New Advances in Wireless Technology

Body Shop: Building Strategies

Next Generation Controls / Applications

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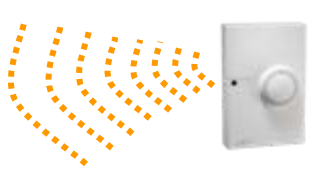
Benefits of Wireless Building Automation Networking

- Reduce total installed costs
  - Use a common wireless infrastructure for IT and building automation systems (BAS)
  - Minimize wiring
    - Quick, easy, economical installations
  - Reduce location-dependency of controllers
    - Extend control capabilities to support remote devices
- Provide application flexibility and mobility for initial installation, relocation
  - Minimize challenges of difficult or cost prohibitive installations
- Simplify moves, adds, changes
  - Retrofit ease and speed
  - Minimize disruption to building occupants

Wireless: Where are we now?

- Wireless Sensing

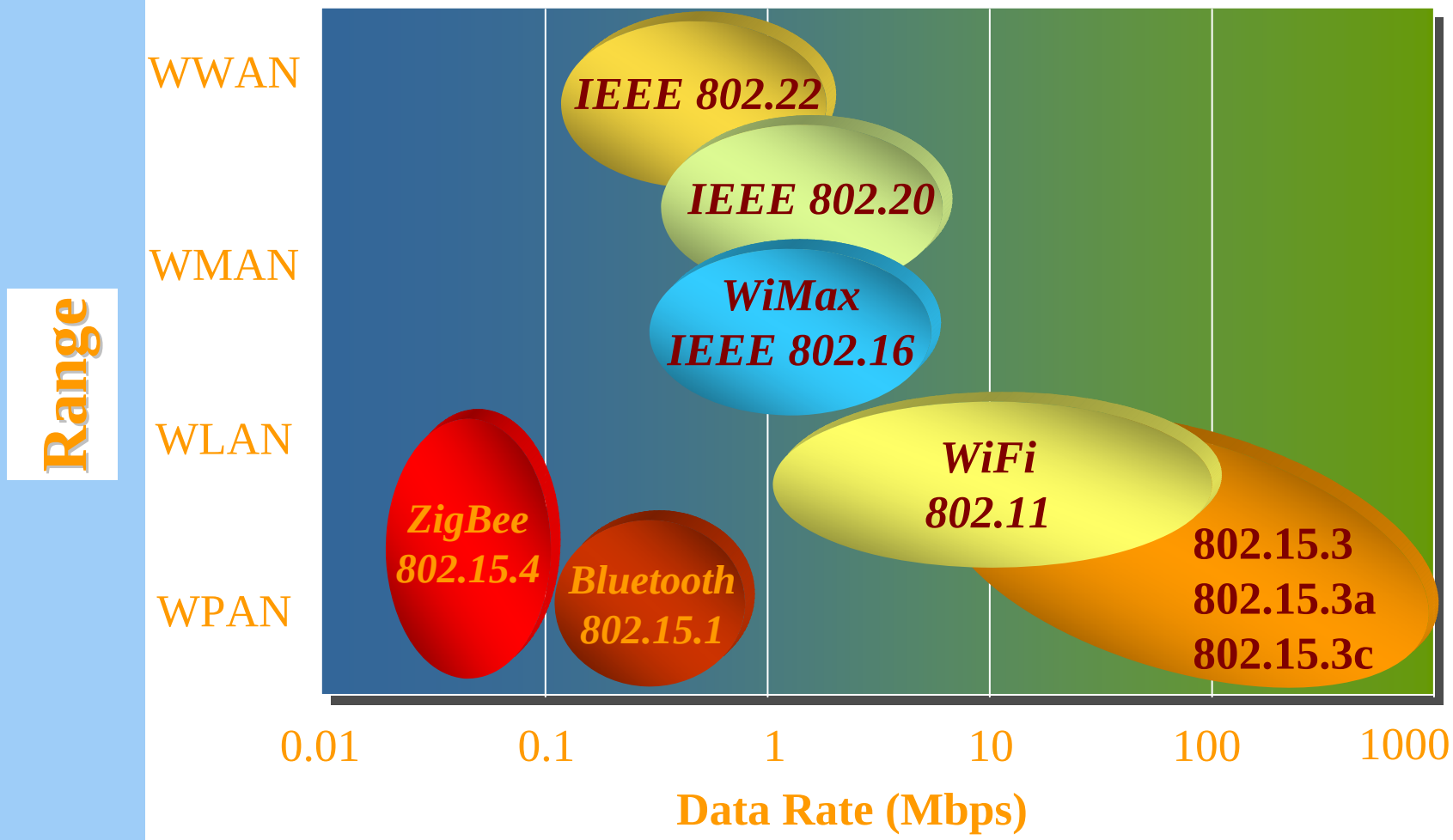


- Wireless Controller Networks

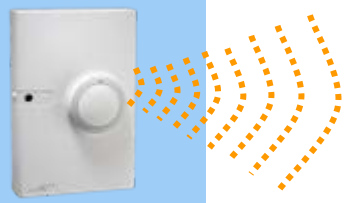
- Wireless Building Networks

- Wireless User Interface

Wireless Standards



Wireless Sensing



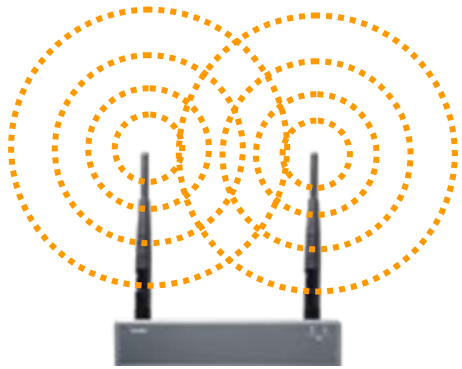
- Based upon 802.15.4 Standard
  - No external power required
  - Battery powered (5 years)
  - Energy harvesting
- One to One or Many to One
- Range - 500ft Line of Sight
- Temperature, Humidity, CO_2

Wireless Control Networks

- Powered Control Devices
- ZigBee, Dust, WiFi
- Up to 50 devices per network
- Distance ?
- Mesh ?
- Peer-to-Peer
- Bolt-on

Wireless Building Networks

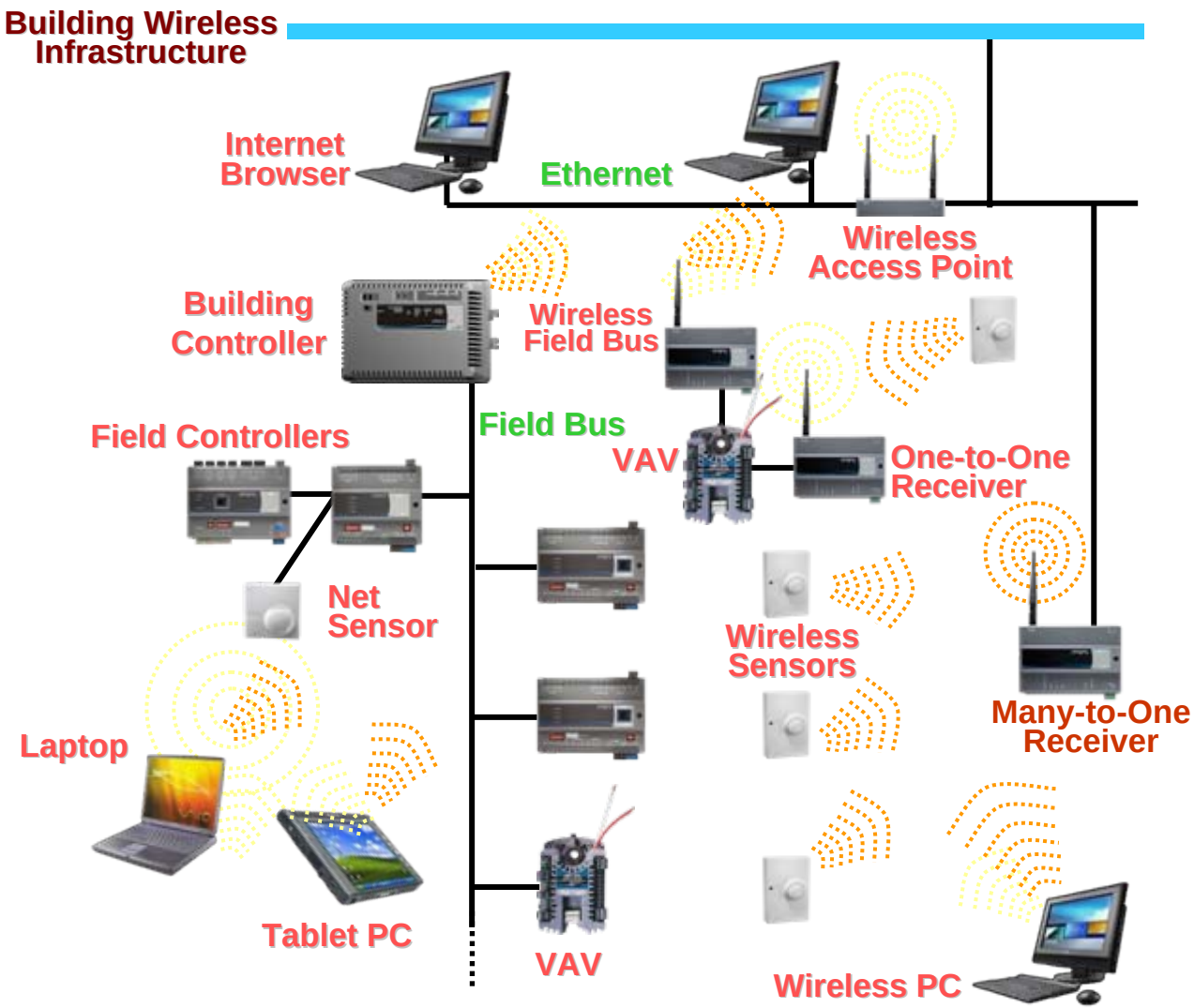
- WiFi based (802.11b/g/n)
- Active or Passive Antenna
- Converged with IT applications
- Hospitals, Higher Education, Airports, Owner Occupied Office
- COTS



Wireless User Interface

- Mobility is the key issue
- Scalable in size and complexity
- WiFi or Bluetooth
- Browser based

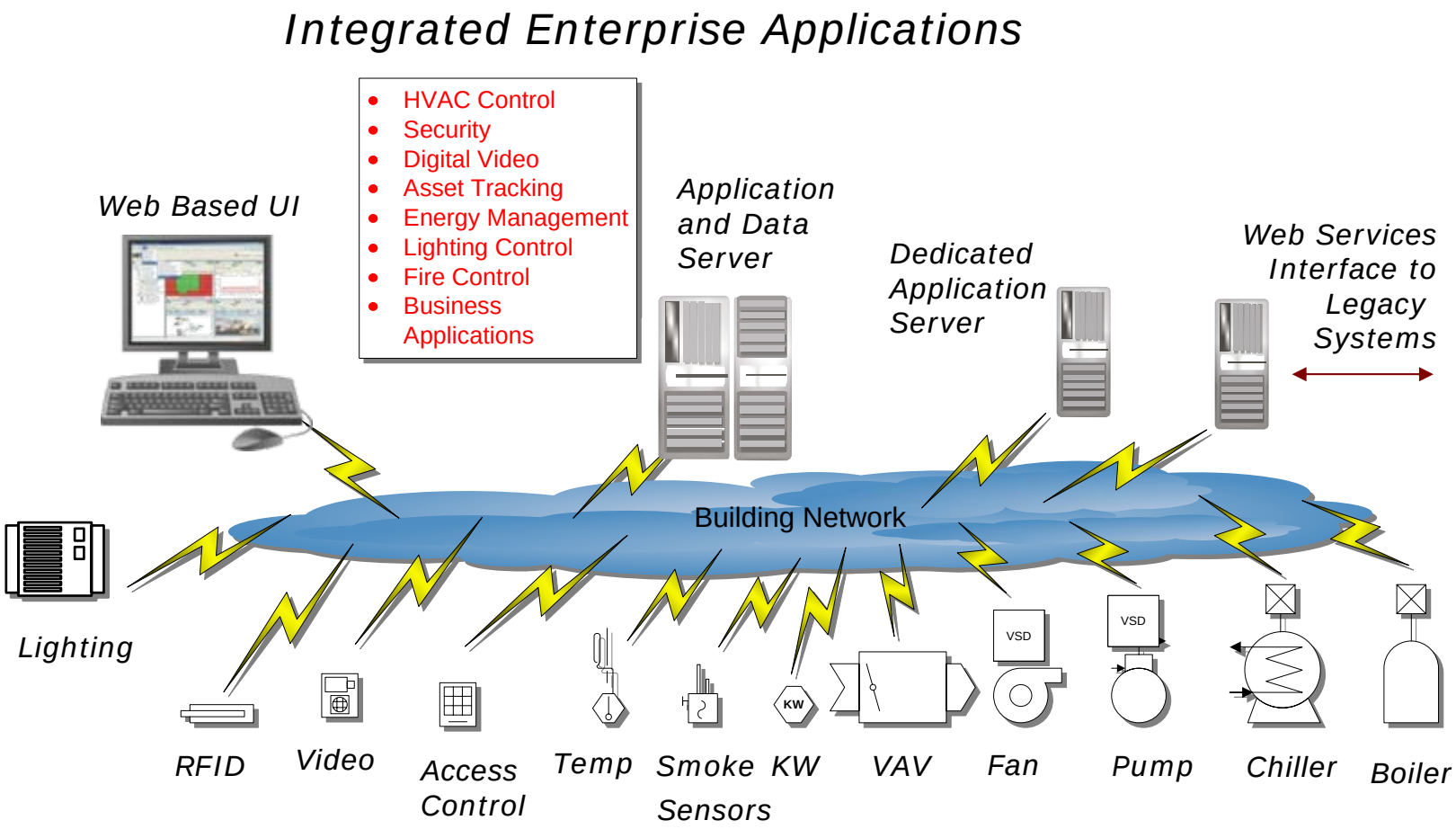
Wireless Snapshot



Differences 2006 to 2011

- Wireless at all field levels with the exception of legacy applications
- Enterprise applications utilizing Building Management Suite via Web Services communications
- Intelligent end devices
- Building or area controller level eliminated
- Total integration of all building electrical and mechanical systems
- Sets the foundation for additional value added applications

Where are we headed?



User Benefits

- Customers will be able to control all systems from any location on their terms, not the vendor's.
- Enterprise applications will enrich user flexibility and enable change based upon management direction.
- Modifying individual end devices will be done by a systems integrator using limited tools. Value added will be in applying the device to the enterprise applications.
- Management of energy will be placed at a higher level of importance due to scarcity and cost of resources.
- Sustainability will be high on the list of attributes for equipment and systems.
- System specific protocols and communication methods will not be a major factor in systems design and development as long as they are interoperable and transparent.

Thanks for Tuning In