Comments of: Shri Sanjeev Chachondia (schachoo@gmail.com)

Dear Sir

Thank you for taking out the Consultation Paper on "Delivering Broadband Quickly", a very relevant topic. I find it very disheartening that leave aside developed countries, India is lagging behind most of the developing countries as far as Broadband is concerned. The fact that we are the second largest telecom market in the world makes poor broadband penetration a bigger concern that we should quickly address. Your paper is therefore a very welcome step.

I have been associated with Broadband initiatives from the year 1999 to 2004 and again from 2010 and I am passionate about the need for "broadband for all". Find below some of my observations that I am submitting in my personal capacity as a telecom professional and these do not reflect views of my company or any other entity -

Optic Fiber Networks (Q1, Q11, Q12)

Biggest cost for laying wireline infrastructure in cities is the Right-of-Way (RoW) cost. Huge cost of RoW, time it takes to get RoW, arbitrary demands by local authorities and the manual digging method used in our country are the biggest issues. Municipal corporations and other local bodies do not understand the importance of creating broadband network and only see this as an opportunity to generate more revenue. There seems to be no coordination and control mechanism between Central Government, State Governments and local bodies to facilitate this important national digital agenda. RoW cost needs to be made reasonable and the approval process streamlined on a priority.

More than a decade ago, we have seen a wonderful initiative by MSRDC in laying multiple ducts along the Mumbai-Pune Expressway and then leasing it to various Telcos and ISPs for laying fiber. It is very sad that this has not been followed across country. Government must consider framing guidelines to mandate compulsory deployment of duct space for fibre/ telecommunications cables in all major physical infrastructure construction projects such as building or upgrading highways, inner-city metros, railways, gas or water pipelines or sewer networks. The incremental cost of laying fiber ducts is minimal with these large projects and can go a long way in making broadband services affordable.

NOFN (Q7, Q8, Q9, Q10)

NOFN (as presently envisaged) appears to be a very complex arrangement between conflicting parties. In our country where BSNL, Railtel, PGCIL and other private Telcos have large amount of fiber on the ground, creating information highways similar to the "golden quadrilateral" road network is easily possible and can be done quickly. From the "super nodes" on this highway, we can have rings of "state information highways" and then access rings can be created by effectively connecting the available OFC networks. Government PSUs and private Telcos should work closely for creating the access network. Gaps can then be filled by an agency like BBNL.

This is more of a competitiveness issue as ownership of OFC network particularly in the last mile seems to provide competitive edge to a Telco. Till 2006, Telcos were not sharing their tower infrastructure as coverage was a differentiator. But as more and more Telcos reached competitive

parity on mobile network coverage, telecom towers became more of a commodity and need for saving cost dominated the presence advantage. Similar maturity on OFC network will lead to sharing between various players. Since IP-II/ NLD players such as Railtel, PGCIL and GAIL have no presence in access networks (as these are not Telcos), there is an added complexity since sharing (particularly on dark fiber basis) can severely impact their bandwidth business model. NOFN is not a technical issue but clearly, there is need to evolve a business model that compensates various players without threatening their survival.

Delivery cost automatically comes down as the network spreads and reaches closer to the end customer. A super information national highway connected to state-wide information highways will allow the broadband providers to offer services at a much lower cost than a provider who is creating this on a Greenfield basis. OFC networks in the vicinity will offer a quick and affordable solution and will facilitate creating community service centers and offering applications to rural areas.

Broadband Wireless Access (Q2, Q18, Q20)

There were two issues with deployment of LTE in the access network –

1. Ecosystem for TDD LTE was not developed till a year back and the price points for both the Network and the CPE/Devices were so high that offering an affordable service to Indian market was a challenge.

2. Government policy on spectrum (TDD v/s FDD, auctions of spectrum in 700 MHz and 1800 Mhz, availability of further spectrum) has not been very clear. The winners of last auction who procured spectrum at a large cost, might have been worried about protection of their investment should they roll out TDD LTE networks in 2300 Mhz and then Government comes out with spectrum auction in spectrally efficient lower frequency bands.

While last 12 months have seen a good development of TDD LTE ecosystem, clarity is needed on spectrum front. latest auction in 900 and 1800 MHz has paved the way for some players rolling out FDD LTE but the spectrum available i snot enough for a good broadband experience. There should be a comprehensive policy on spectrum laying out a road map for next few years for all the bands covered in Chapter 2 so that there is no uncertainty around the timing and quantum one needs for effective service rollout. Bands that are not free, a timeline should be set for vacating by the holders with clear alternatives to them.

With our country's security and safety as paramount and above any other national agenda, Defense forces should be given adequate time and resources with full support from DoT (and other Government agencies) to vacate spectrum and make alternate arrangements.

IXP and NIXI (Q5, Q6)

IXP is the best option to provide quick and cost-effective connectivity. However, ISPs should see a clear benefit in speed and cost to go through an interconnect exchange. If this is not the case then a direct connectivity with Tier I network will be preferred by large ISPs. Smaller ISPs, that have no

access to IXP node in their area of operation or those that have high cost to connect to IXP node, will prefer to connect to another peer that gives a cheaper option.

Hosting of content within the country will certainly help in reducing the cost of broadband. Large application and content providers should be encouraged to setup their servers in Indian data centers.

I sincerely hope that this exercise, you have initiated, helps all the stakeholders in coming together in finding solutions and our country progresses on the path of broadband uptake as we experience in mobile telephony during last decade.

Best regards