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Uniting Smart Outdoor Lighting

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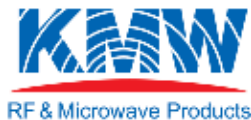
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Smart Outdoor Lighting Requirements

- A concentration/reorganization of city management systems, including lighting, is ongoing

- The demand for cost savings through energy reduction and the reduction of CO_2 emissions is increasing

- There is a environmental need for reducing light levels without compromising road safety and security

Smart Outdoor Lighting Solutions

- The introduction of full electronic LED luminaires in outdoor enables control and dimming
  - Enhanced reduction of energy consumption
  - 'Light on demand' to secure road safety
  - 'Dark Skies' friendly
- Networks connecting the luminaires prepare the lighting infrastructure for the Smart City
  - Centralized asset management
 - More cost effective maintenance

Problem in current market

- Multiple proprietary systems and interfaces
- Interoperability problem
  - Different management systems in one area/city
  - Difficult to integrate, operate and maintain
- Lack of standards slows down the growth of OLNs
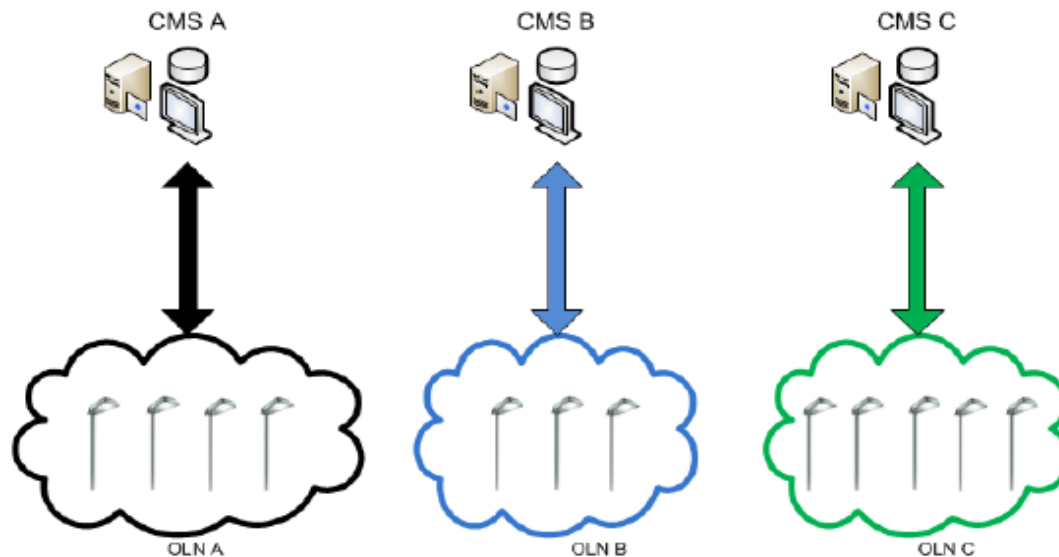
TALQ interoperability

The TALQ Application Protocol enables management of multi-vendor OLNs by one single CMS

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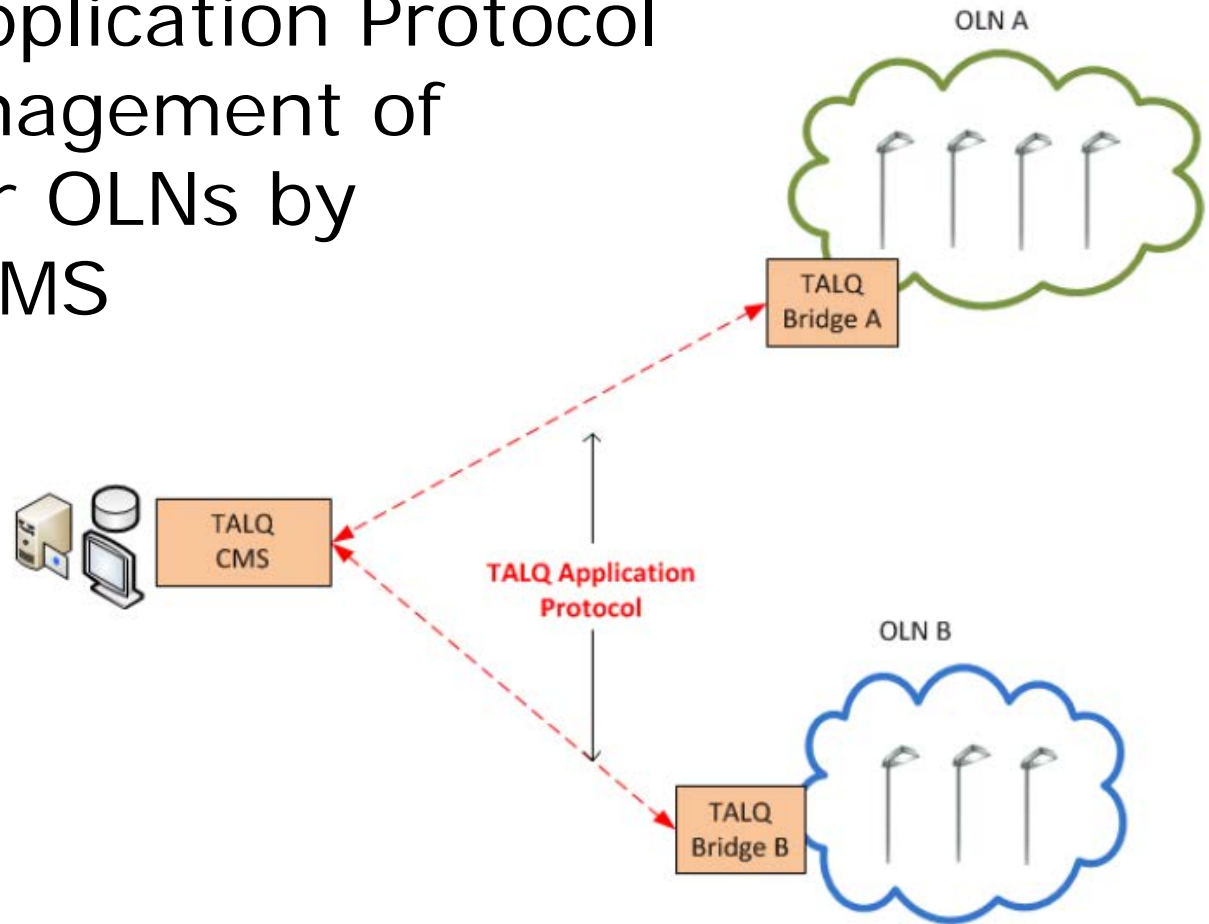
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TALQ Specification Key Features

- Multi-level control
- Extensive calendar and programming functions
- Adaptive lighting
- Monitoring
- Measurements and data logging
- System configuration and upgrades
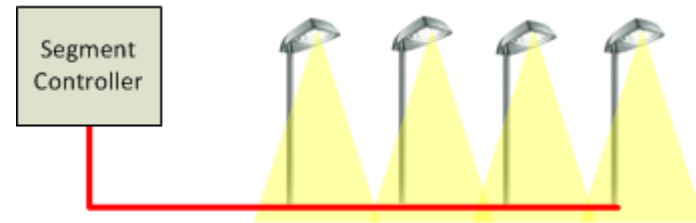- Scalability and security

Approved TALQ Specification

Version 1.0.1

2014-02-25

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Multi-level control of Light Points

Light point based control

Segment/Group control
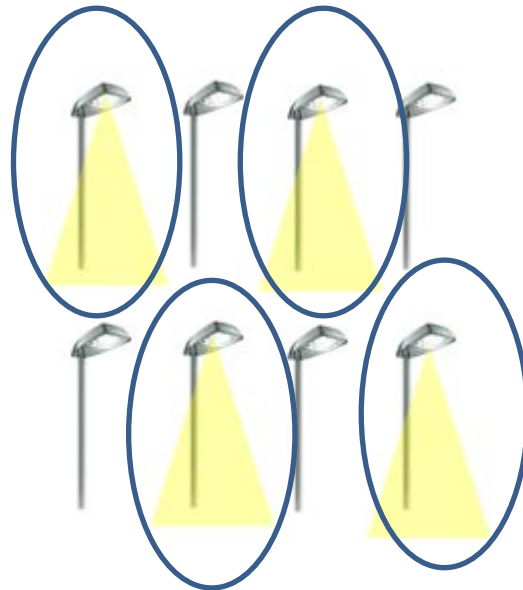
Segment Controller

Flexibility to define logical groups

Calendar and Programming Functions

- A standard calendar format enables automation of lighting control (program) according to user needs
  - Daily schedule
  - Weekend schedule
  - Specific days of the week/month
  - Special events and holidays

- A control program automates the operation within the active period


- Users can override as needed

Example adaptive lighting program
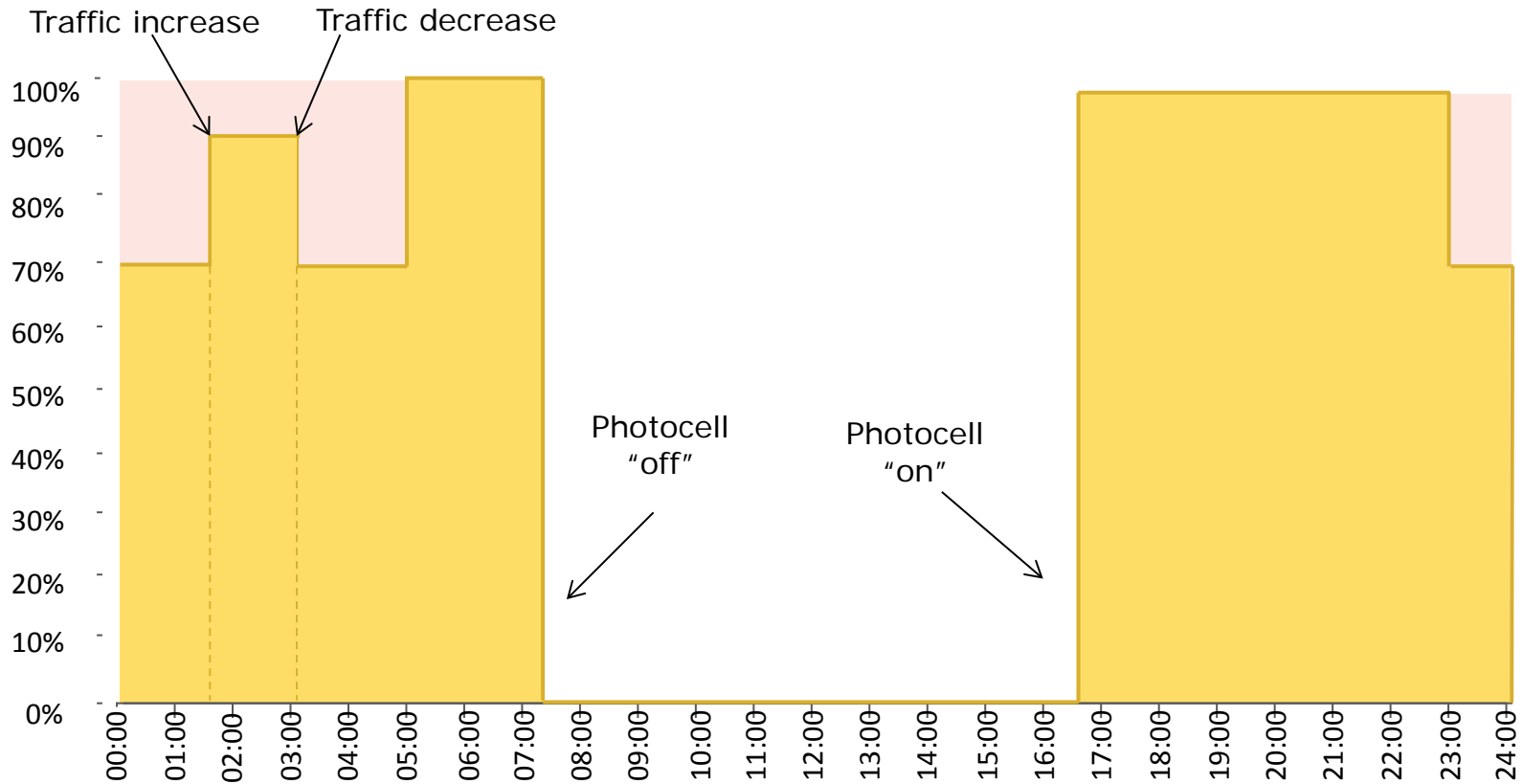
Dimming can be based on fixed times or triggered by events (e.g. sensors)

System Monitoring

- A comprehensive set of system data is supported by the TALQ application protocol
  - Status information
  - Electrical measurements
  - Energy metering

- Includes functionalities to improve maintenance and optimize energy savings
  - Standard characterization of lamp/control-gear combinations
  - Constant Light Output (CLO)
  - Maintenance correction factor
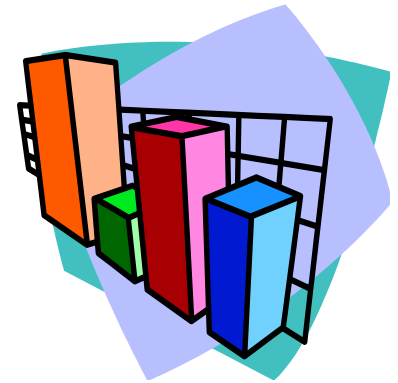
Data Logging

- Data loggers make system information available to end users in a timely manner
- Enables faster problem identification and response

OLN

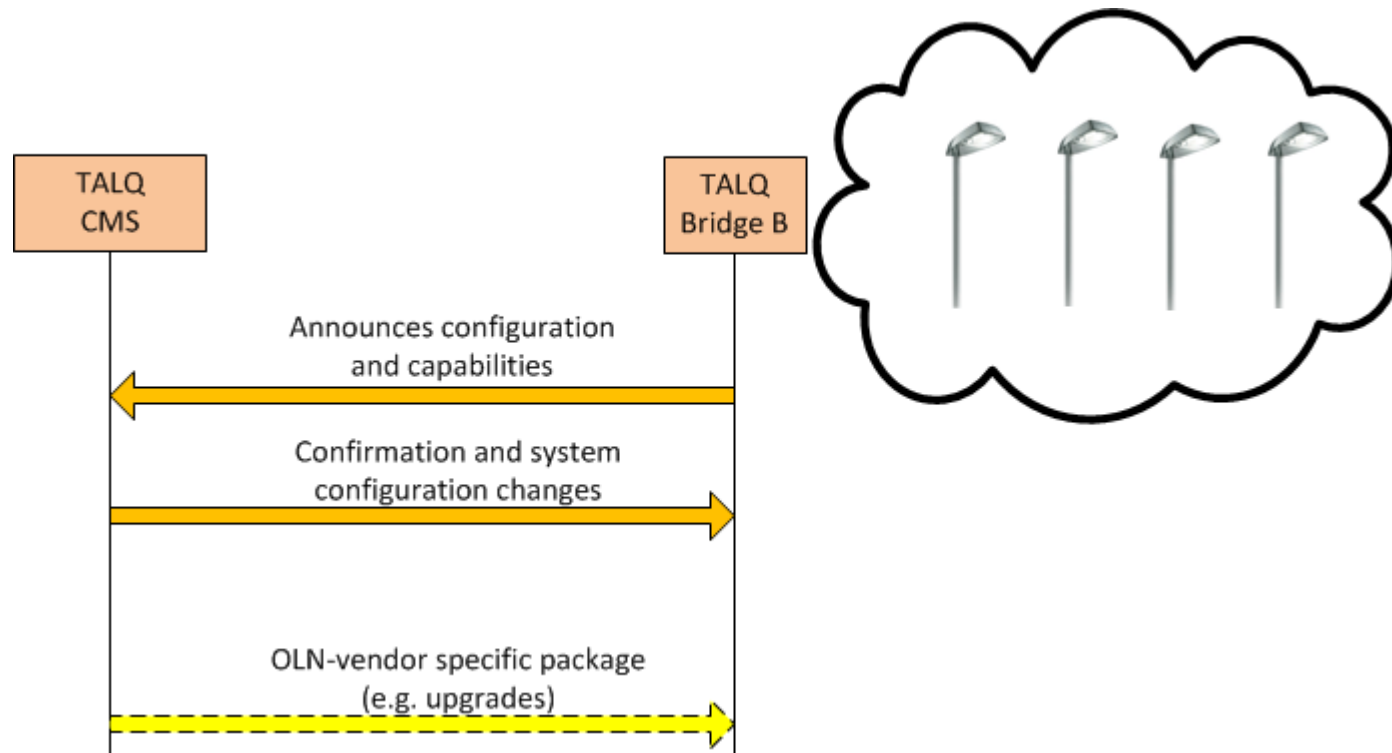Status/Events

Measurements

Metering

Data Logger

CMS
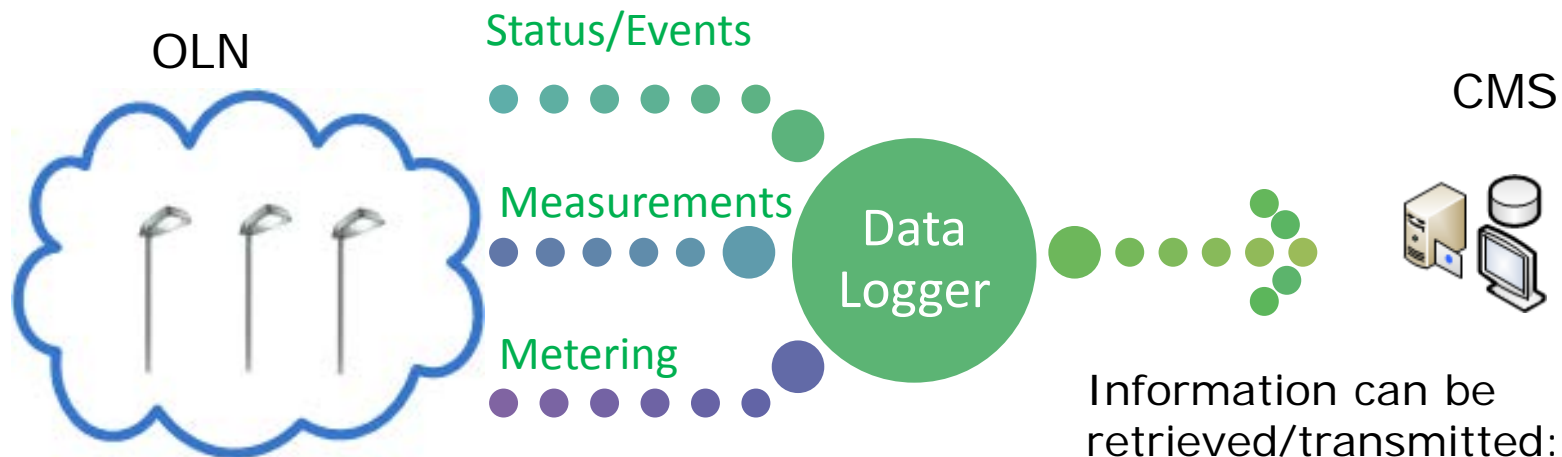
Information can be retrieved/transmitted:
- Periodically
- Event-triggered
- On Demand

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System configuration and upgrades

- Supports auto-discovery of OLN capabilities and attributes
- Enables OLN-vendor specific data transport (e.g. upgrades)

Scalability and security

- The TALQ protocol is built on Internet protocols and security standards
  - XML/HTTP
  - TCP/IP
  - Transport Layer Security
- Integrated with the Web
- Scalable
- Future proof
- Independent of connectivity technology

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Mandatory, optional and vendor specific functionality

Next to the mandatory functionality, vendors can make their own choices from the optional functionality specified in TALQ and are able to add own unique functionality. Functionality is split in three different categories:

Vendor specific
Not specified in TALQ, format defined

Unique vendor functions and features
TALQ gives guidelines for implementation

Optional
Vendor can make choose from the optional TALQ functionality

Some examples of optional functionality:
- Metering
- CLO, maintenance factor, scenes
- Vendor-specific data transfer,
- .....

Mandatory
Basic functionality needed for outdoor lighting operation to be acted upon by every TALQ compliant OLN/CMS

- Discovery and configuration
- Lighting control incl. schedules and calendars
- Data collection/logging/monitoring
- On demand data requests/events
- Group management
- Security

TALQ Certification

- The TALQ Consortium will manage a certification and compliance program

- Product interfaces must pass a TALQ Certification process to hold the TALQ Certification symbol

- The certification process is under development:
  - Test specification is being written
  - Candidates for Test Tool implementation invited
  - Test Tool coverage verification with Plug Fests

Summary

- Networking and intelligent LED technology can address outdoor lighting requirments

- Interoperability is required to foster a rapid market development

- To this end leading industry players created the TALQ specification

- Compliance with the specification will be ensured by the TALQ certification program

Summary

Uniting Smart Outdoor Lighting

Let's TALQ !