User Case 1

NMHS in Developing Country

* Introduce observation to the WIS 2.0 ecosystem
* Run a LAM on defined area – access to infrastructure without having to maintain in hardware
* Use services from NWP centre to prepare products for an end user (e.g. agriculture, aviation).

Assume the centre has internet access, either 3G /4G. Assume the data is correctly described in metadata and any stations are listed in OSCAR.

1. WIS portal – machine to machine or observer to machine mechanisms.
   1. WIS portal accessible from internet.
   2. Security Authentication/Authorisation/Access functionalities. (Google/FB etc technology)
   3. Data formatting and validation functionality to agreed standards (intelligent platform).
   4. Training and documentation of system

1. Running the LAM (Centre has its own model it wants to run remotely)
   1. Provision of a virtual machine on a remote platform (IAAS).
   2. Accounting system for user costs.
   3. Require the underlying model for boundary conditions from any global centre.
   4. Service offered by global NWP centres – supply the underlying model for boundary conditions.
   5. Training and documentation of system
2. Running the LAM (Centre has no model)
   1. Provision of a model machine on a remote platform (SAAS).
   2. Accounting system to ensure NMHS stays within agreed computer resourcing.
   3. Require the underlying model for boundary conditions from any global centre.
   4. Service offered by global NWP centres – supply the underlying model for boundary conditions.
   5. Training and documentation of system
3. Using Global Model to prepare new services.
   1. Access to visualisation tools for view model products.
   2. Authentication/Authorisation/Access functionalities required for such a service.
   3. Delivery service to send products/service to ‘end user’.

User Case No. 2

NWP Centre

* Wants to run a High Res Global Model with a grid less than 5km
* Need to get all in-situ observation in real time (5’ or 1’ temporal resolution).
* Need to get all radar data in real time.
  + getting all raw data is too big
* Provide services on NWP output.

We need.

1. , ,,System to subscribe to all Observations within WIS 2.0, in a ‘twitter-like’ manner.
   1. System needs Authorisation, Access, Authentication for the publisher and accounting system, so the publishers know who is consuming their data.
2. The ability for
   1. the radar data owner to run pre-defined extraction service for NWP centre.
   2. the Radar data consumer to run pre-defined service within the radar data centre environment, and export the subset of data required for modelling.
   3. Requires notification, distribution, accounting, authentication services.
   4. Change management for new/ closed observation sites (OSCAR).
3. Provide services.
   1. Post-processing toolbox: Sub-setting of data – extraction, slicing and dicing of model data. Data cubes. Downscaling and interpolation. (includes Boundary data for LAM centres).
   2. Workflow management system and notification service
   3. Classic set of web services (WCS, WFS etc) for machine and human consumers.
   4. Visualisation tools for human consumption.
   5. Data repository for model users to retrieve model.

Use Case 3

NMHS

Global MeteoAlarm System (GMAS)

* NMHS wants to send a notification alarm to a smartphone when a threshold is/ will be reached.

Assume Cell broadcast service is not enabled in the country, and notifications are only sent to registered users.

We need.

1. CAP implemented to provide the WIS compliant GMAS system.
2. Criteria, geographic zone, event type, and thresholds are either predefined, or user defined.
3. Visualisation system to map the area of alarms.
4. Push notifications system such as Microsoft Azure or Google / iOS Cloud Messaging Services.
5. User registration system, perhaps through a partnership with a national civil protection organisation.

Use Case 4.

* Global Insurance Company
* Developing new product
* Needs to run a study on a reanalysis data from different climate centres
* Getting all reanalysis data is too big to move.

We need:

1. A unified interface to discover climate centres around the world.
2. Compute facility close to the data the insurer can use to run its own software on.
3. Unified toolbox for analysis and sub-setting of data at each CC.
4. Authorisation, Access, Authentication system and an accounting system, so the insurer can be charged.
5. Visualisation and Delivery mechanisms check/send to send results to company.