Oberon For

HEALTH CARE and CISCO

Professional Wi-Fi Installation Solutions
AGENDA

✓ OBERON Company Overview

✓ OBERON and CISCO Partnership

✓ WiFi Forecast and Standards Update

✓ Wireless demands in Healthcare
  • Policies, Standards, Procedures

✓ OBERON Healthcare Product Solutions
Oberon Company Overview

• Oberon is a family owned business. The world HQ is located in beautiful State College, PA

• Products are manufactured and stocked in New Kensington, PA
Oberon Company Overview

- Oberon is the original designer and manufacturer of WiFi mounting options
- Oberon engineers have been designing WiFi infrastructure solutions since 1999
- Many of the designs are the result of customer input and suggestions
- All products are tested by experienced Cisco and Oberon engineers
Oberon Company Overview

- Oberon products are used to support challenging areas within the Healthcare market.

- Simplify future moves, adds and changes.

- Oberon’s products have helped thousands of Cisco customers to achieve secure, convenient and aesthetic professional WiFi Installations.
Oberon and Cisco
Oberon and Cisco

- The only specialized WiFi mounting manufacturer in the Cisco Solutions Partner Program
- All products are tested by experienced Cisco and Oberon engineers
- We are both the Recognized product category leader
- Largest variety of solutions for all verticals
- We utilize the design and hardware of the Cisco WAPs to make Installation easy and quick.
Wireless 802.11 Standards Update
Access points will need to be physically replaced every 3-5 years

- Emerging wireless (IEEE 802.11____) standards
- Improvements in signal processing technology (I.E MU-MIMO versus SU-MIMO)
- Improvements in throughput due to added unlicensed spectrum
- Emerging capabilities and features in the access point
Network PHY and MAC standards are evolving

- 1 Gb/s (CAT5e) and 10 Gb/s (CAT6A) standards
- 802.11ac Wave 1 and Wave 2 - Increase in speed and throughput
- Link aggregation – more bandwidth, back up capabilities
- Cisco M-Gig Switches; NBase-T technology provides speeds over 1Gig (2.5 Gb/s and 5 Gb/s Ethernet over existing (CAT5e or CAT6) cable plant)

802.3bz task force
# 802.11ac Wave 2 Enhancements

<table>
<thead>
<tr>
<th>Feature</th>
<th>802.11n</th>
<th>802.11n IEEE Specification</th>
<th>802.11ac Wave 1 Today</th>
<th>802.11ac Wave 2 WFA Certification Process Continues</th>
<th>802.11ac IEEE Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Band</td>
<td>2.4 GHz &amp; 5 GHz</td>
<td>2.4 GHz &amp; 5 GHz</td>
<td>5 GHz</td>
<td>5 GHz</td>
<td>5 GHz</td>
</tr>
<tr>
<td>PHY Rate</td>
<td>450 Mbps</td>
<td>600 Mbps</td>
<td>1.3 Gbps</td>
<td>2.34 Gbps - 3.47 Gbps</td>
<td>6.9 Gbps</td>
</tr>
<tr>
<td>Channel Width</td>
<td>20 or 40 MHz</td>
<td>20 or 40 MHz</td>
<td>20, 40, 80 MHz</td>
<td>20, 40, 80, 80-80, 160 MHz</td>
<td>20, 40, 80, 80-80, 160 MHz</td>
</tr>
<tr>
<td>Modulation</td>
<td>64 QAM</td>
<td>64 QAM</td>
<td>256 QAM</td>
<td>256 QAM</td>
<td>256 QAM</td>
</tr>
<tr>
<td>Spatial Streams</td>
<td>3</td>
<td>4</td>
<td>3</td>
<td>3-4</td>
<td>8</td>
</tr>
<tr>
<td>MAC Throughput*</td>
<td>293 Mbps</td>
<td>390 Mbps</td>
<td>845 Mbps</td>
<td>1.52 Gbps - 2.26 Gbps</td>
<td>4.49 Gbps</td>
</tr>
</tbody>
</table>

*Assuming a 65% MAC efficiency with highest MCS.
Wireless Standards – PHY data rate and Throughput
WiFi in Healthcare
WiFi Medical Telemetry is quickly emerging
(Resource: WiFi Alliance and FCC 00-211)

- Wireless cardiac monitors implanted or worn
- Cell phones, Wireless handheld PDAs
- RFID-RF identification
- Implanted micro-stimulator
- Body sensors used to monitor and control various patients' functions
- Body sensors w/remote monitoring - home

By this time next year, 60% of the carrier network traffic will be offloaded to the WiFi Infrastructure
WAP Density Demand is Increasing in Hospitals - Critical

• “High density” Wi-Fi design in hospitals
  - Double the amount of APs installed in the room/area

• The Healthcare WiFi infrastructure must accommodate many users, much greater densities and be more robust (BICSI 004)

• Tremendous growth: (BICSI -004 Medical Grade Wireless)
  - Healthcare apps
  - Wireless sensors for health monitoring
  - Handheld mobile devices
  - Inpatient medical devices

• Considerations for Hospital Enterprise Wireless and Consumer Wireless

• Cell based offloading to WiFi
Healthcare WiFi Standards Recommendations, Codes, and Compliances
BICSI-004 - Medical Grade Utility Wireless Standard

• Wireless Design Guide for the Healthcare Industry

- Wireless communications is a unique type of “Utility” in hospitals

- MGUW is the implementation of a wireless infrastructure that doesn’t require costly and disruptive above ceiling change mgmt.

- It is recommended that the wireless environment be characterized Prior to design and installation of cabling
BICSI-004 Medical Grade Utility Wireless Standard

• Growth in hospital wireless needs

- The increase in wireless medical devices
- The increase in consumer and enterprise use of the WiFi network
- Requires a reliable and robust WiFi infrastructure
- A wireless infrastructure that involves no above ceiling modifications
BICSI-004 Medical Grade Utility Wireless Standard

• Grades of Hospital Wireless Service

- Medical Grade – Life Critical
  - Support clinical devices and apps to collect and share life critical medical info

- Enterprise Grade – Mission Critical
  - Support health devices and apps that inform and direct

- Consumer Grade – Inform
  - The wireless service that supports consumer devices and apps to inform.

All requiring a robust wireless system that is ready for future technologies
BICSI-004 Medical Grade Utility Wireless Standard

• Implementation of Wireless

- Below ceiling installation of WiFi access points is a better alternative to above ceiling

- They should be installed in a cabinet flush with or below the ceiling, or wall mounted.

- MGUW can help prepare the hospital for the changing healthcare IT environment and future wireless technologies
• **TIA 1179 – Healthcare Infrastructure Standard**
  (Policies and procedures to mitigate Airborne Infectious Disease)

  - Once ceiling tiles are closed, adding or changing cabling could jeopardize infection control measures

  - Restrictions on removing ceiling tiles impacts adds, moves and changes

  - *It is recommended that the wireless environment be characterized prior to design and installation of cabling*
Infectious Control Risk Assessment (ICRA)

Lifting or removing ceiling tiles requires the installer to:

- Use Negative Air Pressure Enclosure (NAPE),
  or “tent off” the work area

- Use a HEPA air filter

These require more labor cost
• HIPPA Compliance – *Secure the Endpoints*

• NEC – *Plenum rated*

Seal off the plenum space with an Oberon Plenum rated back box
Oberon Solutions

• Solve unique and challenging areas of AP deployments in the Healthcare market

• Help simplify Healthcare codes and compliances

• Offer simple and fast migration to new APs

• Provide Security, Convenience, Aesthetically appealing solutions with a Professional finish
• Challenge – Ceiling tile deployments

Airborne Infectious Disease moves through plenum space to patient area through these gaps
• Ceiling Tile Solutions

Access Points mounted in ceiling enclosures permit:

• APs to be installed without poking holes in ceiling tiles
• Quick installation
• Entrance to the access point without lifting ceiling tile
• Helps simplify ICRA protocols, and they are plenum rated

Model 1047-LPDOME
Universal Enclosure, Non-metallic dome
- **Ceiling Tile Solutions**

  Locking Suspended Ceiling Mount

  - Patented locking mechanism draws the WAP part way into mount, exposing only the antenna face
  - Provides the ultimate wireless coverage, aesthetics, and physical security
  - Textured, white powder-coated steel and aluminum construction
  - The “-T” is for tegular (recessed grid) ceiling tiles
Ceiling Tile Solutions

Locking Suspended Ceiling Enclosure w/Door

- Interchangeable doors to permit technology migrations
- Shallow back-box (3”) simplifies installation, and ICRA compliance
Ceiling Tile Solutions

Recessed Ceiling Mount Kits

- Flush to the ceiling
- Trim piece is interchangeable
- Quick deployment
- Stable, secure, and aesthetic professional appearance
- Easy cable installation

Model 1040-xx
You can use your own tile.
• **Hard Ceiling Solutions**

Before

- Simplifies deployment in hard ceilings
- Trims can be exchanged with AP upgrades
- Has enough room for equipment cord slack
- Back box helps simplify ICRA compliance codes

After

Model 1042-CCOAP-Old constr
Model 1043-CCOAP-New constr
• Hospital Parking Garages

- Wireless parking ticket machines are emerging
- AP’s Need NEMA 4 rated protection
- Weather, Temperature, Tampering, Impact resistance
• Hospital unique solutions

Medicine Coolers

Psychiatric Wards

- Need NEMA 4 rated protection
- Weather, Temperature, Tampering, Impact resistance
• Hard Wall Options – Right Angle Brackets

For those who want to mount the AP in the preferred horizontal position

• Wall mounted WAPs are generally mounted directly over the TO, E-box, or raceway

• Maintaining proper bend radius, cord slack, and concealing the cable is quickly becoming priority for aesthetics
• Hard Wall Options cont – More flush to the wall

- Has large enough cut-outs for equipment cords, and cable, preserving bend radius
- Can be mounted directly over TO, or electrical box
- Has enough room for equipment cord slack
Where security is a concern

• Wall/Ceiling mount non-metallic lock boxes to physically protect APs
• Can mount directly over TO, to raceway, or ceiling conduit
- **Hard Wall/Patient rooms**

  - Compact wall or ceiling mount box to physically protect WAPs
  - Transparent to the wireless signal
  - Can mount directly over TO, to raceway
  - Deep enough for a biscuit jack, and patch cord
  - Tamper resistant screws for security
Open Ceilings
Where Ceiling/ Wall Mount is Not Possible

Hanging Conduit

- Low profile hinged box
- Knockouts on 2 sidewalls
- Standards compliant termination of cable inside of box

Model 0900-HC
Conceal the AP
Hard wall or ceiling

- Rugged enclosure to resemble a light fixture
- Fits most Cisco WAPs
- NEMA 4 capability with gasket in the cover
- Deep enough for a biscuit jack, and patch cord

Model 1018-WH Wall mount Polycarbonate
• **Solutions for Cisco 2800/3800 Series**

  - 802.11ac Wave 2 – Feature packed
  - New form factor - Heavier and larger
  - Cisco does not recommend the AIR-BRACKET-3

  "If you have this bracket currently installed and are migrating to the newer AP 2800 and AP 3800 series, you may be able to still use the existing tile and leverage the new in-tile mount available from Oberon Wireless (a Cisco partner)."

  - **Cisco recommends Oberon** in their Deployment guide for physical installation
  - Protected, secure, and an aesthetic professional appearance
• **Solutions for Cisco 2800/3800 Series**

Recessed Ceiling Mount Kits – Trim Piece

1) Model 1040-CCOAP3800
   (Use your own tile)

2) Model 1044-CCOAP3800
   (Replaces the 2x2 tile)

• Flush to the ceiling

• Trim piece is interchangeable

• Quick deployment

• Stable, secure, and aesthetic professional appearance

• Easy cable installation
Solutions for Cisco 2800/3800 Series

Ceiling Tile Enclosure – Lockable Door

- Flush to the ceiling
- AP mounts in the door
- Interchangeable doors for easy migration
- Quick deployment
- Stable, secure, and aesthetic professional appearance
- Helps satisfy Hospital ICRA compliance
  - Back box creates a dust barrier
  - Seals off Plenum space
  - No holes in the ceiling tile

Model 1047-CCOAP3800 (Replaces the 2x2 tile)
• **Solutions for Cisco 2800/3800 Series**

  Beam Mount/Open Ceilings and Hard Wall

  [Images of models 1008-AP3800-COVER and 1006-CCOAP3800]
Thank you for your time!