"Network in a Box" Enhances Relief Efforts for Red Cross and Red Crescent Organizations Worldwide

Executive Summary

CUSTOMER NAME
The International Federation of Red Cross and Red Crescent Societies

INDUSTRY
Public Sector

BUSINESS CHALLENGES
- Create more awareness of the humanitarian benefits of information and communications technology
- Improve speed of response to disasters
- Decrease communications costs

SOLUTIONS
- A prototype IP-based portable solution delivering voice and data communications
- Flexible and more feature-rich network and communications options
- Detailed user documentation and automatic configuration programs

BUSINESS RESULTS
- Easier access to critical information and tools required to respond effectively to disasters
- Enhanced speed of response in deploying ICT networks
- Opportunities to reduce communications costs
- Tangible evidence of how advanced technologies can be deployed

Founded in 1919, the International Federation of Red Cross and Red Crescent Societies (IFRC) knows better than most, the need to react fast to a disaster. Working with Cisco Systems®, the two organizations have developed a prototype "network in a box" that within hours of its arrival, can bring vital voice and data communications to the scene of a disaster. Based on Cisco® off-the-shelf components, the solution offers a more flexible and cost-effective information and communications technology (ICT) network and promises to significantly improve the National Societies' "e-preparedness" for disasters on the ground.

BUSINESS CHALLENGES

The International Federation of Red Cross and Red Crescent Societies is the world's largest humanitarian organization, comprising 185 member Red Cross and Red Crescent Societies, a secretariat in Geneva, and more than 80 delegations strategically located to support activities around the world.

The International Federation supplies a cochair of the United Nation's Inter-Agency Standing Committee's Task Force on Natural Disasters. The Task Force's experience around the world has led the International Federation to place great emphasis on the need to plan ahead in order to respond quickly when disaster strikes.

One anecdote from the December 2003 earthquake in the ancient city of Bam, Iran, demonstrates the importance of forward planning. Prior to the earthquake, the Iranian Red Crescent had developed a capability to detect victims of earthquakes through training a dog team. The team was deployed hours after the earthquake and found 157

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people who were subsequently rescued from the ruins. International teams of dogs were later deployed, but given that a number of days had passed since the catastrophe, they found and rescued less than one-seventh of the number of people originally rescued.

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Hugh Peterken, head of information systems, IFRC

Speed of response on the ground must be matched by an equally rapid setup of good communications to share situation reports, mobilize supplies, and evaluate the ongoing risks to response teams. The growing importance of ICT in combating the threat of disasters has led the International Federation to coin the term "e-preparedness."

Following a meeting at the World Economic Forum between Didier Cherpitel, secretary general of the International Federation, and John Chambers, president and CEO of Cisco Systems, the two organizations agreed to explore ways in which Cisco might assist in meeting the Federation's technology requirements. The need to quickly provide communications connectivity at the scene of a disaster became the focus of the subsequent collaboration.

"Poor connectivity is one of the major problems we face," explains Hugh Peterken, head of the International Federation's information systems department. "We work in locations in Africa and Asia where sometimes the only option is a 9.6-kbps modem link. Satellite communications provide more bandwidth, but small satellite terminals are very, very expensive to run."

SOLUTIONS

The International Federation has a very flexible mechanism for responding to disasters. The vast majority of disasters are attended to at the local or country level by trained volunteers and staff of the Red Cross or Red Crescent National Society. When a disaster is of a scale where international assistance is needed, the International Federation may mobilize regional or international teams known as Emergency Response Units (ERUs).

Information technology and telecommunications have been recognized as key factors in a successful response. There are ongoing programs developing ICT capacities of National Societies around the world to help ensure that their communications remain effective to warn of imminent disasters and to respond when disasters do occur. In addition, key ICT equipment, such as satellite terminals, is pre-positioned in many countries.

A dedicated ICT ERU has been established and forms part of the International Federation's e-preparedness. This team is available to travel to a disaster at short notice and its role is to quickly establish and then support the ICT infrastructure for the response operation.

The equipment traditionally used by the ICT ERU includes wireless access points, routers, switches, computers, and satellite terminals. In most disasters the ERU would establish communications initially by satellite, for example, using Inmarsat's new broadband global-area network IP-based service. These terminals are expensive to run, with connectivity costs up to $150,000 per month. Reducing bandwidth requirements and moving to terrestrial links as soon as they become available are priorities.

More important than cost is the speed of deployment. Every hour counts after a disaster, and it is imperative to provide operations staff with communications and computer resources as soon as possible. This is particularly important in managing the logistics pipeline for the delivery of relief goods.

The International Federation and Cisco put their heads together to explore how an IP-based solution might provide a faster response at a lower cost. The Cisco Systems Internet Business Solutions Group (IBSG) brought together a team that drew on the company's extensive resources, including those within the Cisco Corporate Philanthropy group and Cisco personnel from different fields of expertise.

With the requirement for rapid deployment and easy onsite configuration, the solution had to support growth in data and applications traffic. Access to Web-based applications—from e-mail to word processing to logistics management—had overtaken telephone conversations as the primary disaster coordination tool.

A benefits analysis highlighted the cost benefits that might be achieved. Benefits included time savings that a "plug-in-and-go" approach might deliver when assessing the local situation (instead of implementing a more custom solution), together with reduced support costs and reduced communication costs.

A Cisco Corporate Philanthropy grant part-funded the development of a prototype system to realize this vision. The result was known as the NinaB—network in a box.

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NinaB makes use of commercially available, off-the-shelf components from Cisco. A switch supports a LAN with 20 ports available for equipment, such as printers, which also can support IP telephony thanks to Power over Ethernet technology. A wireless access router and wireless IP phones extend data and voice coverage some 200 meters, bringing true mobility to field workers.

A Cisco router ensures that NinaB supports a wide range of connectivity options from ISDN and asymmetric DSL, to Inmarsat's regional broadband global-area network satellite coverage. A content engine also was included to save costs by providing a local copy of regularly accessed Websites.

Weighing a little over 20 kilograms, the entire solution fits inside its own suitcase, ready to be shipped as personal luggage anywhere in the world. Commenting on the prototype, Peterken has no doubt that it is a significant step forward: "The network in a box is a great concept. I believe it is much better than anything I've seen a humanitarian organization using."

BUSINESS RESULTS

The most important benefits from the solution come in the speed and quality deployed over the ICT infrastructure. Transportation is simplified greatly, as the solution in a suitcase avoids the need for making any special flight arrangements. Once on the ground, the solution can be up and working within 1.5 hours compared to the existing procedures where the network solution is incrementally built up, meaning that full functionality is not available for up to 48 hours.

The network in a box also delivers a complete, converged LAN with wireless capabilities. Multiple devices—computers to printers to phones—can be supported in the field. The situations where disaster responders have to queue to use a single computer with Internet access are eliminated. In contrast, NinaB will allow more people to use the facilities simultaneously, providing better access to applications and helping ensure that vital information, such as logistics and situation reports, are synchronized and up-to-date.

Having people available with the skills necessary to support an ICT solution was another major problem considered in the development of the solution. NinaB comprises standard Cisco equipment, and IP-based skills needed to support it are becoming ubiquitous in the IT world. The most common configuration issues have been addressed by writing small programs to automatically set up a connection to the most frequently encountered interfaces for terrestrial and satellite links; once set up, remote support and diagnostic options become a possibility.

The project also has produced some unexpected benefits. Peterken explains: "The solution is very visible evidence of the effective use of ICT and that is very useful in raising funds, but also internally to strengthen the profile of ICT within the organization. This is important as we move to ensure that our IT strategy is aligned to the needs of the International Federation."

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By partnering with IBSG, Peterken was able to discuss a wide range of IT-related issues, including IT governance structures and Cisco experiences in introducing new IT solutions inside Cisco. As a membership organization, the International Federation's IT department must both serve the interests of the broader community and the requirements of the secretariat's own humanitarian programs. "It is a complicated area and one tied to how much funding is available and where from, says Peterken. "We have set up a strategy group of key business people to start setting the strategic direction. We are trying to get the needs of the organization fed through in a consistent manner into the IT department—so we run things for the organization, not for IT."

NEXT STEPS

To date, the prototype has been tested at the International Federation's Geneva headquarters. Full field trials are planned, which will see the NinaB working with a VSAT (very small aperture terminal) in West Africa.

Following the evaluation, the exact configuration of future units will be decided. This also will provide the opportunity to consider significantly reducing the solution's size and enhancing its simplicity by using the latest generation of Cisco Integrated Services Routers, which provide secure routing, switching, and wireless voice and data communications within the same unit.

MORE INFORMATION

The Cisco Internet Business Solutions Group (IBSG), the global strategic consulting arm of Cisco Systems, helps Global 500 companies and public organizations transform the way they do business—first designing innovative business processes and then by integrating advanced technologies into visionary roadmaps that improve customer experience and revenue growth.

For further information about IBSG, visit **http://www.cisco.com/go/ibsg**

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