



## SOLUTION OVERVIEW

# CISCO CONNECTED CONSTRUCTION

**The Cisco Connected Construction solution enables companies to securely connect construction staff to the information they need to increase productivity, improve project management, and reduce project costs.**

## ABSTRACT

### Cisco Connected Construction

Cisco Connected Construction gives construction firms a network solution that increases staff productivity, facilitates project management, and improves margins by substantially reducing costs. This overview describes how companies can:

- Replace fragmented, inefficient communication at a construction site with an empowered, secure environment that promotes greater efficiency, collaboration, safety, documentation management, training, and more
- Lower costs and improve margins while providing high quality, on time, and under-budget project completion

## EXECUTIVE SUMMARY

Cisco Connected Construction enables companies to deploy a secure, intelligent network right at the construction site to unify and enhance connectivity to the people, information, and resources that construction staff needs. By empowering better communications and information management, Cisco solutions can help construction companies improve staff productivity and lower costs significantly, while exceeding developer and owner expectations for high-quality, on-time, and under-budget project completion.

## CHALLENGE

Faced with tough competition and diminishing profit margins, construction companies are increasingly looking for ways to improve their margins, meet tighter deadlines, and differentiate themselves from the competition. For over a decade, construction companies have been reluctant to take full advantage of technology advances at the construction site. Beyond the construction trailers and field offices, project management applications and productivity hardware (e.g., laptops and handheld devices) are only sporadically and still poorly implemented. Communication with work staff is limited to walkie-talkies and cell phones. Real-time information sharing and collaboration among owners, architects, builders, and trade and subcontractors is frustratingly inefficient, resulting in costly delays, miscommunications, and liabilities. Research testifies to these inefficiencies as leading academic institutions (including the Center for Design Informatics at the Harvard Design School) show that more than 30% of the construction cost is wasted, and that construction workers have access to only 70% of the information they need at any given time on the construction site.

Construction companies must find ways to improve communications at the construction site in order to address the following needs:

- Connecting with people more easily and sharing information more quickly
- Enabling collaboration with geographically dispersed teams of designers, engineers, and sub-contractors
- Giving supervisors and foremen more time outside construction trailers by giving them access to information regardless of where they are on the construction site
- Providing timely, secure, shared access to time-sensitive documents, project management applications, and other resources to avoid costly downtime, re-works, delays, and duplication of effort
- Managing and storing documentation to create an audit trail in case of disputes

- Reducing the cost and delay associated with travel
- Providing health and safety updates in order to avoid violations, injuries, and costly litigation
- Providing real-time visibility into project status to building owners, architects, and other relevant project stakeholders.
- Ensuring adequate surveillance and site security to protect against theft and vandalism
- Enabling visitors and partners at the construction site to access information and online resources electronically, while protecting company data with rigorous security

## SOLUTION

Cisco Connected Construction enables construction companies to take a major leap forward with technology at the construction site, without concerns over complexity or security. The Cisco Connected Construction solution delivers a highly secure, intelligent network right at the construction site. The solution replaces fragmented and inefficient communications with real-time connectivity to people, information, and resources that a construction site personnel needs in order to work more productively. The Cisco end-to-end intelligent network enables construction companies to better utilize existing investments in software and hardware. By transforming construction sites into highly empowered environments, construction companies can lower their costs and improve their margins while exceeding the customer's expectations for high-quality, on-time, and under-budget delivery.

The Cisco Connected Construction solution increases productivity, improves project management, and lowers costs by providing intelligent network solutions that create:

**1. A Responsive Worksite:** The key to enabling construction site personnel to be more responsive is the ability to securely access people and information from anywhere. Putting computing capability at the point of activity also decreases the cost of accessing information and reduces human error and time lags. Cisco wireless solutions and VPNs enable managers to securely connect with the home office, suppliers, partners, applications, and resources, no matter where they are on the construction site. Construction site personnel can use portable computers and hand-held devices to access the most up-to-date information electronically and communicate ideas in real time. They can incorporate software applications for design, data collection, project management, and inspection into their portable devices. Secure wireless solutions not only improve productivity, they can also control communications costs by reducing remote access and cell phone charges and replacing existing paging services.

A Cisco wireless IP phone combines the freedom of wireless with the power of voice over IP communications. The Cisco wireless IP phone gives the user the same capabilities as a headquarters phone. By carrying a wireless IP phone (about the size of a cell phone) anywhere on the construction site, supervisors and foremen have one telephone number that reaches them anywhere, reducing the likelihood that they will miss an important call. A Cisco wireless IP phone also reduces dependence on messaging services, reduces time wasted tracking someone down on the site, and helps reduce expensive cell phone usage.

With Cisco secure VPNs, supervisors can save travel time by connecting to the corporate network from the field (over wired or wireless connections) to access project management applications and job-related documents.

**2. A Collaborative Worksite:** Deploying a single network capable of handling voice, data, and video applications at the construction site breaks down the traditional barriers to productive collaboration among supervisors, site personnel, architects, sub-contractors, owners, and other key players in the construction process. In addition to wireless IP telephony solutions, Cisco Connected Construction delivers robust desktop IP telephony solutions. These provide the enhanced voice features associated with a headquarters phone system, including voice mail and audio conferencing, without the time and expense associated with installing a PBX or key system at a construction site. Using the same IP network, staff can set up secure video conferences with remote subcontractors, suppliers, partners, and customers to resolve project problems more quickly.

**3. A Connected Worksite:** The Cisco Connected Construction solution incorporates secure, high-speed access to the Internet in order to track and receive documents, such as building plan modifications, engineering drawings, requests for information (RFIs), requests for

proposals (RFPs), and work change directives (WCDs). This not only expedites access to information, it ensures that everyone is working from the same document version, which reduces miscommunications and errors. Electronic document retrieval and storage also improves accountability by creating a digital paper trail. The same secure IP network can support video-on-demand to connect work crews with important job, safety, and health information without shutting construction down for hours at a time, or requiring that workers leave the construction site to attend training sessions.

**4. A Streamlined Worksite:** With a secure, intelligent foundation in place, construction companies can more easily add new business applications that contribute to even greater productivity, efficiency, accountability, and so on. For example, instead of walking around the construction site with clipboards, managers can access applications for example for any type of form management (e.g. RFI, safety reporting, time cards) right on their PDAs or tablet PC's. Staff can streamline administrative tasks, spend less time in the trailer doing paperwork, reduce the errors associated with re-keying paper-based reports, and free up time to supervise site personnel and collaborate with other project stakeholders. By using the Cisco Connected Construction network to make business applications available anywhere, construction companies can reduce administrative support, while improving staff productivity.

**5. A Protected Worksite:** Rigorous network security is required to protect the construction company's proprietary information from unauthorized access. The Cisco Connected Construction solution incorporates layers of security into the network, including firewalls, intrusion detection, and Virtual Private Networks (VPNs). With these integrated security measures, companies can protect information at the construction site, while enabling secure access to information across the site and between the site and the home office. With technology like VLANs, construction companies can also open selected parts of their network to trusted partners, while restricting access to confidential information.

In addition to ensuring network security, the Cisco Connected Construction solution can greatly improve physical security at the construction site. For example, theft of materials is one of the most serious crime problems. By connecting digital and analog cameras, digital video recorders, access panels, and alarms to the Cisco intelligent network, companies can extend security coverage to less accessible areas of the construction site. Construction companies can also use the security Web Cams as a marketing and communications tool for updating owners, architects, contractors, and even potential tenants on the status of the project through a live webcam broadcast. The same IP network can support a badge reader database for scanning security badges, and use Radio Frequency Identification (RFID) tags to track tools and materials wirelessly.

## BUSINESS BENEFITS

Cisco Connected Construction enables construction companies to differentiate themselves from the competition and more efficiently serve their customers, while also operating more productively and profitably. By deploying an intelligent network at the construction site, companies can:

- Avoid costly downtime, re-works, and duplication of effort by giving people access to the most current documents and resources they need to do their jobs quickly and efficiently
- Enable real-time collaboration with outside project collaborators and stakeholders
- Reduce the inefficiencies and high costs associated with traditional telephony systems, including cellular phones
- Extend business applications beyond the trailer, enabling staff to work more productively throughout the day
- Improve document control for auditing purposes and reduction of litigation
- Minimize unnecessary travel time and costs
- Reduce losses and downtime due to theft and vandalism
- Improve worker safety and worksite security
- Give headquarters staff and customers visibility into site progress through live webcam broadcasts
- Position the company as a more efficient, effective, and technology-empowered partner to customers
- Implement an easily repeatable model that can be extended to other construction sites

- Use the network to manage an entire portfolio of construction sites from headquarters
- Establish a network foundation that will support new business solutions in the future

### **SUPPORTING SOLUTIONS AND PARTNERS**

The Cisco Connected Construction solution is designed for fast and easy deployment at the construction site. Cisco partners are trained to manage the entire solution, from planning to deployment, and can even manage the Cisco network on an ongoing basis. In addition to our global network of qualified resellers, Cisco provides comprehensive design and support through Cisco CCIE® professionals and the Technical Assistance Center (TAC), both of which are recognized as the best in the industry.

### **WHY CISCO**

Cisco is the worldwide leader in networking technologies, with a 20-year track record supporting customers of all sizes, around the globe. The Cisco Connected Construction solution supports the vision of the Intelligent Information Network, an evolution of networking capabilities that will support an ever-expanding portfolio of services and applications to enable business growth.

By working with the established industry leader, construction companies can benefit from:

- Proven performance, reliability, and security
- A standards-based, continuously expanding suite of intelligent network services
- A broad range of technical experts and engineers who understand the unique requirements of the construction industry
- Award-winning customer support services that help companies get the most out of their investment and extend the life of their network assets
- Ongoing investments in R&D initiatives benefiting the construction industry
- Best practices based on showcase network deployments

### **FOR MORE INFORMATION**

For more information about the Cisco Connected Construction, visit [www.cisco.com](http://www.cisco.com) or contact your local Cisco representative.



#### Corporate Headquarters

Cisco Systems, Inc.  
170 West Tasman Drive  
San Jose, CA 95134-1706  
USA  
www.cisco.com  
Tel: 408 526-4000  
800 553-NETS (6387)  
Fax: 408 526-4100

#### European Headquarters

Cisco Systems International  
BV  
Haarlerbergpark  
Haarlerbergweg 13-19  
1101 CH Amsterdam  
The Netherlands  
www-europe.cisco.com  
Tel: 31 0 20 357 1000  
Fax: 31 0 20 357 1100

#### Americas Headquarters

Cisco Systems, Inc.  
170 West Tasman Drive  
San Jose, CA 95134-1706  
USA  
www.cisco.com  
Tel: 408 526-7660  
Fax: 408 527-0883

#### Asia Pacific Headquarters

Cisco Systems, Inc.  
168 Robinson Road  
#28-01 Capital Tower  
Singapore 068912  
www.cisco.com  
Tel: +65 6317 7777  
Fax: +65 6317 7799

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