Background

+ Located in Atlanta, Georgia
+ Develop, sell & finance outdoor mobile infrastructure
+ Patents pending
+ Global market opportunity
+ Management team with extensive wireless and international experience
What is a “Small Cell”? 

+ An umbrella term for operator-controlled, low-powered radio access nodes, including those that operate in licensed spectrum and unlicensed carrier-grade Wi-Fi.  
  – Femtocells  
  – Picocells  
  – Microcells

+ Range up to 0.75 miles
Why Small Cells?

+ Increase in global mobile data traffic
  – Carriers need to increase capacity

+ Small cells improve capacity up to 1600x

+ Delivers data offload of over 50%

+ Improves network performance by 315%

+ Federal Government wants broadband everywhere!
Increase in Mobile Devices and Data Usage

Source: Ciena “The Impact of OTT Services on the Mobile Backhaul Network, 2015
Projected Small Cell Growth

Mobile Experts Small Cell forecast

- Residential Femto market will see incremental growth
- Significant growth in enterprise and urban small cells
- CRAN topology will drive RRH units with centralized/virtualized baseband processing
How Does Small Cell Impact YOUR Community?

+ **In the United States ...**

+ FCC Order 14-153 enables mobile operators to append wireless facilities to utility poles, light poles and road signs

+ Municipalities may continue to enforce compliance with “generally applicable” building, structural, electrical and safety codes

+ Deployments cannot be unreasonably delayed by a moratorium

+ **Microcell and small cell deployments will happen ... the ePole offers Safety, Aesthetics, and Time to market advantages**
Impact on Utilities

+ Over 75% of small cells will be placed on utility poles
+ FCC Order 11-50
  – Must allow access by wireless carriers
  – No longer limited to “communications space”
  – Must give access to pole tops
  – Must perform work in a timely manner
    • If not, wireless carrier can use approved contractor
+ New joint use agreement
  – What to charge?
+ Make ready work
  – Safety issues
+ Limits ability to climb pole
What is an ePole?

A New Type of Outdoor Cellular Infrastructure!

- Multi-purpose, safe and aesthetically pleasing
- Economical solution for transitioning from towers to small cell infrastructure
- Expedites delivery of mobile coverage and capacity
- A kitted solution with standardized structure, indiscernible antenna, plus concealed cables, radios and components
- Designed to accommodate all types of utility construction, performing in much the same way as traditional wood and concrete poles
- Quickly & easily deployed virtually anywhere
ePole Microcell

+ Modular, hollow & fire resistant composite pole
+ Available in 45’ (13.8m), 50’ (15.4m) & 70’ (21.5m) total lengths
+ Direct Burial & Anchor-based assembly Installations
+ Can withstand hurricane force winds – ideal for locations frequently hit by storms
+ Pole-top antenna
+ Antenna/luminary assembly including LED lighting
+ Antenna cabling, Ethernet, power and ground wires safely concealed in non-conductive composite pole
+ Outdoor, environmental controlled, pole-mounted cabinets with sensors and NMS/security controller
Modular Composite Pole

The ONLY sectional composite distribution pole with a precision slip-fit joint that rapidly assembles by hand.

SAFER + STRONGER + MORE RELIABLE + LOWER COST
ePole Specifications

Superior Materials

+ **TRIPLE PROTECTION:**
  Resin is pigmented throughout + UV Stabilizers & UV Blockers + Veil

+ The ONLY product made without VOCs or HAPs in the resin
  – GREEN patented No-VOC resin
  – Will not leach or evolve Styrene (chalking) over time
  – UCSI exclusive for poles

+ E-CR fiberglass is used for corrosion-resistant reinforcement

+ Embedded outer surface veil is abrasion and UV resistant
Based on 45 Ft. – Class H1 published pole data
(1) Treated Southern Yellow Pine – Bell Pole & Lumber
(2) Steel – Sabre Tubular Structures
(3) Pre-stressed Concrete – Lonestar Pre-stress
ePole Specifications

+ Electrical Behavior
  – Tested in accordance with ASTM standards for dielectric strength per ASTM F711
  – Pole shall withstand at least 100 kV/ft dry and 72 kV/ft wet

+ Chemical and Ultraviolet Light Exposure
  – Per ASTM D4587, QUV accelerated exposure at 600 hours shows no change in surface characteristics

+ Composite Pole Weight as a Function of Pole Class

<table>
<thead>
<tr>
<th>Height (ft)</th>
<th>Weight (lb)</th>
<th>Qty. Pole Section</th>
<th>Sections NOS. Required</th>
<th>Ground Line Moment (ft-lbs)</th>
<th>Grade B Construction</th>
<th>Grade C Construction</th>
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<tr>
<td>45</td>
<td>850</td>
<td>4</td>
<td>1, 2, 3, 4</td>
<td>157169</td>
<td>Class H2</td>
<td>Class 1</td>
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<td>35</td>
<td>565</td>
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<td>Class 1</td>
<td>Class 2</td>
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<tr>
<td>25</td>
<td>290</td>
<td>2</td>
<td>1, 2</td>
<td>41445</td>
<td>Class 3</td>
<td>Class 4</td>
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</tbody>
</table>

+ Compliant with EIA-222 Rev G, NESC & DoT standards

+ Meets the most stringent mobile communication wind (150 mph/3 sec gust) and ice (60 mph/3 sec gust and .75” ice) loading requirements, plus all electric utility standards
Environmental Safety

+ The ePole is manufactured from environmentally friendly materials

+ NO toxic preservatives to bleed into the soil or water around the pole

+ Disposal of the ePole™ is easier than a wood pole, which is now classified as hazardous waste in some areas
ePole Ownership and Maintenance

+ The ePole is provided to the Utility at no charge
+ The Utility is responsible for maintaining the property and/or right of way where the ePole is located
+ Spare pole segments will be stored at the utility or a central warehouse
+ 20 year exclusive RTU of the ePole for the ePole owner
+ ePole owner retains ownership and maintenance responsibilities of all other ePole equipment
Value Proposition

Assumptions:
• 10 poles installed over 10 years
• $125 per month per pole revenue to the utility
• $125 per month electricity usage revenue

<table>
<thead>
<tr>
<th>Year</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
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<tr>
<td>ePoles installed</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
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<tr>
<td>Cumulative installed</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
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<td>10</td>
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<tr>
<td>ePole revenue</td>
<td>$688</td>
<td>$2,188</td>
<td>$3,688</td>
<td>$5,188</td>
<td>$6,688</td>
<td>$8,188</td>
<td>$9,688</td>
<td>$11,188</td>
<td>$12,688</td>
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<tr>
<td>Electricity sales revenue</td>
<td>$688</td>
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<td>$5,188</td>
<td>$6,688</td>
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<td>$9,688</td>
<td>$11,188</td>
<td>$12,688</td>
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<tr>
<td>Cumulative revenue</td>
<td>$1,375</td>
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<td>$13,125</td>
<td>$23,500</td>
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<td>$72,625</td>
<td>$95,000</td>
<td>$120,375</td>
<td>$148,750</td>
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</table>

Total of $148,750 in revenue over 10 years
Installation

+ The ePole can be pre-assembled prior to transportation or assembled at the job site

+ Traditional methods of installation with digger derricks are used in the same manner as with wood poles

+ The same burial depths used for wood poles are used with the ePole

+ A complete installation guide is provided to the utility
Installation - Hardware

- The ePole is strong enough to mount over 5000 lbs. of distribution transformers & other equipment
- Banding straps traditionally used for steel or concrete poles are suitable for the ePole
- Most current hardware is compatible with the ePole
- Through bolts will not work due to the cabling inside the ePole
- Drilling additional holes using a carbide tipped drill bit prior to installation of the wireless cables is permitted
Deployment Examples
Small Cell Deployment

Vertical stack installation process to deploy ePole in less than 8 hours
Microcell Deployment
Small Cell Utility Deployment

Electric utility company replaced a distribution pole with an ePole in less than 5 hours
Other Outdoor Small Cell Deployment Examples
Microcell on Utility Pole Examples

San Francisco

Wilmette, IL

Naperville, IL
Streetlight & Utility Pole Deployments
Radios & Antennas at Window Height
Deployment on a wood utility pole with antenna cabling, power, grounding in conduit.

(2) RRUs with 4 hrs. of battery back up
Ericsson/Phillips Zero-Site

(2) Ericsson mRBS & (4) mRRU (5W) radios
Requires underground vault(s) for batteries, inverters & network equipment
The ePole Advantage

What would your members want in front of their home or business?

On the left is a small cell deployed on a wooden distribution pole in front of the Bethesda MD Country Club.

Had this been an ePole, the externally mounted radios, cabinets, and batteries would have been installed in the pole-mounted cabinet.

The electric power, grounding, and antenna cables would be safely concealed within the pole.

A single antenna at the top of the ePole would replace the antennas attached to the wood pole.
Municipal Benefits

+ **Revenue opportunities**
  - Easement and Right-of-way lease
  - MNO/service provider lease or revenue share
  - Broadband connectivity lease or revenue share
  - Advertising revenue (wrapped ePole™, digital signage and banners)

+ **Public Safety & Community Services**
  - LED lighting for emergencies & special events
  - Composite pole is safer than wood, steel and concrete
  - Electrical outlet in pole
  - Wi-Fi & video surveillance options

+ **Safety & Aesthetics**
  - Meets most stringent wind and ice loading requirements
  - Non-conductive material
  - Continuous taper, smooth finish in multiple colors
  - Unsightly antennas, cabling and radios are concealed
Why do you need an ePole?

+ Receive lease recurring revenue for every ePole placed in your territory
+ Generates electricity usage revenue (~1000 kWh/mo.)
+ Continue receiving pole attachment revenue
+ Allows Utility to be PROACTIVE with the type of structure installed on your system
+ Composite pole is asset on Utility balance sheet
+ Complies with most zoning height restrictions
+ Lighter and stronger than wood with twice the operational life
+ Non-conductive, fire resistant and resistant to rot from wet or acidic soil, plus woodpeckers, ants, termites and other large wildlife
Thank You