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IQLinkXS

Wireless Control for NetIQ AppManager

White Paper

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1 Executive Summary

IQLinkXS is a customized application in the Hiplink family, designed to add wireless messaging capabilities to NetIQ's AppManager software. It comes with a full suite of predefined AppManager commands ready to be utilized from wireless devices. IQLinkXS is the logical wireless extension for any AppManager installation.

IQLinkXS is a one or two-way wireless data and messaging solution that enables AppManager to instantly communicate with any data or voice enabled wireless device, including digital cellular phones, PDAs, one-way and two-way pagers.

IQLinkXS is designed to immediately dispatch mission critical messages and to automate follow up procedures and backup mechanisms, providing companies with enhanced responsiveness and productivity, while improving customer care and providing fast response time.

IQLinkXS provides your company a wireless extension to your network-monitoring tool, AppManager. Your system administrator can monitor and control AppManager from his wireless device and perform corrective commands anytime and anywhere – in fact, he is holding a remote control to his system.

IQLinkXS aids your company in detecting, escalating and finally resolving network and service problems more rapidly, supporting your company's Service Level Agreement (SLA) and customer relation.

IQLinkXS is a highly scalable and can handle the messaging needs of Fortune 1000 companies while addressing the needs of small one-person operations as well.

IQLinkXS is a powerful, easy-to-use enterprise wireless messaging software solution that provides your organization with real-time wireless messaging for your employees and customers. IQLinkXS is a powerful solution that will address all of the messaging operations you might face.

IQLinkXS is fully secure and operates behind your firewall. It utilizes user settings that are managed on NetIQ AppManager – authentication and verification are performed by AppManager.

2 Introduction

The NetIQ AppManager Suite is the industry's most comprehensive solution for centrally monitoring, diagnosing, and analyzing the performance and availability of Unix or Windows based system and server applications.

IQLinkXS is the logical extension to the AppManager Suite to send alert messages through wireless protocols, e-mail, and telephony systems. IQLinkXS provides wireless capabilities to AppManager for sending out alerts and controlling the AppManager console from wireless devices.

IQLinkXS is a member of the Hiplink product family and presents a custom built solution for NetIQ AppManager users. IQLinkXS is a synergy of Hiplink's wireless messaging features with NetIQ's knowledge scripts. To the AppManager user, IQLinkXS will seem a part of AppManager. With a proven record and installations in many Fortune 1000 companies, Hiplink products are among the market leaders in the wireless messaging and wireless integration space.

With its latest product IQLinkXS, the Hiplink product family has been enriched by a custom solution that integrates into NetIQ's AppManager in a comprehensive and logical way. IQLinkXS easily integrates all its wireless capabilities into the AppManager software.

This document will provide an overview of the IQLinkXS features and a description on how NetIQ AppManager administrators can take the most advantage of them.

3 IQLinkXS Key Features

1. Wireless notification: AppManager jobs can be configured to send event notification to wireless devices, such as pagers, cell phones, and PDAs.

2. Group messaging: Intelligent group management allows AppManager to send alerts to one group. IQLinkXS will determine based on time and/or keywords, which group member(s) are “on-duty” or designated to the nature of that alert.

3. Alert escalation: IQLinkXS manages escalation procedures. A message can be hierarchically escalated until one receiver takes responsibility for the task. IQLinkXS manages this procedure and ensures that the alert is dealt with.

4. Filtering: IQLinkXS allows the server side filtering of event notifications. AppManager can be configured to send alerts to one group – the IQLinkXS server filters the messages and delivers them to only specified receivers.

5. Two-way messaging: IQLinkXS allows two-way wireless devices to respond back to IQLinkXS with predefined response options or with individual messages. IQLinkXS can communicate responses back to AppManager.

6. Response integration: IQLinkXS can trigger commands based on two-way responses. Sample commands include restarting a service (e.g., the IIS server) or acknowledging events on the AppManager console.

7. Full two-way support: The system administrators no longer need to wait until they receive an alert. They can use their two-way device to query and update information from AppManager.

8. Remote Control: IQLinkXS supports client applications on a number of handheld devices (e.g. Blackberry, Pocket PC). This client application acts as a remote control to the AppManager console. It offers a graphic interface to show events and their status and lets the administrator update their information.

4 IQLinkXS Benefits

1. Wireless capability IQLinkXS provides wireless capabilities to your NetIQ AppManager installation. Alerts can reach your employees anytime, anywhere.

2. Productivity Network administrators are not restricted to their desktops, as IQLinkXS will deliver event notification promptly wherever they are. This frees your employees for flexible schedules or other tasks, increasing their overall productivity.

3. Transparency For the NetIQ administrator, setting up receivers in AppManager is simplified. They do not need to keep track which person carries what device and who is on duty for which problem at what time. The logic resides fully on the IQLinkXS server.

4. Urgency For especially urgent events, escalation procedures can be set. This makes sure that a potentially very costly problem is brought to attention immediately and solved in the shortest time possible.

5. Reliability IQLinkXS offers backup features, ensuring that if one way to deliver a message is blocked another will be chosen. IQLinkXS can be deployed on clustered servers with multiple phone lines to add redundancy and reliability.

6. Remote Control IQLinkXS equips your PDA as a remote control to the NetIQ AppManager console. You can wirelessly view and update events and jobs – wherever you are. Even devices that you usually don't associate with "remote control" capabilities can be used to control AppManager -such as a cell phone or a two-way pager.

7. Security IQLinkXS offers all the security that you are used to from your NetIQ AppManager software. IQLinkXS utilizes users that are set up and configured in AppManager. IQLinkXS can be deployed behind your corporate firewall.

8. Ease of use Setting up IQLinkXS does not require sophisticated programming skills. IQLinkXS is equipped with a comprehensive graphical user interface – every setting will be configured on that GUI.

5 Architecture

IQLinkXS is built on a client/server architecture. The server part of IQLinkXS will install default-wise with an Apache web server and accept requests from the client via HTTP. The server consists of databases for users, receivers and groups, etc., and messengers (daemons) that monitor messaging queues and carry the communication with wireless networks. The server offers a browser interface for configuration and desktop sending.

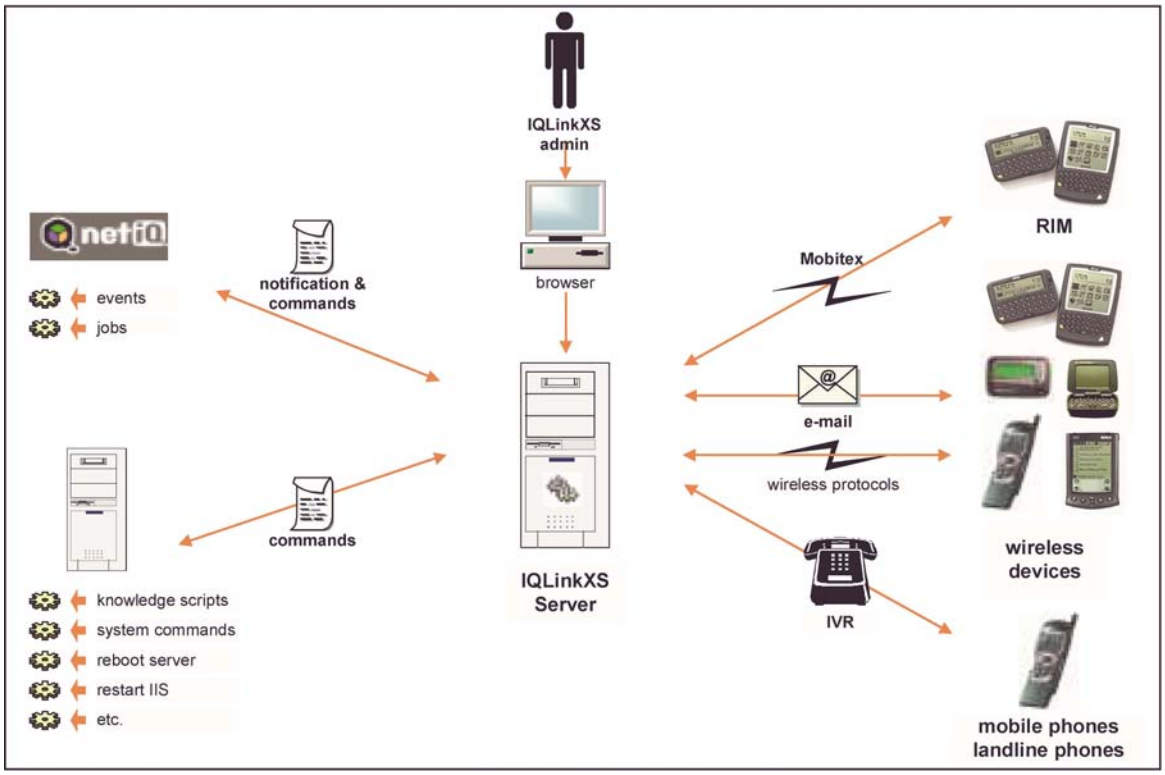

Figure 1 – IQLinkXS architecture

The IQLinkXS server hosts a Web GUI that can be accessed by any browser. The administrator can configure every function and setting from that interface. The administrator can define the logic on how to communicate with the wireless carriers (see Network and devices) and control backup features. Typically, they will also create groups that are controlled by “on-duty” calendars and keyword based filters. The browser interface can also be used to send messages manually – as a desktop dispatch system.

5.1 Networks and Devices

The server hosts the logic on how to send messages over wireless (or wire line) networks. Messages can be sent over a modem (dial up connection), or over the Internet using various protocols (e.g., SNPP, WCTP, HTTP, or SMTP). Typically, carriers offer different communication channels and protocols. IQLinkXS takes advantage of this and allows to back up Internet delivery protocols by modem (dial up) to the same carrier (or vice versa).

IQLinkXS supports sending messages to any wireless device, such as numeric pagers, alphanumeric pagers, two-way pagers, cell phones (e.g., SMS, GSM, etc.), PDAs (e.g., RIM Blackberry, Palm, Pocket PC), landline phones, and fax receivers.

5.2 Clients

Clients, such as the 'IQLinkXS_Send' action on NetIQ AppManager, connect to the server via HTTP. The server filters the receiver information out of the request and queues one or more message(s) for immediate or time-delayed delivery. The IQLinkXS server hosts information such as which group member is on duty and is there is an escalation procedure to follow. Receiver information such as PIN and carrier is also hosted on the server, along with receiver backup information.

Once the message files are queued, messengers (i.e., IQLinkXS daemon processes) monitor the queues and pick up messages that are to be delivered over the protocol they support. Messengers intelligently load balance messages, if there is a high number to be sent at one time.

5.3 Two-Way Support

Two-way messaging in our context is twofold. For one, using two-way protocols, a two-way device (such as a two-way pager or cell phone) can respond to messages. IQLinkXS utilizes this form of two-way to allow those devices to trigger commands and/or communicate updates (such as event status updates) back to AppManager.

Initially a message is "pushed" to the device – the device can respond to that message.

Messengers for the appropriate protocol manage the two-way traffic. For WCTP and SNPP (the protocols that support two-way), the messenger queries the carrier for a response. If the receiver has sent a response, the messenger will stop the escalation and executes the action-command that is identified with that response. This way it can feed back information into AppManager and can stop jobs, close events, etc.

The second scenario, which we call “full two-way”, allows two-way devices to initiate the communication. A two-way device can communicate with IQLinkXS over various protocols and get an update on certain events or jobs. Upon review, the device can again send a command to IQLinkXS, in order to quickly act on certain events.

The second scenario is also called “pull”. The device can “pull” information from the AppManager through IQLinkXS or in general initiate the communication.

IQLinkXS has added device clients for programmable devices (such as RIM Blackberry or IPAQ Pocket PC) that add a GUI (graphical user interface) to those commands. These client applications provide the user with limited access to the AppManager Operator console. They might start by querying the AppManager for a list of events that match certain criteria, (e.g., machine, user, or status). Upon reviewing the received results the user can then pull additional information, acknowledge that event and choose from several corrective actions (e.g., choose to restart IIS web server). In the background, the user is really connecting to the IQLinkXS server. IQLinkXS establishes the connection to AppManager via the ‘netiqcmd.exe’ command line interface. Each transaction is using the username and password of that user, so AppManager can verify the authenticity of each request.

5.4 E-mail Gateway

Full two-way is also possible from other devices that are not programmable and don’t have a comfortable user interface. The user would send e-mails to the IQLinkXS server and perform the same commands and actions as the client application did. IQLinkXS would confirm each transaction with a response e-mail. The e-mail gateway is set up on a sub-domain of your domain. For example: your domain is company.com and the sub-domain is wireless.company.com. In the DNS you would add an entry that redirects e-mails sent to that sub-domain @wireless.company.com to the IQLinkXS server that will act as the e-mail server for this sub-domain.

This transaction is fully secure. Each e-mail would contain an authentication code and the communication between DNS and IQLinkXS server is behind your firewall.

6 Setup and Integration

IQLinkXS can be installed on any server that runs either the AppManager server or simply an operator console. During the installation a knowledge script is installed and checked into AppManager that enables AppManager to utilize IQLinkXS' wireless sending capabilities. Moreover, IQLinkXS comes with pre-configured actions that let IQLinkXS communicate with AppManager. The receiver of an alert can either utilize a two-way pager or a PDA to update NetIQ events and jobs.

There is a comprehensive list of the most important commands. The administrator can easily extend that list with further commands by using AppManager knowledge scripts. On IQLinkXS a checkbox will indicate if that new command should be available to PDA clients. The AppManager QDB username and password will further restrict the usage to only authorized personnel.

7 Client Applications

The two-way functionality of IQLinkXS in conjunction with AppManager has been integrated in client applications that are available at this point for the RIM Blackberry and the IPAQ Pocket PC.

The IQLinkXS server is utilized as a wireless platform to connect these devices to AppManager and to display a menu with AppManager functions on the handheld. The user can pull down a list of events that they can filter by computer, KSname (the name of the Knowledge Script), it's status and corresponding job_ID and act on them.

The list of available commands is extendable. New commands on the IQLinkXS server can be made available for wireless clients. The administrator simply checks the "wireless device" flag to allow the command to be used on a client application. The clients always retrieve a list of available commands when the user enters the application.

Figure 2 - Client application on RIM Blackberry and IPAQ Pocket PC

8 Security

8.1 Firewall

The IQLinkXS server resides behind your firewall. To log in to the IQLinkXS browser GUI to perform administrative tasks, the administrator can access IQLinkXS over the local network.

The connection from the device client will go to a VPN client and from there, behind your firewall, to the IQLinkXS server. These clients are available for the RIM 5810 (GSM/GPRS) and the Pocket PC.

Only if you are using the older Blackberry version – RIM 957, the connection would go over the Mobitex network to an IP server host at Semotus' NOC (Network Operation Center) and from there over a secure socket (SSL) connection to your IQLinkXS server, over HTTPS.

For specific protocols (e.g., SNPP one-way and two-way) their respective port has to be allowed in the firewall settings. Due to the logic on the IQLinkXS server, only outgoing traffic has to be allowed, since IQLinkXS actively queries for responses, a receiver-response will always be the response part of a synchronous connection – incoming traffic will therefore be avoided.

8.2 Proxy

IQLinkXS supports HTTP proxy server. If you use proxies, IQLinkXS can be set up to use the Internet messaging protocols to proceed via your proxy. Proxies can be set including username and password and with any port you might want to use.

8.3 AppManager Authentication

At the IQLinkXS server, the access information is matched against the QDB username and password. If the user is authenticated, the IQLinkXS server will post the request to the NetIQ AppManager server. The AppManager will then verify that this specific user is authorized to execute that command and respond (with a success or failed message) back to the IQLinkXS server. The IQLinkXS server will respond to the device with that response.

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