CISCO SYSTEMS

Kansas City Scout—A technology-fueled Highway System Dedicated to *Getting You There*

A Roadmap to the Future

Kansas City is unique among American cities in that it is divided between two states, Missouri and Kansas. What is not unique is its traffic.

When it is completed in 2003, a 75-mile, $35 million electronic traffic management system named *KC Scout* will monitor the main highways, help drivers avoid traffic tangles, and speed emergency vehicles to destinations throughout Kansas City.

In 1996, the Missouri Department of Transportation (MoDOT) and Kansas Department of Transportation (KDOT) joined forces to address traffic incident and congestion problems on the metropolitan highways serving Kansas City. Impetus for the project came from the Federal Highway Commission, which said it was willing to pay a majority of the costs for any city that chose to design an electronic transportation system. In 1997, Kansas and Missouri finalized a long-term partnership agreement to design, construct, operate, and manage an Intelligent Transportation System (ITS) dubbed "KC Scout."

KC Scout is an ITS that uses technology to make traveling safer and quicker by deploying such tools as:

- Closed Circuit Television (CCTV)
- Changeable Message Signs (CMS)
- Vehicle Detection Stations (VDS)
- Highway Advisory Radio (HAR)
- Traffic Operation Centers (TOC)

Great Increase in Efficiency and Safety

Connected by Cisco routers and 90 miles of fiber-optic cable, a pattern of 45-foot tall cameras, 25-foot wide electronic message boards, and roadway sensors will deliver real-time alerts and allow remote users to monitor traffic on the Scout Web site at: http://www.kcscout.net/.

According to KC Scout spokeswoman Dianna Lopez, the system is needed because Kansas City is running out of room for new lanes to accommodate growth. "The capacity of our highway system…is simply not enough for the demand," Lopez reports. "With this system, we are avoiding the exorbitant costs needed to add lanes or build new freeways. You can spend millions adding one lane mile, and that just doesn't get it."

When it is completed by the end of 2003, about 300 cameras will watch traffic patterns, scanning for accidents and traffic jams. Eventually, the network will cover all the main highway systems in the Kansas City area.

A TOC is being built to monitor all the cameras. KC Scout personnel will be able to re-route traffic via messages on the electronic signs based on the video feeds. And as Kim Moore, transportation engineer with Black & Veatch—the project management and consultant for the KC Scout team—points out, when there is a need for police, fire, or ambulance assistance, the operations center will be able to see just how much and what types of assistance are needed.

Benefits of the "Open" Road

KC Scout is benefiting from the advantages of digital networked solutions instead of older, standalone analog solutions. "In Dallas, when we went through and looked at the 23 signs they have up, only 3were operating correctly," says Bob Jewell, senior vice president, Network Integration Services, Inc., the local firm handling installation and data management. "MoDOT and KDOT want to avoid those problems."

Jewell said one thing that will help KC Scout avoid problems is that, although other cities are using custom software systems that cannot communicate to other technologies, Kansas City's system will be based on standard technology that will be accessible from the Web.

"We are going from proprietary custom systems to a standard system," Jewell explains. "That will give the system a longer life, make it more accessible to newer technologies when they become available, and will ensure higher performance."

A Promise to Make "Getting There" Easier

To build public awareness for KC Scout, MoDOT and KDOT are using the tag line: "KC Scout—Getting you there." Although installation is still underway, the intelligent network system is expected to deliver on that promise by enabling:

- Less congestion and fewer delays
- Increased rush hour speeds
- Fewer rush hour accidents
- Quicker emergency response
- Less air pollution

These expectations are based on strong evidence. Cities with similar ITS systems have reported:

- 27 percent reductions in rush hour accidents
- 35 percent increase in rush hour speeds
- 18 to 22 percent increase in highway capacity
- More efficient dispatching and routing of emergency vehicles
- 30 to 50 percent decreases in emergency response times

The conveniences will enable Kansas City to continue to grow without adding frustration to the daily commute, yet the primary benefit is safety.

"The main issue will be incident management," Moore says. "The system will simply be able to clear accidents faster because everyone will have more information right away. This system will be able to save lives because we will be able to help in getting the right equipment out to the scene sooner."

Benefits Today…and Tomorrow

By using a converged network solution designed by Cisco that integrates data, voice, and video onto one platform, KC Scout has been able to:

- Consolidate server management
- Consider IP telephony solutions
- Provide real-time information to other offices and agencies in the state
- Improve emergency response capabilities

The convergence delivered in the Cisco solution has allowed KC Scout to save approximately US$2.2 million in network server maintenance by eliminating the need for multiple networks. This solution also enables KC Scout to migrate to IP telephony solutions in the future utilizing the existing network. Advantages of IP telephony include:

- Ability to use the KC Scout network to also offer IP "road assistance" phones and telephony
- Provide backup communication system in the event of any emergency
- KC Scout real-time updates and notifications to the first responders

Executive Summary

Background

A city that spans two states—Kansas and Missouri—Kansas City faced the inevitable downside of growth—traffic.

Challenge

The capacity of the metropolitan highway system was not keeping up with demand. Adding new lanes was not only cost prohibitive, there was no room to put them.

Solution

The Missouri and Kansas Departments of Transportation (MoDOT and KDOT) teamed up with technology partners to create "KC Scout," an electronic traffic management system that uses Internet-based technology to make traveling safer and quicker by deploying such tools as closed-circuit television cameras, electronic message boards, and road sensors to alleviate traffic problems.

Benefits

When fully operational by the end of 2003, KC Scout is expected to deliver significant benefits including: reductions in rush-hour accidents; an increase in rush-hour speeds; increased highway capacity; more efficient dispatching of emergency vehicles, and decreases in emergency response times.

CISCO SYSTEMS

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.
Capital Tower
168 Robinson Road
#22-01 to #29-01
Singapore 068912
www.cisco.com
Tel: +65 6317 7777
Fax: +65 6317 7799

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