



# Citizen Services in Smart Cities

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# Rapid urbanization breeds similar problems around the world...

Traffic  
Parking  
Lighting

Urban decay,  
poverty, crime

Do more  
with less

Need for  
Clean water  
Clean air  
Clean streets

Quality  
education and  
healthcare

# Cities Have Traditionally Addressed These Issues in Silos

Every city department makes investments independently resulting in:

- No sharing of infrastructure costs and IT resources
- No sharing of intelligence/information, e.g., video feeds, data from sensors, etc.
- 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

# Smart+Connected City Infrastructure Management: Leverage Investment Across Citywide Issues

## Smart+Connected City Operations Center

### 1 Smart+Connected City Parking



Give citizens live parking availability information to reduce circling and congestion

### 2 Smart+Connected City Traffic



Monitor and manage traffic incidents to reduce congestion and improve livability

### 3 Smart+Connected City Safety & Security



Automatically detect security incidents, shorten response time, and analyze data to reduce crime

### 4 Smart+Connected City Location Services



Provide view of people flow data to aid planning and leverage location data for contextual content and advertising

### 5 Smart+Connected City Street Lighting

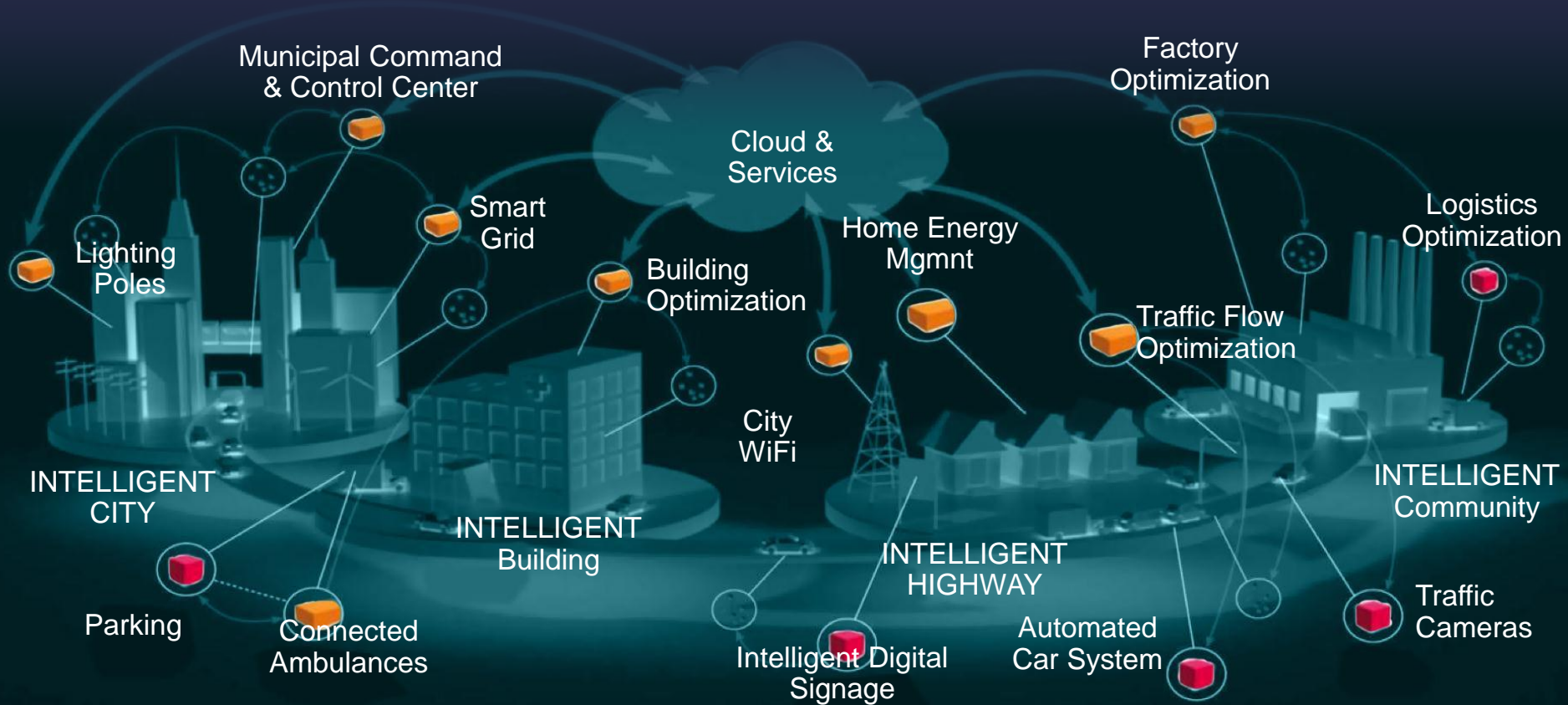


Manage street lighting to reduce energy and maintenance costs

## Common Information Layer

## Shared Infrastructure Layer: City Wi-Fi /Field Area Network

# City Infographics



# Solution Architecture for S+C Cities

## Applications and Urban Services



## Mobile App Platform



Apps



## Smart+Connected City Operations Center

## Monitoring/Command Control Centers

## City Location Services

Internet

## City Infrastructure Management Parking, Lighting, Traffic, Safety, and Security

Wireless WAN  
(2G/3G/4G/WiMAX)  
DSRC/LMR



Public/Private WAN

## Access/Aggregation / Core Network



## Field Area Network



## Vehicles



## Buildings



Residential



Industrial



Commercial

## Smart Spaces

## Street



Water



Parking



Street Lighting



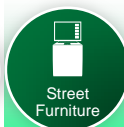
Waste



Environment



People



Street Furniture

## REGS



Safety and Security



Traffic

# Concentrate On Business Outcomes Smart+Connected City Operations Center

Department Coordination	Lower TCO	No additional integration costs	Sustained System Performance
Operations center improving productivity by 30% to 40%	Reduces bandwidth requirements by 97.5%.	Curtailling integration costs between hardware and systems and enabling maximum cost reductions with system scalability.	System performance is maintained regardless of size or number of cameras

## Unified Management: City Operation Center



### 1 Smart+Connected City Parking



### 2 Smart+Connected City Traffic



### 3 Smart+Connected City Safety & Security



### 4 Smart+Connected City Location Services

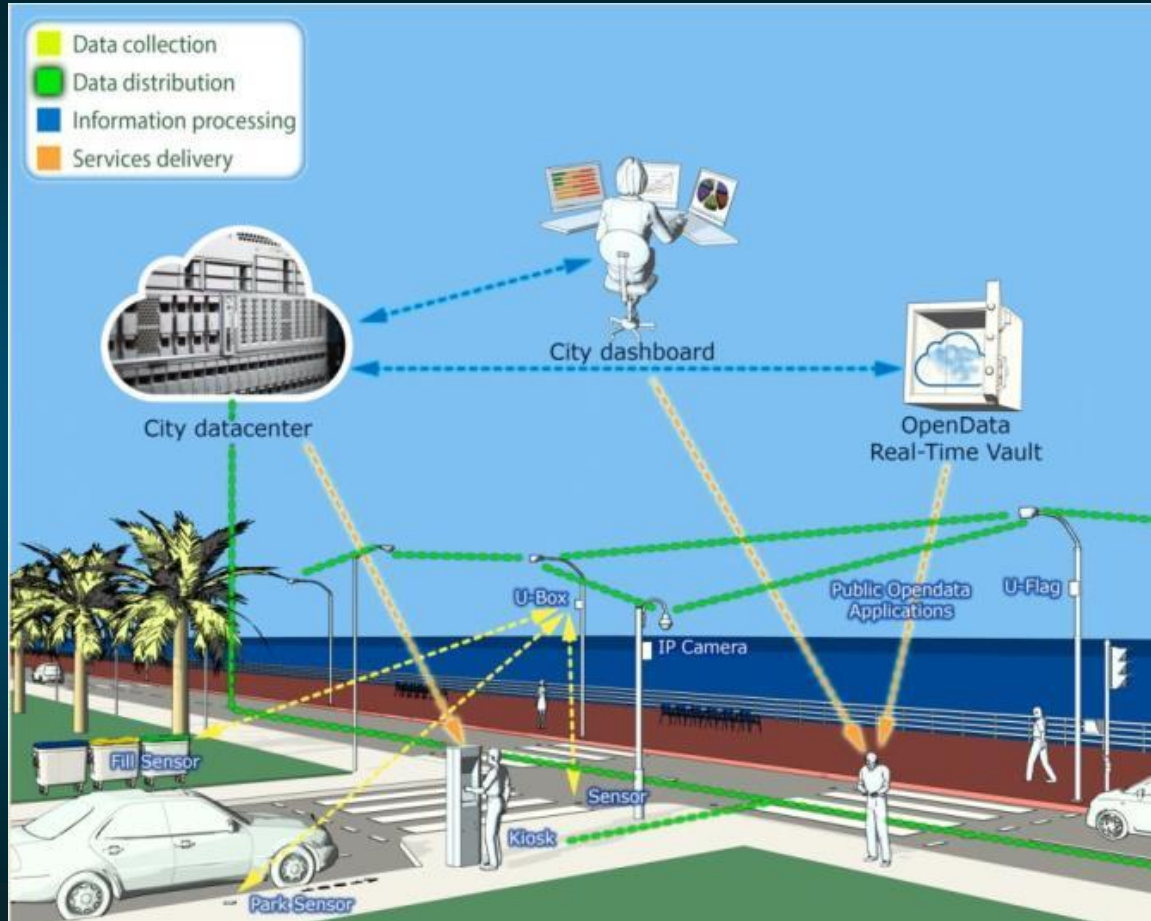


### 5 Smart+Connected City Street Lighting



# Best practice – City of Nice

- Smart Wifi (Free internet access for 1 hour, AP's connecting all Sensors in the City)
- Road flow sensors – counting cars and redirect traffic if needed – also connected with streetlights
- Parking sensors in public parking – real time information about available slots, automated payment NFC enabled
- Waste sensors – public waste container equipped with sensors
- City dashboard with consolidated real time information





# City of Nice - Connected Boulevard

WiFi AP's connecting sensors and providing internet connectivity for citizens, Security Cameras for plate recognition (future) and video surveillance



Road flow sensors – real time information change and redirect traffic if needed – flow sensors change also information with streetlight system



LED Streetlights connected with flow sensors - lights automatically dim when the road becomes busy



# Connected Boulevard

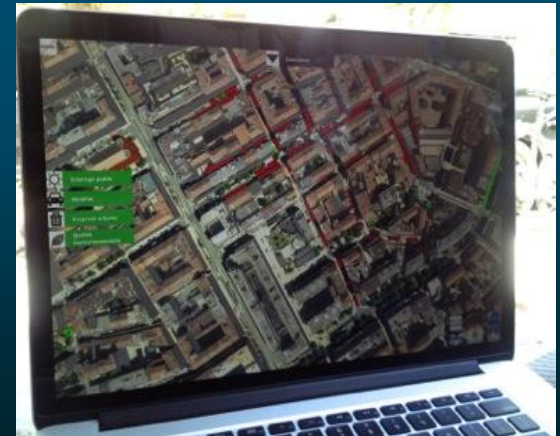
Parking sensors for public parking – real time information about available slots, automated payment, NFC enabled, citizen will find parking through app or tom tom



Infrared sensor in public waste containers, delivers real time information on filling level to waste fleet management. Also delivers information on outside temperature and air humidity



3D visualization SW consolidates all real time information, client can navigate and zoom into every street to get needed information



# IOT for Cities Case Study – City of Nice, France

## Smart Mobility



### IMPACT

- ✓ Parking commuters benefit from time saving for a search and easier way to manage overall transportation means
- ✓ Smart Parking leads to about 30% net increase revenues for the city
- ✓ Parking maintenance drops by 5%
- ✓ Mobility optimization reduce traffic congestion up to 30%

## Smart Lighting



### IMPACT

- ✓ Smart lighting is expected to reduce the energy bill by 30%, out of a total of 6.3M € in Nice
- ✓ Improved street lighting will lead to a 5% reduction in car theft, assaults and home burglary
- ✓ Smart lighting will likely improve the liveability of the area, reducing accident and time lose
- ✓ Smart lighting will value real estate

## Smart Waste



### IMPACT

- ✓ Better control of dumpster levels
- ✓ Optimized itinerary of waste connection
- ✓ Reduction of operational costs (number of trucks, number of agents, fuel consumption)
- ✓ Reduction of CO2 emissions
- ✓ Better comfort
- ✓ Improved safety

Based on Nice Connected Boulevard Case, Courtesy of Think Global

# Virtual City Hall



...in the  
Shopping  
Mall

City of Nice,  
France

Barcelona

Mexico Health  
Department

Brisbane,  
Australia City  
Council

# Bangalore's First Remote FIR Center



# Bangalore Police's first remote FIR centre

## SILICON CITY LEVERAGES TECHNOLOGY TO TRACK CRIMES



### HOW IT WORKS

- Walk into the kiosk, face the camera
- Control staff comes online to listen to your complaint
- If there are any related documents, place it on the table so that they're visible to the document camera above
- Either write a complaint or tell the officer about it
- Keep the complaint copy against the scanner next to the screen and hit the send button
- FIR will be registered; you'll receive a printout copy and an SMS acknowledgment

**FOR THE COMMON MAN:** A policeman handholds a complainant through the process of filing an FIR using this new mechanism on Friday. This kiosk allows citizens to file a complaint without going to a police station



## You can file an FIR in a mall

Special Correspondent

**BENGALURU:** In order to ease the process of filing complaint, the city police on Friday launched a Remote FIR registration centre, a first of its kind in the country.

Chief Minister Siddaramaiah, who inaugurated the centre at Mantri Mall, said that the new system empowers people who hesitated to go to a police station.

He hoped that the initiative would help weed out problems like refusal to file complaints, inordinate delay and corruption. It would be of great help



*Chief Minister Siddaramaiah inaugurating the first Remote FIR registration centre at Mantri Mall in Bengaluru on Friday.*

# Bangalore City “Police One” Kiosk Solution

## Benefits

- Ability for Citizens and Residents to register FIRs with Police without having to visit the jurisdictional Police Station
- Improved employee productivity through centralization of expert Police resources
- Increased access to Bangalore City Police services in distant areas of the City
- Improved traffic flow management by dispersing Police One Kiosks in key areas of Bangalore City
- Better overall citizen satisfaction and perception of the Police Department
- Ability for Citizens and Residents to pay traffic fines and interact with the Police Officer in a confidential and secure manner

## Solution Features

- Easy to use and initiate video sessions
- Creates a virtual pool of Police experts that are located in a centralized environment, maximizing the effectiveness and reach of their knowledge base
- Provides high-quality audio and video for citizen / resident interactions, delivering a compelling customer service experience
- Allows experts to conduct a complete service transaction including document sharing and printing and obtain an FIR copy on the spot
- Enables citizens to have personalized experience maintaining confidentiality of the transaction
- Allows integration with security cameras, digital signage and queuing systems for additional capabilities



# Thank you

Improving the Local Economy and Service Delivery  
to Highly-Mobile Citizens