	Question	Counter Comments from E2E Networks Private Limited Cloud Computing Provider in India	Comments from Corporates	Comments from Associations	Comments from Individuals
1	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.	**The overwhelming response is the lack of uniform way to access RoW via municipalities. Why does it matter what technologies cost what.** **TRAI as a regulator should be agnostic to past, current or future technology or pricing in policy making and instead of leaning on PSUs as they somehow always tend to do, figure out how to foster a free market in High Speed Internet. What we would like to propose is High Speed Internet or Broadband should be charaterised as > 2 Mbps and a Fair Usage Policy of atleast 40 GB before any kind of speed drops happen. With the size of webpages increasing towards > 8 Mbits (1 MB) a 2 Mbps connection would still take > 4 seconds for a first time page load.** **Flat pricing on broadband has been argued by many experts http://www.ashwin.name/papers/bb-india.pdf as a reasonable way to NOT kill demand for High Speed Internet. Wireline High Speed Internet has the potential to significantly improve the experience that most first timers have with the Internet Services.**	Clear and consistent, Single Window, less complex, less expensive, online RoW provisioning with time bound permissions is the major suggestion from all 1. To revise the existing broadband download speed of 512 Kbps to 2 Mbps by 2015 and higher speeds of 20-50 Mbps thereafter 2. Some TSPs like Vodafone believe wireless broadband is the only effective medium to achieve the Government's ambitions of broadband penetration 3. A technology-neutral approach which facilitates both wireline and wireless access networks wireless broadband is the only effective medium to achieve the Government's ambitions of broadband penetration 4. Regulate for equal opportunity to all operators other than BSNL /MTNL for OSP infrastructure set up, RoW grant and allowing shared OSP infrastructure 5. Unbundle OSP plants of BSNL, MTNL 6. Regulate the leasing of Physical media of Copper loops, Dark fiber and Hybrid Fibre Coaxial (HFC) plant assets from incumbent operators 7.. Street side equipment installation permission to TSPs 8. Provisioning of infrastructure and connectivity for wired broadband should be mandatory within the buildings. 9. 'Must Carry' on sharing of OFC network 10. Pooling the unused /spare assets of the private TSPs for faster realisation NOF 11. Building onwers to be obligated to provide rights to lay fiber COST MINIMIZATION: 1. Indigeneous product development and manufacturing 2. Reduce Customs duty and declare Customs Holiday for wireline broadband access infra and CPE. 3. Apart from the above suggested measures, Govt. can also incentivize TSPs in terms of lower license fee esp. in rural India. 4. Nil RoW for promotion of wireline based services.	1. Easing out RoW 2. Incentivizing TSPs in terms of rationalization licence fees etc 3. Unbundling of outside plant of BSNL and MTNL. 4. Sheet side cable installation permission to TSPs. 5. Mandatory broadband connectivity in buildings like water and electricity connections. 6. NOFN should be realised fast by pooling the unused /spare assets of the private TSPs so as to make the supply side bandwidth available in plenty and in much faster time thus making bandwidth at much more affordable rates. COST MINIMIZATION 1. Reduce Customs duty and declare Customs Holiday for wireline broadband access infrastructure and CPE. 2. Get Wireline Infra and CPE to be manufactured in India. 3. Apart from the above suggested measures, Government can also incentivize TSPs in terms of lower license fee especially in rural India.	

	Question	Counter Comments from E2E Networks Private Limited Cloud Computing Provider in India	Comments from Corporates	Comments from Associations	Comments from Individuals
2	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.	**The main impediment is too little competition. By inverting the Free Market by charging a huge license fee upfront only the large corporates with access to leverage are able to play in this marketplace. You need players to first make money here, then only start charging licenses. ISP licensing regime has made the industry one of most retrograde like sugar industry from being one of the most liberal. That is not how you roll out of Internet, what works for voice doesn't work for Internet. You need smaller players who care for their customer base, however small, to roll out Internet services.**	1. Non Availability of sufficient spectrum in Contiguous manner: Spectrum assigned in small and non contiguous chunks - nofeasible for effective deployment of mobile broadband. 2. SACFA approvals: Complex and time consuming 3. Erection of Towers & EMF radiation issue 4. Wireless Operating Licence and Import Licence: Time taking and administrative challenges 5. Non Availability of Backhaul Spectrum: After installation of sites, bakhaul connectivity is needed via microwave, where backhaul spectrum has been allocated by Govt. 6. Custom Duty of equipment used in installations: Though it has been done to promote domestic manufacturing, Indian ecosystem is still is very nascent stage. 7. Power Connection: To TSP/ISP on a prioirty basis within 15 days on application 8. Licence fee: To be reviewed and rationalised, right now in too high 9. Consolidation: unsustainable with too many players (7-8) in every circle. alleviate the problems that network operators are facing in terms of investment 10. Some ISPs like Citycom believe Wireless will require very large deployment of sites to build a complete access network catering to large Indian Urban population and this will result in high interference of signals, it enhances harmful radiation and the deployment of many wireless towers is also deteriorating the urban aesthetics. 11. ISP license fee should be reduced especially for the rural / remote areas which are considered non-viable 12. Unlicensed spectrum is highly congested. need for assigning more than 200MHz in unlicensed band for Wi-Fi applications 13. Wastage of spectrum for inter operator gaurd bands 14. Immediately allow spectrum sharing and trading to enable optimal utilization of spectrum. 15. Availability internationally harmonized spectrum bands through large contiguous blocks. 16. Optimize spectrum pricing framework. 17.Policy for allocation of Microwave RF carriers including the release of E-band.	TRAI Regualtions like the licence distribution and dissimilar situations prevailing in the market along with the high licence fee, which is 8% - shows TRAI is favoring few exclusive operators.	1. Large distances of about 30 kms over vast open tracts of land in rural areas, whereas the allotted spectrum frequencies for 2G/3G/4G mobile can service only a fraction of these distances 2. Allot specific frequency bands in the spectrum in rural areas like sub-GHz band 3. Insufficient capacity of licensed spectrum bands (acquired at high fee) leading to a need for large number of base station cell sites, resulting in higher costs of delivery of service 4. Insufficient business reasons for TSPs to promote WiFi deployment using License free spectrum bands instead of paid access to mobile internet which increase their revenue 5. Municipal should undertake Municipal WiFi networks
3	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?	**Apart from the situation of a mere 20%-30% International fiber links being lit up, the problem is far more pronounced in the backhaul/NLD marketplace. Demand side growth would fix it in the longer run. Like Diesel, it should be de-controlled completely, in the short we might see some wink wink nod nod cartelization but a strong market regulator (TDSAT) should be able to break it by finding where price discrimination going out of hand. Currently everyone seems to sell at upper limit imposed by TRAI without even bothering to find out the costs. If microwave is competitive in certain geographies it would find its place.**	1. Citycom believes optical fiber backhaul will be a cost effective, reliable and more scalable backhaul network as compared to Microwave. 2. VNL recommends that the unused frequency bands in 5.8 GHz may also be unlicensed for Microwave Backhaul for rural & remote areas 3. Vodafone says the recommendation for the price to be charged for the MW backhaul costs is very high 4. SSTL believes there is a inequitable distribution of MW access spectrum on 15 GHz band. Early entrants hold large number of carriers, giving them unfair competitive competitive advantage 5. E-band and V-band spectrum should be license exempt	Apart from licensed user, 200 MHz of frequency band in 5.8 Ghz should be provided in unlicensed band, which is available but not being used	

	Question	Counter Comments from E2E Networks Private Limited Cloud Computing Provider in India	Comments from Corporates	Comments from Associations	Comments from Individuals
4	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?	**Yes. The pricing should be decontrolled and AGR get rid of. The wireline ISPs should nothing else to the government after paying for RoW/Service Tax and Income tax like everyone else. Just because a license exists, doesn't mean that you need to tax it. It is retrograde.**	1. Citycom says that revised recommendations for DLC prices in July 2014 are still way above the currently operating prices 2. There is no pass through adjustment provided for the AGR calculation on DLC or NLD revenues. We recommend that the AGR should be re-defined and given the pass through benefit to avoid double levy. 3. Vodafone recommends to enable a policy framework leading to higher competition in the DLC segment leading to market driven pricing and thereafter the tariffs should be under forbearance. 4. Uninor highlights following challeges in procuring leased lines from other TSPs: i. Cross Connect – In present scenario, Carriers are not allowing Cross connect between their MuXs at their premises resulting in to big challenge and if they are at all allowing us in some exceptional cases, demanding huge cost for the same. ii. Dark Fiber - Currently, there is no regulation on leasing Dark Fiber iii. One time charge (OTC) - Although these cost are already inbuilt in the end-to-end leased line ceiling tariffs prescribed by TRAI, however these are charged on case to case basis 5. TCIL and Idea Cellular believe Infrastructure pricing should not be regualted and should continue under forbearance. DLC market is already very competitive, no need to regulate 6. Reliace Jio mentions deployment of Access Network is most capital intensive element of telecom infra. Hence regulation to make obligatory for all service provider who have capacity of copper, fiber or wireless and allowed to provide DLC, to share it with other providers		DLC over ultra high Microwave frequency (60GHz and near about) can be an innovative media in the urban areas, especially where there are tall buildings. TRAI's pricing method not in sync with market mechanisms Infrastructure from PSU's are lying underutilized due to high price slab from TRAI ISPs should be allowed to pass thru cost of DLS in their AGR. so that there is no double levy

	Question	Counter Comments from E2E Networks Private Limited Cloud Computing Provider in India	Comments from Corporates	Comments from Associations	Comments from Individuals
5	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?	**1. NIXIs do NOT operate out of carrier grade datacenter facilities. 2. Cost of local leased circuits to get to the NIXI isn't cheap, see pricing de-control required above. 3. NIXIs connectivity suffers from brownouts which are un-acceptable for any kind of consumer grade destination sites. As per our sources, Mumbai NIXI works well but other NIXI's including the one at Delhi are like step children. You need 100% up or 100% down to connect reliably with networks. If a network is degraded at NIXI it should be completely shutdown. Ways and means should be figured out to make a free market come up and work at NIXI instead of mandating economics for ISPs big and small. Eventually companies should work in enlightened self-interest. There would need to be hand-holding and some culture development required here. For e.g. invite SNIP communities in each of NIXI's regions to have a monthly meeting where the working of NIXI is explained and NOC engineers form relationships critical to exchange operational information during downtimes/brown outs and help out each other faster. All the local APNIC/IRINN membership lists can be used to figure out who to invite at meet around NIXIs. 4. The big ISPs do NOT maintain enough redundancy for connectivity to the NIXI. For instance a large ISP connecting to the NIXI-Delhi has 2.4 Gbps consumption on the 3 Gbps capacity leaving nothing at all for redundancy resulting in periodic brown outs since so long that every NOC in Delhi knows where the problem lies. 5. The data-transfer differential concept needs to be done away with. Allow sale of transit bandwidth via NIXI, free market shall force appropriate solutions to the usual problems faced currently. If an ISP needs one redundant fat pipe to the local NIXI and is able to buy everything they need under one roof it would allow lowered costs for everyone. The neither here nor there approach doesn't work.**	2 different views here: 1. Connectivity cost is high even though very little traffic is catered through NIXI, Nixi nodes are not optimally located for ISP to reached, and there are membership limitations 2. Aim of NIXI is not direct connectivity btw the ISPs rather to interconnect ISPs that are not directly connected. Thus no need for all ISPs to connect to NIXI. Connecting to NIXI is a financial decision left with the ISP in view of cheaper connectivity/peering with Tier I ISPs	It is a hidden agenda of the Mobile operators & the few companies who does not want NIXI to flourish, as, if all connectivity is made through NIXI, there Mobile operators would not be in dominant position.	All entities with ASN should be allowed to connect
6	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?	**Yes, it would drastically improve user experience but as explained in counter comment for Ques 5 the network operators need to do a whole lot to help improve the experience of end users significantly to make India a destination for Content/Applications. Right now pointing issues in network under someone else's control requires you to find a customer to raise a ticket. That is NOT something that happens in network administration communities across the world. People reach out to help out each other and the country benefits as a destination for cloud/datacenter services.**	Consensus that this will bring the cost of international bandwidth down and improve QoS by reducing latency. Govt has to help build more datacenters. Major factors affecting data centre creation in India: I. Cost of Internet bandwidth which is attributed to following two factors: a. Cable landing charges b. 2-3 major players who own the cable landing stations in India resulting into less competition II. Rising cost of real estate and power in India III. Licensing for managing large data centres also needs to be regularized. IV. According to Cushman and Wakefield recent study India is ranked 29th in the global list of setting up data centers in India. Considering this India is 2nd riskiest country in the world to setup data center V. Regulatory flexibility and long terms policy stability are other concerns: Hosting of content is a non licenced activity but undertaken by both licences TSPs and non licenced operators. Hence TSPs pay a licence fee at 8% of AGR for hosting but other players don't		Regulate content in a way that opens up the very architecture of end devices and set top boxes, to themselves act as content distributors Policies to encourage companies to build Data Center Parks in India by providing them land, infrastructure, and, power on the lines of SEZ's and Industrial parks

	Question	Counter Comments from E2E Networks Private Limited Cloud Computing Provider in India	Comments from Corporates	Comments from Associations	Comments from Individuals
7	Are PSUs ideal choices for implementing the National Optical Fibre Network (NOFN) project?	**The horror of the question is not even fathomable here. There is NO requirement of a "NOFN". What purpose is it intended for ? What we need is the hard work and consistent help in creating operational free markets and fostering communities where the small entrepreneurs with no money in the pockets can thrive by selling something people need. The big initiatives need to go into areas like Law and Order, efficient delivery of subsidies to end users.** **The damage that BSNL and MTNL did the the ISP marketplace is why we are in this mess today. The Rs. 250 plan for broadband from BSNL with extremely crappy user experience is what depressed the demand side for many many years to come. The year of broadband was the year 2007 in which the broadband was buried for years to come by killing off pure-play ISPs and going from the benign licensing regime to a regime where only the very large companies or liasoning businesses exist as ISPs.**	General view here: PSUs to be replaced with consortium (PPP model) having several telecom service providers (who would be the end users of the connectivity provided by the NOFN) along with the government representation Though some believe PSUs are the ideal choice for implementing the NOFN project considering their experience and competence	No, In EU State Aid Rules, provision of public funding for broadband infrastructure projects requires a commitment to open access. The related guidelines consider open access to mean effective, transparent and non-discriminatory wholesale access to the subsidized network. In addition to open access obligations, the conditions for receiving aid include detailed mapping of private infrastructure, open tender processes, technological neutrality and claw-back mechanisms (OECD, 2013). These safeguards seek to promote competition while fostering rapid roll-out of broadband networks.	Yes
8	Should awarding of EPC turnkey contracts to private sector parties through International Competitive Bidding (ICB) be considered for the NOFN project?	**You should discard the NOFN project it is a hare brained idea of fostering more bureaucracy. There is enough fiber in the ground today in India use it where e-governance or SWANs or other government bodies need it.**	In addition to last response: 1. The incentives to private players to provide last mile access and deliver services in rural areas as of now are absent in the NOFN scheme. The project execution skills of private sector and SPVs of Government of India which have impressive past track record in executing large infrastructure projects should be leveraged through ICB. 2. The international bidding should only be allowed at the stage if in any case, the demands are not met by already available resources in the country. Rather the existing TSPs capabilities should be fully used and exploited to its full potential as first priority for these type of projects. 3.	Stiff non-performance penalty clauses in the contracts	At this stage, inclusion of private operators / contractors (National or international) leads further complicating the present progress of NOFN
9	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?	**Yes. Make GIS information available for a reasonable cost. Entrepreneurs would pop up at the un-likeliest of places and get things done as long as they don't need to deal with slow bureaucracies trying to obtain telecom licenses designed only for large leveraged corporates. With a subgrade financial sector do you think it would be better for small entrepreneurs to spend the money in a Fixed Deposit so that they can obtain the Performance Bank Gaurantee or invest that money to actually improve performance. I fail to see the reasoning behind the hard work to distort a marketplace when a lot of ISPs were down in dumps. Which regulator works hard to shoot at businesses when the morale is down.**	Infrastructure sharing	Use mobile wireless access in rural areas, Government can also incentivize TSPs in terms of lower license fee especially in rural India.	
10	What can the private sector do to reduce delivery costs? Please provide specific examples.	**They are already doing what they can. But they exist to make a profit. I am not sure what is the intent of this question. If you want to create incentives for private sector to reduce delivery costs help increase volumes by getting more investment (not just money but brains).**	Sharing of recourses is the key. Between private and govt players should be encouraged. Optimum and maximized usage of unbundled resources and solving all the pending issues of simplified, single window and very low priced right of way end to end are very important aspects Broadband services provided by the PSUs in the rural areas may be subsidized initially till the rural market becomes viable		by increasing competitive avenues

	Question	Counter Comments from E2E Networks Private Limited Cloud Computing Provider in India	Comments from Corporates	Comments from Associations	Comments from Individuals
11	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?	**Individually all the comments make sense. No easy answers here but allow reselling of RoW similar to TDRs, think out of the box to figure out if there can be a free market solution to this mess. Power Distribution Companies, BSNL, MTNL, LNG, any of the players whowever already has RoW figured out should be encouraged to re-sell it in the way they see fit.**	The pricing across municipalities is arbitrary and is decided at individual considerations of these bodies without taking into account the economics of broadband business. None of these bodies have standardized and transparent process for issuance of ROW. single window approach for securing permission for ROW defining clear responsibilities of the authority in legal terms. For this, necessary legislation must be made. Multiple stakeholders. Each location, each “mohalla” in India has people staking claim to being competent authority from whom permission is required.	No major issue related with ROW for laying fiber. All industries pay same percentage of taxes. Telecom is no different.	Utilization of “Over Head Optical Fibre Cable on Electrical poles going to GPs, i.e. villages” instead of digging & laying plastic ducts, will reduce the cost of the project due to reduction of ROW, no need of purchase of plastic ducts
12	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?	**In agreement with the entire commentary here. In addition create incentives for people to resell ducts on their RoW. Make it mandatory for town planners to create carrier neutral duct space.**	Ranking System for Buildings: Buildings with broadband to be ranked better Mandatory in new builings Power Distribution Companies (Discoms) to build own high-capacity optical fiber network and offer it to the service providers at transparent TRAI regulated prices for leasing optical fiber. NHAI should be mandated to create a high-capacity (500+ fiber strand) NLD network along the highway and make the same available to service providers on an annual lease or IRU basis on cost plus model Overhead OFC: The permission to install overhead fiber would be another enabler for ISPs Installation and operational maintenance of overhead fiber is far cheaper than that for buried OFCs.	Mandating all builders to compulsory include laying/deploying of fibre optic lines in all new buildings Existing buildings can be mandated to complete deployment of fibre line access to each house within a certain time frame Service Providers to be given neutral access to provide broadband access to the households on this infrastructure.	e.g. 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
13	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.	**It would be counter-productive to lean on cable operators as Mr. Padukone suggests. Either they would evolve standards on their own or they die at the hands of Chromecast like devices in the future. We need to creative destruction play out. Where it makes sense for them to sell Internet (provided the licensing regime is made liberal again) they would replace the STBs and upgrade infrastructure on their own (provided there is commercial viability).**	The current deployment of Cable TV (CATV) networks would require complete replacement of the fibre as the current technology does not permit two –way communication which is required for broadband. Cost of upgrade is too high		R. N. Padukone: Mandate Open Set-top-box (STB) which can access broadband Internet from any Service Provider – landline, 3G or 4G operator, or for that matter, from that of the cable operator himself, with options to connect through LAN or WAN connectors

	Question	Counter Comments from E2E Networks Private Limited Cloud Computing Provider in India	Comments from Corporates	Comments from Associations	Comments from Individuals
14	What measures are required to reduce the cost and create a proper eco system for deployment of FTTH in the access network?	**Agree with Citycom's comment here. Also would like to re-emphasise technology neutrality aspect.**	1. Citycom: De-emphasize the importance of FTTH as the current trend in most developing countries is to access the Internet on mobile devices. This is consistent with the principle of technology neutrality. The government's focus should be on backhaul. 2. Other ISPs: Optical Fiber networks to be given the status of essential services by including this into essential services maintenance act. Share the existing Fibre backbone infrastructure among all operators in a non discriminatory manner. A partnership venture (which shall include power companies as well) shall be established made with pooling of all resources. This venture then takes on new installation wherever necessary. Permission to dig for purpose of laying fibre shall be freely granted especially on those roads where there is already a plan to redeveloped. Present cost structure for laying fibre connecting individual households is not cost effective. One approach could be common infrastructure utilized by multiple providers. This infra can be shared with multiple service providers for giving FTTH service to end customers to bring in competition. This project ideally should be run by an independent infra provider preferably from private sector		
15	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?	**Yes simply clarify that it is government's policy to encourage free Wifi-hotspots and incubators/coffee shops/restaurants/hospitals/municipalities/households, whoever wants to offer Wifi hotspots or wired broadband at their premises or even Internet Kiosks should be able to offer them as long as they have universal means to log the IP connect logs for a period of 15 days and record a valid mobile number. And that there is no further licensing requirement of any sort for doing this and no further rule-making/guidelines etc. shouldn't be allowable except whatever 3rd parties as defined by IT Act should follow. The goal should be ubiquitous access, the chaiwalla on the road is NOT trying to get into the ISP business, he simply wants his guests to have Internet access while they have Chai pe charcha. Please don't make him sign up forms and paperwork.**	1. Providing the last mile connectivity in an office or home or even in a public area through Wi-Fi does not imply that the Broadband provisioning technology is Wi-Fi. The underlying technology will be either the Licensed Wireless Access technologies or the Wired Access 2. One of the issues for not picking up the Wi-Fi hotspots may be the congestion of unlicensed spectrum for which more than 200 MHz spectrum may be assigned in the unlicenced band. 3. Idea says that wifi hotspots operate in unlicensed spectrum bands, increase in such hotspots is likely to cause interference and result in QoS issues 4. Sterlite points out that Free band possess lots of interference challenges, Radio signals are susceptible to jamming and interference, Lack of security due to protocol vulnerability and lack of end to end ecosystem for central authentication, Limited mobility support, Issues in handoff and roaming, Painful login and authentication process flow as the standards for seamless authentication and discovery still evolving	Largest ISPs are also the telecom operators, whose interest lie in promoting Mobile internet access, which fetches better revenue on data usage. Hence, setting up of WiFi hotspots by them has been a lower priority even though they are setting up more such hotspots lately.	1. Government should permit entrepreneurs to setup hotspots without requiring a Cat A or Cat B ISP license. Instead, a special hotspot operator license can be granted at a nominal fee (say 1000/-). A franchisee is to permit homeowners and other individuals to share their surplus internet bandwidth like Airbnb
16	What are other spectrum bands which can be unlicensed for usage of Wi-Fi technology or any other technology for provision of broadband?	**Agree with all the comments here except Idea**	1. Citycom: Existing unlicensed spectrum in 2.4GHz & 5.8 GHz should be enhanced by 200 MHz to accommodate expanding requirements of Wi-Fi in urban and rural areas 2. VNL: at least 200 MHz frequency Band may be unlicensed in these bands for Wi-Fi in rural & urban areas 3. Uninor: We should align ourselves with ISM Bands. In 5.8 GHz band only 50 MHz have been de-licensed 4. Tata Teleservices and Reliance Jio: De-licensing and subsequent provisioning of newer bands like 60 GHz for deploying WIFi access shall aid faster broadband deployment. 5. Idea Cellular says We do not agree to unlicensed spectrum being made available for wireless broadband services. Any operator wishing to provide commercial service that requires use of spectrum would have to be subject to the same rules and regulatory principles of spectrum allocation that have been currently defined and followed by the policy makers. De-licensing some bands also leaves a significant loophole to be exploited because similar services would then be provided by one set of operators at zero or no regulatory cost while another set would be loaded by license fee and spectrum usage payments. This could create serious competitive distortions.		The TV White spaces in multiples of 8 MHz in the UHF band from 400MHz to 700MHz remain unutilized after the advent of digital/cable TV

	Question	Counter Comments from E2E Networks Private Limited Cloud Computing Provider in India	Comments from Corporates	Comments from Associations	Comments from Individuals
17	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?	**Agree with Citycom and all other commenters who have listed out various spectrum options. To meet the targets all spectrum bands that can be made available should be made available and should be primarily un-licensed or licensed under much simpler rules and a much lower base price.**	1. Citycom: Optical Fiber is the right technology for increase of broadband penetration at the desired speeds of 2 Mbps and going upto 50 Mbps or higher 2. Vodafone: sufficient amounts of spectrum suitable to broadband should be auctioned at reasonably low reserve prices. Flexible radio frequency management - including for spectrum trading, leasing, frequency sharing and pooling arrangements, subject to competition law oversight. - Clarity and resolution on the disputed renewal terms provided in existing licenses. - Extended license duration – spectrum usage rights that more closely replicate ownership rights lead to high levels of investment (e.g. 30 year term) 3. Tata Teleservices: 200 to 250 MHz would be desirable for a true Digital India 4. MTS SSTL: Urgently carry out harmonization of spectrum in 800, 900, 1800 and 2100 MHz for wireless telecomm and allocate. As India has high subscriber and concrete density, each TSP should have at least 1 carriers of IMT Spctrum of 2 * 10 MHz channel width or 2 carriers of 2 * 5 MHz width 5. Reliance Comm: a total of 40 MHz per TSP is the ultimate need for a true 'Digital India' and Wireless BB India to be a reality for the Top 6 TSPS in India. 6. Idea: entire 2*60 MHz spectrum in 2100 band should be assigned to 3G services		1. In the UHF band, about 64 MHz (8 slots of 8 MHz each) can be unlicensed for the free use of the rural citizen
18	Are there any other spectrum bands apart from the ones mentioned in Chapter-2 to be identified for provision of wireless broadband services?	**In agreement with all the commenters here.**	1. VNL. For fixed point to point and point to multipoint wireless solutions, possibilities may be explored in various frequency bands for higher bandwidth assignment. 2. Vodafone: No, the focus should be to clear and release to mobile operators the full assignments that are used internationally for mobile broadband services and supported by major manufactures and affordable devices – namely, 700, 800, 900, 1800, 2100 and 2600 MHz. 3. Uninor, Reliance Comm, Tata Teleservices a. 470-698 MHz – This band is already having a co-primary allocation to the mobile service in the Asia Pacific region. This band is essential to provide widespread mobile broadband access, especially inside buildings and in rural areas. b. 1427-1518 MHz – This band provides an opportunity to identify a harmonized mobile broadband identification to meet medium term mobile broadband requirements for additional capacity and coverage. c. 3400-3600 MHz – This band has already been identified for IMT in India as well as by few other major countries in the Asia Pacific region This is a good spectrum for areas of high population density.		
19	What are the measures required to encourage Government agencies to surrender spectrum occupied by them in IMT bands?	**In broad agreement with Mr. Padukone.**	1. Compensate for purchase, installation & commissioning cost for alternate equipment through spectrum fund. 2. Prescribe timeline for replacement and surrender of spectrum in the IMT band. 3. Alternatively compensate for fibre connectivity to premises from nearest transmission hub. 4. VNL: Spectrum assigned to Defense agencies in critical frequency bands such as 698-806 MHz, should not be asked to surrender as that are being for utilized for national security applications. 5. MTS SSTL: Fully compensate losses on account of migration from the auction proceeds 6. Reliance Jio: Clear timeframe for vacation, Incentivize agencies to quit, Penalty to those who dont		R. N. Padukone: Fair usage of spectrum is to be determined. If any government agency falls short of meeting the required criteria, it should have a mandate to relinquish the spectrum

	Question	Counter Comments from E2E Networks Private Limited Cloud Computing Provider in India	Comments from Corporates	Comments from Associations	Comments from Individuals
20	What should be the time frame for auctioning the spectrum in 700 MHz band?	In agreement with the comments here	1. RComm: Auctioning only after: a. Availability: As per WPC out of the 2*45 MHz, only 2*15 MHz has been assigned to defence and balance 2*30 MHz has been planned to be assigned for the IMT services. It is requested that complete 45 MHz should be made available for the mobile broadband usage. b. Eco-system: Secondly, the operators will only be able to use this spectrum efficiently once the eco-system for this band is developed globally. As per GSA report, at present only 7 operators have commercially launched LTE services using APT 700 (700 MHz) spectrum known as 3GPP band 28. 2. Vodafone: LTE ecosystem in 700 MHz band is still under evolution due to which we anticipate that mass market ecosystem for LTE spectrum auction is likely to be in 2016. 3. Uninor: roadmap for 700 MHz should be released in the next two years, starting with a study of the device eco system, followed by consultation on technical interoperability and finally the spectrum valuation and auction. 4. TTSL: multiple band affordable devices may be available by 2016-17, so that could be the appropriate time. 5. MTS SSTL, Reliance Jio and Tata Comm: band is completely vacated by existing users, ecosystem for this band is developed globally		

	Question	Counter Comments from E2E Networks Private Limited Cloud Computing Provider in India	Comments from Corporates	Comments from Associations	Comments from Individuals
22	Please give your comments on any related matter, not covered above.	**1. Citycom has just described 99% of the IT outsourcing companies, SAAS,PAAS, IAAS, Hosting including shared hosting, Startup incubators, Content Delivery Networks (CDNs) who rent servers or colocation space in datacenters India and run their online businesses and clubbed them along with illegal Internet Service Operations of some local cable operators in places where law and order is weak.** **2. CDN, Hosting, Colocation, Cloud computing including Infrastructure as A Service (IAAS), Software As a Service (SAAS), Platform as Service (PAAS) players and a lot of customers of Internet Service who run their own captive datacenter services for banks/enterprises/consumer online and provide access to these services via Internet and obviously pass on the cost of this Internet access to their end customers bundled along with other costs like power, managed services, software, intellectual property produced inhouse include server management processes/IT automation tools etc.** **3. All of these online businesses cannot and do not provide Internet as a service to their customers but are themselves end users of internet services.** **4. It would be rich if electricity distribution companies also claim that cloud computing/colocation/datacenter business is essentially bundling a lot of electricity into their products and should now require power distribution licenses.** **5. Arguably what everyone should be arguing is how to make all licensing benign or non-existent where no "scarce" spectrum is involved. The intermediary duties as per IT Act involve sufficient incentive to facilitate lawful interception and cooperation with law enforcement agencies as and when demanded via due process by all ICT service providers.**	Citycom: B. Government Failure to crackdown illegal and unlicensed internet service providers A. There is widespread proliferation of various types of companies, such as dedicated server hosting providers, shared hosting companies, datacenter colocation service providers, hotels, Local Cable Operators, selling internet bandwidth without ISP license. B. Government has failed to crackdown on the above activity. C. However, licensed internet service providers continue to bear exorbitant regulatory and security compliance costs and levies. D. This also leads to revenue loss for the Government of India and increases the security risks to the Indian citizens E. Recommendation: Proactive monitoring and crackdown of companies providing unlicensed internet services illegally under various “bundling” garbs and outright sale on their website as “Data Transfer”, such as Hotels, Motels, Hospitals, Web Hosting companies, Dedicated Server Hosting companies, Cloud Hosting companies, etc.		