

**RailTel Corporation of India Ltd.
(A Government of India Enterprise)
10th Floor, Bank of Baroda Building,
16, Sansad Marg, New Delhi- 110001.**

Ref: RailTel/Tender/ OT/CO/DNM/08-09/127

Date: 07-01-2009

CORRIGENDUM-I

Sub: Open Tender for Supply, Installation, Testing and Commissioning of Media Gateways, Soft Switches, NMS and Billing Solutions for Next Generation based National Long Distance Network of RailTel

Ref: RailTel/Tender/ OT/CO/DNM/2008-09/127 dated 10-12-2008.

Dear Sir,

The following paras/ sub- paras of the tender document are amended as under:-

1) Section I Chapter-2 Preamble – Clause 2.3 may be read as:

RailTel now intends to seamlessly augment the existing NGN network suitably and also cater for Railway's requirement of Exchange to Exchange connectivity of approx. 100 nos. of Exchanges and RailTel's NLD connectivity requirements. It is proposed to provide the Media Gateways at additional locations as per this tender as also upgrade the soft switch by way of increasing the software licenses and associated hardware, so that the proposed augmented system meets the complete Railway's requirement of Exchange to Exchange connectivity and RailTel's NLD connectivity requirement. The proposed system will have to function with/in tandem with the existing Media Gateways, Soft Switches, NMS/EMS & the Billing system already available. Any upgradation of the existing systems required to cater for the additional Media Gateways etc. would be responsibility of the successful bidder and have to be suitably catered for in the bid.

2) Section I Chapter-2 Preamble – Clause 2.4 may be read as:

Proposed bidders are advised to study RailTel's existing NGN network and Indian Railway's exchange network so as to ensure that the NGN systems

proposed to be quoted are capable of being seamlessly integrated with the existing NGN system and can be utilized to provide exchange to exchange connectivity and RailTel's NLD connectivity requirements. It is required that the proposed NGN system works with the existing Veraz switch and signalling gateways. Augmentation of existing Veraz switch and signalling gateways as required shall be the responsibility of the bidder. It is desired that case study for any such integration done in the past may be submitted along with the bid.

3) Section I Chapter-2 Preamble New Clause 2.5

It is further required that the additional media gateways be centrally managed and monitored centrally from the central NGN NOC of RailTel at Delhi. RailTel's central NGN NOC is managed by M/s Wipro on a 24x7x365 basis. NMS/EMS system shall be installed/augmented in this NOC and one L1 personnel shall be made available by bidder for management of the new media gateway system on a 24x7x365 basis for two years extendable to five years on mutual consent.

4) Section I Chapter-2 Preamble New Clause 2.6

The requirement of port with protocol support and Racks at various locations is shown as under:

SI No	Locations	Media Gateway type	Protocol CAS/ISDN supported Port requirement	Protocol ISDN/SS7 supported Port Requirement	42U rack Required
1	Delhi	A	16	48	No
2	Kanpur	B	4	16	Yes
3	Ambala	C	8	16	Yes
4	Ludhiana	B	4	16	Yes
5	Roorkee	B	4	16	Yes
6	Jaipur	C	8	16	No
7	Lucknow	C	8	16	No
8	Varanasi	C	8	16	Yes
9	Jabalpur	B	4	16	Yes
10	Allahabad	C	8	16	Yes
11	Nagpur	D	4	0	No
12	Raipur	B	4	16	Yes
13	Bhuvaneshwar	C	8	16	No
14	Tata	C	8	16	Yes
15	Kharagpur	D	4	0	Yes
16	Bilaspur	D	4	0	Yes
17	Vishakhapatnam	B	4	16	Yes
18	Kolkatta	A	16	48	No
19	Patna	C	8	16	No

20	Mumbai	A	16	48	No
21	Ahmedabad	C	8	16	No
22	Pune	B	4	16	No
23	Bhopal	B	4	16	Yes
24	Surat	B	4	16	Yes
25	Vadodara	C	8	16	Yes
26	Hubli/Goa	B	4	16	Yes
27	Coimbatore	B	4	16	No
28	Trivandrum	B	4	16	Yes
29	Madurai	D	4	0	No
30	Mysore	B	4	16	No
31	Secunderabad	A	16	48	No
32	Bangalore	D	4	0	No
33	Chennai	A	16	48	No
34	Guntakal	D	4	0	Yes
35	Guntur	D	4	0	Yes
36	Guwahati	C	8	16	Yes

Type A Sites	5
Type B Sites	13
Type C Sites	11
Type D Sites	7

The media gateways shall have a port density of not more than 16E1s, in order to enable RailTel to optimise the MG utilisation in line with future NGN expansion and traffic growth.

5) Section I Chapter-2 Preamble New Clause 2.7

The MG & Converters etc shall be provided with redundant -48 V DC Power Supply modules..

6) Section III, Chapter 1, clause 1(vi) may be read as

RailTel now intends to seamlessly augment the existing NGN network suitably and also cater for Railway's requirement of Exchange to Exchange connectivity of approx. 100 nos. of Exchanges and RailTel's NLD connectivity requirements. It is proposed to provide the Media Gateways at additional locations as per this tender as also upgrade the soft switch by way of increasing the software licenses and associated hardware, so that the proposed augmented system meets the complete Railway's requirement of Exchange to Exchange connectivity and RailTel's NLD connectivity requirement. The proposed system will have to function with/in tandem with the existing Media Gateways, Soft Switches, NMS/EMS & the Billing system already available. Any upgradation of the existing systems required to cater for the additional capacity would be

responsibility of the successful bidder and have to be suitably catered for in the bid.

07) Section III, Chapter 1, clause 1(vii) may be read as

Proposed bidders are advised to study RailTel's existing NGN network and Indian Railway's exchange network so as to ensure that the NGN systems proposed to be quoted are capable of being seamlessly integrated with the existing NGN system and can be utilized to provide exchange to exchange connectivity and RailTel's NLD connectivity requirements. It is required that the proposed NGN system works with the existing Veraz switch and signalling gateways. Augmentation of existing Veraz switch and signalling gateways as required shall be the responsibility of the bidder. It is desired that case study for any such integration done in the past may be submitted along with the bid.

8) Section III, Chapter 1, new clause 1(viii)

It is further required that the additional media gateways be centrally managed and monitored centrally from the central NGN NOC of RailTel at Delhi. RailTel's central NGN NOC is managed by M/s Wipro on a 24x7x365 basis. NMS/EMS system shall be installed/augmented in this NOC and one L1 personnel shall be made available by bidder for management of the new media gateway system on a 24x7x365 basis for two years extendable to five years on mutual consent.

9) Section III, Chapter 1, new clause 1(ix)

The requirement of port with protocol support and Racks at various locations is shown as under:

SI No	Locations	Media Gateway type	Protocol CAS/ISDN supported Port requirement	Protocol ISDN/SS7 supported Port Requirement	42U rack Required
1	Delhi	A	16	48	No
2	Kanpur	B	4	16	Yes
3	Ambala	C	8	16	Yes
4	Ludhiana	B	4	16	Yes
5	Roorkee	B	4	16	Yes
6	Jaipur	C	8	16	No
7	Lucknow	C	8	16	No
8	Varanasi	C	8	16	Yes
9	Jabalpur	B	4	16	Yes
10	Allahabad	C	8	16	Yes
11	Nagpur	D	4	0	No
12	Raipur	B	4	16	Yes
13	Bhuvaneshwar	C	8	16	No
14	Tata	C	8	16	Yes

15	Kharagpur	D	4	0	Yes
16	Bilaspur	D	4	0	Yes
17	Vishakhapatnam	B	4	16	Yes
18	Kolkatta	A	16	48	No
19	Patna	C	8	16	No
20	Mumbai	A	16	48	No
21	Ahmedabad	C	8	16	No
22	Pune	B	4	16	No
23	Bhopal	B	4	16	Yes
24	Surat	B	4	16	Yes
25	Vadodara	C	8	16	Yes
26	Hubli/Goa	B	4	16	Yes
27	Coimbatore	B	4	16	No
28	Trivandrum	B	4	16	Yes
29	Madurai	D	4	0	No
30	Mysore	B	4	16	No
31	Secunderabad	A	16	48	No
32	Bangalore	D	4	0	No
33	Chennai	A	16	48	No
34	Guntakal	D	4	0	Yes
35	Guntur	D	4	0	Yes
36	Guwahati	C	8	16	Yes

Type A Sites	5
Type B Sites	13
Type C Sites	11
Type D Sites	7

The media gateways shall have a port density of not more than 16E1s, in order to enable RailTel to optimise the MG utilisation in line with future NGN expansion and traffic growth.

10) Section III, Chapter 1 – Clause 1.3.2 may be read as

These nodes (city centers) are required to support SS7 signaling link interconnection with their operators. Standards based SIGTRAN support (M3UA/M2UA) is required. The system should be equipped with any other signaling protocols in vogue & required for connectivity with various Telcos.

For connectivity with the Railway Exchanges, the proposed solution will have to be equipped to support the Signaling protocols E1(CAS) – DTMF, E1(CAS) - R2 MFC , PRI – Q Sig etc. The bidder may also survey any other type of

Signaling protocol being used in the Railway voice switching system & ensure that the proposed system supports all the available signaling protocols.

11) Section III, Chapter 1 – Clause 1.4.2 may be read as

The proposed solution would be integrated with the 18 nos. of existing Media Gateways of 16 E1s terminations at New Delhi, Mumbai, Chennai, Kolkata and Hyderabad , Pune, Ahmedabad, Nagpur, Patna, Jaipur, Jalandhar, Mysore, Coimbatore , Madurai, Bhubneshwar and Lucknow & 2 nos. at Chandigarh and Bangalore with 72 E1 terminations.

12) Section III, Chapter 1 – Clause 1.4.3 may be read as

The soft switch should be augmented to handle additional 24000 ports. The erlang factor to be considered for design shall be 0.7 and the average holding time may be taken 90 seconds. All sizing should be based on not more than 70% CPU utilization of all Soft switch and Media Gateway components. All the equipment supplied should be carrier grade. The capacity of signaling gateway should be at least 256 signalling links of 64 kbps with expansion capability for ultimate capacity of soft switch specified .

The proposed equipment should be compatible with the existing equipment (media Gateways, Soft switches, NMS/EMS, Billing servers etc.) available in the network

13) Section III, Chapter 2 – Clause 2.1.8.1 may be read as

The existing BHCA for the soft switch is 300000 BHCA. With the augmentation by additional 24000 ports, the BHCA will increase to 1000000 BHCA.

BHCA: System shall be capable of handling at least 10,00,000 (with AHT of 90 sec) BHCA. On 50% overload of designed BHCA, call performance should not degrade below 10% of designed BHCA.

14) Section III, Chapter 2 – Clause 2.2.3 may be read as

The media gateway should support E1/T1 interfaces.

15) Section II Chapter 2 – Clause 2.2.5 may be read as

The media gateway system in the proposed solution shall support the following protocols:

16) Section III, Chapter 2 – Clause 2.2.71. and 2.2.7.2 stands deleted.

17 A) Section III Chapter 4-

The name of chapter is renamed as Technical Specification of Layer 3 LAN Switch 48 Port, 24 Port and Racks.

17 B) Section III Chapter4 Clause 3.0

This clause 3.0 is renamed as Clause 4.A (Technical Specification of Layer 3 LAN Switch 48 Port)

17 C) Section III Chapter4 – New Clause 4.B (Specifications of 24 Port Layer 3 Switch for the supply of SOR item No-05

1. The switch shall be designed for continuous operations .The bidder shall furnish the MTBF (Mean Time Between Failure) and MTRR (Mean Time to Restore) and predicted and observed values along with calculations by manufacturer.
2. In case of full system failure, Switches shall maintain a trace area in the NVRAM, which would be used for analysis /diagnosis of the problem.
3. Switch shall have built in power on diagnostics system to detect hardware failures.
4. Switches shall have suitable Visual Indicators for diagnostics and healthy /unhealthy status of ports & modules.
5. Switch shall have 24 Nos. 10/100Base –TX auto sensing ports complying to IEEE 802.3, IEEE 803.3u and 802.3ab standard , supporting half duplex mode ,full duplex mode and auto negotiation on each port to optimize bandwidth.
6. Switch shall have minimum of 32 Gbps Switch Fabric Bandwidth. Stackable Upto 8 Units with 2 Nos of Dedicated stacking ports.
7. Switch shall have minimum 32 million packets (64 Byte packet) per second forwarding rate.
8. Switches shall have a minimum of 8,000 MAC address space.
9. Switch shall be capable of working with DC power supply with a Voltage varying from Voltage Input Range: -40 to -72VDC.
10. It should be possible for the switches to be mounted on a 19-Inch rack. All accessories required for this mounting should be supplied.
11. Switches shall have the following features. All softwares/hardwares required for this must be supplied along with the switch.
 - a. Link Aggregation Control (LACP) as per IEEE 802.3ad.
 - b. support for IEEE 802.1Q VLAN on all ports
 - c. support for minimum 4000 VLANs
 - d. support for IEEE 802.1 D spanning tree protocol
 - e. support for IEEE 802.1 s MSTP
 - f. support for IEEE 802.1 w RSTP
 - g. support Dynamic Host Configuration Protocol (DHCP)
 - h. support Auto –MDIX (Media Dependent Interface Cross over)
 - i. support InterVLAN IP routing for full layer -3 routing
 - j. support for IPV6 in Hardware
 - k. support Strict Priority Queuing.

- l. support Network Time Protocol (NTP) / Simple Network Time Protocol (SNTP) based on RFC 1305 / 2030 for synchronization of date & time from the Central NTP Server.
 - m. support RADIUS protocol for console access restriction and authentication as per RFC 2138.
 - n. support 4 group of embedded RMON (history ,static's and alarms) and SNMP V1,V2 and V3
 - o. Support for basic IP unicast routing protocols (static, RIPv1, RIPv2, OSPF with Upgrade , Multicast protocols IGMP V1,V2 and V3 should be supported and PIM –SM with upgrade .
 - p. support for Multiple privilege level to provide different level of access on console port and telnet sessions.
 - q. support classification and scheduling as per IEEE 802.1P with 8 hardware queues on all ports.
 - r. support Port Spanning functionally/Port Mirroring for measurements using a networks analyzer.
 - s. support online software reconfiguration to implement changes without rebooting. The OS for the switches must be modular. A certificate to this effect shall be provided by the OEM of the switch.
 - t. support all the standard MIBs (MIB-I&II).
 - u. support for console port with a RS-232 Interface for configuration and diagnostics purposes.
 - v. support Port Spanning /Port Mirroring functionally for measurements using a networks analyzer.
12. Option for RPS should be available on the switches.
13. Switch shall conform to UL 60950 or IEC 60950 Standards for safety requirements of IT Equipments.
14. Switch shall conform to EN55022 Class

17 D) Section III Chapter4 – New Clause 4.C (Specification for 42 U Rack)

1	Rack,19" , 42U/600D"
2	Door, Glass, 600W, 42U, Vented
3	Door, Steel, 600W, 42U, PRF FUL
4	Cable Manager, 1U, 19" Mounting
5	Fan Housing Unit, 90CFM, 4 Fan
6	Fan 230VAC 90 CFM
7	Provision for AC/DC operation
8	LEGS, SCREW ADJUS,
9	HARDWRE,FRONT PANEL,SCREWS, PACKET OF 20
10	EARTH CONTINUITY KIT,SPLIT
11	SHELF, STATIONARY 475 MMD/600W WITH LOCK AND KEY.

18) Section III, Chapter 6 – Clause 6.1.8.1

May read 5 years as **2 years**.

19) Section III, Chapter 9 – clause 9.1 may be read as

RailTel proposes that tenderer should be able to offer complete operations and maintenance of the network for a period of 2 years initially, from the date of commissioning and trial run of the network .

After the period specified above, RailTel will decide whether to undertake operation and maintenance of the network on its own or entrust with 3rd party.

This operation and maintenance of the NLD Network includes all components supplied, installed and commissioned by Tenderer under the scope of this tender such as soft Switch (upto maximum capacity of 36,000 ports), Media Gateways (MG), Signalling Gateway, Billing system and any other item required for the purpose of transporting voice and data information from RailTel's core network excluding last mile connectivity, point of interconnect with operators and MPLS-IP ports, space, air conditioning and power supply systems.

The O&M should be carried out **On-site** from NoC in Delhi including O&M of Media gateways on 24 x 7 x 365 basis. All locations should be managed and monitored by tenderer. Engineer / Support personnel should be deputed on site at other locations apart from Delhi and Secuderabad based on the requirement to provide field support for call resolution and guarantee Service Level Agreement (SLA) of the complete network under the scope of this tender which should be 99.999%.

The tenderer will be responsible for making adequate provision for spares during currency of operation and maintenance of the network to meet specified SLA.

The proposal for O&M should take into account the maintenance support inherent upto final acceptance and warranty as per para 22, 23 and 24 of chapter 2 of Section II of tender document.

20) Section III, Chapter 9 – clause 9.3 may be read as

At least one level 1 Engineer shall be made available in the primary NOC for the O&M of the network on a 24x7x365 basis.

21) Section IV Chapter 1

The revised Schedule of supply is as follows:

A. Schedule of supplies for NGN based National Long Distance Network

SI No	Item Description	Unit	Qty	Rate	Amount
1	Augmentation of existing soft switch by a capacity of 24,000 additional ports including augmentation/strengthening of existing/available Signaling gateways and announcement server (one each at the Softswitch location) for a capacity of atleast 500 simultaneous announcements. It should include all required Racks, Sub-Racks, Power Supply, control modules etc and Installation Material as per technical specification (primary and backup Soft switch) as per the technical specification.	Nos.	2		
2	Media Gateway System				
2(a)	Supply of Type A Media Gateway System with built in Sub-Racks, Power Supply including Installation Material etc (excluding Rack as rack is a separate item in schedule), as per technical specification.	Nos.	5		
2(b)	Supply of Type B Media Gateway System with built in Sub-Racks, Power Supply including Installation Material etc (excluding Rack as rack is a separate item in schedule), as per technical specification.	Nos.	13		
2(c)	Supply of Type C Media Gateway System with built in Sub-Racks, Power Supply including Installation Material etc (excluding Rack as rack is a separate item in schedule), as per technical specification.	Nos.	11		

2(d)	Supply of Type D Media Gateway System with built in Sub-Racks, Power Supply including Installation Material etc (excluding Rack as rack is a separate item in schedule), as per technical specification.	Nos.	7		
3	Augmentation of existing Supply of Network Management System /EMS with full FCAPS functionality including hardware, software and 3 nos of work Stations with wiring material etc. as per the technical specifications and other stipulations detailed in the tender document complete with all accessories (primary NMS to be provided in Ddelhi and secondary NMS at secunderabad) to support the additional Media Gateways & augmented soft switches as detailed in item nos. 1 & 2 above.	Set	2		
4	Supply of 48 Ports Layer-3 LAN switch as per the technical specifications	Nos.	2		
5	Supply of 24 Ports Layer-3 LAN switch as per the technical specifications	Nos.	54		
6	Augmentation of Interconnect Billing system along with mediation and appropriate storage and servers etc. as per technical specification covering all aspects & requirements of transit network (to be provided at main NoC in Delhi) to support the augmented network (existing & additional) consisting of Media Gateways & Soft Switches.	Set	1		
7	Supply of 42 U Rack	Nos	20		
8	Supply of any other	Set	1		

	items/equipments needed for complete commissioning and operation of the augmented NLD network.				
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Note:

1. Percentage cost of card/module for repairs of card/ module shall be quoted by the tenderer separately which should remain valid for a period of 2 years beyond free warranty maintenance period . However, repair costs of cards/ modules will not be added in the total cost of the work for evaluation of tender.
2. Tenderers should give break up of each item of supply into racks / sub racks / modules / sub modules / cards / assembly / sub-assembly/ backplanes / mother boards /connecting cables etc and their prices.
3. Tenderers should submit the configuration of equipment supplied at each location indicating quantities of various modules / sub modules/ cards /racks / sub racks including the vacant slots in the sub racks / chassis for expansion.

22) B. Schedule of services for NGN based National Long Distance Network

SI No	Item Description	Unit	Qty	Rate	Amount
1	Installation, testing and commissioning of the augmented soft switch system, Signalling gateway, Announcement servers other items at central locations along with Rack, Sub-Racks, Power Supply, Installation Material as per the technical specification and integration of the existing system with the augmented system supplied in item 1 of the supply schedule. .	Nos.	2		
2A	Media Gateway Installation: Installation, testing and commissioning of Media gateways system at	Nos.	36		

	locations with existing racks. Installation Material as per the technical specification & supplied as per item 2 of supply schedule.				
2B	Installation, of 42 U Rack	Nos.	20		
3	Installation, testing and commissioning of augmented Network Management System including associated application software and hardware as per the technical specification & integration of the existing system with the augmented system supplied in item 3 of the supply schedule.	Set	2		
4	Installation , testing and commissioning of 48 Ports Layer-3 LAN switch in 1+1 configuration with the existing LAN-3 switch as per the technical specifications	Nos.	2		
5	Installation , testing and commissioning of 24 Ports Layer-3 LAN switch as per the technical specifications	Nos.	54		
6	Installation, testing and commissioning of the augmented Interconnect Billing system along with software, hardware and appropriate storage systems as per the technical specification and integration of the existing system with the augmented system supplied in item 4 of the supply schedule.	Set	1		
7	Testing , commissioning of complete system including integration with the Railway EPABX (Voice) network	Set	1		

8	Operation and maintenance (O&M) of augmented portion of the network on annual basis (for 2 years extendable to 5 years on prorated basis) as per technical specifications	per year	2		

23) Section I Chapter-2 Preamble Clause 15 stands deleted.

24) Section II Chapter-2 clause 41 stands deleted.

25) The last date of submission of Tender is extended from 14.01.2009 to **21.01.2009 up to 15.00 Hrs.** Tender will be opened at 15:30 Hrs. on 21.01.2009. The sale of Tender Documents will continue up to 20.01.2009.

(General Manager/DNM)