



Indoor Positioning with IOT



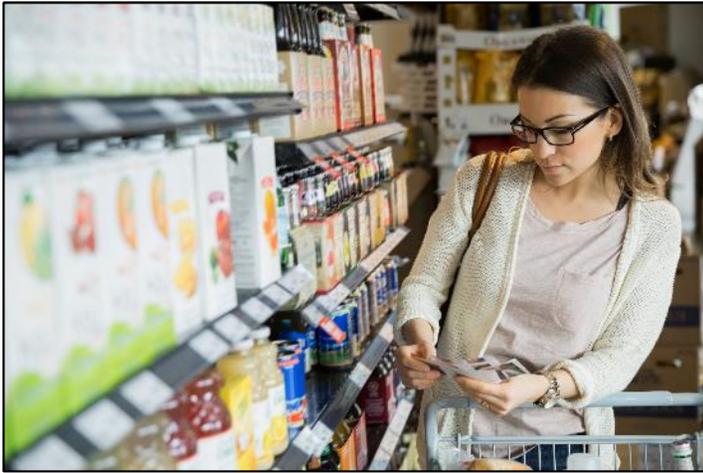
DLC Stakeholder Meeting
Denver August 1st 2016

Mark Hand – VP Indoor Engineering Solutions

Agenda

1. Technology and mobile phone user trends
2. Why now?
3. How does it work?
4. IPS solution advantages
5. Apps & Analytics
6. Summary

Technology is changing shopper behavior



Smartphone users = Connected shoppers

82%

Of smartphone users turn to their devices to help them make a product decision

Consumers prefer and act on location-based ads

61%

Of smartphone users say they are more likely to buy from companies whose mobile sites or apps customize information to their location

Location based relevancy is key

4 in 5

Consumers use search engines to find local information

Source: Google/Ipsos 2015

Precise Indoor Positioning

Smartphone improvements are enabling new solutions to be developed

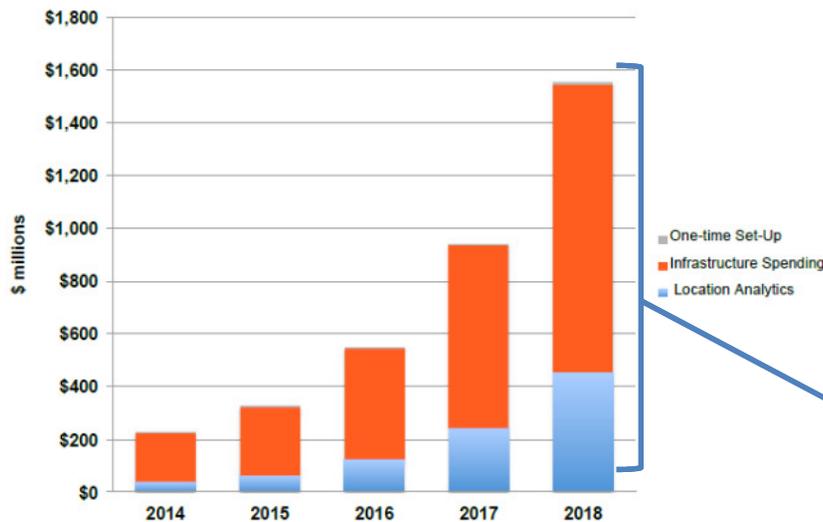


Technology uses the camera to sense the device's location based on luminaires it sees

Precise Indoor Positioning

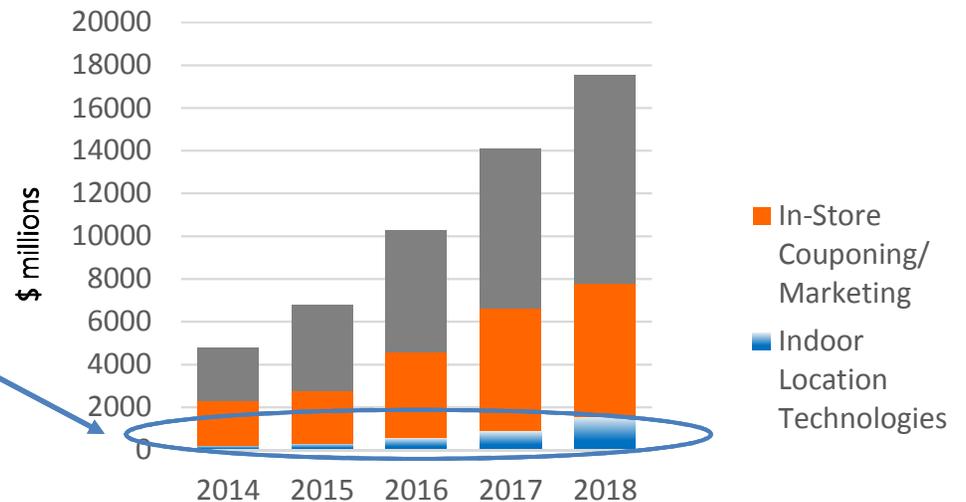
Demand for tailored customer experience will continue to fuel indoor location influenced spending

Figure 1: Indoor Location Technology and Services Spending



Indoor Location Technology Spending
\$1.6B by 2018

Figure 2: Indoor Location-Influenced Spending



Indoor Location Ecosystem Spending **\$18B by 2018**
Aimed at the **\$700B** in Mobile Influenced Purchases

Source: Opus Research & Deloitte Digital

Precise Indoor Positioning

Why are ambient LED light fixtures the ideal positioning solution?



Powered  Placed  Precise

Precise Indoor Positioning

Technology Services enable navigation and tailored experience for each customer

1 Store LED lighting acts as a beacon to signal mobile devices through Visible Light Communication (VLC) and Bluetooth® low energy (BLE) technology.

4 Platform ties to retailer's digital marketing systems to deliver location-based services and personalized content to the shopper.

HOW LED LIGHTING ENABLES INDOOR POSITIONING SERVICES

YOUR FRIEND'S GIFT REGISTRY



PEOPLE WHO PURCHASED THIS ALSO LOOKED AT...

10% OFF TODAY!



2

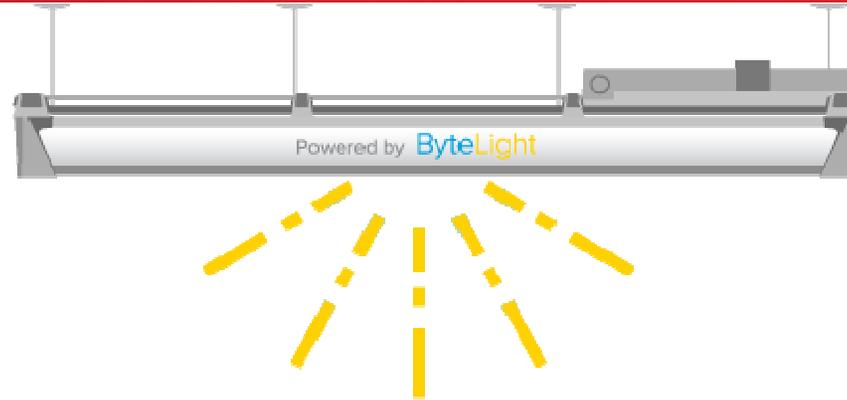
Connected shoppers opt-in to "listen" with a retailer's loyalty app on their mobile devices.

3

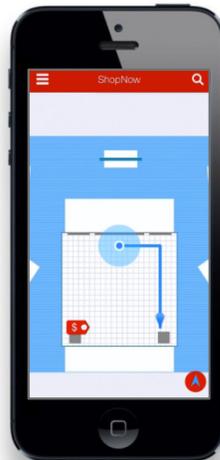
Engaged shoppers enjoy a tailored experience, easily find the items they need with pinpoint accuracy and can request assistance and relevant digital content along the way.



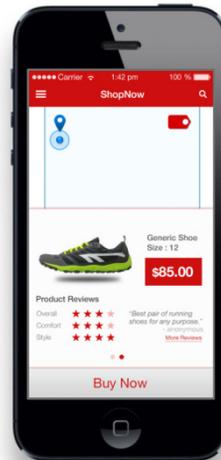
Indoor Positioning Use Cases



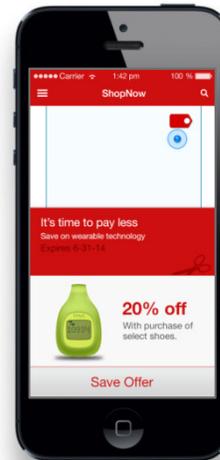
**Return
Shopper
Welcome**



**Easy
Indoor
Navigation**



**Contextual
Product
Information**



**Relevant
Coupon
Offers**



**On-Demand
Assistance**



**Planogram
Compliance**

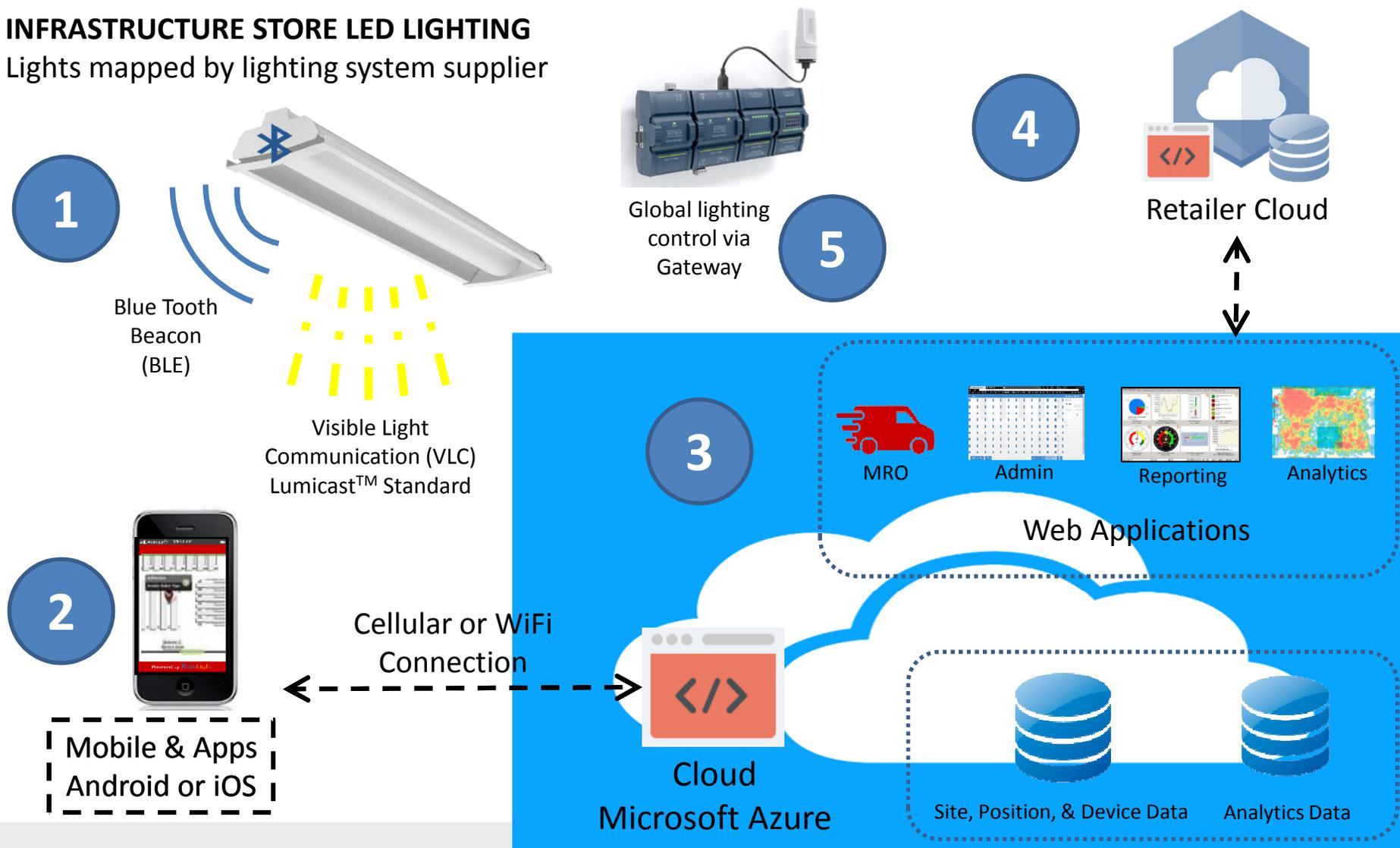


Precise Indoor Positioning

Indoor Positioning Technical Overview

INFRASTRUCTURE STORE LED LIGHTING

Lights mapped by lighting system supplier

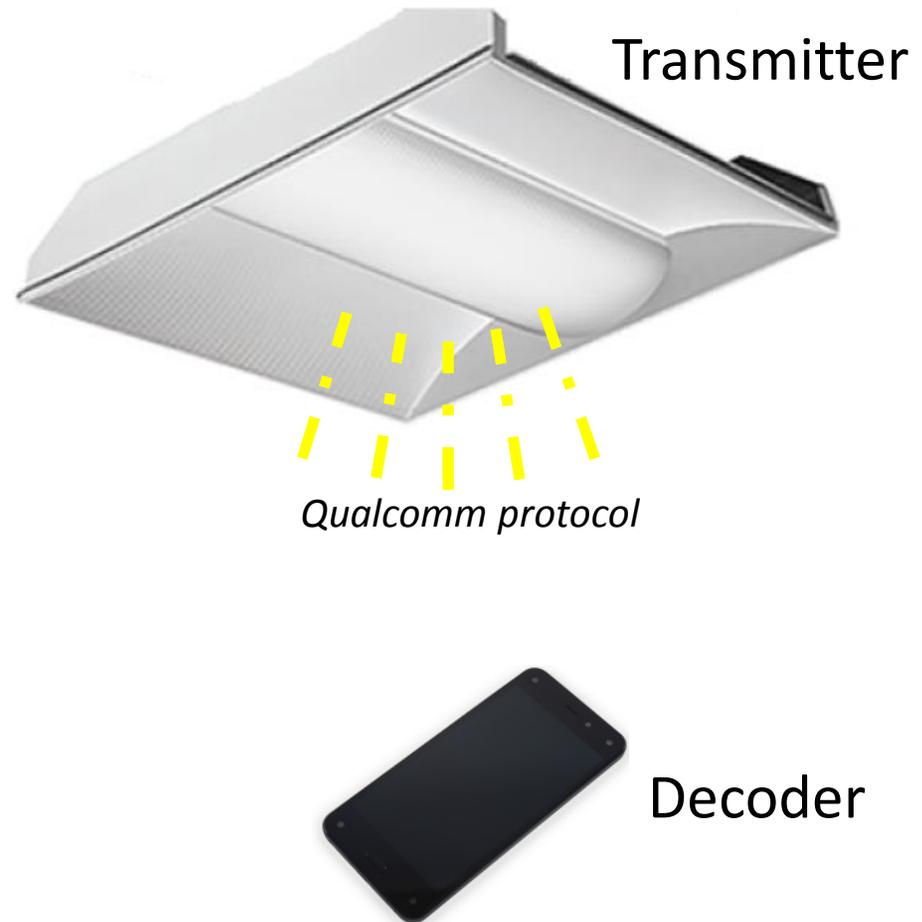


Precise Indoor Positioning

VLC Technology is similar to optical telegraphy

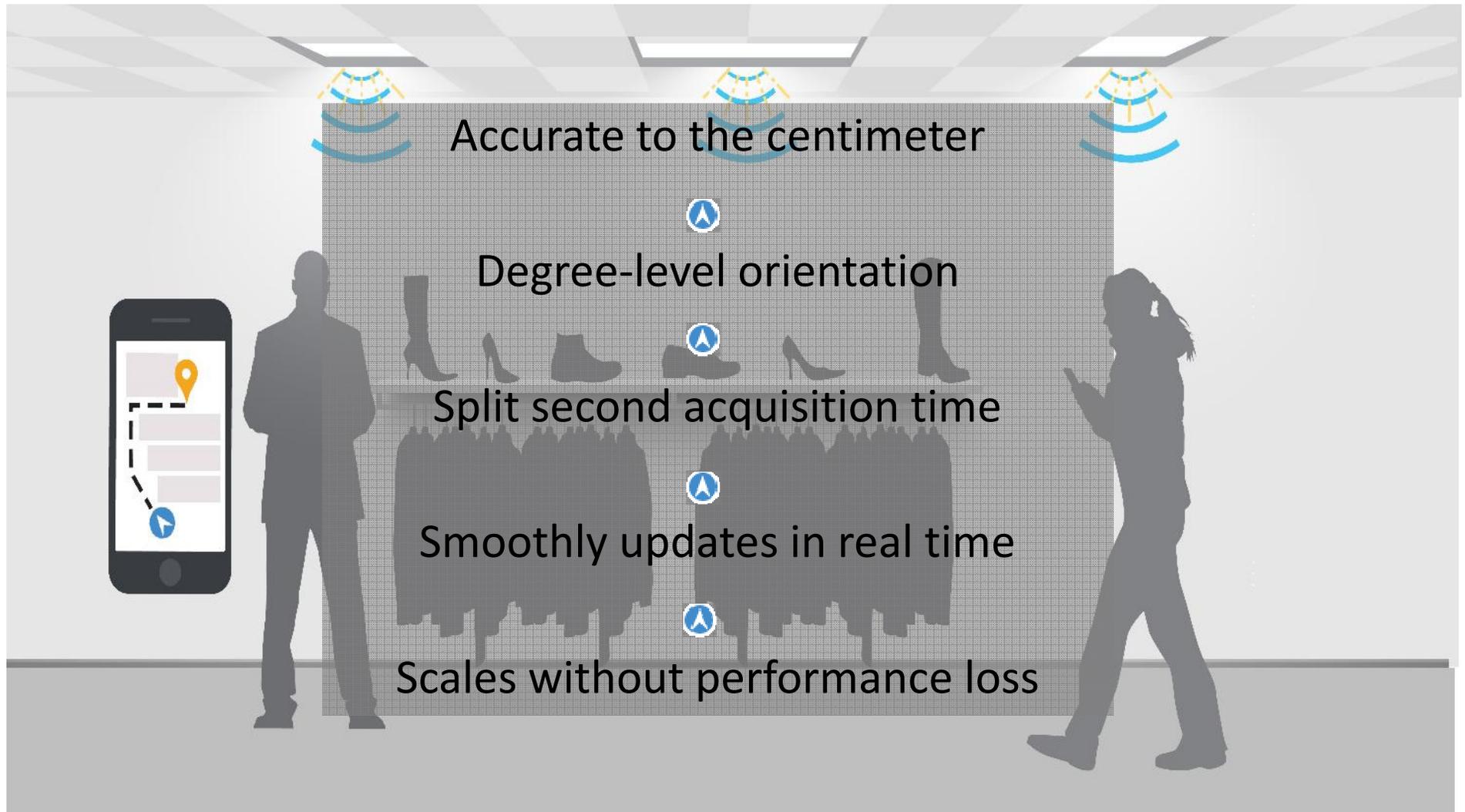


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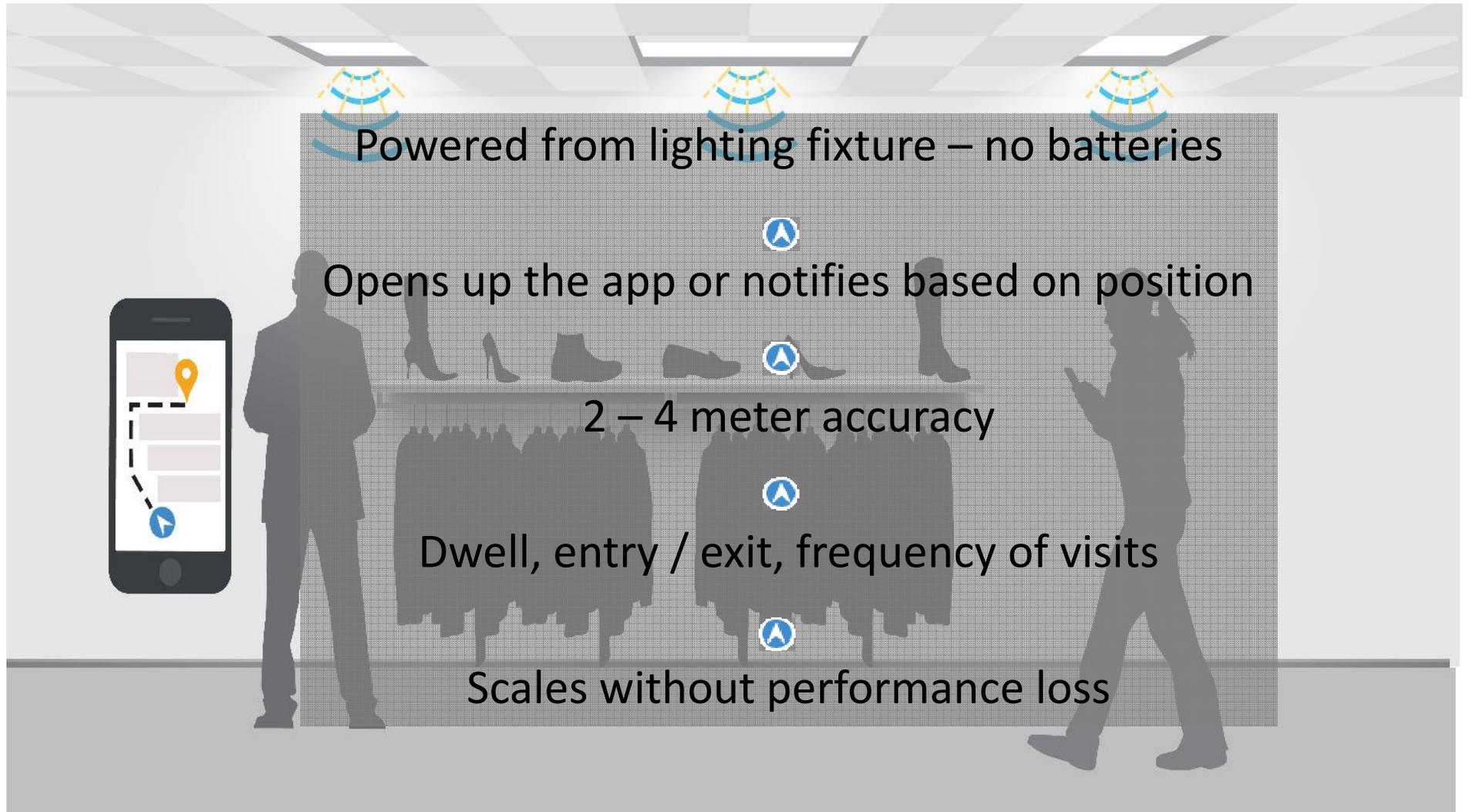
Precise Indoor Positioning

VLC Technology – Key Features



Precise Indoor Positioning

BLE Technology - Key Features



Precise Indoor Positioning

Apps & Analytics provide "last mile" capabilities



Search

Point of Interest search.
Locations ranked by
name, category and
distance from position.



Messaging

Deliver personalized or
contextual messages
based on customer
profile and location.



Maps

Level specific floor
plans customized to
your venue.



Routes

Turn by turn directions
from point A to B
saving time for
additional purchases.



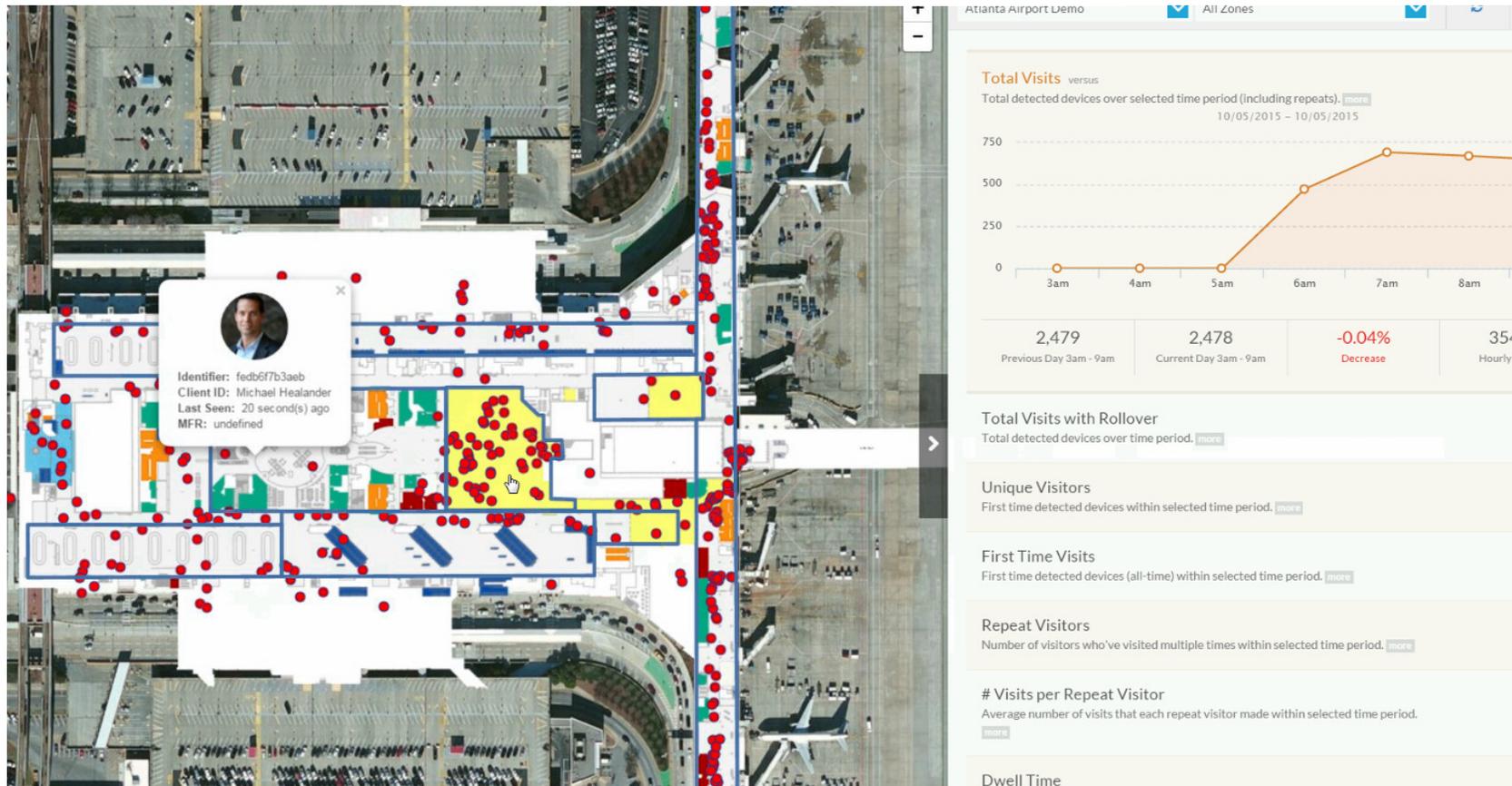
Analytics

Multi-sensor, zone
based App and passive
analytics. Heat maps,
space utilization, wait
and dwell times,
loyalty.

Precise Indoor Positioning

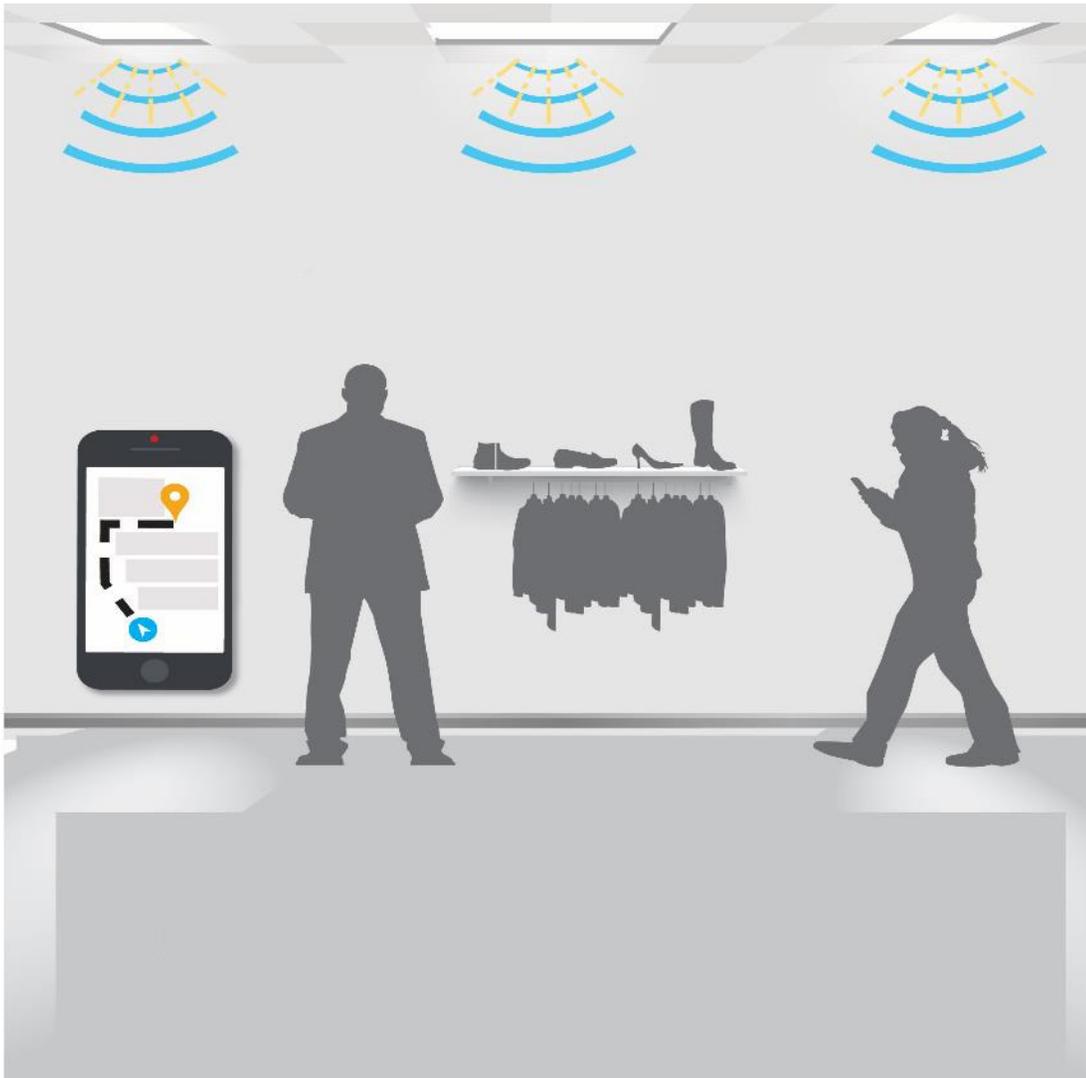
Navigator Application

Zoning, and Zone Analytics



Precise Indoor Positioning

IPS solutions provide many Digital Services Enhancements to Retailers



Precise Indoor Positioning

Customer Experience

- Navigation and list capability
- Requesting assistance
- Online to in store, and vice versa

Employee Efficiency

- Manager directed activities
- Restock priorities
- Training

Business Improvement

- Layout effectiveness - heat maps
- Merchandise location decisions
- Advertising & promotion

That was then.

This is now.

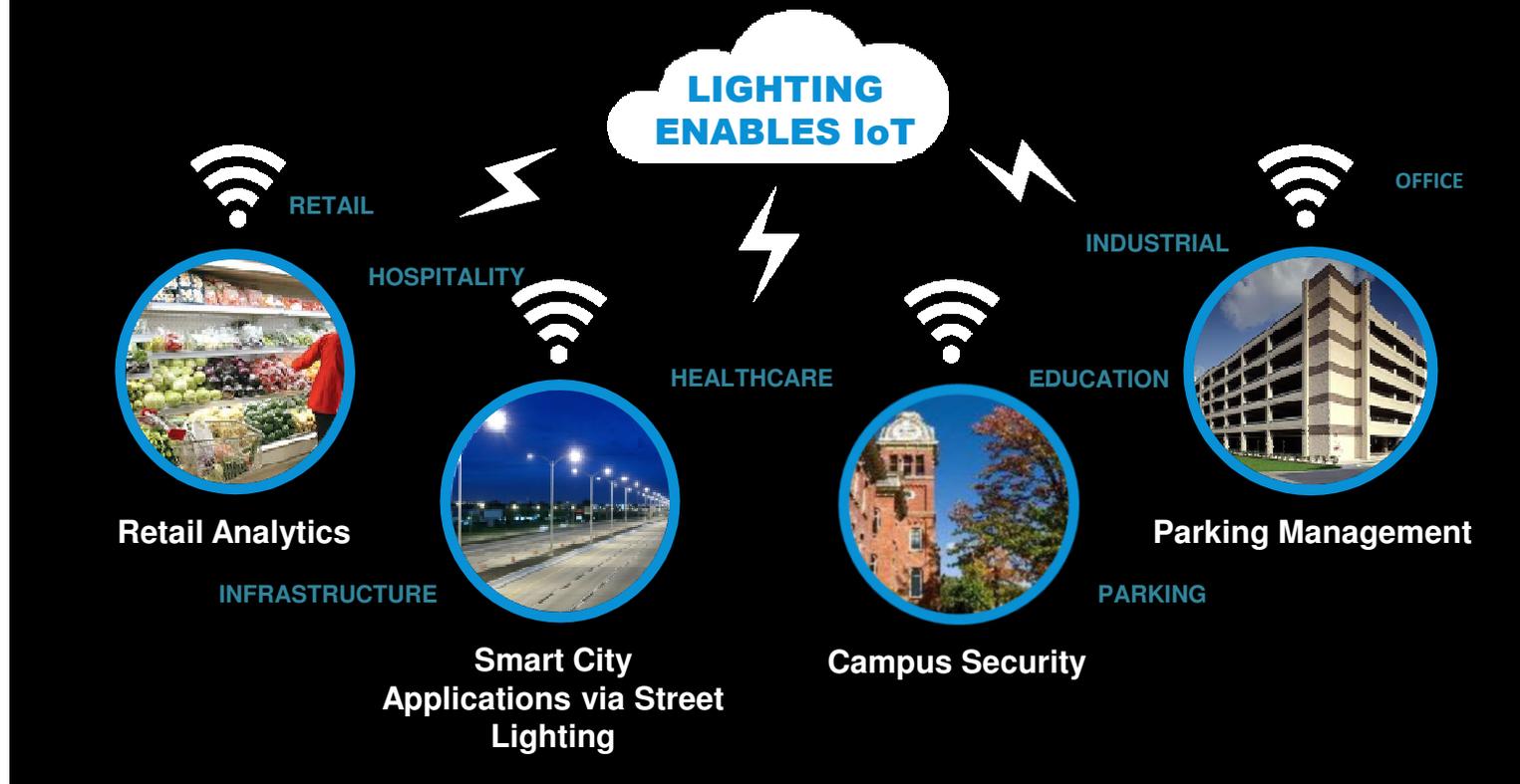


Google earth

Precise Indoor Positioning

Sensory Networks

The Internet of Everything (IoT)



Connects People, Processes, Data & Things

Precise Indoor Positioning

AcuityBrands®



QUESTIONS?