

How to make a Smart City?

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A smart city (also smarter city) uses digital technologies or information and communication technologies (ICT) to enhance quality and performance of urban services, to reduce costs and resource consumption, and to engage more effectively and actively with its citizens.

**Smart city - Wikipedia, the free encyclopedia
https://en.wikipedia.org/wiki/Smart_city**

Trends Reshaping the Global Landscape

Social Demographics



Economic



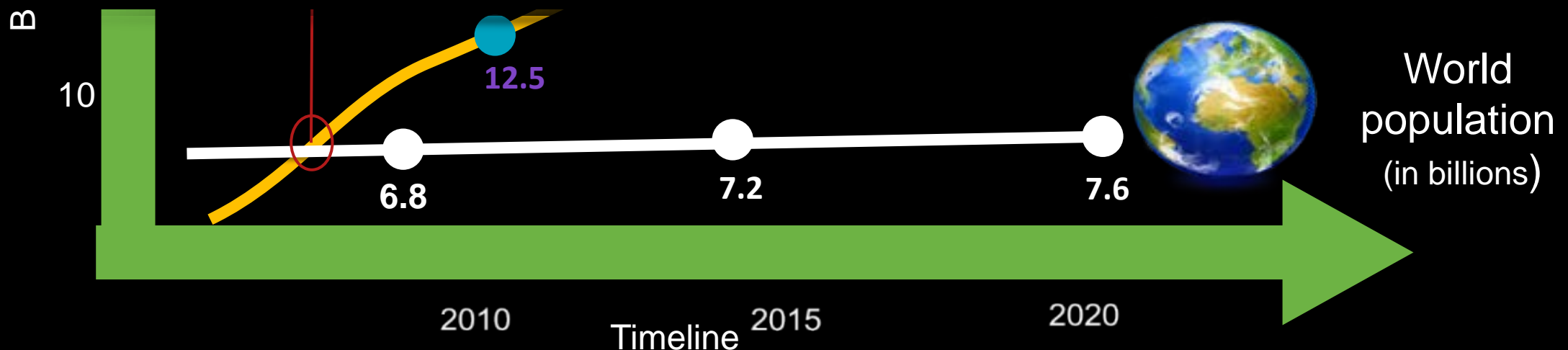
Technology



Increasingly Everything Will Be Connected to Everything



The New Essential Infrastructure



The Internet of Everything Opportunity... *is here NOW!*

ECONOMIC VALUE

\$19*
Trillion

Private Sector

Public Sector

Only 1% of the World is Connected Today

Based on 61
Real-World
Use Cases

Value Sources



Innovation/
Revenue

\$3.0T



Customer
Experience

\$3.7T



Asset
Utilization

\$2.5T



Employee
Productivity

\$2.5 T



Supply Chain/
Logistics

\$2.7T

* Over 10 year (2022)

IoE - Value at Stake for Newcastle / Hunter

\$2.2 Billion



Value for Citizens → \$500M



Value for Cities → \$1.7B

- Enhance government access & payments
- Improve Telework
- New services
- Reduce counterfeit drugs
- Address chronic disease

- Avoid travel / reduced congestion
- Create Connected Learning
- Enhance Smart Grid
- Improve sustainability
- Improved safety & security
- Monitor environment

What questions should we ask... ?

? ...to solve *urban* challenges...

...in new ways?

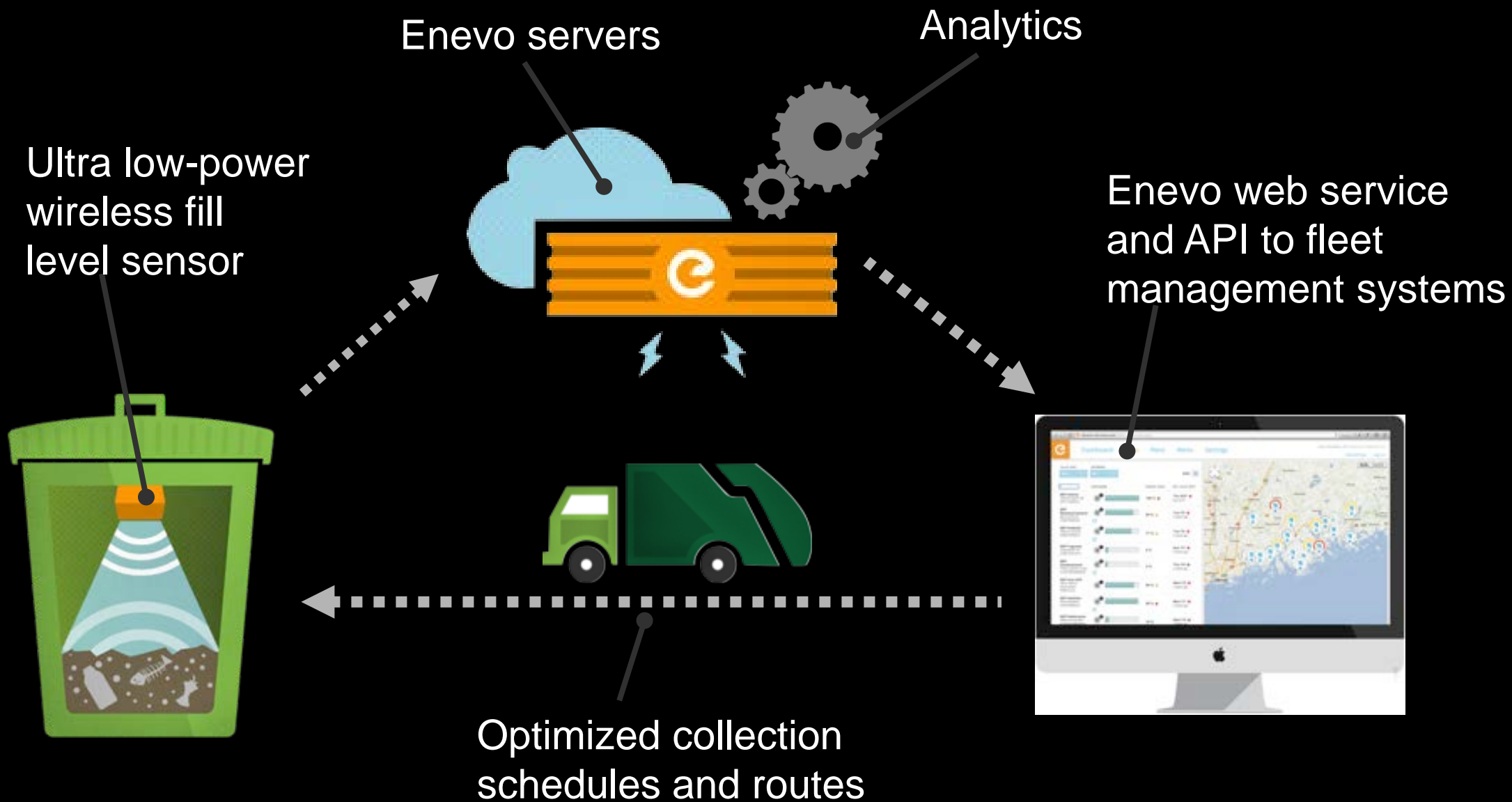
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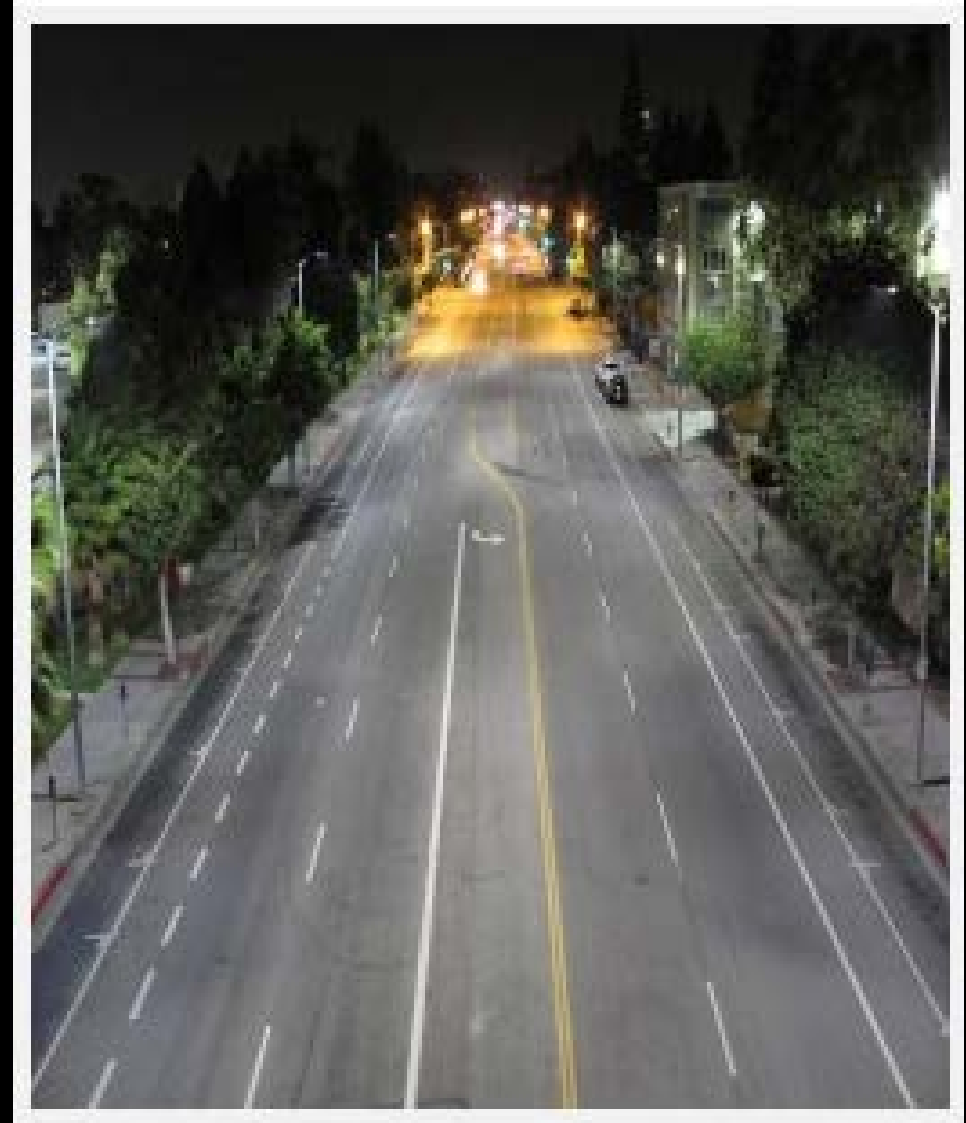
**Why so many garbage trucks?
And must they visit every can, every time?**



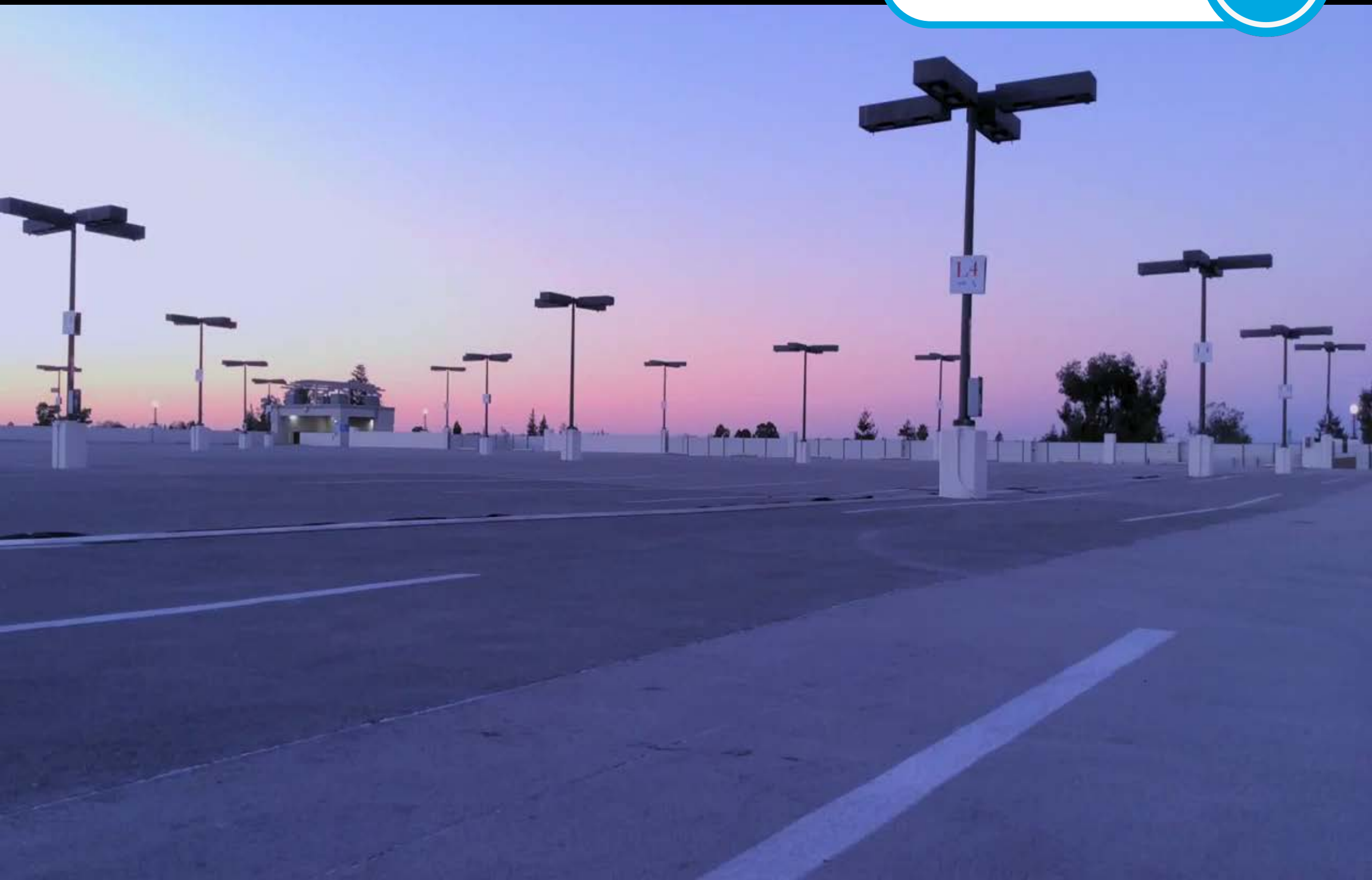
Smart Waste Management



Can we reduce lighting costs with better results?



Smart Lighting



And...what if the 4 billion+ street lights worldwide...

...could capture and share data via a connected global sensor network?

**Applications
pull in data...**

Provide **urban
services** and
timely info to
city agencies, to
citizens and
to businesses

Wi-Fi
Mesh



O₂ / CO₂

UVA / UVB

Ambient Light

Rainfall / Wind

Particulate Matter

License Plate Detection

Humidity / Temperature

Radiation / Power Levels

Motion / Seismic Activity

Video / Audio / Ultrasound

Sensors **monitor**
conditions, gather
data analytics

Special software
aggregates
collected data

Data is sent over
the **secure**
Network

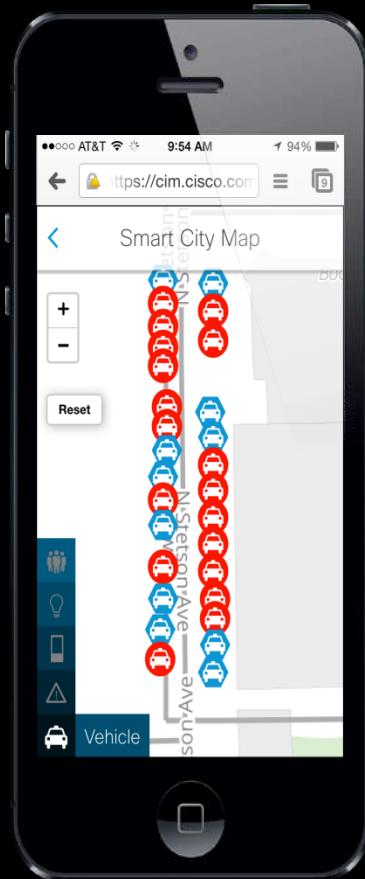
Power



How do we improve parking for drivers and cities?



Smart Parking



Why do we have traffic?



Traffic Analysis



Sensity

<https://proxima.sensity.com/#analytics>

Provide Feedback

Overview

Activity

Analytics

Energy

Sensors

Schedules

Tags

Fixtures

Base Fixtures

Sites

Accounts

Customers

Help

EVENTS

When	Type	Source	Message
2014-11-06 16:47:17	counter	N02fe006b	Pedestrian, Count:115; Unknown (1017), World position: [54735.035,71797.12], World velocity: [-8689.241,1568.7007], Camera position: [0.493359,0.619444], Camera bounding box: [0.469531,0.544444,0.517188,0.694444], Dimensions: [0,0];
2014-11-06 16:47:16	counter	N02fe006b	Pedestrian, Count:114;
2014-11-06 16:47:16	counter	N02fe006b	Pedestrian, Count:114; Unknown (1017), World position: [63214.348,71989.086], World velocity: [-8886.546,-11124.952], Camera position: [0.554297,0.620833], Camera bounding box: [0.521094,0.548611,0.5875,0.693056], Dimensions: [0,0];
2014-11-06 16:47:15	counter	N02fe006b	Pedestrian, Count:113;
			<div> <div> <div> <div> <div>194</div> <div>193</div> <div>156</div> <div>11</div> <div>112</div> <div>8</div> </div> <div> </div> </div> <div> <div>1016</div> <div>1012</div> <div>989</div> <div>1009</div> </div> </div> <div> <div> <div> <div> <div> <div>194</div> <div>193</div> <div>156</div> <div>11</div> <div>112</div> <div>8</div> </div> <div> </div> </div> <div> <div>1016</div> <div>1012</div> <div>989</div> <div>1009</div> </div> </div> <div> <div> <div> <div> <div> <div>194</div> <div>193</div> <div>156</div> <div>11</div> <div>112</div> <div>8</div> </div> <div> </div> </div> <div> <div>1016</div> <div>1012</div> <div>989</div> <div>1009</div> </div> </div> </div> <div> <div> <div> <div> <div> <div>194</div> <div>193</div> <div>156</div> <div>11</div> <div>112</div> <div>8</div> </div> <div> </div> </div> <div> <div>1016</div> <div>1012</div> <div>989</div> <div>1009</div> </div> </div> <div> <div> <div> <div> <div> <div>194</div> <div>193</div> <div>156</div> <div>11</div> 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Smart Safety & Security



Alert Generation

New Event

Suspicious Vehicle : LPR Listed



Description: Rule Track
Start Time: 12/14/2011 10:30:00 AM
Locations:
N 40 2709961.05 E 233412.56

Start Tracking Accept

Triggered by:

1. Analytics
 - Video
 - LPR
 - Face recognition
2. Citizen report (110 calls)
3. Manually by the operator



Event Details

Description: Suspicious Vehicle, LPR

Location: 2709961.05 E 233412.56

Event Stage: Suspicious Vehicle, LPR

Video Evidence (1)

Video Evidence (2)

Video Evidence (3)

Video Evidence (4)

Face detection matches the suspect in the blacklist

Suspect information and prior detections



Cities Have Traditionally Addressed These Issues in Silos

Net result

- *No sharing of infrastructure costs and IT resources*
- *No sharing of intelligence/information*
- *Waste and duplication of investment and effort*
- *Difficulty in scaling infrastructure management*

**Traffic
management**



**Public
safety**



**City
lighting**



**Pollution/
environment**



**Waste
management**



**Parking
optimization**



This fragmented approach is inefficient, has limited effectiveness, and is not economical

Leverage Investment Across Functions

Smart+Connected City Operations Center

1 Parking



2 Traffic



3 Safety & Security



4 Location Services



5 Street Lighting



City Digital Platform

Network (wired, Wi-Fi, and cellular)

ANZ Smart+Connected Communities Ecosystem

Prime Contractors – IBM, Data#3, Optus, Frame, iiNet, and Dimension Data

Vision / Architecture / Services Planning - Cisco Services

Smart City Services – Lighting, Parking, Waste Management, Traffic, and Safety & Security

Decision Support - Data Mining – IBM Watson

New Smart City Services – “To Be Developed”

Analytics – Cisco, Accenture, Data#3, IBM, Dimension Data (Oakton), Frame, Invigor Group, and AGT International

Applications / Services - Accenture, Data#3, IBM, Optus, eSmart21, Frame, and **others**

City Digital Platform - Cisco

Asset Ownership –
Whitehelm Capital

Install, and O&M of Physical Infrastructure –Transfield, and other local providers

Wired, Wi-Fi, and Cellular – iiNet, Dimension Data, Optus, Telstra, and Data#3

Light Pole Sensors - Sensity

Luminaires – Sensity & Philips

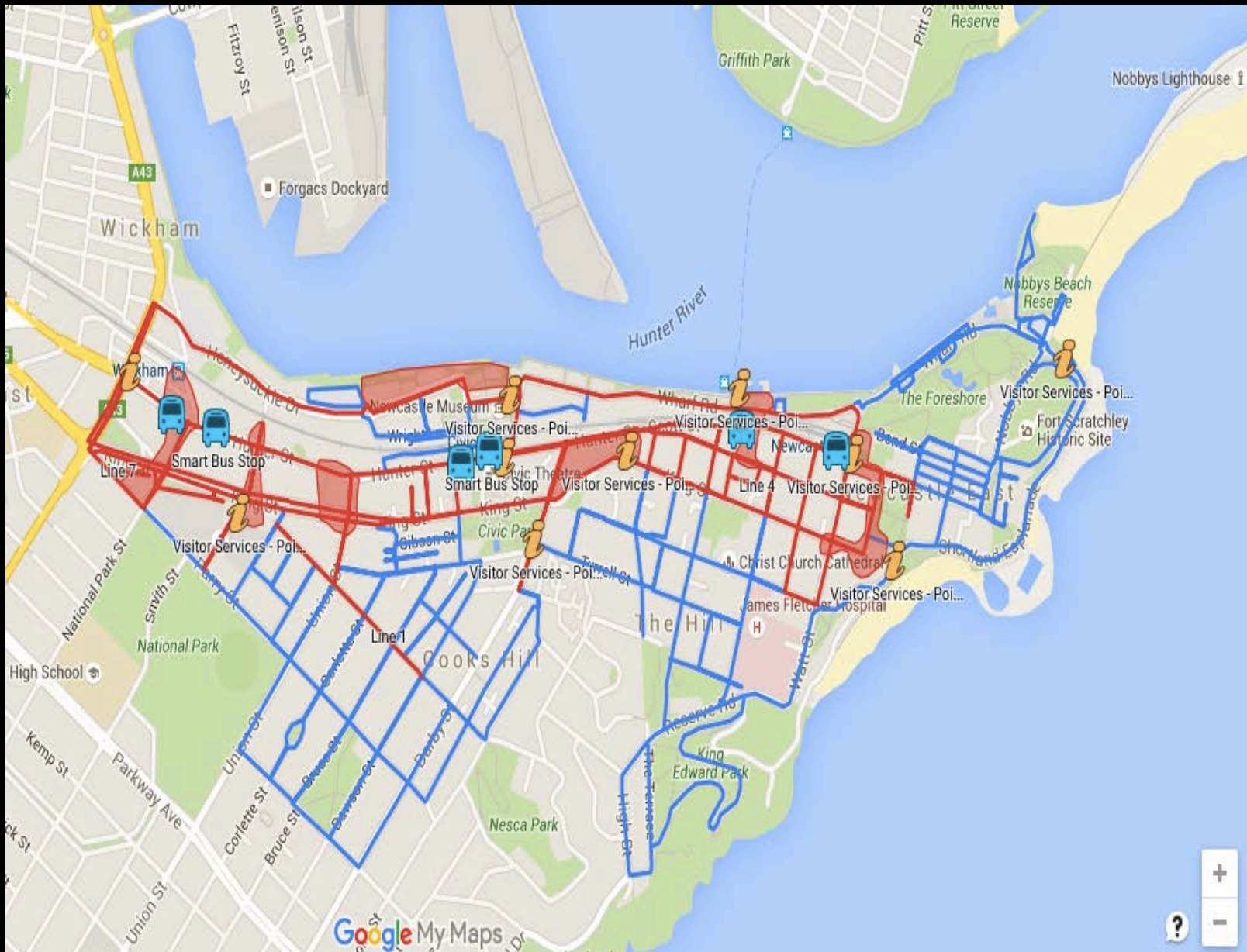
Parking Sensors –
Sensity, Enervis, and
Worldsensing

Physical Surveillance –
Sensity & Cisco

Waste -
Enevo

TBD Other Sensors
– by TBD

City of Newcastle



Wi-Fi, Information Services, Smart Lighting & Parking, and Safety & Security

Adelaide, South Australia

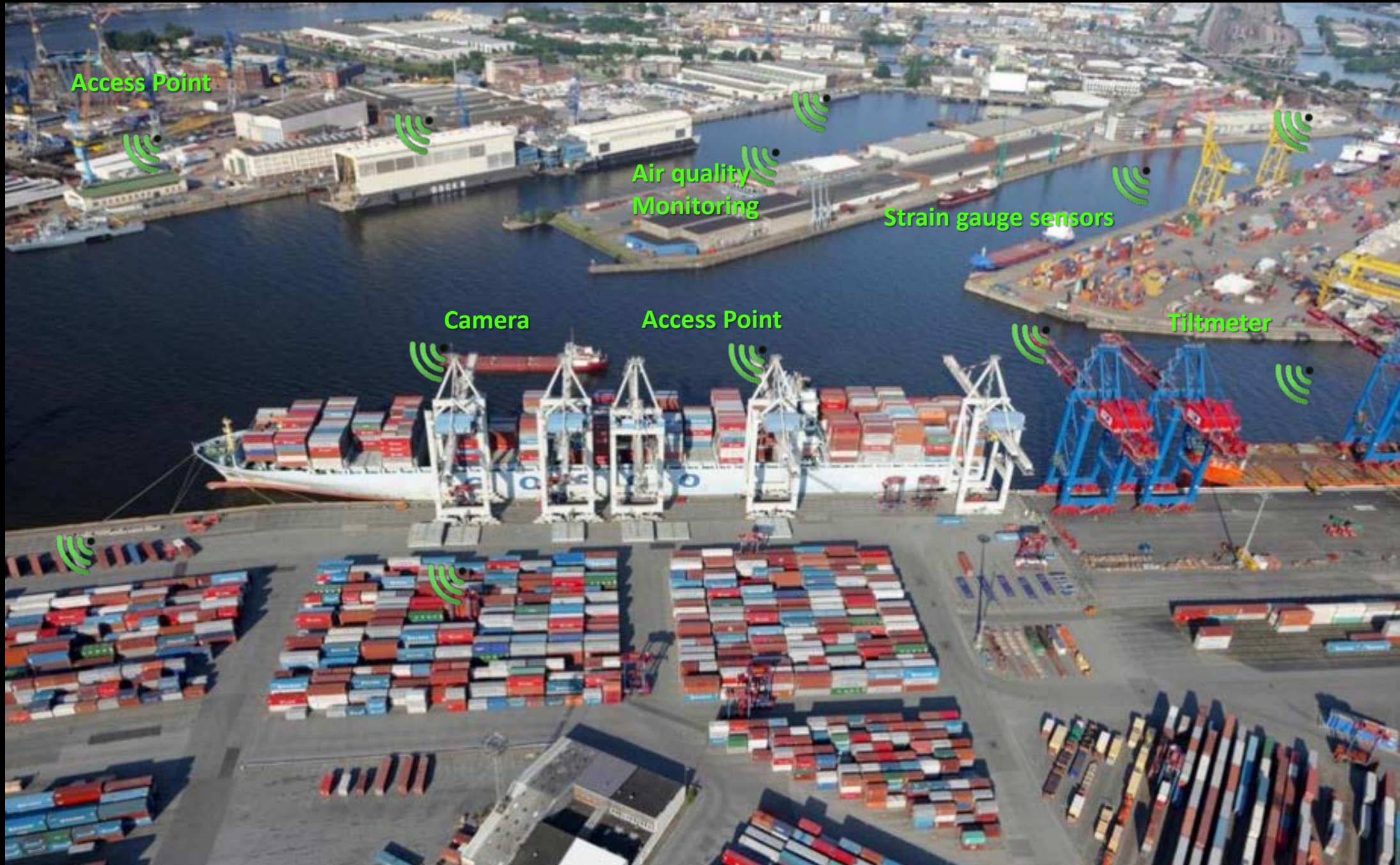
Government & Council -
embarking on a journey towards
becoming a Smart City



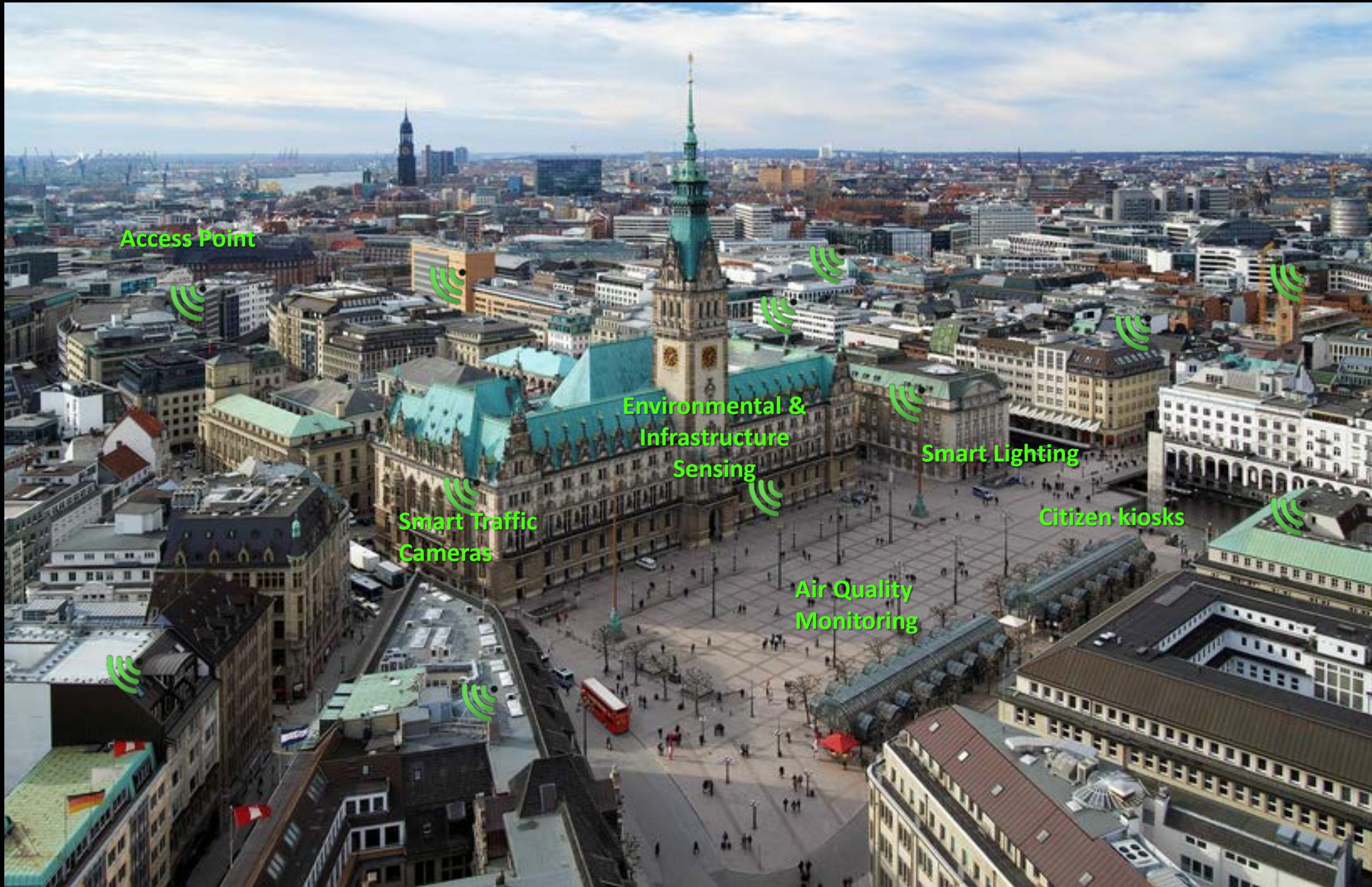
Case Study: Kansas City, Sprint and the Cisco Ecosystem



Case Study: From the Hamburg Port Authority...



...to the City of Hamburg



Cisco Smart City Footprint



 90+ Smart+Connected Communities Initiatives

Thank you

bukapoor@cisco.com

