

Case Study

3One's BPL System Deployment

Vancouver High-rise Hotel



Type of Building	Hotel and Conference Center
Location	Vancouver, BC, Canada
Year Built	1967
Number of Buildings	1
Number of Floors	31
Number of Rooms	220
Installation Date	January 2005

Challenge

To supply consistent high-speed Internet access to 220 rooms within a 31-story concrete building without disrupting the hotel guest experience.

The high-rise hotel pictured above is a landmark building located in the heart of downtown Vancouver, Canada. The Hotel advertises a Lobby, Bistro, Lounge, Nightclub, and Fitness centre. Meetings and special events are regularly held in the Penthouse Summit facility which provides full service catering and meeting planning. This 31st floor conference room showcases spectacular and unobstructed panoramic views of Vancouver from three walls of windows.

With an increasing demand for high-speed internet access, the Hotel decided in would be beneficial to their business to install high-speed internet access in all 215 guest rooms and the conference center on the top floor. However, the Hotel is constructed with concrete and steel containing limited conduit, which made running new cabling particularly difficult, time-consuming and expensive. For this reason, pulling Cat-5 cable

for Ethernet or wireless internet access was impractical. Upon investigating other options, hotel management was intrigued with Broadband over Powerline (BPL) technology. A BPL system would require limited new cabling and could provide high-speed internet access in a very short period of time.

In December 2004, Hotel management requested quotes for a complete BPL system from 3One and a US based BPL competitor. The decision to award 3One the contract was a result of three key factors: 3One's solution was priced significantly lower, 3One's technology was proven by references to effectively cover high-rise buildings, and 3One offered local onsite service and support.

The installation was complete in January 2005. The equipment used consisted of 7 BPL Bridges, 220 BPL Modems, 1 Gateway, 1 VLAN Switch and 2 Wireless Access Points. All 220 rooms of the hotel were successfully enabled with BPL high-speed internet access.

Design and Installation

The BPL system at the Hotel was installed over just two days in January, 2005. The installation involved the fairly common process of providing 100% BPL coverage throughout a property, while also using the BPL network to provide Internet connectivity required by Wireless Access Points in point-to-point applications, or to provide wireless coverage in conference rooms and common areas.

The hotel has 31 floors, all of which required internet access. These floors include 215 guest rooms and 5 conference rooms located on the top floor. Typically, one Bridge is required to provide a strong signal to approximately 30-35 rooms. As there were 8 rooms per floor; one bridge was used to support every 4 floors. The hotel had 220 rooms requiring internet access, so 7 Bridges were used to ensure a robust BPL network.

The hotel has two power meter banks, one on the 3rd floor and one on the top floor. The electrical wiring runs directly from the meter banks to each room in the hotel. For this reason, the two meter banks were designated as the signal injection points. The couplers were placed on the neutral wires leaving the meter bank to avoid affecting the meter reading in any way.

The 3rd floor meter bank supported floors 4 - 19 through the use of 4 BPL Bridges. The Bridge layout was as follows:

- One Bridge to connect floors 4, 5, 18, 19
- One Bridge for floors 6, 7, 16, 17
- One Bridge for floors 8, 9, 14, 15
- One Bridge for floors 10, 11, 12, 13.

This design ensured that each Bridge had a similar average distance to all the rooms. Floors 20 – 31 were serviced by three Bridges which were connected to the top floor meter bank in a similar fashion.

The gateway was placed with the 3rd floor meter bank and connected to a switch which linked the 4 lower Bridges and one outdoor Wireless Access Point (WAP). The WAP was used as a point-to-point link to another outdoor WAP situated

on the top floor. The top floor WAP then connected to the switch that was used to connect the upper three Bridges to the Internet. One alternative to this installation that was considered was to run an outdoor Ethernet cable between the switches on the 3rd and 31st floors instead of using wireless access. However, due to the height of the hotel, it was quickly determined a wireless connection was more appropriate.

Hotel management chose to have one modem permanently installed in each guest room. Additional modems required for the conference center were handled out to Guests at the front desk.

Conclusion

In two years since the January 2005 installation, the BPL network has required no service calls other than to realign the point-to-point wireless connection. This installation emphasizes the stability of the 3One system, particularly over large coverage areas. In addition, this installation demonstrates the high degree of flexibility afforded by BPL networks which allow for the seamless integration of IP devices such as WAPs without the need to run additional cabling. This future proof scalability of the systems provides Hotel management with the opportunity to easily expand the network in the future to include other IP devices such as IP security cameras or Voice over IP Phones for their staff and guests – all by plugging new IP devices into a BPL modem at any electrical outlet in the building.

