# CYANCONNODE



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### Investment case



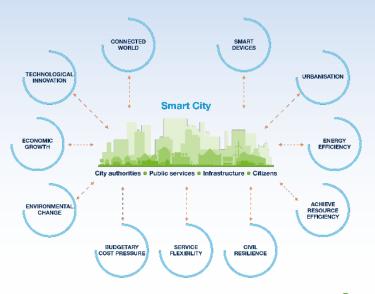
- Wireless Communications Narrowband Radio Mesh Tech designed by PHds in Cambridge
- Sell through well know multi-billion dollar organisations such as Schneider
  - End 2 end solution
  - Wide applications, Elec, Gas, Water, EV, Smart Cities
- Market opportunity 250 million meters in India alone government is after a quick roll out to enable economies of scale.
- Market worth c. \$80 per point (including meter) x 250m = \$20 billion
- Opex model to enable quicker roll outs significant investment by infrastructure funds
- Win 20m to 30m smart meters over 5 years = revenue of \$400M to \$600M to CyanConnode
- India now tendering for >41M meters worth c. \$775m revenue (excluding meters)
- > \$840 million opportunities in worldwide pipeline
- Strategy to deliver shareholder value (cost control, convert pipeline)
- USP
  - Standards based IPV6 6LoWpan
  - Success Data Rates SLAs of > 99.5% = high performance
  - Secure private network vs cellular which is not private or secure
  - Meter agnostic
  - Platform handle RF, Cellular, NBIoT, PLC
  - Innovation
  - Proven deployments 2.7 million units & cost effective

# About CyanConnode



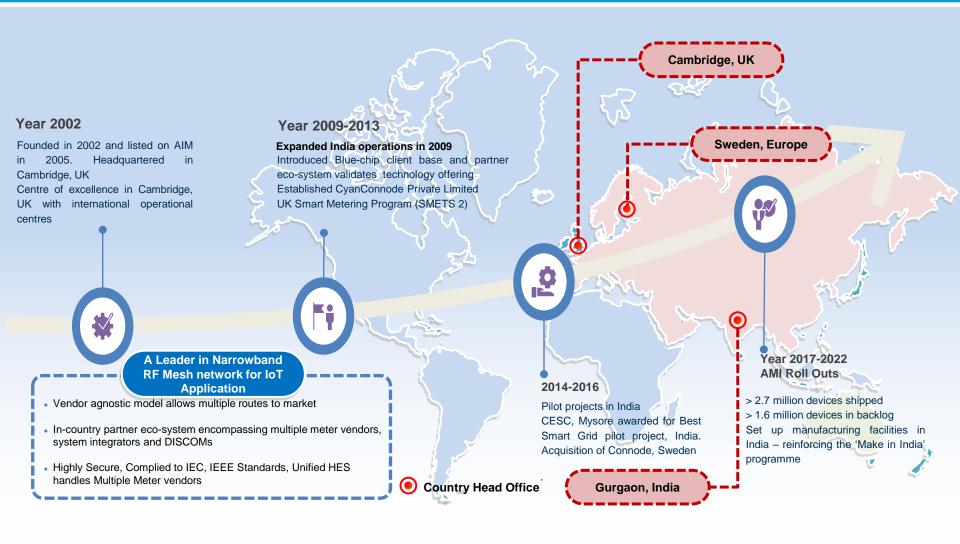
- A leading global vendor of 'smart' intelligent communications solutions, bringing together narrowband RF mesh and cellular technologies for the Internet of Things (IoT)
- Omnimesh platform can be applied to a range of smart city applications, including electricity, gas, water, street lighting and EV chargers
  - CyanConnode's platform provides secure M2M communication
  - Standards-based (IPv6, 6LoWPAN, IEEE 802.15.4g)
- Blue-chip client base and partner eco-system validates technology offering
- Vendor agnostic model allows multiple routes to market
- Proven scalability with c. 2.7 million endpoints shipped globally
- Record revenues in FY22





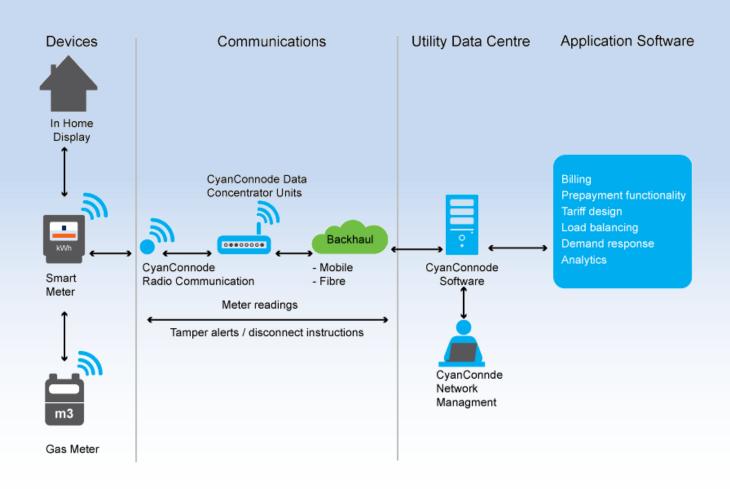
# About CyanConnode





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# Typical Smart Metering Deployment © CYANCONNODE

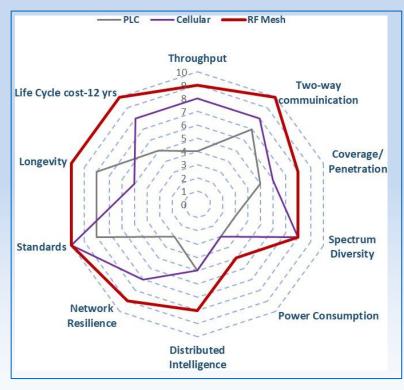


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### Best Mix - AMI Communication India



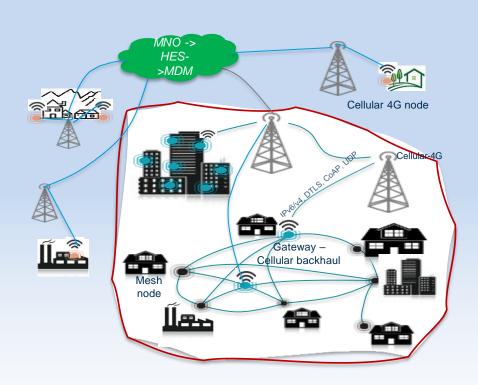
#### Fit-for-purpose metrics: Useful to select best mix of communication technologies





- ✓ Performance
- ✓ Economic value
- ✓ Scale

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Urban & Suburban areas: RF Mesh canopy + Cellular as backhaul

#### **Isolated Small Clusters**

Village hamlets, farm houses, pumps, etc.
 Cellular point-to-point

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## Narrowband RF Technology



- Provides a hybrid (IoT) M2M data communication for utility smart city solutions
  - Standards-based, IPv6 LoWPAN narrowband RF technology with cellular backhaul
  - Electricity and soon to be gas, water metering and district heating, and street lighting
- Low cost, low power and future proof unlimited scale, coverage, density and penetration through all terrains
- Uses license-free, regulated ISM\* bands that support interoperability between devices as well as connectivity in hard to reach places
- Ease of integration and deployment technology integrates into existing smart metering designs via plug-in modules paired with an antenna
- Offers critical infrastructure-grade security

√ Highly Reliable

√ Low Power

√ Cost Effective

√ Long Distance

√ Easy Integration

√ Standards Based

√ Self forming & Healing

√ Hardware Agnostic

√ Always On

CyanConnode's RF Smart Mesh Network technology

<sup>\*</sup> ISM - industrial, scientific, and medical radio band refers to a group of radio bands or parts of the radio spectrum that are internationally reserved for the use of radio frequency (RF)

### **Customers and Partners**



#### Blue-chip client base and partner eco-system validates technology offering

#### **Customers**

- Have delivered > 2.7 million endpoints (electricity meters and streets lights) to date across > 20 customers. 1.6 million in backlog
- End customer is typically an electricity utility with the direct customer often a major prime contractor partner or meter OEM

#### **Partners**

- Have formed deep relationships with major local partners in its target geographies which hugely enhances ability to win and deliver landmark projects
- Have integrated its technology into a number of major global meter manufacturers' devices meaning it can now rapidly deploy its technology with these OEMs on new projects

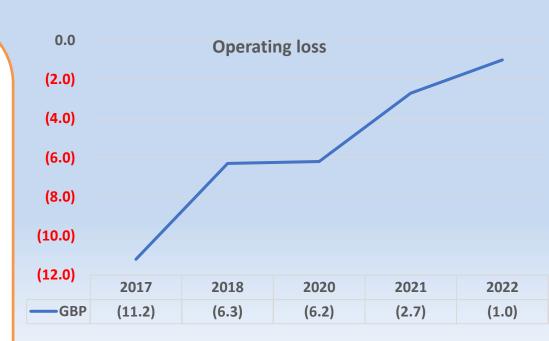


Deployed with major end customers, partners and hardware providers

### FY22 – record growth



- 49% Revenue growth to £9.6M (FY21: £6.4m)
- Record number of modules shipped (612,000 in FY22 vs 481,000 in FY21)
- 62% reduction in operating loss to £1.0M (FY21: 2.7M) as the company moves toward profitability
- Positive adjusted EBITDA of £0.1M (FY21: loss of £1.9M)
- 58% increase in cash and cash equivalents to £2.4M (FY21: £1.5M)



Positive adjusted EBITDA of £0.1M in FY22

### FY22 highlights

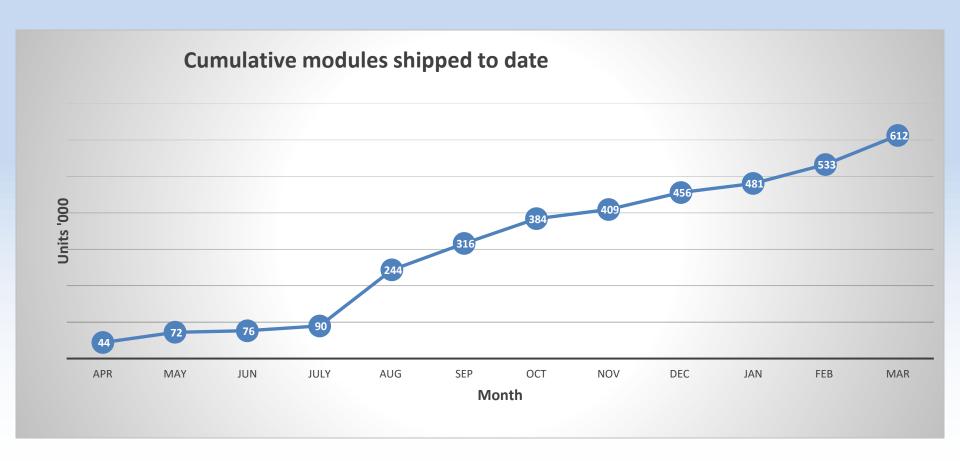


- 612,000 Omnimesh modules shipped vs 481,000 shipped in FY21
- 152,000 Omnimesh modules ordered for a project in Northern India
- 31,000 Omnimesh modules ordered for Metropolitan Electricity Authority in Thailand
- 100,000 Omnimesh modules ordered for a new customer in Africa
- Two oversubscribed placings completed raising £5.15 million before expenses
- Award of London Stock Exchange Green Economy Mark
- Winner of Frost and Sullivan Global Smart Metering Technology Innovation Leadership Award

### Modules shipped



Continued acceleration in deployments – record number of modules shipped



### Debtors and working capital



- £7m debtors showing on balance sheet. This is gross number excluding what
  has been received via invoice discounting. Invoice discounting amount is ~£1m
  meaning net debtors at year end were ~£6m
- £3.7 million cash received from customers since year end majority of which relates to FY22. c. £3m from FY22 debtors remaining, much of which is milestone based
- Improved payment terms with customers for current orders
- Improved costing of components and supply chain
- Additional manufacturing capacity

### Post period end



- 1 million Omnimesh modules ordered from Genus Power
- 2 orders from IntelliSmart for a total of 300,000 Omnimesh modules
- New order worth USD 6.7 million won from customer in MENA region for NBIoT gateways
- Further new order worth USD 2.6 million won from customer in MENA region for cellular gateways
- £3.7 million cash collected from customers
- Omnimesh integration underway with nine meter makes

### India rollout and pipeline



- The timeline for replacing the existing 250 million meters with smart meters has been split into two phases:
  - The total meters to be covered in this first phase is 100 million and shall be completed by December 2023
  - The second phase shall be completed by March 2025
- Current tenders published for > 41 million meters, with majority expected to close before March 2023
- Expected tender in FY24/5 for > 109 million meters

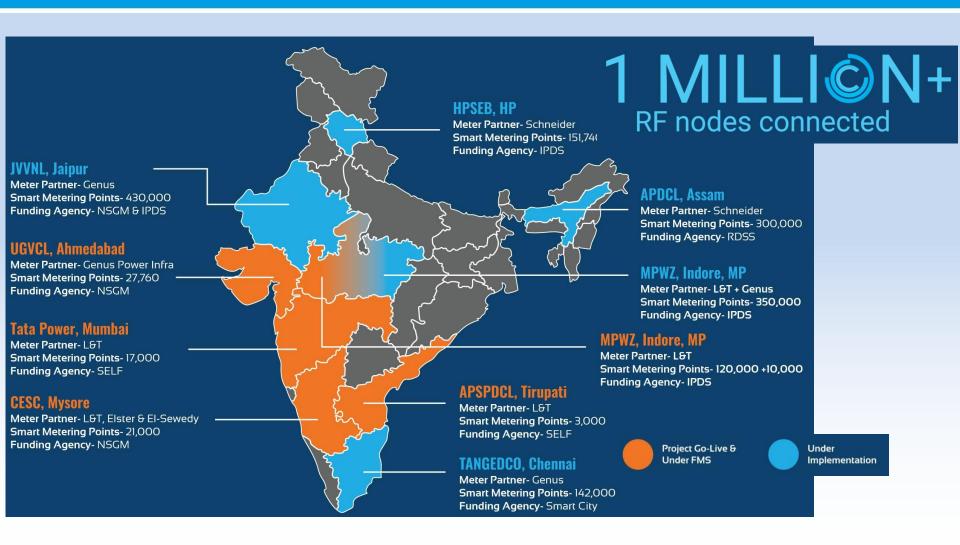
## CyanConnode India FY22 highlights



Two new orders – HPSEB and APDCL Delivered best ever annual revenue and cash collection. EBITDA of ~\$2.5m > 562,000 RF Nodes and 3907 Gateways supplied | >600K RF nodes and 3752 Gateways commissioned Largest and most experienced RF player in India with a footprint of ~900K meters Dedicated space for CyanConnode in Virtual Smart Grid Knowledge Centre, a Knowledge Centre platform by Ministry of Power demonstrating excellence in Smart Grid Integration with 2 new Meter Manufacturers initiated, making CyanConnode now compatible with 5 leading Meter Manufacturers in India First time Cyber Security certification completed on our HES (CERT-IN certified)

### India Deployment – Project Status





# Revamped Distribution Sector Scheme (RDSS)



- On 31<sup>st</sup> July '22, Prime Minister Narendra Modi launched the power sector's 'Revamped Distribution Sector Scheme' (RDSS), aimed at improving the operational efficiencies and financial sustainability of Discoms and power departments
- The scheme aims to provide financial assistance to discoms for modernisation and strengthening of distribution infrastructure, focussing on the improvement of the reliability and quality of supply to end consumers
- RDSS mandates compulsory installation of smart meters across the country. The Centre has set an ambitious target of installing 250 million smart meters by 2025

#### **Goals and Targets**

Target – Deployment of 250 million smart meters

- •Implementation in 2 (two) phases
- Phase 1 ~100 million smart meters by December 2023 in UTs, Industrial, Commercial, Government offices and other areas with losses>15%
- Phase 2 250 million smart meters by December 2025 in remaining areas

#### **Outlay and Features**

Scheme outlay of ~GBP 30.58 Bn.

- Government Budgetary Support of ~GBP
   9.83 Bn.
- Results Linked grants tied to performance of DISCOMs on Operational & Financial performance and Reform initiatives
- Model SBD for AMISP on DBFOOT basis notified by Gol
- Empanelment process for AMISP and component/solution vendors released

#### **Policy & Regulations**

CEA Metering Regulations issued in 2021

- All **new meters** to be Smart **Prepaid**Meters
- •Smart meter for all feeders by December 2022
- Phase-wise transition of existing meters

# Empanelment process for participation in AMISP tenders



- REC, under Union Ministry of Power, had floated a Request for Empanelment (RFE) for participation in RDSS AMISP tenders for providing Advance Metering Infrastructure (AMI) prepaid Solution after successful demonstration
- A practical test bed methodology has been defined for AMI solution providers so that the AMI solution providers could demonstrate their proposed solution in a controlled test environment (Pre-Qualification demonstration test) before implementing their solution on actual site.
- This will enable the Discoms to invite only those players for implementing AMI projects who had successfully demonstrated their prototype AMI prepaid solution in front of a testing agency.
- The potential AMI prepaid solution service providers whose Applications are substantially responsive to the RFE document and who fulfill the eligibility and qualification requirements and successfully demonstrate end-to-end AMI prepaid solution would be awarded an Empanelment Certificate
- The empanelment process for 1<sup>st</sup> phase of applications had begun on 16<sup>th</sup> May 2022. Approximately 45
   AMISPs showed interest for empanelment and CyanConnode is supporting 16 AMISPs
- The above process has delayed the ongoing and new RfPs that are based on RDSS
- RFE Document <a href="https://recindia.nic.in/uploads/files/AMISP-RFE21042022.pdf">https://recindia.nic.in/uploads/files/AMISP-RFE21042022.pdf</a>

### Other markets





# Thank you







# **Appendices**

# Typical contract signing and rollout



- Competitive tender with full bidding process
- Utility makes award to CyanConnode partner, who then negotiates with end customer to finalise their terms
- CyanConnode then negotiates contract with partner
- Partner negotiates other contracts with meter manufacturers etc.
- Order placed on CyanConnode
- Contract consists of hardware (modules and gateways), HES software, services and support and maintenance contract
- Varying payment terms and revenue recognition rules for each element of contract
- Each contract will have slight variations, and payment terms and revenue recognition can vary by contract
- Above is typical for Indian contract. May be variations in other territories



# Revamped Distribution Sector Scheme (RDSS)

Smart metering is the stepping-stone towards utility modernization & Indian Utility's transition journey

#### **RDSS Objectives**

1

Improve power quality, reliability and affordability

2

Reduce AT&C losses to 12-15% by 2024-25



Reduce the ACC-ARR gap to zero by 2024-25

#### **Component A - Metering**

- 100% consumer smart prepaid metering
- 100% system metering for feeder & DT

#### Component B – Distribution Infrastructure Work

- Loss Reduction armored cables, new feeders, feeder segregation, HVDS in high loss areas, conductor replacement
- **Network Strengthening** substation augmentation, IT/OT enablement, SCADA, ERP, CIS-Billing, DMS, etc.

#### **Key Focus Areas under RDSS**

### Smart Metering

 Emphasis on rollout of smart meters to improve power quality, reliability and affordability

# Smart Grid Knowledge Centre

 Resource center for advanced technologies, Innovation Park and Technology Incubation Hub

# Power Sector focused Incubators

 Incubation programme for startups/ technology players for implementation of pilot projects

# Strengthening Start-up Ecosystem

 Dedicated start-up missions at the state level focused on new age technologies

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### **Electricity (Amendment) Bill, 2022**

- The Electricity (Amendment) Bill, 2022 was introduced in Lok Sabha on August 8, 2022. The Bill
  amends the Electricity Act, 2003. The Act regulates the electricity sector in India.
- The Electricity Amendment Bill, 2022 aims at giving multiple players open access to distribution networks of power suppliers and allowing consumers to choose any service provider.

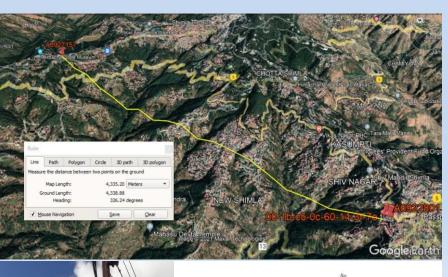
#### The Bill seeks to amend Electricity Act 2003:

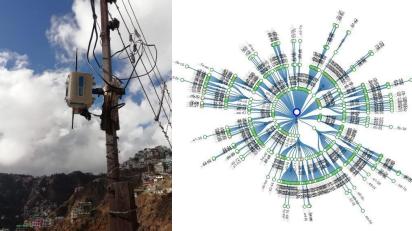
- To facilitate the use of distribution networks by all licensees, under provisions of nondiscriminatory "open access" with the objective of enabling competition, enhancing efficiency of distribution licensees for improving services to consumers and ensuring sustainability of the power sector.
- To facilitate non-discriminatory open access to the distribution network of a distribution licensee.
- To make provisions vis-à-vis graded revision in tariff over a year besides mandatory fixing of maximum ceiling and minimum tariff by the appropriate commission.
- To strengthen functions that will be discharged by the regulators.

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### **HPSEB: Live Status**







CyanConnode achieved a range of **4.2 KMs through** regular RF

**nodes** in Shimla, Himachal Pradesh reemphasizing that its Omnimesh architecture is the best solution for Smart Metering in India with best possible coverage of dense, hilly, agricultural & semi-urban areas while delivering the desired SLAs.

### MPWZ Indore: Impact



#### **Billing Improvement**

- ₹ 13.93 per consumer saving on Govt. **Subsidy** on smart Metering consumers due to accurate data.
- Accurate & timely availability of billing data (>98%)
- Billing efficiency improvement by 24.84 % from 66.5 % Baseline tt @ 91.34 %

#### Remote Comms.

- More than 1.7 Lakhs Remote disconnections/reconnections done towards 104.28 Cr. Arrears.
- Around 32.1 Lakhs Bill Generated through AMI and provided readings even in lockdown and curfew of Covid-19 pandemic
- **6,12,00 bills** of SSI Consumers penalized for low power factor (PF<0.8)

#### Help prevent theft

- Total 1095 theft cases detected with Rs 8.78 Cr additional billing
- More than Rs. 144.58 Lakhs recovered against MD>SL penalty



#### **Revenue Improvement**

- Net increase in sold units by 142.9 MU's
- > Average improvement in revenue ₹ 450 per Meter per Bill

#### **Data Analytics**

- PF incentive (PF>0.85) given to more than 1,38,000 Bills of SSI
- Real time availability of AT&C losses at DTR level
- Near Real time consumption check by consumer
- 34.52 MW increase in sanctioned load based on recorded MD resulting in monthly fixed charged of Rs.30.3 Lakhs.

#### **Return on Investment**

Project cost of 96.41 Cr. (CAPEX + 5)

Year AMC including GST) recovered in 28 months (about 2.5 years) from date of award of the contract.

### Mhow Town, MP: Case Study





Smart Meters installed in Mhow town, MP with CyanConnode's RF mesh Communication

Solution

Collection of every 15 minutes-Instantaneous Parameters, Block Data and Daily Energy Data Totaling to 193 Samples per Meter per Day



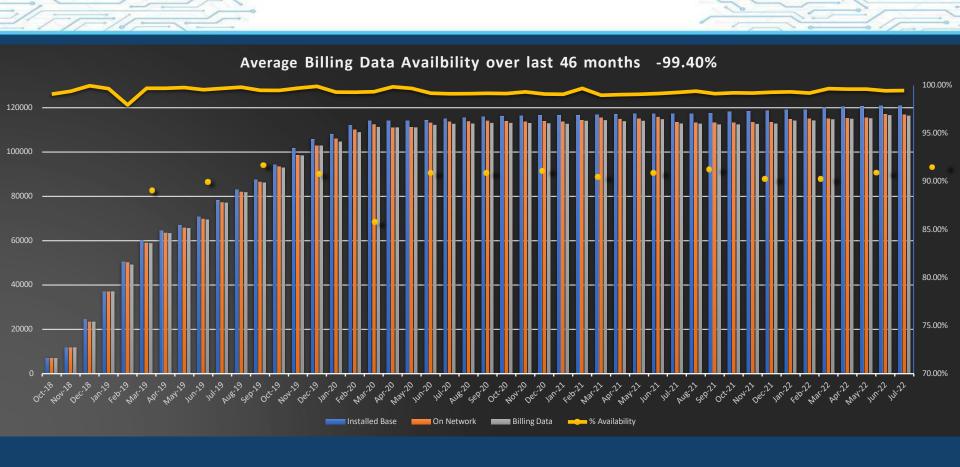




AT&C Loss
Declined 22.20% YoY









CyanConnode is the largest private player in India providing Smart IoT Communication solutions for AMI infrastructure. CyanConnode's RF Smart Mesh Networks are designed for rapid deployment, while giving exceptional performance and competitive total cost of ownership (TCO). CyanConnode has been active in India since 2009 and executed the first Smart Metering project in the year 2014. CyanConnode is currently active in 9 states in the country and has a current orderbook of

#### 2.6 million nodes

of which over 1 Million have been installed.





### CyanConnode's USP - Guaranteed >99% SLA

### Edge Computing

Facilitates
optimization of
data payload
enabling faster data
processing at the
node level ensuring
reliable transmission
of data



#### Network design expertise

Experienced and dedicated network design experts of Communication Field Engineers & Central Network Monitoring Teams, to ensure compliance of desired SLA for the entire project duration



### Network Management System

CyanConnode's solution architecture is the only one to provide NMS for cellular meters in India

Ensures real time visibility and monitoring of communication node status through geo mapping



#### Long Range RF

We have developed long-range RF solution that can comfortably communicate up to IOkm range to cover diverse geographies & demographics (including Agriculture, GPs, Islands, Rural & Semi-urban pockets) of India



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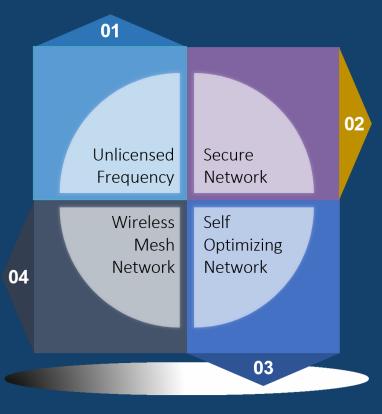


#### Cost effective

- Operates on license free 865-867 MHz spectrum
- 6LoWPAN, IPv6 over LoWPAN (IEEE 802.15.4)
- IETF Specifications (RFC 4944, RFC 6282 etc.)
- DLMS compliant IS 15959

#### Point to Multipoint

- Auto-configuration with neighbor discovery
- RF Nodes will constantly try to optimize the network topology by evaluating the radio conditions to neighboring RF nodes
- Multiple Hops



#### IPv6 Network – last mile

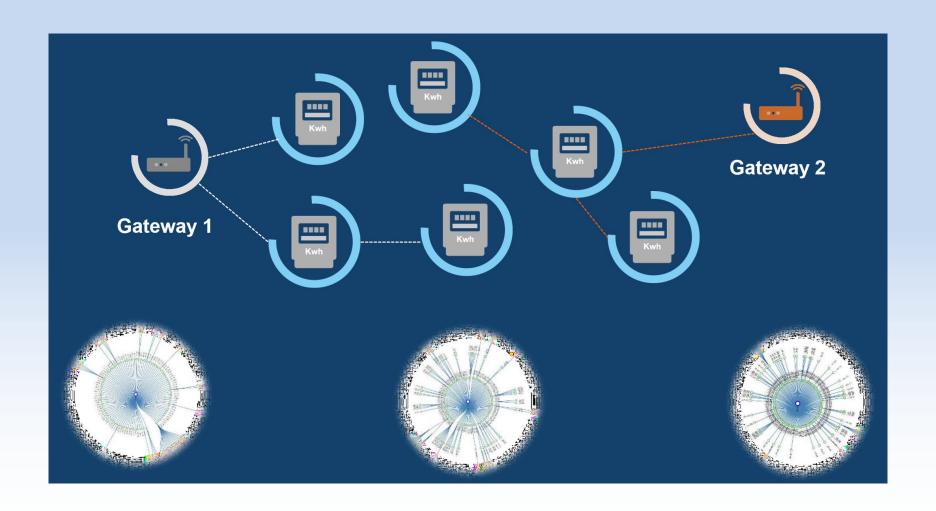
- Secure IPv6 Network
- 802.15.4 provides AES128 encryption which is enabled beneath IPv6
- UDP, ICMPv6, (DTLS Security)
- Interoperability between different make of meters

#### Self Healing, Self Forming

- The nodes determines the best route to the Gateway, either directly or routed through another node
- If a RF node becomes unavailable or a Gateway loses backhaul connection, the RF mesh network will rearrange automatically

# Self-Forming RF Mesh network









**Outdoor Gateway- IP67** 



#### **RF Module**

#### **Compliances/Standards**

Compliance to IS 16444

Application: IS 15959 (Part 1) and IS 15959 (Part 2)

• Transport : TCP/UDP

Network : IPv6 RPL

Adaptation : 6LoWPAN RFC (6282)

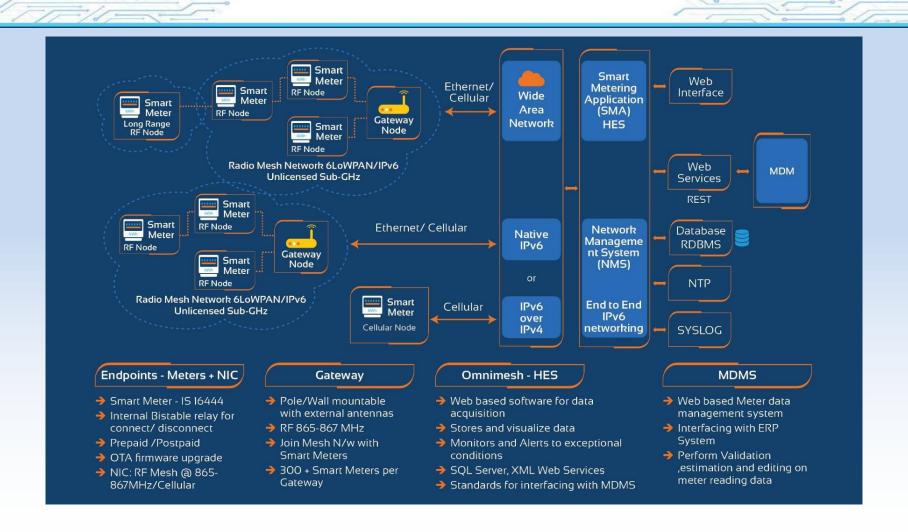
 Compliance to CEA Guidelines- Functional Requirements of Advanced Metering Infrastructure (AMI)

• IPV6/6LoWPAN RF Mesh based on IEEE802.15.4g



RF antenna (meter)

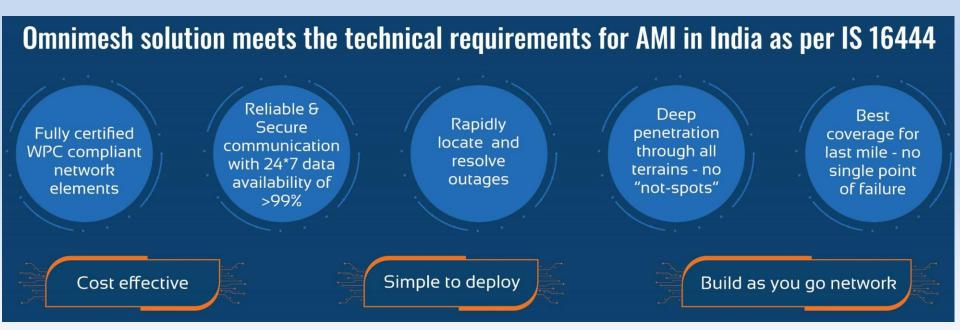




### **Omnimesh RF Solution**



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A true winning solution for Utilities, Consumers and Government