Cable Operators Federation of India

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Without Prejudice
(By Mail/ speed post)

Ref/COFI/TRAI/17/2014

21 October 2014

The Chairman

Telecom Regulatory Authority of India

New Delhi-110002

Kind Attention: Sh Arvind Kumar, Advisor (NSL)

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Sub: Comments on TRAI Consultation Paper on Delivering Broadband Quickly: What do we need to do? Dated 24 September 2014

Sir,

Reference your consultation paper on 'Delivering Broadband Quickly: What do we need to do?', dated 24 September 2014 and Comments of various stakeholders.

We find that broadband on cable TV has not been covered in detail by any stake holder, whereas after the digitization drive this may be the major contributor to broadband penetration in the country, particularly in the rural areas and semi-urban areas where telecom companies don't find viable to penetrate.

We wish to give our comments and counter comments as follows.

Introduction

Cable TV industry in India is existing for the last 25 years and has connected 100 million households in the country with 35% households in rural areas. Today there is hardly any inhabited place with electricity where cable operator does not exist.

All cable networks have the capacity to carry high speed broadband signals. Government has planned to use these networks for broadband since 1999 but no concrete action has been taken till date.

It is well known that Telecom players have not contributed enough to increase the broadband penetration, particularly in rural areas in spite of the government giving them huge subsidies.

We suggest that the government should utilise these cable networks for this purpose to uplift the economy of the country and empower the people with knowledge economy. We have been raising this issue since 2004 in the Planning Commission, TRAI and in other telecom forums but nothing has happened so far. We are happy that now the government is taking interest in the matter and wants to make the country connected in the next two to three years.

We also appreciate TRAI’s renewed efforts in dealing with the subject on the reference of Ministry of Communications and Information Technology, that should have happened long ago.

We also understand that India's Broadband penetration is low because of

a poor/ non-existing last mile connection. Private telecom networks run after profits, so avoid going to rural areas where investments are heavy. Our data speeds are so low that we cannot even call it broadband. This is the reason that technologies like IPTV have failed in India.

Cable Operators are small entrepreneurs and are used to working at low profits and in smaller business units. So they are successful even in rural areas where they use local resources including manpower. This manpower is trained on the job. Linking them with national fiberoptic network to provide broadband to their subscribers will give them additional income, provide employment to lakhs of people including in the rural areas, apart from helping to improve the national economy.

If a proper and feasible business model is worked out for these cable operators, they will not only build the last mile networks but also market it well in the local population telling people the benefits as well as how to utilize it.

Present initiative of I&B Ministry to digitalise all cable networks will act as a catalyst for increasing the broadband penetration. However, it must be implemented keeping the above in mind rather than going the way of I&B Ministry where it wants to handover the industry to a few large media houses by making the adoption of new technology for making all TV channels reach consumers, so difficult and out of reach for cable operators that they will be edged out faster from the industry.

Dependence of I&B Ministry on the few National MSOs who have assured it of inducting large amount of FDI and buildup of Digital networks is

ill-construed as these networks are useless without the last mile of a high standard. They don't own any last mile and with FDI they are only trying to buy the last mile from cable operators or force them out of it creating huge unemployment, which is hardly in the national interest.

Present State of the Industry

There are more than 60000 cable operators (As per government estimate, actually many more exist because only ARASU cable in Tamilnadu has connected 28000 LCOs, Delhi has 2300 LCOs and every cluster of villages has a cable network) all across the country including **45% of them in the rural and semi-urban areas**, **giving cable TV services to about 100 million households for the last 20 years.** They provide 50-250 TV channels transmitting a signal of 550 to 860 MHz which includes private satellite channels/ Doordarshan channels and at many places, internet through cable modems or a parallel Ethernet network.

In the last five years, massive consolidation has taken place where these operators have either formed independent MSO (Multi System Operators) companies connecting one another using fibre optic cables or become franchisee of the existing national or regional MSOs and **provide last mile services on HFC broadband networks**

In this way, there are 7000 cable TV headends in the country connecting the LCOs. Some of these headends already provide digital feeds mostly in the four metros and big cities of Phase II, following the mandate of the government for going digital by 2014 in the whole country.

Apart from these headends, **there are many small networks working independently in the far-away places serving a few subscribers in the rural areas providing them with Free to Air (FTA) channels including Doordarshan channels and local channels. Even these operators use fibre optic cables to extend their networks to cover many villages as fibre optic cables can take the signals for longer distances without any loss and provide many channels without intermediate power supplies or distribution equipment.**

They use low cost indigenously manufactured/ assembled optical equipment and fibre optic cables because these cables are cheaper than co-axial cables. The equipment including optical transmitters, nodes and splitters are manufactured/ distributed by thousands of small manufacturers using imported components.

These operators have also generated employment opportunities for lakhs of local people and trained them to use sophisticated equipment like Splicing machines, OTDR, transmitters and nodes.

These small entrepreneurs have developed the industry to its present size by their own efforts, without any help from the government, financial institutes or even supportive regulations using indigenously manufactured or assembled equipment. There are no duty concessions given to them where as telecom companies enjoy all the duty exemptions for the same equipment.

Being local residents, these operators are the best to provide broadband connections in the rural areas as they know the consumers and the market very well. It is time that the government pays attention to these networks utilising their vast potential of broadband networking in the village environment where others dread to venture.

Total Neglect of Cable TV Industry

There are many policies on paper to promote cable TV networks for broadband access like the '**National Broadband Plan'** proposed by TRAI and the Telecom Policy of 2004 but practically nothing has been done in this regards. So much so that **TRAI in its draft National Broadband Plan 2010 projected 72 million broadband Connections on cable networks by 2014 but while making regulations for the digitalisation of the industry, forgot about using the high band width last mile that is best suited for Broadband. There is no mention of how the last mile networks will be upgraded to broadband networks, who will fund these small networks and consolidate them, from where the finances will come and how will the present owners of the last mile networks be encouraged to provide triple play services.**

TRAI in its recommendations dated 05 August 2010 for migration to digital, did recommend some measures like considering the cable TV networks as telecom infrastructure, provide exemption of duty for import of STBs and other network equipment, tax holiday etc., but it has again remained on papers, even after three years of implementation are over. On

the other hand, TRAI's regulations on interconnection, tariff and revenue share have considered LCOs as undesired entities, giving them the barest minimum of revenue share and putting them under the total control of the large MSOs who were not at all involved in the last mile. We are glad that through this consultation, TRAI wishes to know the cost of upgrading a cable connection to a digital broadband connection.

These operators have no resources or incentives left to upgrade the last mile networks that they own and have been maintaining since many years, only because they find I&B Ministry Policies are completely against them. **MIB has no interest in Broadband**. This has resulted in the sector lagging behind.

Ground Reality

We often get bogged down with figures and projections and ignore the ground realities. We have an excellent example of Cable Television industry before us. Here the industry does not chase any targets, rather targets chase the industry. With these 100 million households connected and the numbers increasing every day, it should be a clear indication to the telecom industry that future is only in the video. These are actual user homes covering about 600 million people. Even among the Mobile users, considered to be about 900 million, only 50% are active and because of ownership of multiple mobiles, population affected is much lower than in Cable TV.

The whole process of convergence focuses on delivery of video as that affects a much larger population, both educated and

illiterate. In simple words, all telecom operators want to become cable operators. The very concept of broadband came up only to achieve this. Technologies of 3G, 4G and LTE came up only to compete with triple play capability of wireline networks which are being neglected in our country. Thus it will be beneficial for the telecom companies to shake hands with the cable television industry and deploy technologies that can utilise the last mile connectivity of 100 million households. Co-axial cables are any way better than the twisted pair of telephone to carry a high bandwidth signal carrying video, audio and data.

Our comments on the relevant questions of the Consultation Paper are given below:-

Q1. What immediate measures are required to promote wireline technologies in access networks? What is the cost per line for various wireline technologies and how can this cost be minimised? Please reply separately for each technology.

Comments

We must use all technologies available in the last mile for the purpose of providing Broadband. Cable TV networks already connect 100 million households and government should put in all efforts in finding the right and cost effective technologies to be used in the last mile for speedy implementation.

Since cable networks are small, we should use technologies that can be implemented with indigenous equipment. This will also encourage local manufacture. This is how the cable TV technology flourished in its formative days.

Large international players supply technologies that are prevalent in their country of origin or demanded by developed markets. India should

develop a technology that suits its own environment and industry conditions.

Q2. What are the impediments to the deployment of wireless technologies in the access network? How can these deployments be made faster?
Please reply separately for each technology.

Comments

Nil

Q3. The recommendations of the Authority on Microwave backhaul have been recently released. Are there any other issues which need to be addressed to ensure availability of sufficient Microwave backhaul capacity for the growth of broadband in the country?

Comments

Nil

Q4. The pricing of Domestic Leased Circuits (DLC) have been reviewed in July 2014. Apart from pricing, are there any other issues which can improve availability of DLC?

Comments

Nil

Q5. What are the specific reasons that ISPs are proactively not connecting with NIXI? What measures are required so that all ISPs are connected to the NIXI?

Comments

Nil

Q6. Would the hosting of content within the country help in reduction of the cost of broadband to a subscriber? If yes, what measures are required to encourage content service providers to host content in the data centre situated within India?

Comments

India leads the world as far as IT is concerned. Today many Indian software companies are developing applications for major IT giants. It is very important to focus training in the engineering and technology institutes as per the requirements of the industry. If there is no dearth of trained manpower, industry will utilize it to the fullest, else it will import developed content from other countries.

If the content is hosted in India itself, it will be cheaper to manage it for the industry. Security issues will also be much less. Even the government organizations will be encouraged to use broadband in a much bigger way.

Q7. Are PSUs ideal choices for implementing the National Optical Fibre Network (NOFN) project?

Comments

No. PSUs have failed the government till now. Crores of rupees have been spent on broadband development and technology implementation in telecom and broadcasting sector but results are dismal. The main reason is that there is no accountability. Take for example digitization of cable TV networks. TTBs in millions, we require CAS and SMS and Billing software etc. but nothing was done in developing Indian CAS or indigenous manufacture of STBs. Government departments started

working on these projects only after Industry started implementation. Because of bad planning, we had to depend on other countries for our needs and now we are stuck with this equipment for years because replacements are not easy after networks have already been designed. If PSUs are entrusted with the task, it must be time bound and monitored strictly. Accountability must be ensured.

Q8. Should awarding of EPC turnkey contracts to private sector parties through International Competitive Bidding (ICB) be considered for the NOFN project?

Comments

Nil

Q9. Are there any ways in which infrastructure development costs can be reduced? Is it possible to piggyback on the existing private sector access networks so as to minimize costs in reaching remote rural locations?

Comments

Definitely, we should piggyback on existing cable networks. We should commence implementation on the present setup and then start upgrading the networks for better efficiency. Miles of fiber laid by cable operators in rural areas must be used effectively irrespective of how it has been laid. For example the aerial cables can be used immediately and later we dig them down.

There is also a need to involve state governments as the infrastructure helps them too. At present there is no reasonable terms for the private industry and state governments always wait for the opportunity to make maximum profit by charging unreasonable amount for its services to the

industry. Electric pole charge in cable TV is one such example where cost per pole varies from a few rupees to hundreds of rupees in different states. Such things must be under the control of central government who should lay down guidelines for the states.

Q10. What can the private sector do to reduce delivery costs? Please provide specific examples.

Comments

By sharing infrastructure.

Q11. What are the major issues in obtaining right of way for laying optical fibre? What are the applicable charges/ constraints imposed by various bodies who grant permission of right of way? In your opinion what is the feasible solution?

Comments

Red tapism and unreasonable costs are the biggest impediments.

Q12. Should the Government consider framing guidelines to mandate compulsory deployment of duct space for fibre/ telecommunications cables and space for telecommunication towers in all major physical infrastructure construction projects such as building or upgrading highways, inner-city metros, railways or sewer networks?

Comments

Yes, it will help.

Q13. What are the impediments to the provision of Broadband by Cable operators? Please suggest measures (including policy changes) to be taken for promoting broadband through the cable network.

Comments

Drawbacks of Cable TV infrastructure

1. Fragmented, not organised.

2. HFC networks but no proper layout meeting the standards.

3. Not two way- no return path

4. Only used for video signals for the last 25 years.

5. Mostly Analogue networks. Only 25% migrated partially (only STBs seeded) to digital in Phase I & II of Digitisation.

6. Ongoing Digitisation of Cable TV only helping 'Pay' TV broadcasters. Network infrastructure ignored completely, making it doubtful of the usefulness of present exercise.

Positive side of the situation

1. Telecom networks have organised infrastructure of fiber optic cables for back haul services.

2. Cable operators are operating profitably in these rural areas for the last 25 years earning their livelihood.

3. About 5 lakh people from local areas have been employed in these networks and trained on the job.

4. Telcos are large companies with capacity to invest.

5. Government support through USOF.

6. Cable Networks last mile ready for triple play broadband service with slight upgrades.

7. Cable Operators are experienced in fibre optic networking and maintenance.

8. Cable Operators own the broadband households (Cable TV) and are expert in customer acquisition, day to day dealings, marketing of services and collection of revenue.

The CATV infrastructure is governed by the Telegraph Act but the Telecom Ministry has not so far recognized it as its responsibility. I & B Ministry care only for the content providers, Broadcasters and distribution of content and not the cable infrastructure that is used for distribution.

The result is that **this vast wireline broadband infrastructure, capable of much higher quality and speed in transmission is being wasted out** and wireless technologies like DTH, HITS, Mobile etc. are being given preference because they permit the rich multinational Broadcasters to go direct to the consumers bypassing the cable operators and make more money from the gullible consumers.

Policy Support

Considering the above and for the benefit of the Nation, the following policy initiatives are suggested:-

1. Government should **Recognise/ Identify already laid Infrastructure** and support these LCOs to give Broadband to Panchayats & Municipalities integrating these networks with the Bharat Broadband Network or NOFN.
2. **Encourage LCO's** entrepreneurship skills by guiding them to handle the new business creating a viable business model for them.
3. **Provide technical Education** (can be through local DD engineers in DD Kendras or BSNL/ officials spread all across country.

4. **Financial support** through banks/ institutions and USO Fund.
5. **Tax rebate on Digital equipment** on Import (Telcos get the same equipment duty free).

6. **Promote Indigenous manufacturing**.
7. **Right of way** (Intercity or state). Although Cable TV Amendment mandatory digitisation envisage provision of 2011 for implementing of Right of Way by all State Governments.

8. This will **generate Employment**. Other government schemes like the MGNREGA can be associated with this too in building the infrastructure.

9. Technical education in satellite and cable distribution should be included as a special subject in Technical institutes.

10. One window clearance for laying OFC networks, using

existing Railways, NHAI, GAIL, Municipal Corporations, PWD networks etc.

11. To provide affordable Broadband for consumers provide bandwidth at a subsidized cost to operators serving the rural /underdeveloped areas.

12. Provide incentive schemes for LCO to give good/ efficient services to the consumers.

Q14. What measures are required to reduce the cost and create a proper eco system for deployment of FTTH in the access network?

Comments

Technologies in Cable TV Broadband

MSOs and LCOs are increasingly deploying FTTB or FTTC and moving closer to FTTH, which is the ultimate technology for broadband. Cable TV Fiber is reaching very close to the cluster of customer houses, just 300 to 500 mtrs short of it. These networks are ideal for triple play services. The so-called "Triple Play" service means the convergence of three distinct network services coming together as one integrated service platform; an integrated Information & Communication network of telecom, TV broadcast and internet networks. The main purpose of Triple Play is to share network resources and to avoid extra unnecessary construction. Forming a high speed multimedia platform, that is flexible, low cost and easy to maintain.

As the traditional unicast structure which exists in India for many years does not meet the demand as a basic multimedia platform; government must facilitate building of bi-directional networks. The CATV bi-directional network structure also has 3 layers including core,

aggregation and access. Compared with other broadband service networks, the only difference is the access method. Same structure is used for data services by any type of network including household access, aggregation of data stream and trunk transmission.

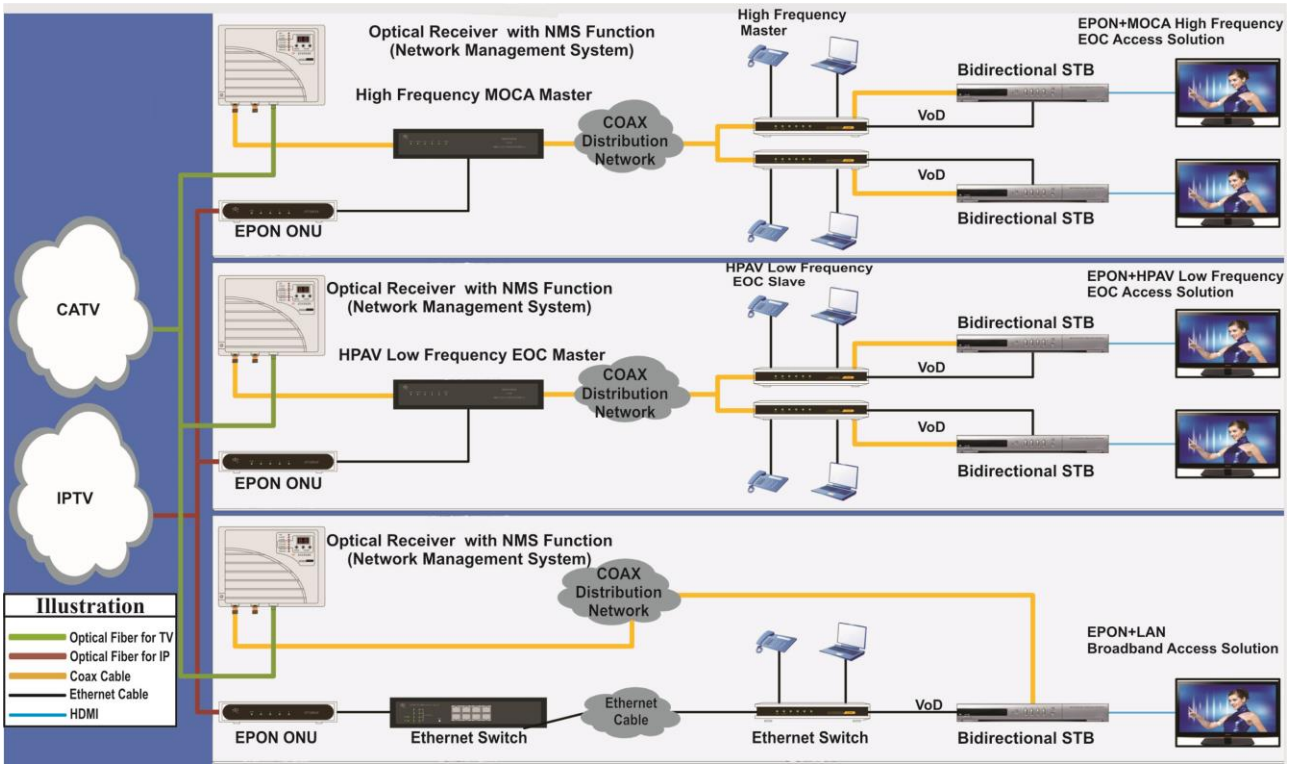
In most of the developing countries like China, Brazil, Egypt, Philippines etc. government policies have been framed to remove all obstacles for CATV operators to enter into the IP service market where only Telecom operators were operating. This helped the cable operators to invest in broadband infrastructure so that they could compete with the telecom operators providing IP&TV and VOD services to subscribers as soon as possible. We also need policies to assist the cable TV industry to upgrade networks for broadband.

There are 3 popular solutions available for converting cable TV network into a broadband network:

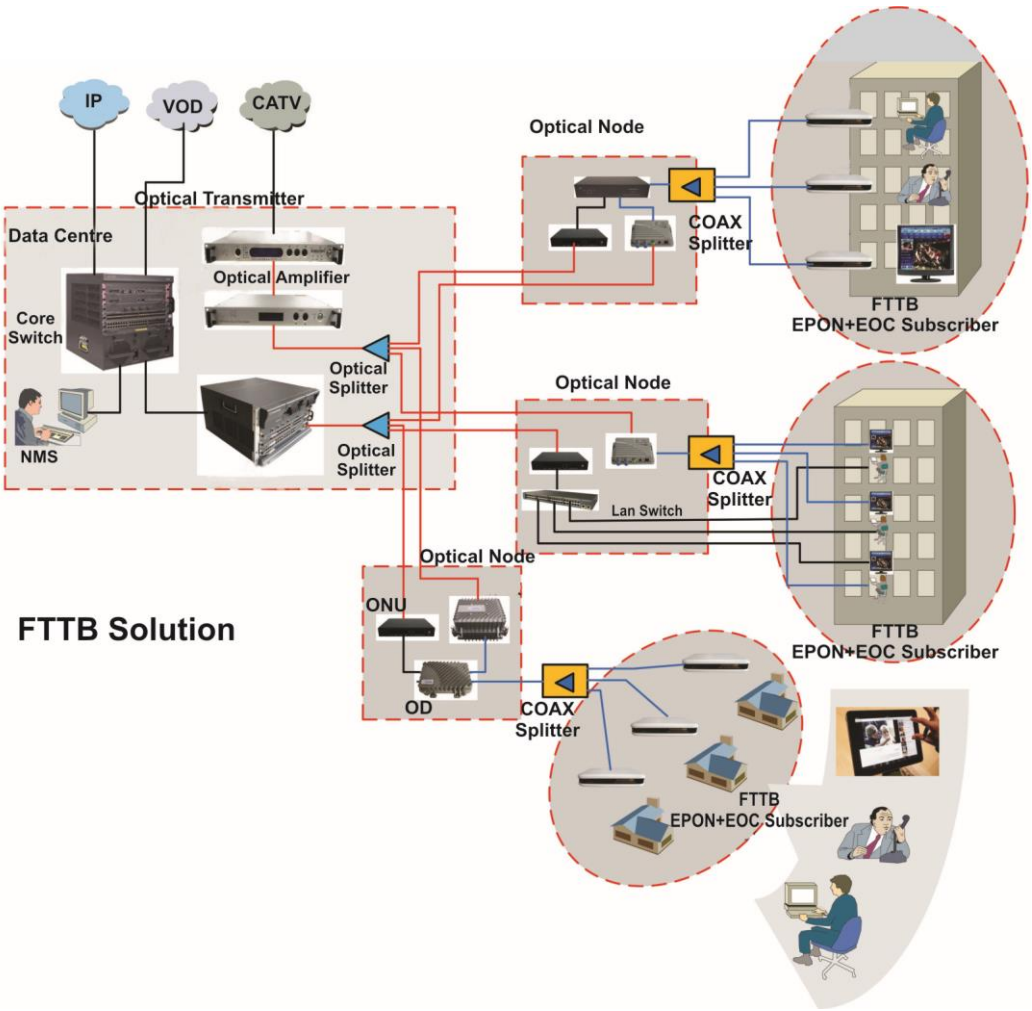
1. **CMTS+CM-** is for DOCSIS and widely exists in the CATV networks in developed countries as it was born early and is a expensive system. **DOCSIS** system is becoming outdated as it is not very bandwidth efficient. The old system (Docsis 2.0) can provide only 30 Mbps of capacity where as the new, DOCSIS 3.0 can provide 100 mbps per channel, but the system is very costly for India and does not suit our outdated cable networks. Some large MSOs are using the old system but only for enterprise use and not in residential use.

2. **EPON+EoC** is ideal for HFC networks where Fiber and co-axial cables are used. It is very cost effective and existing networks can adopt it without much change. Chinese cable networks use this system extensively.

3. **Ethernet switch-** This is the popular access method for UTP cable. Many cable operators use CAT-5 cables in a parallel network to supply broadband to their consumers taking band width from ISPs. Cable operators in rural areas are using this system since many years.



Broadband on Cable Solutions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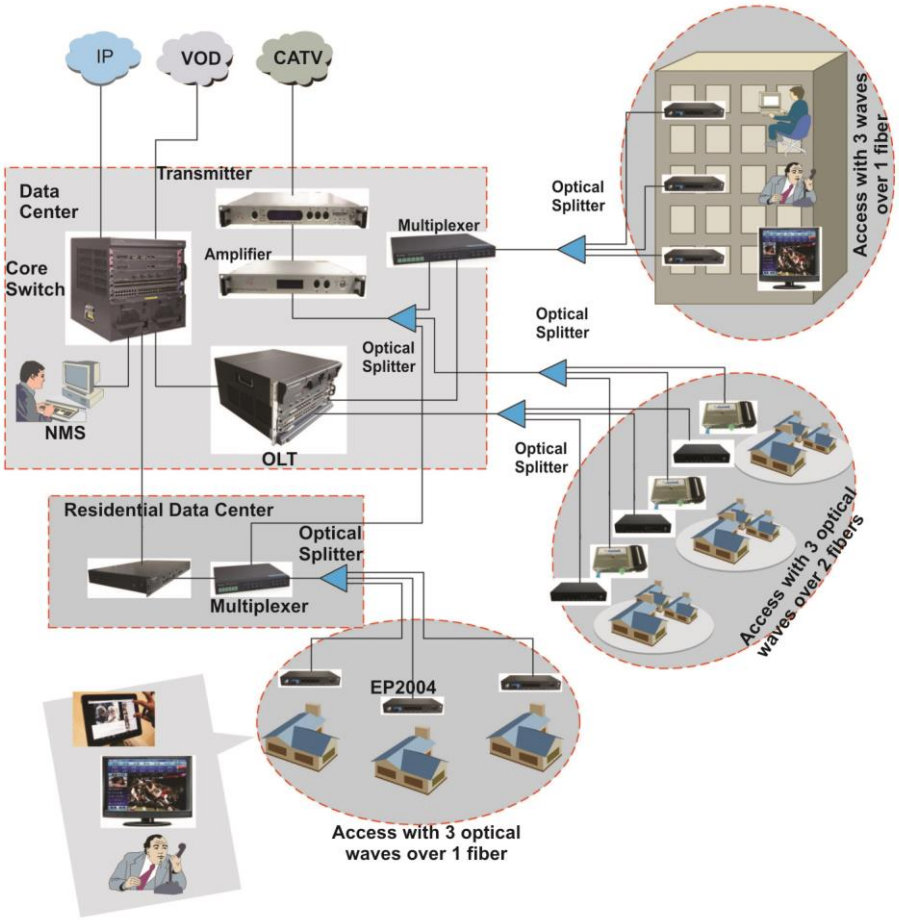

FTTH Solution

IPTV or IP streaming should be encouraged with Cable TV operators in the near future as all cable TV digital headends provide IP output. It is also easy to be integrated with existing telecom networks. Feeding Long distance Hubs from the Headend shall be on IP where cheaper edge QAM modulators will turn it into a one way RF cable TV signal in the same conventional way as the LCOs are familiar with today. As soon as LCOs realize that the money is in two way interactive broadband services, they will prefer an ETTH or FTTH over DOCSIS in any case.

Q15. Are there any regulatory issues in providing internet facility through Wi-Fi Hotspots? What are the reasons that installation of Wi-Fi hotspots has not picked up in the country? What type of business model needs to be adopted to create more Wi-Fi hotspots?

Comments

Nil

Q16. What are other spectrum bands which can be unlicensed for usage of Wi-Fi technology or any other technology for provision of broadband?

Comments

Nil

Q17. How much spectrum will be required in the immediate future and in the long term to meet the target of broadband penetration? What initiatives are required to make available the required spectrum?

Comments

Nil

Q18. Are there any other spectrum bands apart from the ones mentioned in Chapter-2 to be identified for provision of wireless broadband services?

Comments

Nil

Q19. What are the measures required to encourage Government agencies to surrender spectrum occupied by them in IMT bands?

Comments

Nil

Q20. What should be the time frame for auctioning the spectrum in 700 MHz band?

Comments

Nil

Q21. Do you agree with the demand side issues discussed in Chapter 5 and Chapter 6? How these issues can be addressed? Please also indicate any other demand side issues which are not covered in the CP.

Comments

Yes, we agree. Unless demand is created, projects will not be viable. Government cannot force a technology on people. They need to be educated and made aware of the benefits.
Also, services should be affordable to consumers.

Q22. Please give your comments on any related matter, not covered above.

Comments

Drawbacks with our existing Telecom system

1. Made only for voice.

2. Used mobile & wireless for quick/short lived gains. Too much reliance on wireless is dangerous.

3. Last mile of copper is outdated. Maintenance is poor.

4. Broadband speeds are extremely low, both in wireline and wireless networks.

4. Optic Fiber only till the exchanges/BST.

5. Network resources not shared.

6. Over building/Duplicating infrastructure.

7. Telcos not interested as not profit making.

Conclusion

Indian Cable Networks connect more than 100 million households with about 40 million cable TV connections in the rural areas. They serve a population of about 600 million people. Most of the networks are on fiberoptic cables including in the rural areas, each joining many localities and villages. Last 500 mtrs of the networks are on coaxial cables that need to be upgraded to two-way to enable them to provide broadband services.

Co-axial cables can carry 3 GBPS data, much more than any copper cable and it is one step short of FTTH, the ultimate broadband service.

Manpower trained on the job is readily available, working on these fiberoptic – Co-ax cable HFC networks for many years. This manpower is expert in handling day to day problems of the network, working 24x7 successfully providing service to the consumers for the last 25 years, much before even the mobile revolution was ushered in.

Because of this video revolution, we have 800 satellite channels, 6000 MSOs and more tha a lakh cable operators in the country.

Many networks distribute internet service if ISPs on Ethernet networks laid parallel to the cable TV network. Some MSOs are also providing broadband on DOCSIS networks.

Integration of these cable networks with NOFN and private telecom networks can speed up realisation of government's dreams of broadband in every village, uplifting the economy of the country.

Yours Faithfully,

Roop Sharma
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