Magnum 6K Switches Network Pump Stations for South to North China Water Transfer Project

An Industrial Networking Application

ABOUT THE SOUTH-NORTH WATER TRANSFER PROJECT
The largest project of its kind ever undertaken, the South to North Water Transfer Project is a multi-decade project to bring water from southern China to northern China via three separate canal routes. Planning on this project began in the late 1950’s with final project completion not scheduled until 2050. The shorter eastern route to Tianjin is closest to completion with most estimates targeting its completion in the next few years. The western route is still under study. The central route (see illustration next page) is currently being constructed with a starting point at the Danjiangkou Reservoir and an ending point in Beijing and will cover 1000 miles.

Shanghai Bluebird M&E Co., Ltd. is a leading industrial networking design company in China. Shanghai Bluebird has extensive experience in designing and installing networking solutions for some of the biggest industrial companies and projects in China. Often these solutions take place in the most extreme environments—with high temperature and very dirty/dusty conditions. Shanghai Bluebird has worked with GarrettCom on many projects where industrial networking equipment is needed. Bluebird is confident in recommending GarrettCom products for their quality, reliability, and configurability.

THE CHALLENGE
In order to control and manage the water pumps at the hundreds of pump stations that have been built along the 1000 mile central route canal, Shanghai Bluebird needed a hardened, reliable Ethernet network. The network was to be installed at a central control room in Henan Province as well as throughout all of the small control rooms located out along the canal through Hubei, Henan, Hebei, and Beijing provinces. To achieve this plan, Bluebird designed a star topology network with redundant links to connect a series of industrial PLCs.

THE SOLUTION
To meet its needs for a series of hardened, managed, Ethernet switches, Bluebird turned to GarrettCom. GarrettCom Magnum 6K Managed Ethernet Switches were chosen to network the PLCs and control the water pumps. At many locations, the 6K switches would also connect to various HMI terminals. Software for the switches supports industry standard RSTP-2004 for the redundant meshes.
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THE SOLUTION (cont.)
For the central control center in Henan, Magnum 6K25e Managed Ethernet Switches were selected. A large series of Magnum 6KQ and 6K16 Ethernet Switches were then chosen for the hundreds of small control areas at the network edge for the canal pumping stations. With an IP52 rating and convection-cooling as part of a unique thermal design, the Magnum 6KQ is designed to stand up to the harshest conditions at these remote canal locations. The 6K switches were also chosen for their ability to operate over a wide temperature range.

THE RESULTS
Shanghai Bluebird is pleased with the performance of the Magnum 6K Managed Switches and continues to implement more Magnum 6K switches as more pumping stations and control rooms are built for this unprecedented project. Bluebird also likes the robust, GUI-based MNS-6K software that comes with each Magnum 6K.

ABOUT MAGNUM PRODUCTS
Magnum 6K Managed Switches are highly configurable switches, providing modular slots for user selection of 100Mb, 10Mb, or Gigabit Ethernet fiber or copper ports, and are hardened with convection or fan-based cooling (such as the Magnum 6KQ chosen for the China Water Transfer project). Power input choices include AC, 24VDC, -48VDC, 125VDC, and dual DC input for power source redundancy.

MNS-6K Managed Network Software provides the latest technology for switch management, network management and security. Based on network standards, it is easily integrated into existing networks, and features standards-based redundancy functionality and Secure Web Management (SWM) GUI. MNS-6K-SECURE is available for those customers demanding extra security in their networks. It includes SNTP client and SNTP server that provides synchronized time services for networks. Both MNS-6K and MNS-6K-SECURE now feature industry standard RSTP-2004 to support larger rings and meshes.

ABOUT GARRETTCOM
GarrettCom, Inc. is the leading manufacturer of industrial and power utility networking products. GarrettCom offers a comprehensive line of IEC 61850, NEBS and ETSI-certified switches for use in water and power utilities, factory floor, telecommunications, and outdoor environments such as video surveillance and transportation. The company’s management software supports redundant rings and secure web-based access to local and remote networks. GarrettCom offers a full solution of cyber and physical security solutions design to protect power utilities and other critical industries as well as insure NERC CIP compliance. GarrettCom markets its products through a network of resellers, OEMs, system integrators, and distributors worldwide. For more information on GarrettCom and its products, visit www.GarrettCom.com.