Converging Wi-Fi and Mobile Data Networks

NettGain™ 1400

ACCELERATING THE ADOPTION OF MOBILE DATA
The User Experience

In order to stay competitive, providers today are expected to deliver a superior mobile data user experience. This means:

- Allowing access to mobile broadband services anywhere and anytime, regardless of the wireless bearer (2.5, 2.75, 3G or Wi-Fi)
- Delivering a simple and user-friendly authentication process. Users prefer to access the network without going through complex procedures that require either the submission of sensitive credit card information or the input of user names and passwords
- Providing access services, customer support and unified billing by a single operator

The Wi-Fi Opportunity for Mobile Operators

Offering seamless mobile data services virtually anywhere - indoors, outdoors and on the move - is a key challenge for mobile operators. Mobility, roaming, trouble-free authentication and superior user experience are key success factors in creating one integrated network, regardless of the wireless bearer.

In order to realize this vision, mobile data and Wi-Fi must be converged into one virtual network, where Wi-Fi perfectly complements the mobile data network to offer the best possible service.

Flash Networks’ NettGain 1400 is a comprehensive and powerful platform for converging Wi-Fi with mobile data networks. The solution allows mobile operators to provide smart, secure and user-friendly SIM based access and services over Wi-Fi. At the same time, NettGain 1400 enables operators to benefit from increased subscriber loyalty, enhanced branding and reduced churn while leveraging their existing OSS and BSS infrastructure.

The convergence of Wi-Fi and Mobile is key to creating one integrated network transparent to the end user.
NettGain 1400 is a comprehensive platform that enables mobile operators to converge Wi-Fi hotspot networks into the mobile infrastructure, while leveraging existing legacy OSS and BSS systems. NettGain 1400 enables simple, friendly and secure SIM based authentication with the operator’s existing security system.

The rich NettGain 1400 functionality - including authentication, policy-based authorization, flexible and dynamic billing, reporting, statistics, roaming and provisioning - enables the operator to flexibly deploy value-added access services over Wi-Fi with one scalable and future-proof platform.

NettGain 1400 Key Capabilities

**Billing**
- Dynamic
  - Happy hours
  - Holiday discounts

**Roaming**
- Manage roaming partnerships
- Manage revenue sharing

**Network Planning**
- Hotspot traffic congestion
- Wi-Fi network load analysis

**Provisioning**
- Interface to existing provisioning systems
- Local web based applications
- Remote configuration

**Robust and Flexible System**
- Single platform
- Centralized or distributed architecture
- Scalable expandable platform
- Telco grade

**Reporting & Statistics**
- Marketing data
  - User behavior
  - Usage patterns
  - Network usage
  - Location activity
- QoS statistics
  - Signal strength
  - Connection speed
  - Data throughput
  - Error rate

**Authentication**
- EAP/SIM 802.1x
- EAP/SIM for non-802.1x
- Web-based
- SMS-based

**Authorization**
- Via HLR
- Via external / internal server
- Authorization policies
  - Pre-paid
  - Location-based
  - Time-based
  - Subscriber type-based
NettGain 1400 Key Functionalities

SIM Based Authentication
NettGain 1400 supports SIM based authentication for both 802.1x and non-802.1x environments. The system client and server execute EAP/SIM protocol, which binds wireless users to their mobile accounts. Since the majority of hotspots still do not support the 802.1x standard, SIM based authentication can be used on a limited scale. In order to include non-802.1x hotspots, Flash Networks offers an innovative solution - the system opens a secured channel to allow authentication of users according to the EAP/SIM standard without the need for 802.1x access point support. In this case, NettGain 1400 seamlessly connects the subscriber to the Wi-Fi network with the same security level and EAP/SIM ease of use without requiring 802.1x support in the hotspot.

Web Based Authentication
NettGain 1400 supports Scratch Card and Prepaid authentication for casual users. In this scenario, visitors purchase scratch cards printed with pre-defined User-IDs and passwords, which are used for standard RADIUS authentication to grant access to the WLAN network.

Policy Based Authorization
NettGain 1400 enables operators to deploy dynamic and effective authorization rules while interfacing either with the operator’s HLR or other internal/external databases. NettGain 1400 supports the following authorization services:
- Prepaid
- Roaming management
- Location-based services
- Time-based services
- Profile type services
- Happy hours
- Holiday discounts
Billing and Accounting
NettGain 1400 supports post-paid and pre-paid billing, as well as roaming charges and revenue sharing-based billing. The system works in two modes in order to adjust to different environments:

- RADIUS interface to the billing system
- Generation of CDRs in a flexible format

Reporting and Statistics
NettGain 1400 offers a comprehensive set of reports and statistics, providing the operator with powerful management and marketing tools. The system also collects, analyzes and presents vital quality-of-service data such as signal strength, connection speed, data throughput and error rate. Marketing-related data, such as user behavior, usage patterns, location usage and network usage, is presented for marketing and promotional purposes.

Network Planning
To enable operators to continually improve Wi-Fi coverage and efficiency, NettGain 1400 provides vital data such as traffic congestion per location, authentication success and failure rate, user connection speeds and more. With this data, operators can analyze network bottlenecks and implement improvements to deliver a better user experience.

Provisioning
NettGain 1400 can host and manage a large number of subscribers locally. The system interfaces with existing provisioning systems via standard protocols such as CORBA and SOAP. In addition, NettGain can also be operated through a based application.

Roaming
NettGain 1400 enables effective management of roaming agreements and revenue-sharing schemes with partnering WISPs, hotspot owners and other entities.
Company Overview

Since 1996, Flash Networks has been the recognized world leader in mobile data optimization and access solutions. The company has unmatched breadth and depth of technical expertise in mobile to Wi-Fi convergence, end-to-end mobile data optimization, transmission and content delivery. The company's NettGain product line is based on superior patent-protected technology, and is installed and operational in over 35 mobile operators worldwide including Vodafone, Orange and the T-Mobile Group.

Flash Networks' experience, technological innovation, proven platform reliability and world-class customer service position the company firmly at the top of the wireless data industry. NettGain enables mobile operators to accelerate the adoption of mobile data services by significantly improving user experience over converged networks.

Flash Networks is headquartered in Israel, with international sales and customer support offices in Europe, North America and Asia. For more information, please visit www.flashnetworks.com