



# Meritus Hotels in Singapore networked with First-of-its-Kind Wireless Bridge solution powered by Cisco Systems

Meritus Hotels & Resorts is a Singapore-based hotel management company that has been managing and operating deluxe city and resort hotels for nearly 30 years. Fresh from a S\$52million refurbishing program at its flagship hotel, the Mandarin Singapore, the company turned to Cisco Systems to wirelessly connect its three luxury hotels in Singapore, located kilometers apart.

## The Background

The Latin word 'Meritus' stands for 'deserving of merit' and the Meritus Group's three luxury hotels in Singapore: the flagship Mandarin Singapore, Marina Mandarin, and the Meritus Negara, have been setting new standards in Asian hospitality. Elsewhere in the region, the group operates four hotels in Malaysia, and four in China, whilst also offering marketing and hotel reservations services to other hotels as well.

By combining state-of-the-art facilities to cater to the changing needs of business and leisure travelers and located in the hub of commercial and financial districts, Meritus hotels are the preferred choice of the well-heeled and discerning. Each Meritus hotel is also the venue of preference for meeting and conference planners.

In line with its commitment to excellence, the management of Meritus is always looking towards practical technological advances to enhance operational efficiencies – and ultimately, overall customer satisfaction.

## The Challenge

The recent S\$52million renovation program at Mandarin Singapore saw the inclusion of a comprehensive fiber optics cabling network, which provides enhanced communications capabilities within the building. The next step was to link up the local area networks (LANs) of the three Singapore hotels.

The immediate benefits from such a linkup includes centralization of hotel operations like computer system support, engineering order processing & maintenance services, central reservations, data consolidation & research, and purchasing. All these, the management believes, will contribute to higher operational efficiency. It will also provide the foundation for the adoption of other new technologies in call centers, e-commerce and other IT initiatives such as e-procurement, IP telephony, and in-house wireless solutions in the near future.

However, linking up the LANs of its three Singapore hotels would have been a restrictive and costly affair through traditional fixed-line services.

“The implementation of the Cisco Aironet 350 Wireless Bridge paves the way for a seamless tie-up of the three hotel's backend operations that can now be centralized at Mandarin Singapore and backed up at separate locations. We are already starting on the centralization of IT support for the three hotels through a new call center solution as well as the streamlining and mirroring of email traffic. This also sets the stage for future implementation of value-added technologies such as in-house Wireless Access, central reservation and e-Office solutions.

“The Wireless Bridge solution represents a one-time investment with minimal recurring costs, while the ADSL or leased line solution can easily cost thousands of dollars in terms of monthly charges. On that basis alone, the payback period for the Wireless Bridge Solution is already ahead of that for ADSL or Dedicated Leased Lines.”

*Mr. John Quah, Corporate Director of Projects, Meritus Hotels & Resorts.*

Dedicated leased lines would have been expensive while the more economical Asymmetric Digital Subscriber Line (ADSL) provides a slower alternative. A far better solution became available through a landmark move by the Infocomm Development Authority of Singapore (IDA).

In October 2001, IDA announced the availability of the 2.4-Gigahertz band for use by wireless Local Area Networks (WLANs) as well as short-range Bluetooth-enabled devices.

This was exciting news as, until then, this frequency band was reserved for the Electronic Road Pricing (ERP) system of the Land Transport Authority (LTA). Deployment of WLANs with transmission speeds of up to 11 Mbps at a fraction of the cost for leased lines or ADSL, could now take place outside of buildings.

But the BIG question was: Is it possible to establish a Line-of-Sight WLAN between Meritus' three hotels, which are located more than 2.6 kilometers apart at the furthest point? Another possible issue is the difference in heights between the 40-storey Mandarin Singapore located in Orchard Road, and the 20-storey Meritus Negara up in Claymore Road and 21-storey Marina Mandarin down in Marina Square.

The solution – The Cisco Aironet 350 Series Wireless Bridge.

#### The Solution

The Cisco Aironet 350 Series Wireless Bridge is designed to connect two or more networks (located in different buildings) at up to 11 Mbps speeds and with a range of up to 40.2 kilometers. This solution suited data-intensive, line-of-sight applications – the very one that Meritus Hotels & Resorts' management needed.

The bridges connect hard-to-wire sites, noncontiguous floors, satellite offices, schools or corporate campus settings, temporary networks, and warehouses. They can also be configured for point-to-point or point-to-multipoint applications and allow multiple sites to share a single, high-speed connection to the Internet. For functional flexibility, the wireless bridge may also be configured as a regular WLAN access point.

The high-speed links between the wireless bridges deliver throughput several times faster than E1/T1 lines for a fraction of the cost – eliminating the need for expensive leased lines or difficult-to-install fiber-optic cable. Because bridges have no recurring charges, savings on leased-line services quickly pay for the initial hardware investment.

Wireless bridges connect discrete sites into a single LAN, even when they are separated by obstacles such as freeways, railroads, and bodies of water that are practically insurmountable for



copper and fiber-optic cable. Combining powerful 100-mW radios, industry-leading reception sensitivity, installation tools to assist in bridge placement, delay spread capabilities, and a broad array of directional and Omni-directional antennas, it offers a complete solution for a wide variety of fixed wireless applications.

"It was the most cost-effective solution available to us, much less than the cost of a leased line or ADSL," said Mr. John Quah, Corporate Director of Projects, Meritus Hotels & Resorts.

"In January 2002, we gave the go ahead to install four Cisco Aironet 350 Series Wireless Bridges. It was a natural progression as Cisco was able to provide the solution and we were already using their routers in our networks," he added.

#### The Benefits

Within a month, the whole system was up and running. By the first week of March, it had been inspected and given the thumbs-up IDA. The first phase of centralization of IT support operations through a new call center solution as well as the streamlining and mirroring of email traffic was put into immediate effect – both representing a major boost in productivity, efficiency and cost-savings.

"We did our sums right," declares Mr. John Quah, Corporate Director of Meritus Hotels & Resorts. "From the cost

perspective, this Wireless Bridge solution at almost negligible running cost, is a dramatically more cost effective option over that of ADSL and leased lines. In terms of speed, we are now getting 5.5 Mbps!"

"Since the IDA opened the frequency previously used by the ERP, we have the distinction of being one of the first companies to implement a Wireless Bridge to this extent. Up to now, I have been told, Wireless Bridges have been implemented only within a single property or across smaller roads, typically over less than one km distance. We are doing it over 2.6km at the furthest point and right through the center of the city!"

Being outdoors and exposed to the elements did not present a problem for the Cisco Aironet 350 Series Wireless Bridge. It features an extended operating temperature range of -20° to 55° C, allowing for placement outdoors in a NEMA enclosure or in harsh indoor environments such as warehouses and factories. With a durable metal case, the Cisco Aironet 350 Series Wireless Bridge is UL 2043 certified, and designed to achieve plenum rating as defined by international fire safety standards.

The Cisco Aironet 350 Series Wireless Bridge also supports a variety of features designed to simplify installation and improve performance. Like Cisco Aironet 350 Series Access Points, Cisco Aironet 350 Series Wireless Bridges obtain their operating power over the Ethernet cable, eliminating the need to run AC power to what are often remotely located wireless devices.



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