भारत संचार निगम लिमिटेड
(भारत सरकार का उपक्रम)

BHARAT SANCHAR NIGAM LIMITED
(A Govt. of India Enterprise)

No: 14-01/2010-CIT/IPv6/Vol-II/ S ८

Dated: 27.12.2011

Subject: Minutes of meeting held at BSNL CO, New Delhi on 20/12/2011, to review the progress of implementation of IPv6 in BSNL

A meeting was held in the conference room at 9th floor at BSNL CO to review the progress of implementation of IPv6 in BSNL. The list of attendees is at Annex-A.

Addl. GM (CIT) intimated in the meeting that DOT has given target to different service providers to start the IPV6 based services by March 2012. The MOM of the previous meeting No: 14-01/2010-CIT/IPv6/Vol-II/21 dated 03-10-2011 were reviewed. The discussions are as below

1. **NIB**
   1.1. **BBNW Circle** intimated that as was decided in previous meeting instructions have been issued in respect of following:
      1.1.1. To provide /56 IPv6 address to all new internet leased line customers in addition to IPv4 address as per their requirement.
      1.1.2. Email has been sent to all existing leased line customers that BSNL is offering /56 IPv6 address block to them free of cost. Though instructions have been issued by BBNW circle, it was decided that the instructions may also be issued by Sr. GM (NWP-BB).
   1.2. 4 more internet leased line customers have taken IPv6 address. The total internet leased line, IPv6, are now 26. The purpose of giving IPv6 address block to customer is that he can also test his equipment for dual stack.
   1.3. It was intimated by BBNW circle that ipv6.bsnl.co.in is the IPv6 (dual stack) site operational at BBNW Noida.

   1.4. **NWP-BB unit** may issue instructions for the following points in respect of **internet leased line** customers:
      1.4.1. If a subscriber asks for higher number than /56 addresses, then some tariff structure is to be decided by concerned T&C unit in consultation with BBNW unit. The participants recommended that this tariff should be kept low till /48 address block. If possible, it can be kept free based on proper justification by the customer.
      1.4.2. The existing pricing mechanism for IPv4 allocation is also to be reviewed in view of the scarcity of IPv4 address. The participants felt that, if the tariff of IPv4 addresses is now made high, more customers will be inclined to take IPv6 address block. The customers should be encouraged to make its end in dual stack mode.

1.5. **MPLS network** comprises of Core Routers (P routers, 29 in number) and Edge Routers (PE routers).

    1.5.1. In core router IPv6 related work is not pending as the core router is MPLS label switching device and does not work on IP layer.

    1.5.2. The IPv6 implementation in PE router (110 in numbers) has already been completed.

    1.5.3. Internet leased line & MPLS VPN are the two direct services provided by MPLS network.

    1.5.4. Internet leased lines (Approx 4500) are ready for IPv6 working in case customer requests for the same.

    1.5.5. In the previous meeting it was informed that MPLS VPN is also IPv6 ready and BSNL can offer this service to its customers. But now it is informed that some work is pending as some PE routers do not support MPLS VPN over IPv6 and require up gradation to support IPv6. This may be completed at the earliest.

        STR may complete IPv6 readiness for MPLS VPN within next three months. **Sr. GM (CNP)** to issue the necessary instructions.

1.6. SDE (Bandwidth Management) NTR was called separately by Addl. GM (CIT) to get the details about International Gateway and its present Bandwidth. The following is informed by SDE(BM):

    1.6.1. There are five International Gateway. The location and bandwidth of the gateways is Mumbai – 35GB, Chennai – 40GB, Delhi – 22.5 GB, Kolkata – 20 GB, Bangalore – 35 GB.

    1.6.2. He also informed that all the five gateways are configured as dual stack.

    1.6.3. If any customer is given **only** IPv6 address block, then he will not be able to view IPv4 sites. For this to happen, a translator / tunneling technology is required at the gateway.

1.7. **CGM NTR** may ask his team to make a complete technical and commercial proposal for translator / tunneling technology requirement at the gateway. This proposal may be submitted to CIT cell within three weeks.

1.8. In the previous meeting it was decided that on the main BSNL site a flash is to be given that BSNL National Internet Backbone is IPv6 ready. Now it has been decided to defer this till next meeting.

2. Broadband

2.1. The following was informed by BB Unit / BBNW Unit

    2.1.1. At present 3.5 M CPEs working in field does not support IPv6. Suitable mechanism may be adopted by NWP-BB unit, if required, to upgrade / phase out the CPEs. **NWP-BB unit** may convey the final decision taken to CIT cell.

    2.1.2. Broadband Access Network consists of 163 BNGs of Multiplay network. For supporting IPv6 implementation, the OS of BNGs needs to be upgraded. The necessary testing for IPv6 support between BNG and AAA (Authentication, Authorization and Accounting Server) has been carried out at Bangalore NOC.

    2.1.3. A detailed meeting was done by BBNW circle in Oct 11, to discuss IPv6 readiness of BNG, AAA and other applications like LDAP, billing, messaging, Order management and inventory management (OM & IM). OSS / BSS. Sr GM (NWP – BB) is coordinating this meeting. The next

meeting is in January 2012. TCS & TCIL are the vendors. M/s TCIL has been asked to submit the detail solution document for implementation of IPv6 in BSNL's broadband network.

2.2. The participants felt that during next discussion BBNW unit may consider making the Data Center of Bangalore IPv6 ready so that the web site of BSNL can be made IPv6 (dual stack).

2.3. The participants felt that IPTV may not be considered for IPv6 upgradation as there are only about 10,000 customers. The final decision and instructions may be issued by Sr. GM (NWP-BB).

2.4. The assessment of IPv6 readiness for VAS applications like gaming, VOIP etc is required to be done. The matter may be discussed with concerned vendors and the roadmap for making these applications IPv6 ready, if required, may be submitted to CIT cell within 3 weeks.

3. IP Tax

3.1. IP Tax is installed at 119 locations. It was intimated in the meeting that there is no need of IPv6 in the existing TAX or in the IP Tax (class IV network).

3.2. The Class V tender which is in progress, has already incorporated the provision of IPv6 in the validation.

4. Enterprise Business

4.1. It is decided in the meeting that the form of internet leased line to be modified suitably to include IPv4 address and IPv6 address requirement.

4.2. It is also decided that the customer should be able to register the request of Internet leased line on the portal.

5. IPv6 Test set up

5.1. It has been decided in the meeting that IPv6 test setup may be at ALTTC and other training centers.

5.2. It was informed by DGM (ALTTC) that this is a DOT funded project.

5.3. The separate lab is being made for IPv6. The project estimate is yet to be sanctioned. Sr.GM (Training) BSNL CO to pursue the matter.

6. CDR network

6.1. The CDR data center equipment and the applications are to be assessed for IPv6 readiness. No information is received from CFA-IT Unit.

6.2. The participants felt that the internal network of BSNL is not required to be made IPv6 ready as of now. The necessary instructions may be issued by Sr. GM (CFA-IT).

7. CDMA

7.1. No report is received from NWP-WiMax & CDMA unit.

8. Wi-Max

8.1. No report is received from NWP-WiMax & CDMA unit.
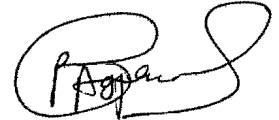
9. Mobile

9.1. No report is received from NWO-CM unit.

10. FTTH

10.1.DGM (CNP) informed that GPON is a recent technology. For procurements of GPON equipments condition has been incorporated in the tender that "the equipment should be dual stack (IPv4 and IPv6) ready".

11. Conclusion & way forward

11.1.The minutes may be uploaded on the BSNL Intranet.

11.2.The concerned units may issue detailed instructions to the field units with a copy to CIT Cell.

11.3.The inclusion of a translator / tunneling technology at the gateway is a major work. This will make the IPv6 network live and will open the ways for further improvements.

(Raman Aggarwal)
Additional GM (CIT)

Copy to:

1. Office Copy.
2. CGM (ITPC) Pune / (BBNW) New Delhi / ALTTC GZB - for N/A please.
3. CGM (NTR) New Delhi   - for N/A please.
4. PGM(BPE) for N/A please
5. Sr. GM (NWP-BB) / (LC) / (CFA-IT) / (NWO-CM) / (NWP-GSM-1) / (NWP-GSM-2) / (NWP- WiMax & CDMA) / (CNP) / (Training & Admin) for N/A please.
6. All participants for N/A please.

S No.	Name of Participant	Designation
	List of participant in meeting on dated 20.12.2011 at BSNL CO	
1	C. Srinivas	GM (CIT)
2	Raman Aggarwal	Addl. GM (CIT)
3	Ashok Kumar	Addl. GM (NWP-CFA)
4	Sushma Mishra	Addl. GM (BB&DC) BBNW Noida
5	Dhirendra Verma	DGM (Project) BBNW Noida
6	R P singh	DGM (BB) ALTTC GBD
7	Devendra Yadav	DGM (BP-E)
8	M L Vijay	AGM(CIT)
9	B L Bairwa	AGM(CIT-ERP)
10	Geena Pal	DM (ERP-II)
11	Anuj Kumar Katiyar	DM(BNP)
12	U L Ghosh	DM(P3)
13	A K Sharma	DM(CIT)
14	D D Bansal	DM(CIT)
15	Sandeep Singh	SDE
16	Shailendra Kumar	AM (ERP-I)
17	Hitender Singh	AM (CME-I)