WORLD METEOROLOGICAL ORGANIZATION

REGIONAL ASSOCIATION VI (EUROPE)
RMDCN Steering Group

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ITEM 2

ENGLISH only

STATUS OF IMPLEMENTATION OF THE IMPROVED MTN (IMTN)

(Submitted by the Secretariat)

Summary and purpose of document

This document includes current status of the IMTN Project.

ACTION PROPOSED:

The meeting is invited to review the status and to discuss the further development of IMTN.

1. IMTN project

Most (17 of 25) of the MTN point-to-point circuits have migrated to managed data communication network services. Two networks were established for the Improved MTN (IMTN), designated as IMTN Network I [Cloud I] and IMTN Network II [Cloud II], and operated by two different providers. However, some legacy links still exist attached to both networks. Currently, 17 of 25 MTN circuits are operated on these networks (Networks I and II in Figure 1) while 8 are still operated on traditional point-to-point links. Twelve of 18 MTN centres have joined the two networks. RTHs Exeter, Tokyo and Moscow are designated gateways for both networks.

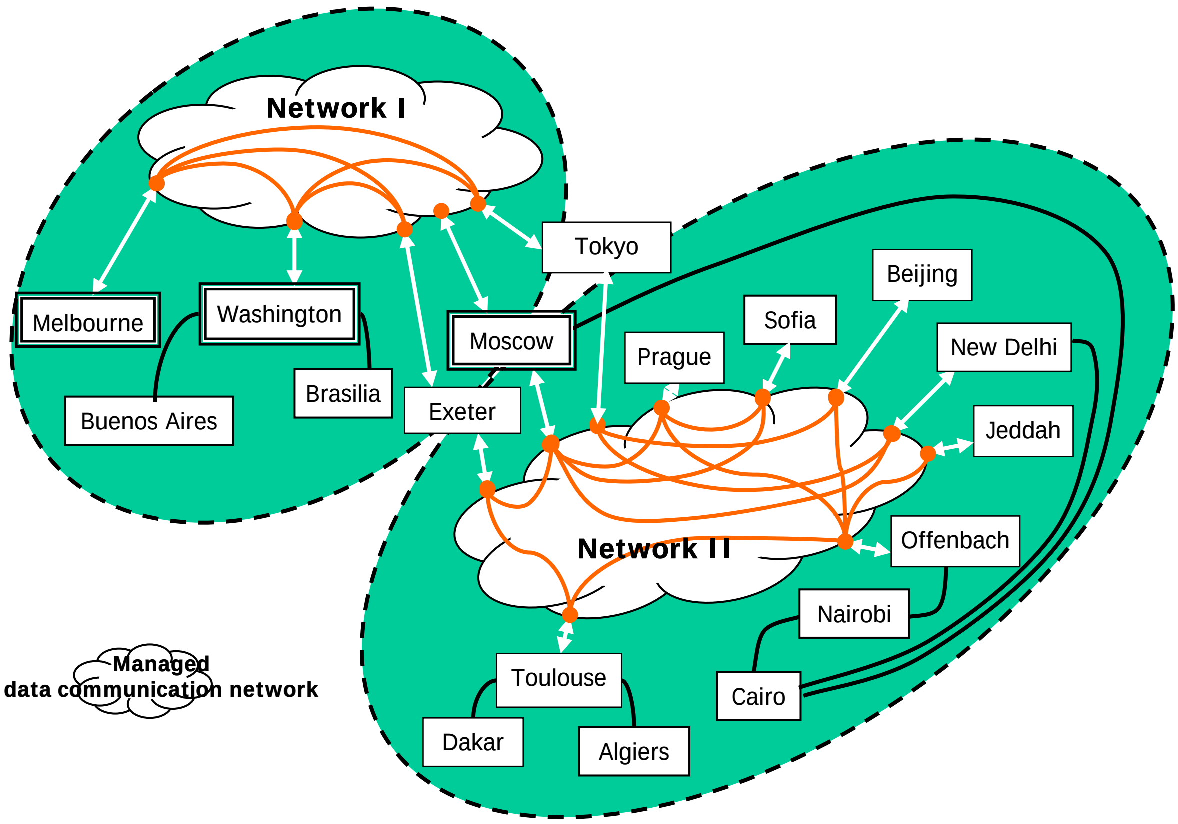

Figure 1 Main Telecommunication Network (MTN)

2. Network I

The IMTN Network I (Cloud I) was established in 2003, interconnecting MTN links between Exeter, Melbourne, Tokyo and Washington. The network has been operating very reliably via the FR network provided by BT Ignite. Each centre has a contract with each local office of BT Ignite and are billed individually for the local access circuit and incoming CIRs. The backup circuits (PVCs) are paid by the Australian Government (BoM).

The objective of the backup circuits established by the Australian Bureau of Meteorology (BoM) was to connect its Disaster Recovery Site (DRS) located in Brisbane with other centres and create a powerful backup to WMC Melbourne. Other resilience measures were introduced, including the implementation by Washington, Melbourne and Tokyo of automatic re-routing capabilities, which enabled the redirection of traffic between two centres via the router of the third centre. Configuration of the IMTN Network I as of September 2007 is shown in Figure 2.

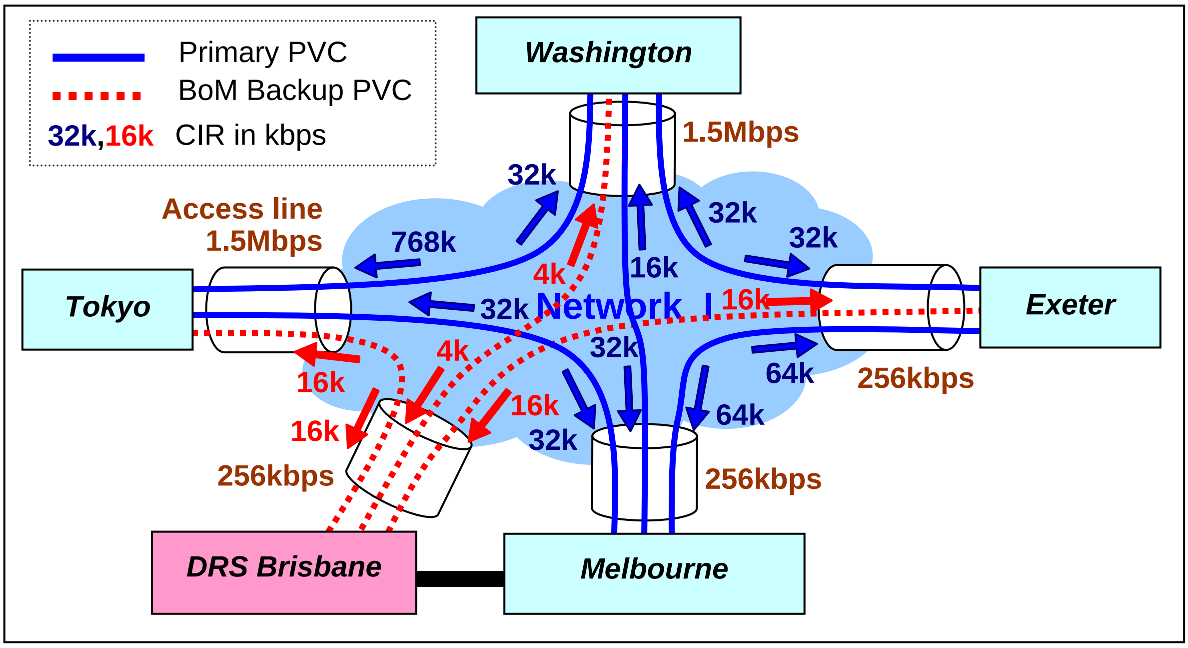

Figure 2 Configuration of IMTN Network I (Frame Relay)

3. Network II

The IMTN Network II was implemented operationally in 2004 as an extension of the RA VI-RMDCN, the regional telecommunication network for Region VI, initially based on the FR network provided by OBS (Orange Business Service, former EQUANT). Centres from other Regions were allowed to join RMDCN, including MTN centres Beijing, Jeddah, New Delhi and Tokyo. In June 2007 the Frame Relay network was replaced by an IP VPN MPLS based network also operated by OBS. ECMWF continues to play a key role in both the management and operation of the network. Figure 3 shows the current configuration of the IMTN Network II.

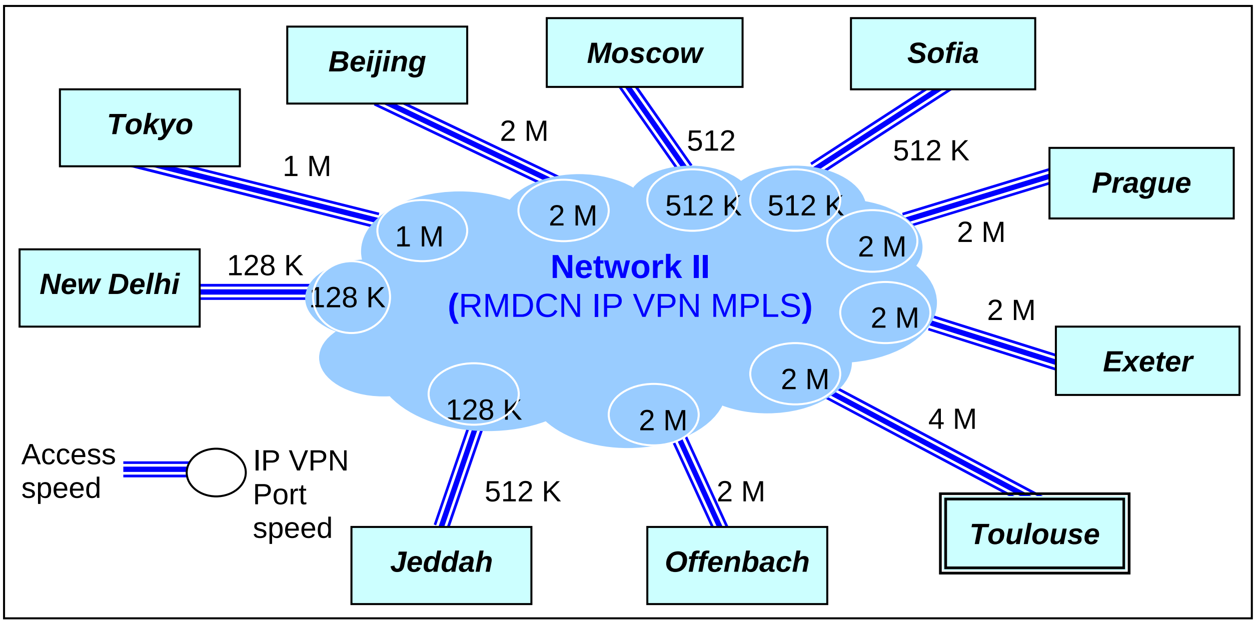

Figure 3 Configuration of IMTN Network II (MPLS)

The use of MPLS technology has brought significant flexibility to the exchange of information in Network II and in RA VI RMDCN as a whole since MPLS allows any-to-any connectivity. While this is a very positive aspect, some precautions should be taken to ensure proper functioning of the GTS at technical and operational levels. The new network shall maintain the agreed level of traffic priorities to fulfil the GTS timeliness requirements and respect, as much as possible, the current GTS hierarchy of centres to avoid disruption of a well established and globally agreed flow of information exchange.

Due to its own nature, MPLS cannot provide the same level of end-to-end traffic control as the point-to-point circuits and the Permanent Virtual Circuits of the Frame Relay networks, so good coordination and efficient network management are extremely important elements of success of GTS MPLS-based networks.

4. MTN circuits outside IMTN Networks I and II

RTHs Brasilia, Buenos Aires and Moscow were originally planned to join IMTN Network I while RTHs Algiers, Cairo, Dakar and Nairobi would join Network II. Brasilia, Buenos Aires and Moscow have indicated their willingness to join while Dakar and Nairobi have indicated their preference for other solutions. No further decision from Algiers is available at this time. The current connections to MTN centres outside the IMTN Networks I and II are as follows:

Algiers - Toulouse:	64 kbps
Dakar - Toulouse:	34.8 kbps
Cairo - Moscow:	64 kbps
Cairo - Nairobi:	9.6 kbps
Cairo - New Delhi	100 bps
Nairobi - Offenbach:	64 kbps
Brasilia - Washington:	64 kbps, IP socket
Buenos Aires - Washington:	64 kbps, IP socket

5. Additional circuits linking MTN centres

Several additional circuits connect to MTN centres but are not considered MTN circuits. They are usually included in regional telecommunication networks to improve traffic flow between MTN centres. The following circuits are functional at present:

Algiers - Cairo:	4.8 kbps
Algiers - Dakar:	50 bps
Algiers - Jeddah:	50 bps
Beijing - Melbourne:	Internet
Beijing - Moscow:	RMDCN IP VPN MPLS
Beijing - New Delhi:	RMDCN IP VPN MPLS
Brasilia - Buenos Aires:	64 kbps
Exeter - Offenbach:	RMDCN IP VPN MPLS
Jeddah - Washington:	Internet
Prague - Toulouse:	RMDCN IP VPN MPLS
Sofia - Toulouse:	RMDCN IP VPN MPLS
Melbourne - Moscow:	Internet (planned, to gain MTN status)
Moscow - Washington:	IP VPN via Internet (planned for 2007, to gain MTN status)
Nairobi - Toulouse:	64 kbps
New Delhi - Melbourne:	Internet