Department of Payment and Settlement Systems

Satellite Connectivity to facilitate penetration of banking services – Need for financial incentives to banks: Discussion Paper

1. Introduction:

1.1 Prof.U.R.Rao, member of the Board for Regulation and Supervision of the Payment and Settlement Systems (BPSS) had prepared a paper on the use of satellite communication technology to facilitate penetration of payment services to the rural areas which are presently denied of the facility due to non availability of reliable communication links. The proposal was considered by a Technical Group. The Group supported Prof. U.R. Rao's view point that satellite connectivity is the appropriate mode of connecting the branches in the areas not connected by terrestrial links and as a fallback system.

1.2 The Reserve Bank has been taking a number of initiatives for upgradation of technology and bringing the masses under the banking system. Towards this, banks are being encouraged to computerize their operation and connect the branch under the core banking solution so that the branch can provide efficient services by participation in all India funds transfer network like RTGS / NEFT / ECS, etc. But the rural branches have remained largely outside core banking due to connectivity problem. The problem is more for the bank branches in the North Eastern Region.

1.3 There is an uneven distribution of banking services in the country. Of the total 611 districts in the country, 375 districts (list in the Annex) are under-banked. The total districts include 82 districts of the North-Eastern Region of which 54 districts are under-banked. The under-banked district is the district where the Average Population per Branch Office (APPBO) is more than the national average. There is a need for banks to open branches at these locations and establishing connectivity with the core banking solution.

1.4 The Reserve Bank, while playing its developmental role is considering a proposal to provide incentive to banks to provide network connectivity to their existing branches in the under banked districts. There is also a proposal to incentivise the banks to open new branches at these locations and bring them under core banking solution right from the beginning.

2. Satellite Connectivity

2.1 As opposed to terrestrial link, satellite connectivity involves use of transponder space on the satellite and communication equipment called Very Small Aperture Terminal (VSAT) at the place being connected for data communication. VSAT is particularly useful in the regions where leased line connectivity cannot be established like hilly areas, ocean, and desert. VSAT technologies ensure link security and reliability. The benefits of VSAT are (i) faster relocation; (ii) quick establishment of new sites; (iii) rapid installation of equipment at the customer's premise with limited infrastructure; (iv) reduced Network implementation time; (v) availability (99.9%) is far better than the availability of ground networks - reliability of data network; (vi) lowest TCO over terrestrial for multistage applications; (vii) highest uptime; (viii) security - VSAT networks are very secure and the ideal option for confidential, business sensitive data transfer; (ix) bandwidth on demand - the bandwidth channels can be regulated Independence from earth networks and infrastructure; and (x) reduced operational cost.

3. Recommendations of the Technical Group

3.1 The Technical Group studied the various aspects of satellite connectivity including cost benefit analysis. Some of the major recommendations are as under:

a. Banks should extend connectivity to rural branches through use of latest technology VSATs and other modes of terrestrial or fiber communication, wherever available.
b. While limited connectivity for the purpose of fast money transfer could be taken up as an immediate goal, the banks should plan for full-fledged branch connectivity to core banking or similar systems, in order to provide all services including mobile banking in future.
c. For VSATs, banks should explore between VSAT ownership or rental model, based on the cost. The Group provided detailed analysis for both these models so that the banks can take informed decision in the matter.
d. The report provides bandwidth requirements and cost estimates under various scenarios based on informal inquiries with a few VSAT service providers.
e. The central hub could be connected to the data centers through a terrestrial leased line with high bandwidth VSAT as a backup (on demand). Therefore, it may not be necessary to set up central servers at the hub site.

f. Satellite Communications being the most disaster-proof, can be used as a back-up for major centers, where a disaster can otherwise knock out terrestrial connection. Even satellite connection may be disrupted, but if the antenna is small, it can be quickly put back (as satellite, up in the sky, continues to function).

3.2 The recommendations made by the Technical Group were examined and it was felt that the following options need to be examined further

1) The option of leasing vis-à-vis ownership VSATs;
2) Using VSAT as a backup to the terrestrial link;
3) Creating sufficient incentives so that individual banks take initiatives.

3.3 RBI could play the developmental and advisory role. The Standards, Quality and Model Service Level Agreement, Safeguards could be some of the parameters which could be prescribed by Reserve Bank. For better price, IBA may consolidate the requirements from banks and negotiate with the service providers. IBA would only have this one time role and thereafter operational responsibility may be with individual banks.

4. Option of leasing vis-à-vis ownership

4.1 For implementing VSAT based communication link, the user can either acquire the VSAT on ownership basis or take on lease rental basis from the VSAT service provider. The Technical Group examined the cost of ownership vis-à-vis leasing it. The Group estimated the number of VSATs required for this rural connectivity and worked out that average cost per VSAT on rental model as well as ownership model.

4.2 The increasing pace in technology development has increased the pace of technology obsolence. Considering this aspect as also the cost consideration, the lease model would be better option which could be adopted. This is also usually adopted by the banks. Besides, there would be an option available to move to another service provider, if the service is not found satisfactory from the vendor from whom the VSAT has been leased.

5. VSAT as backup to terrestrial link

5.1 Presently, the bank branch connectivity is primarily through the use of landlines, particularly leased lines from telecom operators with ISDN connectivity acting as a backup wherever available. The leased line connectivity with higher bandwidth requires laying of fiber connectivity. However, fiber networking is not available in many semi-

urban and rural areas due to the large cost involved in creating such network as also the lack of large customer base in these areas, for high-speed network requirements.

5.2 Satellite Communications being the most disaster-proof, can be used as a back-up for major centers, where a disaster can otherwise knock out terrestrial connection. Even satellite connection may be disrupted, but if the antenna is small, it can be quickly put back (as satellite, up in the sky, continues to function).

6. Suggested Incentive Structure

The incentive structure may broadly be as under:-

a. for branches in the North-East and – upto 100% of the lease rentals to be reimbursed;
b. branches in rural areas in other under-banked districts - upto 75% of lease rentals to be reimbursed;
c. for branches of under banked districts in semi-urban areas – about 50% of the lease rentals to be reimbursed.

Incentives may be provided by the Reserve Bank of India by way of reimbursement of the leased rentals on a half yearly basis on a certificate of satisfactory service for 3 years. A review on the need for continuing with the incentive structure would be carried out after 3 years.

7. Safeguards

The banks would need to put in place proper safeguards to ensure that the systems are optimally used. The banks going in for this incentive programme would have to put in place an appropriate Information Security (IS) and access policy. The access policy should at the minimum cover: (i) monitoring the operations of the system; (ii) access to authorized users, the roles and access rights of each of the authorized users are well defined; (iii) ensuring that the system is used for the purpose for which it has been provided.

Annex

List of Underbanked Districts (based on 2001 Population census)

ANDHRA PRADESH	**ASSAM**
1. ADILABAD	8. GOALPARA
2. ANANTAPUR	9. GOLAGHAT
3. CUDDAPAH	10. HAILAKANDI
4. KARIMNAGAR	11. JORHAT
5. KHAMMAM	12. KARBI ANGLONG
6. KURNOOL	13. KARIMGANJ
7. MAHBUBNAGAR	14. KAKROJHAR
8. MEDAK	15. LAKHIMPUR
9. NALGONDA	16. MORIGAON
10. RANGAREDDY	17. NAGAON
11. SRIKAKULAM	18. NALBARI
12. VIZIANAGARAM	19. SIBSAGAR
13. WARANGAL	20. SONITPUR
	21. TINSUKIA
ARUNACHAL PRADESH	
1. CHUNGLANG	**BIHAR**
2. DIBANG VALLEY	1. ARARIA
3. EAST KAMENG	2. AURANGABAD
4. LOHIT	3. BANKA
5. LOWER SUBANSIRI	4. BEGUSARAI
6. TIRAP	5. BHAGALPUR
7. UPPER SIANG	6. BHOJPUR
8. UPPER SUBANSIRI	7. BUXAR
	8.DARBHANGA
ASSAM	9. GAYA
1. BARPETA	10. GOPALGANJ
2. BONGAIGAON	11. JAMUI
3. CACHAR	12. JEHANABAD
4. DARRANG	13. KAIMUR
5. DHEMAJI	14. KATIHAR
6. DHUBRI	15. KHAGARIA
7. DIBRUGARH	16. KISHANGANJ

BIHAR	**CHHATTISGARH**
17. LAKHISARAI	13. RAIGARH
18. MADHEPURA	14. RAIPUR
19. MADHUBANI	15. RAJNANDGAON
20. MUNGER	16. SURGUJA
21. MUZAFFARPUR	
22. NALANDA	**DADRA & NAGAR HAVELI**
23. NAWADA	1. DADRA & NAGAR HAVELI
24. PASCHIMI CHAMPARAN	
25. PURBI CHAMPARAN	**GUJARAT**
26. PURNIA	1. AMRELI
27. ROHTAS	2. BANAS KANTHA
28. SAHARSA	3. BHAVNAGAR
29. SAMASTIPUR	4. DAHOD
30. SARAN	5. JUNAGADH
31. SHEIKHPURA	6. NARMADA
32. SHEOHAR	7. PANCH MAHALS
33. SITAMARHI	8. PATAN
34. SIWAN	9. SABAR KANTHA
35. SUPAUL	10. SURAT
36. VAISHALI	11. SURENDRANAGAR
	12. DANGS
CHHATTISGARH	
1. BASTAR	**HARYANA**
2. BILASPUR	1. FATEHABAD
3. DANTEWADA	2. JHAJJAR
4. DHAMTARI	3. JIND
5. DURG	4. KAITHAL
6. JANJGIR-CHAMPA	5. MAHENDRAGARH
7. JASHPUR	
8. KANKER	**JAMMU & KASHMIR**
9. KAWARDHA	1. ANANTNAG
10. KORBA	2. DODA
11. KORIA	3. KUPWARA
12. MAHASAMUND	4. POONCH

JHARKHAND	**MADHYA PRADESH**
1. BOKARO	6. CHHINDWARA
2. CHATRA	7. DAMOH
3. DEOGHAR	8. DATIA
4. DHANBAD	9. DEWAS
5. DUMKA	10. DHAR
6. GARHWA	11. DINDORI
7. GIRIDIH	12. EAST NIMAR
8. GODDA	13. GUNA
9. GUMLA	14. HARDA
10. HAZARIBAG	15. HOSHANGABAD
11. KODERMA	16. JHABUA
12. LOHARDAGGA	17. KATNI
13. PAKUR	18. MANDLA
14. PALAMAU	19. MANDSAUR
15. PASCHIMI SINGHBHUM	20. MORENA
16. SAHEBGANJ	21. NARSIMHAPUR
	22. NEEMUCH
KARNATAKA	23. PANNA
1. BANGALORE RURAL	24. RAISEN
2. BIDAR	25. RAJGARH
3. CHAMARAJANAGAR	26. RATLAM
4. GULBARGA	27. REWA
5. KOPPAL	28. SAGAR
6. RAICHUR	29. SATNA
	30. SEHORE
KERALA	31. SEONI
1. MALAPPURAM	32. SHAHDOL
	33. SHAJAPUR
MADHYA PRADESH	34. SHEOPUR
1. BALAGHAT	35. SHIVPURI
2. BARWANI	36. SIDHI
3. BETUL	37. TIKAMGARH
4. BHIND	38. UJJAIN
5. CHHATARPUR	39. UMARIA

MADHYA PRADESH	**MANIPUR**
40. VIDISHA	3. CHURACHANDPUR
41. WEST NIMAR	4. IMPHAL EAST
	5. IMPHAL WEST
MAHARASHTRA	6. TAMENGLONG
1. AHMADNAGAR	7. THOUBAL
2. AKOLA	8. UKHRUL
3. AMRAVATI	
4. AURANGABAD	**MEGHALAYA**
5. BHANDARA	1. EAST GARO HILLS
6. BID	2. SOUTH GARO HILLS
7. BULDHANA	3. WEST GARO HILLS
8. DHULE	
9. GADCHIROLI	**MIZORAM**
10. GONDIA	1. LAWNGTLAI
11. HINGOLI	2. SAIHA
12. JALGAON	
13. JALNA	**NAGALAND**
14. KOLHAPUR	1. DIMAPUR
15. LATUR	2. KOHIMA
16. NANDED	3. MOKOKCHUNG
17. NANDURBAR	4. MON
18. NASIK	5. PHEK
19. OSMANABAD	6. TUENSANG
20. PARBHANI	7. WOKHA
21. SATARA	8. ZUNHEBOTO
22. SOLAPUR	
23. THANE	**ORISSA**
24. WARDHA	1. ANGUL
25. WASHIM	2. BALANGIR
26. YAVATMAL	3. BALESHWAR
	4. BARGARH
MANIPUR	5. BHADRAK
1. BISHNUPUR	6. BOUDH
2. CHANDEL	7. DHENKANAL

ORISSA	**RAJASTHAN**
8. GAJAPATI	10. DAUSA
9. GANJAM	11. DHOLPUR
10. JAJPUR	12. DUNGARPUR
11. KALAHANDI	13. HANUMANGARH
12. KANDHAMAL	14. JALOR
13. KENDRAPARA	15. JHALAWAR
14. KEONJHAR	16. JHUNJHUNU
15. KORAPUT	17. JODHPUR
16. MALKANGIRI	18. KARAULI
17. MAYURBHANJ	19. NAGAUR
18. NABARANGPUR	20. PALI
19. NAYAGARH	21. RAJSAMAND
20. NAWAPARA	22. SAWAI MADHOPUR
21. PURI	23. SIKAR
22. RAYAGADA	24. TONK
23. SONEPUR	25. UDAIPUR
24. SUNDARGARH	
	SIKKIM
PONDICHERRY	1. WEST SIKKIM
1. YANAM	
	TAMIL NADU
PUNJAB	1. CUDDALORE
1. MANSA	2. DHARMAPURI
	3. KANCHEEPURAM
RAJASTHAN	4. NAGAPATTINAM
1. ALWAR	5. PERAMBALUR
2. BANSWARA	6. PUDUKKOTTAI
3. BARAN	7. RAMANATHAPURAM
4. BARMER	8. SALEM
5. BHARATPUR	9. THIRUVALLUR
6. BHILWARA	10. THIRUVARUR
7. BUNDI	11. TIRUVANNAMALAI
8. CHITTAURGARH	12. VELLORE
9. CHURU	13. VILLUPURAM

TRIPURA	**UTTAR PRADESH**
1. DHALAI	29. GORAKHPUR
2. NORTH TRIPURA	30. HAMIRPUR
3. SOUTH TRIPURA	31. HARDOI
4. WEST TRIPURA	32. HATHRAS
	33. JALAUN
UTTAR PRADESH	34. JAUNPUR
1. AGRA	35. JHANSI
2. ALIGARH	36. JYOTIBA PHULE NAGAR
3. ALLAHABAD	37. KANAUJ
4. AMBEDKAR NAGAR	38. KAUSHAMBI
5. AURAIYA	39. KHERI
6. AZAMGARH	40. KUSHI NAGAR
7. BAGHPAT	41. LALITPUR
8. BAHRAICH	42. MAHARAJGANJ
9. BALLIA	43. MAHOBA
10. BALRAMPUR	44. MAINPURI
11. BANDA	45. MATHURA
12. BARA BANKI	46. MAU
13. BAREILLY	47. MIRZAPUR
14. BASTI	48. MORADABAD
15. BIJNOR	49. MUZAFFARNAGAR
16. BUDAUN	50. PILIBHIT
17. BULANDSHAHR	51. PRATAPGARH
18. CHANDAULI	52. RAI BARELI
19. CHITRAKOOT	53. RAMPUR
20. DEORIA	54. SAHARANPUR
21. ETAH	55. SANT KABIR NAGAR
22. ETAWAH	56. SANT RAVIDAS NAGAR
23. FAIZABAD	57. SHAHJAHANPUR
24. FARRUKHABAD	58. SHRAVASTI
25. FATEHPUR	59. SIDHARTHANAGAR
26. FIROZABAD	60. SITAPUR
27. GHAZIPUR	61. SONBHADRA
28. GONDA	62. SULTANPUR

UTTAR PRADESH	
63. UNNAO	
WEST BENGAL	
1. BANKURA	
2. BARDDHAMAN	
3. BIRBHUM	
4. DAKSHIN DINAJPUR	
5. HAORA	
6. HUGLI	
7. JALPAIGURI	
8. KOCH BIHAR	
9. MALDAH	
10. MEDINIPUR	
11. MURSHIDABAD	
12. NADIA	
13. NORTH 24 PARGANAS	
14. PURULIYA	
15. SOUTH 24 PARGANAS	
16. UTTAR DINAJPUR	