WORLD METEOROLOGICAL ORGANIZATION

_____

COMMISSION FOR BASIC SYSTEMS

OPAG ON INFORMATION SYSTEMS & SERVICE

Expert Team on WIS-GTS Communication
Techniques and Structure

Toulouse, France, 26-30 may 2008

ET-CTS/Doc. 6.4
(16.V.2008)

_____

ITEM 6.4

ENGLISH only

RMDCN beyond 2010

(Submitted by ECMWF)

Summary and purpose of document

This document presents the project "RMDCN beyond 2010". As the project is not over yet, it is an update on the current situation.

ACTION PROPOSED:

The meeting is invited to review the document.

TABLE OF CONTENT

1.   Why and when ?

Following ECMWF Council's agreement (December 2004) and signature of Supplement 4 to the RMDCN contract, the RMDCN contract with OBS covers the period to March 2009 and will be extended automatically, on a rolling basis, for successive terms of 12 months (see figure 1). The next Biennial Contract Review (BCR) is currently done. Taking into account that the original contract dates from 1998, the need for an ITT for the provision of the RMDCN service beyond 2010 will be assessed in 2008.

Both the ECMWF Council and the WMO RA VI RMDCN Steering Committee will need to approve a possible Invitation To Tender.
It is expected that the procurement and implementation of such a network service would need considerable time: from writing the Specification of Requirements to making the final decision and negotiating a complex contract can take in the order of 18 to 24 months. Experience has
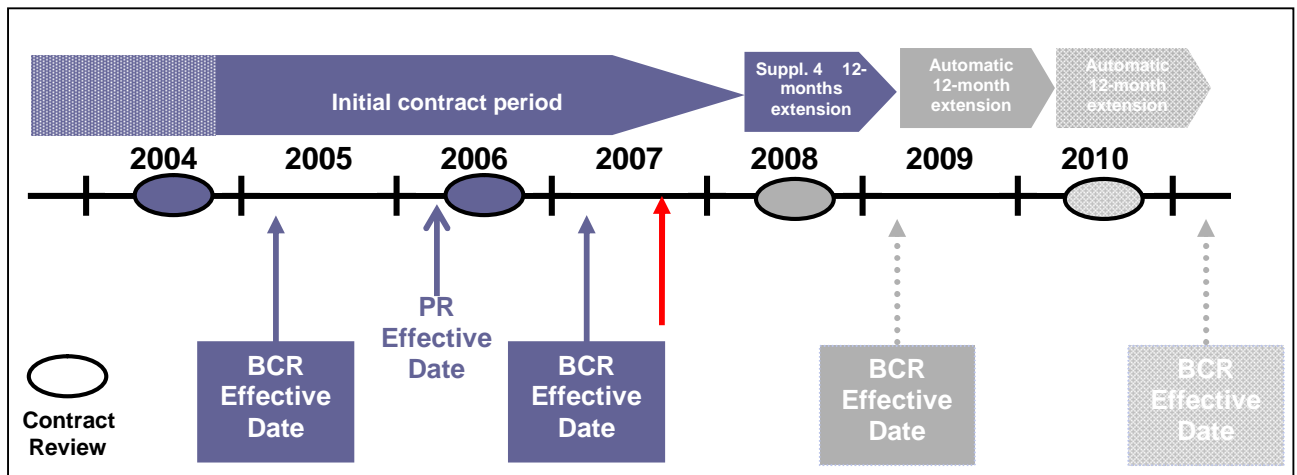

Figure 1: *Contract Term RMDCN*

shown that there are often delays of several months during implementation. Hence, any new network service could be implemented in 2010 at the earliest.

Based on the contractual issues and time constraints mentioned above, ECMWF proposes to the RMDCN community that:

- the future of the RMDCN be discussed at the next WMO RA VI RMDCN Steering Committee

- the need of an ITT for the provision of the RMDCN service beyond 2010 be assessed during 2008.

The anticipated timeline for the above proposals is:

2008	January to March:	Market Survey
	April:	Annual Price Review with OBS
	Late spring:	Session of the RMDCN RA VI Steering Committee
	Summer:	Session of the ECMWF TAC Subgroup on the RMDCN
	Autumn:	Report to ECMWF TAC and to ECMWF Council

If it is decided to go for an ITT at the end of 2008, the estimated timescale for the next steps will be:

<table>
<tr><td>2009</td><td>March:</td><td>Issue of the ITT</td></tr>
<tr><td></td><td>May:</td><td>Closing date</td></tr>
<tr><td></td><td>Summer:</td><td>Evaluation and contract negotiation</td></tr>
<tr><td></td><td>Autumn:</td><td>Report to ECMWF committees, WMO RA VI Steering Committee and ECMWF Council</td></tr>
<tr><td>2010</td><td>Spring:</td><td>Start of the migration to the new network</td></tr>
</table>

At its recent session in October 2007, the ECMWF Technical Advisory Committee has decided to establish a subgroup to plan for the provision of the RMDCN service beyond 2010 and agreed on the following Terms of Reference for the RMDCN Subgroup:

> i to review the scope and methodology of the planned networking market survey;

> ii to examine the outcome of the market survey and make recommendations;

> iii to involve WMO/RA VI, WMO Secretariat and EUMETSAT as observers in the subgroup, as appropriate;

> iv to consider the consequences of any further expansion of the RMDCN to non-RA VI countries.

The TAC Subgroup on the RMDCN is looking after the requirements of ECMWF, its Member States and Co-operating States. The Subgroup will report to the Technical Advisory Committee which in turn reports to the ECMWF Council. In parallel discussions, the requirements of the WMO RA VI countries for the future provision of the RMDCN would be discussed by the WMO RA VI RMDCN Steering Group, involving the RMDCN Operational Committee, with the intention of holding a meeting of the Steering Group in June. The Chair of the Steering Group would be able to communicate any plans to the WMO RA VI countries for review.

The Subgroup considered the requirements between ECMWF, the Member States and the Co-operating States and EUMETSAT.

2. Market Survey

ECMWF has conduct a market survey to compare OBS with other providers of Seamless MPLS networks, MPLS networks provided by VNOs, and hybrid solutions and asked in particular for the following areas and questions to be addressed in the market survey:

- covering a comparison of the providers OBS, BT, VANCO and Verizon, with specific emphasis on VANCO's capabilities for providing the network management;

- covering IPv6 and Multicast issues;

- assessing the bandwidth that could be obtained in 5 years time for the budget that is available today;

- assessing the costs for increasing the network bandwidths by a factor of 10 in 5 years time;

The main results of this analysis are:
- In the "traditional" range of network supplier OBS is proved to be cheaper than BT

- VANCO has a Virtual Network Operator would be a cheaper solution than OBS and BT. However, recent information about their financial situation makes us rather dubious about this solution;

- Verizon by providing a hybrid solution (part of the network will use the Internet as the mean to access the MPLS cloud) can help to extend the network beyond Verizon MPLS coverage and can provide a cheaper service. The reliability of the service if relying partly on the Internet will be much more limited.

- The table below summarize the differences between the current OBS contract and the services provided by the other operators:

Contract Feature	BT	OBS	Vanco	Verizon
36 month termination notice period for service provider	✓	✓	✓	✓
Implementation delay damages	✓	✓	✓	✓
MAC late delivery penalty	✓	✓	x	✓
Customer Service Manager	✓	✓	✓	✓
Webvision	✓	✓	✓	✓
30 free change credits per month	✓	✓	✓	✓
Online fault reporting	✓	✓	✓	✓
Extended Technical Support Group	✓	✓	✓	✓
Lifecycle Management	✓	✓	✓	✓
Guaranteed Time To Repair	✓	✓	x	x
SLA for Mission Critical and Enhanced Sites	✓	✓	✓	✓
Non-standard CoS model	✓	✓	✓	✓
24x7 support including local loop	✓	✓	✓	✓
Local helpdesk in each country	x	✓	x	x
Local language support for each country	x	✓	x	x
Contract with single central instance and one-to-one accession agreement	✓	✓	✓	✓
VPN Manager allocated to the account	✓	✓	✓	✓

- The offers from all vendors regarding IPv6 and Multicast are rather similar. They are, in theory ready, but only a very limited deployment of both technologies is done;

- In five years time, the available bandwidth for the same overall budget will be multiplied by almost 4

- The costs for increasing the network bandwidths by a factor of 10 in 5 years time will increase the current budget by a factor of 2.3

3. Technical teams

After the first session of the TAC subgroup, two teams were created.
A first team studied the consequences of using the Internet as a medium for providing access to the RMDCN or as a backup to the RMDCN.
A second team studied the opportunities for using EUMETCast to complement the RMDCN. EUMETSAT agreed to work with ECMWF.

The "Internet team" will present the following recommendations at the next session of the subgroup:

i.   Internet can be used as an access method to the MPLS cloud. The drawbacks of such a solution (less reliability, lack of guaranteed performance…) must be clearly understood and accepted by the site wishing to use this method. For the other sites on the network, there is no increase of the risk.

ii.   Using Internet as a backup network is an acceptable option bearing in mind that:

    a. The backup must be transparent to the application

    b. The any to any connectivity offered by MPLS must also be available in the backup mode

    c. The switch between the main link and the Internet backup should be automatic

    d. The backup connection must use IPSEC VPN and the related networking devices must be managed by the local sites

    e. The devices used for the RMDCN backup must be used only for this purpose

    f. A device type or at least a device brand have to be agreed between all the partners before using the Internet as a backup

    g. The exact configuration of the IPSEC VPN tunnels and the protocols to be used has to be considered.

The "satellite team" considered the different types of traffic currently transferred over the RMDCN. This mainly concern:

- GTS traffic and soon WIS traffic
- ECMWF dissemination

Satellite broadcast is used on the GTS where one RTH is in charge of sending the same information to a large number of NMCs. In Region VI, the organisation of the GTS limit the interest of satellite broadcast for GTS traffic.

The structure of the WIS is now quite well known. NC and DCPC will send their data to a GISC. Then all GISC will have to synchronise all the data and redistribute this to their connected partners NC and DCPC. It is very likely that the uplink (from NC/DCPC to GISC) will be carried over terrestrial networks where technically possible. The limited number of GISC will then be interconnected through a high speed backbone. Then from GISC to NC/DCPC, information will be sent. Within the perimeter of the RMDCN, France, Germany and UK will act as a VGISC. Therefore, it is quite possible than from the VGISC to the NC/DCPC within the area of responsibility of the VGISC the same data will have to be sent to a large community. In this case, a satellite broadcast system will be interesting to consider.
However, the exact traffic flows are not yet known, and it is therefore quite difficult to have today a very clear view on such an option.

4. What's next ?

The TAC Subgroup will meet in Reading on 23rd and 24th June. The full results of the Market Survey and the technical team's assessments will be discussed.