

## VDSL Solutions for the Hospitality Market

Maximise your revenue potential with new broadband services



## Summary

Everyone is now "on the net". Broadband has become so widely available that people want to be on-line constantly whether they are at home, at the office or on the move. But if you own or manage a hospitality facility such as a hotel or even a cruise ship, how can you offer broadband to your guests without major rewiring costs or the installation of hundreds of broadband connections?

The answer is a new technology called VDSL. VDSL is a high-speed broadband technology which offers high speed performance over existing telephone wiring. It is sometimes known as "Ethernet in the First Mile" (EFM) or "Extended Ethernet". VDSL allows you to share an existing Internet connection amongst your guests or tenants as if they each had their own separate broadband connection.

In this SMC business solutions brochure, we will explain how you can exploit this new technology to add new revenue streams to your existing service portfolio. We will briefly explain how VDSL works and how it differs from other broadband technologies such as ADSL, SDSL and cable. Some typical applications for VDSL will be explained, showing you how you can implement attractive new revenue generating services. Finally we will demonstrate that through working with SMC, you can implement a complete broadband solution for your guests with the minimum of investment and the maximum revenue potential.

## Market Opportunity

Imagine that the Internet disappeared overnight. Most of us would not be able to do our jobs. We have become totally dependent on the Internet not only as a way of doing business but as a way of working. The importance of email communication has increased and most business documents are now exchanged over the net.

Even in our personal lives the Internet has become completely pervasive. We keep in touch with our friends by email; we buy books, CDs, car insurance, vacations and virtually anything else over the web. Most of us would now be lost without it.

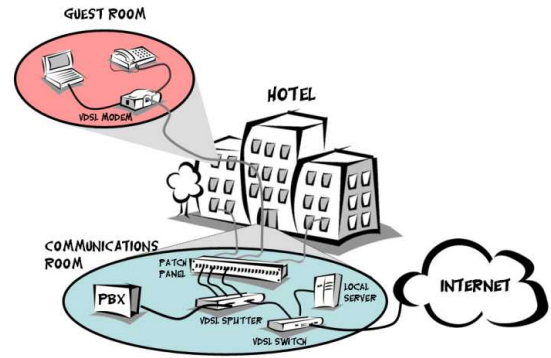
And so it is with your visitors and guests. Whether they are tourists keeping in touch with home or business professionals on the move, everyone needs easy and quick access to the net. But access alone is not enough; it has to be quick to connect, fast to transmit and not result in a huge bill for usage. In effect, it must be as simple as using a mobile phone or sending a fax.

## Opportunities for Hotel Owners

These days most business travellers on the move require access to email as a basic hotel requirement; just like room service. Up until now they have struggled with dial-up modems, different types of hotel telephones and unfriendly hotel telephone switchboards. And once they managed to overcome all these difficulties, they could look forward to a hefty telephone bill in the morning.

VDSL solves these problems. Although it operates over the room's telephone line, it allows voice and data to be shared at the same time. That way the telephone is not tied up in the guest's room, and more importantly to you, the hotel owner, it doesn't clog up vital lines on your switchboard. VDSL is not limited to the speed of the phone line either, and can operate at speeds normally only seen on Ethernet local area networks. All you need is a connection to the Internet and some extra equipment to share the room telephone lines as shown in figure 1.

Figure 1: VDSL for Hotels



VDSL also offers additional revenue opportunities. You can offer in-house services such as:

- Internet Access
- Creating wireless hot-spots in lounge areas and conference rooms
- Local advertisements such as restaurants, theatres and travel bookings
- Online concierge services e.g. taxi ordering, restaurant booking etc.
- Hotel services such as bill checking and paying
- Local document printing and business services
- Video on Demand services for delivering films to the hotel room

All these services can be offered as extra revenue opportunities for the hotel or for other local businesses paying a royalty to the hotel.

## VDSL Overview

What is VDSL?

VDSL stands for Very high bit rate Digital Subscriber Line. In layman's terms that translates to a broadband link over a telephone line at incredibly fast speeds. VDSL is part of the family of Digital Subscriber Line technologies which operate over normal telephone wiring. The main types are shown in table 1 below.

DSL Variant	Downstream speed	Upstream Speed	Distance
ADSL	512 Kbps to 2 Mbps	256 Kbps	5.5 km
SHDSL	192 Kbps to 2.3 Mbps	192 Kbps to 2.3 Mbps	4 km
VDSL	5 to 15 Mbps	5 to 15 Mbps	1.5km

Normal ADSL is used by the majority of telephone broadband subscribers. It runs at speeds from 512 Kilobits per second (Kbps) up to 2 Megabits per second (Mbps). There are higher speed variants in the DSL family such as SHDSL which can run at up to 8 Mbps but only over shorter distances and through good quality wiring. VDSL offers up to 15 Mbps over normal in-building telephone wiring at a distance of 1 kilometre and 5 Mbps at distances up to 1.5 kilometres.

## How does VDSL work?

All types of DSL technologies operate over the existing copper telephone cabling. They use higher frequencies over the copper wire to introduce data signals without interfering with the lower frequency voice signal. The speed achievable is dependent on the distance from the local exchanges and the quality of the copper wiring. This is why the availability of ADSL for telephone subscribers is dependent on how far away they are from the local telephone exchange. But VDSL does not have these restrictions. Since it operates only over the in-building wiring, it is not limited by distance as long as the wiring does not extend more than 1.5 kilometres.

To install VDSL in an existing building, three new pieces of equipment are required:

1. A VDSL switch which connects to the external Internet connection and also any local data servers
2. A VDSL Splitter which combines the Data signals with the voice signals from the telephone exchange or PBX
3. Customer premise VDSL modems which split the voice and data signals to the customer's telephone and local computers.

Figure 2: How VDSL works

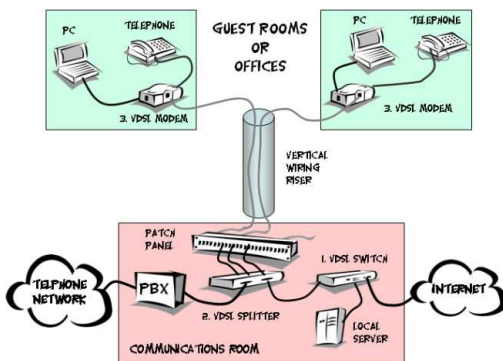
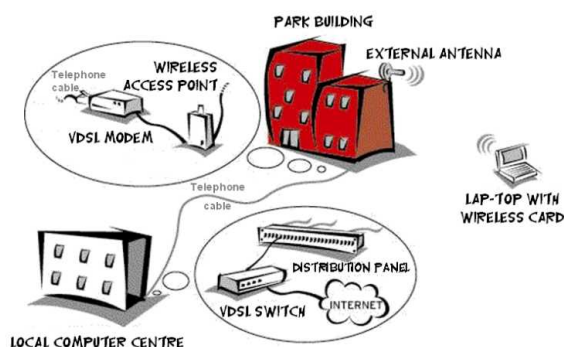


Figure 3: La Villette VDSL/Wireless installation



## Hotel Solution Case Studies

SMC is currently implementing a VDSL solution for a UK hotel occupying an imposing Victorian building with lobby and lounge areas well frequented by guests and visiting road warriors. The public areas and conference rooms are covered by a Wi-Fi wireless network which is used by guests and visitors alike. The main guest rooms are located in more recently added annexes which are currently cabled for telephone connections only.

An SMC VDSL solution is being implemented to provide high-speed broadband access to the guest and conference rooms. The reasons why VDSL is preferable to an Ethernet solution are:

- Some of the rooms are more than 100 metres from the main building which is beyond the reach of standard category 5 cabling. This would require either extra wiring closets or fibre optic cabling to be installed. Both would add considerable expense. VDSL's ability to operate at up to 1500 metres is ideal.
- Each room would require intrusive wiring to support Ethernet. This would make the room unrentable while the work was being done and would have a major impact on hotel room revenues. The VDSL solution requires no extra installation work above re-labelling an existing telephone/FAX outlet to "Broadband".

The SMC VDSL solution means that the hotel can offer its guests and visitors modern communications services without a major investment in cabling or room rewiring.

## Silversea Cruises

SMC's Extended Ethernet Network Solution has been used by Silversea Cruises in the U.S.A. to enable connections for voice, data and video over simple telephone lines for ISIS, the ultra-luxury cruise line's new interactive ship-board entertainment and communication system.

Ideally suited to applications like those in cruise ships, hotels and other densely-connected networking projects, SMC's VDSL solution facilitates networking that provides high rates of speed over existing standard phone cabling that can be shared for traditional voice calling even while serving as the network connection.

First deployed aboard Silver Whisper, one of Silversea's ultra-luxury ships, the new ISIS interactive entertainment system allows passengers to view on-demand movies, send and receive email, and book shore excursions from the comfort of their on-ship suites. ISIS will soon be operational on Silversea's other cruise ships as well.

## La Villette, Paris

In 2003, SMC Networks provided wireless connectivity at "La Villette", Paris as part of the largest Wi-Fi network in France. La Villette offered high-speed Internet access to all its summer visitors thanks to a partnership between SMC Networks and France Telecom

La Villette Park in Paris ([www.villette.com](http://www.villette.com)) invited wireless network enthusiasts and novices alike to experience free Wi-Fi access so that they could lawn surf from certain areas in the park. Distribution of the data throughout the park was done using SMC's VDSL solutions over the existing park telephone wiring. Wireless antennae connected to the VDSL network were then used to transmit and receive wireless signals to park visitors at hot-spot areas distributed throughout the park as shown in figure 4.

## SMC7724M/VSW VDSL Switch



The SMC 7724M/VSW switch connects local and remote data devices to the internal VDSL network. Devices can be connected over 10/100 fast Ethernet or 1000 Mbps Gigabit Ethernet connections using a modular interface card. Connection to the VDSL Splitter is provided for 24 VDSL ports using a standard RJ-21 telecommunications cable. The switch supports IEEE 802.1Q VLANs and IEEE 802.1p priority queuing for up to 24 VDSL data streams at speed up to 15 Mbps at a distance of 1.5 kilometres.

## SMC7024/7048/VSP VDSL Splitters



The SMC SMC7024/7048/VSP VDSL splitters combine voice and data streams over existing telephone wiring systems. The SMC7024/VSP VDSL splitter uses three standard RJ-21 Telco connectors to combine the traffic. One connector is for up to 24 VDSL channels from the VDSL Switch; one for up to 24 telephone connections from the PBX; the third RJ-21 connector plugs into the telephone distribution patch panel to deliver the combined voice/data services to the building tenants or guests. The SMC7048/VSP has twice the capacity supporting 48 voice/data channels using 6 RJ-21 Telco connectors. The units do not require a power connection.

## SMC7500A VDSL Modem



The SMC 7500A VDSL modem is used to split out the voice and data signals from the combined VDSL signal at the customers premise in their room or office. It has one RJ-11 telephone port for the incoming VDSL signal; one RJ-11 telephone port to connect the telephone equipment and 1 RJ-45 10/100 Fast Ethernet port to connect the computer equipment.

## SMC's VDSL Solutions

For more information about SMC's unique VDSL solutions and to find out how they can help you generate extra revenue streams and add premium services to your portfolio, contact your local SMC reseller. Lists of SMC resellers can be found on our website at [www.smc.com](http://www.smc.com).