

Businesses are upgrading their networks to work more efficiently, support growth and collaborate more closely with customers and suppliers.

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## INTRODUCTION

Nearly all businesses whatever their size use some form of network. As soon as two or more computers are used, they need to communicate with each other so they can share common files, databases, business application software etc. And most businesses use various methods of working together that require networks, such as outsourcing and partnerships.

With improvements in network capacity and the ability to work wirelessly or remotely, successful businesses should regularly reevaluate their needs and their IT infrastructure.

This factsheet looks at the different networking options available; how other businesses have approached this issue; and how you can upgrade your existing system.

## THE BENEFITS

Properly planned, an efficient network brings a wide range of benefits to a company. Most of these benefits are related to better communication, improved data sharing and cost savings.

### Improve communication

By connecting your computers and working on standardised systems, you will see major

improvements to communication internally and externally.

- Your staff, suppliers and customers are well placed to share information and get in touch more easily.
- A greater degree of information sharing can make your business more efficient and profitable, thus making you a more competitive industry player.
- As staff can share information about customers (such as account details and histories) they are better equipped to deal with queries and deliver a better standard of service.

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### Cut costs and raise efficiency

By storing information in one centralised database of information and streamlining working practices, you can significantly reduce costs and improve efficiency.

- Staff can deal with more customers at the same time by accessing customer and product databases leading to greater productivity.
- Network administration can be centralised, so less IT support is required.
- Costs are cut through sharing of printers, scanners, external discs, tape drives and internet access.

**Reducing errors**

As all staff are working from a single source of information, you will see fewer errors and better consistency.

- Standard versions of manuals and directories can be made available to everyone.
- Data can be backed up from a single point on a scheduled basis, ensuring consistency.

**NETWORKING OPTIONS**

There are different ways of networking your computers into a network. More sophisticated solutions will be more costly, so you will need to decide what exactly your business requires.

**Local Area Network (LAN)**

There are two kinds of LAN. The simplest is a peer-to-peer arrangement (P2P) where two or more computers nearby are connected to each other by a cable. Relatively cheap and straightforward, it allows them to share files and programmes.

However, it is basic and has limitations. It is slower than other options and any failures will affect every other computer that is connected.

**Wide Area Network (WAN)**

This is used by companies with offices at different locations often many miles apart. The WAN connects different LANs together, building into a more complex network. WANs use cables/lines that are leased from a telecomms company.

**Virtual Private Network (VPN)**

This allows the user to connect across the internet to the company's private network (rather than via physical cabling such as leased lines). It enables secure access to the systems that the remote worker needs. A VPN can also be cheaper to operate than using leased lines or

domestic-type broadband connections.

The two most common types of VPN are:

**Remote access**

Remote-access, also called a virtual private dial-up network (VPDN), is a user-to-LAN connection used by a business with employees who need to connect to the private network from various remote locations. By installing networking software on your employees' computers and using encryption, remote workers can connect securely to their company network.

**Site-to-site VPN**

The two options for site-to-site VPN are:

- Intranet-based if a company has one or more remote locations that they wish to join in a single private network, they can create an intranet VPN to connect LAN to LAN.
- Extranet-based if a company wants to connect directly to a partner, supplier or customer, they can build an extranet VPN.

If you decide to use a VPN, you will need to ensure that your data and connections are kept secure. It is best to make use of several security methods to do this including firewalls, encryption, Internet Protocol Security (which offers security in the form of authentication and encryption) and AAA Servers (including authentication, authorisation and accounting measures).

**IMPLEMENTATION GUIDE**

This checklist will help you implement a networking project.

**Research and Analyse**

Set targets

- Set goals for your network. If you already have a system in place, look at how it performs against your needs and what the shortfalls are.

- Work out who will need to access the network, where they are based (on site or remote access) and how many printers, scanners and computers need to be connected.
- Think about how your network will need to expand in the future try to make some rough estimations.

### Cost-benefit analysis

- If you already have a network, balance the costs of upgrading it with the cost of investing in a new system.
- Weigh the costs of implementation (purchase, installation, support, maintenance and training) against the potential benefits (replacing manual and paper-based processes, reducing hardware costs by sharing facilities, and capital allowances).

### Consult

Professional advice

If you need professional help on the right networking solution for you, contact your Business Link adviser for help on how to:

- Outline your requirements
- Establish your budget
- Scope the project
- Implement your new network and related software
- Roll out training.

### Plan and Test

Evaluate options

- Think about your business and what your networking requirements are to help figure out what type of solution would suit you. Would you prefer a basic, cheap option (eg LAN) that connects a handful of computers? Or would you need dedicated leased lines to connect offices at different locations?

- Whichever option you choose, you will also need to think about issues such as security and data storage. Consider options such as anti-virus software, firewalls, encryption etc.

### Plan the rollout phase

- What type of software will need to be installed? Do you have the technical expertise to install the technology yourself? Who can deal with teething problems and ongoing maintenance? Find out whether you will need software licenses too.
- Think about how to rollout the new system to staff. Set up access levels, usernames and passwords. Plan any training necessary and factor in time for staff to adjust to the new system.
- Install and test an operating system, cabling and test outlets.

### Act

- Roll out any necessary training.
- Encourage staff involvement and feedback, this will help smooth implementation, as staff buy-in can make or break a technology project.
- Allocate resources for promoting its use among internal and external target communities that may need some initial encouragement.

### Evaluate

- Monitor and review the impact on your business and against your objectives.
- Get feedback from staff, customers and suppliers on the changes.
- Evaluate the impact after six months and one year. Have you achieved your objectives? Establish how you could improve things further.

**CASE STUDY****NorthLink Ferries**

Sector: Travel

Size of firm: 250

Location: Scottish Highlands

Website: <http://www.northlinkferries.co.uk>

NorthLink Ferries has used mobile and wireless networking connect up all parts of its business including its ferries.

**Objectives**

NorthLink Ferries provides passenger and freight transport services between the Scottish mainland and the Orkney and Shetland Islands. "We want to be the carrier of choice for customers and for the communities we serve," says Gareth Crichton, Commercial Director. The company is bound to a contractual agreement with the Scottish Executive governing the delivery of lifeline ferry services. "Operating under demanding contractual conditions, striving to provide a valued service to customers, we had no option other than look to effective use of technology," says Gareth.

For NorthLink Ferries, delivering accurate, timely information to relevant staff and managers is vital for smooth operations. With five port offices in five different locations, four ships constantly ferrying freight and passengers as well as a separate head office where the reservations system is based, the communication system needed to be extremely robust.

**Solution**

The business invested in connecting all operational areas including the ships to a WiFi LAN and VPN. The ships' computers can connect to the port office computers via a wireless cloud when they are within range (15 minutes from port). The port office computers can connect with the head office system using broadband.

The head office itself can also connect to the ships using emergency ship-to-shore data network via satellite (from Immarsat). This means that all the different business areas have a quick and reliable channel for communicating.

**Results**

Having secure, stable network connections means that NorthLink are able to quickly transfer data from different areas.

For example the EPos system used on board ships automatically transfers data to the port offices, updating information on stock and on-ship staff/resource management. The result is that finance and management information is at worst, half a day old and at best, up to the minute.

This also applies to logistics and operations information. Customers can make reservations through a number of different routes: web, e-mail, call centre and reservation desks which all use a single inventory database. Passenger lists are then automatically produced, saving up to two hours per sailing, compared to a manual system. This works out as a saving of roughly £30,000 a year.

Finally, wireless connectivity allows staff to work by laptop even when travelling between sites something that generates efficiency saving estimated at £30,000 annually.

**The last word**

Compared to its predecessor, NorthLink Ferries offers 20% more sailings and 18% lower fares. "It wasn't a matter of choice," says Reservations Manager Richard Foster, "using technology was the only way we could cost effectively deliver the service we had committed to."

**CASE STUDY****Benson Group Limited**

Sector: Construction

Size of firm: 250 employees

Location: London

Website: <http://www.benson.co.uk>

Benson has used networking technology to support the rapid growth of its construction services business.

**Objectives:**

Benson Group Limited provides construction, interior fit out and property maintenance services from six regional locations in the UK for clients such as Tesco, Royal Sun Alliance and the Royal Ballet School.

Benson's growth has been impressive, with annual turnover growing from £14 million in 1998 to over £100 million. The business needed an online communications solution to support its rapid growth. The workforce is distributed not only across each of the six offices but also across construction sites. It was therefore necessary to provide effective online facilities at its individual construction sites as required as well as at the main offices.

**Solution:**

Daniel Piggott, Group IT Manager, implemented a Virtual Private Network (VPN) solution based on broadband connections to provide the workforce with an effective communications system. The VPN uses encryption data to provide a secure network suitable for 250 users across the six regional offices and a further 1,500 remote access and off-site users. It also enables secure broadband connections to be provided at the construction sites.

**Results:**

The benefits of broadband have been

experienced across the organisation. "With the VPN, we can offer every employee secure remote access as well as secure access from their office through the VPN's encrypted channel to the company's network," says Daniel.

The extension of broadband access to the individual construction sites is also important in achieving this. "We currently have broadband network access at a number of our construction sites and we will be increasing this. It provides major benefits in terms of improved communications with customers, suppliers and our offices. Our on-site teams are able to receive architects' drawings online, which is not possible in any volume over a dial-up connection. They are then able to make any necessary amendments and respond immediately online from the site. This provides major benefits in terms of turn-around times," says Daniel.

"The on-site broadband network connections also enable improved contact and communications with suppliers where timing can be critical. Our site managers are also able to email digital photographs of the site to customers and also other members of staff as required," says Daniel.

**Challenges:**

Daniel stresses the importance of security for a broadband network with many remote workers. In order to avoid security issues Benson uses internet company Vianet.works' managed security service. "Flexibility has to be a key feature of the company's network," says Daniel. "We have to deliver flexibility for remote users without compromising security."

**The last word:**

Daniel is delighted with the greater levels of co-ordination between offices that the investment in networking has brought. He says: "it has

enabled the business to do things very quickly and we can therefore provide a faster turnaround of response. We are more efficient and have a greater capability to meet our customers' requirements."

#### FURTHER HELP AND ADVICE

You can find out more about the various networking solutions available from vendors themselves.

<http://www.knowledgestorm.com> directory of companies that provide networking and communications solutions.

<http://www.telecomsAdvice.org.uk> independent website providing background information on networks.

#### GENERAL BUSINESS ADVICE

For more information on achieving best practice in your business: Contact your local Business Link advisor by visiting the website at <http://www.businesslink.gov.uk> or calling 0845 600 9 006.

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