Connected Lighting

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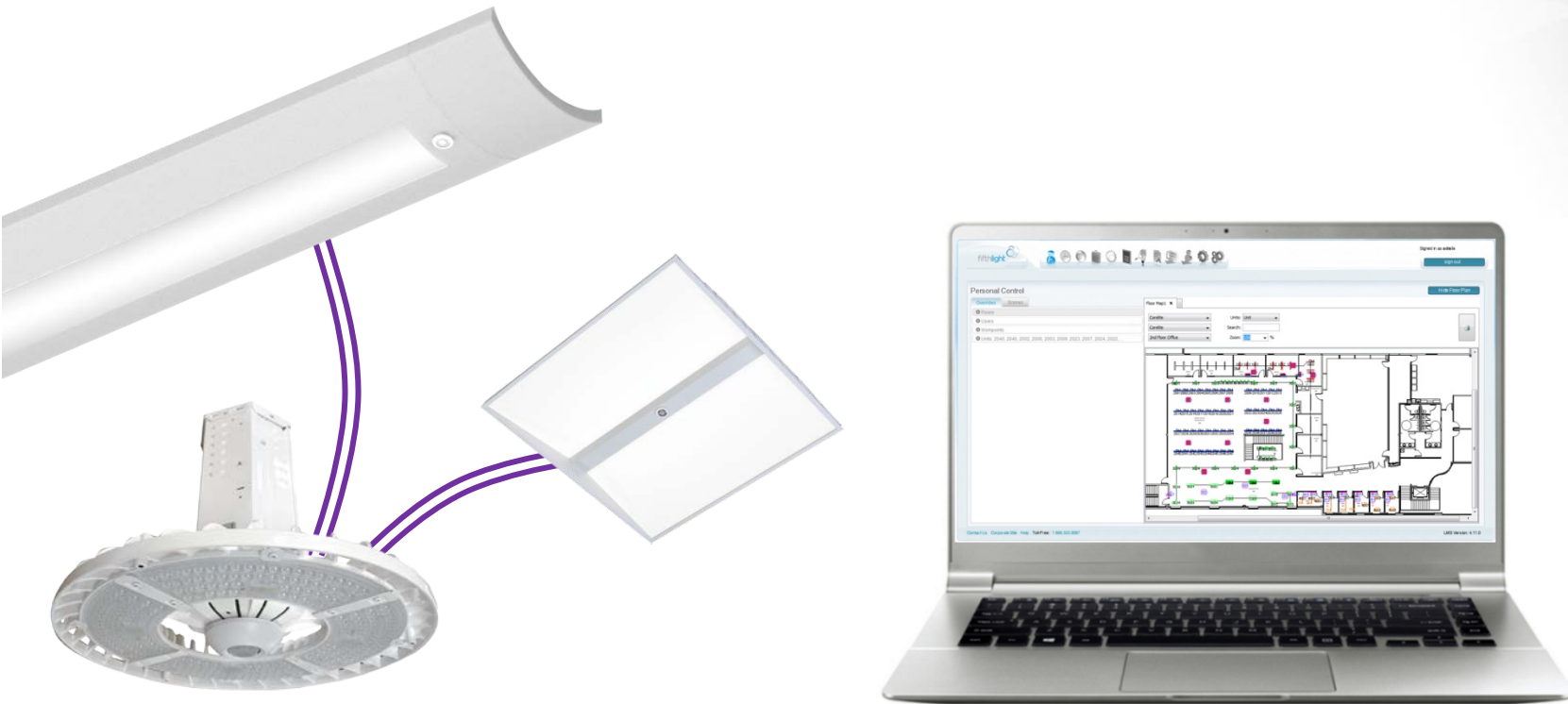
EAT•N
Powering Business Worldwide

Next Step

Networked lighting control

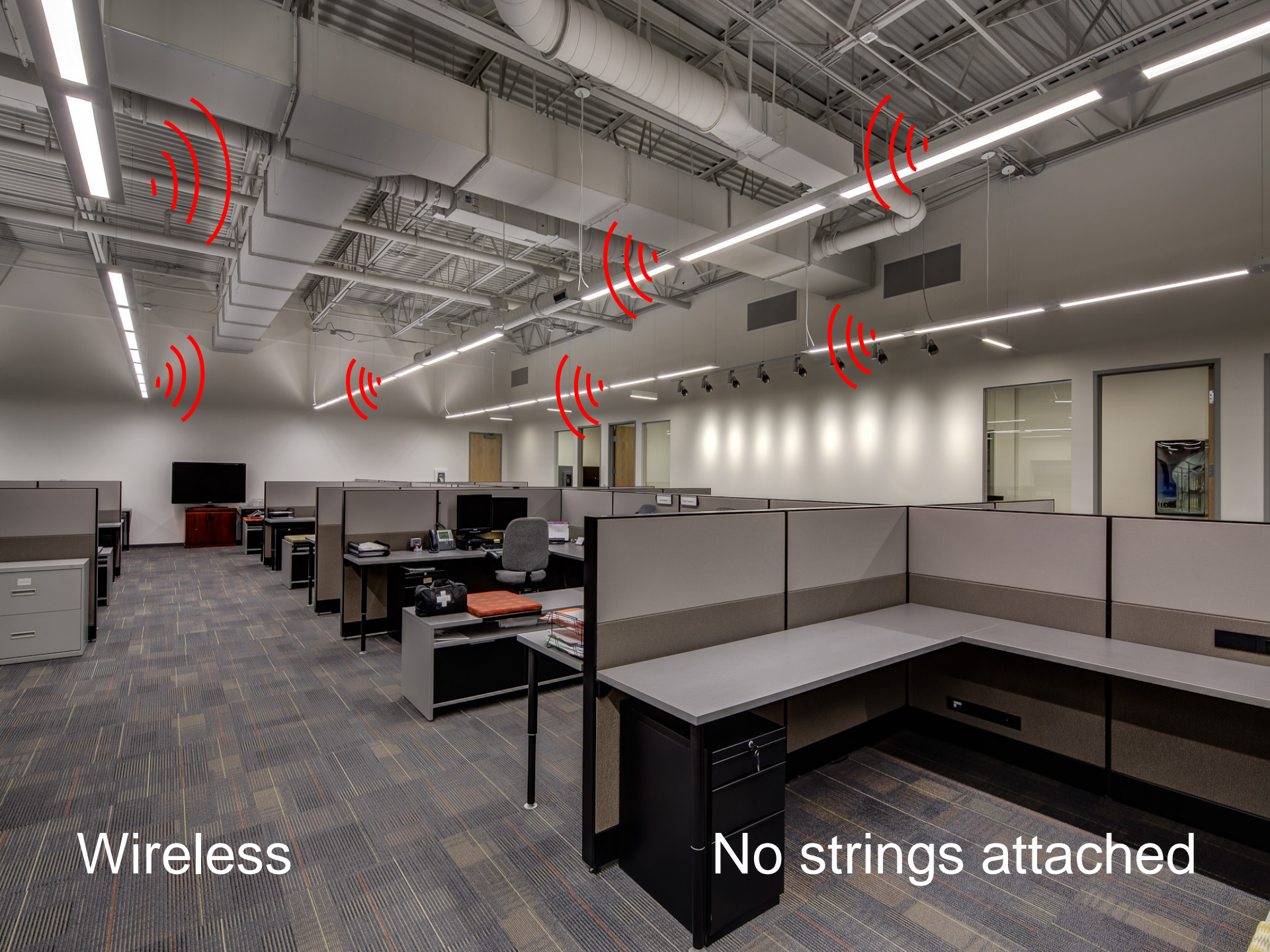# Networked lighting

Each have an address

Group control is granular

Maximize efficiency

Flexible for the future

Centralized management

Reporting

Wireless

No strings attached

Wireless communications

- All the benefits of networked lighting

- Makes retrofit control easy

- Security improved from past wireless

  - AES128 encryption, SSL (TLS) encryption, and HTTPS web clients

- Reliability and fault proofing

- New installs - much less labor
- Get power to the luminaire, control is all in the software
- Cover large areas easily
- Connect outdoor lighting

Wireless improvements

- Commissioning has gotten much easier
  - Self assignment
  - Drag and drop software
  - Luminaire location recognition
  - Easy commissioning means less time
- System components are minimal
  - Can be as simple as one "wireless hub"
  - Integrated wireless in luminaire reduces complexity
- Wireless protocols
  - Several open standards
  - Zigbee, Bluetooth, BLE, EnOcean, etc

Technology Convergence

Analogous Scenario

to the Smartphone

Key features:
- Music Player
- Computer
- PDA
- Camera
- Gaming platform
- GPS

Smart Building Environment

Key features:

- HVAC
- Fire alarm
- Security
- Occupancy sensors
- Energy metering hard/software

Photo by Tim Wilson

Go beyond lighting

Justify costs with added value

- ✓ Motion sensing and daylighting
- ✓ Occupancy history
- ✓ Temperature
- ✓ Energy metering
- ✓ Asset tracking
- ✓ HVAC integration
- ✓ Communication with smartphones
- ✓ Guidance through a space
- ✓ White tuning or color changing
- → Security cameras

✓ Available now
✓ Available but early stages
→ Limited availability

Bluetooth asset tracking

- Warehouse management

- Track fork lift traffic

- Analyze traffic for better warehouse utilization

- Determine low frequency areas of warehouse

- Side benefit is lighting control

Bluetooth and VLC

- VLC (visual light communication)

- Track valuable assets like wheelchairs and club cars

- Track human foot traffic

- Where GPS is unreliable, guidance through lighting communications

- Issue alerts on smartphones via lighting system

How to evaluate

- Start with established manufacturers

- Determine functional needs
    - Simple control/complex control
    - Flexibility
    - Facility monitoring
    - Meeting energy codes

- Hardwired or wireless
    - If wireless, look for more open architectures like Zigbee (IEEE 802.15.4) or Bluetooth Low Energy

- Room based or luminaire based sensors
    - Cost per sq ft can vary
    - Don't forget to include labor costs
    - Could the benefits of luminaires with sensors be utilized

How to evaluate

- Invest in a control system that can be upgraded or has features to be utilized in the future

- Other systems requiring integration
  - HVAC control
  - Shade control
  - Asset tracking
  - Security

- Software
  - Existing platform compatibility
  - Fast commissioning
  - Ease of use
  - Open API (Application programming interface)