



Managed Networks

Nationwide iNtelligent Network Secure Nationwide Transaction Routing Network

N3Net is a hosted, adaptive and secure payment network service operated and managed by GHL Systems that provides nationwide coverage. Its communications backbone provides two levels of long distance communication redundancy for high reliability usage. It is also fully EMV-compliant and supports multi-protocols and multiple types of payment applications. Most importantly, N3Net provides high reliability, availability and security where encryption and authentication is built-in to ensure that data traffic is transmitted safely without any security risks.

Ultimately, a much lower cost of ownership is assured for our customers with just a single robust, quick and flexible connection from financial institutions to GHL Systems.

With N3Net, banks, financial institutions and businesses are provided with ultra-fast and reliable data access for their EDC terminals, computing and communication devices.

Additionally, N3Net utilizes a 128-bit key 3DES (Triple DES) encryption algorithm to encrypt information and data traveling within the backbone - for added security. N3Net is also monitored on a 24x7 basis to ensure peak network performance and business continuity.

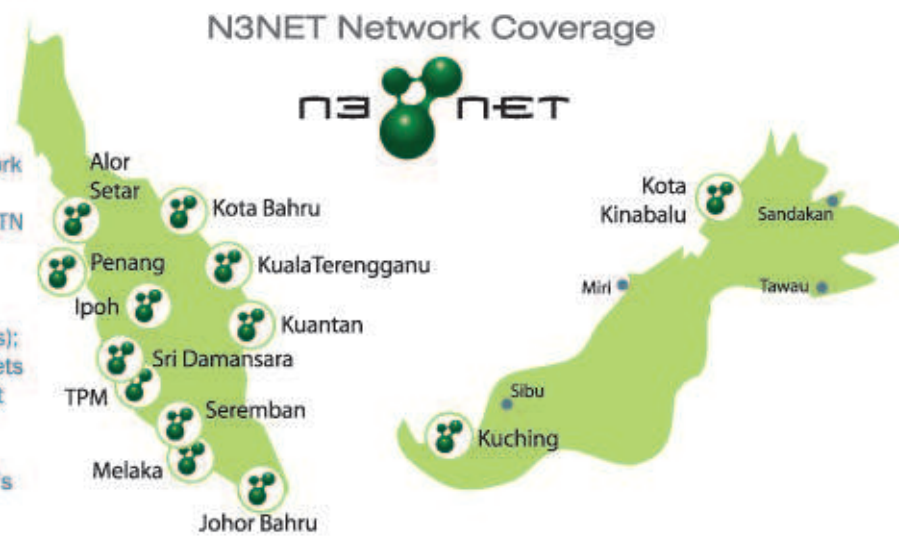
N3Net also provides the capability for multiple companies or financial institutions to perform inter-business transactions with each other without having to install additional infrastructure between them. With the same connectivity to N3Net, financial institutions can communicate with one another; perform transactions as well as connect to their most valued customers (for transaction acquiring) directly.

In a nutshell, N3Net provides financial institutions, companies and banks a reliable and secure nationwide network for transactions and data routing.



Features

- EDC terminal access nodes throughout the country
- Fully EMV compliant network (able to route and process EMV data)
- Reliable and encrypted data transport backbone (with redundant lines, backbone encrypted with 3DES, etc.)
- Robust redundant infrastructure that provides constant network availability
- Supports Analogue and Digital Modem Access to Network (PSTN and ISDN)
- Supports Analogue and Digital Modem Access to Network (PSTN and ISDN); High Speed Digital Access by devices (EDC/CAD Terminals); Legacy Analogue Access (EDC Terminals); GSM Data Call / Entry (GSM EDC Terminals); GPRS data packets access; ISO8583 data packet routing; MEPS Cash data packet routing (for collection); TCP/IP packet routing; and X.25/SDLC/HDLC/LAPB packet processing and routing.
- Provides TCP/IP connection for last mile connectivity to Client's payment/banking host
- Comprehensive network monitoring and logging



N3Net Network Robustness, Redundancy and Recovery (3R)

Possible Scenarios	N3Net Mitigation
Hardware Failure	<p>Complete Hardware Failure Each of the 13 nodes is equipped with dual NetAccess hardware, ensuring that the site is protected against hardware failure.</p> <p>Power Supply Failure Each NetAccess network appliance is equipped with Dual-fully redundant power supplies that guard against power supply unit (PSU) failure. If one PSU is faulty, the other PSU will take over and provide the power to the hardware without interruption.</p>
Communication Line (Downlink) Failure	<p>Line Robustness All incoming lines are set up as hunting lines, if any one of the lines is made unusable by physical or electrical damage or operational/maintenance activities, the calls from EDC terminals will be re-routed to the next available line.</p>
Communication Line (Uplink) Failure	<p>Uplink Redundancy All uplink from each node to the central location is connected via a GHL Systems backbone network.</p> <p>If and when the uplink is down (i.e. the node is separated from N3Net), each NetAccess will immediately initiate a ISDN backup dial-up to the HQ or the nearest node.</p> <p>This ISDN backup dial will re-establish the network connection.</p> <p>Uplink Recovery Once the main connection is established or is deemed reliable, NetAccess will switch over from the ISDN dial-up, back to the main connection. At this point, the ISDN dial-up line will end its connection.</p>
Bank/PI/Company Connection Failure	<p>Client Connection Redundancy All banks, financial institutions and companies are connected to N3net using TCP/IP. The routers used in this connection will have a primary lease line to provide the main connection from the N3net HQ to the client and a secondary ISDN line on the router to provide a backup connectivity.</p> <p>If ever the main lease line is deemed unusable or down, the router will initiate the ISDN to the client's end router (located in the client's premise) and re-establishing the TCP/IP connection. This will minimize any down time caused by connection failure.</p> <p>Client Connection Recovery Once the lease line connection is made available again or is deemed to be reliable for use, the router will terminate the ISDN call and then switch over to the lease line carrier for the TCP/IP connection.</p>

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* In our continuous efforts to improve the quality of our products, it may be necessary to change product specifications without prior notice.

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