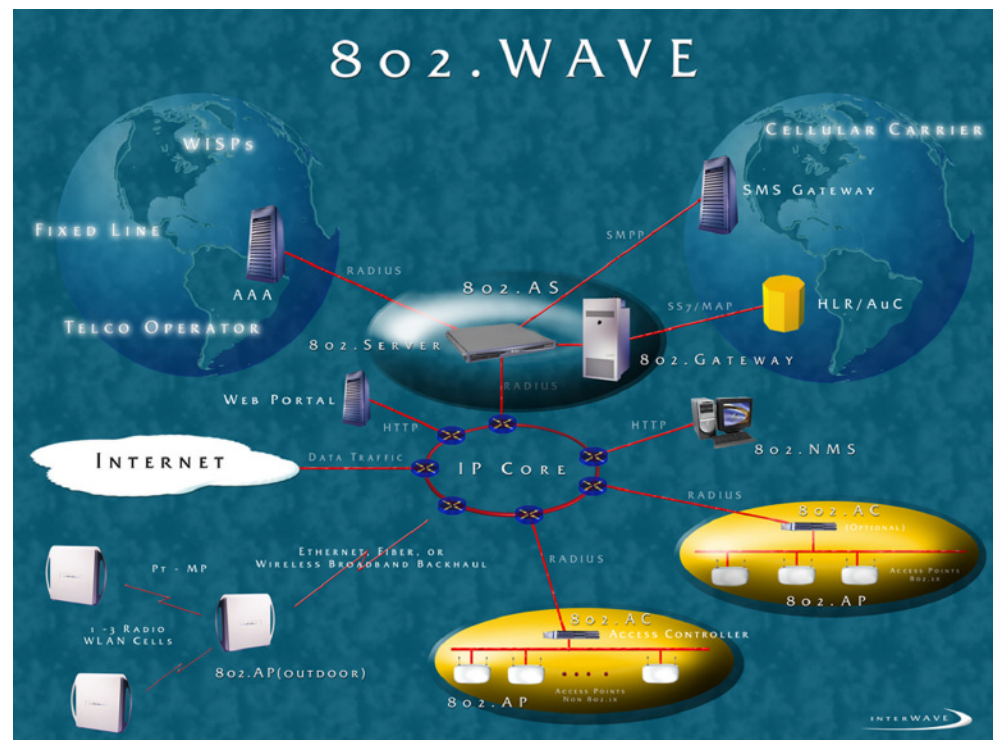# interWAVE

802.AS
Authentication Server

interWAVE's 802.AS is made of two separate functional entities: 802.Gateway and 802.Server and is capable of supporting both EAP-SIM (GSM HLR/AuC RAND, Kc, and SRES), EAP-MSCHAPV2 and MD5 RADIUS authentication methods. interWAVE's 802.WAVE solution takes full advantage of the globally adopted GSM standards, International Engineering Task Force (IETF), Remote Access Dial-In Service (RADIUS) working group and IEEE high speed 802.11 and 802.1x protocol standards and authentication/encryption procedures. As a result, interWAVE's 802.AS solution can be easily deployed without any modification to the operator's existing GSM network.

Feature Summary

- 802.AS consists of interWAVE's: 802.Gateway and 802.Server
- GSM Operator configuration: SIM based access (requires 802.Gateway) and options to include: user name and password, one time password via SMS, prepaid/scratch card
- WISP/Fixed Operator configuration: user name and password, one time password via SMS, prepaid/scratch card
- Supports standard RADIUS based authentication, authorization, and accounting
- Includes EAP-SIM, EAP-MD5 and EAP-MSCHAPV2 authentication methods
- Supports subscriber roaming among GSM operators and/or among WISPs
- Generates CDRs in GSM12.15 (GPRS) format or in standard RADIUS/text format
- Provides standard interfaces to transfer CDRs to a billing system
- GSM MAP V3/V2 over SS7 with GTT capability for HLR/AuC communication
- Scaleable architecture enables load balancing and high system availability
- interWAVE's client software features single click installation and zero configuration
- Supports various subscription mappings from WLAN to GSM
- Embedded, fully functional GSM HLR with WLAN extensions and provisioning (optional)
- Supports full network management capabilities through browser interface or SNMP

Capacity

CDR File Transfers [1,2]	300,000 records per/hour
200,000 active subs/BH [3,4]	
100k auth/BH [3,4]	
30 Authentication /sec per single system [3,4]	(Distributed multi-systems may support up to 300 auth/sec.)

802.Server

interWAVE's 802.Server provides the gateway between the WLAN access network and the GSM core network elements. The 802.Server has the intelligence to route the authentication requests of WLAN users to the correct destination within the operator's network, or in the case of roaming, to another operator's network. Additionally, the 802.Server implements the accounting modules needed for comprehensive billing of all subscribers and includes valuable usage statistics. When the user disconnects from the WLAN network, accounting data can be sent to the billing system either in the form of RADIUS accounting packets or can be converted to GSM/GPRS CDRS and sent to the GSM operator's billing server.

- Complete RADIUS AAA server and complete proxy functions
- Leverages existing open standards: supports EAP based and legacy, non EAP based authentication methods
- Collect and map RADIUS accounting data to GSM CDRs, with flexible, operator defined mappings
- Storage, back up and periodic transfer of CDRs, secure transfer of CDRs supported via FTP or SSH
- Complete support for prepaid subscribers including scratch cards and vouchers
- Includes subscriber database for WISP/Fixed Operator to support user name/password authentication
- Full subscriber provisioning and administration via browser interface
- Supports external subscriber databases through SQL/ODBC interface
- Routes to external RADIUS server/AS through the use of realm or EAP type routing
- Supports one time password access using SMS for password delivery

Interfaces

10/100 BaseT Ethernet	1 RJ45
Serial connection	2 RS232

802.Gateway

interWAVE's 802.Gateway is necessary for SIM based authentication and must always be deployed with 802.Server. The flexible architecture and use of standard WLAN and GSM interfaces make interWAVE's 802.WAVE compatible with, and transparent to, existing GSM network elements and other 802.11 WLAN applications - without the need for costly modifications or changes to existing GSM network elements. This is achieved with the implementation of interWAVE's 802.Gateway and 802.Server.

GSM Authentication and Encryption

- Flexible Mapping of WLAN services to GSM subscriber attributes
- Uses GSM credentials for Dynamic WEP key generation and rekeying to encrypt airlink for each session
- Embedded, fully functional GSM HLR with WLAN extensions and provisioning (optional)
- Flexible support for roaming agreements
- Uses standard EAP protocol for GSM SIM based authentication and DWEP generation
- Supports GSM A3/A8 algorithms and credentials - supplied from existing PLMN HLR/AuC
- Session key transport via RADIUS MPPE attributes between AS and AP/AC
- Supports GSM MAP over SS7, MAP V3 and MAP V2

Interfaces

Dual port G.703 E1 (75/120 ohm)	16 E1 or
Dual port T1.403 T1 (100 ohm)	16 T1
10/100 BaseT Ethernet	1 RJ45
Serial connection	1 RS232

Notes :
1. 450Mhz SUN Netra T100
2. 3 CDR records per/subscriber, per/session
3. Each user allocated 0.5 authentication request per BH
4. SS7 A link configured over multiple E1 modules and loaded at not more than 40% per link.

Electrical, Mechanical, Environmental and Regulatory specifications of the 802.Gateway are identical to interWAVE's WAVEXpress WAVEXchange

Specifications subject to change without notice

This product is designed for professional installation only

See www.iwv.com for the latest version of this data sheet

Effective Date: September 2002

For further information on interWAVE, please visit us at: www.iwv.com