AG 5000
Frequently Asked Questions

Part I – General Questions

Q. What does Nomadix do?

A. Nomadix develops its Nomadix Service Engine™ (NSE) software and Access Gateways that enable network providers to create intelligent public access networks, which provide transparent, secure, high-speed Internet access for venues of all sizes.

Q. What does Nomadix sell?

A. Nomadix sells a complete family of stand alone, turnkey Access Gateways. These Gateways are placed on premise between the router and the local area network and designed to enable a service provider or venue owner to deploy universal broadband connectivity that doesn't require the user to make any configuration changes or load client-side software. It allows the customer to self-provision high-speed Internet access services and gain access to local content while passing all the necessary parameters for billing and authentication to occur.

Q. What markets does Nomadix serve?

A. Nomadix markets the AG 5000 to Public Access Service Operators (PASOs) that are providing broadband Internet connectivity to the mobile user in large public access locations such as airports, convention centers and large hotels or residential deployments in multiple dwelling units.

Q. Why is the AG 5000 important in a public access network?

A. Enabling true ubiquitous broadband Internet access to the mobile workforce means venue owners and their PASO partners need to provide visitors with access to the Internet at a variety of locations – and then offer information and services tailored to that location. Once connected, customers need to retain the billing relationship with their chosen (or home) service provider enabling one bill to follow them wherever they travel. The AG 5000 also enables the wholesale broadband model allowing the rapid expansion of public access networks through the resale of access via different retail providers.

Success in today's competitive residential market place for a service provider is dependent upon signing up broadband subscribers quickly and inexpensively, then developing incremental revenue streams beyond providing the flat-rate connection fee.

PASOs can instantly deliver universal broadband access to any customer at large scale public access locations by using the AG 5000—without requiring the user to reconfigure their computer or use special client-side software. Customers can then create accounts at the public access location in a real-time fashion and receive local content and services from the service provider or venue owner. The AG 5000 will then pass the necessary parameters for billing and authentication to the service provider allowing settlement to occur. The AG 5000 provides the intelligence necessary to capture customers on site without the need for call center support or the provisioning of expensive client-side software.

Part II – User Configuration

Q. Will the AG 5000 products support all device-types, operating systems, and applications?

A. They support any device using standard Internet protocols (TCP/IP), regardless of operating system or configuration.

Q. What configuration changes are required on the user's device to connect to and operate in a Nomadix-enabled public access environment?

A. No configuration changes are necessary on the device for the user to connect to the public access network. Nomadix uses patented technology to enable network access for any user regardless of configuration once authentication has occurred without loading client side software.

Part III – System Architecture

Q. What is the architecture of the AG 5000?

A. Unlike competitive solutions, the AG 5000 is not server-based or run on a server. It is a stand-alone, dedicated networking devices (like a router or switch) and exhibit the same reliability, performance, scalability and packet processing advantages of such devices.

The AG 5000 is powered by VxWorks, the most widely adopted real-time operating system (RTOS) in the embedded industry. Also, the AG 5000 does not contain a hard drive, which prevents the network failures common to many server-based products.

Q. Which link-level (Layer 2) technologies does the AG 5000 work with?

A. The AG 5000 is transport agnostic, which means that it can interoperate with cable modem, DSL, Ethernet and all types of wireless networks.

Q. Where does the AG 5000 reside in the network?

A. The AG 5000 resides between the access concentration equipment (DSLAM, CMTS, Ethernet switch, wireless access point, etc.) and the network Router.

Part IV – Product Features & Benefits

Q. How does the AG 5000 support users in any location?

A. Nomadix' patented Dynamic Address Translation™ (DAT™) provides transparent broadband network connectivity as users travel from different locations without requiring any changes to their computer's settings or special client-side software ensuring that everyone gets access to a public-LAN. The AG 5000 enables the network to adapt to the user instead of requiring the user to adapt to a new network or location.

Q. Why is transparent connectivity important?

A. When a user accesses a public access network, they generally only use that network for temporary periods of time, which means that setup times should be minimal. In fact, in the vast majority of cases local staff is unavailable to help users obtain network access. As an example, wireless Internet access at an airport could not be provisioned to foreign visitors with static IP addresses without having an administrator available.

Q. What is iNAT™ and why is it important?

A. Balancing the need for transparent VPN access and a cost-efficient yet consistent customer experience, Nomadix has developed its patent-pending iNAT™ feature that creates an intelligent mapping of IP Addresses and their associated VPN tunnels allowing multiple tunnels to be established to same VPN server creating a seamless connection for all the users at the public access location.

iNAT is important to public access network operators and venue owners because it allows two employees from the same company to access the same VPN termination server at the same time (e.g. at night from their respective hotel rooms). Without iNAT, the VPN server at their corporation will "see" two tunnels originating from the same IP address (the IP address of the venue's router) and would not connect them due to a potential security breach. Therefore, one or both users would not be allowed to connect back to their corporate resources creating an unsatisfactory user experience, which can result in costly customer support calls for the public access network operator.

Q. How can revenues be maximized in the public access network?

A. The AG 5000 contains a set of unique features to allow the service provider or property management company to generate revenues at every touch-point with the user. This three step process is based on technology specific to Nomadix and allows revenue generation:

- Prior to the connectivity purchase
- During the actual connectivity purchase
- After the connectivity purchase

Q. How does user interaction occur?

A. Once connected to the public access network either over a wired or wireless link, the AG 5000 will automatically direct the customer to a Web site for local or personalized services, or to establish an account and pay for services. They can also determine the physical location of the user to personalize the service presentation.

Q. How is the user uniquely identified on the public access network?

A. The AG 5000 can automatically authenticate, authorize, track, and bill users for broadband access. Customers can be identified and billed according to their Media Access Control (MAC) address, Internet Protocol (IP) address, username/password, and/or port identification number. Web-based authentication using username/password can be provided in a standard, secure, efficient, and low cost manner that is transport agnostic (wired or wireless) using SSL.

Q. Is there any way to control the user's bandwidth consumption?

A. The AG 5000 enables service providers to limit bandwidth usage on a per device (MAC Address/User) basis. This ensures every user has a quality experience by placing a bandwidth ceiling on each device accessing the network so every user gets a fair share of the available bandwidth. The bandwidth for each device can be defined asymmetrically for both upstream and downstream data transmissions.

Q. How does the service provider maintain a relationship with the user once service connectivity has been purchased?

A. The AG 5000 can drive an HTML page down to each customer's Internet Browser providing them with the ability to self-select services, upgrade their bandwidth and billing options in a real-time fashion. This creates a one-to-one relationship between the service provider and the user by allowing them to send custom messages and advertising directly to the screen of the user.

Q. What other Nomadix applications are important in the public access network?

A. When utilizing a large number of Nomadix products in the network, we offer the Centralized Management System (CMS) application, which allows for simple centralized firmware upgrades. In addition, many hotels maintain a revenue stream from providing Internet connectivity in meeting rooms. The Nomadix Meeting Room Scheduler (MRS) allows for the transparent and seamless booking of these facilities from a centralized location in the hotel.

Part V – Authentication, Authorization, and Accounting

Q. What is Authentication, Authorization, and Accounting?

A. Authentication, Authorization, and Accounting (AAA) refers to the idea of managing subscribers by controlling their access to the network, verifying that they are who they say they are (via login name and password or MAC address) and accounting for their network usage. AAA encompasses several USG features. The internal and external web servers, XML interface, RADIUS, PMS functions, VLAN and SNMP queries are all a part of AAA.

Q. What does the Internal Web Server of the AG 5000 do?

A. The Internal Web Server (IWS) delivers web pages stored in flash memory. These web pages are configurable by the administrator by selecting various parameters to be displayed on the internal pages. When customers do not want to develop their own content, the IWS is the answer. A banner at the top of each internal web server page is configurable and contains the customer's company logo or any other image file they desire.

Q. What does the External Web Server interface of the AG 5000 do?

A. The External Web Server (EWS) interface was developed for customers who want to develop and use their own content. It allows them to create a richer environment than is possible with the IWS. To use the EWS, Nomadix provides the customer with ASP (Active Server Page) scripts. These scripts are built into the HTML code of their content pages and allow their web pages to communicate with and control key functions of the AG 5000, such as adding and deleting users.

Q. What is the XML interface?

A. XML is a newer, more elegant way to use custom web content. XML is an open standard that is tied closely into the HTML standard. The AG 5000 can accept several commands that follow an XML specification that Nomadix provides to customers.

Q. What is RADIUS?

A. RADIUS stands for Remote Authentication Dial-In User Service. RADIUS is a standard that has been implemented into several software packages and networking devices. It allows user information to be sent to a central database running on a RADIUS Server, where it is verified.

RADIUS also provides a mechanism for accounting. The AG 5000 can post accounting records (when log-on and log-off occur, how much data was transferred, etc.) to the RADIUS Server to help the Service Provider perform billing.

Q. How do subscribers pay for the service?

A. Subscribers can be allowed to purchase service in several ways:

- Service can be offered for "no charge"
- Payment with a credit card via the Credit Card Module that is optional for the AG 5000
- The billing record can be sent to a PMS system in a hotel for in-room billing via the NSE Hospitality Module that is options for the AG 5000
- Authorization and tracking via RADIUS to receive a bill from the ISP

Q. Besides the Core NSE functionality resident on the AG 5000, what other modules are available?

A. In addition to the NSE Core Features, Nomadix offers a series of Modules to further enhance the service offering:

- **Hospitality Module**: Provides a widest range of Property Management System (PMS) interfaces to enable in-room guest billing for HSIA service. This module also includes 2-Way PMS interface for in-room billing in a Wi-Fi enabled network. This Module also includes the Bill Mirror functionality for posting of billing records to multiple sources. The NSE also supports billing over a TCP/IP connection to select PMS interfaces.
- **Credit Card Module**: Provides a secure interface over SSL to enable billing via a credit card for HSIA. This Module also includes the Bill Mirror functionality for posting of billing records to multiple sources.
- **Wholesale Roaming**: Provides advanced NAI routing capabilities enabling multiple service providers to access a HotSpot location further supporting a Wi-Fi wholesale model. This allows the user to only interact with their chosen provider in a seamless, transparent manner.
- **High-Availability Module**: Provides enhanced network uptime and service availability when delivering high-quality Wi-Fi service by providing Fail-Over functionality allowing a secondary AG 5000 to be placed in the network that can take over if the primary device fails, ensuring Wi-Fi service remains uninterrupted.