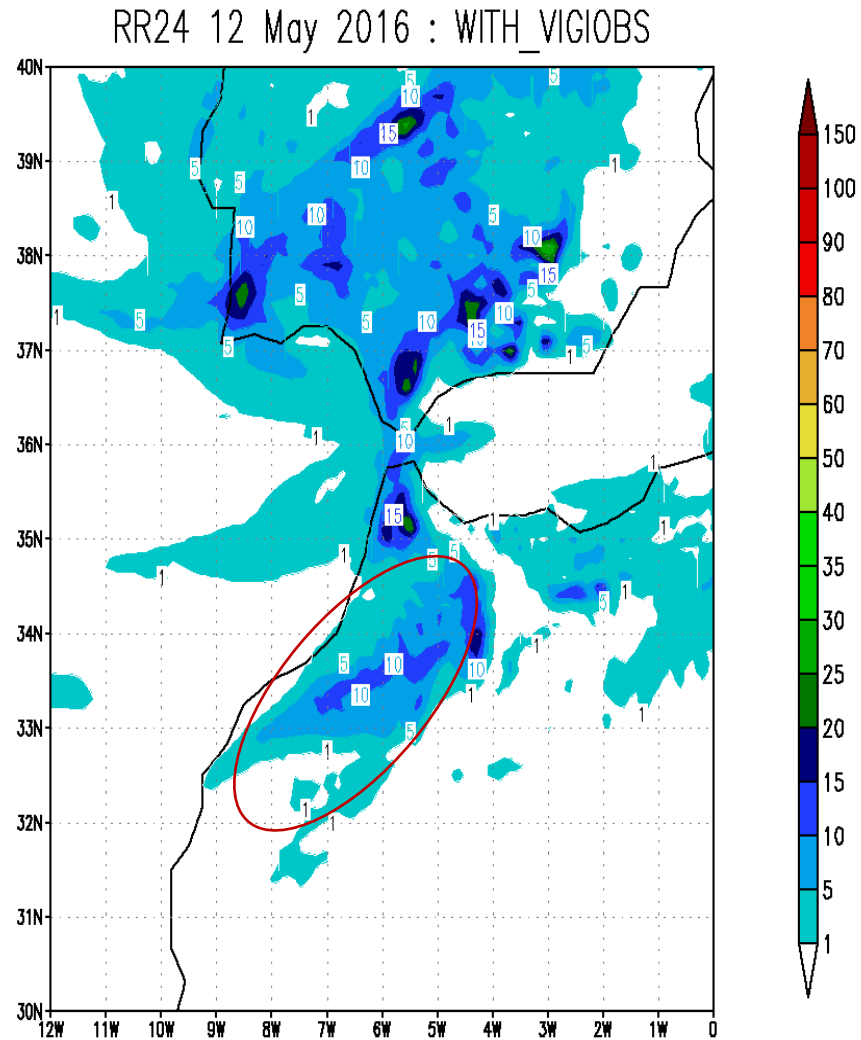
Possible scenarios and technical issues

- We keep all existing CIPS components working including data collection and QC

- We take benefit of functionalities offered by the existing CIPS

- Satisfaction of the forecaster and all internal users is obtained as the DMN extranet and the meteorological data visualization tools are offering one and unique display of the whole network.

Soft, operational, minimum of efforts

but NOT optimal

THANK YOU FOR COMPUTERISING THE COMPANY. YOU ARE NOW OBSOLETE. GOODBYE

Possible scenarios and technical issues

RR24 12 May 2016 : WITH_VIGIOBS

RR24 12 May 2016 : WITHOUT_VIGIOBS

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Possible scenarios and technical issues
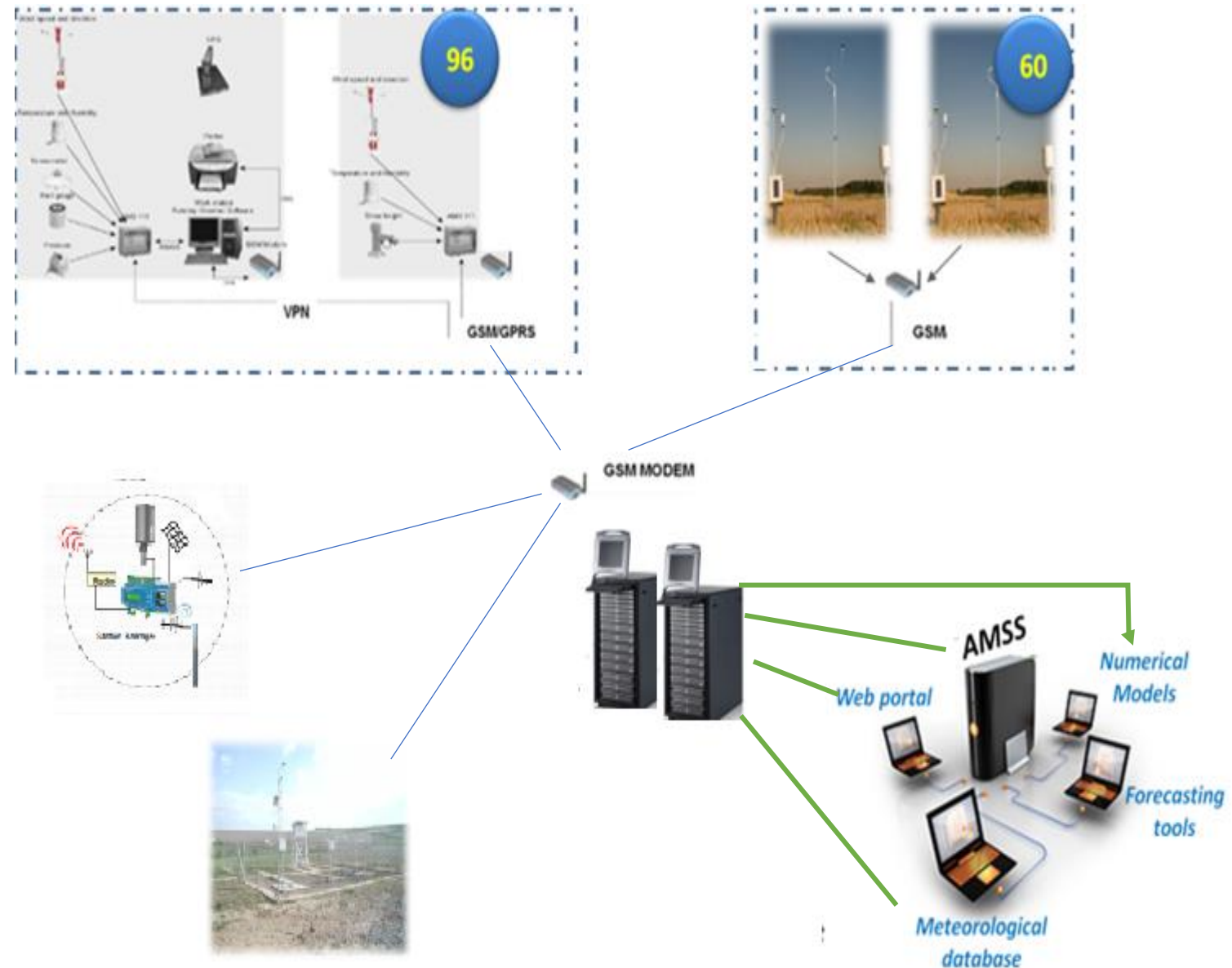
Scenario 2:

- Existing or future CIPS Servers will prepare numerical files to be sent to the new National Management Platform (NMP) of AWS network

- The existing CIPS should continue collecting data from the AWS network and should prepare the requested numerical files

- The NMP to be developed will integrate all functionalities of a CIPS including QC, metadata management, storage, data coding and transfer to the AMSS...
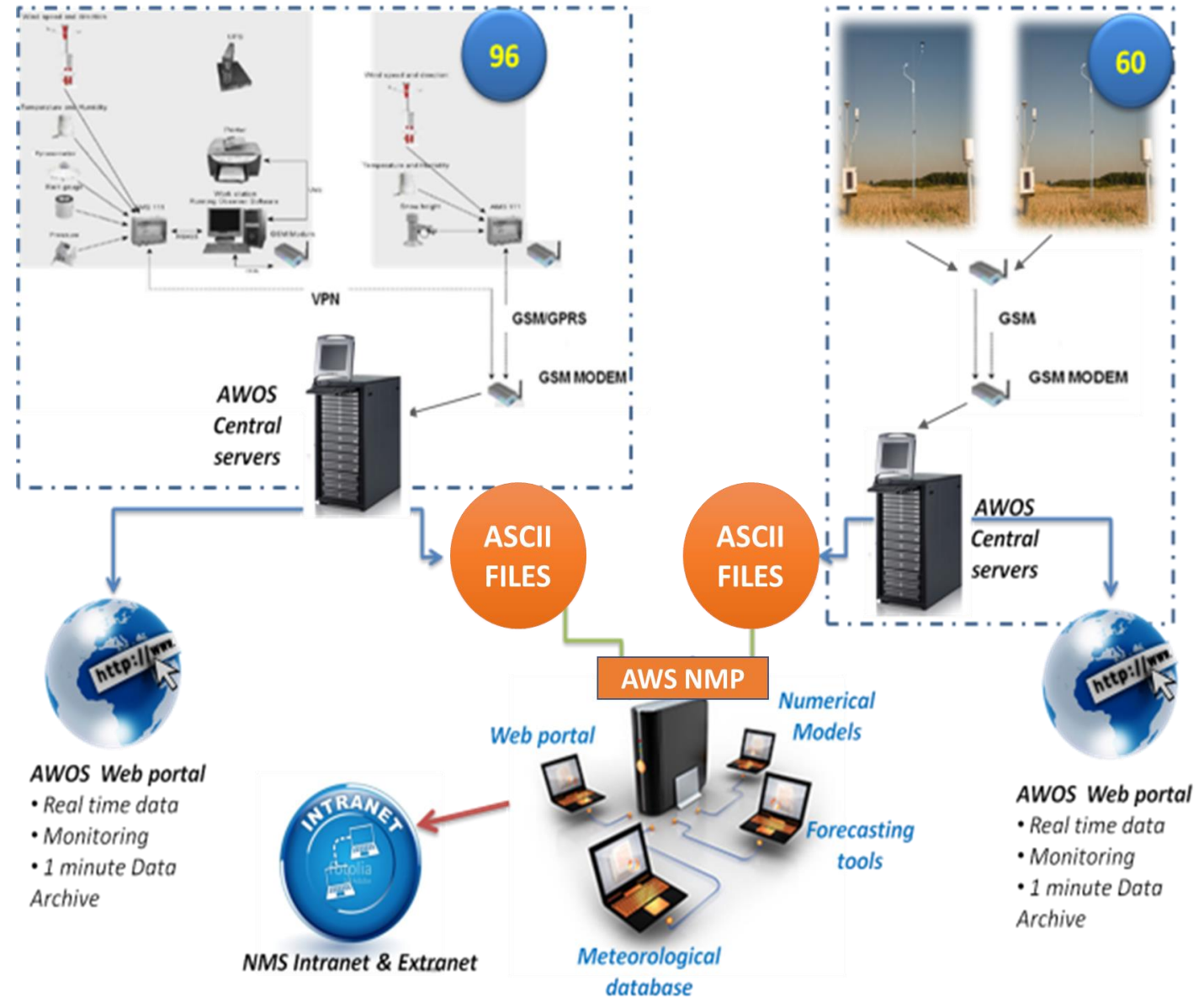
Possible scenarios and technical issues

Scenario 3:

- The NMP to be developed will take into charge all functions related to data collection and data transmission

- This NMP will integrate all functionalities of a CIPS including QC, metadata management, storage, data coding and transfer to the AMSS...

- the process of the development of the NMP is ongoing

Adopted solution

To keep the Scenario 1 for the **transition phase**

To start the development of NMP as described in Scenario 2 as first step (the process is ongoing)

To develop the telecommunication and data collection module to reach scenario 3

Lessons learned

❑ It's very important to take the necessary time to arrange for **internal consensus** on the technical and functional requirements in a CIPS or an AWS before you decide to acquire them.

 (for example: the frequency of collection depend on the final user need → impact on the communication module but also on the storage capacities)

❑ It will be very useful and very optimal in terms of time and cost to acquire the whole network at once,

❑ The CIPS is an essential component of the AWS network: The WMO/HMEI tendering spec described the most important requirements to be respected and requested in any procurement process or any development of a national CIPS.

شكرا على حسن اهتمامكم

Thank You for your attention