1.0 INTRODUCTION

Wi-Fi is very popular nowadays and it brings people lots of convenience. It is used extensively in many market segments like airport lounges, hotels, convention centers, shopping centers, enterprise, restaurants, offices, education and homes. The purpose of this report is to explore the possibility of installing Wi-Fi in the Peninsula Hotel. This report focuses on the followings:

- How Wi-Fi can accommodate the need of customers,
- How Wi-Fi can benefit the internal running of the Hotel,
- Comparison of the Internet access network between the Peninsula Hotel and its competitors, and
- Comparison of the features between wired and wireless network.

Feasible plans are recommended while taking the benefits of Wi-Fi into consideration. The data used in this report was mainly gathered by searching the Internet. In making comparison between the Peninsula Hotel and its competitors, telephone interview was carried out with 16 five-star-hotels in Hong Kong.

1.1 Background

Wireless LANs provide wireless Internet or Intranet access to mobile users within the network environment. A Hotspot is the geographical region covered by one or several access points. People can connect to the Internet with a wireless-enabled computer or personal digital assistant within the hotspot (Special Issue on Wireless Internet and Intranet Access, 2000). Without the inconvenience of cable connections, business travelers and leisure users can access information remotely in many public venues.

Business travelers contribute almost 50% of the hospitality industry's annual

revenue (Ballard, 2002). It is important to provide them with enjoyable service to attract and retain them. Wi-Fi allows business people to instantly connect to the Internet and Intranet when they need to communicate with their Virtual Private Network (VPN) clients. They can log into their corporate network when they are in hotel lobbies, restaurants, conference rooms or even swimming pool. The convenience brought by Wi-Fi will enhance their productivity and increase their satisfaction.

2.0 FINDINGS

To investigate the necessity of installing Wi-Fi throughout the Peninsula Hotel, the need for customers and staff, situation of the running of the hotel, the hotel's competitors in Hong Kong and the substitute of Wi-Fi need to be found out.

2.1 Need for Customers

As the most historical and finest hotel in Hong Kong, Peninsula Hotel has always been in pursuit of providing the best services for customers including business customers and non-business customers. However, since the hotel had been re-decorated for more than ten years, some hardware sources cannot meet customers' new demands. The poor Internet usage problem has emerged. As the fast development of Internet usage and electronic commerce, hotel should play the role as moving office for business customers. Meanwhile, for non-business customers, hotel also needs to provide necessary sources to let them experience high-tech living life. Therefore, Wi-Fi has become one kind of essential attractiveness in future hotel industry development.

2.1.1 Good partner for business customers

Due to high reputation, Peninsula Hotel has been frequently selected for various business conferences, exhibitions, press conferences and so on. However, it is found that the hotel could not satisfy customers' high demand for network connection recently.

Presently, Peninsula Hotel is using the wired LANs for all network connection including business centers. The limited computer workstations and non-stable-speed Internet access have been complained by hundreds of customers. They were unsatisfactory that limited number of Internet access entries affected smooth of business. Moreover, customers need to spend hours applying for Internet usage first, and then the staff prepares the reticles for all mobile computers usages. The procedure is really time-consuming. During the meeting, customers' territories are fixed by the length of the reticles. Plenty of reticles cause mess as well.

Wi-Fi can solve all those inconveniences immediately. By building up the access point called hotspot in such area like business center, customers can send and receive data indoors and out in the geographical region freely. Therefore, under the hotspots coverage, customers' Internet activities are no longer limited by the physical spaces. A faster, more convenient way to connect to the Internet will make our clients happier. They don't need to dial up, go to a business centre or wait in line for a modem connection. Wi-Fi can definitely improve workers' connectivity, increase business clients' productivity and save them time and energy.

A piece of news report (Foshan Governmental Tourism Website, 2004) about the developing trend for future business conferences tells that exchanging information through Internet including sending and receiving data online and electronic conference will be well used, which all request for fast speed Internet access. Wi-Fi

will be the best choice to meet this request.

2.1.2 Good partner for non-business customers

For the non-business customers, providing individualized services and high-tech leisure activities are important in today fierce hospitality competition. Wi-Fi is the must-have source for the non-business customers.

In today's society, Wi-Fi technology has been used in mobile phone production, personal digital assistant (PDA), mobile computers and even digital play machines. When customers bring their own digital accessories living in hotels, they would like to use them in hotels. Otherwise, customers will be disappointed. Therefore, Wi-Fi service has become the precondition for customers' enjoyable living experience in Peninsula Hotel.

If Peninsula Hotel could provide Wi-Fi service to customers, they would probably stay longer in the hotel if customers were not sure whether they would have Wi-Fi at their next stop. Also, customers will be more likely to choose Peninsula Hotel to stay next time because of the Wi-Fi service, and some satisfied clients even introduce Peninsula Hotel to their friends who have the same high demand for the wireless access.

2.2 Need for Staff

Hotel employees are highly mobile. They work in irregular hours and rarely have access to computers. The Internet-based and network-enabled application like Wi-Fi works well with a distributed and mobile workforce.

2.2.1 Increasing speed and flexibility

Kitchen management systems that use Internet to communicate with vendors and suppliers can automatically schedule food orders, update inventories, and track food safety data. Wireless point-of-sale systems can keep restaurant servers on the floor, streamline the order-taking process, and minimize mistakes. The systems can increase service speed 20 to 30 percent and decrease waste-related food costs (Cisco Systems Inc, 2006).

According to Joe Skorupa, editor of Hospitality Technology magazine, a wireless point-of-sale system allows fewer servers to generate more per-customer revenue. High-margin items like desserts and beverages require up-selling and that requires the servers to spend more time interacting with customers.

2.2.2 Enhancing connectivity and productivity

Wireless connection to a corporate network or the Internet from a variety of sites can increase connectivity and productivity especially when the staff is equipped with mobile devices. Wireless networks can extend connectivity to both guests and staff in areas like hotel lobbies or meeting rooms where wiring is not available. Wireless networks at the front door enable mobile check-in services that improve employee productivity and also customer satisfaction. Moreover, e-learning applications allow the staff to receive on-demand training regardless of where or when they work (Cisco Systems Inc, 2006).

2.2.3 Streamlining business operations

The Peninsula Hotel includes multiple business units in the world. Using Wi-Fi can speed up the flow of information between corporate headquarters and business units. The managers can have immediate and detailed access to any operating unit's

profit-and-loss statements, payroll, inventory, and other vital data (Cisco Systems Inc, 2006). The staff can use Wi-Fi in its most basic form, to check the status of jobs and production progress even when they are not in the office. Moreover, Wi-Fi enables people to add new staff members to the office network very easily without the need to install complicated cabling, hubs and routers.

2.3 Competitors in Hong Kong

To understand the Peninsula Hotel's position regarding the broadband service, and strengthen its competitiveness in the marketplace, it is important to know how other hotels operate with their broadband connectivity.

The provision of wireless broadband of five-star-hotels was found through telephone enquiry. The findings are as follows.

Five-Star-Hotels in Hong Kong	Provision of wireless broadband	Wireless broadband coverage
Island Shangri-La Hotel	Yes	Lobbyb
Harbour Plaza Hotel	No	--
Inter-Continental Hotel	Yes	All area
Renaissance Harbour View Hotel	Yes	Public area
Sheraton Hong Kong Hotel & Towers	Yes	Public area
Conrad International Hong Kong	Yes	Lobby
Hong Kong Gold Coast Hotel	Yes	All area
Regal Hongkong Hotel	Yes	All area
Excelsior Hotel	Yes	Restaurants
The Park Lane Hotel	Yes	Lobby
Ritz-Carlton Hong Kong	Yes	Lobby, ballroom
JW Marriott Hotel Hong Kong	Yes	Lobby, conference rooms
Grand Hyatt Hong Kong	Yes	All area
Grand Stanford Inter-Continental	Yes	All area
Langham Hotel Hong Kong	Yes	Public area
Royal Garden Hotel Hong Kong	Yes	All area
The Peninsula Hotel	No	--

Table 1: The provision of wireless broadband in five-star-hotels in Hong Kong.

Table 1 lists all the five-star-hotels in Hong Kong. Among the seventeen hotels, only two of them (Harbour Plaza and the Peninsula) do not provide wireless broadband service.

Most of the five-star-hotels provide wireless broadband in public areas like lobbies and restaurants. Some of them cover also the conference rooms and ballrooms. A number of them also provide wireless access in the whole area including all the suites and the swimming pool.

The price of accessing to the Internet is varied. For example, wireless access to the Internet in Grand Stanford Inter-Continental costs HK$4 per minute or HK$120 per 24 hours. In Langham Hotel, it costs HK$125 per two hours or HK$225 per 12 hours.

The Peninsula is the most luxury hotel in Hong Kong. Having only wired network, it will soon lag behind in this high-tech and fast paced world while most of the other hotels already have wireless network installed. To strengthen the Peninsula's competitiveness, Wi-Fi should be installed as soon as possible to attract more customers, especially business travellers, as they enjoy the convenience and the high access speed the Wi-Fi system provides. It can also earn profits by charging the wireless broadband fee. Customers will be happy to pay a bit more if they can enjoy the Wi-Fi service.

2.4 Substitute

In the following, we will examine the substitute of wireless communication (the wired communication technology) in the Peninsula Hotel. The report will compare the substitute in terms of the system installation, the costs, the reliability, the performance and the security of the Wi-Fi.

2.4.1 System installation

Wi-Fi communication network requires wireless network adapters (WLAN cards) to connect devices together. A central device called the access point is needed for wireless LAN connection. The access point should be installed in a central location where radio signals from any wireless devices reach it with minimal interference. These radio signals can reach 30 metres or above, but obstructions like walls can reduce their range of reception (Mitchell 2006).

Mitchell (2006) writes wired network communication uses network adapters and Ethernet cables for transmission. Computers are linked up into networks by using additional wired devices such as hubs, switches and routers. Additional spaces have to be acquired for placing these electronic devices. The devices may affect the 'environment' of the Peninsula Hotel and the noise they produced may be distracting to the customers. Therefore, wired connection may not be a feasible option because it will upset the pleasant environment of the Peninsula Hotel.

On the other hand, it is possible to install Wi-Fi connection in the Peninsula Hotel though users may experience minor accidental disconnections. In places where low-connectivity is obvious, for instance in some dark rooms, the hotel can stick to using wired connection networks. The Wi-Fi technology can be adopted in some more spacious, pleasant environment of the hotel, for instance, the café, the swimming pool and the conference rooms, so that the customers can enjoy real-time Internet access without worrying the plugging of cables.

2.4.2 Costs

For the wireless networks, devices can cost more expensive than the equivalent wired network products. At full retail prices, wireless adapters and access points can cost three or four times than the Ethernet cable adapters and hubs or switches. But

for wired LANs, Ethernet cables, hubs and switches cost little. There is no need to purchase additional connection sharing software because the set-up can be done in Microsoft Windows.

Although the devices for Wi-Fi may cost three to four times of the wired devices, it is worth adopting the technology considering the increase in hotel's reputation, satisfaction of customers and better productivity of the staff will compensate the cost.

2.4.3 Reliability

Cables, hubs and switches for wired LANs are very reliable because manufacturers have been continually improving the Ethernet technology over several decades. However, the invention of broadband routers is relatively new when compared with hubs and switches, but they are mostly reliable these days because of the significant advancements over these few years (Mitchell 2006).

On the other hand, wireless LANs suffers a few more reliability problems than wired LANs, though these problems may not be very significant. 802.11b and 802.11g wireless signals are subject to interference from other electronic appliances including microwave ovens and cordless telephones (Mitchell 2006). However, with careful installation and planning, the chance of having interference can be minimized. The Peninsula Hotel can avoid putting Wi-Fi transmitters near to electronic appliances. The transmitters can be placed on the top of the ceiling. More transmitters can also be installed in the more busy areas of the hotel, such as the lobby and the café.

2.4.4 Performance

In terms of connection speed, wired LANs can offer 100 Mbps. However, the capacity of the wireless LAN connection is comparatively lowered because it is transmitted by air. Wireless LANs using 802.11b can only support a maximum bandwidth of 11 Mbps, while the more advanced 802.11a and 802.11g wireless connection can support 54 Mbps (MobileInfo.com 2001). However, the speed of wireless connection is already much faster than 56k telephone line connection and can perform a variety of file sharing and networking tasks apart from multimedia function on the net (for example playing an online game).

Wi-Fi performance is distance sensitive, which means that maximum connection capacity will degrade on computers that are set farther away from the access point or other communication endpoint since wireless devices utilize the WLAN technology (Mitchell 2006). However, such a drawback can be overcome by having more access points for Wi-Fi connections (for example having more Wi-Fi transmitters) and avoid users website that will occupy high connection capacity, for example multimedia online games.

2.4.5 Security

Wireless LANs protects their data through the wired Equivalent Privacy (WEP) encryption standard, which makes wireless communications as safe as the wired connection standards (Mitchell 2006). When firewalls software is installed, safety on networking, file sharing and uploading and database sharing could be ensured. Therefore, the Peninsula Hotel can try out the wireless LANs technology, as the security of such technology resembles to that of the wired LAN connection.

3.0 CONCLUSION

In the era of technology advancement while the Wi-Fi standard products are widely used, Wi-Fi is a necessity for corporation as the new technology can accommodate the needs of business travelers, leisure-users and internal staff.

Comparing the system installation, the costs, the reliability, the performance and the security of Wi-Fi and wired network, installing Wi-Fi technology in spacious environment of the hotel is feasible. There will be increase in revenue, customer loyalty and staff productivity.

Wi-Fi brings great convenience to business travelers for holding conferences and leisure-users for enjoying their vacation. This will make Peninsula Hotel more renowned and hence, more business opportunities can be generated.

Wi-Fi works well with a distributed and mobile workforce in the hotel. Increased speed and flexibility facilitate scheduling food orders, updating inventories, tracking food safety data. Staff equipped with mobile devices will enhance connectivity and productivity. The mobile check-in services and e-learning applications for staff are the examples.

Streamlining business operations by facilitating the flow of information between corporate headquarters and various business units over the world can reduce the cost in the long run. Geographical barrier can be minimized when the information flow is not limited by space and speed.

In pursuing the provision of the best service for the customers, and achieving the long-term goal of strengthening the competitiveness of the hotel in the marketplace, it is necessary to upgrade the hardware facilities by applying Wi-Fi. Making the customers' more satisfied with qualified services and high-tech leisure activities is essential in the customer-oriented industry.

4.0 RECOMMENDATION

In light of the above conclusions, it is recommended that Wi-Fi technology should be used in all areas of the Peninsula Hotel. The details of installation are as follows:

i. Adopt wireless networks at the front door to enable mobile check-in service.

ii. Install the access points in a central location where radio signals from any wireless devices reach it with minimal interference to facilitate transmission

iii. Placing more transmitters in the more busy areas of the hotel, such as the lobby and the café to ensure reliability.

iv. Do not put Wi-Fi transmitter near to electronic appliances to minimize interference.

v. Block user websites that will occupy high connection capacity to ensure the maximum connection capacity.

In addition, to cover the cost of installing Wi-Fi network, an online-charging scheme could be implemented. The Peninsula Hotel could increase the charge of accessing the Internet through wireless network by 10 per cent of the current cost of accessing wired broadband.

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