

# RETROFIT STREETLIGHTS: THE CITY OF BYDGOSZCZ BY APANET & ECHELON

JANUARY 2016

# APANET + ECHELON = A DECADE OF PARTNERSHIP

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- ◆ Began partnership in 2006
- ◆ Worked together on several projects
- ◆ Focus on eco-friendly installations that produce a reduction of cost & energy and improve safety
- ◆ Our goal: To help our customers realize their specific goals and support them before|during|after the installation

**APANET**  
GREEN SYSTEM



 **ECHELON®**

# ECHELON CORPORATION

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- ◆ Founded in Silicon Valley, 1988; Global Offices
- ◆ Echelon helps its customers intelligently control & manage networked systems as part of the *Industrial Internet of Things* phenomena
- ◆ “LONWorks” / ISO14908 open standards protocol
- ◆ More than 100 million Echelon-powered devices are installed worldwide
- ◆ Current intelligent solutions include: city streetlights, parking garages, tunnels, campuses, shopping centers, auto dealerships, building automation & industrial applications

# THE CITY OF BYDGOSZCZ: LED STREETLIGHT RETROFIT WITH SMART NETWORK

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- ◆ Largest Eastern European Retrofit: 7,200 lights across ~400 streets
- ◆ Reduce energy (40% goal) and maintenance costs
- ◆ Improve safety on streets and sidewalks
- ◆ With the network, maximize asset utilization, improve efficiencies
- ◆ Sensors continually monitor traffic and weather conditions
- ◆ Met EU's ISO/IEC 13201 road lighting performance standard
- ◆ Products: Apanet Smart Lighting Controllers, Echelon Communications & Lumewave by Echelon Smart Server Solution



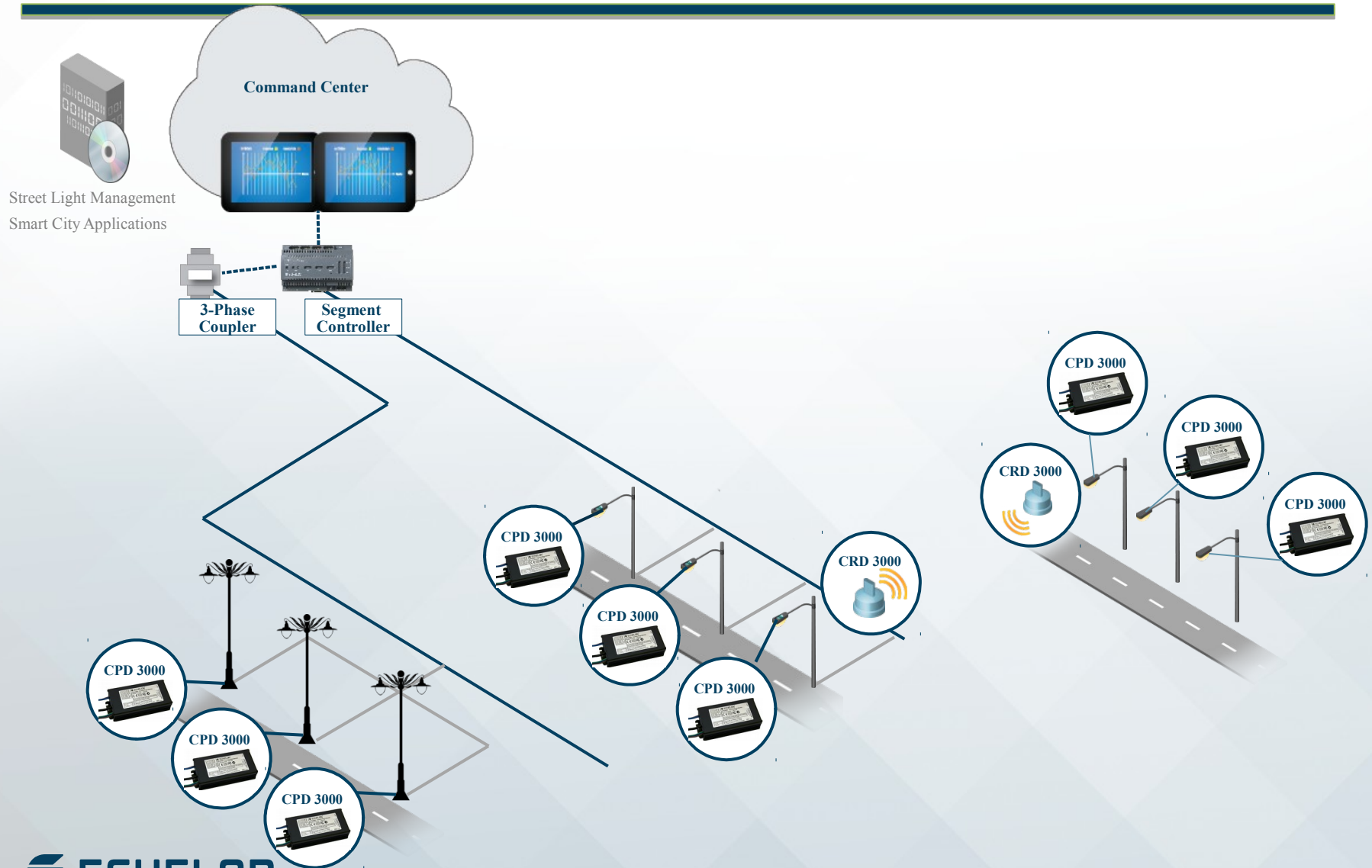
# BYDGOSZCZ INSTALLATION

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- ◆ Leveraged Powerline
  - Uses existing power lines for 2-way control communication
    - Benefit: Reduces installation cost
  - Extremely reliable
  - Robust security
  - Fixture and lamp agnostic
  - Open standard
- ◆ Centralized, remote diagnostics



# POWER LINE SYSTEM



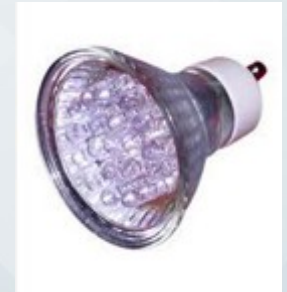


# THE DIFFERENCE BETWEEN: INTERNET OF THINGS (IOT) & INDUSTRIAL INTERNET OF THINGS (IIOT)

## Consumer IoT



## Industrial IoT



# IMPROVEMENTS FROM THE INTERNET OF THINGS (IOT) & INDUSTRIAL INTERNET OF THINGS (IIOT)

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## Consumer IoT

- ✓ Convenience
- ✓ Comfort
- ✓ Lifestyle
- ✓ Health
- ✓ Monitoring

= ***Smart Devices***

## Industrial IoT

- ✓ Safety
- ✓ Operational performance
- ✓ Capital efficiency
- ✓ Better customer interaction and service
- ✓ Sales Opportunity
- ✓ Health & Productivity

= ***Intelligent Systems***



# WHAT CITIES NEED IN STREETLIGHTS, TODAY

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- ◆ **Today:** LEDs on a Smart Network:
    - Network monitoring and management
    - Automated lighting maintenance
    - Historical & decorative fixture preservation
    - Sensors to monitor traffic, weather conditions and other items
- Results:* Control of LEDs & Lighting System



# WHAT CITIES NEED IN STREETLIGHTS, TOMORROW

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## ◆ **Today:** LEDs on a Smart Network:

- Network monitoring and management
- Automated lighting maintenance
- Historical & decorative fixture preservation
- Sensors to monitor traffic, weather conditions and other items

*Results:* Control of LEDs & Lighting System



## ◆ **Tomorrow:** Intelligent Networks with Granular Control:

- Predictive capabilities
- Controllable light level/glare reduction
- Refined color rendering & varied white tuning
- Traffic congestion management
- Air quality management
- Security/intrusion detection
- Smart parking

*Results:* Strategic Management of Streetlight Network, New Applications Plus Integration with Other Systems

The logo for Echelon, featuring a stylized 'E' icon followed by the word 'ECHELON.' in a bold, sans-serif font. The logo is centered within a dark grey diamond shape that has a white outline and a smaller white diamond inside it.

ECHELON.

*Dziękuję*