

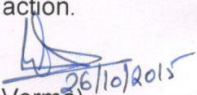
F.No.16-28/2009-DL/TEL
Government of India
Ministry of Human Resource Development
Department of Higher Education
TEL Division

216-D, Shastri Bhawan,
New Delhi, dated 26.10.2015

OFFICE MEMORANDUM

Subject: Minutes of the meeting of 'Domain Expert Committee on Connectivity Networking, Communication & Bulk Storage Servers' (DEC), constituted by MHRD vide its order issued on 1st January, 2015

The undersigned is directed to enclose herewith a copy of minutes of the meeting of 'Domain Expert Committee on Connectivity Networking, Communication & Bulk Storage Servers' (DEC) held on 26th September, 2015 at 11:00 A.M. in Conference Room No.-112, C Wing, Shastri Bhawan, New Delhi for information & necessary action.


(K. D. Verma)
Under Secretary (TEL)
TEL No. 011-23073582

To,

1. All Members of Domain Expert Committee
2. DG, ERNET

Copy to:-

1. PPS to AS (TE)
2. PPS to JS (TEL)
3. PS to Director (TE)

**Domain Expert Committee on Connectivity, Networking, Communication &
Bulk Storage Servers (CNC&S)**

Minutes of the Meeting

The second meeting of the Domain Experts Committee (DEC) on Connectivity, Networking, Communication & Bulk Storage Servers (CNC&S), was held at 11:00 a.m. on 26th September 2015, at Shastri Bhavan, New Delhi to discuss establishment of 'Wi-Fi Hotspot, Campus Network at Central Universities (CUs)'. List of Members, who attended the meeting, is at Annexure-I.

Education & Research Network (ERNET) made a presentation on the subject explaining the architecture and features of the proposed project. They have also presented the estimates of the project for each university based on the actual field survey done by the experts deployed. Further, the following are the features of the project, which proposed to establish wi-fi connectivity and Hotspots using a system that is Resilient, Secure, Highly available, Scalable, Flexible. The features of the proposed system are:

- a) Design Philosophy and features of the Hotspot / Wi-Fi enabled Campus Networking at CUs, which is based on Modular Network design with Tiered hierarchical architecture.
- b) The Hotspots cover areas that are frequently used by students & Academicians, such as Academic Block, Library, Hostels, Canteen etc. for accessing the Campus Network.
- c) **Network Architecture:** The proposed Campus Network shall be based on a 2/3-Tier architecture. The network has been divided into: (a) Core, (b) Zonal/Distribution and (c) Access Layer. The Network Core and Distribution layer Connectivity is 10G and the Access Layer Connectivity is 1G. The Network has been designed with adequate redundancy at all levels. The Wireless Infrastructure, providing the Hotspots / access, is based on a centralized controller based architecture providing centralized management. The Wireless Access Points can be provisioned for the end user access.
- d) Care has been taken to utilize the existing network infrastructure wherever possible, to extend the proposed Wi-Fi solution, subject to their technical feasibility. However necessary solution has been proposed for the Upgrade / replacement of the existing network in campus, wherever the existing equipment that is available is aged, older technology, technically incompatible, or is not supportable otherwise due to obsolescence.
- e) Indoor and Outdoor Wireless Access Points (WAPs) have been proposed depending upon the requirements of respective university campus.
- f) Centralized Network Management System (NMS) solution has been proposed for every university campus. Besides, adequate security solution has been

incorporated in the proposed design for each university campus. Structured cabling guidelines are to be followed for the passive cabling.

- g) Security: Wi-Fi shall follow Access Point (AP) authentication through a Centralized Wireless Controller enabling Detection of Rogue / Ghost Wi-Fi Apps. The user / client authentication can also be used to create SSIDs for different user Groups, definition of Rule / Role based access groups (Faculty, Students, Guest, Vendors), Password based access (regular users and Guest Login). At Network level the campus shall have 'Firewall & Intrusion Protection System (IPS)'.
- h) Network-ready personal computers, regulated power, conducive operating environment, air-conditioning, access to site, site readiness and all other related but necessary devices / applications / services, power outlets with earthing etc., which are not in the scope of work, will be made available by the University.
- i) Internet connectivity & bandwidth will be made available to the University via National Knowledge Network (NKN), as envisaged in the erstwhile NMEICT report. LAN outlets would be laid only for Wi-Fi access points (WAP) to connect with the campus network. For other campus-wide LAN access convenience, the Universities are expected to make their own arrangement, as it is not part of the scope of this work.

Deliberations & recommendations by the Members

Deliberations took place on Technology adopted, budgeting, management on programme implementation, timeline, monitoring mechanism on implementation, process of scaling the 'Campus Connect & Wi-Fi' to universities & Colleges. The following observations have been made:

- a) Wi-Fi connectivity shall not be limited to access to internet only. It is actually creating a knowledge ecosystem, which enables collaborative functioning of various entities in the campus and across campuses through NKN. It shall enable functioning of intranet within the campus and participation in subject-specific grids established by NKN.
- b) There shall be a network administrator empowered to manage and administer access to Internet sites through their IP / URLs, and also monitor the usage by stakeholders after Identification (ID) and authentication. The university shall have a team that can run the system on a 24X7 basis. ERNET shall have a provision for training such team.
- c) There shall be servers in each university which shall use the network for providing Campus services covering (a) Generic services such as e-mail, DHCP, LDAP and (b) Specific services, Compute services and Mapped IP services. Besides, limited number of servers to be made available for campus wide ERP services or equivalent as well as compute services for teaching and R&D. The suitable servers shall be included in the design and in Bill of Material by the ERNET.
- d) NKN, as a part of their program, shall provide a Secured Network Access System (SNAS) and an Integrated Threat Management Access (ITMA) system. The committee felt an equal and urgent need to finalize on Central Cloud system that

is located in NKN and connected to Fiber Network established under NKN and connected to CUs, so as to enable smooth content flow up to Wi-Fi, through the Campus Network at Universities.


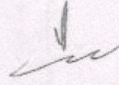



- e) All universities should be directed by the MHRD to acquire a valid Customs Duty Exemption Certificates (CDE) from Department of Scientific & Industrial Research (DSI R) and use the CDE for import equipment wherever applicable in the RFP.
- f) The procurement should be done by the university themselves. They are free to use the vendor(s) empanelled by the ERNET or through their internal procurement procedure, following the relevant provisions under GFR.

After due deliberations, the committee recommended that the project for setting up Hotspot / Wi-Fi Campus Connect in 32 CU campuses, including the requirements of Delhi University, Jharkhand and Haryana, as per Annexure-II may be taken up on priority. The recommended budgetary estimates, including the Servers, stands at Rs.352.00 Crores for setting up Wi-Fi Campus Connect at all the 35 CU's.

ATTENDANCE OF THE MEETING OF DOMAIN EXPERT COMMITTEE ON CONNECTIVITY,
NETWORKING, COMMUNICATION & BULK STORAGE SERVERS

Date & Time : 26th September, 2015 at 11:00 hrs

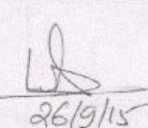
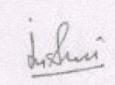
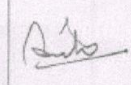
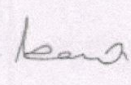
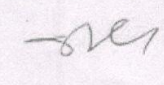
Venue : Conference Room No. 112, C-Wing, Ministry of Human Resource
Development, Shastri Bhavan, New Delhi.

Sl. No.	Name, Designation & Address	Phone No. Fax & Email	Signature
1.	Prof. S.V. Raghavan (Chairman) Scientific Secretary PSA - GOI	Ph : Mob. No: Email : Fax :	
2.	Sh. R. Subrahmanyam Additional Secretary (TEL) MHRD, Shashtri Bhawan, New Delhi	Ph : Mob. No: Email : Fax :	
3.	Sh. Praveen Kumar Joint Secretary (Admin.) MHRD, Shashtri Bhawan, New Delhi	Ph : Mob. No: Email : Fax :	
4.	Dr. Nirmala Pathy DG, ERNET	Ph : Mob. No: 9810100176 Email : Fax :	
5.	Prof. Uma Kanjilal 197004, New Delhi	Ph : Mob. No: 9810488895 Email : ukanjilal@igrou.ac.in Fax :	
6.	Dipak Singh Derty	Ph : Mob. No: 9810732329 Email : dipak.singh@ Fax : derty.gov.in	

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Venue : Conference Room No. 112, C-Wing, Ministry of Human Resource
Development, Shastri Bhavan, New Delhi.

Sl. No.	Name, Designation & Address	Phone No. Fax & Email	Signature
7.	K. D. Verma, Under Secretary (TEL) MHRD	Ph : Mob. No: Email : Fax :	 26/9/15
8.	J. M. SURI DDG (IT), TEC, DOT	Ph : Mob. No: 9868137172 Email : Fax :	
9.	RAJIV SINHA DDG (NT) DOT HQ.	Ph : Mob. No: 9868131415 Email : Fax :	
10.	Pradeep Kaur HN 060 Sec 17 Pkd	Ph : Mob. No: 9868274690 Email : kaurp428@gmail.com Fax :	
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12.		Ph : Mob. No: Email : Fax :	
13.		Ph : Mob. No: Email : Fax :	

Data on CU's Surveyed and Compiled by ERNET

S. No.	Name & Address of University	Area (in acres)	No. of Buildings covered	Cost of Active Equipment in Lacs (A)	Cost of Passive Equipment in Lacs (B)	Customer Duty in Lacs (C=D+E)	Mandatory 5% duty on Educational Institutes (In Lacs) (D)	Additional 23% duty absent of CDE* (In Lacs) (E)	Total Budgetary Cost (Rs. in Lac) (Z=A+B+C)	Remark
1	**Jawaharlal Nehru University, New Delhi -110067 www.jnu.ac.in	412.53	77	1994.34	310.85	94.45	94.45		2399.64	Existing N/w up gradation, 32 building require OFC connectivity
2	Jamia Millia Islamia, New Delhi	216	43	687.79	155.2	31.11	31.11		874.1	
3	IGNOU, New Delhi, Maidan Garhi, New Delhi -110 068. FAX - 91 -011-2686 2598, www.ignou.ac.in	151	46	397.04	120.51	18.51	18.51		536.06	
4	BHU, Varanasi -221 005, FAX-91-0542-368174 vc_bhu@banaras.ernet.in	1300	242	4,271.63	795.64	201.24	201.24		5268.51	Existing N/w 15 years old and end of life and end of support
5	AMU, Aligarh -202 002, FAX - 0571-2700528 www.amu.nic.in	1155.46	110	878.23	58.78	40.21	40.21		977.22	
6	Visva Bharti Shantiniketan, West Bengal -731 235, FAX-91-03463-262672 www.vbharat.ac.in	1130	111	1,195.78	207.53	56.18	56.18		1459.49	All existing active networks obsolete and end of life. SM Fiber available in 66 locations
7	Hyderabad University, Hyderabad-500 046, FAX-91-040-3010145, 3010120,	1785	71	1012.96	99.8	46.93	46.93		1159.69	Augmentation of existing N/w, Switches Obsolete,

	www.uohyd.ernet.in									SM Fiber available in max. places
8	Pondicherry Univ,Pondicherry-605 014, Exchange - 2654200/300 FAX -091-0413-2655 265, www.pondiuni.org	800	61	790.23	62.83	37.17	37.17		890.23	
9	Assam University, Silchar, ASSAM - 788 011, FAX -03 842-32779, 70802, www.aus.ac.in	600	68	413.88	44.30	18.94	18.94		477.12	
10	Tezpur Univ. TEZPUR -784 028 ASSAM, FAX - 03712-21539, 267006 www.tezu.ernet.in	261	42	756.76	147.15	35.67	35.67		939.58	
11	**Nagaland University , Kohima Nagaland FAX-03 70-2290246, www.Nagauniv.org	802	38	511.87	116.01	128.14	22.88	105.26	756.02	
12	Mizoram University P. B. No. 190, Aizawal -796012, Mizoram	972	55	427.16	54.37	20.23	20.23		501.76	
13	Maulana Azad National Urdu University, Gachibowli, Hyderabad- 500032	200	21	346.66	47.55	89.36	15.96	73.40	483.57	
14	Mahatama Gandhi Antarrashtriya Viswavidyalaya, P. B No.16 Panchteela, Wardha- 442 001, MP	200	18	360.20	36.47	94.98	16.96	78.02	491.65	
15	**Rajiv Gandhi University, Itanagar-791112	306	31	331.53	53.01	15.42	15.42		399.96	
16	Sikkim University, Gangtok, Sikkim	753	27	282.22	19.56	73.99	13.21	60.78	375.77	
17	Tripura University, Tripura Suryamaninagar-799130	79	28	374.27	109.12	17.29	17.29		500.68	
18	English and Foreign	33	12	285.13	25.69	72.34	12.92	59.42	383.16	

	Languages University, O.U Campus, Hyderabad 500 007										
19	Indira Gandhi National Tribal University, Amarkantak	370	32	717	234	223.5	55.93	167.57	1174.5	No Network	
20	Hemawati Nandan Bahuguna Garhwal University, Srinagar-246174, Uttarakhand	268	83	1466.95	245.45	383.65	68.51	315.14	2096.05	4 distributed campuses without Intranet	
21	Central University of Tamil Nadu, C/o Collectorate Annexe, Tiruvarur 610 001	500	18	464.30	69.47	120.83	21.58	99.25	654.6		
22	Central University of Rajasthan, NH-8, Bandar Sindri, Dist- Ajmer-305801	518	21	350.69	76.77	16.21	16.21		443.67		
23	Central University of Orissa, Qtr. No. Type-C, Block-4, New Govt. Colony, Gajpatinagar, Bhubneswar 751017	430	7	306.62	37.35	81.06	14.48	66.59	425.03		
24	Central University of Karnataka, Jnana Ganga, Gulbarga University Campus, Gulbarga-585 106	654	28	828.23	181.91	216.71	38.70	178.01	1226.85	Upgradation of Core S/w & Distribution S/w, SM Fiber required, existing network out of support	
25	**Central University of Kerala, Jimanis, SP-16/375, Sreekaryam, P.O. Trivandrum-695017,	310	8	149.61	13.69	6.66	6.66		169.96		
26	Dr. Harisingh Gour Vishwavidyalaya, Sagar (M.P.)	1312	52	586.39	199.05	27.18	27.18		812.62		
27	Guru Ghasidas Vishwavidyalaya, Bilaspur	664	33	448.31	85.11	117.19	20.93	96.26	650.61		
28	Central University of Punjab, D-13, Civil Station, Bhatinda-151001.	140	18	462.18	49.38	21.54	21.54		533.1		

29	Central University of South Bihar, Camp Office: BIT Campus, Patna	450	8	246.77	17.83	11.33	11.33		275.93	
30	Central University of Gujarat 95/1, Sector-2A, Gandhinagar-382007	260	16	156.17	18.12	7.09	7.09		181.38	
31	Central University of Jammu 8/8, Trikuta Nagar, Jammu Tawi	610	11	330.94	33.73	81.43	14.54	66.89	446.1	
32	Central University of Kashmir, Bagi-Hyder, Hyderpora Srinagar-190004	2.3	11	107.29	81.43	19.81	3.54	16.27	208.53	
Total				21939.13	3807.66	2426.35	1043.48	1382.87	28173.14	

2426.35

A)

S.No	Description		In Crores
1	Total Active		219.39
2	Total Passive		38.08
3	Total Custom Duty		24.26
			281.73

*CDE = Custom Duty Exemption Certificate

** = Proposal based on information/details provided by the University. No site survey has been done.

B) Including the requirements of Delhi University, Jharkhand and Haryana amounting to Rs.35.00 Crores.

C) Budgetary on Servers Rs.1.00 Crore at each of the CU, total Rs.35.00 Crores. Total A), B) & C) is Rs.352.00 Crores.

The figures are Budgetary Estimates. The actuals are subject to change based on the solution arrived at after following the due procurement procedures.