# Report on the RMDCN Next Generation

## Background

In 1998 a Memorandum of Understanding was signed between ECMWF and WMO to enable the provision of a meteorological network to ECMWF Member States and all RA VI members. ECMWF would carry out the procurement and monitoring of the RMDCN for at least five years. Since then ECMWF has reviewed regularly the status of the network and new network architectures.

Following several contract extensions and service upgrades since 1998 with the provider OBS, an ECMWF Technical Advisory Committee (TAC) Subgroup on the RMDCN was tasked to plan for the provision of the RMDCN service beyond 2010. A three-phase plan was then presented to the 42nd TAC session in October 2010 to initiate a procurement process for a new RMDCN.

Phase 1, preparation of the requirements, took place in 2011. They were reviewed by committees and the plan was approved by ECMWF Council in December 2011. The second phase in 2012 concerned the ITT Process, and if successful a final phase of service migration would take place during 2013-2014.

Interoute Communications Ltd provided the best ITT offer and a contract was signed in December 2012. The new service is known as the RMDCN Next Generation (RMDCN-NG); this report details the outcome of the migration from RMDCN to RMDCN-NG.

## Introduction

The Project Definition and Objectives[1] were to “realise the migration of the RMDCN network from the current provider (OBS) to the new provider (Interoute) … without a break in operational service to the currently connected user sites. The scope of the project is to migrate as many of the currently connected sites as possible and to connect as many GISCs as possible.”

## Milestones

A review of the project milestones (Schedule 5 of the Contract[2]) illustrates well the progress and typical issues of the RMDCN Next Generation. Each milestone is summarized below together with its outcome.

### Contract Signature (by 14/12/12) and Ordering of Pilot Sites (by 04/02/13)

**Almost Achieved.** Nine year contract (with a break point after six years) was signed on 11 December 2013. Six pilot sites were ordered by 13 February 2013 but this had no material effect on progress towards installing the Pilot Network.

### Pilot Sites Handover by 26/05/13

**Partly Achieved.** There were several configuration issues identified in the deployment of pilot sites which had to be addressed. This only highlighted the importance of the Pilot Network as a bedding-in exercise for the Interoute and ECMWF project teams.

### Successful Completion of Pilot Network Reliability Acceptance Test by 30/06/13

**Achieved.** FAT for all sites started on 29 May and completed on 26 June after configuration errors were corrected by Interoute. The PNRAT was successfully completed on 30 June. In July a “lessons learned” meeting was held between ECMWF and Interoute where an open and honest discussion enabled several processes to be revised in advance of the full Initial Deployment.

### Submit Orders for Intitial Deployment Sites by 01/07/13

**Almost Achieved.** Orders for 41 further sites were submitted to Interoute (including 32 Member States and Co-operating States) on 27 June. A further nine Acceding Parties submitted their own orders, all by 12 July, however Interoute were aware of the situation at all sites and there was no impact on the project progress. Together these 41 sites became the RMDCN-NG Initial Deployment.

### Handover of 70% of Initial Deployment Sites by 20/11/13

**Almost Achieved.** The target of 29 sites was nearly met, with 28 sites being handed over by the milestone deadline. The 29th site was one day late so there was no impact on the project progress.

### Successful Completion of Global Network Reliability Test by 20/12/13

**Achieved.** The GNRAT was completed one day early on 19 December.

### ECMWF Accepts RMDCN Next Generation

**Achieved.** As a consequence of passing GNRAT, ECMWF formally accepted the RMDCN Next Generation and is contractually committed (albeit with further opportunity to cancel should the migration fail).

### Start of One Month Accelerated Incremental Migration (06/01/14)

**Achieved.** The migration began as planned. A schedule was drawn up allocating each site a day for cut-over of service, and several days contingency at the end of the one month window. Each member of the RMDCN team at ECMWF was responsible for coordinating a sub-group of the Initial Deployment sites.

### End of Accelerated Incremental Migration (06/02/14)

**Almost Achieved.** As a result of the Pilot lessons learned, overall the process was smooth and the majority of sites had a trouble-free cut-over to the RMDCN-NG. However several sites, usually those with dynamic routing, had to make several attempts at migration as their configuration was adjusted by Interoute engineers. Also, a small number of sites suffered from incorrect installation by local providers, and were delayed. In the end two sites were not handed over and migrated within the one month window, but both are on track for cut-over before ECMWF ceases its gateway service.

## Lessons Learned

### Pilot Network

This was certainly a valuable exercise. The testing period was not smooth, and several issues were found with the Interoute processes. However, working closely with the Interoute engineers and project team, documentation and processes were updated to take into account the requirements of the RMDCN. Without this stage, the accelerated incremental migration would not have been possible.

### Team Meetings

Weekly internal meetings were held at ECMWF usually lasting no more than 30 minutes, focusing on the project status, and setting and following up on actions.

### Supplier Meetings

Weekly video conference meetings were held with Interoute, usually lasting no more than 30 minutes, also focusing on project stats and tracking actions for both project teams.

### Actions

On both sides, all actions were tracked (including shared actions and those belonging to either of the project teams). This was reviewed weekly.

### Project Tracker

An excel spreadsheet was used to track the progress, configuration and correspondence with all sites on the RMDCN (not only the Initial Deployment, but all potential GISCs as well).

### User Site Communications

Understandably perhaps, contact between ECMWF and its Member States and Cooperating States was generally trouble-free. Due to various reasons, such as culture and language issues, or local funding, or local site topology, there were more delays with Acceding Party sites. However the strategy of assigning an ECMWF RMDCN team member to each User Site certainly helped.

## References

[1] Background on the procurement for a Next Generation RMDCN
http://rmdcn.ecmwf.int/NextGeneration/RMDCN\_Background\_Information.pdf
(accessed 10th March 2014)

[2] Interoute Contract for the Next Generation RMDCN
http://rmdcn.ecmwf.int/NextGeneration/RMDCN-NG\_Contract.pdf
(accessed 10th March 2014)

## Recommended Text

The Project Definition and Objectives were to “realise the migration of the RMDCN network from the current provider (OBS) to the new provider (Interoute) … without a break in operational service to the currently connected user sites. The scope of the project is to migrate as many of the currently connected sites as possible and to connect as many GISCs as possible.”

As of writing, only one RMDCN User Site remains on the OBS network (with ECMWF acting as a gateway), and it is expected that this site will soon cut-over to the new service. Therefore the project objectives will have been successfully achieved with only minor deviations from the planned schedule.

Special mention must be made of the contribution by the RMDCN team at ECMWF over several years to this project, from initial market surveys through tender evaluation, contract negotiation, and migration:

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* Remy Giraud
* Oliver Gorwits
* Alan Radford