PHILIPS

Connected lighting

Offices

Power Over Ethernet (PoE) technology

Value beyond illumination

Communication and data through connected lighting

The new digital
revolution

Digital technology is transforming virtually every aspect of modern life..... including our offices

Recent advances in mobile technology, cloud computing, data storage, and miniaturization are creating an Internet of Things (IoT) environment – a vast network of connected devices, people, processes, and data.

Connected lighting is part of this trend. By building on the digital nature of LED technology, connected lighting brings illumination and IT together. Connected lighting systems not only illuminate: they also serve as a platform for collecting and sharing data with the users and managers of illuminated spaces.

With the help of PoE technology not only power and data can be delivered for the luminaire over a a standard Ethernet cable but it also allows the lighting system to be merged with the IT system. Like a computer, each fixture has a unique network address for two-way Ethernet-based communications.

Features	Benefits
Power Over Ethernet (PoE): Power and data over the same Ethernet cable	Low cost installation. High bandwidth data transmission.
No need to run line voltage wiring to the luminaires, easy connection via a low voltage Ethernet cable.	Ease of Installation
Each luminaire gets a unique IP address and is directly connected to a building's IT network via a PoE switch.	Ease of IT integration: Each luminaire can be identified, managed and controlled from various IT platforms.
Occupancy, daylight and temperature sensors embedded in luminaires and the sensor data connected with adjacent	Deep energy savings of up to 80%.
Real-time data insights	Allows for actionable insights for a building and workspace usage; improve enterprise operational efficiency
Personal controls via users' smartphones	Greater comfort of the employees, enabling personalization.
Way Finding	Location based services such as indoor navigation via visible light communication

Up to

80%
Energy saving for lighting alone*

through the connected lighting system compared to traditional lighting

Quality of light, health and wellbeing

Lighting in offices has a profound effect on employees' well-being, therefore the quality of light and the correct light for every task area is extremely important

Human resources benefits

A more appealing environment creates higher attraction and retention levels of professionals within enterprises

Savings from building verticals

energy from lighting and other building sub-systems, e.g. heating and cooling are reduced in unoccupied areas

Location based services via visible light communication

The connected lighting system, via VLC (visible light communication), enables insights into the availability of nearby facilities such as meeting rooms – improving productivity
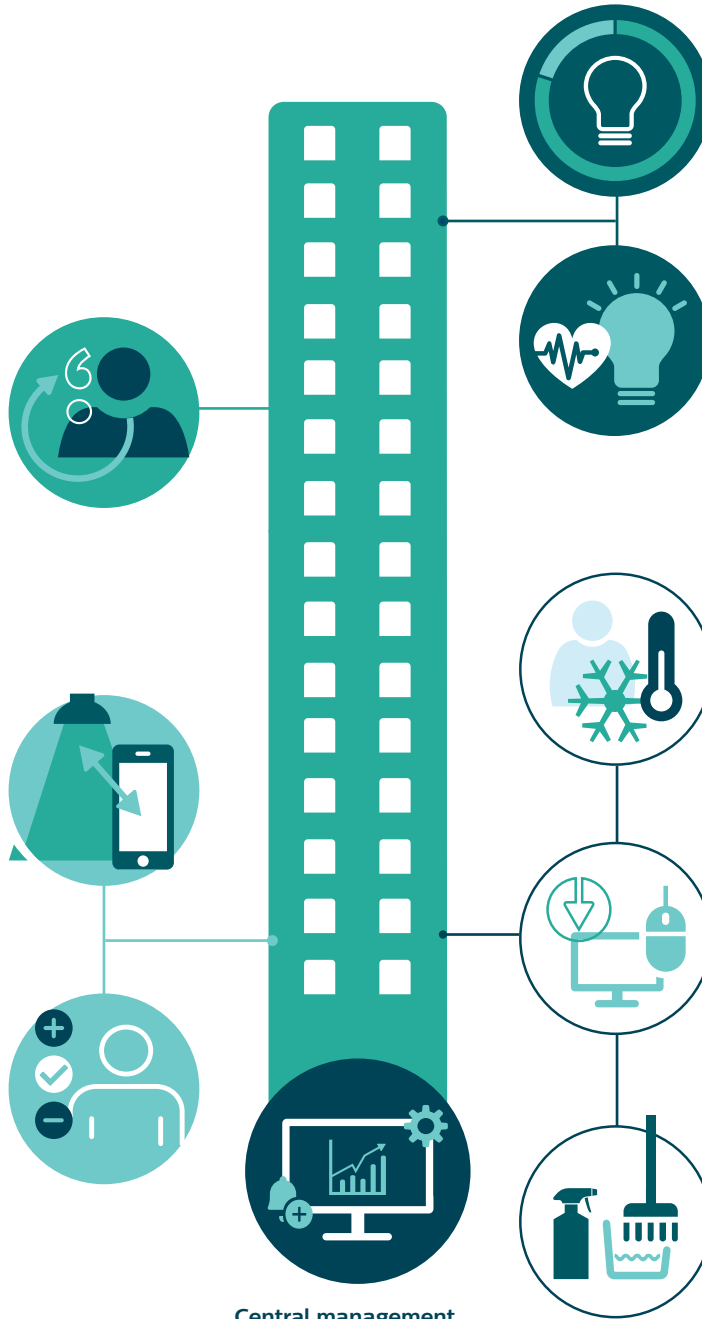
$5 per ft^2 per year**

Savings on rental space

through better space utilization – reduce required floor space by 11% based on highly detailed data occupancy insights and trends

Personalization via mobile apps

Individuals can adjust the lighting levels and temperature, creating a more comfortable and productive workspace

$8 per 100 ft^2 per year***

Reduced cleaning cost

by analyzing occupancy data, only spaces that have been in use are cleaned, saving resources and costs

Central management

Remotely and centrally monitor and manage all connected light points, energy consumption, and occupancy data via software
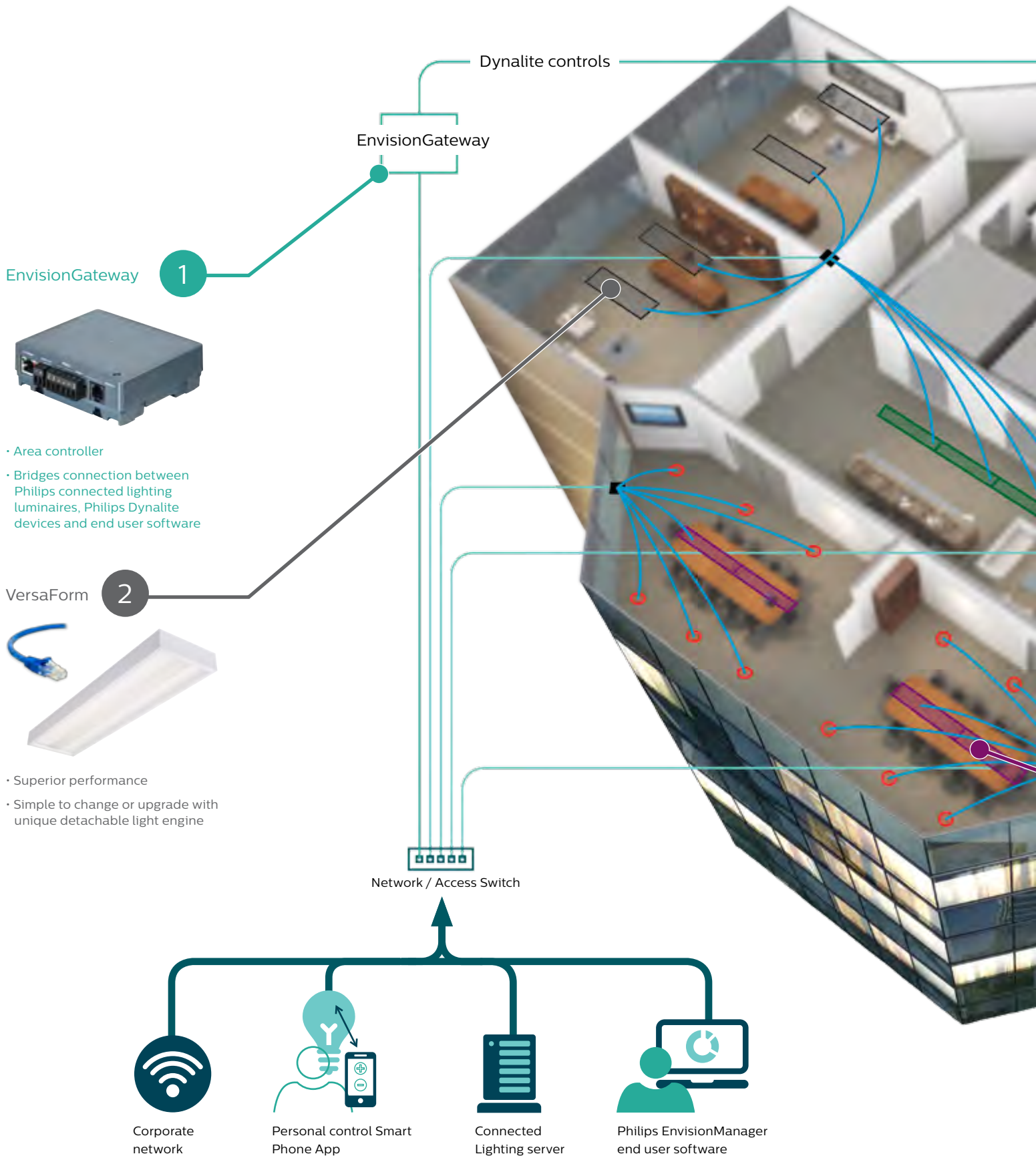
* Combined savings from LED lighting, occupancy sensor, daylight harvesting, personal controls and control of Variable-Air-Volume HVAC installations
  (Source: J. Zhang, R.G. Lutes, G. Liu, M.R. Brambley. Energy Savings for Occupancy-Based Control (OBC) of Variable-Air-Volume (VAV) Systems, January 2013.)
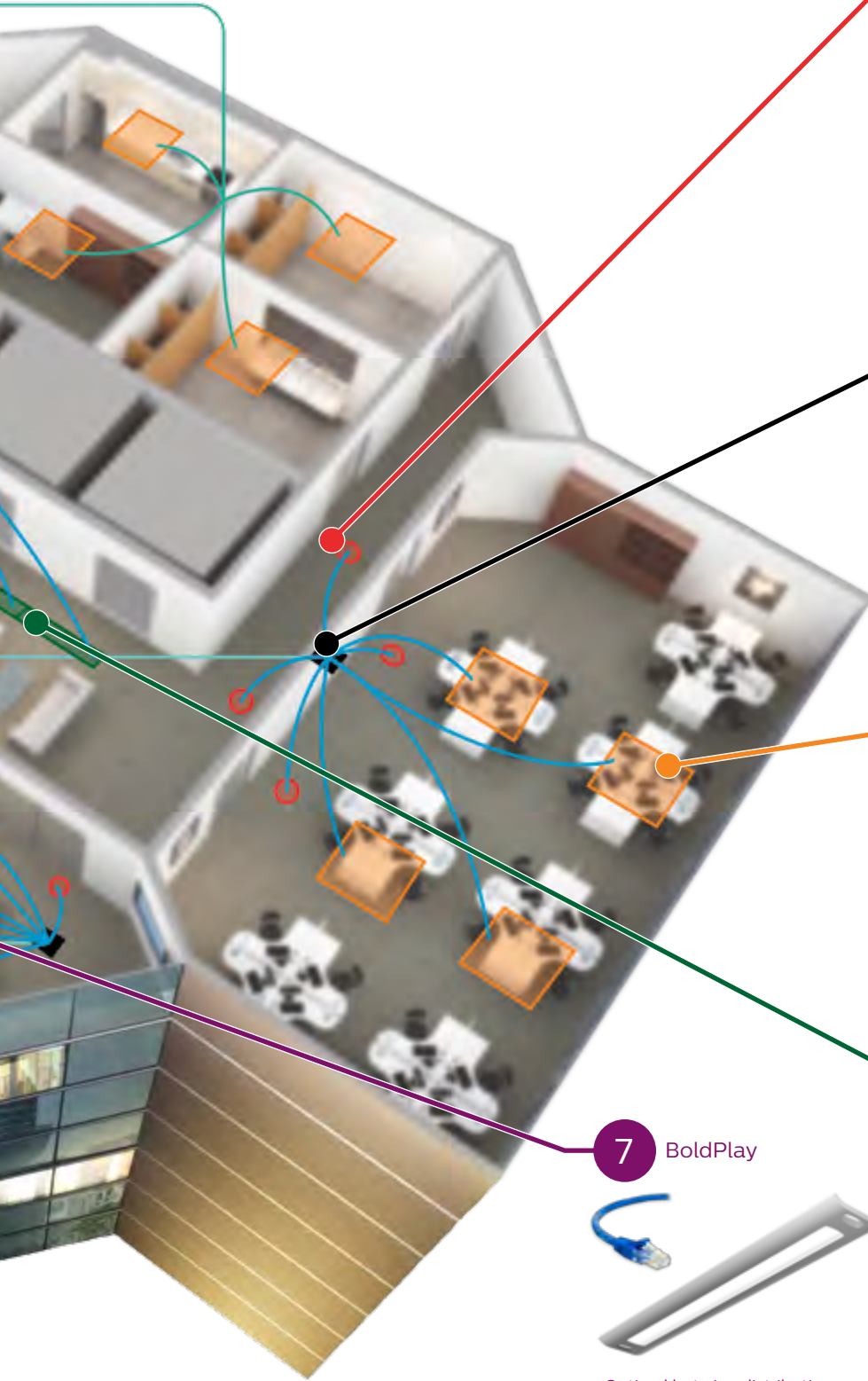
** Percentage range of savings: 11–67%; average rent price of $48.62/ft^2/year based on Q3 2015 office market outlook by Colliers International

*** Source: International Facility Management Association, Benchmarks V report#30, 2008; based on $1.62/ft^2 inflation adjusted cleaning cost

Connected Lighting System with PoE
Layout and Overview

Dynalite controls

EnvisionGateway

EnvisionGateway **1**

- Area controller
- Bridges connection between Philips connected lighting luminaires, Philips Dynalite devices and end user software

VersaForm **2**

- Superior performance
- Simple to change or upgrade with unique detachable light engine

Network / Access Switch

Corporate network

Personal control Smart Phone App

Connected Lighting server

Philips EnvisionManager end user software

3 Calculite downlight

- Round and Square available
- True 50° physical and reflected cutoff for a reduced aperture brightness and unobtrusive ceiling presence

4 PoE switch

- Standard IT switch
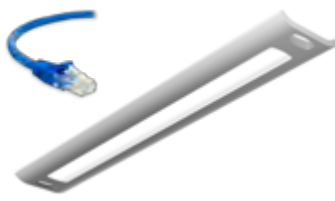- Provides power and data to the luminaires over a Ethernet cable

5 EvoGrid

- Combines style and affordability
- Soft opal diffuser with large luminous area minimizes apparent brightness

7 BoldPlay

- Optimal batwing distribution enabling wide row spacing
- Striking aesthetics characterized by effortless style and urban edginess

6 TruGroove

- Seamless 3" ribbon of light
- Elevated performance and versatility for functional and decorative applications

87.5% less mains connections

PoE Power over Ethernet

Ethernet cable is data and power cable

How it works

- In a connected lighting system, every luminaire is directly connected to and uniquely identified within a building's IT network, allowing system managers to monitor, manage, and maintain individual light points via lighting management software

- With integrated sensors, connected luminaires become points of intelligence that share data on occupancy, activity patterns, and changes in temperature, humidity, and daylight levels

- With wireless communications, connected luminaires can deliver location-based services and in-context information to people in illuminated spaces via mobile devices and apps
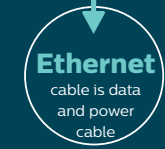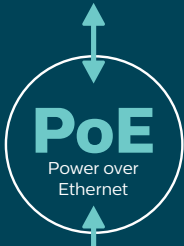
The Philips Lighting
PoE enabled portfolio:

PHILIPS
Day-Brite
CFI

 DuaLED

 ClearAppeal

 EvoGrid

PHILIPS
LIGHTOLIER

 Calculite LED 4" square

 Calculite LED 4" round

 Calculite LED 6" round

PHILIPS
LEDALITE

 BoldPlay (suspended)

 Chopstick (suspended)

 TruGroove (recessed)

 VersaForm

4 ways connected lighting uses data to deliver value beyond illumination.

Connected luminaires:
data for operational insight

Lighting levels, heating, cooling and cleaning can be reduced in low-occupancy areas –saving time, money and energy. Connected lighting thus supports businesses who wish to achieve the highest green building certification ratings and maximum energy savings.
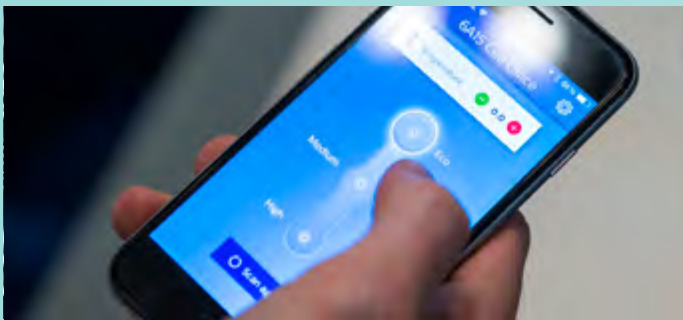
Connected spaces:
data for personalized experience

Lighting in offices has a profound effect on workers' well-wbeing and vitality, influencing daily productivity. Connected lighting offers individual, personalized control of environments, creating a much more pleasant and comfortable workplace.

Connected software:
data for real-time monitoring and historical reporting

With real time occupancy data and trends over time, facility manager can schedule for an entire floor shutdown during off-peak times or reschedule any maintenance activities if there is a last minute change in space occupancy.

Connected landscape:
data for the new digital ecology

Connected lighting systems can integrate with other systems in a building or city, creating new synergies and efficiencies, and making lighting an integral part of the new digital ecology. In the Internet of Things, this is called the system of systems.

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