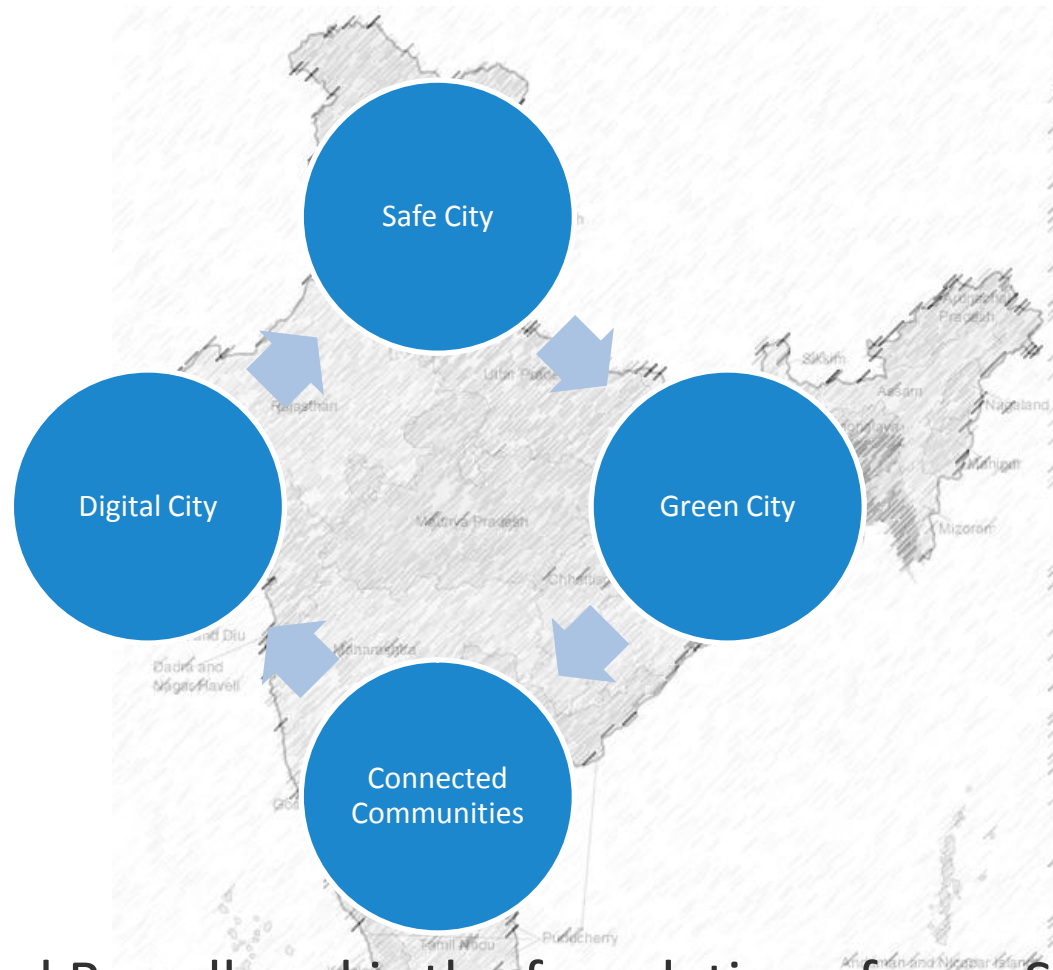# Smart Cities
Laying the Foundation with Fixed Wireless

Biju Kunjukunju,
Vice President, Engineering Operations India

Cambium Networks™

Building Blocks of a Smart City

Safe City

Digital City

Green City

Connected Communities

High Speed Broadband is the foundation of your Smart City
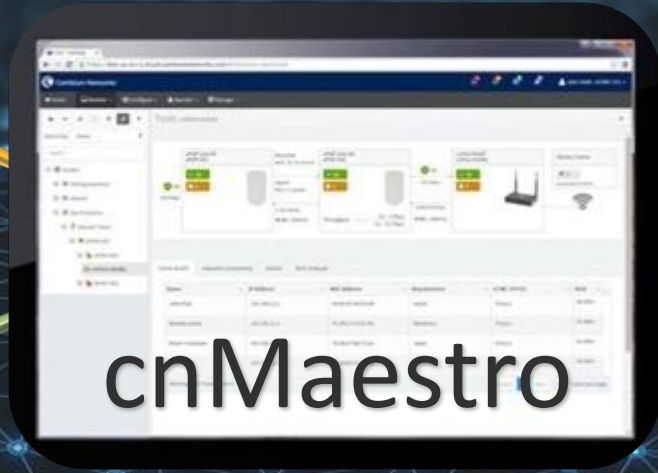Broadband penetration has direct co-relation with GDP

Cambium Networks™

Cambium Networks™

A Wireless Fabric Company

Purpose-Built Resilient Affordable Wireless Networks

Cambium Vision : Connecting the Unconnected

2 Meters to 245 Kilometers

Cambium Networks™

Unique Wireless Fabric Enabling Purpose-Built, Resilient Networks

- Emerging Leader in Fixed 5G – ushering Smart City and IIOT

- Massive MU-MIMO Innovator

- Layer 2 Agnostic

- From Kilobit to Megabit to Gigabit

- Outdoor and Indoor

- Easy to plug in & operate - Cambium Fabric (cnMaestro)

Cambium Networks™

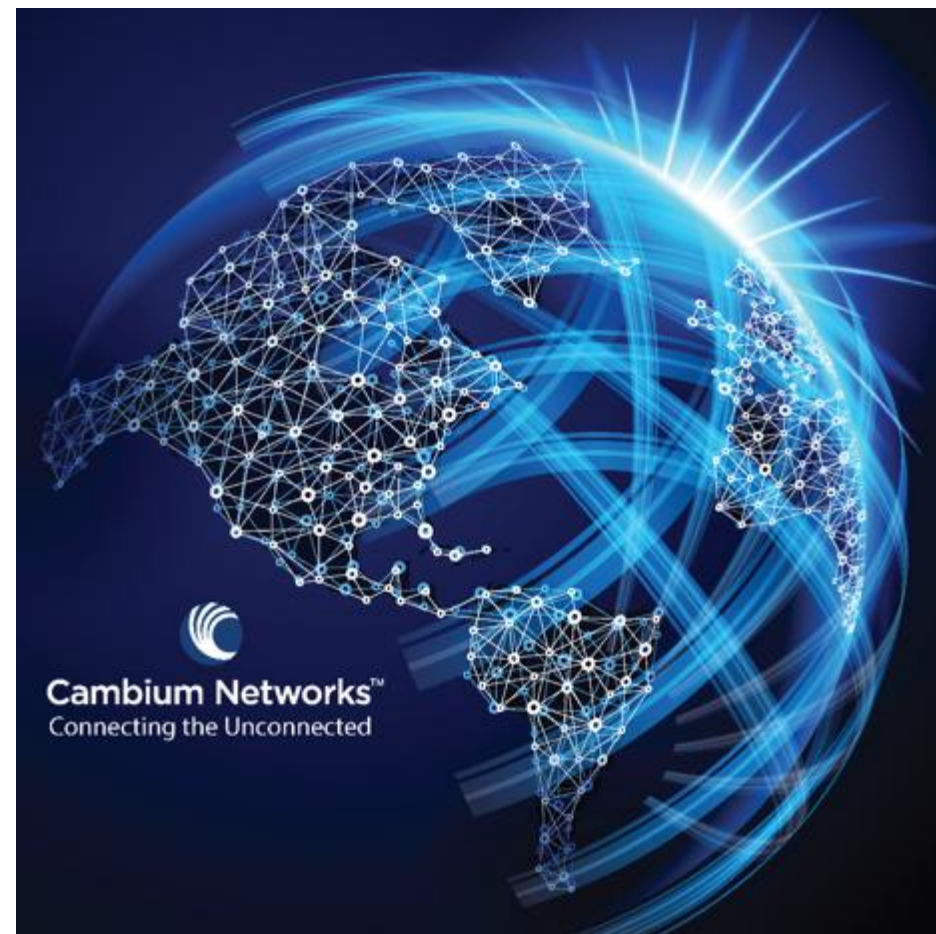# Connecting the Unconnected – The Need Is Massive

Cambium Networks™

Mission

- Connecting the Unconnected: People, Places, and Things

- Deploying Purpose-Built Resilient wireless broadband networks.

- Emerging Leader in Fixed 5G.

- Providing affordable, zero-touch and quality wireless connectivity

- cnMaestro – The advance decision-support platform

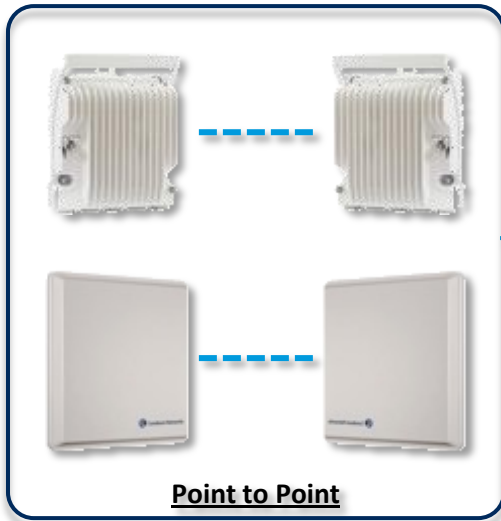Cambium Networks™
Connecting the Unconnected

2 m to 245 km – *We Have You Networked With Cambium's Wireless Fabric*

cnMaestro

Planning

Network Management

Inventory Management

Wi-Fi Controller

Support & Warranty Services

Long Distance: PTP 670, 820

Distribution Access: PMP 450, ePMP
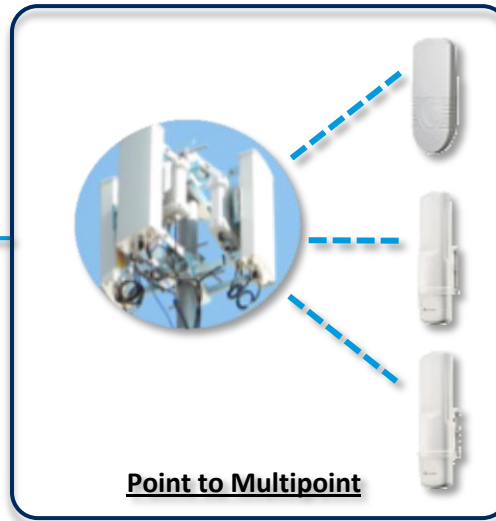
Edge Access: cnPilot/cnReach

Point to Point

Point to Multipoint

802.11n/ac Home, Indoor & Outdoor WiFi

IIOT Narrow band Radio 450/700/900 MHz

Enabling 'Digital India'

Connecting Indians

- **Thousands of residential, schools and villages connected**
- **RailTel, BSNL rural projects**
- **City WiFi Projects**

Connecting Businesses

- **Enterprise VPN connectivity via Telecom Operators and ISPs**
- **Remote Banking 'Jan Dhan'**

Safe Cities

- **City video surveillance in Godra, Kurnool, Anand, Kadapa, Nasik, Dharwar, Hubli, Panchkula, Shimoga**

Strong presence in India

- **Affordable Broadband**
- **Global Centre of Excellence design center in Bangalore**
- **Extensive partner network**

Cambium Networks™

Trenches – Is not always Smart

Fixed Wireless can lay a high speed broadband foundation at a fraction of cost and time

Cambium Networks™

ABC Corp.

Video Surveillance

USP
Camera can be powered from the Cambium PMP and WiFi devices.
Low latency
No location constrain
Works with any standard based IP camera
Security
Grow as you wish
Centralized and synchronized traffic signals

Cambium Networks

WiFi and Public Hotspot

WiFi access
e-Governance
Citizen engagement and services
Participatory neighborhood surveillance
Basic need of anything in smart city (water, electric utilities)

Public Hotspot
Free wifi – Increased business
Vouchers with fine control (time, bandwidth, quota)
Employment – selling vouchers
Business opportunity – Wireless ISPs
Fully compliant with regulations
Works with smart phones, tablets and laptops

Cambium Networks
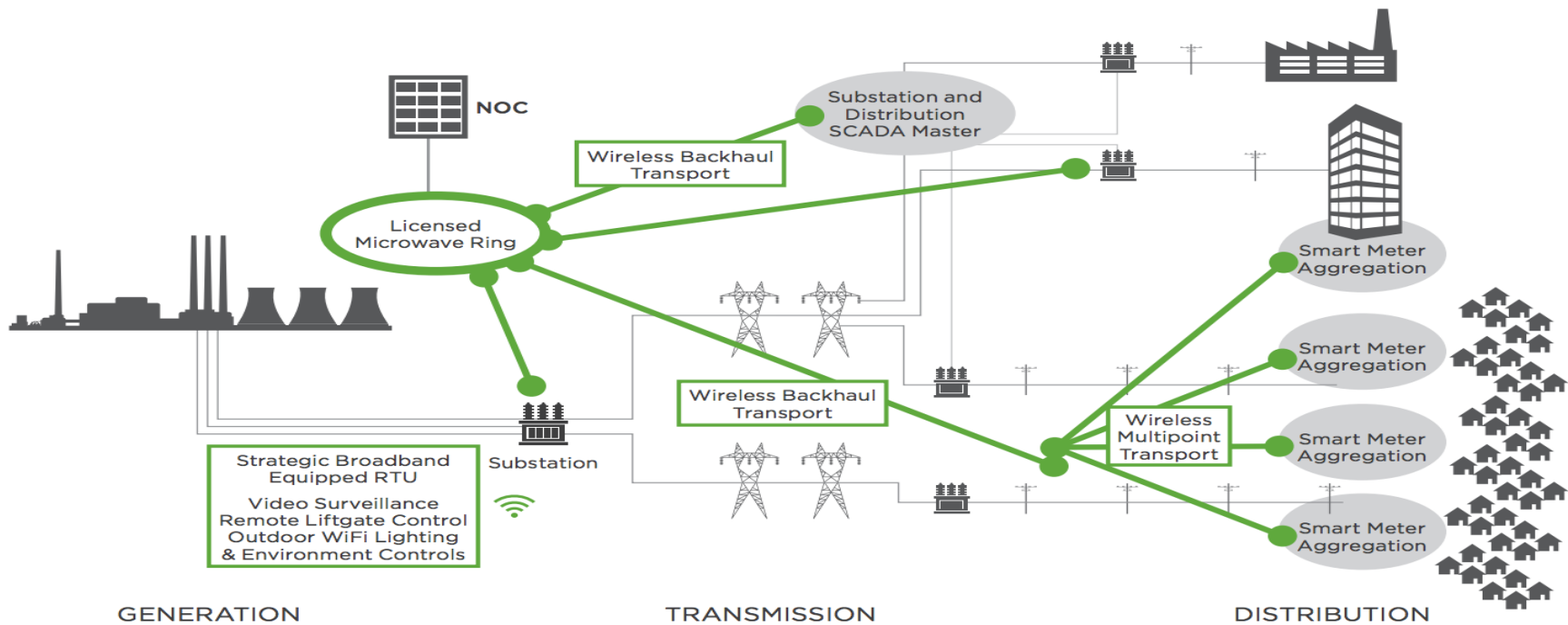
Electric Utilities and Broadband

Coverage

Customize coverage to meet business needs. Operators and planners can quickly and confidently design the network to reach urban, suburban, and rural locations with the throughput, reliability, and security required to support the applications needed with minimal investment in communications infrastructure.

Integration

Cambium solutions integrate voice, video, Internet traffic such as e-mail and web traffic alongside SCADA data from RTUs, sensors and control points on a single all-IP network managed from a single centralized end-to-end view of the network.

Field Communications

Maximize efficiency and minimize costs with a private IP network tailored to meet the specific needs of the business. Wireless broadband is rapidly deployed and enables utilities to connect the people and things from any place in the operation.

NOC

Substation and Distribution SCADA Master

Wireless Backhaul Transport

Licensed Microwave Ring

Smart Meter Aggregation

Strategic Broadband Equipped RTU

Video Surveillance Remote Liftgate Control Outdoor WiFi Lighting & Environment Controls

Substation

Wireless Backhaul Transport

Wireless Multipoint Transport

Smart Meter Aggregation

Smart Meter Aggregation

Smart Meter Aggregation

GENERATION

TRANSMISSION

DISTRIBUTION

Cambium Networks

Electric Utilities and Broadband

Field Area Networks (FAN) Applications

- **Smart Meter Aggregation Backhaul** – Establish a reliable backhaul communications infrastructure that connects smart metering and distributed generation systems.

- **Transport for Substation and Distribution SCADA Data** – Deploy high-speed connectivity for multiple purposes in substations for SCADA, data transfer, and security. Provide low latency enables real-time monitoring and control of facilities.

- **Replacement of End-of-Life Leased Analog Circuits** – Ensure operations continuity with high throughput wireless broadband as leased lines are taken out of service.

- **Remote Office Connectivity** – Equip remote office locations with high-speed connectivity for data, VoIP, and streaming video.

- **Video Surveillance** – Reduce downtime and losses due to vandalism by monitoring sensors and deploying 24/7 video surveillance at high value locations.

Cambium Networks

Water utilities
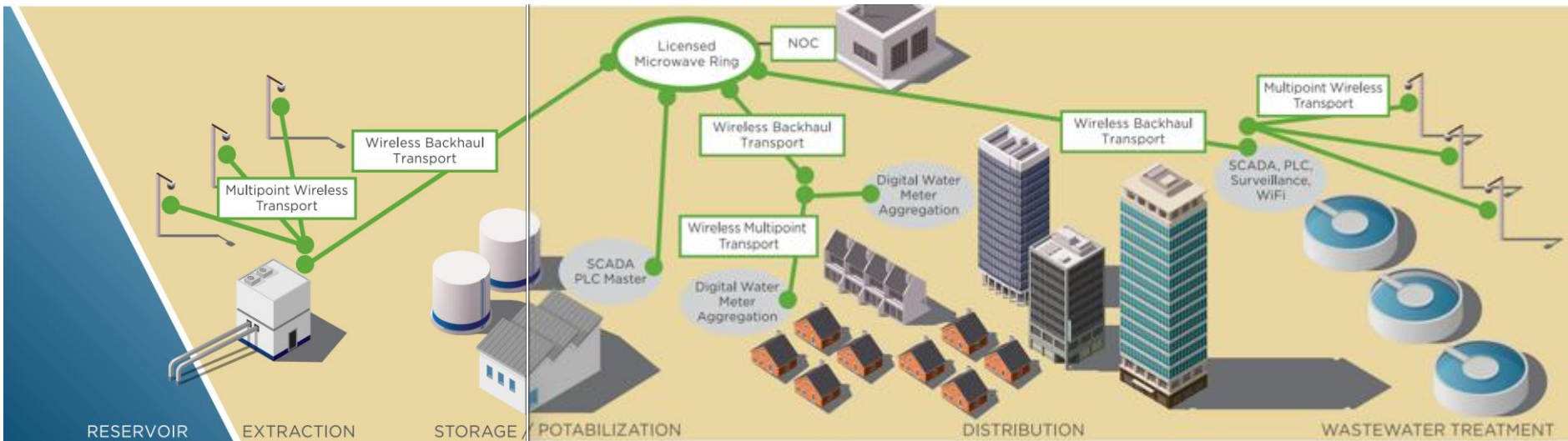
Digital Water Meter Aggregation Backhaul – Establish a reliable backhaul communications infrastructure that connects Smart Metering.

Transport for SCADA and PLC Process Control Data – Deploy high-speed connectivity for multiple purposes in substations for SCADA, PLC, data transfer, and security. Provide low latency real time monitoring and control of facilities.

Video Surveillance – Reduce downtime and losses due to vandalism by monitoring sensors and deploying 24/7 video surveillance at high value locations

Remote Office Connectivity – Equip remote locations with high-speed connectivity for data, VoIP, and streaming video.

Cambium Networks

Disaster recovery

While medical and repair teams focus on their crucial work, they can count on Cambium Networks wireless broadband solutions to provide the communications infrastructure necessary for VoIP communications, streaming video, and data transfer.

- Dependable connectivity in times of need
- Rapidly deploy end-to-end broadband connectivity
- High performance
- Rugged reliability

Cambium Networks

Thank You!

Cambium Networks™