Innovative and Energy Efficient Technologies
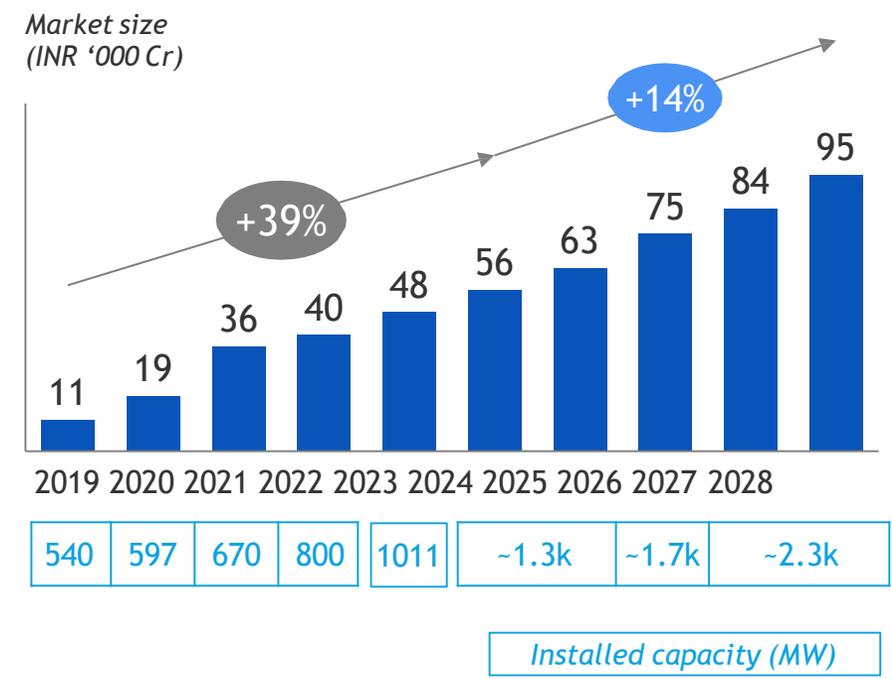
Powering the Future Data Center

Nov 12, 2025

Indian DC market has grown at 40% CAGR from 2019-24, expected to reach 95k Cr by 2029

DCs has grown at a healthy rate of ~40% and is expected to grow at 14% CAGR

Market size
(INR '000 Cr)

+14%

+39%

| 95 |
| 84 |
| 75 |
| 63 |
| 56 |
| 48 |
| 40 |
| 36 |
| 19 |
| 11 |

2019 2020 2021 2022 2023 2024 2025 2026 2027 2028

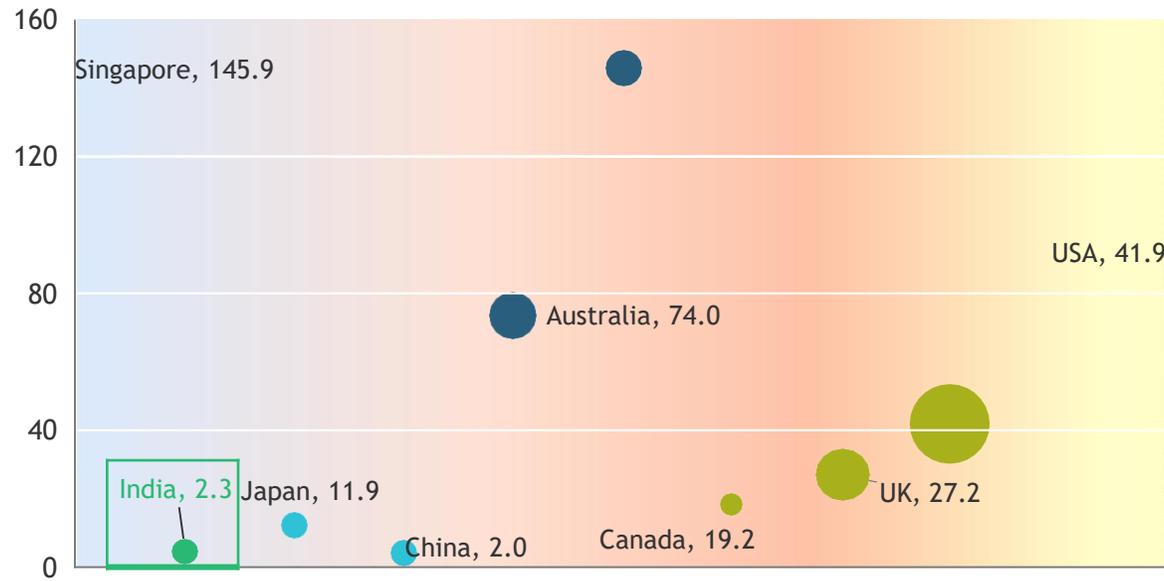| 540 | 597 | 670 | 800 | 1011 | ~1.3k | ~1.7k | ~2.3k |

Installed capacity (MW)

5 major tailwinds for DC growth in India

- Roll-out of 5G & increased bandwidth
- Data localization requirement
- Business continuity & back-up plans
- Explosion in data creation & consumption
- Accelerated adoption of cloud services

India has huge headroom for growth given lower data center space per million internet users today

Data center capacity per Mn internet users(in MW)

- Singapore, 145.9
- USA, 41.9
- Australia, 74.0
- India, 2.3
- Japan, 11.9
- China, 2.0
- Canada, 19.2
- UK, 27.2

Size of circles represent indicative data center capacity in MW in each country

Nascent → Most evolved

- Quantum growth markets
- Accelerated growth markets
- Established markets
- Mature markets

Number of data centers in 2023

USA	~5735
United Kingdom	~517
Germany	~522
India	150+

Low data center penetration in internet users in India vs developed countries

- India has over 880 million internet users, almost twice than that of the USA and about 12X higher than that of UK

- However, data center space per 1 million of internet users in India stands significantly low compared to the established markets
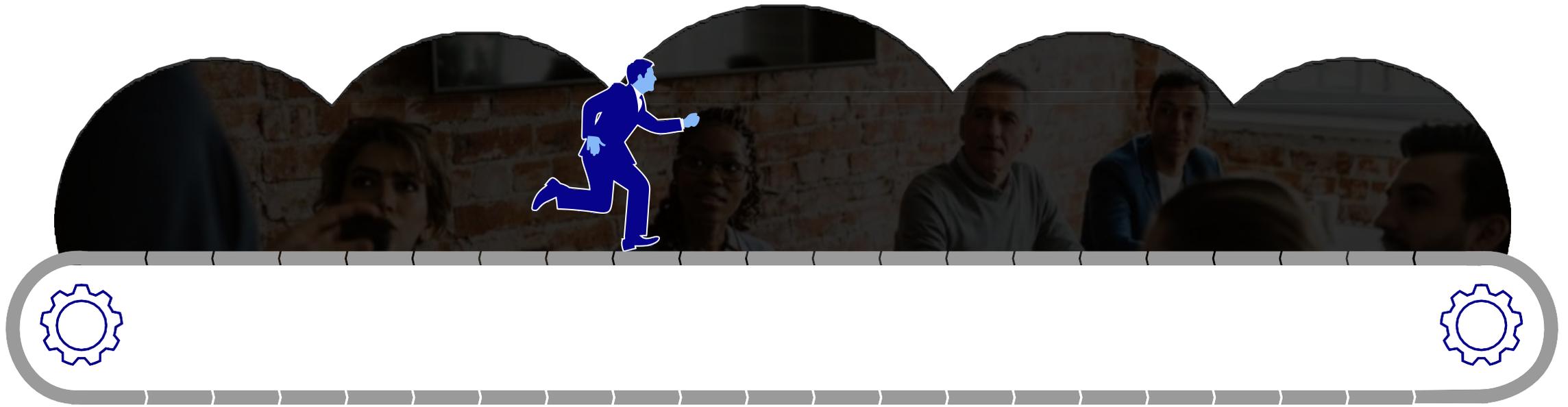
Note: Data center capacity and internet penetration is taken as of 2022-2023 as per availability
Source: JLL, CII, CBRE, Avendus Report, Interviews with industry expert, press search, analyst reports; BCG analysis

Data center and cloud services are natural avenues of opportunity for telcos

| Old revenue | Opportunity: Stagnating | | Current revenue Opportunity: Large and transient | | New revenue | Opportunity: Rapidly Growing |
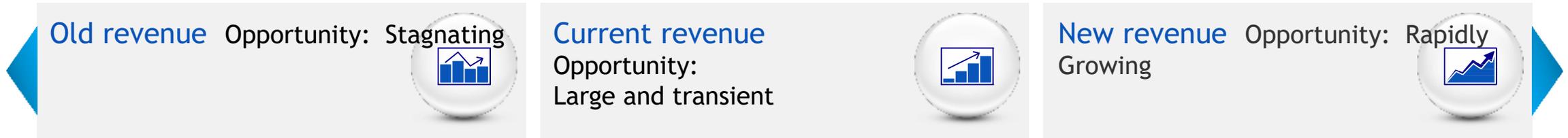
Traditional B2B services

B2B services

BTCL has opportunity to tap into new business areas like data centres by leveraging existing land assets

Existing business area

Increase sites and tenancy
Increase sites in the high demand areas and improve the tenancy ratio

Fiberization and civil works
Leverage telecom infra expertise in fiberization, civil works & EPC projects

New business area

Data center
Leverage land assets to capitalize on growing DC demand through core and shell offerings

SD WAN
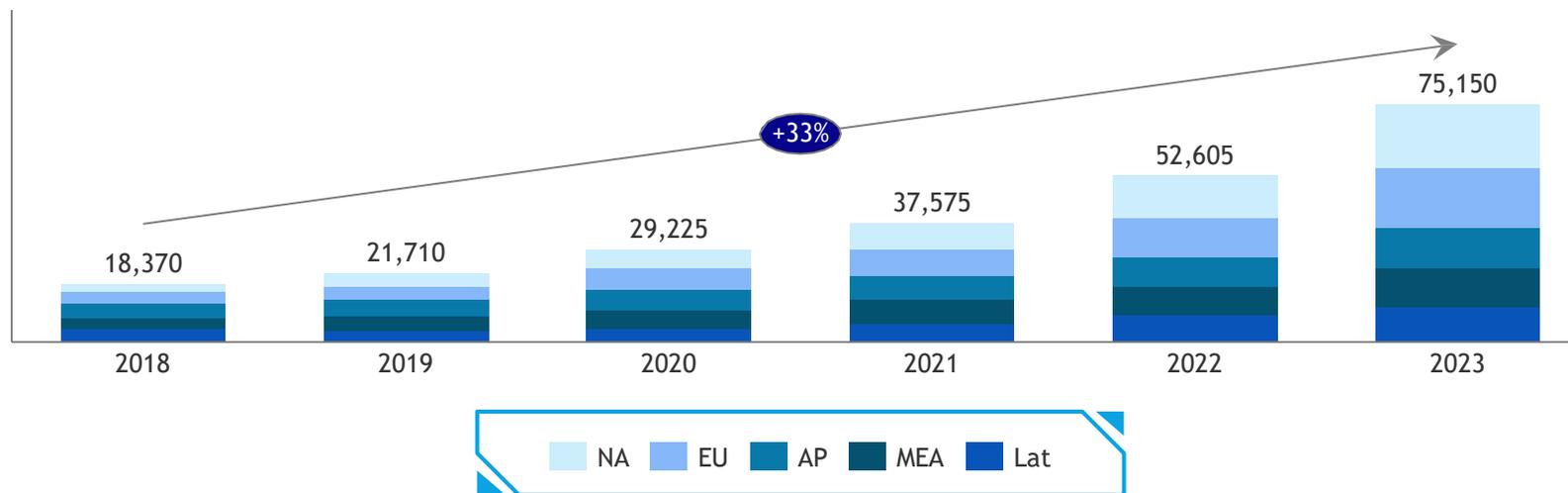BFSI and other Govt. departments and enterprises present an opportunity for managed SD WAN services

Multi-access Edge Computing (MEC) which has grown at 30%+ CAGR globally, is driving the global data centre growth

MEC global market size

INR Cr

+33%

Year	Value
2018	18,370
2019	21,710
2020	29,225
2021	37,575
2022	52,605
2023	75,150

Legend: NA, EU, AP, MEA, Lat

~13% projected CAGR in India (2024-32)

Key growth drivers for telco

- To provide services like AR/VR, telcos can deploy edge computing at strategic nodes to increase bandwidth, reduce jitter and latency
- For telcos with DCs, Organizations would be able to rent space in the DC to perform edge computing and have direct access to a broader network
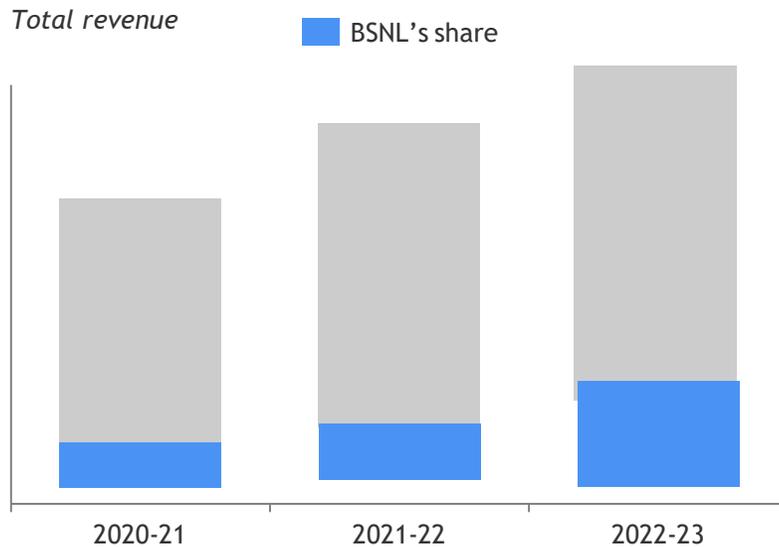
Currently, BSNL -partnership for DC offerings -

BSNL + cloud offerings; annual revenue

Total revenue ▉ BSNL's share

2020-21	2021-22	2022-23

BSNL Offerings

Hosting (shared & dedicated)	Colocation
Managed IT services	Managed cloud services

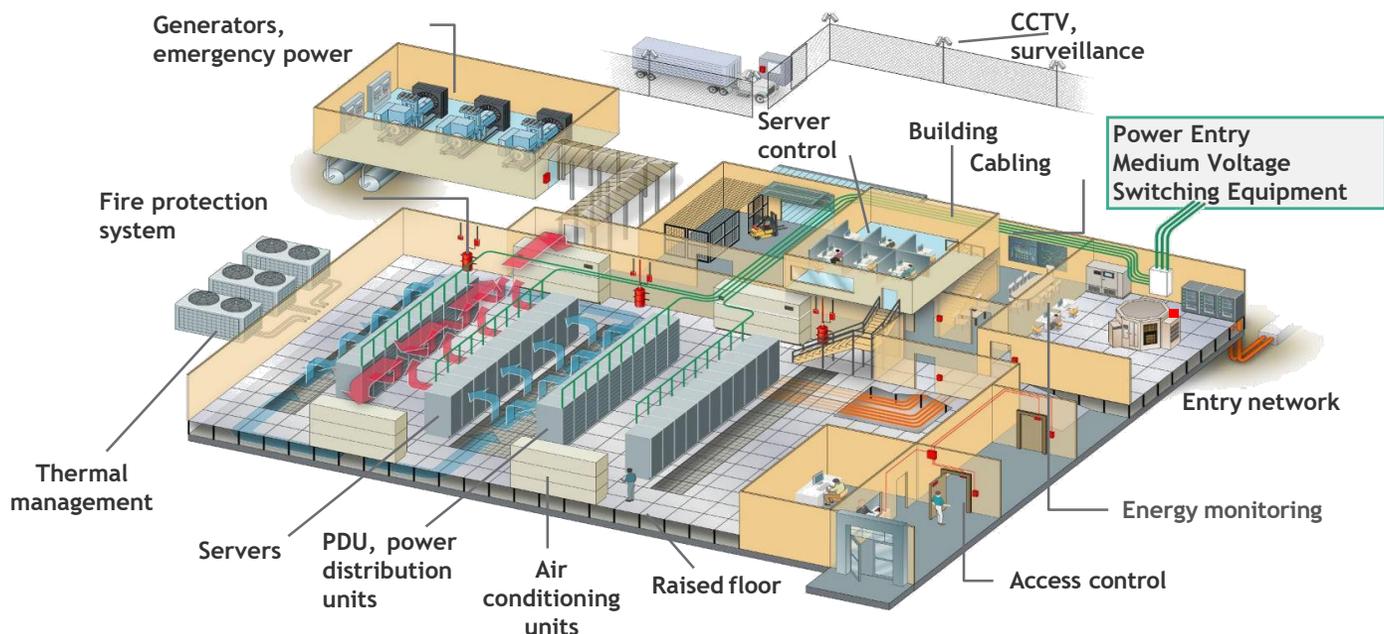## BSNL currently works under landlord model in partnership with Nxtgen

- Current **revenue sharing model** is: **50:50**

- BSNL only provides covered **building space** + **electrical infra** limited to **DG/substation**

- **Bandwidth** is provided **free of cost** to the vendor

- **Electricity** is provided by on a chargeable basis as per the **board rates**

- BSNL & vendor to jointly **go to market**. However, vendor will have **no access** to public sector clients

Tender ongoing for onboarding vendor- land parcels at BSNL

- Tender invited DC service providers live for all 4 zones

- Plan to setup separate Main + DR DCs in N+W & S+E zones respectively

- BSNL to provide core + shell, bandwidth (no charge) and electricity on chargeable basis

- Payment model to be set on revenue sharing basis

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Innovation & Sustainability

DCs require stable and high-capacity energy sources to reduce the risk of operational downtime

Schematic view of a typical data center

- Generators, emergency power
- CCTV, surveillance
- Server control
- Building
- Cabling
- Power Entry Medium Voltage Switching Equipment
- Fire protection system
- Thermal management
- Servers
- PDU, power distribution units
- Air conditioning units
- Raised floor
- Entry network
- Energy monitoring
- Access control

Four main levers to "green" data centres:

- Leverage renewable sources of energy
- Adopt efficiency solutions, e.g., for cooling
- Recover waste heat by transferring it beyond DC
- Consider green building materials (green cement, green steel)

Going green can also provide cost savings reducing carbon footprint by 55% can lead to 35% cost reduction

1. Companies reducing their metric tons of carbon per datacenter workload by a factor of 55% also incurred 35% less cost per user session on a server (decrease in opex & energy cost). Source: IEA, BIS Research; IDC; BCG analysis.
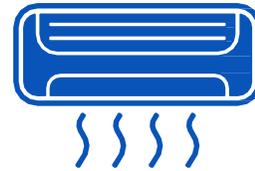
Three main sources of energy consumption for data centres
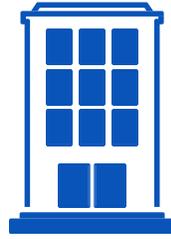
Buildings

~3%
of total energy consumption

Energy usage
- Lighting
- Office heating
- Building materials

HVAC

7-33%
of total energy consumption

Energy usage
- Cooling

Computing

64-91%
of total energy consumption

Energy usage
- Power conversion
- Network hardware
- Server and storage

Roadmap Ahead

BTCL can explore the following models for success in data center market

Long-term view | DC & Cloud services provider

➢ Use own data centers to expand from a DC service provider to a cloud service provider – IaaS, PaaS and SaaS offerings
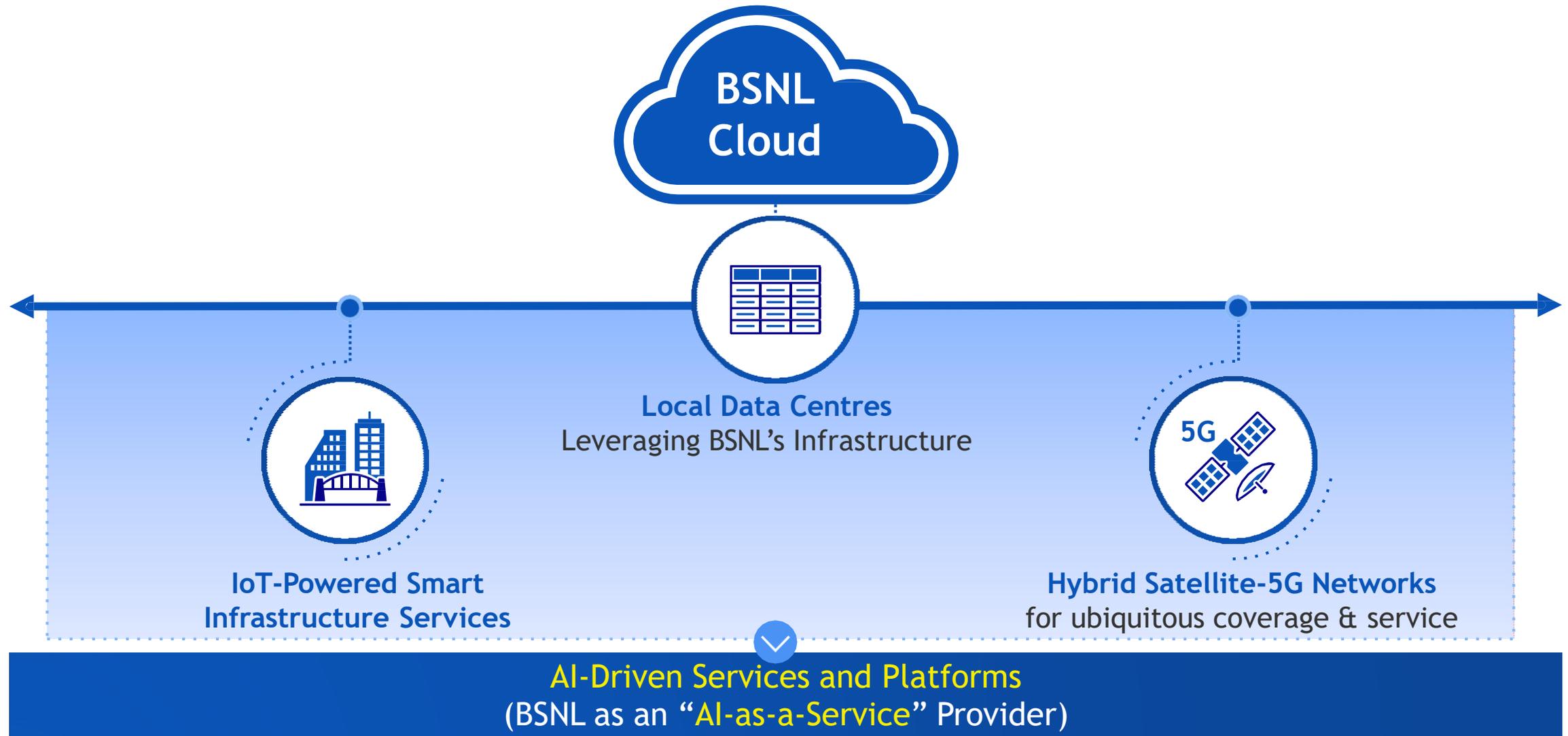
Covered in Cloud services

Medium-term view | Expand into larger DC plays

➢ Identify land parcels and investments required to setup DCs

➢ Expand existing offerings to include core + shell or wholesale/retail colo model
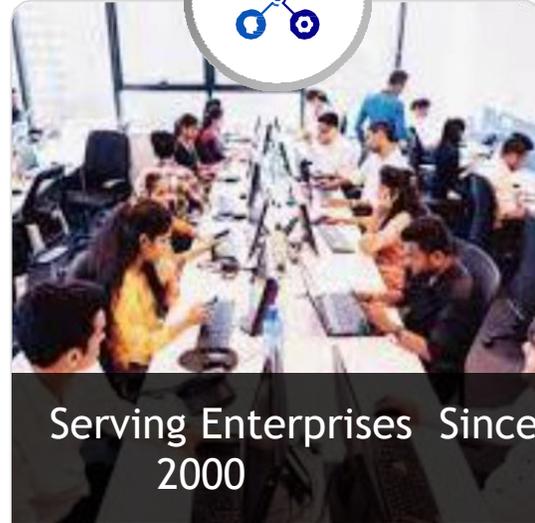
Short-term view | Refine Landlord model

➢ Measures to improve current partnerships to increase sales & partner engagement

➢ Refine IDC RFP to onboard desired partners & expand portfolio

BTCL can leverage BSNL's infrastructure and cloud capabilities to deliver on data centre offerings

BSNL Cloud

Local Data Centres
Leveraging BSNL's Infrastructure

IoT-Powered Smart Infrastructure Services

5G

Hybrid Satellite-5G Networks
for ubiquitous coverage & service

AI-Driven Services and Platforms
(BSNL as an "AI-as-a-Service" Provider)

BSNL's pan-India presence provides the network backbone to leverage public sector synergies

100 % Govt. of India owned PSU

Serving Enterprises Since 2000

700 + Districts covered across India

Present in every corner of India (2 L+ Gram Panchayats)

Our Differentiators

Significant Investments to build state of the art Bharat Network

Network Integration capabilities at Scale

End-to-end provisioning & routing managed at scale

Enterprise-grade service delivery and network management expertise