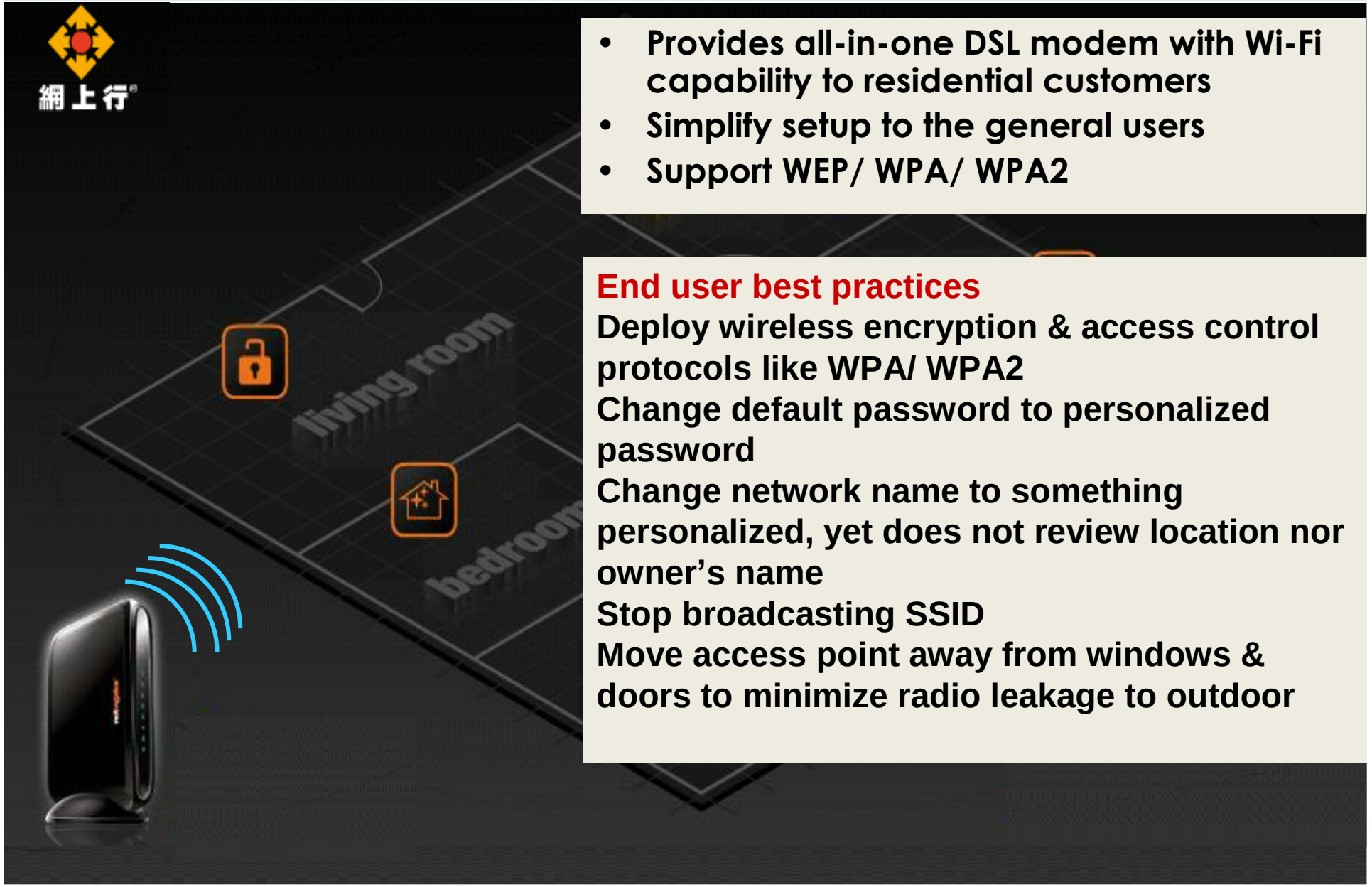
Wireless Security for Hotspots & Home

PCCW

Feb, 2009

Ubiquitous Wireless – Indoor & Outdoor

Wireless Security for Home



- Provides all-in-one DSL modem with Wi-Fi capability to residential customers
- Simplify setup to the general users
- Support WEP/ WPA/ WPA2

End user best practices

Deploy wireless encryption & access control protocols like WPA/ WPA2

Change default password to personalized password

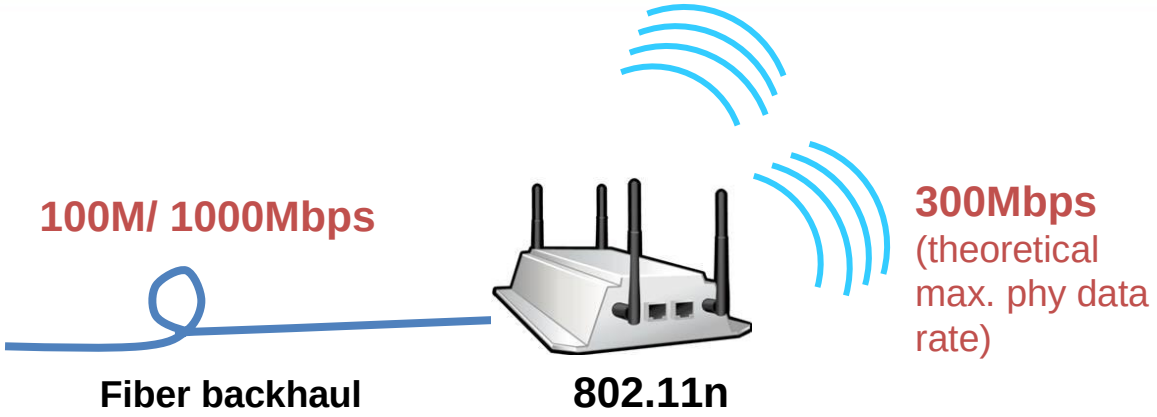
Change network name to something personalized, yet does not review location nor owner's name

Stop broadcasting SSID

Move access point away from windows & doors to minimize radio leakage to outdoor

> 5,000 Hotspots
Wi-Fi Usage growth by 16 x since end 2006 !

100M Fiber Hotspot



Super High Speed Hotspot providing over 100Mbps at selected locations with high usage demands

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Wireless Security for Mass Market Users

Choice of security solution is a mixed use of the available protocols, compromising the following major factors:

- **Security** Vs **Usability**
- **Complexity** of solution and **management resources** when serving a large user base
- Capability to offer **support** & **user training** to the various legacy & advance device models/ OS, with users at different level of IT literacy
- **Throughput & latency** – Layered and strong encryption solutions could be very secure, but the heavy overheads would impair network performance heavily
- Logistics required for **distribution of clients** or certificates to mass market users, if required
- **Cost** of Hardware and Software licenses, while keeping the product cost at affordable level for the mass market consumers
- **Industry acceptance** – sustainable solution/ standards
- **Interoperability** and compatibility with existing network components

- **No perfect solution for all**
- **Market Education!**

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Wireless Security for Mass Market Users

What it takes

Technology

+

Service Provider Network Security

+

End User Practices

OFTA's Guidelines on Wireless Security

First release of "**Guidelines on the Security Aspects for the Design, Implementation, Management and Operation of Public Wi-Fi Service**" was issued by OFTA Oct 2007, after consultation with the industry

- Provides practical guidelines on the security aspects for the **design**, **technical implementation** (basic & advanced technical measures), **management** and **operation** of public Wi-Fi service with particular emphasis on the air interface

- To promote **user awareness** on the security in using public Wi-Fi services. Operators should provide up-to-date info to users on the capability of their service platforms on wireless security

- Operators should follow the **triggering criteria and reporting procedures** set out in the Guidelines for reporting security violations.

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PCCW Hotspot Search Tool

Easy hotspot search tools – prevents users from attaching to Rouge Access Points

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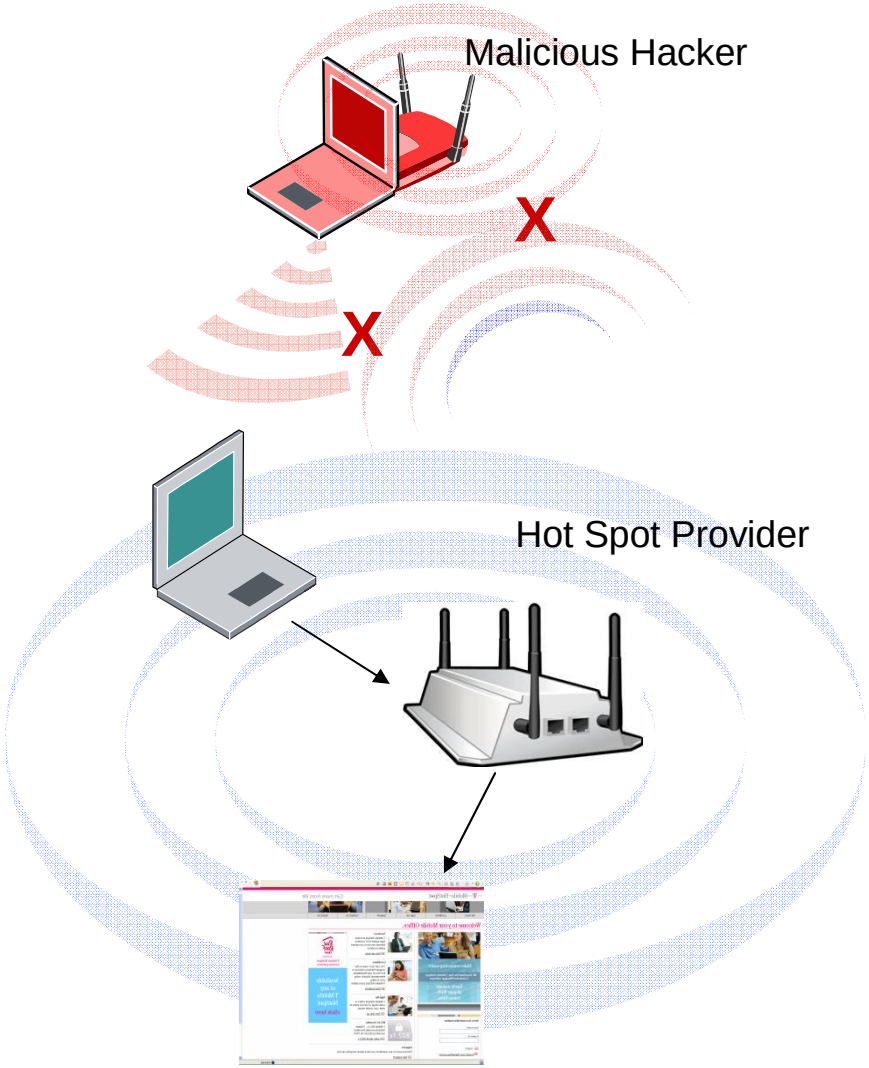
Service Provider Network Security

- **Firewall**
  - Screening (flooding) protection
  - Service blocking available for inbound & outbound traffic
  - Active/Passive Mode
- **Intrusion Detection & Prevention**
  - Inbound and outbound traffic with detecting and logging any suspicious activates and network attack
  - Stopping the improper use & notification
- **Wireless encryption**
- **User Authentication**
- **Usage log database**
- **Client isolation**



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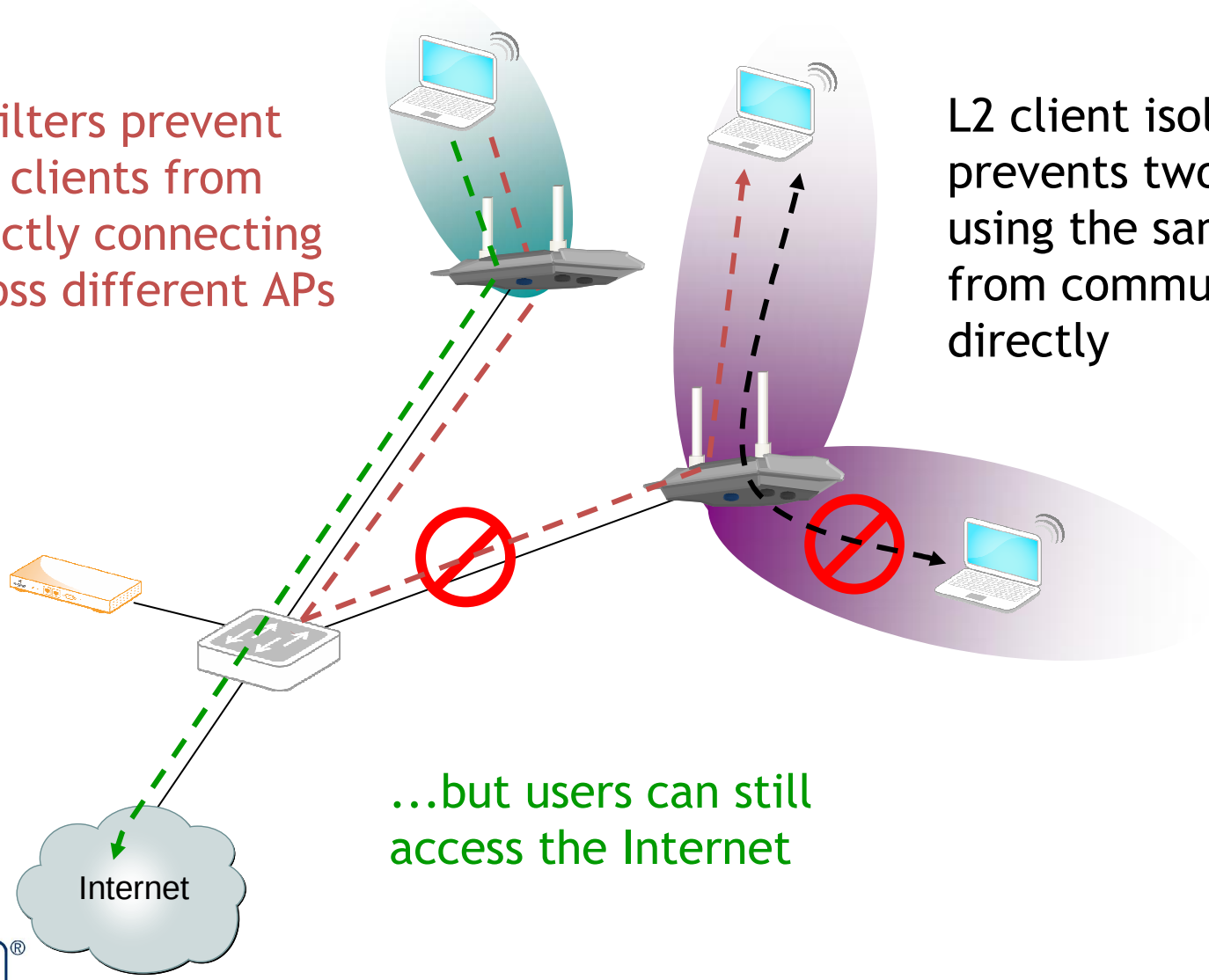
Service Provider Network Security

L3 filters prevent two clients from directly connecting across different APs



L2 client isolation prevents two clients using the same AP from communicating directly

...but users can still access the Internet

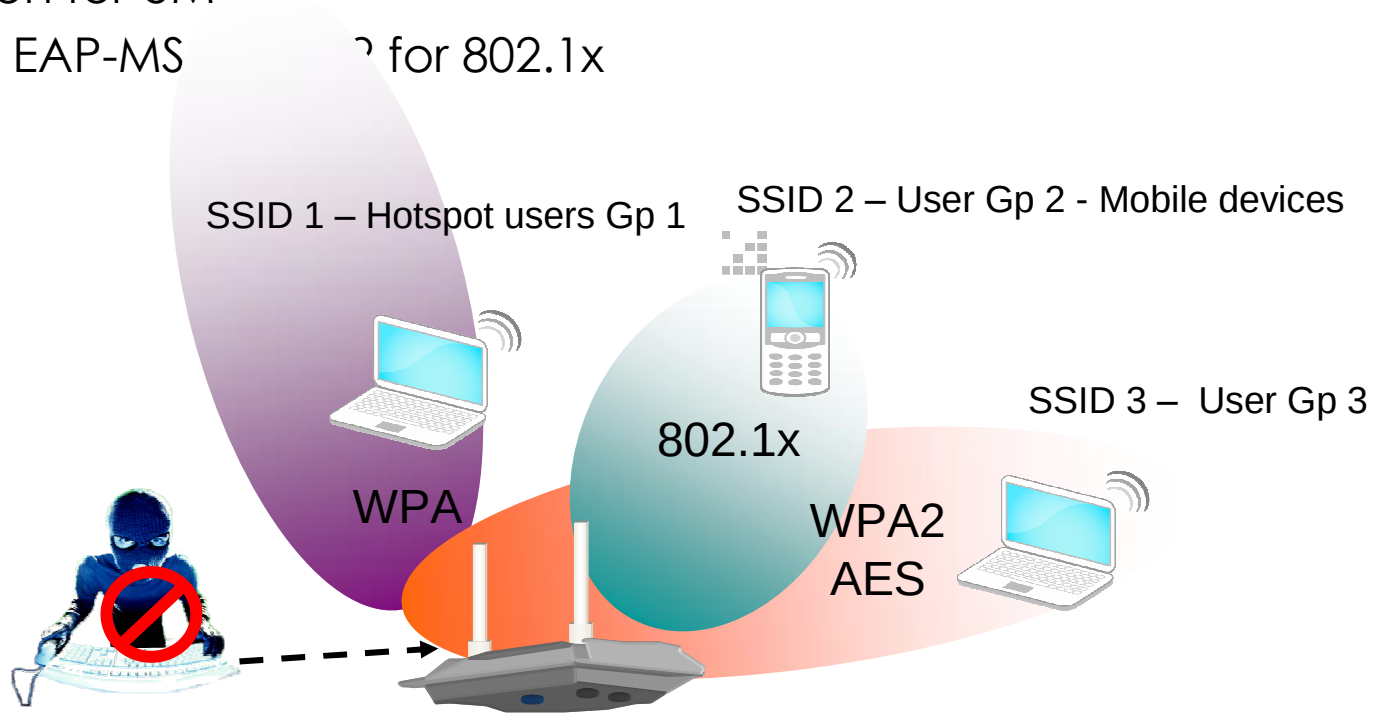
Strategy for Security & Access Control

Providing OPTIONS to suit the varying requirements from different class of users and types of devices

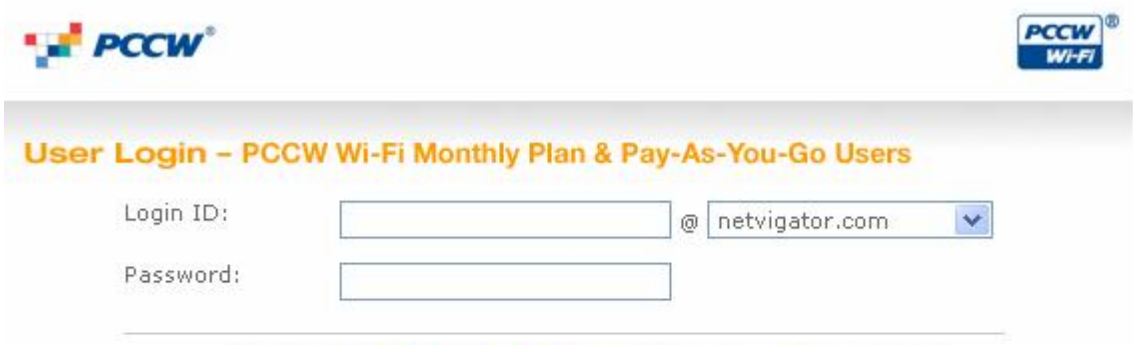
- Users have choice to deploy more secured settings Vs easier to access

UMA and 802.1x Co-exit in Hotspot Environment

- Advertising both SSIDs for UMA (captive portal) & 802.1x
- SSL protection for UMA
- EAP-PEAP & EAP-MS for 802.1x



Security for AirPath



Extra Shield by PCCW

- VPN by PPTP for Windows 2000
- WPA/WPA2 with MD5 Encryption for Windows XP, Vista, Windows Mobile 5/6.1 and Symbian S60

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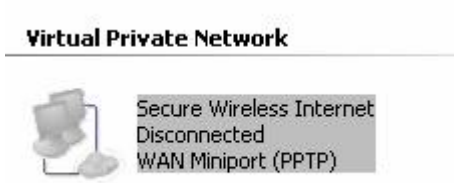
Extra-Shield

PPTP

Virtual Private Network connection being created automatically during the first time login



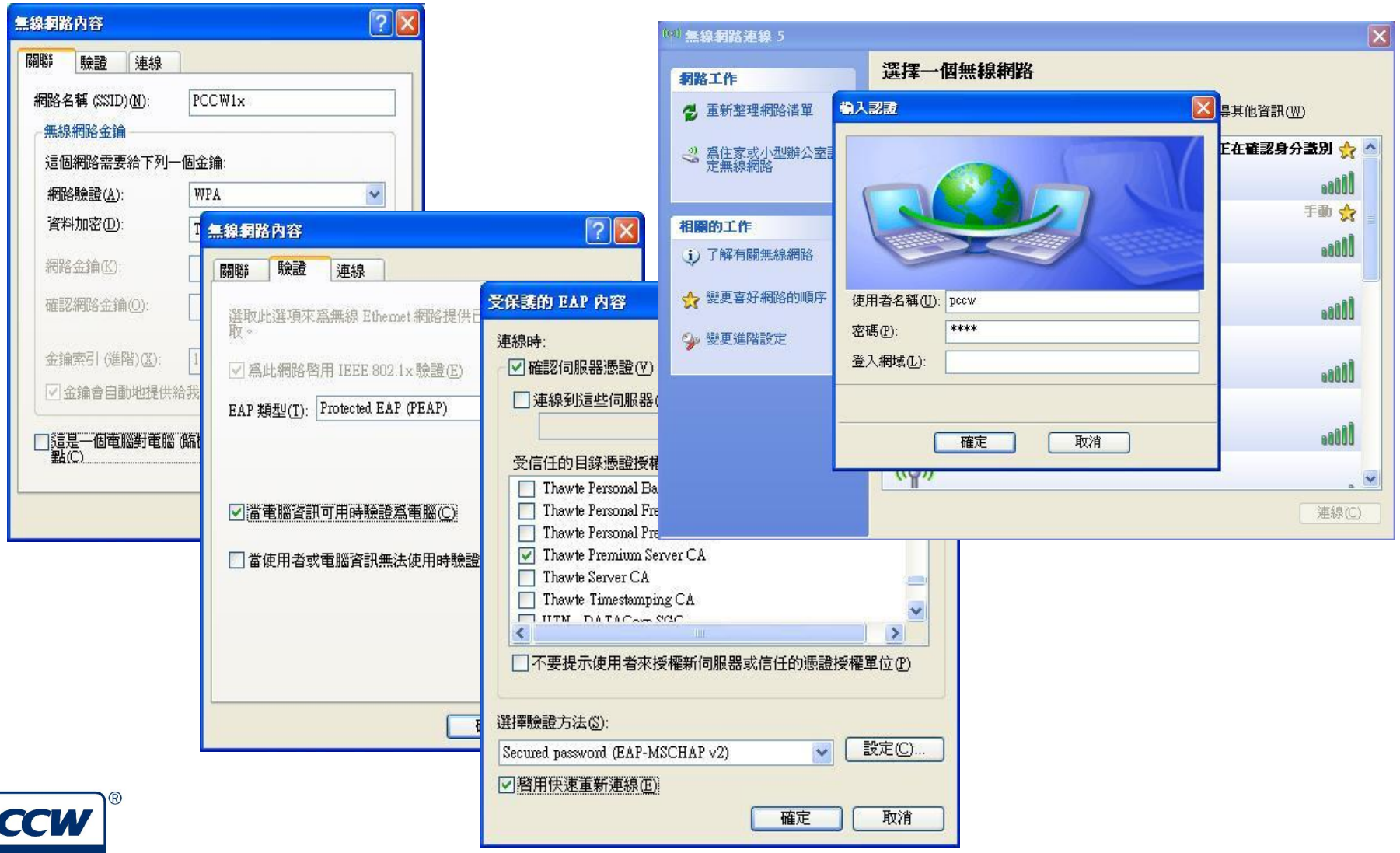
Virtual Private Network connection being establish automatically between client PC & PCCW WiFi's VPN server

Extra-Shield

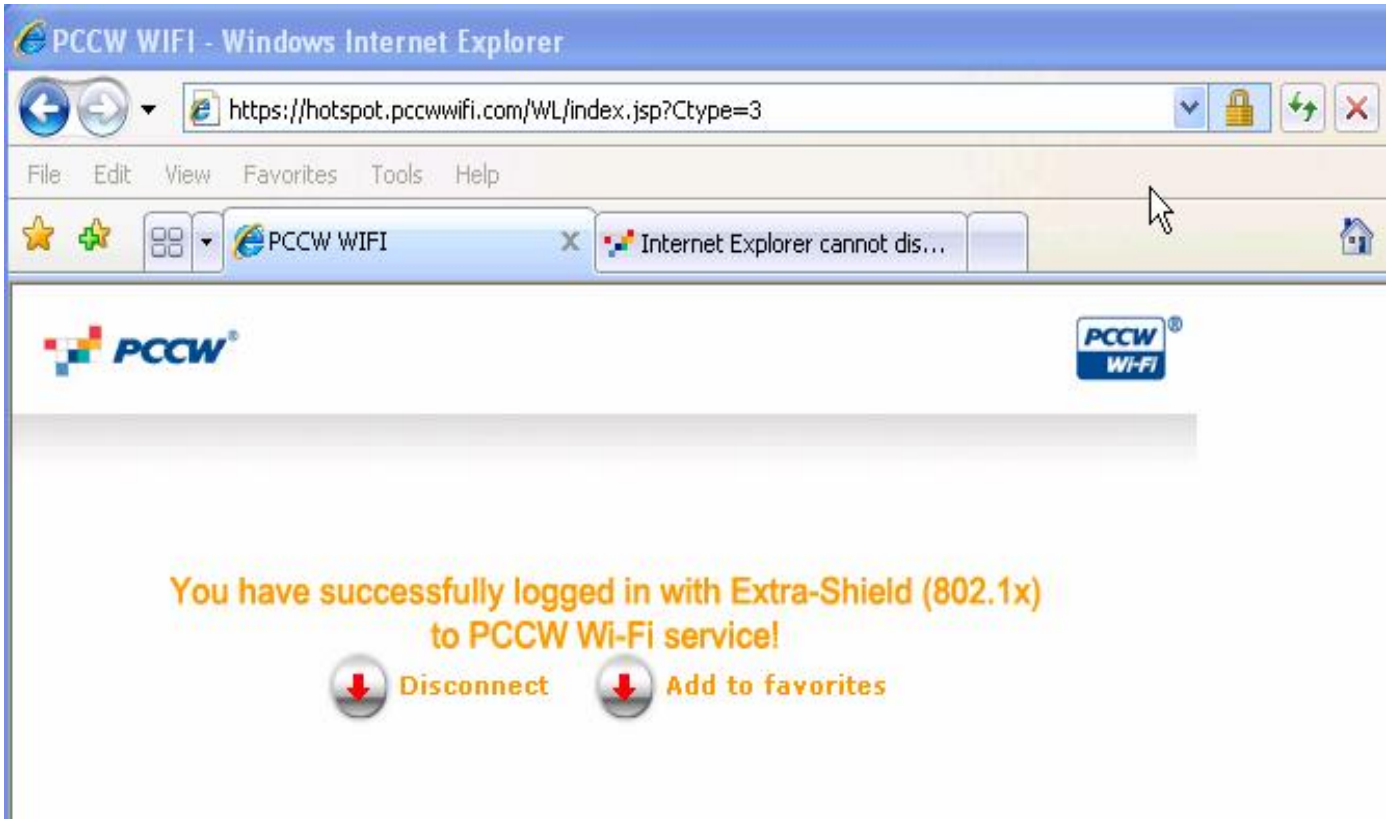
- **802.1x / EAP (Extensible Authentication Protocol)**
  - 'Dynamic WEP' - New key per user per session, and updated periodically during a user's session
  - 802.1x - Users are identified by individual user credentials than hardware profiles, like MAC address
    - Port-based access control
    - SIM authentication for NETVIGATOR Everywhere and selected applications on mobile
  - EAP is a flexible Layer 2 authentication protocol

Extra-Shield

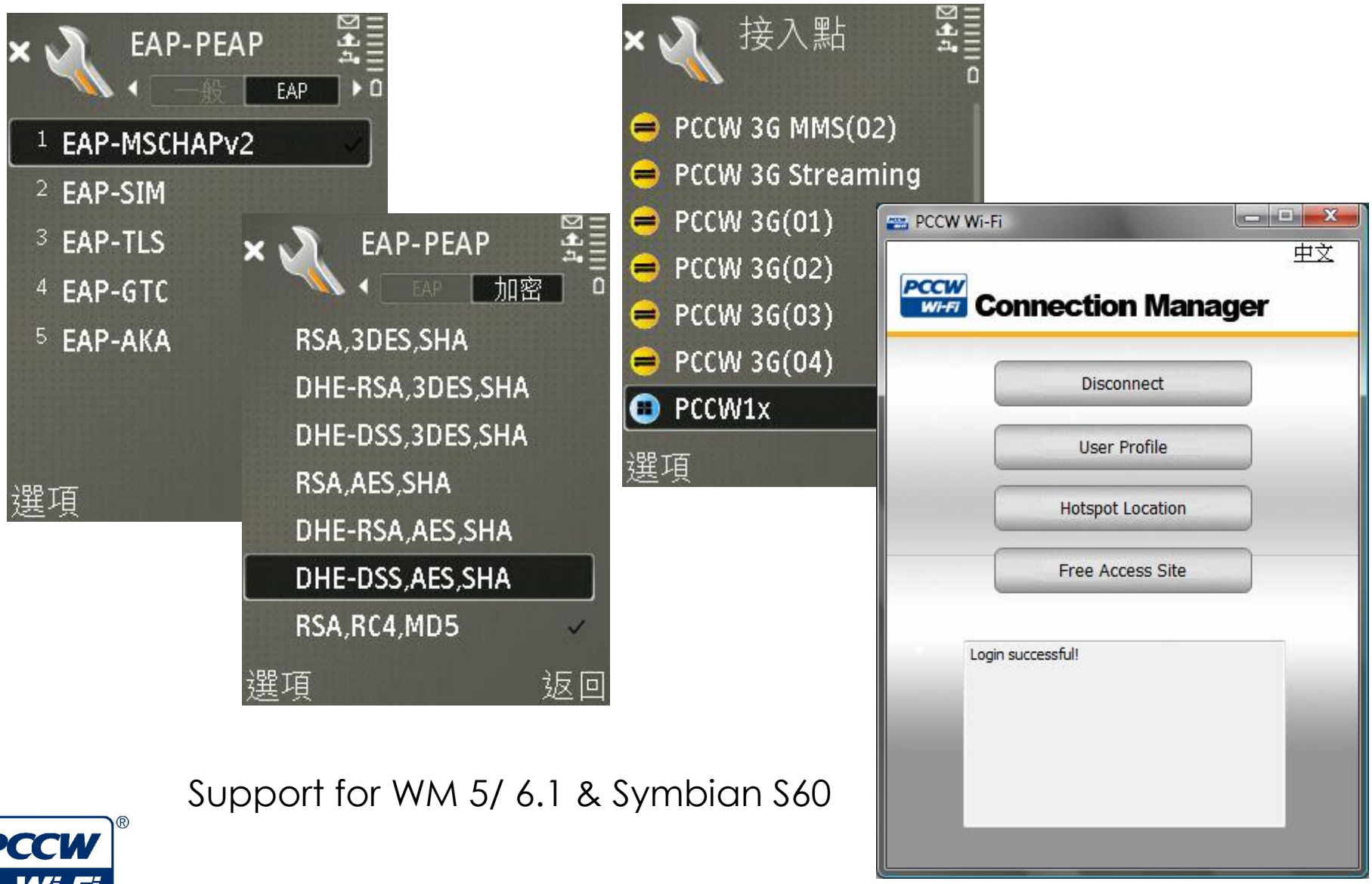
802.1x security connection setup on XP, Vista



Extra-Shield



802.1x Connection Manager for Mobile



Support for WM 5/ 6.1 & Symbian S60

802.1x on NETVIGATOR Everywhere

- A unique wireless broadband solution

  Wi-Fi + HSPA + 3G

- Auto-detects the best network

- Authentication by 802.1x EAP-SIM

How to Protect Yourself on Public Hotspots

Customer Education

When you're using an unsecured wireless network, such as a hotspot in a hotel, cafe, or any other public location, you should take steps to make sure your sensitive information isn't exposed:

- **Secure Your Real-time Traffic**
  - Use a VPN connection.
  - Make sure any services you use, such as POP3 and FTP, are secured if you are not using a VPN.
  - Don't visit any private or sensitive Web site unless it's secured (for example, implementing SSL) if you are not using a VPN.

- **Prevent Others from Connecting to Your Laptop**
  - Disable any sharing of files, folders and services.
  - Use personal firewall software.
  - Make sure your operating system is kept up to date.

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THANK YOU

Reference: www.pccwwireless.com