



The Actimax Guide to DSL

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SUMMARY

Actimax Plc believes the DSL (Digital Subscriber Lines) is one of the most cost competitive technologies to deliver secure high-speed broadband services and applications to small and medium sized enterprises (SMEs) and small office, home office (SOHO) workers. It will also bring substantial benefits to branch offices of larger corporate bodies, providing true enterprise office functionality and communications resources – at a genuinely affordable price.

Traditionally the SME and SOHO user have been restricted to using a dial-up connection via a 56 Kbps (kilobits per second) modem for basic e-mail or web browsing activities. This approach delivers variable service quality, combined with slow download speeds for larger e-mail attachments, Internet connection or data transfer, all of which engenders considerable frustration and inconvenience.

The only alternative for many organisations has been high cost, higher-speed leased-line connections or dial-up ISDN.

In today's e-enabled economy, a powerful Internet presence has become a basic business necessity and increasing a high speed Internet connection is becoming critical to deal with ever-expanding volumes of data communications. With broadband access technologies like DSL, high bandwidth, dedicated connectivity across existing telephone lines becomes a practical and affordable reality.

DSL supplies high-speed 'always on' connectivity that makes possible better applications and services.

Actimax Plc believes that the particular needs of SMEs in this country will be best address by an SDSL (Symmetrical DSL) connection which provides the required support for bandwidth-hungry enterprise applications such as web hosting, e-commerce and Voice over DSL.

SDSL can support much higher data throughput than ISDN, and it also provides this performance in both directions-upstream *and* downstream, unlike ADSL (Asymmetrical DSL).

SUMMARY Continued

Actimax Plc is convinced that these will be crucial for the sophisticated ASP and communications services that British businesses will come to expect as standard in the next two years.

Other services can be packaged for added value, including Web application consultancy, design and management, Virtual Private Networking for telecommuting and LAN interconnection services, Voice over DSL and desktop video conferencing-all of which have been historically too expensive for SMEs to utilise fully in the workplace.

Actimax Plc believes that SDSL provides a cost-effective, high quality solution that enables SMEs and similar organisations to reap the benefits of converged voice, data and Internet communications.

THE COMMUNICATIONS CONUNDRUM

What enterprise users, SMEs, the SOHO market and home workers all have in common is an increasing need for speed and bandwidth. The arrival of the digital economy and the vast increase in both data transmission file sizes and volumes is creating rising demand for bandwidth.

Simultaneously, we are seeing steady erosion of the voice call domination of the communications market. The SME market is particularly hampered by the communication options currently available on them.

2.1 The Bandwidth Bottleneck

Traditional dial-up services, such as analogue 28.8 Kbps and 56 Kbps modems, provide notoriously slow data transfer speeds and connections often fail altogether. Most SMEs experience the limitations of this technology when connecting to or surfing the net. Today, SMEs need to be able to compete alongside larger enterprises on the level playing field of the new electronic business economy.

DSL offers a realisable, low cost solution to the bandwidth stranglehold on existing analogue lines, offering transmission speeds up to 40 times faster than a modem. For comparison, a 5Mb (megabyte) file downloaded via a 56Kbps modem will take over 12 minutes. With DSL that file can be downloaded in 25 seconds. An ISDN service connecting T 128Kbps would download the same file in 5 minutes.

For larger data downloads, video conferencing and other real-time applications, the SME market needs more than a 100% increase in bandwidth and at an affordable price.

DSL is a new generation technology that overcomes the 'last mile bottleneck' that has previously hampered the delivery of 'always on' connectivity and high performance broadband services. It offers an ideal means to provide the communication services that SMEs and related user markets need to operate competitively in today's e-business commercial environment.

WHAT IS DSL?

DSL technology utilises existing copper wire telephone lines to provide high-speed transport of data and Internet access alongside simultaneous voice communication. Because it utilises the existing telephone infrastructure, it offers a low cost method of providing true enterprise-quality multi-media communications for SMEs with far better performance than a dedicated dial up connection can deliver.

DSL is the next generation technology for delivering voice, video and data at multi-megabit speeds. DSL services are designed to deliver converged broadband services direct to a user's premises via the existing 'last mile' of twisted pair copper lines from local telephone exchange to distances of up to 18,000 feet (3.4 miles, 5.5km).

3.1 How DSL Works

A major benefit of this high-speed, dedicated, point-to-point technology is that it uses existing copper telephone wires or the 'local loop', between a local telephone exchange and an organisation or household to deliver innovative new services. Traditionally the local loop has been the 'choke point' for transmission of high-speed data. Alternatives to overcoming the restrictions of transmission via copper wire lines included prohibitively expensive fibre optic cable or a costly leased line option-usually completely uneconomic for smaller sites such as SMEs or the branch offices of larger organisations.

DSL technology delivers significant additional transmission speeds from existing twisted pair copper wires by leveraging signal processing techniques to insert more digital data onto analogue lines, beyond the frequencies of normal voice service. The high frequency carrier signal can be modified, enabling a larger digital payload to be transported over greater distances than a standard phone line whilst delivering simultaneous voice transmission.

3.2 Unbundling the Local Loop

In the UK, the market for broadband services is predicted to grow to over £4.5 billion by 2006 and £17.7 billion by 2010*, and by 2010 will represent over 50% of the projected UK telecommunications market*.

WHAT IS DSL? Continued

In November 1999 OFTEL, the UK telecommunication's regulatory agency, announced its local loop unbundling policy. Once enacted, this will enable other network operators to gain access to British Telecom's exchanges, and offer broadband services via the local loop between an existing BT local exchange and a user's premises using DSL technologies. Currently BT operates 5,600 such local exchanges, with 43 million copper wire connections to residences and businesses in the UK.

3.3 Who will benefit from DSL

For business users, DSL services will open the way to low-cost, dedicated point-to-point Internet access service. DSL offers consistent quality of service, combined with speed and security that shared services, such as cable, cannot deliver. For SMEs and related market groups, this will bring significant benefits.

Organisations that will gain from DSL technology include SMEs (up to 1,000 employees), SOHO users, tele-commuters, universities, local government and agencies, all of whom need the security of transmission that DSL provides. In addition, private networks such as branch offices will gain enterprise-scale functionality and communication resources.

The fast data download of this technology, combined with 'always on' access, eliminating the need to dial up, makes DSL ideal for high-speed Internet / Intranet access and remote LAN (Local Area Network) access. Other applications that DSL can deliver to these markets include:

- E-commerce
- Virtual Private Networks
- Voice Over IP
- Video Conferencing
- Real time information exchange

DSL will improve visibility and communications capability and functionality for organisations large and small, which want to embrace the opportunities of the global networked economy.

A CHOICE OF BROADBAND TECHNOLOGIES

DSL is available in a spectrum of speeds and DSL services including ADSL, SDSL, HDSL and VDSL will play a significant role in supporting high-speed Internet / Intranet access, online services, video-on-demand, television, interactive entertainment and voice transmission to the business and consumer markets.

4.1 ADSL

ADSL is Asymmetrical DSL. It provides more bandwidth downstream for faster downloads, where it is needed, than for uploads. ADSL Full Rate supports downstream speeds up to 8 Mbps. It supports simultaneous voice and data.

The differential of transmission bandwidth between downstream and upstream transmission makes ADSL an ideal solution to deliver a range of services to consumers. Applications ideal for ADSL technology will include video-on-demand, and interactive gaming as well as Internet access and voice communication services.

4.2 SDSL

Symmetrical Digital Subscriber Line or SDSL provides the same downstream and upstream transmission speed and offers considerable benefits for business working. SDSL offers symmetrical transmission for voice service, web hosting and e-commerce. It is also ideal for LAN to LAN traffic and high bandwidth services such as full motion video conferencing and collaborative computing. SDSL will support be-directional speeds of 2.3 Mbps.

Because it utilises the TC PAM line modulation protocol, there is minimal interference ('crosstalk') between services, enabling the co-existence of a number of voice and data services. It can deliver these services via exiting standard POTS (Plain Old Telephone Service) copper-wire lines.

Increased capacity can be delivered to a user's site by simply connecting additional telephone lines to the DSLAM (Digital Subscriber Line Access Multiplexer) at the local exchange.

In the view of **Actimax Plc**, these combined features make SDSL the best DSL technology to deliver integrated enterprise quality, multi-media communications and value-add services to the SME and SOHO markets.

SDSL OFFERS BUSINESS CONNECTIVITY

SDSL offers considerable advantages both in terms of cost and functionality to the SME, home worker and branch office. It delivers integrated voice, data and Internet services on a single line with a single bill. It can also enable the delivery of business and desktop applications by application service provider (ASP) that can provide enhanced productivity. This removes the need for SMEs to invest in costly software applications and ensure they operate in a 'future proof' environment.

Because SDSL offers secure connections, full e-commerce transactions and data applications such as payroll – become a truly commercial reality for SMEs. SDSL means that sophisticated communications capabilities that were previously the preserve of the largest corporations, such as web-enabled CRM (Customer Relationship Management) applications, are now within the reach of SME customers.

Business services and options that can be delivered by SDSL include:

- **Multiple Line Voice and Fax Service**
A single SDSL line offers up to 24 voice and fax connections for unmatched economies of scale.
- **Unified Messaging**
With one message box, users can read back e-mails or fax messages over the phone, or receive voice messages via e-mail.
- **Email and File Transfers**
High bandwidth with 'always on' unmetered dedicated access offers fast, efficient file transfer at affordable prices.
- **Web Access and Hosting**
Symmetrical capability offers fast Web surfing and ideal connectivity for applications with significant 'upstream' traffic. It also provides for unlimited e-mail accounts for personnel.
- **CPN Connectivity**
SDSL offers high-speed, secure connectivity to corporate PBX and LAN infrastructures.

SDSL OFFERS BUSINESS CONNECTIVITY

- **Video Conferencing**
Two way symmetrical transmission speeds enable video conferencing, previously a costly facility attainable only by enterprise scale organisations.
- **User Support**
Plug-and-Play installation, provisioning and management can be delivered through the provider, relieving SMEs of these costly overheads. Many SMEs have limited technical resources, and remote management support and delivery of applications can represent a significant business benefit. Users can monitor and manage costs, review billing, order new services or phone connections and set up call barring from a PC.

ABOUT ACTIMAX

Actimax, established in 1997 has a firm track record of proven results and satisfied customers in the telecommunications market. Our core business is the supply, installation and maintenance of communications systems, and our strength is in the technical background of our team of 38 employees.

With a management team that have worked together for a combined total of over 75 years, we are a hard working company that knows where it is heading. The experience of John Massey Managing Director who's background in the communications industry goes back over 30 years is invaluable in the company being one step ahead of the competition. Actimax invests over 50k per annum on training it's team, including technical engineering courses, management courses, sales and marketing seminars and we also recently offered Learn Direct courses to the whole company, which saw a good up take. The company ethos is to keep our team, happy, motivated and interested, that way they are more likely to stay with us. This has proved to be a benefit with 60% of our team having been with us for over 3 years,

We provide communications hardware from five leading manufacturers along with a whole portfolio of supporting products. We have gained superior accreditation with all of the suppliers we work with, along with awards for Customer Care and Service (2004 and 2005) , Comms Channel Reseller of the Year 2005, Essex Business of the Year 2005 and Business-to-Business winner 2005.

Our target market are companies, either single or multisites with over 20 employees, and with no upper limit. Our market sector is any company looking to improve their process and procedures along with increase in sales, cutting costs and improving service, and we have been especially successful in Government, Financial, Travel and the Motor Trade.

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