1.1 HD Video Dispatch Solution

With the development of communication technologies and growing user demand for video application, GHT pioneers the industry by introducing the 720P HD video dispatch solution. The solution has been successfully applied in the national dispatching center and the six major provinces.

Solution Characteristics

- HD (720P) point-to-point video calls and high-definition multiple-party video
conferencing between dispatching stations; The real-time video screen for the meeting parties is smooth and refreshed in real time;

- Fully optimized one-touch conference control function, completing all conference control on the high-definition video dispatch console;

- Compatible with the original GHT visual dispatch system by just adding high-definition dispatch console and video conferencing server, then HD/standard video meeting is realized; This gets the best use of the old one, secures the investment, and achieves rapid deployment;

- Achieve Video interoperability with other video dispatch systems from different manufacturers

- Support HD monitor system input, and support push of the display onto external video display devices (such as: the screen wall in the dispatch hall)
1.2 Integrated Softswitch Dispatch Solution

Some power plants and the county dispatching station have the requirements for independent phone use, and operation and maintenance management, who needs about several hundreds of actual users. As the traditional solution takes consideration of design of large user capacity, the solution contains more devices, leading to high cost, and more project costs. The integrated Softswitch dispatch solution adopts a high integration design, using a small number of devices to provide complete multimedia dispatch functions such as core switching, media processing, and dispatch services, providing the scenarios for power plants of less than 500 users and county-level dispatching stations, and providing a cost-effective, flexible and easy-to-deploy solution.
Solution Characteristics

- **High Cost Performance**: SW8100 series of integrated dispatch communication platforms provides the functions of core switching, media processing, dispatch services and dispatching, which has built-in web-based network management terminal that realized equipment integration to the greatest extent at the premise of stability, resulting in lower project costs.

- **Feature-rich**: It provides a wealth of dispatching application and conference functions.

- **Deployment flexibility**: The platform equipment is easy to configure, as just one set of platform equipment can meet the requirements. In the IP mode, all the network elements are connected through the network in a way of easy wiring and flexible deployment.

- **Support dual-mode**: The dispatch consoles support ISDN and IP dual-mode online to improve the reliability of the system.
1.3 Softswitch and PABX Cross-network Integration Solution

PABX dispatch systems are widely used in power dispatch field because of their high reliability, which accesses to the power dispatching network usually through E1 digital trunk, but bandwidth constraints have become the bottleneck in the development of new dispatch application. The Softswitch multimedia dispatching, a brand-new dispatch application, is introduced as a powerful means of PABX dispatch standby communications. Through cross-network group or cross-network multiple-host group technology via the built-in trunk gateway, it can achieve the perfect combination of Softswitch and PABX.
Solution Characteristics

- **Cross-network grouping, cross-network multiple-host grouping functions**: The 2B+D port dispatch consoles under ET series of dual-mode dispatch console and H20-20 switch can form a singular dispatch group for co-dispatching, in which the group members share the dispatching information, which can realize the functions including simultaneous ringing, answer first, mutual monitoring, real-time monitoring, and merged dispatching, achieving a perfect combination of multiple Softswitch platform and multiple circuit switches.

- **ET series dual mode dispatch console**: The 2B+D_U port and RJ45 network port of the console are simultaneously registered to the H20-20 switch and SW9000 Softswitch core server to realize dual-mode interface redundancy hot backup, in case of any transmission channel and the dispatch interface fault it can switch automatically to the normal channel and interface, ensuring the reliability of dispatch communications.

- **Application service diversification**: The service layer is equipped with an MS5200 media control unit, G2M network management server, MR4100 audio/video recording system, which meets the application requirements in power Softswitch dispatch communication.

- **Network security**: The transmission channels of the Softswitch system can be used to dispatch the data network or integrated data network, where the network security is protected by the hardware firewall and BC6000 edge session controller.

- **Flexible access circuit switching network**: The H20-20 switch and Softswitching system on the access circuit switching side are connected through Q signaling via SIPU built-in trunk gateway; for non-H20-20 models, the connection can be realized via an external trunk gateway.
1.4 Remote Standby Disaster Center Solution---for PABX

At present, the most primary and secondary junction centers of power dispatch systems contain both master and standby dispatch switches, where the circuit switch adopts redundancy hot backup, while the dispatch console is in dual-host grouping mode. In view of the requirements of high reliability and real-timeliness in power dispatch communication, the establishment of off-site standby dispatching center has become a rigid requirement. With the rapid development of modern multimedia communication technology, the IP network-based multimedia dispatch technology integrated with voice, video and data becomes more and more sophisticated, so the power dispatch communication allows using the reliable transition mode of dual-technology combination of traditional circuit switching and soft-switching, which is a bold attempt under the premise of rational use of resources. The dispatching Softswitch system in this solution will serve as an off-site disaster recovery standby dispatch system, while it provides the same set of cross-network with the perfect solution.
Realization of dual-network integration with the built-in trunk gateway: The main/standby circuit dispatch switches are connected through 2M digital trunk Q signaling, the consoles between them are in double-host grouping. Softswitch and master/standby circuit switch use SIPU built-in trunk gateway Q signaling for connection to transmit voice and data information, providing communication for circuit switching network and IP switching network.

Multiple-channel routing realizing off-site disaster recovery through detour backup: The Softswitch system can be set in different location other than the circuit master/standby dispatch communication center, which is different from the 2M channel for circuit switching; therefore, the entire system solution can achieve a good effect in disaster recovery, realizing off-site application of standby dispatching. The G2S system adopts Q signaling for connection with lower-level 2M transmission network through a digital relay gateway TG2600 achieving a detour effect of multiple-channel routing.

Realization of cross-network grouping with the dual-mode dispatch console: While the original 2B+D_U port dispatch console is retained, the ET series dual-mode dispatch console is also deployed, where the dispatching group spans on three dispatching platforms, forming the structure of 3-host grouping. Therefore, no matter which dispatch switching platform fails, the other two routing platforms can be the routing detour to maintain the interoperability with lower-level dispatching networks, ensuring the requirements of high reliability of the dispatch system.

High reliability of the master and standby redundancy of the Softswitch core platform: The core platform SW9000 has a master and standby redundancy configuration, of which the hardware platform reliability is up to 99.999%, while it uses high usability HA software that fully secures the system reliability.

Flexible access to a variety of IP terminals: SIP phone, video phone, analog gateway, and soft phone, as means of new technology applications, can be flexibly connected to the Softswitch system for collaborative dispatching.

High network security: The use of internal IP dedicated network transmission
ensures the network security.
1.5 Remote Standby Disaster Center Solution---for Softswitch

At present, some power units already have Softswitch dispatch systems, but in view of the high reliability and real-timeliness required for power dispatch communication, the construction of Softswitch off-site disaster recovery center is gradually put on the agenda. Due to the characteristics of IP switching distributional structure, it is easier to achieve off-site disaster recovery in comparison to circuit switching; based on the IP network, along with the dual-homing technology, a perfect standby dispatching solution of off-site remote disaster recovery can be provided.

Solution Characteristics
- **Dual-host support of disaster recovery backup:** The system is configured with the master and standby Softswitch platforms deployed in separate locations. When one of the platforms fails, the media gateway or terminal under its control will be taken over by another platform; that is, each media gateway or terminal has a master owner platform and auxiliary owner platform, so when a failure occurs, 80%-90% of the equipment communication capacity can be restored quickly, which greatly improves the stability.

- **High network security:** The use of internal IP dedicated network transmission ensures the network security.
1.6 Dispatch Recorder Network Solution

At present, dispatch recording is mostly is stand-alone operation, which imposes great inconvenience from the point of view of maintenance and management. GHT recording network solution solves several main issues on alarm, backup, statistics, maintenance and management of the recording system, which are mainly displayed in the following aspects:

- Alarm is provided in case of recording problem alarms in each station along with suggestions of disposal;
- Real-time or non-real-time backup of the recording data of each station;
- Remote maintenance of the recording system for each recording node;
- Remote access to the recording data of each recording node under authorization;
- Real-time monitoring of each recording channel, and playing it back through the speaker remotely;
- It allows monitoring all the operators online, of which the login time, login machine IP address and other information of each operator can be viewed clearly;
1.7 Diaspatch Broadcasting Solution

The dispatch desk broadcasting solution launched by GHT can directly create a broadcast group on the broadcasting dispatch console, record the broadcast content and call the broadcasting terminals corresponding to hotkeys without the need to do one-to-one notice and thus improve the working efficiency. The dispatch desk broadcasting system is mounted on the soft exchange platform and realizes large-capacity broadcast notice function via the broadcasting server.

- **SIP based solution**
  This solution is SIP based solution, which brings much more modern service, but not just voice call.

- **At most 300 receivers in one broadcasting**
  This solution supports at most 300 receivers in one broadcast, without impacting each other.

- **Real-time monitoring and result tracking**
  Statue of each receiver is monitored in real time. All these info are tracked, summarized and recorded automatically.

- **Two work mode for different situations**
  This solution support preset and instant mode, suite for different situations and requirements.

- **Integrated with dispatch telecommunication system**
  All broadcasting operations are originated from dispatch console. Dispatcher needn’t to transfer to any other system. Current saved hotkeys can be used as receiver list member.