Spec Sheet MAX Dispatch System

INTRODUCTION

Zetron's MAX Dispatch system is a pure, end-to-end, IP-based telecommunications console system designed for mission-critical dispatch applications. Because MAX Dispatch employs the latest, standards-based IP protocols and IT best practices, it offers the highest levels of interoperability, scalability and usability. It is designed to streamline the console operator's job and help them focus on the incident or task at hand. It is also designed to meet the needs of the full range of other personnel who interact with the system, including administrators, supervisors, and radio and IT technicians.

FEATURES AND FUNCTIONALITY

MAX Dispatch offers the following features and functionality:

- The use of standards-based IP protocols ensures the system's compatibility with commercial, off-the-shelf (COTS) IP network devices.
- Support for off-site access allows MAX Dispatch to be maintained and operated remotely. This facilitates appropriate staffing as well as the timely diagnosis and resolution of system issues.
- The dual end-to-end network option allows fully redundant IP networks. This ensures that a single failure in the network infrastructure has no effect on MAX Dispatch operation for all endpoints.
- MAX Dispatch is scalable from a single LAN configuration to a multi-node, geographically diverse WAN configuration.
- The system's analog and digital radio gateways interface to a wide range of conventional and trunked protocols, both manufacturer proprietary and open standard, all of which can reside on a single system.
- The system supports industry-standard SIP protocol for interfacing to telephony systems.
- MAX Dispatch supports patching and conferencing among multiple resources.
- The IT-EZ feature simplifies the management of IP parameters for local network components, which eases deployment.
- IT-EZ continuously monitors network performance, keeping users and technicians apprised of network conditions. This facilitates network maintenance and troubleshooting.
- The system's intelligent user interface (UI) selectively displays important information so operators can focus on the incident at hand without the distraction of unnecessary information.
- Unique one-click operations and intuitive UI give operators immediate access to information and controls. This improves response times and reduces operator fatigue and errors.

SYSTEM OVERVIEW

A basic MAX Dispatch system consists of:

- A Windows-based workstation with a MAX Dispatch Media Dock for audio routing and connection to peripheral devices.
- Radio gateways that serve as interface devices to mobile radios, base stations and auxiliary controls.
- A central platform that serves as a host for system management software and as an interface point to third-party devices.

When MAX Dispatch is deployed on a dedicated IP network that uses a high-grade IP infrastructure, its self-healing protocols, optional end-to-end redundancy and hot-standby features provide availability that exceeds 99.999%.

MAX Dispatch is the only IP-based dispatch system that supports network redundancy for every end-point. This allows MAX Dispatch to tolerate any single failure in the IP network infrastructure with no loss of service.

The simplest MAX Dispatch configuration involves a single, dedicated, local-area network. This configuration minimizes the IT expertise required to install the system, simplifies security issues, and helps prevent conflicts that can arise on a shared network.

Applications that would traditionally be handled by legacy, non-IP-based dispatch consoles can typically be implemented on a LAN configuration. These applications can be installed by technicians who possess legacy console experience and basic IT and PC skills.

Because MAX Dispatch is IP based, it can be geographically dispersed over a wide area. It can also give dispatchers at multiple locations access to each other's radio resources.

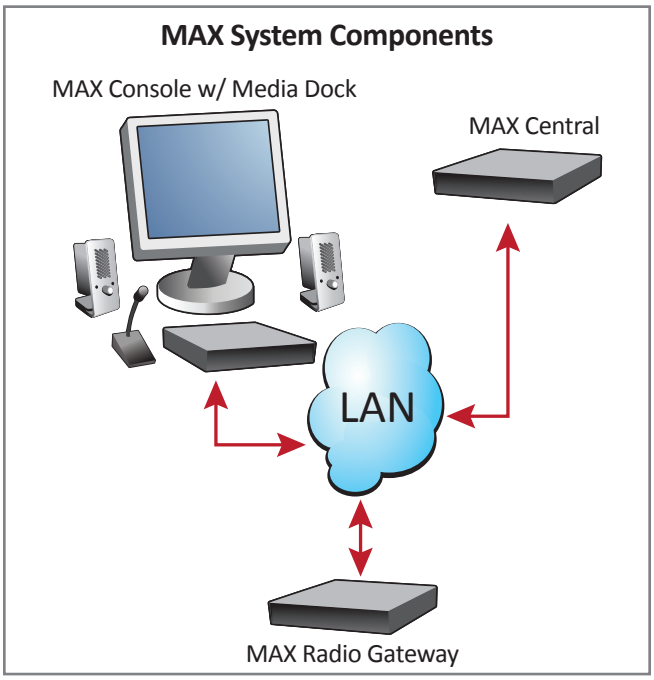
The system's architecture allows technicians and dispatchers to access the system remotely when necessary. This facilitates troubleshooting and makes it easy to add dispatching resources to the system on short notice.

MAX Dispatch's unique IT-EZ feature simplifies initial network configuration tasks, which reduces the amount of the labor required to deploy the system and helps prevent common setup errors. In addition, during operation, IT-EZ features incorporated into each system node monitor network performance. This gives dispatchers and administrative staff visibility into network-related impairments. This extremely valuable tool helps IT staff ensure the system's ongoing performance and reliability.

SYSTEM COMPONENTS

The basic MAX system consists of:

MAX Radio Gateway: The interface point between a radio or base station and the rest of the MAX Dispatch system. Radio gateways are available for legacy analog as well as modern digital schemes. They support optional radio encryption. Each radio gateway can interface up to two radios and also has two Ethernet ports available to accommodate full network redundancy.



MAX Radio Gateways enable the system to interface to up to 500 channels of conventional or trunked (C/T) radio types, including Local Control, Tone Remote Control (TRC), Kenwood radios, Motorola radios, Sprint/Nextel iDEN, and the P25 Digital Fixed Station Interface (DFSI). The gateway is equipped with physical I/O to provide system-wide radio-site I/O functions that can be used for monitoring site alarms and controlling site devices such as generators.

MAX Central: The centralized hardware platform that hosts several services that are important to the MAX Dispatch system. If a specific system has multiple, geographically disparate sites, MAX Central acts as the communication portal among them. In addition, MAX Central provides the interface to other console system essentials, such as SIP telephony gateways, third-party IP voice loggers and auxiliary I/O devices. A minimum of one MAX Central device is required at each site. Adding a second MAX Central at each site provides redundancy for the core functions of the MAX Dispatch system.

MAX Console with Media Dock: Includes the dispatch console that provides the user interface to dispatchers and the Media Dock that provides the audio interface and connection point for accessories. Each console consists of a Windows 7-based client running the MAX Dispatch application software and the MAX Media Dock. The console PC can be equipped with two, full-duplex Ethernet ports for full network redundancy.

MAX Centralized System Management (CSM): Supports the operation, administration, provisioning, and maintenance of the MAX Dispatch system. Its main functions include system-wide configuration, directory services, remote programming, device cloning, performance monitoring, and fault and alarm management. A technician or system administrator with appropriate permissions can launch the CSM application from anywhere on the network to configure or change parameters or check the status of alarm conditions.

MAX DISPATCH SOFTWARE

One of the MAX Dispatch system's most unique and important features is its extremely flexible, intelligent user interface, which is powered by the MAX Dispatch software

MAX Dispatch software runs on a Windows 7-based PC. Its customizable, intuitive user interface is designed specifically to help console operators perform their tasks efficiently.

MAX Dispatch software is able to selectively display information to the console operator that is most pertinent to a given activity or task. This helps the operator remain focused on the immediate incident or job function. It also provides a contact-driven operation that makes it easy for the console operator to contact a group or person rather than requiring the operator to know which specific system resource or circuit is needed to make that contact. This improves the operator's ability to respond effectively and efficiently to incidents.

The software's flexibility allows system administrators to tailor console screens to the agency's needs and purposes. Not only can the screens be customized on a per-role or per-user basis, but console operators can be allowed to add or remove

channels, move them around the screen, and also to resize objects. It also allows console operators to group resources as needed for a specific event. System administrators can lock down the console on a workspace-by-workspace basis. This flexibility gives console operators more freedom, but also allows administrators to control critical screen layouts that should not change.

The MAX Dispatch software includes the following radio, telephony and system functions.

Radio Functions

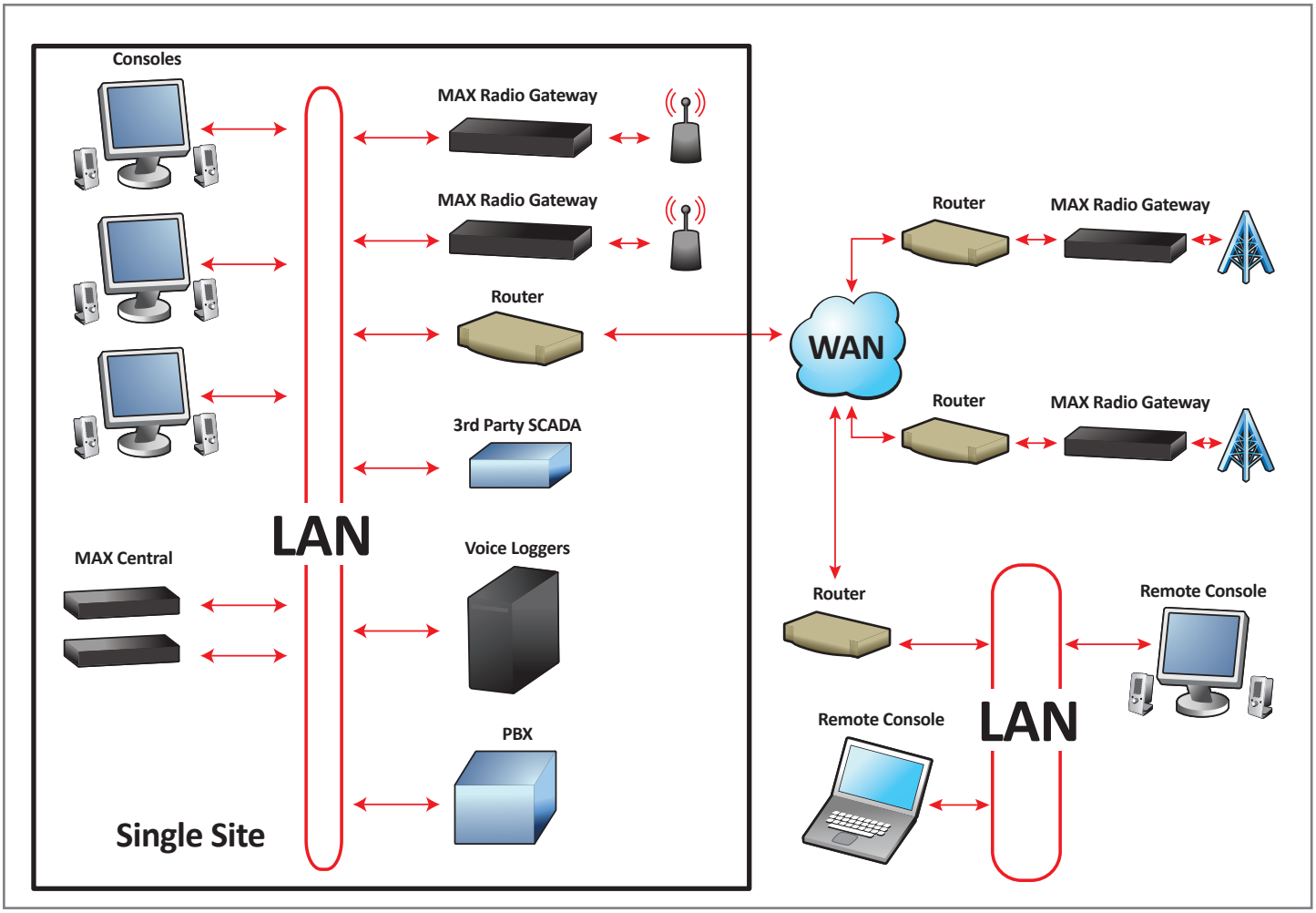
- Transmit (PTT)
- Monitor
- Instant Transmit
- Receive
- Select
- Simul-select
- Group, individual, emergency calls
- Per-channel volume controls – adjustment, boost, mute
- All Mute
- Per-channel call history
- Pre-defined alert tones
- Dynamic group creation
- Channel cross mute
- Patch (radio to radio)
- PTT ID/alias
- MDC-1200, DTMF, 2-tone paging, Knox DTMF
- Instant call and manual page dialing

Telephony Functions

- Answer/release
- Mute
- Hold
- Last number dialed
- Caller ID/Alias
- Speed-dial capability
- Patch/Conference (radio to telephone)

System Functions

- Per-console call history
- Console-to-console intercom
- Audio routing between headset and speaker
- Master-console volume adjustment
- Event Replay (IRR)
- Status messages
- Aux I/O controls
- Network Health Monitor



MAX Dispatch can be used in a single-site environment, or it can be extended over a wide-area network (WAN).

MAX DISPATCH SPECIFICATIONS

MAX DISPATCH CONSOLE WORKSTATION

Operating System:	Windows 7 x64 Professional.
Video Monitor(s):	1680 x 1050 resolution display or larger; 1920 x 1080 recommended. DirectX 10-compatible graphics processor with a Windows Display Drive Model (WDDM) 1.1 driver, pixel shader 3.0 in hardware, and a minimum of 512MB of video RAM.
Processor:	Dual Core i3/i5 3.0 GHz or better processor. (The current reference build uses the i3 540.)
Memory:	4GB.
Drive:	80GB or larger.
Network:	100/1000 Ethernet Connection. Dual connections are required for link redundancy options.

NETWORK REQUIREMENTS

Radio Gateway Payload:	104 kbps maximum for each audio traffic channel; TX or Rx; 5 kbps average for non-audio traffic.
Console Workstation Payload:	104 kbps maximum for each audio traffic channel; TX or Rx; 5 kbps average for non-audio traffic.
Packet Loss:	< 0.1% (< 1% for non-mission critical).
Packet Delay:	< 40 ms for LAN environments; up to 2 seconds for longhaul (long delay) environments.
Packet Jitter:	< 20 ms (< 40 ms for-non mission critical).
Network Infrastructure:	100 Mbps minimum, full-duplex Ethernet. Switches and routers must be multicast aware. Mission-critical applications should use a dedicated network.

MAX MEDIA DOCK

Dimensions:	2.44 x 7.56 x 8.27 inches HxWxD (62 x 192 x 210 mm)
Weight:	3.97 lbs (1.8 kg)
Operating Temp:	0 to +60 Celsius
Input Power:	2.5W (max) from USB, 60W (max with 4 speakers connected) from +13.5Vdc

Interfaces:

- Up to four speakers
- Desktop or gooseneck dynamic microphone
- A 4-wire or 6-wire headset jack
- PTT and monitor footswitches
- Four binary inputs and outputs that can be used for workstation status indications or local environmental controls
- Four relay contact closure outputs
- Analog voice-logger outputs
- Optional Telephone Radio Headset Interface

MAX CENTRAL

Dimensions:	1.5 x 7.75 x 10.25 inches HxWxD (38 x 197 x 260 mm)
Weight:	2.5 lbs (1.13 kg)
Operating Temperature:	0 to +50 Celsius
Power:	10.5 to 16VDC, 1.8A maximum
	Interfaces with third-party SIP equipment, third-party AUX I/O devices, and long-term IP logging recorders (NICE, Stancil, Exacom). Also provides remote MAX Dispatch Console and remote MAX Radio Gateway connections.

MAX RADIO GATEWAY

Dimensions:	1.5 x 7.75 x 10.25 inches HxWxD (38 x 197 x 260 mm).
Weight:	2 lbs (0.91 kg).
Operating Temperature:	0 to +50 Celsius.
Input Power:	10.5 to 16 Vdc; 1A maximum.
Radio Types Supported:	

- 2-wire or 4-wire Local (PTT/COR) and Tone Remote Control (per TIA102. BAHA Section 7).
- Digital Fixed Station Interface (DFSI per TIA102.BAHA Section 8) for P25 conventional, with optional encryption.
- Kenwood TK-x180, TK-5x10, NX-700/800 mobile radios supporting Analog FM, P25 conventional and trunking and NEXEDGE®.
- Motorola Quantar with DIU-3000 supporting P25 Conventional.
- Motorola iDEN i365IS.
- Additional models are being added – check with factory.
- Two channels.
- Analog voice-logger output.

Built-in I/O: Four binary inputs and outputs per radio, which may be allocated for generic site monitoring and control. Relay closures available via optional Zetron Model 6080.

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