

# SYSTIMAX®

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## SOLUTIONS

## At the 2002 FIFA World Cup™, SYSTIMAX® Solutions as Part of Avaya Inc. Connect Tens of Thousands of Users - for Billions of Viewers

### State of the art connectivity solutions link key elements of world-class converged network

At the Fédération Internationale de Football Association (FIFA) World Cup™ tournament, starting this month in Korea and Japan, Avaya Inc. has just completed one of the world's largest converged voice and data networks for the global event. The network gives officials, reporters and volunteers at the games instantaneous access to scores, statistics, player comments, real-time coverage of the events, and a host of leading-edge systems to manage games logistics.



SYSTIMAX Solutions industry-leading connectivity solutions ensure exceptional network performance for the converged network, which marks the first time FIFA has used voice over IP (VoIP) at an event. It's also the first time a FIFA communications network has had to support simultaneous World Cup matches in two countries.

In addition, the converged network is among the world's largest ever, featuring:

- 40,000 connections between 20 stadiums, two international media centers and two headquarters in Korea and Japan
- 10,000 data and communications devices online
- More than 200 Access Point Routers
- 150 separate wide area network (WAN) connections
- More than 100 Avaya Cajun® family of data networking switches
- More than 20 Avaya Internet Protocol (IP) communications systems with 400 endpoints
- 22 Avaya DEFINITY® G3 SI Enterprise Communications Servers (ECS)

Bringing all this equipment together to provide world class connectivity at all locations is 5,000 kilometers - 3,100 miles - of SYSTIMAX® cabling, the worldwide market leader in structured cabling solutions.

**SYSTIMAX® Structured Connectivity Solutions**

### The Connectivity Solution

Since the network actually spans three countries - Korea and Japan where the games are being held, and the U.S. where network management is based - cabling at each site was a challenge for Avaya. But it was a challenge the company gladly accepted and rapidly overcame.

"One of the biggest cabling issues we faced," explained Doug Gardner, regional managing director, Avaya World Cup Program, "was that all three countries have differing communications standards, systems and services. As a result, thorough testing and re-testing of all equipment was essential to assuring short- and long-term operational efficiency for the global network."

The sheer size and geographic spread of the network was another obstacle. Following here is a partial list of cabling and connectivity integration required onsite, in addition to remote connectivity:

- SYSTIMAX Solutions as part of Avaya was responsible for all cabling in the two International Media Centers, one each in Korea and Japan.
- The company also managed the review process, quality verification and upgrading of cable previously installed in all ten stadiums in Korea.
- SYSTIMAX Solutions oversaw new installation and support for local-area network (LAN) cabling in each of 10 stadiums in Korea and Japan.

SYSTIMAX Structured Connectivity Solutions (SCS) was used to build out the individual country networks and tie together the global network. The family of products gave network engineers the ability to design a robust infrastructure able to provide optimum performance wherever needed during the course of the event.

SYSTIMAX SCS also works with a wide variety of vendor equipment. For example, Avaya integrated its products and services with Toshiba computers and servers and Fuji Xerox computer peripherals, while also matching up with long-distance and wide-area network services from NTT in Japan and Korea Telecomm in Korea.

To assure full compatibility and reliability of the different systems, Avaya designed five separate Virtual Private Networks (VPNs) with the SYSTIMAX GigaSPEED® Solution. The company also installed its high-performance LazrSPEED® Solution optical fiber along with Avaya Cajun® backbone data switches to assure cross-border communications would work flawlessly.



The SYSTIMAX GigaSPEED Solution delivers a robust Category 6/Class E standard UTP cabling infrastructure. It more than doubles the available bandwidth of today's typical copper cabling installations, enabling connections to the desktop of up to 1.2 Gb/s to support growth in data traffic volume. The optical fiber LazrSPEED Solution, on the other hand, is designed to support 10 Gb/s at up to 300-meter distances, providing the essential increased bandwidth in building typical backbones.

Also installed for the FIFA network was the SYSTIMAX OptiSPEED® fiber-optic solution, as a partial backbone. The 62.5 micron multimode fiber provides high-speed links to support signal transmission up to the TIA standard of 300 meters within a building and up to 2000 meters, or two kilometers, within a campus for many of today's legacy LAN's.

In order to manage the cabling infrastructure, the FIFA World Cup network utilizes the SYSTIMAX iPatch™ System, an intelligent patching solution for real-time monitoring of voice and data port connections. The user-friendly electronic patch panels tell network engineers and technicians where to plug cables accurately and conveniently, dramatically cutting the cost and risk in making moves and changes to the network.

Yet another product from the SYSTIMAX SCS portfolio used in the FIFA network was the VisiPatch™ System, which increases patch panel density for areas where space was limited. This wall-mounted patching system features a unique "reverse direction" patch cord and integrated cable and patch cord management for an uncluttered appearance.

Local SYSTIMAX BusinessPartners worked to carry out the installation of the cabling systems at each location. "We have a worldwide network of highly-skilled BusinessPartners, trained to design and install SYSTIMAX SCS for customers around the globe" said Ispran Kandassamy, managing director of SYSTIMAX Solutions, Asia Pacific and China. "Their expertise and ability to meet tight deadlines is critical for most projects, but this was especially true for the FIFA World Cup."

### Eclipsing with ECLIPS

To accommodate the many different network applications and users - everything from scheduling games and notifying teams to accrediting participants and tracking inventory - Avaya designed and installed at the network core its Enterprise Class Internet Protocol Solutions (ECLIPS) portfolio of IP telephony and multi-service networking products, applications and services. These systems allow reporters covering the events to dial into the FIFA network and turn their laptop computers into virtual telephones.

In addition, journalists can use Avaya IP telephones to transmit their stories, manage their e-mail and faxes, and simultaneously talk to their editors - all over a single connection. For more standard voice communications, Avaya installed fully redundant DEFINITY™ G3 Enterprise Communications Servers (ECS) to replace other-vendor voice systems in each of ten stadiums in Korea, and a new DEFINITY G3 ECS in the Korean International Media Center. Additionally, Avaya conferencing and collaboration solutions were implemented in the network early on to facilitate business communication between FIFA and its local organizing committees in Korea and Japan, leading up to the games.

"Each communication and computer hookup for the games was a test of our expertise," said Mark Leigh, president, Avaya Asia Pacific. "We were confident from

the start that Avaya would deliver on its promise to make the 2002 FIFA World Cup a technology benchmark for future world-class sporting events."

With intense worldwide interest in the games, Leigh said flawless network performance was always paramount to Avaya and everyone associated with the FIFA World Cup. The company's state-of-the-art communications and cabling solutions deliver 99.99% accuracy. Such reliability has long been a hallmark of Avaya networks.

"Under the banner of 'Communications Power Your Enterprise,'" said Leigh, "we've led the industry in reliable voice, data and cabling systems that power faster decisions, more profitable transactions, and closer relationships among customers, employees and suppliers. In the case of the FIFA World Cup, this was the first time a network had to go across seas and deliver support in two countries. But we knew our solutions were up to the challenge, because we've been providing world-class voice and data networks for years."

During the games, Avaya is providing Network Management Services from central locations in Japan and Korea and providing after-hours coverage from Avaya's Global Remote Network Management Services group in the U.S. Avaya BusinessPartners and the company's Global Support Organization are providing all maintenance support under the direction of the Avaya Network Operations Centers at the FIFA Media Centers. Due to the significant scope and importance of the project, Avaya has deployed resources from the U.S. and other countries to manage the effort. Overall, more than 100 support personnel are engaged.

### A Sprint to the Finish

With the many service and system compatibility issues inherent in delivering this one-of-a-kind network, Gardner said the work has been exciting all along. "While the commercial challenge was significant from the start," he noted, "the complexity of the project also made finding the right solution gratifying."

The project milestones for Avaya paralleled those of the FIFA World Cup teams as they sprinted toward the finals. The first critical milestone was opening the accreditation centers for reporters and volunteers in April, including full testing of the International Media and Broadcasting Centers. The final milestone was "going live" with the network in mid-May at all venues, in time for the start of the 64 final competition matches.

## SYSTIMAX® SOLUTIONS

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