IEEE 802.1X, EAP
EAPOL, RADIUS

RADIUS - Remote Access Dial-In User Service

EAP - Extensible Authentication Protocol

STA (Mobile Device) <-> Access Point <-> Authenticator

Authenticated Server
Request - Authenticator → STA (Supplicant)  
Response - STA → Auth  
Success - Auth → STA  
Failure - Auth → STA  

EAPOL (EAP over LAN)  
802.3 - Ethernet  
Token Ring  

IEEE 802.1x EAP  
EAPOL - Start  
Key  
Packet  
Logoff  
Encapsulated Alert
WEP

IV: initial Vector (24 bits)

<table>
<thead>
<tr>
<th>24</th>
<th>104</th>
</tr>
</thead>
<tbody>
<tr>
<td>IV</td>
<td>Key</td>
</tr>
</tbody>
</table>

FMS attack
Message replay

TKIP (Temporal Key Integrity Protocol)
802.11i

MAC - protocol issues
WEP issues

MAC  Firmware  Hardware Assist
MP     RAM           RC4