



EXPERIENCE SHARING ON BHARATNET UDYAMI & CONNECTIVITY OF ISPs TO BHARATNET

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1. Present status of Rural FTTH connections
2. Challenges to Rollout FTTH Connections in Rural Areas
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Status of Rural Broadband



Rural



881,327,137

Rural Population

176,265,430

House Holds

3,545,183

Rural FTTH subscribers (28th February 23)

2.01% House Holds covered

Status of Rural vs. Urban FTTH

Rural



No. of FTTH connections:- 35,52,602
No. of Household:- 17.62 Cr (Approx)
Household covered by FTTH:-2% (Approx)

Urban



No. of FTTH connections:- 24,104,745
No. of Household:- 11 Cr (Approx)
Household covered by FTTH:- 21% (Approx)

FTTH penetration in India

Particulars	Rural	Urban	TOTAL
Population (Approx)	88 Crore	50 Crore	138 Crore
House Holds (Approx)	17.62 Crore	11 Crore	29 Crore
No. of FTTH connections (Approx)	35.45 Lakhs	2.4 Crore	2.754 Crore
House Holds covered % (Approx)	2.01%	21%	10%

No. of FTTH subscribers as on Feb-23.

Status of Rural FTTH (stat-wise) as on 28.02.2023

S.N.	State	No. of Household	Rural FTTH	% of Household with FTTH
Grand Total		176,265,026	3,545,183	2.01%
1	KERALA	1,683,530	1,224,942	72.76%
2	GOA	78,591	30,879	39.29%
3	ANDAMAN AND NICOBAR ISLANDS	39,652	13,984	35.27%
4	PUDUCHERRY	96,636	10,341	10.70%
5	PUNJAB	3,517,468	303,296	8.62%
6	ANDHRA PRADESH	6,555,978	559,018	8.53%
7	DNH & DD	44,073	2,604	5.91%
8	TAMIL NADU	7,131,987	282,178	3.96%
9	HARYANA	3,281,725	96,357	2.94%
10	HIMACHAL PRADESH	1,316,304	31,225	2.37%
11	MIZORAM	104,222	2,121	2.04%
12	TELANGANA	3,869,305	72,085	1.86%
13	UTTARAKHAND	1,309,604	22,473	1.72%
14	WEST BENGAL	12,475,270	204,132	1.64%
15	GUJARAT	7,248,190	116,406	1.61%
16	KARNATAKA	7,323,808	97,338	1.33%
17	TRIPURA	464,067	6,089	1.31%
18	MAHARASHTRA	12,506,193	149,927	1.20%
19	MANIPUR	406,867	4,317	1.06%

Status of Rural FTTH (stat-wise) as on 28.02.2023

S.N.	State	No. of Household	Rural FTTH	% of Household with FTTH
Grand Total		176,265,026	3,545,183	2.01%
20	SIKKIM	71,499	590	0.83%
21	JAMMU AND KASHMIR	1,812,236	14,699	0.81%
22	ODISHA	7,167,719	45,940	0.64%
23	LADAKH	44,890	270	0.60%
24	RAJASTHAN	11,758,474	58,764	0.50%
25	JHARKHAND	5,665,530	24,421	0.43%
26	MADHYA PRADESH	12,004,763	42,006	0.35%
27	CHHATTISGARH	4,348,591	13,993	0.32%
28	ASSAM	5,967,859	18,208	0.31%
29	ARUNACHAL PRADESH	228,148	612	0.27%
30	MEGHALAYA	523,988	1,254	0.24%
31	BIHAR	21,886,442	46,569	0.21%
32	UP	35,087,849	47,823	0.14%
33	NAGALAND	243,568	322	0.13%

Challenges for rolling out FTTH in rural areas

1

• Low paying capacity: 30%-(200-300), 25%-(300-400), 15%-(400-500), 30% not interested.

2

⑩ High CAPEX requirement for Last Mile Infrastructure.

3

⑩ Limited demand

4

⑩ Topographical barriers – Remoteness/ greater distances

5

⑩ Absence of supporting infrastructure (Power, Road, etc.)

6

⑩ High cost of data carrying

7

⑩ High O&M cost in rural areas

BHARATNET : (1/2)

1

- To build a Highly Scalable Network Infrastructure.

2

- Accessible on a Non-Discriminatory basis.

3

- To provide Affordable Broadband connectivity to rural masses & institutions.

4

- For realizing the vision of Digital India.

5

- Creating world's largest Rural Internet project of National Importance.

BHARATNET : (2/2)

1

- Infrastructure created to be a National Asset.

2

- Middle mile network to connect Block to GPs.

3

- Implemented in a phased manner to provide broadband connectivity to all Gram Panchayats.

4

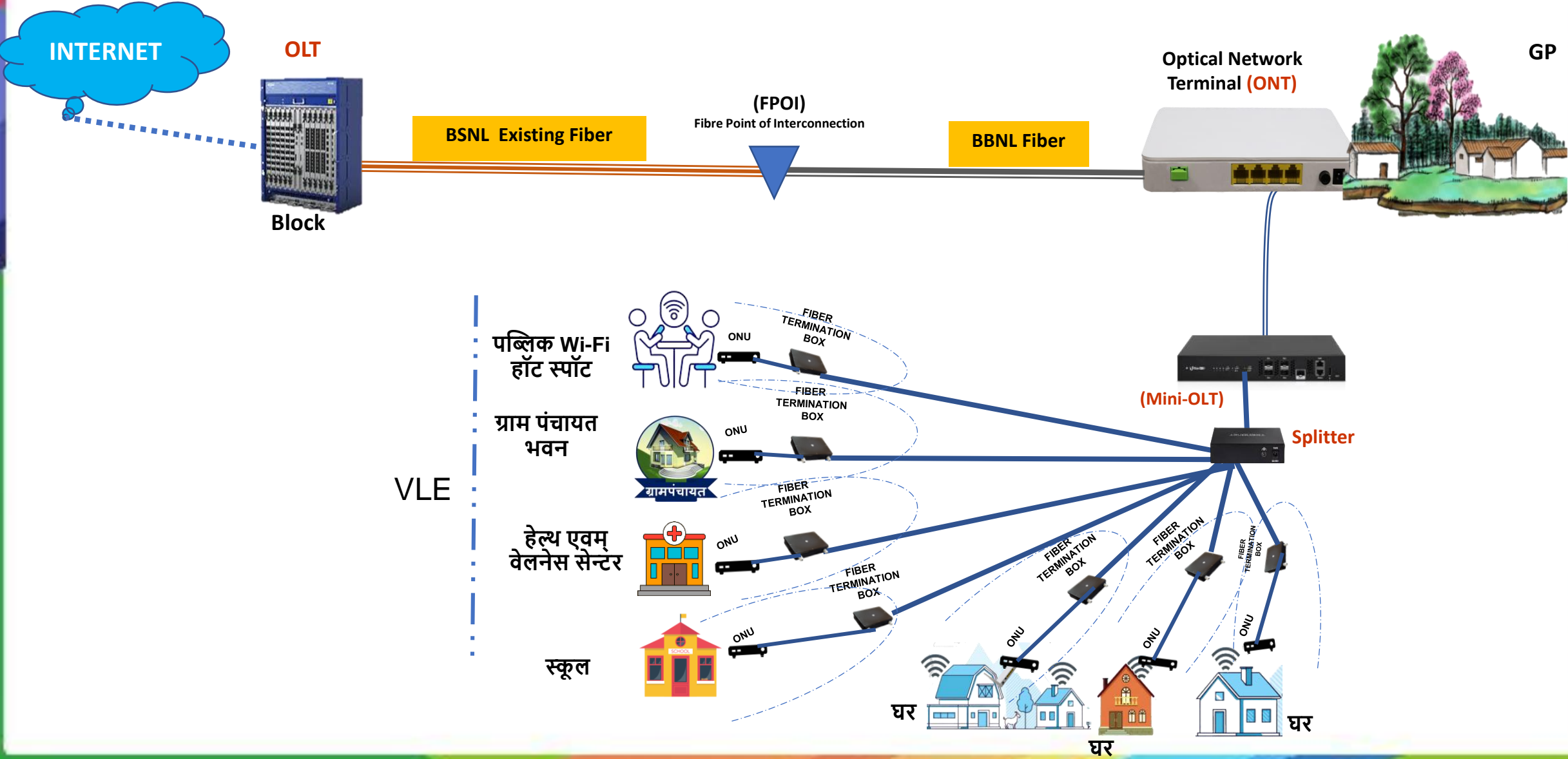
- Scope further expanded to cover all inhabited villages beyond GPs by 2025.

5

- To utilize for provisioning of broadband/internet services through Wi-Fi, FTTH, leased lines, dark fibre, backhaul to mobile towers, etc.

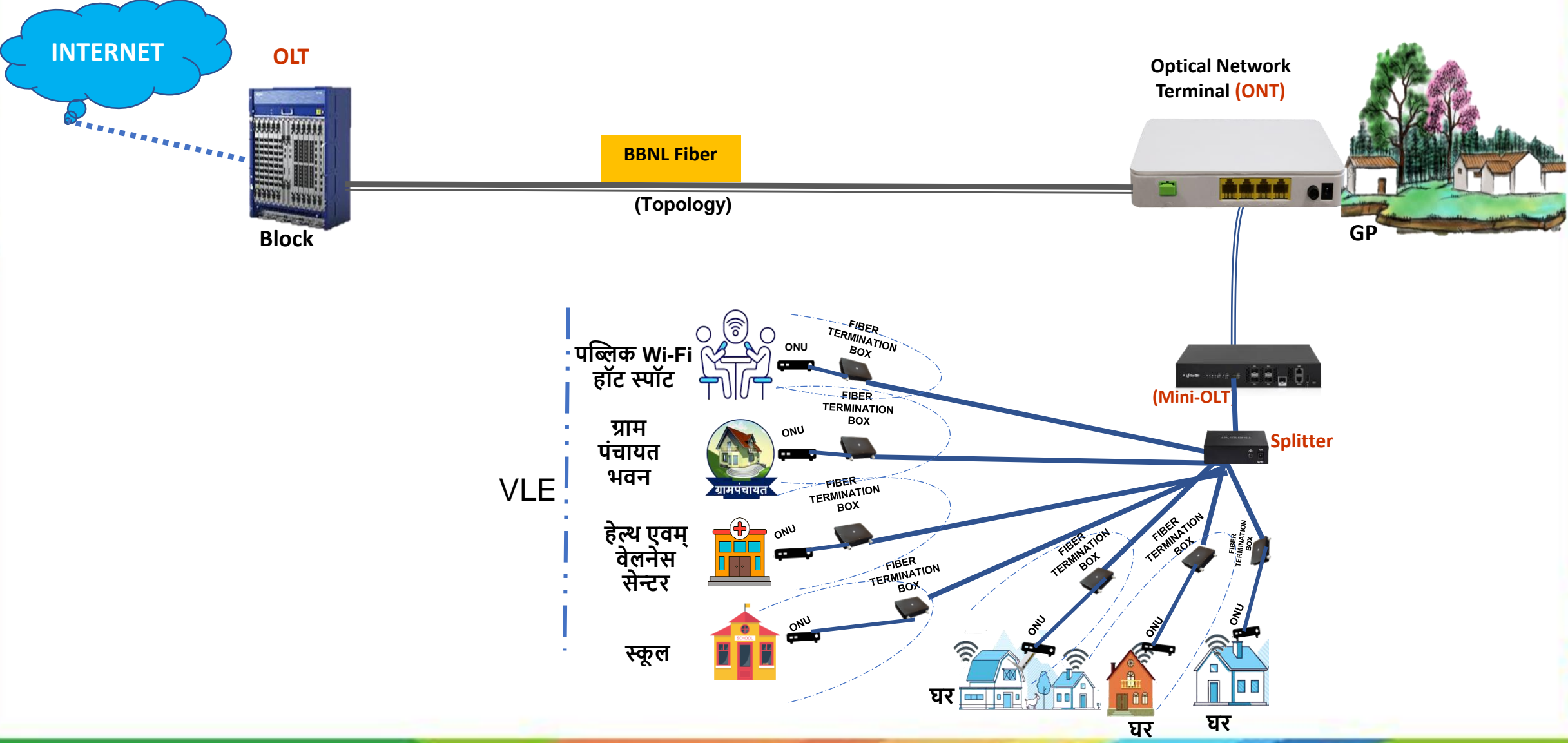
BHARATNET ARCHITECTURE

Phase-I



BHARATNET ARCHITECTURE

Phase-II



Implementation Status of BharatNet

(As on 05.06.23)

Particulars	PHASE-I	PHASE -II	TOTAL
Planned GPs (count)	1,20,206	1,02,366	2,22,572
Implemented GPs on OFC (count)	1,20,007	68,393	1,88,400
Implemented GPs on Satellite (count)	-	4,764	4,764
% of GPs implemented	99.8%	71.4%	87%
OFC laid (Kms)	3,10,842	3,26,161	6,37,003

Note:- All the remaining GPs and Villages will be covered under Phase-III.

Connectivity Status - GPs wise... (1/2)

S.N.	State/Uts	GP Planned	Service Ready GPs	%
Total		222569	193164	87%
1	UP	46989	42783	91%
2	MH	27817	23961	86%
3	MP	17865	17845	100%
4	GUJARAT	14324	14262	100%
5	AP	12955	5214	40%
6	TELANGANA	12733	9697	76%
7	PUNJAB	12668	12668	100%
8	TAMIL NADU	12525	3139	25%
9	CHHATTISGARH	10031	9587	96%
10	RAJASTHAN	8777	8773	100%
11	BIHAR	8340	8328	100%
12	ODISHA	6788	6785	100%
13	KARNATAKA	6084	6084	100%
14	HARYANA	6082	6082	100%
15	JHARKHAND	4393	4376	100%
16	WEST BENGAL	2679	2603	97%
17	UK	1994	1964	98%
18	MANIPUR	1536	1467	96%
19	ASSAM	1511	1511	100%

Connectivity Status - GPs wise... (1/2)

S.N.	State/Uts	GP Planned	Service Ready GPs	%
Total		222569	193164	87%
20	ARUNACHAL PRADESH	1158	964	83%
21	J&K	1105	1097	99%
22	KERALA	978	978	100%
23	TRIPURA	731	731	100%
24	MEGHALAYA	719	685	95%
25	MIZORAM	541	484	89%
26	HP	411	408	99%
27	NAGALAND	236	232	98%
28	LADAKH	193	192	99%
29	SIKKIM	176	35	20%
30	PUDUCHERRY	98	98	100%
31	A & N	72	72	100%
32	DNH	20	20	100%
33	DD	18	18	100%
34	CHANDIGARH	12	12	100%
35	LAKSHADWEEP	10	9	90%

BSNL conducted a survey of 1,000 families (household) in rural areas of 10 different states

- The survey captured, various parameters, like the availability of mobile handset, income levels, FTTH requirement, affordability, etc.
- The cost to the customer for a new FTTH connection remains to be the major barrier for extending digital connectivity to every home (*Upfront payment*).
- In order to provide the services to the rural customers, a local entrepreneur is best suited, provided the model enables the financial sustainability
- The survey also indicated that to overcome the low ARPU and lower penetration in villages (including GPs), special incentives is required for Last Mile Connectivity to provide FTTH connection

Summary of survey conducted by BSNL 1,000 households across 10 States

STATE	Family Details							
	Families Surveyed	Primary Occupation			Monthly family income (₹)			
		Agri	Business	Service	<10K	10-20K	20K-40K	40K+
TOTAL	1,000	478	268	254	550	209	155	86
ODISHA	100	29	58	13	9	40	40	11
HARYANA	100	63	10	27	60	8	23	9
HP	16	3	8	5	1	6	4	5
PUNJAB	100	58	32	10	100	0	0	0
RAJASTHAN	100	41	42	17	60	24	3	13
AP	181	61	41	79	115	27	24	15
TAMIL NADU	100	65	4	31	81	12	6	1
GUJARAT	100	77	11	12	89	8	3	0
MH	100	39	30	31	6	23	43	28
MP	103	42	32	29	29	61	9	4

Summary of survey conducted by BSNL 1,000 households across 10 States

STATE	Family Details								
	Families Surveyed	Existing Connection				FTTH Req'd.	Preferred price in Rs/Month		
		3G	4G	Cu BB	Total		200-300	300-400	400-500
TOTAL	1,000	178	643	73	894	622	356 (57%)	123 (20%)	143 (23%)
ODISHA	100	0	89	0	89	61	8	21	32
HARYANA	100	0	98	2	100	86	68	4	14
HP	16	13	1	1	15	8	2	2	4
PUNJAB	100	1	80	9	90	51	5	21	25
RAJASTHAN	100	24	62	1	87	34	27	6	1
AP	181	30	119	4	153	98	35	22	41
TAMIL NADU	100	26	54	15	95	85	79	5	1
GUJARAT	100	16	80	0	96	26	20	5	1
MH	100	17	48	31	96	96	62	28	6
MP	103	52	12	10	74	77	50	9	18

Approach to the solutions

DoT formed a working group mix of Govt. officers and Industry to come out to suggestion/recommendation for rolling out FTTH in rural areas.

- Based the recommendation of working group, DoT decided to fund part of the CAPEX required for Last Mile Connectivity and cost of Internet Leased Line (ILL) connectivity for providing FTTH using BharatNet.
- Accordingly, DoT approved a pilot project for rolling out of 1 Lakh FTTH connections by BSNL through BharatNet Udyamies (BNUUs) using BharatNet Infrastructure, which has been extended to 5 Lakhs.

BharatNet Udyami ?

- BharatNet Udyami (BNU) is a revenue share partner of BSNL, who sign a revenue sharing agreement with BSNL, as per their techno-commercial arrangements.
- BNU could be a Multi System Operator (MSO), Local Cable Operator (LCO), Virtual network Operator (VNO), Virtual Telecom Service Provider (TSP), Internet Service Provider (ISP), Start-up, MSME, Local Entrepreneur, Self Help Group (SHG), any individual, etc.
- BSNL revenue share model with BNUs:-
 - If BNU installed its own mini OLT then 50%-50% of revenue share on Monthly tariff.
 - If BSNL installed its own mini OLT then 70%-30% of revenue share on Monthly tariff.

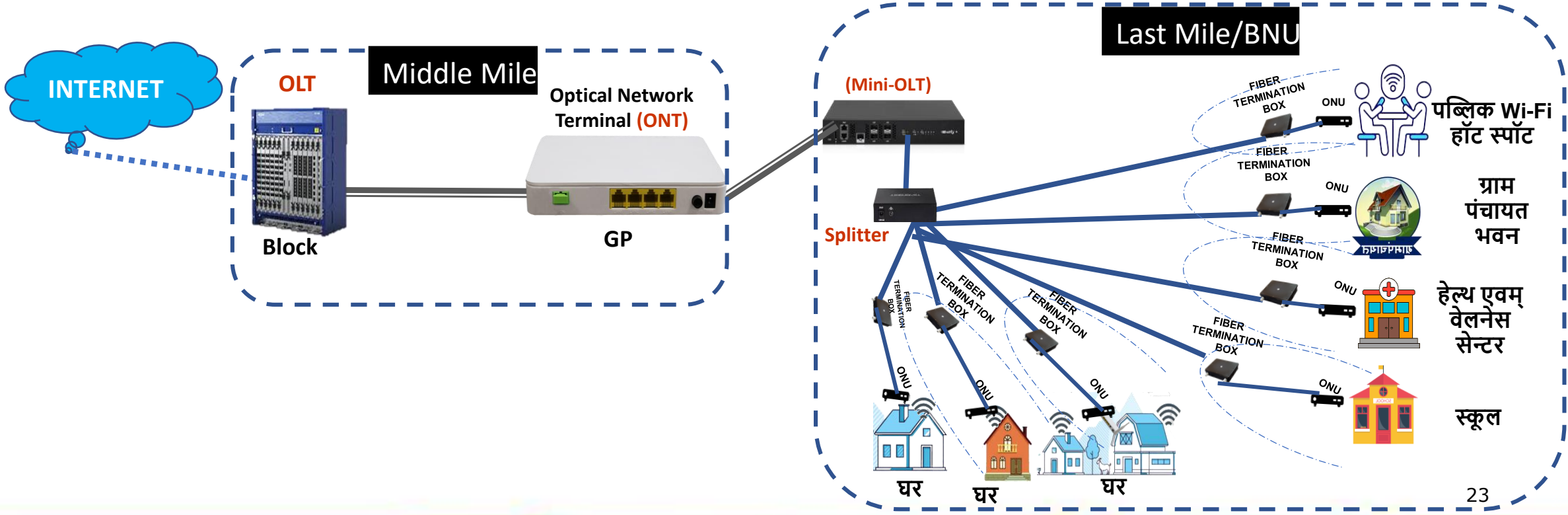
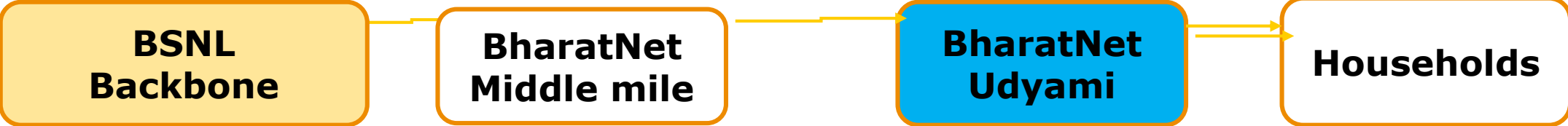
BharatNet Udyami (BNU) Model

- In BharatNet Udyami (BNU) Model, BSNL provides :
 - Customer provisioning, Customer billing and payment/collection process
 - IT tools for handling customer complaints, plan change, etc.
 - Internet bandwidth to the customer, security enablement in the core network
 - OTT Content partner aggregation
 - Mobile Apps for BNUs for customer management, revenue share and settlements
 - Centralized NMS system for BNU's equipment uptime and alert / notifications

BharatNet Udyami (BNU) roles and responsibilities

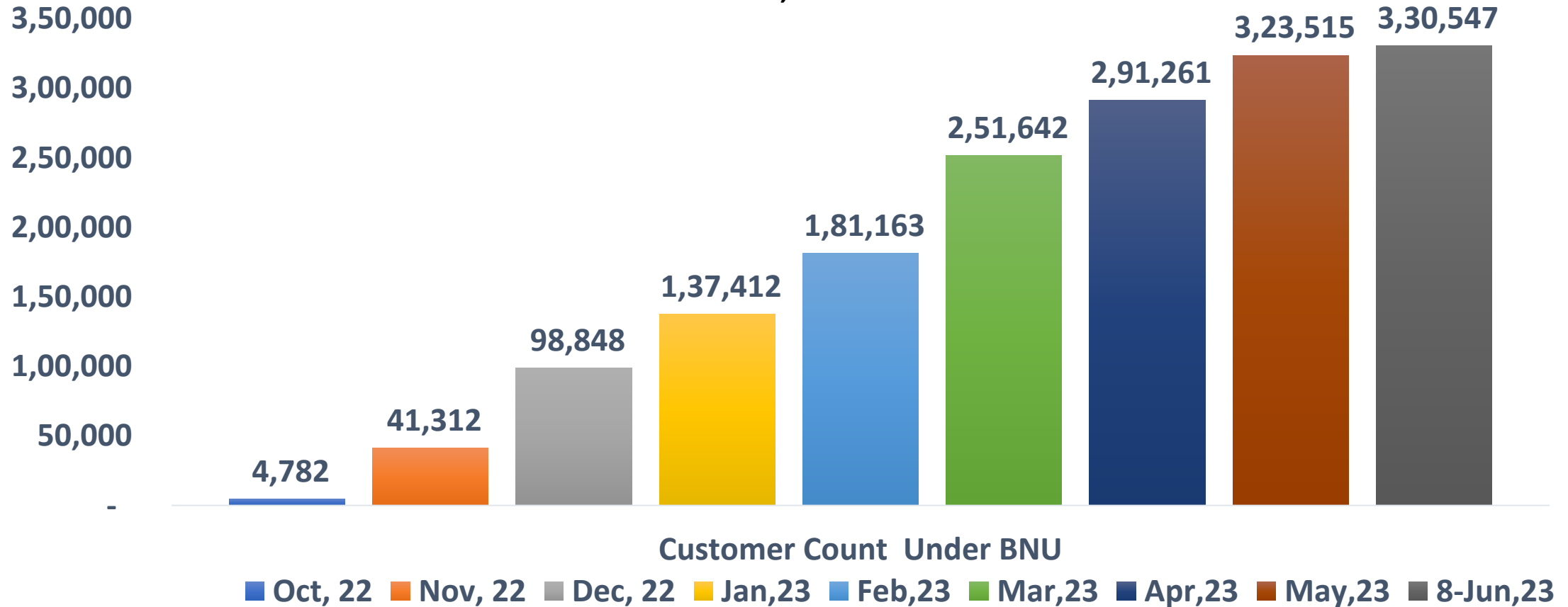
- BNU role is to ensure
 - Integrating last mile OFC (2F/4F) along with Customer premise equipment with BSNL broadband Core network
 - Customer acquisition (CAF and related formalities) and last mile fiber mtce
 - Customer premise fault management
- BSNL also imparted the required training on its systems to BNU for better services to the customers

BharatNet Udyami Model

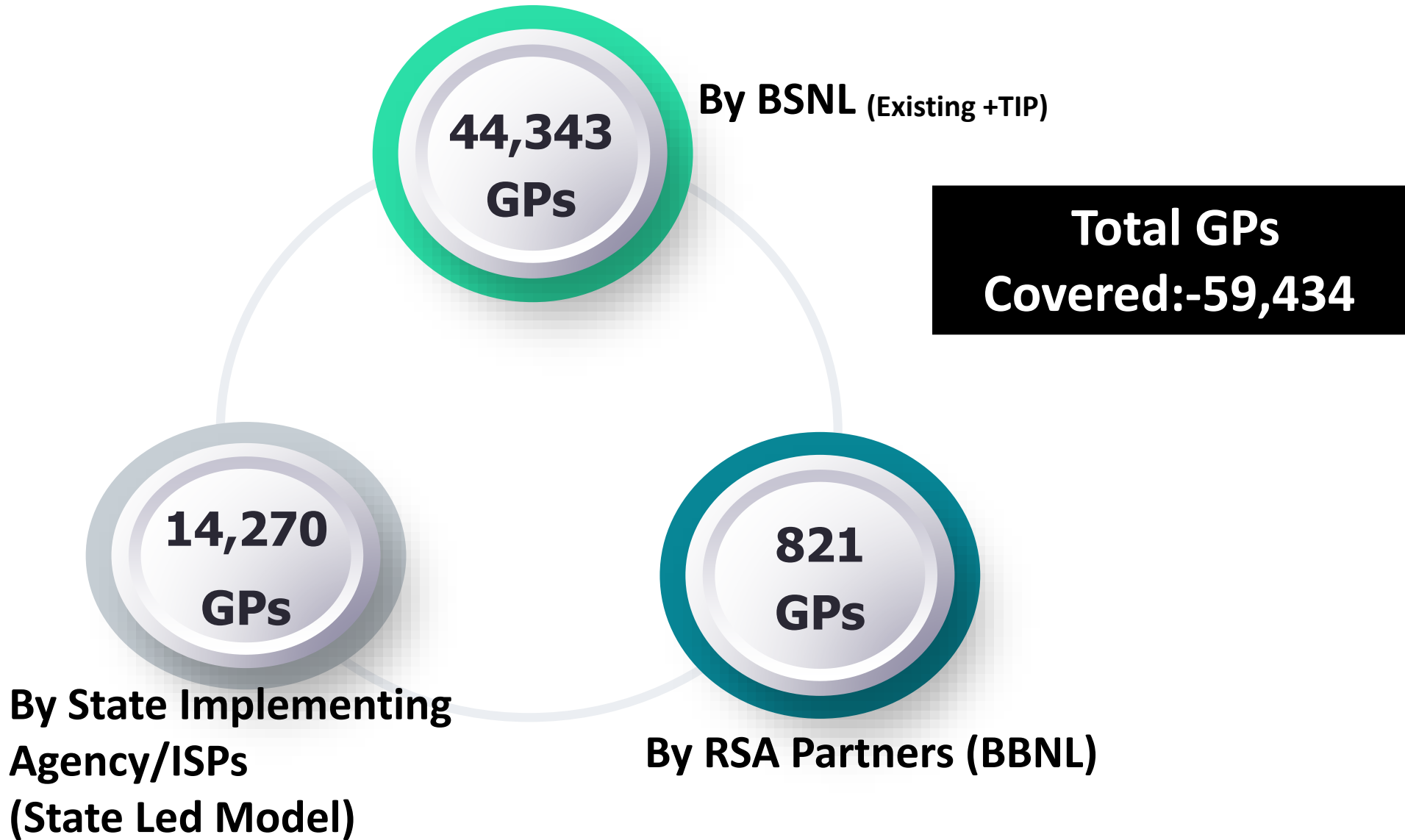


Status of FTTH under BNU as on 07.06.23

- Total BNUs :3,859
- Mini OLT used :7090
- GP Covered :38,000



GPs where FTTH installed by Service Partners

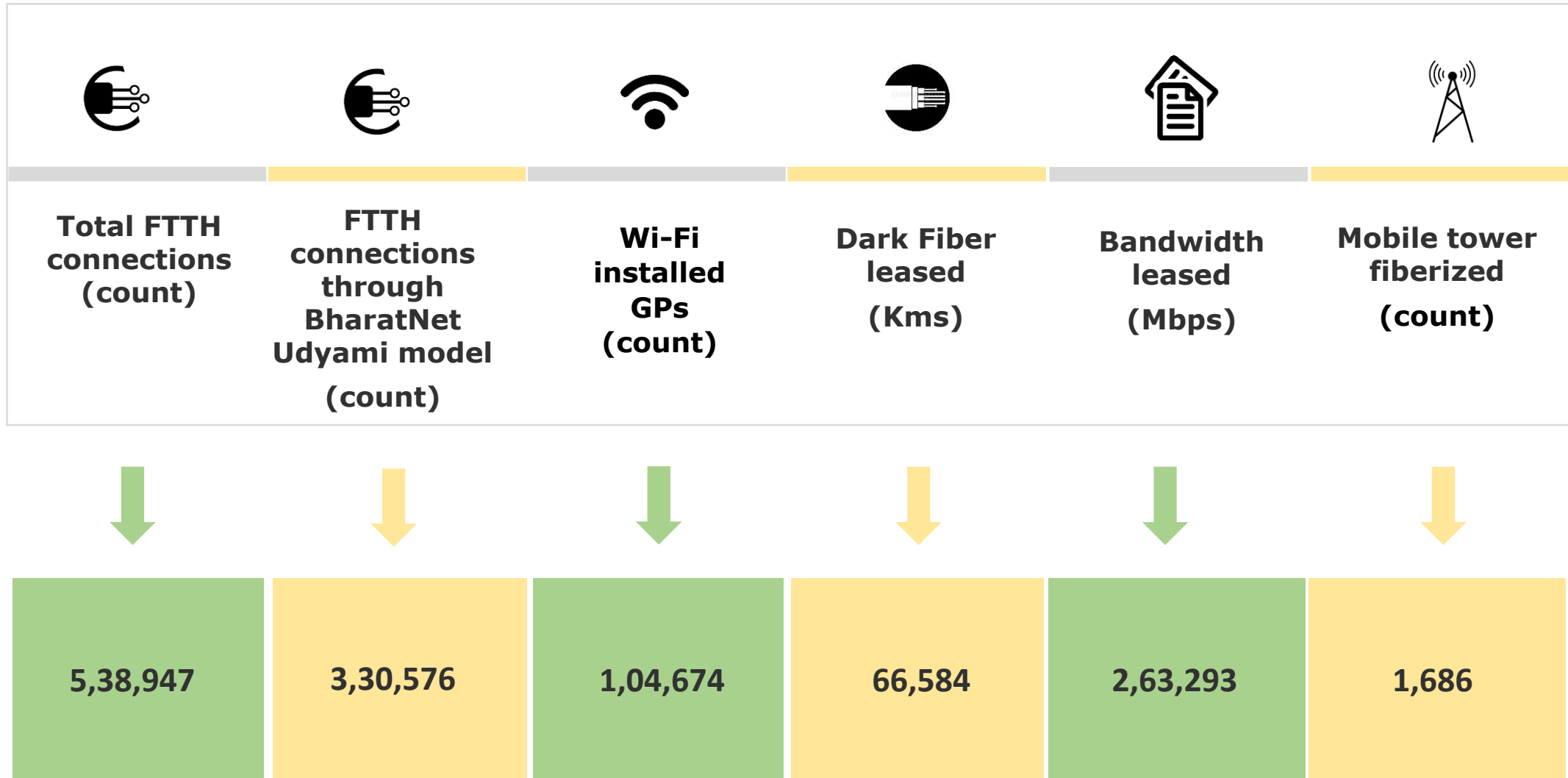


Major ISPs providing FTTH in rural areas

S.No.	Name of the Service Providers	RURAL
1	Bharat Sanchar Nigam Ltd.	11,58,696
2	Kerala Vision Broadband Ltd.	6,01,598
3	Andhra Pradesh State Fiber Net Limited	3,87,208
4	RailTel Corporation of India Ltd.	2,65,833
5	Asianet Satellite Communications Ltd.	2,05,722
6	Reliance Jio Infocomm Ltd	1,11,973
7	Blue Lotus Support Services Pvt Ltd. formerly Limras Eronet Broadband Service Pvt Ltd	1,02,224
8	Quadrant Televentures Ltd.	1,01,498
9	ALLIANCE BROADBAND SERVICES PVT. LTD.	78,668
10	Netplus Broadband Services Pvt. Ltd	77,721
11	GTPL KCBPL Broadband Private Limited	71,192
12	GTPL Broadband Pvt. Ltd.	47,572
13	Readylink Internet Services Limited	24,667
14	Ishan Netsol Pvt. Ltd.	21,054
15	DNA Infotel Pvt. Ltd.	20,328
16	Dwan Supports Pvt. Ltd.	17,403
17	Ethernet Xpress(I) Pvt. Ltd.	15,738
18	Excell Media Pvt. Ltd.	12,325
19	Kings Broadband Pvt. Ltd	11,800
20	Kernel Fibernet Online Network Pvt. Ltd.	8,888
Total		33,42,108

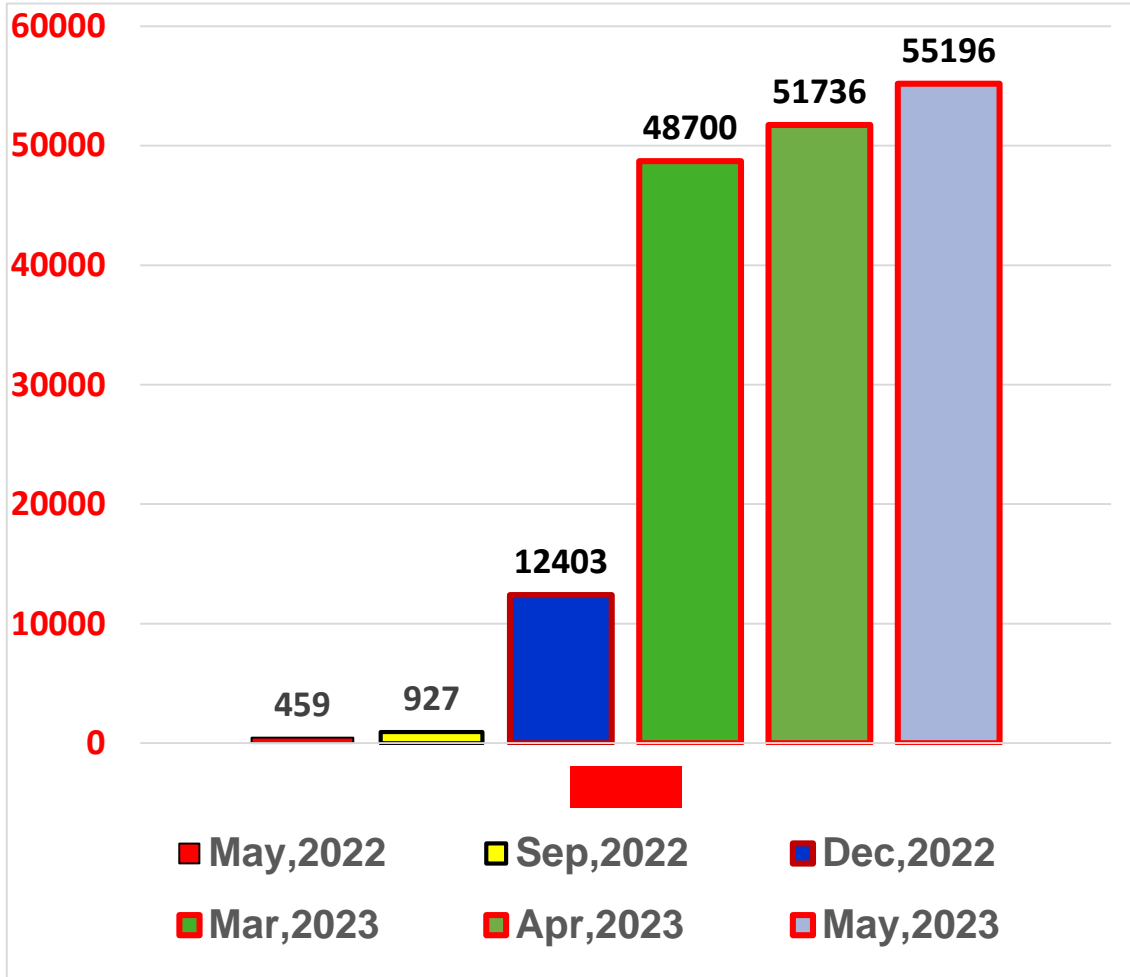
Total 310 Nos. ISPs providing services in Rural areas but these 20 ISPs are having higher contribution.

BharatNet Utilization Status as on 05.06.2023

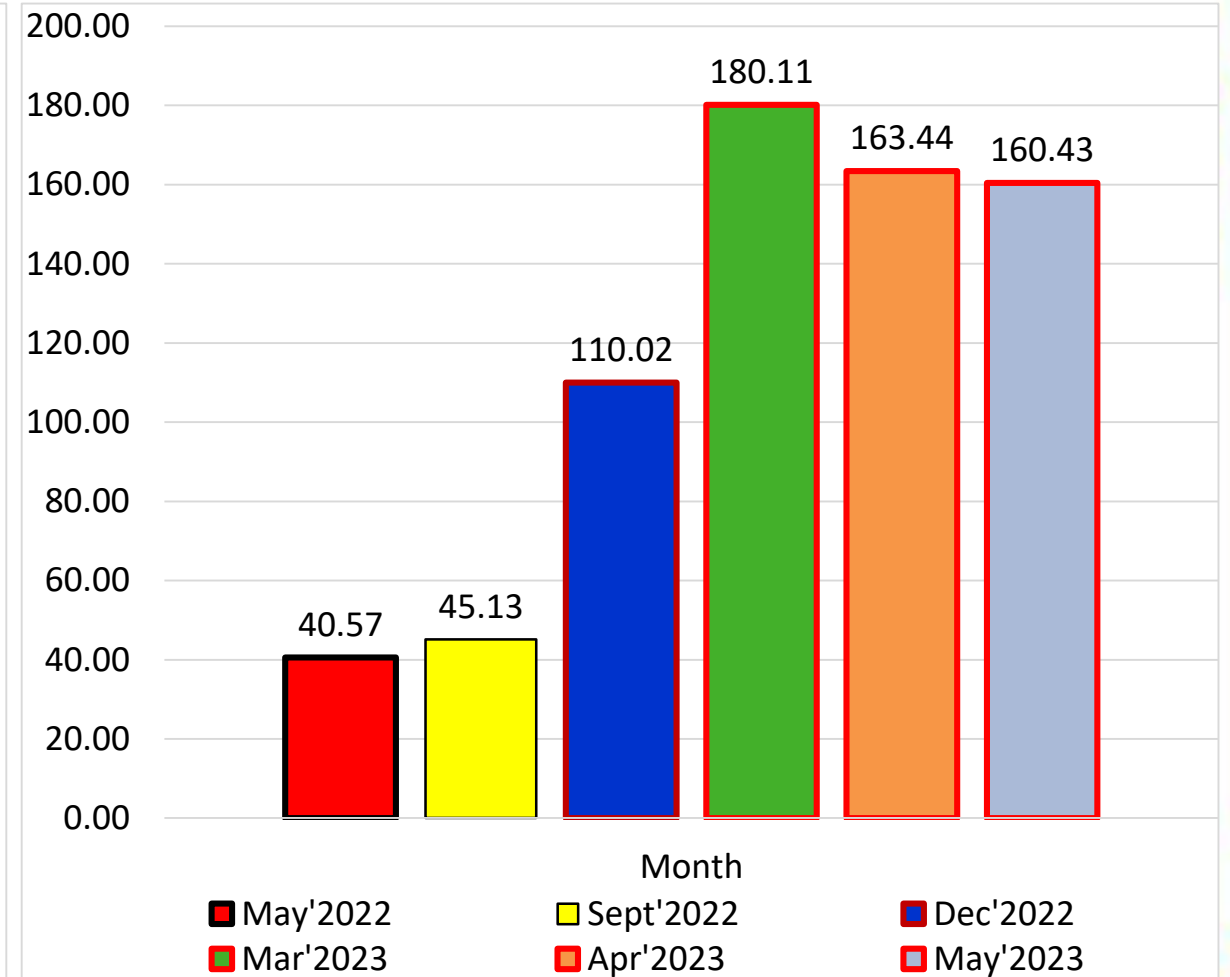


Data traffic of FTTH under BNU

Monthly Usage (in TB)



Per user (in GB)



BharatNet Utilization – BNU Scheme

- In BNU scheme entry barrier by partial funding of CAPEX will facilitate growth in rural FTTH.
- There is a demand for FTTH connections in rural area in spite 4G availability due to cheaper data availability.
- The experience of concurrent session for 3-4 user, unlimited data and 24X7 better speed advantages of FTTH find the takers.
- Servicing of the last mile network by local person is the key for sustainable utilization and digital reach to villagers.

BNU Experience

- There is a lot of demand of FTTH in rural area.
- In revenue share model of BSNL there is no initial fixed cost for carrying data to be born by BharatNet Udyami Partners(BNU).
- BSNL has different models of RSA which provide Revenue Share up to 50% of revenue to the partners.
- There is a IT platform for onboarding partner and a training programme called SWIFT to assist for rolling out business partners.
- On boarding of BNU through IT platform take only 3 days after submission of all relevant documents.
- Payment on roll out of FTTH is credited to BNU automatically on monthly basis for the number of FTTH connections provisioned.
- Sustainable business model can be achieved once 40-50 FTTH connections/Mini OLT is reached.
- Burden of paying fixed cost to carry data as prevalent industry practice is alleviated.

Customer experience sharing video



Video Link button

Way Forward

- Any ISP can become Revenue Share Partner of BSNL for rolling out last mile connectivity.
- Knowledge and technical man power strength of huge number of ISPs across India can help faster rolling out of FTTH connections in rural areas.
- There is no financial burden to pay initial fixed cost for Bandwidth charges in rural area.
- In Revenue Share Agreement partners will start earning from initial stage.
- In RSA no fixed cost to carry data for rollout of FTTH to be paid by Partners.



Thank you!