

iChip Helps NetVMI to Lower Costs of Inventory Management for ERP Systems

"It would have been impossible for us to develop iGate without Connect One. They made it very easy for us to integrate Internet communication into our gateway."

- Luiz Fernando Ribeiro Atolini, Commercial Director, NetVMI

Established in 2001, NetVMI develops solutions for remote management of bulk inventories for the food, beverage, chemical and petrochemical industries. The company is headquartered in Sao Paulo, Brazil.

NetVMI's commercial director, Luiz Fernando Ribeiro Atolini was a founder of NetVMI's sister company, IAS Systems Automation, which has more than 12 years experience in the field of automation and instrumentation. IAS provides solutions for integrated control, supervision and management of industrial processes. They are an authorized systems integrator for major automation hardware and software suppliers such as Rockwell Automation, Siemens and SAP.

IAS provide complete range of services, including Manufacturing Execution Systems (MES) systems for manufacturing and batch processes; MES consulting, data automation and communication; remote network and communication systems; turnkey engineering projects; and training services. Among their customers are multinational companies such as Akzo Nobel, BASF, Bayer, DuPont, Exxon Chemical, Hercules, Monsanto, Rhone-Poulenc, and Rohm and Haas.

NetVMI is focused on providing such manufacturers with the easiest, most integrated, cutting-edge Web-based vendor-managed inventory solution. NetVMI's site hardware and management software integrate remote inventory management data into corporate Enterprise Resource Planning (ERP) systems. By providing real-time inventory data via the Web, NetVMI can improve the customer/supplier relationship and provide superior supply chain management.

The NetVMI solution allows suppliers to monitor the consumption and refill levels of their products. NetVMI installs industrial-grade level instrumentation for monitoring storage tanks. The output of the instrumentation goes to one of two NetVMI products, either an I-Gate (with an Internet-enabled modem) or a VMI-Gate (with an RS232 connection). Information from the instrumentation is collected and stored by the field hardware and then is sent via an ISP connection or via the plant's intranet.

The Challenge

Luiz Fernando wanted to develop an Internet-based solution for monitoring bulk inventories at remote sites. He sought a solution that would replace the traditional remote monitoring systems that require many incoming dial-up phone lines and modem banks, that have connection problems, incur long-distance phone charges and have long connection times. The new product would be named I-Gate.

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Remote monitoring of inventory levels has many benefits:

- Reduce transportation costs for the customer and the manufacturer
- Reduce inventory costs for the customer and the manufacturer
- Reduce the amount of paperwork and manual operations
- Reduce the number of shipments returned for lack of space
- Reduce the number of emergency deliveries
- Increase shipment size to economize on shipping costs
- Start using consignments as a new business practice
- Ship inventory as quickly as possible to the consuming site
- Automate the delivery process
- Improve just-in-time delivery schedule
- Improve planning for split bulk deliveries and shipment diversions
- Improve the customer's manufacturing and raw material planning process

NetVMI already had a solution for dial-up remote monitoring (VMI-Gate). Based on their experience with this dial-up solution, I-Gate would add the benefits of the Internet to maximize efficiency and productivity for their customers.



I-Gate

The Solution

VMI-Gate already included a SocketModem™ for remote dial-up access and NetVMI's application already contained code for remote access written with the industry-standard Hayes AT command set. Connect One offered NetVMI its iChip, which offers drop-in Internet connectivity for SocketModems and enables them to continue functioning as a normal PSTN modem.

iChip not only supports the AT command set, but also includes commands that provide an Internet extension to the AT command set. Connect One's AT+i™ command set enables a customer who has no Internet programming experience to quickly and simply Internet-enable his product. All the Internet commands are written in simple ASCII text and are intuitive in nature. The command set enables the customer to define the Internet protocol to use for communication (such as SMTP and POP3 for email,

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HTTP for serving or receiving Web pages, or FTP for transferring large files). It also enables customizing a wide range of configuration parameters.

Based on their experience with VMI-Gate, NetVMI engineers designed a new product that includes an 8-bit processor, 8 analog inputs; 12-bit resolution; jumper selection for 2- or 4-wire transmitters; internal power source for 2-wire transmitters; real-time clock with battery backup; EEPROM for up to four days of data logging; programmable alarms (two low, one high and consumption); two digital alarm inputs; and local alarm outputs programmed to indicate analog or digital alarms.

Technical Implementation

I-Gate utilizes a local ISP or a plant intranet to continuously post data to the <http://www.netvmi.com> Web site and to provide timely alarms for level and consumption via email. Sensors in the monitored equipment are polled on a regular basis by the I-Gate processor. The data is then fed to the iChip, which packetizes it into TCP/IP packets. When iChip receives a command with an AT+i prefix, it takes command of the SocketModem and puts it into Internet mode. iChip will dial a predefined access number for a local ISP, log onto and authenticate the user account, and conduct a send or receive Internet session. Data may be sent by email, HTTP, FTP, TCP or UDP sockets.

NetVMI has chosen to utilize FTP for transferring files to their server. The data is entered into an SQL database and then is formatted and presented on their Web site. The data can also be automatically integrated into an ERP system like SAP. An authorized user can access the data from any Web browser.

I-Gate provides the following functionality for remote inventory management:

- Real-time updates post the most recent data as often as every 10 minutes to the www.netvmi.com site.
- Level alarms are current as continuously collected data is automatically analyzed and distributed based on pre-determined specifications
- E-mail alarms ensure up-to-date response from suppliers: no waiting for someone to check the Web page to see if an alarm condition exists.
- Digital photos of site installations allow for quicker solutions to questions from suppliers or the site about inventory readings.
- Quick email links on the www.netvmi.com site allow users to inform customers of potential plans.
- XML links based on Chem E-standards afford easy access for integration into corporate ERP systems.

I-Gate meets all of NetVMI's goals. It eliminates the need for users to place long distance phone calls to remotely monitor their system. Users can dial a local ISP access number and view their data from anywhere in the world via a Web browser. Communication costs are greatly reduced as a result. Timely reporting enables manufacturers to improve efficiency and to lower operating costs.

I-Gate is in production and is being installed at sites in North and South America. According to Luiz Fernando, "To the best of our knowledge, we are the first company with this type of product on the market. We are very lucky that we found Connect One, who made it so easy for us to offer this added value to our customers. They saved us lots of time and money. We are sure that our customers will immediately appreciate the benefits and utility of I-Gate."

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