The Current State and Future of Road Lighting Control

Christophe Orceau
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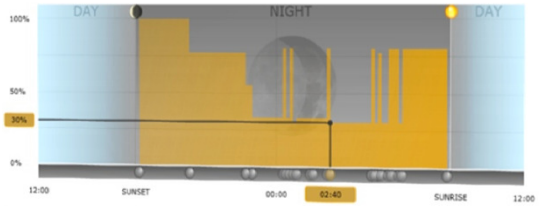
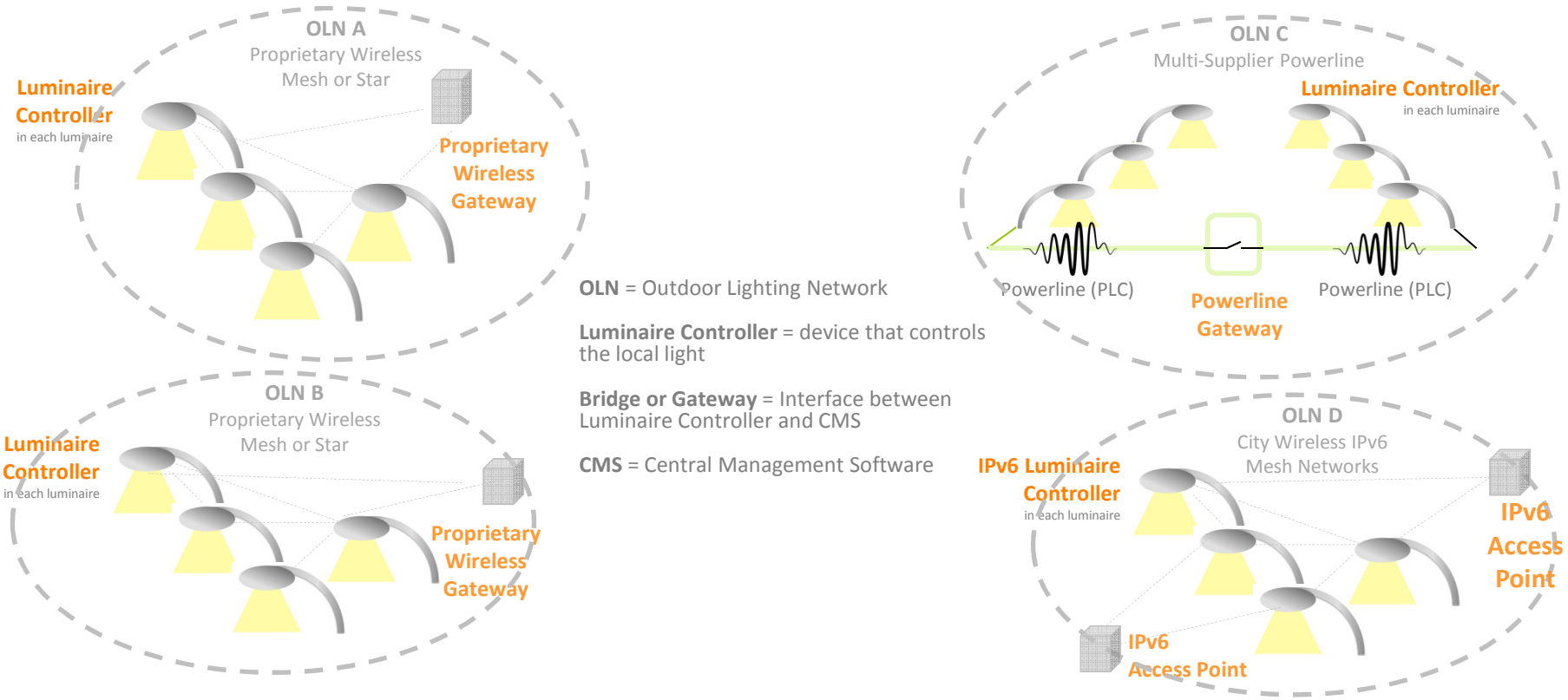
Outdoor Lighting Controlled Networks - Expectations

- LESS ENERGY: up to 50% savings with Dynamic Lighting
  - Controlled ON/OFF times and avoid day burners
  - Individual or group lamp dimming
  - Dynamic lighting based on sensors
- MORE CONTROL: Up to 40% maintenance savings
  - Automatic lamp and electrical failure detection
  - Reduced number of onsite trip, no more patrol (real-time control)
  - Control contractors, measure KPIs, increase safety in the street
- GENERATE REVENUE ON YOUR SMART STREETLIGHT NETWORK
  - Smart Streetlight poles are placeholders (ENERGY + COMMS):
    - to deploy Environmental Sensors and sell sensor data through web services
    - to rent for telecom operator's 4G/5G base stations
    - to collect advanced metering data (energy meter, gas meter, water meter)
    - to plug cameras and reduce costs on camera deployment
    - to identify free parking places
    - to collect traffic information
    - to sell advertising



Outdoor Lighting Controlled Networks – Solution's architecture



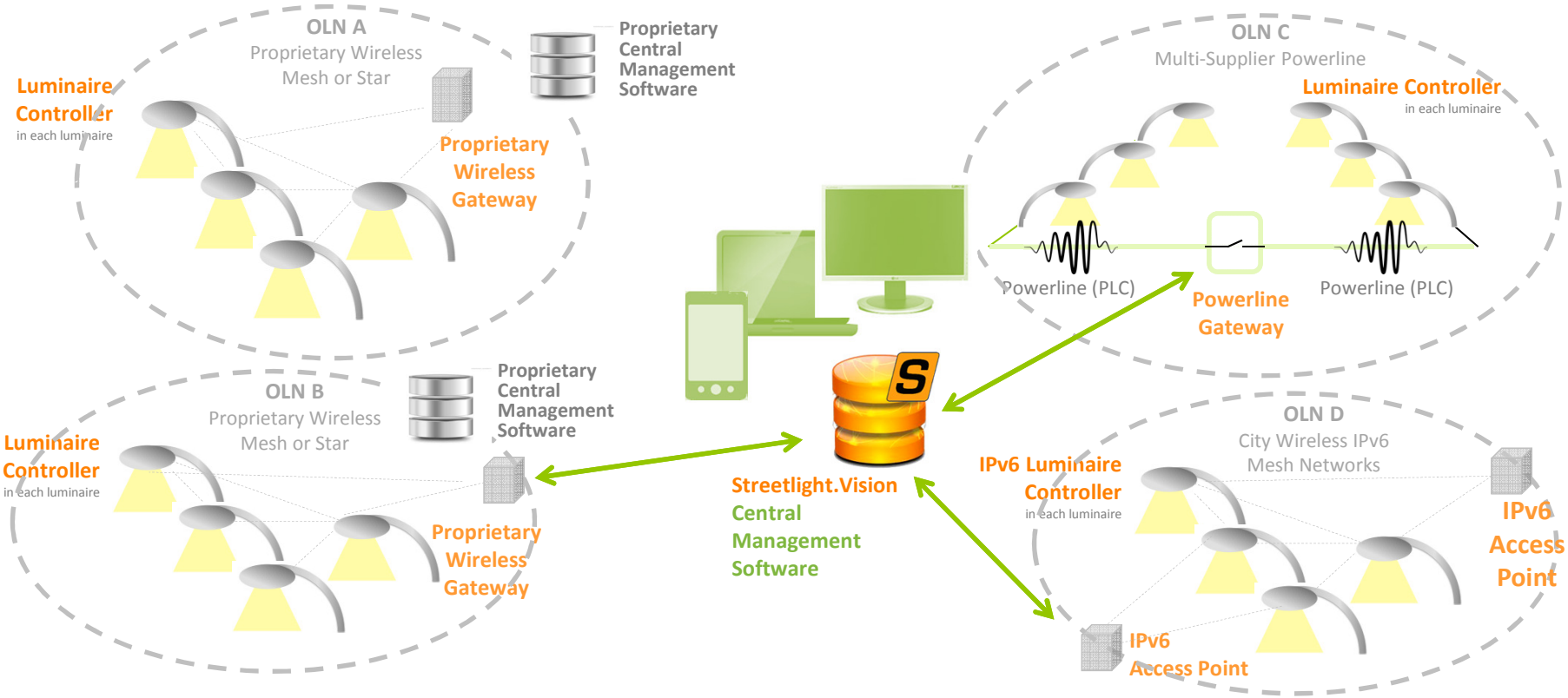
OLN = Outdoor Lighting Network

Luminaire Controller = device that controls the local light

Bridge or Gateway = Interface between Luminaire Controller and CMS

CMS = Central Management Software

Outdoor Lighting Controlled Networks – Solution's architecture



Outdoor Lighting Controlled Networks – Solution's architecture

- CITIES CAN'T AFFORD TO BE LOCKED-IN WITH PROPRIETARY VENDORS
- NO STANDARDIZED PROTOCOL FOR WIRELESS
- CMS OFTEN DESIGNED BY CONTROL SYSTEM's MANUFACTURERS, ABLE TO CONTROL ONLY THEIR OWN CONTROL SYSTEM

Outdoor Lighting Controlled Networks – Installations

North America

Los Angeles, San Jose, Charlotte, New Orleans, Quebec City, ...

Europe

Dublin, Oslo, Paris, Lyon, Senart, Barcelona, Terrassa, Rouen, Brest, Utrecht, Aix, Arahova, Moissy, Badalona, Leucate, Cork City, Edimburg, Cadiz, San Sebastian, Portuguese Highway, Boulogne, Sevres, Poland Highways, Dijon, Venice,...

China and South East Asia

DongGuan, Jakarta, Highway Thailland, Guangzhou, Forshan, Tsukuba, Chen'An, Wuxi, Tianjin, YanCheng, Daejon (Korea),...

South America

Cadereyta (Mexico), Santiago de Chili, Bogota, Porto Alegre, Buenos Aires

Australia, New Zealand

Perth, Christchurch, Sydney

Market Status

- **Less than 1,5 millions light points under control**
- **Less than 1% of the Outdoor Lighting Market**
- **But more than 500 projects identified in 20 countries**

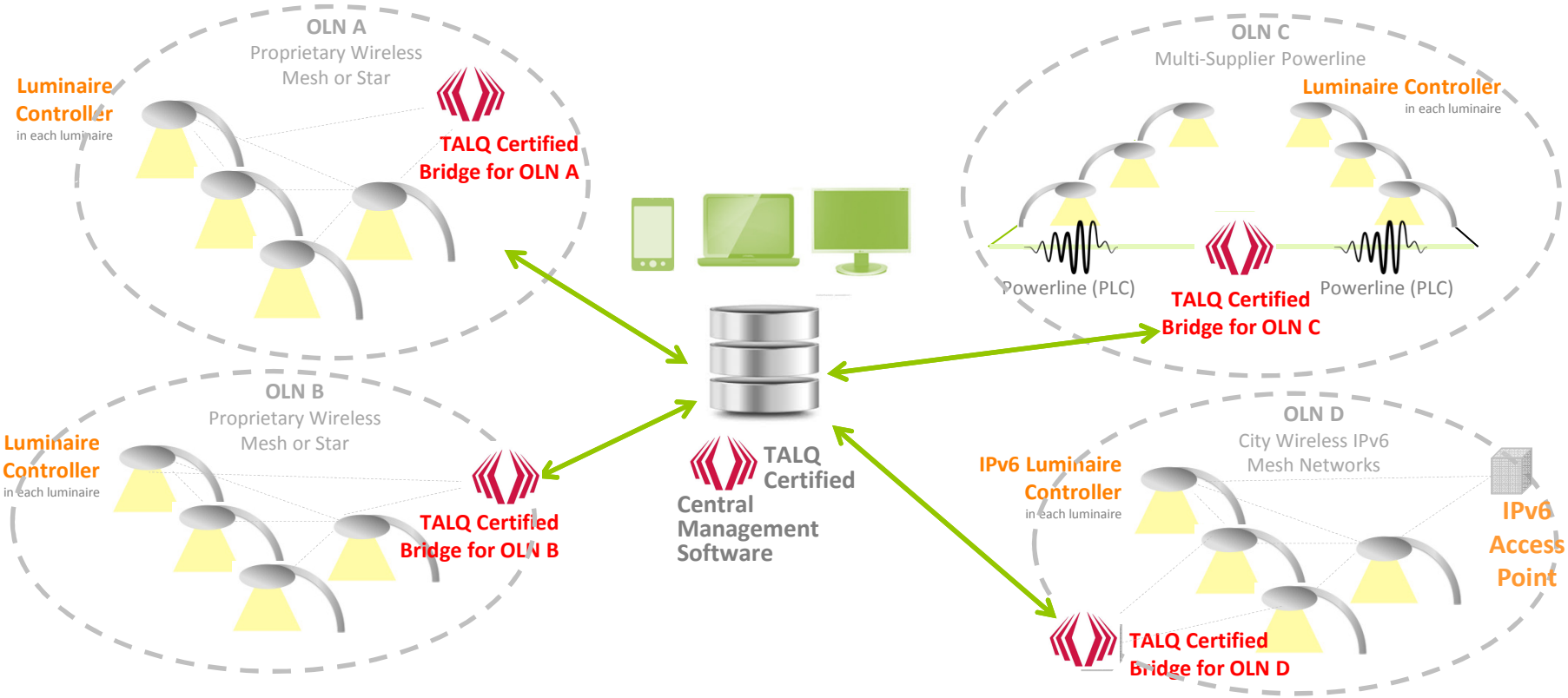
Market Growth

- **From 90 M€ in 2012 to 494 M€ in 2020** (Mc Kinsey – Global Lighting Study 2012)
- **What would be the impact of standardized protocols on the Road Lighting Control market growth ?**

Outdoor Lighting Controlled Networks – TALQ interface

- Global co-operation of major industry members
- TALQ promotes the deployment of OLN Systems by delivering and governing a well-defined interface specification between OLN and CMS and certification program
- TALQ's goal
  - Accelerate the adoption of Outdoor Lighting Networks to enable cities to benefit from associated benefits
  - Enable interoperability between OLN and CMS
  - Avoid the fear of vendor lock-in

Outdoor Lighting Controlled Networks – TALQ interface



Outdoor Lighting Controlled Networks – TALQ progress

- Consortium was formed in JUNE 2012
- TALQ Specifications 1.0 were approved by Consortium in August 2013
  - Version 1.01 in January 2014
  - Scope: configuration, schedulers/calendars, dynamic lighting, real time control, data collect
  - Out of scope : commissioning, only outdoor lighting devices
- TALQ Consortium is now working on Certification Program
  - Certification Process – in progress
  - Specifications of the Certification Tool – starting in April 2014
  - Development of the Certification Tool – starting in Q3 2014
  - Targeting Certification program in place in 1H 2015

Outdoor Lighting Controlled Networks – TALQ membership

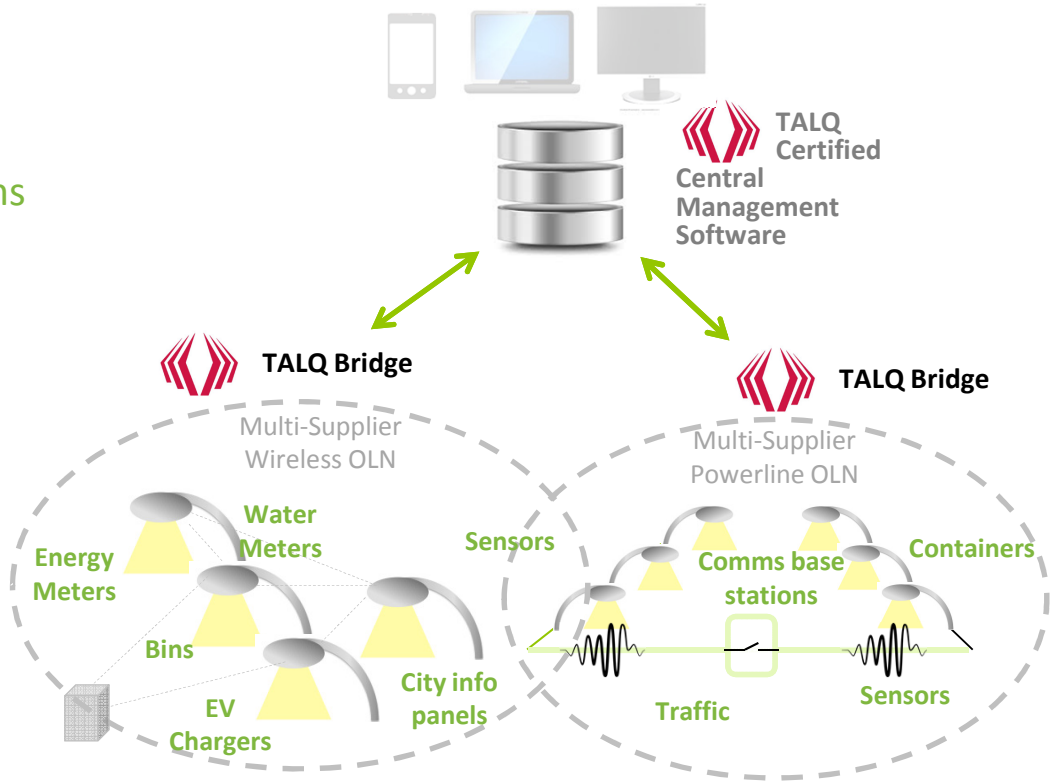
- TALQ Regular Members
  - Voting rights at the General Assembly
  - Participating to Technical, Certification and Promotion Work Group
  - License to use the TALQ Specification to develop and commercialize products based on the TALQ Specifications
- TALQ Associate Members
  - Limited license to use the TALQ Specification to develop and commercialize products based on the TALQ Specifications
- TALQ Partner Program
  - Aimed at Municipalities and Consultants
  - License for confidential evaluation of the TALQ Specifications
  - No license to manufacture or distribute products based on the TALQ specifications (only non-commercial use)
  - Access to TALQ Consortium promotion events

Future of Road Lighting Control

- Dynamic Outdoor Lighting
- Multi-supplier Wireless Control Systems

  Based on standardized wireless protocols or based on multiple manufacturers adopting the same IPv6-based technology
- Multi-Application Wireless and Powerline Control Systems

  Leveraging Streetlight Network to create a Communication Backbone for other Smart City Apps and improve the Return On Investment of Smart Lighting



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