Brian Mitchell
State of Nevada

Andy Lipman
Morgan, Lewis

Cindy Malinchak
Signify

Jamaal Smith
Kajeet

Oren Binder
OnGo Alliance

Jim Jacobellis
Alef

Alliance Membership – 165 Strong & Growing

4RF Limited
Accelleran
ADRF Technologies
Agri-Valley Communications, Inc
Airspan Networks
Airtower Networks
Allen Vanguard Wireless, LLC
Alpha Wireless
Amdocs Management Limited
American Tower Corporation
Amit Wireless Inc.
ANS Advanced Network Services, LLC
Anterix
Asiatelco Technologies, Inc
Askey Computer Corp.
Aspire Technology Partners
AT&T
ATDI
Athonet
Baicells Technologies Co., Ltd.
Ballast
Barich, Inc
Bearcom
BEC Technologies, Inc
Betacom
Black Box
Blinq Networks
BlueArcus Technologies
Boingo Wireless, Inc.
BTI Wireless
Cable Television Laboratories Inc

Cambium Networks
Capgemini America, Inc
Casa Systems
CellAntenna Corporation
Celona, Inc
Centerline Communications
Charter Communications
Ciena
Cirrus Core Networks, Inc
Cisco Systems
Codium Networks
Comba Telecom, Inc
Comcast Corporation
Commscope
Communication Technology Services, LLC
COMSovereign Holding Corp
Connected Devices, Inc
Connectivity Wireless Solutions
Contour Networks
Corning Optical Communications
Cox Communications
Cradlepoint
Crown Castle
CTIA
CTL
DEKRA Testing and Certification, S.A.U.
Dell Technologies
Dense Air Limited, LLC
Digi International
Digital Global Systems
Dish Network
Druid Software

EDX Wireless
Element Materials Technology Washington DC LLC
Encore Networks
Ericsson, Inc.
EUCAST Co., Inc
ExteNet Systems, Inc.
Facebook
Federated Wireless
Fibocom Wireless USA, Inc
Fibrolan
FreedomFi, Inc
Frequencz
Frontier Communications
Fujitsu Network Communications
Gadgetspace, LLC
GE MDS
Gemtek Technology Co., Ltd
GenXComm, Inc.
Geoverse
Giesecke+Devrient
Global Technology Associates, LLC (GTA)
Goodman Telecom
Google, LLC
Graybar
HALO DAS, LLC
HCL Technologies
Hewlett Packard Enterprises
Highway9 Networks, Inc
Huber + Suhner
Ibwave
Imagine Wireless
Impact Broadband Corporation

Inseego Corp
Insta Advance Oy
Intel Corporation
IOT4NET, Inc
JACS Solutions
JMA Wireless
JPU
Juniper Networks
Kajeet
Keysight Technologies, Inc
KLA Laboratories, Inc
Kleos UK Ltd
Kore Wireless
LandMark Dividend, LLC
Mavenir Systems, Inc
Midcontinent Communications
Miller Electric Company
Mobilitie, LLC
Monogoto, Ltd
Motorola Solutions
Multi-Tech Systems, Inc
Munisite Networks
Nesten, Inc
NextGen Global Resources, LLC
Nokia
NRTC
Nsight
OneLayer
Palo Alto Networks
Panasonic
Parsec Technologies, Inc
Pavlov Media, Inc
Pierson Wireless

Pyramid Network Services, LLC
QuadGen Wireless
Qualcomm
Quanta Cloud Technology
Quantum Wireless
Qucell
Qulsar
Radio Frequency Systems
Radisys Corporation
Radtonics, Inc
Rakuten USA, Inc
RANlytics
Ranplan Wireless, LLC
Redline Communications
RF Connect
Samsung Electronics America Inc.
SBA Communications
Securus Technologies
Seowonintech Co., Ltd
Sequans Communications
Sercomm USA, Inc
SGS North America, Inc
Shared Access
SNS Telecom & IT
Socionext America, Inc
Solid
Sony Group Corporation
Sporton International, Inc
Star Solutions International, Inc
Sterlite Technologies Limited
Super Micro Computer, Inc
SureSite Consulting Group, LLC
Syniverse Technologies, LLC

Tango Networks
Teal Communications
Tecore Government Services, LLC
Telecommunication Technology Labs, CAICT
Telit
Telka, LLC
Telrad Networks
Telsasoft
Terranet Communications, LLC
Tessco Technologies, Inc
Texas A & M University
The New York Library
The Quilt
T-Mobile USA
Transit Wireless
Trextel, LLC
TruConnect
U.S. Cellular
University of New Mexico
Valid8.com, Inc
Vedanta Telecom, LLC
Vergibility, LLC
Verizon Communications
Vertical Bridge Holdings LLC
View, Inc
VMware Inc
Wesco
Wilson Electronics
Winncom Technologies
Wispa (Wireless Internet Service Providers Association)
XCOM Labs, Inc
ZenFi Networks
Zyxel Communications Corporation

OnGo alliance

Over 300K

CBSD's
deployed in the US

- ☑ Healthcare
- ☑ Manufacturing
- ☑ WISPs
- ☑ Airports
- ☑ Oil & Gas
- ☑ Warehouses
- ☑ Hospitality
- ☑ Education
- ☑ In-building
- ☑ Public Safety
- ☑ Agriculture
- ☑ Utilities
- ☑ Military
- ☑ Large Venues
- ☑ Rural Access

Over 900

Different operators
leveraging freely
available CBRS
spectrum (GAA)

kajeet. AT A GLANCE

- → A Leading Public & Private Wireless Managed Service Provider
- → Two Decades of Experience
- → Leading US provider of off-campus wireless internet for students
- → Over 3,000 Customers
- → Service 7 Large High Growth Verticals
- → 5.5M+ Lines Connected
- → Award Winning Software Platforms
- → 40 Foundational U.S. Wireless Patents
- → 150+ employees
- → MSP for Charter & Comcast
- → 40+ Private Wireless Deployments

MARKETS SERVED

EDUCATION | ENTERPRISE FIELD SERVICE | HEALTHCARE | MONITORING | TELECOM & CABLE | TRANSPORTATION | PRIVATE NETWORKS

SELECTED CUSTOMERS

EDUCATION — CONROE INDEPENDENT SCHOOL DISTRICT, Eudora Schools, FLAGSTAFF UNIFIED School District, Idaho Falls School District No. 91, Springfield Platteview

FIELD SERVICES — iTALKPTT, L3HARRIS FAST. FORWARD., beeline group, restorepoint

HEALTHCARE — tytocare, MH monogram health, Sano health, Wake Forest Baptist Health

TRANSPORTATION — LOOP, NOREGON VEHICLE DATA EXPERTS, Road Runner MEDIA, zTrip

MONITORING — agralarm, AquaPhoenix SCIENTIFIC, TALITRIX, TRAKID Explorer Quest

TELCO & CABLE — Charter COMMUNICATIONS, SCHURZ COMMUNICATIONS INC., Sparklight

PARTNERS

AT&T, T-Mobile, verizon, U.S. Cellular, vodafone

cradlepoint, inseego, MULTITECH CREATE · CONNECT · COMMUNICATE, SIERRA WIRELESS

ONF, SAMSUNG, RUCKUS, Airspan, Baicells, Google

The first Edge API Platform that offers edge as a service to empower cities to create, customize, and control their own private LTE/5G network, inside their firewall using programmable APIs.

ALEF

Product Portfolio Overview

Smart poles

Everything needed for small cell tower and IoT

- Small cells (RRU for 4G LTE / 5G)
- Neutral host
- IoT applications

Pole attachments

Economic solution for retrofitting existing poles

- Full size radome: 5G mmWave, CBRS/LAA + universal antenna
- Compact radome: CBRS/LAA + universal antenna

Hub

Fiber hub with smart services for highly visible locations

- Neutral host for Telco and IoT devices
- Digital screens for advertising
- In kiosk or pole form factor

Gb Luminaire

Wireless mesh for last mile coverage

- Utilizing ubiquitous lighting grid
- Up to 16Gbps aggregated capacity
- ≤ 0.3 mi. / 450 m Range

Lighting

Energy efficiency connected luminaires

- Energy efficient Existing sensor based connected luminaires
- Offer narrow band IoT services through Interact

interact

Signify

The 24-Hour City
Improving environments around the clock

7:00am –12:00pm
Morning Commute

2:00pm –5:00pm
Workday Continues

7:00pm –10:00pm
Events and Entertainment

12:00 –7:00am
Nighttime & Public safety

12:00pm –2:00pm
Office Workday

5:00pm –7:00pm
Evening Commute

10:00pm –12:00pm
Weekend

24/7
Digital Equity

Our portfolio in 2021 – Luminaires with Gbit technology

Road & Street

C7002 –
Philips LumiStreet

C7012 –
Hadco Pureform

Urban

C7007 –
Lumec Ancestra AT50

C7009 –
Lumec Domus DMS60

C7005 –
Lumec Renaissance RN20

C7012 –
Hadco PureForm

C7008 –
Lumec Ancestra AT10

C7006 –
Lumec Domus DMS50

C7004 –
Pendant Modular

C7003 –
Bond St ETO

Site & Area

C7011 –
Gardco Form 10

C7012 –
Hadco PureForm

Ⓔignify

Lighting infrastructure reaches every part of your city

It all contributes to the goals of government leaders and cities with solutions that go beyond illumination
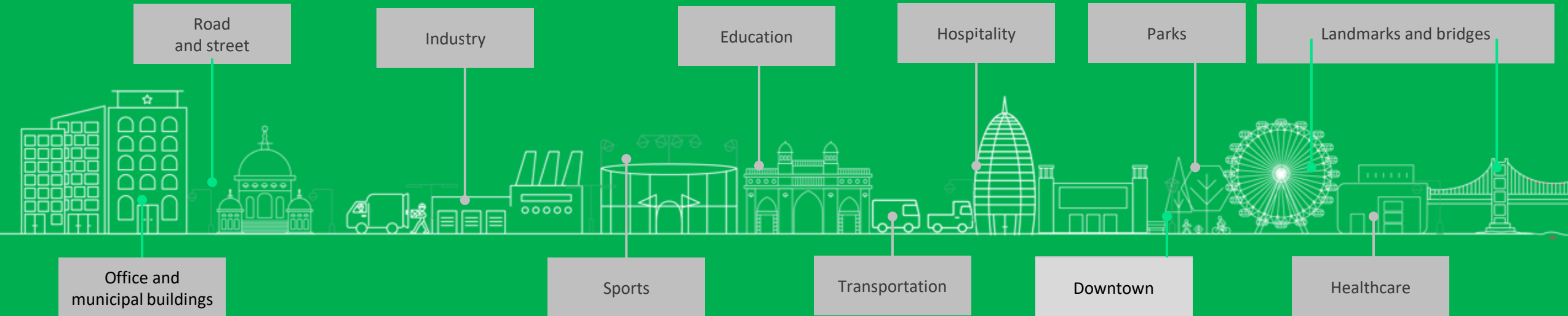
Connected system benefits

The systems on a smart city can help in many points, for example:

- Optmized energy usage;
- Connected citizens;
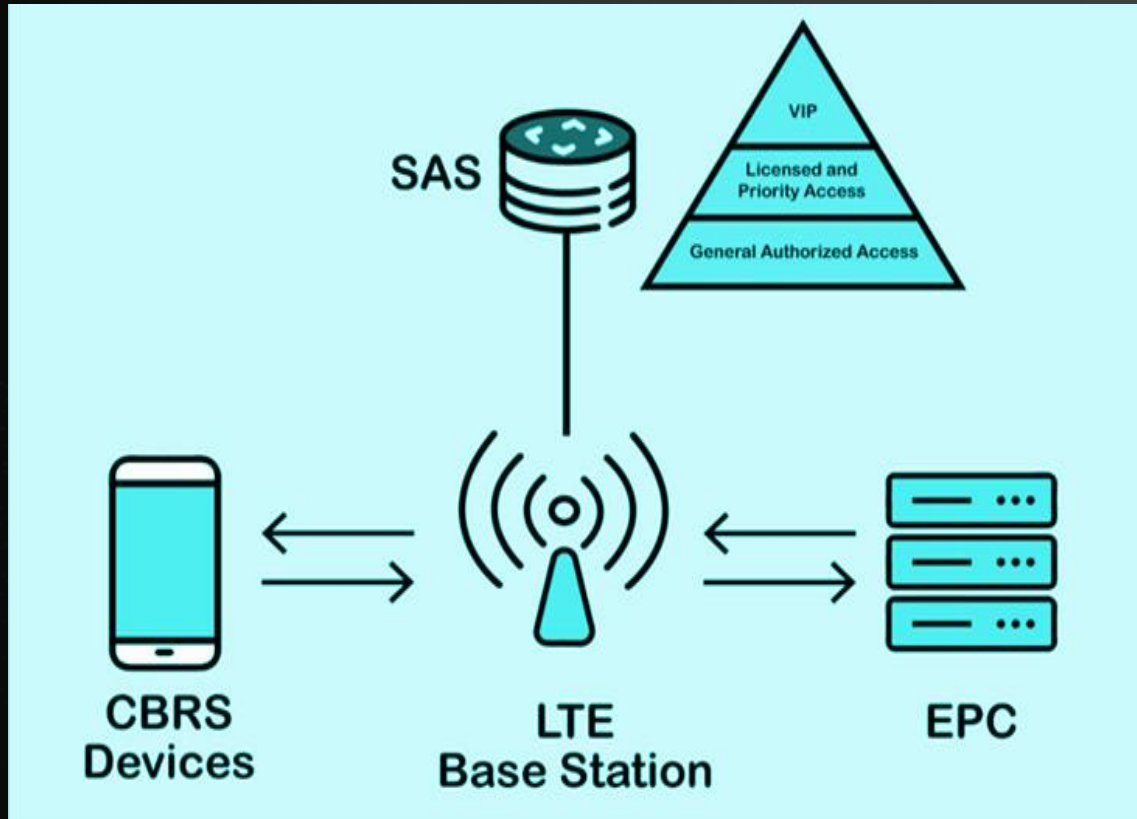- Healthier City
- Safer City;
- More interactive city etc.

Arriving to those objectives in a city demands a team effort of an expert chain of several verticals according to the service the city will wish to improve.
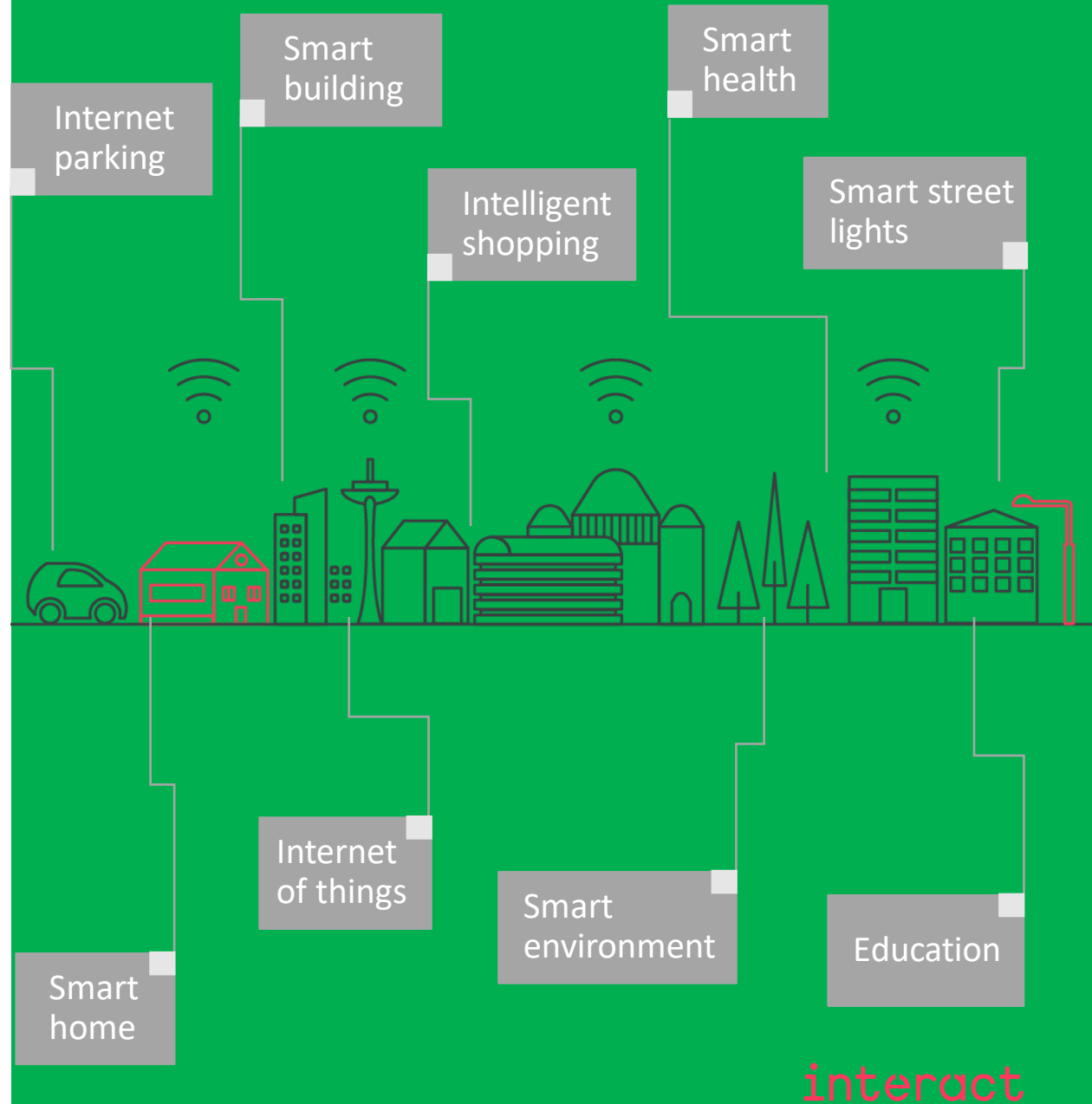
What is CBRS & How to Leverage for a Private Network?

- Allows Enterprise to use cellular technology (LTE or 5G) to enable a private network instead of connecting to AT&T/VZW/TMO

- Provides connectivity for enterprise applications using 150 MHz of spectrum in the 3.5GHz range

- SAS coordinates all frequencies to be used to ensure QOS

- SIM/eSIM at device level required for network access

- EPC can have local break out to LAN and provide devices with private IP addresses

ALEF

CBRS versus Wi-Fi

|	CBRS	Wi-Fi
Devices	Handles many	System performance unpredictable as devices added
Infererence	Greatly reduces	Prone to interference from signals in most unlicensed bands
Authentication & Encryption	End-to-end SIM based	Requires proprietary / conflicting coordination
Security	Channel monitoring and coordination of spectrum	Poorer security vs LTE/5G
Handover	Controlled between devices managed by standards	Proprietary best effort for roaming
Latency	Consistently Lower	Unpredictable
Radio	Works well in complex environments with many wireless clients/devices	Works well in simple environments with a moderate number of devices

Typical Private Network Topology

Convention Center Or Library

Fire Stations

City Hall

LTE 5G

Transportation Buildings

Police Station

Street Lighting

School Buildings

City or School Fiber Network & Service Layer

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Smart Private 5G™ Platform

Smart, Simple & Secure Cloud-Based Platform To Manage Private 5G & LTE Networks
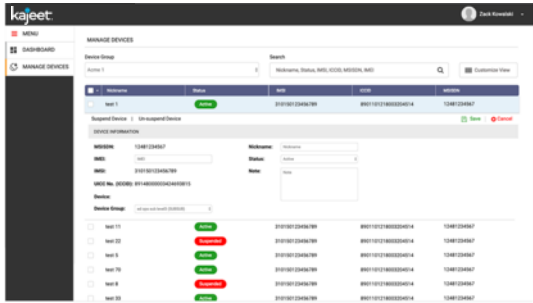
Private 5G CLOUD

Private 5G EDGE-CORE

Multivendor RADIOS

Private 5G SIMs

SIM, Device, Subscriber & Network Management

5G Cloud Core & Edge Core

Private Radio Access Network

Private Wireless SIM & eSIM

| Network Design & Installation | SIM & Device Management & Logistics | Network Slicing & Management | Open APIs Application & Developer Platform | Neutral Host & Carrier Connectivity | Private 5G/LTE as a Service |

Private Network

Neutral Host Manager

Enterprise · Healthcare · Hospitality · Education · Public Venues · Smart Cities · Industrial

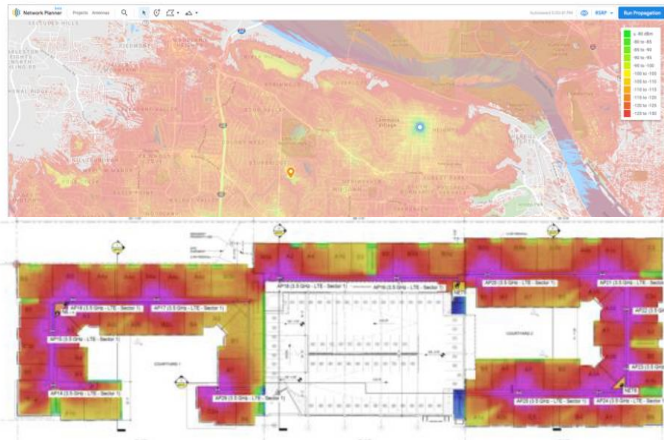# Turnkey Smart Private 5G™ Managed Services

Private 5G Design

- Kajeet Private Network Design
- Is the initial step in determining customer requirements.
- Gather customer requirements, number of locations, user devices, coverage and throughput.
- Determine Spectrum requirements, CBRS, PAL or GAA, EBS, or other.
- Create propagation map and review with customer
- Provide Budgetary Pricing for network and firm pricing for Site Survey.

Private 5G Installation

- Kajeet Private Network Implementation
- References the Smart 5G Design to determine the RAN elements required for the Private Network.
- Acquisition of equipment and services
- Core and Site turnup of services
- Integration with Kajeet's network core and Sentinel™ application
- End-2-End network integration
- System/coverage and acceptance testing

Private 5G-as-a-Service

- Kajeet Private 5GaaS is a complete Managed Service for your Private Network Infrastructure and end user equipment.
- 7x24x365 Network Operations Center to monitor all Private Network elements.
- Customer Support Tiers that range from standard business hours to 7x24x365 support for your end users and their devices
- Access to Sentinel™ application for device management and reporting
- On-Site network support Tiers

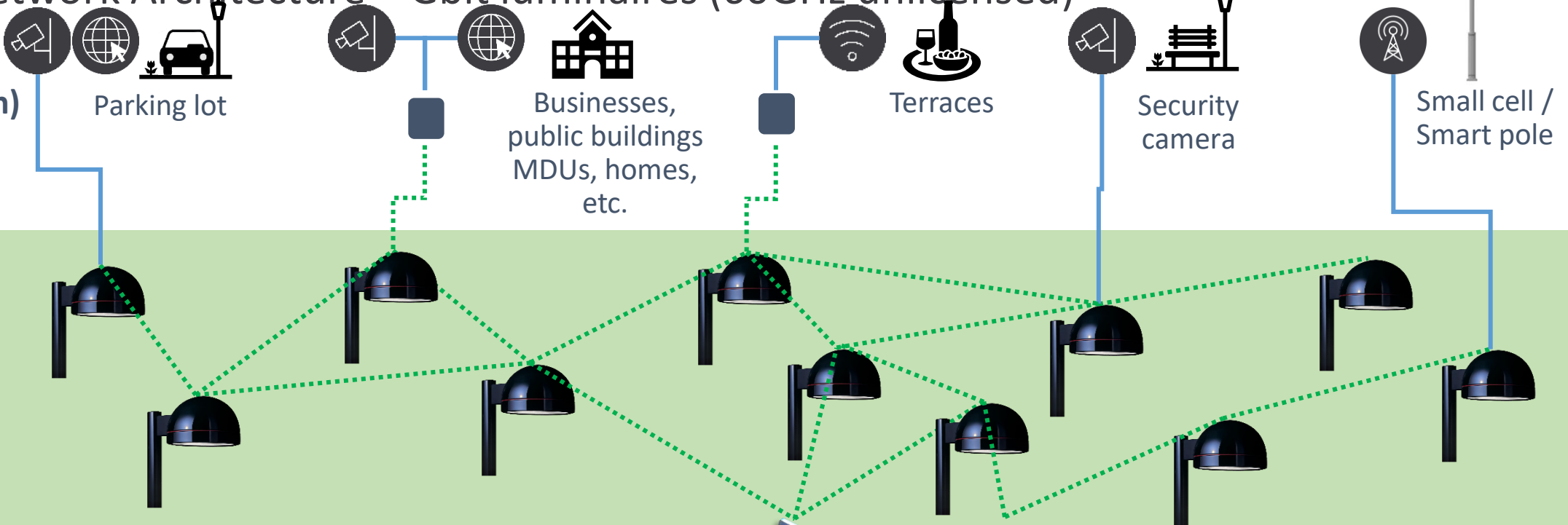Rooftop

Non-Penetrating Mount — Rooftop

Tower

Private 5G as-a-Service

MONITORING

REPORTING

IMPROVEMENTS

PRO-ACTIVE SUPPORT

REMOTE SUPPORT

MAINTENACE

Network Architecture – Gbit luminaires (60GHz unlicensed)

Access (application) layer

Parking lot

Businesses, public buildings MDUs, homes, etc.

Terraces

Security camera

Small cell / Smart pole

Gbit transport layer

Fiber layer

Fiber network

Hub - Kiosk style

or

Hub - Smart pole

Requires line of sight

Capacity per link *	Distance
3,8 Gbps	<50m
2 Gbps	<150m
500 Mbps	<300m

*Half duplex capacity: 3,8Gbps means 1.9 download and 1.9 upload

Terminal Unit

···· 60GHz mmWave mesh

—— Optical fiber

—— Ethernet cable

Longmont, CO, USA
City of Longmont, Colorado

- Longmont is a growing community of 100K people ~ 10 miles Northeast of Boulder

- Began as a student broadband project to provide connectivity to 4,000 low-income student locations.

- The City of Longmont and their ISP (Nextlight) saw the possibilities of Private LTE and leveraging it for public security cameras.

- Network is currently at 37 base stations and will continue to expand.

- City planning to extend CBRS coverage across entire city in 2023

Closing the Digital Divide in Shreveport, LA with CBRS

Problem

- 40% of City residents lacked access to Wi-Fi at home
- Limited budget (American Rescue Funds)
- Tight timeline for deployment

Solution

- City contracted Spread Networks, who selected Pollen
- Pollen designed a RAN using CBRS radios on city buildings
- Spread Networks deployed the radios with Pollen support

Universal Digital Access

- Residents check out a CPE (Wi-Fi Hotspot) from the library
- City provides internet backhaul using existing network
- Pollen monitors and operates the Cellular network
- Spread Networks is working with city officials to expand into other underserved areas and improve coverage

Available from Graybar via Omnia Contract (Coming soon to GSA)
Private Cellular Network Connectivity

Rapid Deployment, Single Site & Concept Testing Scenarios

- Large pelican case
  - Cellular Base Station with Antenna (CBRS/EBS)
  - SAS & Radio Cloud control
  - Switching and Routing Hardware
  - Cellular, Satellite or Wired backhaul to Alef core

- Kitted pre-provisioned with the following and Alef (e)SIMs.:
  - CBRS Mobile Point of Sale Devices
  - CBRS Tablet
  - CBRS Router for creating Wi-Fi Hotspot's
  - Up to 25 SIMS/ESIMs
  - Additional Devices Ala Carte including outdoor CBRS Camera with A.I. Functionality

ALL-IN-ONE MOBILE
NETWORK-IN-A-CASE

ALEF △

OMNIA® | Public Sector
PARTNERS

GraybaR