Cisco Smart+Connected City Wi-Fi: The Foundation of Urban Services

Introduction

Cities around the world are facing a myriad of complex challenges. They must find ways to close the digital divide and ensure social inclusion and equal opportunity for all. At the same time, there is pressure to stimulate economic recovery by attracting and retaining talent and investment. Cities must also respond to the need to deliver new smart services to citizens. Additionally, cities have a growing responsibility for greener, more efficient infrastructure management to help maximize city budget and assets, while delivering better, structured investment plans that create value for cities and citizens. Cisco Smart+Connected™ City Wi-Fi serves as the foundation to help cities address these challenges and deliver new innovative services.

Value Proposition

Cisco Smart+Connected City Wi-Fi is a foundational infrastructure of the Internet of Everything (IoE) for cities. It enables cities to solve their most critical problems (for example, parking, traffic management, lighting, water and waste management, etc.) on a shared and intelligent network infrastructure. At the same time, it enables cities to provide its citizens with Internet connectivity and access to a broad range of citywide services, thus making it a multiservice solution. Smart+Connected City Wi-Fi integrates Cisco® Wi-Fi Outdoor Wireless Access Points, Cisco Prime™ and Cisco Mobility Services Engine (MSE) technologies, and routing and switching products, as well as other data center components, to provide an end-to-end architecture for citywide connectivity. Cisco City Wi-Fi enables anytime, anywhere access for citizens, enables citizen participation, stimulates local commerce, and forms an enabling foundational network for IoE innovations in city infrastructure management.

Using Cisco Smart+Connected City Wi-Fi, cities can:

- Drive citizen engagement through greater access to city services, education, training, and job opportunities
- Improve quality of life and liveability, making it easier to attract and retain businesses and talent
- Enhance situational awareness, real-time collaboration, and decision making, which helps optimize city operations and planning, improving city efficiency
- Drive intelligent sensor-based IoE innovations in transportation, utilities, public safety, and environmental monitoring

Solution Overview

Cisco Smart+Connected City Wi-Fi supports multiple use cases in the area of city infrastructure management, as described below:

Use Case: Public Wi-Fi

Citizens can access the Internet over their smartphone, tablet, and other computing devices when they are in public spaces and on the move: for example, to view maps, local business information, or educational content.

Use Case: City Location Services

City planners and officials can gather new data and insights of the city by deploying location-based services together with geo-spatial capabilities. Such analysis can lead to improved long-term planning decisions. City officials can use the information for city planning and get a comprehensive view of the city.

Cities can also leverage location analytics and key partner technologies to create virtual tourist applications where visitors access city information and historical facts, which dramatically improves their experiences. Tourists can also receive push information regarding their surroundings to help them better understand the city and its environment, further enlightening their experience.

With the aid of an advertising operator, cities can offer local merchants the ability to publish targeted offers and deals to citizens directly, or through social networks, which generates revenue. By creating a business model on top the technology layer, city officials can revitalize local commerce and obtain added revenue streams for their cities.

Use Case: Smart Traffic

City traffic departments can deploy wireless sensor networks to help enable traffic operators with a real-time view of live traffic conditions and incidents. This can dramatically reduce response time and time to recovery, and thereby reduce congestion.

Use Case: Smart Parking

Wireless sensors notify drivers of available parking and avoid the need for circling. Similarly, parking enforcement officers can work more productively by viewing live video feeds of parking violations and saving a recording as evidence.

Use Case: Smart Utilities

Introducing automated meter-reading infrastructure reduces the cost of meter data collection and billing errors. With these sensors, utilities can detect water leakage more easily and waste collection companies can monitor bin utilization and plan pickups more effectively.

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Use Case: Smart Safety

Using the Cisco Smart+Connected City Wi-Fi, live video feeds from surveillance cameras can be integrated with other sensors and centrally monitored from security operations centers, providing law enforcement officers with greater situational awareness. A safer city makes it easier to attract talent and investors.

Use Case: Smart Environment Monitoring

A city's environmental conditions have a huge bearing on its livability index. Air, noise, and water quality sensors can help enable monitoring of key environmental metrics to better inform short-term and long-term response plans.

Operating Models

Cisco Smart+Connected City Wi-Fi brings various stakeholders together to create innovative new business models as shown in Figure 1. Each party has a unique, yet interconnected role, within a mutually beneficial ecosystem:

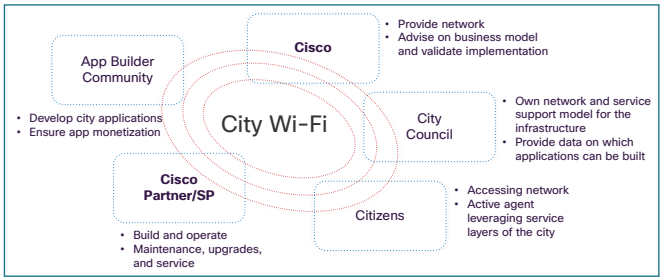
- Cisco provides the solution design and underlying technology.
- City councils take ownership of the assets and provide the key data.
- Citizens' experience and benefit from the new services.
- The Cisco partner or service provider creates new professional and managed services.
- Software developers can use the platform to build and deploy new applications.

Benefits

City Benefits

- Improved productivity and service quality
- Better city planning and development
- E-government services delivered to citizens faster and at lower operating expenses
- Digital-era collaboration
- City livability index improvement

Figure 1: New Business Models for Bringing Stakeholders Together



- Talent attraction and retention
- Local economic development
- Increased city revenues and lower costs from infrastructure management

Citizen Benefits

- Access to city services and Internet connectivity
- Improved quality of life
- Increased access to online services
- Empowerment through participation and social innovation

Solution Architecture

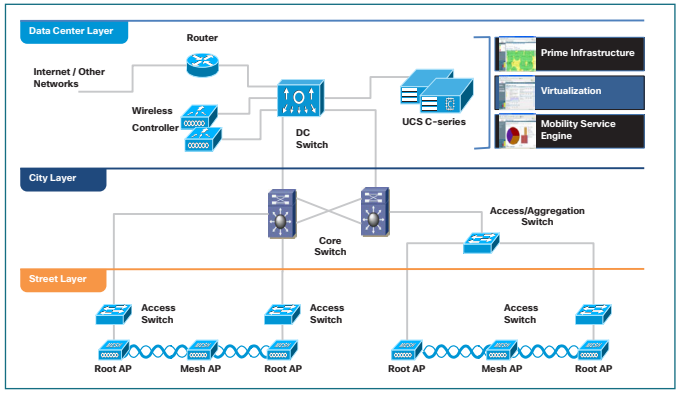
Figure 2 shows a typical Cisco Smart+Connected City Wi-Fi solution and its technical components.

Technical Components

A typical Cisco Smart+Connected City Wi-Fi solution consists of:

- Core infrastructure
  - Cisco Catalyst® Family switches
  - Cisco Industrial Ethernet Switches
  - Cisco UCS®

Figure 2: Cisco Smart+Connected City Wi-Fi Logical Architecture



- Wi-Fi infrastructure
  - Cisco Outdoor Wireless Access Points
  - Cisco Wireless Controller
- Management
  - Cisco Prime products
- Location analytics
  - Cisco Mobility Services Engine

Cisco Services

Cisco offers a wide range of support programs to accelerate customer success. These innovative programs are delivered through a unique combination of people, processes, tools, and partners, resulting in high levels of customer satisfaction. For more information about Cisco Services please visit: www.cisco.com/web/services/portfolio/index.html

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