

## Smart+Connected Communities: An Exciting Global Opportunity for Service Providers

A majority of the Earth's population will soon live in cities. Revitalization initiatives within existing cities and the planned construction of many new cities are providing an array of opportunities for service providers. This white paper is an overview of the global Cisco® Smart+Connected Communities (S+CC) Initiative, whose aim is to help transform physical communities around the world into connected communities to achieve economic, social, and environmental sustainability. The market opportunity for service providers is presented, along with a description of different partner roles, engagement strategies, the Cisco S+CC architecture, and several case study vignettes from existing Cisco S+CC ventures.

### Overview

Major demographic changes and technological advances are having an increasingly powerful impact on how people around the world live in the 21<sup>st</sup> century. For the first time in human history, the majority of the world's people now live in cities. By 2016, demographers estimate that cities will swell with approximately half a billion more people than in 2010. By 2030, these urban dwellers will equal 60 percent of the world's population.

There are many potential benefits of urbanization, including better access to jobs, healthcare, sanitation, housing, legal representation, and education. The problems, however, include unequal access to these benefits based on race, ethnicity, religion, or class; overcrowded streets and dwellings; and crime. Additionally, the environmental impact of massive urbanization is significant. According to a study by the C40 Cities Climate Leadership Group, cities already consume 75 percent of the world's energy and are responsible for 80 percent of greenhouse gas emissions. The need for cities to more sustainably balance resource usage, emissions, and waste management, mirroring the challenges faced by the world at large, is critical.

The Internet is becoming an important enabler within the workplace, the school, government, and many other venues. Internet-connected devices have become so compact and affordable that in 2010 more than five billion people had at least one of these devices (for example, PCs, laptops, smartphones, PDAs, tablet computers), according to a study by IMS Research. By 2020, there are expected to be 22 billion Internet-connected devices, as a new wave of technology provides Internet connectivity for automobiles, TVs, building operational systems, and many other technologies. By 2015, the number of mobile-connected devices alone will number more than 7.1 billion, nearly equal to the projected world population at that time, according to the Cisco Visual Networking Index (VNI) Mobile Data Forecast, 2010-2015.

Now cities are also turning to intelligent networks to help meet the needs of growing urban populations at a time of increasingly scarce resources and monetary constraints. This interest is behind what Cisco and its partners are calling the S+CC Initiative.

Communities involved in the S+CC Initiative are already providing a variety of important benefits through enhanced services to governments and citizens around the world. For service providers, cities are also a source of new revenue from additional subscription services made possible through S+CC Initiative partnerships with systems integrators, resellers, content providers, builders, facilities managers, and others.

Cisco has defined different S+CC partnership models to meet the different needs and conditions of communities in various parts of the world. Delivering intelligent network services, reliable connectivity, ubiquitous access, security, and other features puts the service provider at the center of this exciting global initiative. The very foundation of S+CC initiatives is typically a communications backbone, utilized to create broadband access for all residential and business locations. Service providers that invest in a citywide networking and telecom infrastructure can often expand their managed services to include municipal Wi-Fi, a smart electrical grid, radio frequency ID (RFID), machine-to-machine (M2M) sensor, and video surveillance applications that deliver real-time data for smart initiatives in transportation and public safety.

### Smart+Connected Communities Initiative

The Cisco S+CC Initiative seeks to change the way cities, towns, and villages are designed, built, and managed to achieve greater efficiencies, cost-effectiveness, competitiveness, and environmental sustainability. Communities that utilize the network as an urban services platform can improve resource management and operational efficiencies and can reap significant benefits that include:

1. **Improved city management** through faster access to information and greater automation
2. **Lower energy consumption and greenhouse gas emissions** with more intelligent resource utilization
3. **Enhanced quality of life for citizens** through a healthier and more interactive environment, where vital services are more readily available
4. **Sustainable urbanization** due to more information available for planning and decision making
5. **Economic growth** from new job opportunities and tax revenues from a vibrant, business-friendly, and service- and resource-rich environment

Based on the network as an essential platform for the evolution of cities into more efficient and connected systems, the Cisco S+CC Initiative brings together people, services, community assets, and information into a single pervasive solution, Figure 1. It introduces new ways of thinking about how communities are designed, built, and managed.

**Figure 1.** Cisco Smart+Connected Communities Initiative Components



The network is now at the center of planning and management for services such as healthcare, transportation, building operations, public utilities, entertainment, and government. Communities are being run more efficiently on information. This transformation means providing real-time traffic information to citizens, who can better plan their commute to work or use public transportation. It means providing remote healthcare services to citizens to reduce traffic, gas emissions, and health-related city expenses. It means automating and remotely monitoring building security and environmental controls for higher security, more efficient energy use, and lower costs.

Within the Cisco S+CC Initiative, Cisco works with service providers, cities, and a broad ecosystem of partners to tailor and implement business models that enable the design, deployment, and management of an array of services. Two facets of the program are:

1. **Community+Connect** delivers comprehensive services to residents and businesses
2. **Community+Exchange** provides the management and operations infrastructure of a S+CC, so that government agencies and private sector partners can share information and collaborate

Both of these program facets are made possible by the underlying Cisco Service Delivery Platform, the foundational, open-architecture platform that enables Cisco and its partners and customers to create and deploy new smart services and applications for citizens and those who manage and operate the community infrastructure.

The study “Connecting Cities: Achieving Sustainability Through Innovation” by Cisco’s Internet Business Solutions Group found that within 20 years, a city of five million people that plans and manages services using the S+CC environment can enjoy:

1. Revenues of US\$15 billion
2. 9.5 percent increase in gross domestic product (GDP)
3. 30 percent reduction in electricity transport loss
4. Creation of 375,000 new jobs

### **Smart+Connected Communities Partner Types and Strategies**

Six types of partners are involved in S+CC initiatives, Figure 2. The **Market Development Partner** influences the Information and Communication Technology (ICT) rights for planning and design of network-based solutions. Technology integrators and consultants are used to devise approaches and partnerships to help urban policymakers choose where to start. They identify specific planning objectives, prioritize initiatives, and segment large and complex plans into feasible, more affordable steps. The **Market Access Partner** category includes service providers that deliver and monetize services and may own ICT rights. The **Technology and Service Delivery Platform Partner** provides devices, software, and applications as part of S+CC solutions. The **System Integrator Partner** creates and deploys solutions by integrating multiple initiatives or by offering to manage and run them on behalf of city governments. The **Operations Partner** may include managed service providers and others that are visible to the end customer, providing facilities management and end-user support. These last three partner types will design, build, and operate the network and will create and deliver services on behalf of the service provider or will train the service provider and then transfer operations to them.

**Figure 2.** Smart+Connected Communities Partner Types

Market Development	Market Access	Tech/Service Delivery Platform	System Integrators	Operations
Influences ICT* Rights	Owns ICT* Rights	Builds the platform	Creates the total solution	Operates the network
<ul style="list-style-type: none"> <li>• Consultants</li> <li>• Education institutions</li> <li>• Industry bodies</li> <li>• Government agencies</li> </ul>	<ul style="list-style-type: none"> <li>• Developers</li> <li>• Construction companies</li> <li>• Telco SPs</li> <li>• System integrators</li> <li>• Services companies</li> </ul>	<ul style="list-style-type: none"> <li>• Platform licensors</li> <li>• Device vendors</li> <li>• Analytics vendors</li> <li>• End-user access points</li> <li>• Application providers</li> </ul>	<ul style="list-style-type: none"> <li>• Resellers</li> <li>• IT services</li> <li>• Staff augmentation</li> <li>• Product and service fulfillment</li> </ul>	<ul style="list-style-type: none"> <li>• Facility management service providers</li> <li>• Facility management tool providers</li> <li>• Telco SPs</li> <li>• MSPs</li> </ul>
Financing/Cisco Capital <b>Finances the project</b> Banks • Inter-governmental funding agencies • Private equity firms				

\*Information Communication Technology (ICT) Rights

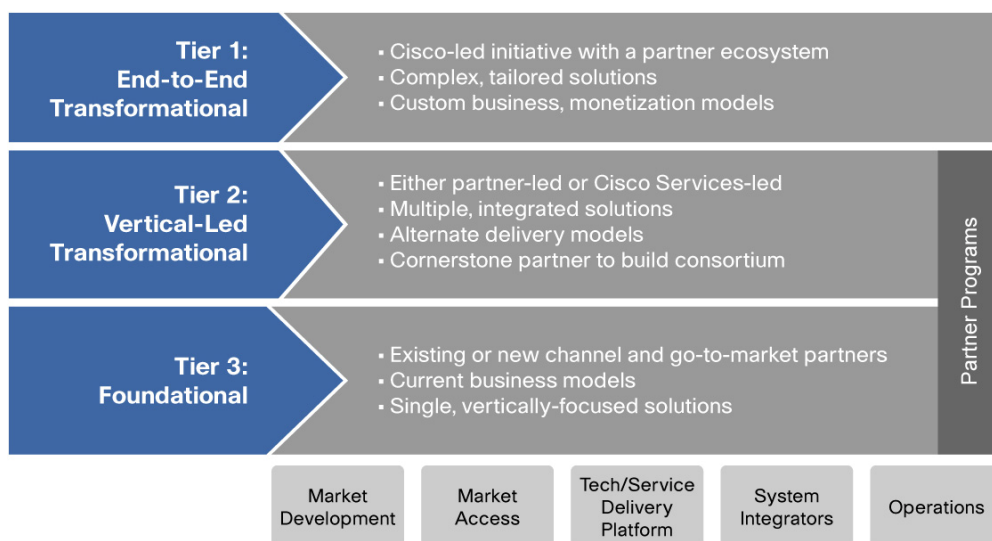
Finally, a **Financial Partner** is necessary to finance the S+CC Initiative. Cisco Capital, service providers, banks, intergovernmental funding agencies, and private equity firms are all potential resources for financing.

Partnering engagement strategies for the S+CC Initiative are based on different tiers that define how the service provider can lead or partner with other entities involved in a venture. Service providers can choose strategies based on what is required to meet customer expectations. Each strategy provides guidelines only and is meant to be adapted to fit local conditions.

The strategies have been divided into three tiers, Figure 3, including:

1. **Tier 1 Strategy: End-to-End Transformational.** This strategy is for highly complex projects that require multiple solutions across multiple vertical markets within a city (for example, government, transportation, public safety, sporting arenas). Cisco leads the initiative, bringing together best-in-class service providers and other companies across the different Cisco S+CC partner types to create various, customized business and monetization models. The service provider can decide to play a pivotal role by serving as the prime partner in these types of engagements.

In one Cisco S+CC Tier 1 project, the Cisco offering focused on services that end users could enjoy. The main focus was on residential services that included Cisco TelePresence® as the portal for Community+Connect, Cisco Digital Media Suite, and related physical security and home automation applications. Cloud-based offerings through the main service provider partner set the stage for the service provider to expand into other managed service areas.

**Figure 3.** Partner Strategy Tiers

2. **Tier 2 Strategy: Vertical-Led Transformational.** These engagements may include greenfield opportunities or revitalization of an existing community infrastructure, where connectivity and functionality are added based on one or more vertical solution areas. A cornerstone partner is needed to bring together an ecosystem of other partners to provide multiple integrated solutions and alternate delivery models for the vertical market area. Later, the network platform can be used to expand services to other verticals.

One Tier 2 project was based on providing services for fans and participants at several major sporting events that involved teams from around the world in one large city. A large service provider became the main partner, creating a partner ecosystem of system integrators, local managed service providers, resellers, and others. The strategy is to build on the new services provided for the events, creating S+CC partnerships and additional vertical opportunities in government, construction, public safety, and entertainment throughout the city.

3. **Tier 3 Strategy: Foundational.** Established service providers cross-sell and up-sell services based on their existing network infrastructure and investment and add additional services for vertically-focused solutions in the Tier 3 S+CC strategy. Cisco is working with service providers around the world to broaden their focus to include municipal opportunities (for example, wireless and mobility services for a city's emergency response department). In this strategy the service provider becomes a subcontractor, enlisting existing or new channel partners to deliver tailored solutions.

A country hosting an international event wanted to create several "stadiums of the future" and enlisted a local service provider and Cisco to provide a variety of services that included stadium facilities management, transportation management, entertainment content, and public safety. The service provider used its existing partners along with new ones to design and deliver the services. Beyond the event, the city and service provider saw the investment and new services as the foundation for further development, with solutions that would add revenues and enhance the quality of life for millions of citizens.

The sales cycle for S+CC opportunities is typically longer than for other types of opportunities, but the contract can be much bigger and more strategic, and provide a more predictable revenue stream over the long term. As service providers engage with existing and new partners, they are in a position to discover countless opportunities for network services within cities that might not otherwise have been evident.

## Smart+Connected Communities Architecture

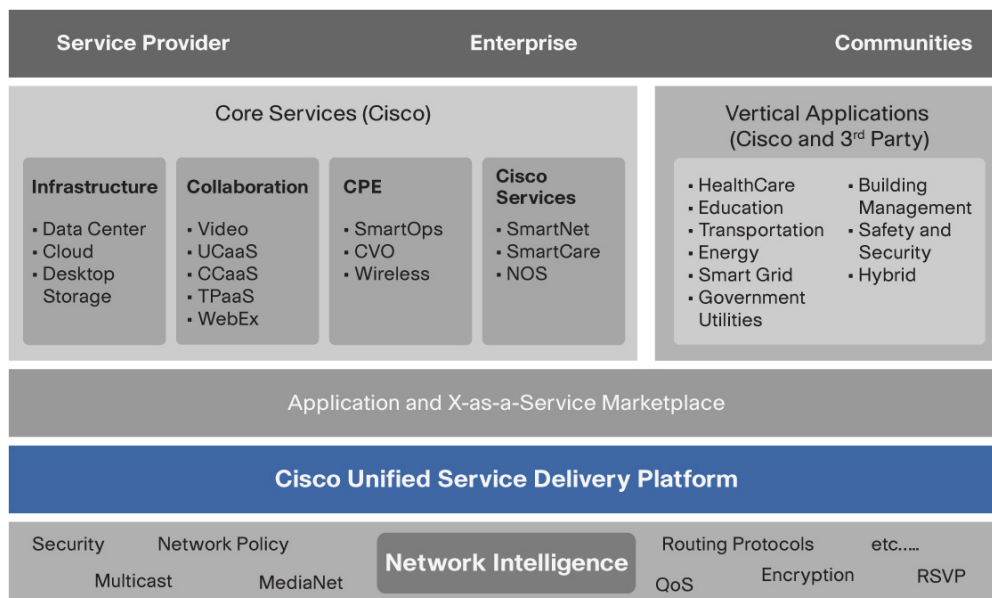
A Smart+Connected Community is the convergence and integration of multiple vertical and horizontal solutions into a dynamic architectural framework. S+CC can contain one or more vertical solutions that include:

1. Residential
2. Retail
3. Sports and Entertainment
4. Healthcare
5. Utility
6. Education
7. Transportation
8. Government

The Cisco S+CC architecture provides a consistent, reusable, and scalable framework and a set of building blocks to build the Smart+Connected Community. The framework translates the use case needs of residential and commercial customers into their distinct vertical tracks and helps to define how the elements required to deliver those services fit together.

The Cisco Service Delivery Platform, Figure 4, is the foundational, open-architecture platform that enables Cisco and its partners and customers to create and deploy new smart services and applications to citizens and to those who manage and operate city infrastructure.

**Figure 4.** Cisco Service Delivery Platform and Smart Solutions for S+CC



The Cisco Service Delivery Platform enables cohesive integration with Cisco and partner software and hardware products. It is based on extensible and open industry standards, acting as a service orchestration layer, while providing an open framework for integrating third-party smart service and application offerings.

## Smart+Connected Communities Case Studies

**Brazilian service provider Oi** delivers services to education, healthcare, and public safety communities using the Cisco S+CC partnership model. Joining Cisco and other IT partners, Oi launched two solutions, Oi Connected Education and Oi Connected Health, that are actively being marketed to schools and healthcare companies in Brazil. An additional public safety services package is also being offered.

Oi created a partner ecosystem to assemble and integrate the components of the innovative new services. These partners included network infrastructure vendor Cisco, systems integrators NetService and Bull, educational software company International Syst, and healthcare application and content provider NextSaude. The goal was to create market-specific offers to help improve the quality of the country's education, healthcare, and public safety services. Oi sought to target each sector with specific content and application services that matched each sector's needs, built on top of the network foundation.

Services were delivered to 26 Brazilian states, each with its own set of challenges and service requirements. The recipients included 1600 schools in Rio de Janeiro that now allow teachers to give students content access and views into laboratory activity in the classroom from netbooks, to take attendance online, and to provide parents with a portal to review information on student attendance, grades, and events. A Short Messaging Service (SMS) feature sends notifications to parent cell phones to alert them to school events or meetings.

The healthcare services, which will link 40,000 hospitals when fully deployed, will provide automated appointment scheduling, video consults with specialists, sharing of electronic medical records (EMRs), and automated tracking of prescription drug dispensing systems.

Through this Cisco S+CC project, Oi has broadened its service portfolio and revenues. The service provider anticipates adding many other services outlined in the S+CC Initiative.

**Songdo International Business District** is a master-planned new city in South Korea that the government hopes will become a model of global innovation and productivity, attracting companies and providing a progressive, eco-friendly environment for residents. Market Access Partner Gale International, a global leader in city-scale real estate development, is working with the Cisco S+CC Initiative and a Tier 2 solution strategy with a longer-term Tier 1 vision. Gale turned to Cisco and various service provider, system integrator, reseller, and operations partners to design and deliver network-enabled transportation, utilities, smart building, safety and security, healthcare, concierge, and educational services for Songdo.

Residents will have personal Cisco TelePresence units in their homes, where they can choose from many different municipal and personal services. Cisco is also providing Linksys® routers, digital signage, and wireless access points, enabling residents and workers to utilize a number of innovative services, all built directly into the city's core infrastructure. Buildings in Songdo have been Leadership in Energy and Environmental Design (LEED) certified from the beginning. The LEED guidelines provide standards for the design, construction, and operation of environmentally sustainable buildings. In Songdo, the goal is for emission levels to reach only one-third of the greenhouse gases of a traditional city of the same size.

### The Cisco Advantage

Cisco is a proven, trusted technology partner among service providers all over the world. With the Cisco S+CC Initiative, Cisco's role has expanded to include joint marketing to evolving cities, the forging of partner ecosystems to address the needs of communities in different parts of the world, and working with service providers and other partners from idea to execution. Cisco helps service provider customers introduce vertical solutions built on their IP Next-Generation Networks to change how communities are designed, built, managed, and renewed.

Contributing to the unique Cisco value proposition is a broad solution portfolio, encompassing open and standard-based service delivery platforms that include the ability to integrate third-party applications; a partnership-oriented approach that is not tied to proprietary end-to-end solutions; a global brand; and innovative business models that can fit any environment. Cisco Services has assumed a leading role in the Cisco S+CC Initiative, advising on the Cisco Service Delivery Platform and both traditional and cloud-based solutions to position service providers to succeed.

## Conclusion

The Cisco S+CC Initiative is an important global opportunity for service providers to offer existing managed and hosted cloud services. As cities seek ways to attract business investment, enhance the quality of life for citizens, and respond to an array of urban challenges, they now have the option of using intelligent networks to help solve various problems. The components behind the Cisco S+CC Initiative include widespread wired and wireless broadband connectivity in cities across a wide range of devices; intelligent services and applications; and the expertise of service providers and an ecosystem of partners.

Service providers may explore a range of different partnering strategies and engagement tiers defined by Cisco to better tailor their competencies and services to the needs of cities. The lead time to closing engagements is longer, but the potential revenue from providing and growing S+CC services is huge and may result in long-term relationships that evolve profitably over time.

## For More Information

Contact your local account team to find out more about how to begin a Cisco S+CC engagement.

### Cisco Managed Services for Service Providers

[http://www.cisco.com/en/US/netsol/ns849/networking\\_solutions\\_market\\_segment\\_solution.html#~two](http://www.cisco.com/en/US/netsol/ns849/networking_solutions_market_segment_solution.html#~two)

### Cisco Smart+Connected Communities

<http://www.cisco.com/go/smartconnectedcommunities>

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