

Free the music

The real villains of the on-line music saga are the record companies. It's time they woke up and faced reality, argues Sarah Kidner

The music industry owes Napster a debt of thanks. The maverick pop-swapping service is largely responsible for the creation of the on-line music market; in just two years the company's user base has grown from zero to a staggering 64 million, giving rise to scores of other similar businesses. Scour.com allows users to share film and music clips, Gnutella lets users exchange music using bulletin boards and relative newcomer Aimster uses AOL's Instant Messaging service as a means of sharing music over the Web. The Napster model is a hit.

Its success is due to the simple, yet effective nature of the software utility. Napster works using P2P (Peer-to-Peer file sharing) where consumers put their MP3 files in a shared folder. Napster's server holds an index of all these files. If you're looking for a particular song or artist you simply type it into the software and it looks up the index and locates a PC which holds what you're looking for. Anyone can download the utility from the company's Web site and get instant access to millions of artists and songs.

Commercially, the Napster model is a success. Users of networked music sharing technologies are 45 per cent more likely to increase their music purchases than non-users, according to research by Jupiter MMXI. 'When we conducted our survey, we found that Napster usage is one of the strongest determinants of increased buying,' says Aram Sinnreich, an analyst with Jupiter.

But the music industry continues to demonize Napster. Artists claim that Napster has stolen its copyright and that the music industry has lost millions of dollars in terms of unpaid royalties and lost sales. And now the music business is heralding an important victory after a US Court of Appeal ruled to uphold a temporary injunction against Napster. 'Napster knowingly encourages and assists its users to infringe the record companies' copyrights,' says the court. 'It is time for Napster to stand down and start building their business the old-fashioned way, by asking permission first,' says Hilary Rosen, president and CEO of the Recording Industry Association of America.

To its credit Napster is trying to do just that and is in the process of establishing a more legitimate business model. At the end of last year the company forged an alliance with BeCG, the e-commerce arm of Bertelsmann AG. Since then, the companies have been working towards a subscription-based model which would enable Napster to pay royalties. At the time of writing Napster/BeCG were announcing a breakthrough. Together with Bertelsmann subsidiary Digital World Services it has created a solution, which while maintaining the P2P structure of Napster, allows restrictions to be placed on what can be done with files such as limits on the ability to burn music files onto CDs.

Napster is also trying to make good royalty payments to the music industry. The company has proposed a licensing deal offering the five major record companies \$150 million (£104 million) to split plus a further \$50 million (£35 million) to be divided annually between the major labels, but the music industry is refusing to meet Napster half way. The labels dismiss the offer of royalties as a 'publicity stunt'. 'It is Napster's responsibility to come to the creative community with a legitimate business model. Nothing we have heard suggests that it has yet been able to accomplish that task,' says Universal Music Group in a statement. Fair enough.

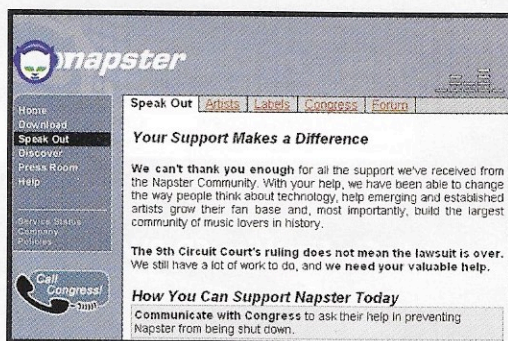
The music industry is as much a part of the problem, if not more so, than Napster. Failing to develop its own digital distribution model the music industry has again laid the blame at Napster's door. 'Recording companies have been working diligently over the last two years to bring a new digital market to consumers. But Napster's continuing give-away has threatened not only the creators of the traditional creative community, but also the innovative businesses of new on-line companies. Because no matter how creative

you are, it is tough to compete with free,' says Rosen. Others say it's the recording industry, which has held back development. 'The industry was too slow to develop a legitimate alternative. The initiative from Bertelsmann came from the e-commerce group and not BMG,' says Mark Mulligan, an analyst for Jupiter MMXI.

Similarly, the failure of Napster to create a 'legitimate' business model is down to the music industry. Napster's agreement with Bertelsmann puts it in a great position. Unfortunately, it can never hope to please all

content creators since this would give BMG, through Bertelsmann, too much control in the eyes of its competitors. 'If Napster was the industry standard [for digital music distribution] it would give it [Bertelsmann] an unfair advantage to which the rest of the industry is reluctant to accede.'

Napster is a victim of its own success. By allowing its service to be used for free, it has proved there's a market for on-line music in much the same way that Microsoft established its browser presence. The Napster model is proven technology, which is easy to understand and use by consumers. In addition, the company has a user base of 64 million, who are unlikely to go away for the sake of a nominal subscription fee. But it doesn't have the market sewn up – Napster's success has spawned competitors, creating a whole new market in under two years. It is the music industry that's holding things back, because Bertelsmann's competitors want their own share of the market – despite having made little progress so far. It's time the music industry started working with Napster to create what could be a viable industry for all concerned.



Napster's Web site, though currently under threat from the US courts, has already spawned a host of imitators

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The failure of Napster to create a 'legitimate' business model is down to the music industry

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HIT THE ROAD

Making your workers mobile can reduce your overheads and increase profit margins. **Sarah Kidner** explains how

Recently, some businesses have been bombarding companies with images of happy, more effective employees working from home (BT), sitting in a leafy park with their laptop at lunchtime (Microsoft) or finishing work before they reach the office (Nokia). Mobile working is the new buzz phrase for companies looking to get their staff out of the office and dealing directly with customers. Of course, there's nothing new with this; what is new is the ability to remain connected with your office and its systems through improving and cheaper mobile technology.

However, some fundamental questions have to be answered before you, too, can implement mobile working arrangements. Can it really make your company more effective? Is it the right solution for your business? How much will it cost and how can you be sure you're getting a reasonable return on your investment?

Mobile workers fall into three distinct categories: flexible workers, the wireless workforce and the truly mobile. The first category, flexible workers, is epitomised by companies such as BT, where employees are given the opportunity to work from home or in the office using

a laptop and a fixed modem. Wireless workers, by comparison, are more likely to be on the road, visiting clients. Wireless, as the name suggests, simply means without wires and encompasses emerging technology such as Bluetooth (see Telecommunications, page 56), which allows workers to connect to the internet or the office from anywhere, regardless of whether there's a telephone line. The truly mobile are making the most of ultra-portable technology such as personal digital assistants (PDAs) and smartphones; we'll explain what these are later.

WHY MOBILE MATTERS

The relatively low cost of technology is one reason for going mobile. Advances in telecommunications, the internet and e-mail, cheaper laptops and the arrival of devices such as PDAs, make it easier to make the change. Five years ago if you wanted to create a new branch office it was a costly experience. Today an office could consist of a single employee with a telephone line: a high-speed connection can be provided by a broadband or asymmetric digital subscriber line (ADSL) or broadband that allows faster, 'always on' access to company information, the internet and

e-mail, at the same time providing a telephone connection.

Customers are another, perhaps more pertinent, reason to go mobile. Being mobile offers the possibility of getting closer to your customers. It reduces the number of visits per transaction because staff can call on and collate information on the move, and thus offer a better service and a competitive edge. Employees can also drive companies towards a more flexible workforce. Changing demographics, such as the increasing number of female workers with family commitments, now makes a more flexible approach a tool for retaining key staff.

There are other financial rewards, too. IT consultancy Twin Systems Plc, for example, introduced a flexible workforce and cut its office space from 7,000 square feet to 2,000 square feet in a year. "High overheads start to build up inside a small to medium sized company because you're building an infrastructure based around an old model," says chairman, Steve Songaila.

ORGANISATIONAL ISSUES

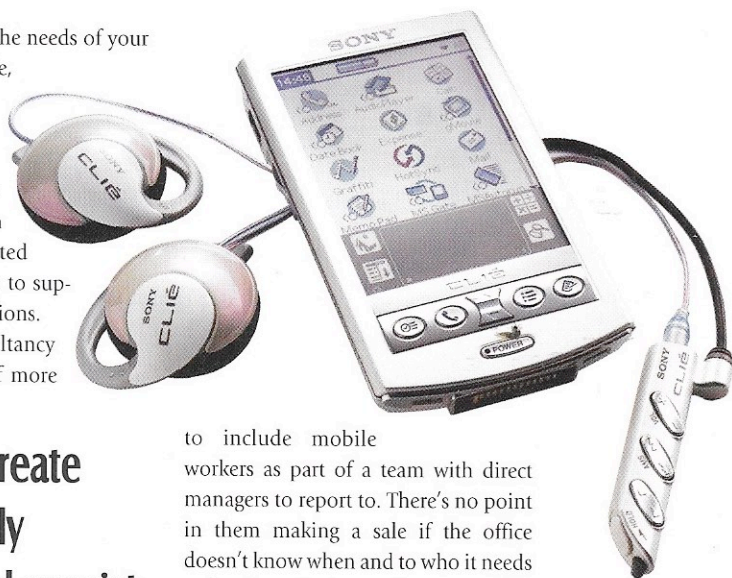
But going mobile involves more than just doling out laptops and PDAs. You will only achieve true mobility if it is part

of a carefully planned strategy. Mobile devices do not have the capacity of a desktop computer so you need to make sure you give tailored access to the information pertinent to the user. A finance director, for example, needs access to outstanding invoices but may not be so concerned with monthly sales targets.

It's hard work, as accountancy firm Shorthouse & Martin will testify. The company's mobile workers were not happy with the remote access to the

will tailor support to the needs of your business. For example, IBM has a team dedicated to the needs of the smaller business. However, it is worth noting that even the most sophisticated helpdesk may struggle to support 40 different locations.

Palm has a consultancy arm and a network of more



Five years ago if you wanted to create a new branch office it was a costly experience. Today an office could consist of a single employee with a telephone

firm's specialist accountancy software. They complained it was cumbersome and wanted to return to the office to re-run accounts. "It meant increased cost so the client would end up with a bigger bill, or, as was often the case, we had to absorb it," says company partner, Les Shorthouse.

Managing mobile workers efficiently is another unforeseen hurdle. Traditional job descriptions centre on actually being in the office nine to five, not on specific productivity targets. In the first six months of having a flexible workforce, Twin Systems discovered its productivity was down because there was a mismatch between what the employees thought they should be doing and what the company thought they should be doing, says Songaila.

Running costs are another consideration. It's all very well having a virtual branch in North Wales but you'll need to consider how you can support your remote worker from the other side of the country and how much this will cost.

GET THE BALANCE RIGHT

Getting it right requires a subtle mixture of the right technology, management and support that will get you closer to your customers without losing the connection with your mobile workforce. A general rule of thumb, whether you're equipping a home office or a fully mobile worker, is to buy from a recognised brand name, such as Compaq, Toshiba, IBM or Hewlett-Packard. It may cost more, but larger companies

than 165,000 developers who specialise in finding ways to bridge the gap between desktop computers and its own handheld devices without re-designing whole systems. It says the key lies in recognising the individual needs of your employees, such as the need to have access to those outstanding invoices, and displaying them via a series of simple, dropdown menus on a PDA, for example.

Shorthouse & Martin sought outside help to resolve its hardware/software conflict. Its chosen consultancy, Positive Computing, recommended that it move to Microsoft's Windows and Office XP (see box, page 58). Following what Shorthouse & Martin describes as a "seamless" transition, the company's employees now have remote access to the accounts, which they're happy to update while away from the office.

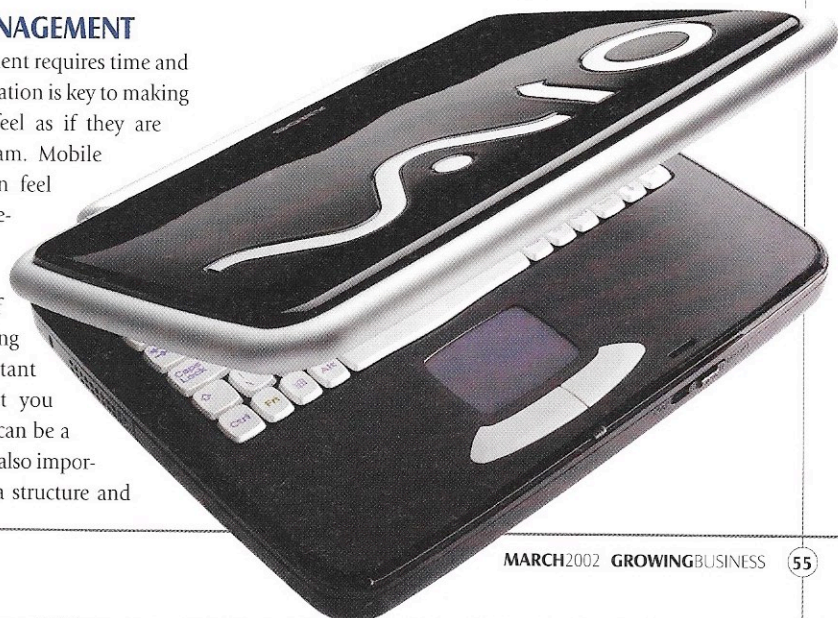
REMOTE MANAGEMENT

Remote management requires time and effort. Communication is key to making remote workers feel as if they are still part of a team. Mobile workers can often feel isolated, but something as simple as a telephone call to your staff ahead of a meeting with an important client to say that you hope it goes well can be a real motivator. It's also important to maintain a structure and

to include mobile workers as part of a team with direct managers to report to. There's no point in them making a sale if the office doesn't know when and to who it needs to be dispatched. Mandatory monthly meetings for the whole team are also essential.

You also need to redefine employee objectives in terms of mobile workers. Without the distractions of an office environment employees should be more effective but in Twin Systems' case, productivity actually went down. To rectify this, each employee was set an agreed, obtainable and measurable target based on their job description. For example, customer service representatives must deal with enquiries in a reasonable timeframe.

Communicating company objectives and ethics is also important. These happen by osmosis in an office environment so they need to be replicated in the virtual world. Twin Systems communicates by way of its company intranet which it uses as an electronic noticeboard for information such as sales figures and company performance. The company also runs a fantasy league where employees earn points for gaining customer compliments and taking the





► Mobile technology is changing fast. These Ericsson concept products show how it may be used very soon

THE MOBILE WORKER'S TOOLKIT

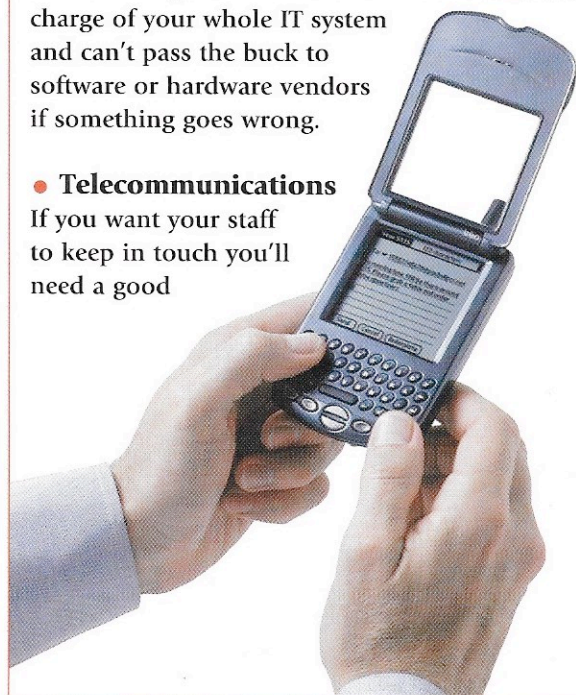
There's no black magic involved in creating a technological infrastructure for your mobile workforce. It's merely a question of mixing and matching the right hardware, software, telecommunications and support. We've put together some guidelines to help you make the right choice for the needs of your workforce.

● Support

Whenever you're buying equipment, whether it's a handheld PC, laptop or an operating system, it's important to make sure that you get a high level of support. If you're using specialist software or want an independent company to advise you on your next move, it's advisable to follow the lead of Shorthouse & Martin and look for a consultancy. The advantage of this is that the consultants are in charge of your whole IT system and can't pass the buck to software or hardware vendors if something goes wrong.

● Telecommunications

If you want your staff to keep in touch you'll need a good



telecommunications infrastructure, both fixed and wireless. Fixed telecommunications covers the humble telephone line, which will let users get on-line using a modem, an asymmetric digital subscriber line (ADSL) or broadband, which will give your employees faster, 'always on' access to the internet, and e-mail. Broadband is an emerging technology, and so comes at a premium. BT Openworld, for example, charges £75 for installation, plus a monthly fee of £14.99 per month. Laptops can get on-line using a PC card modem and any telephone line.

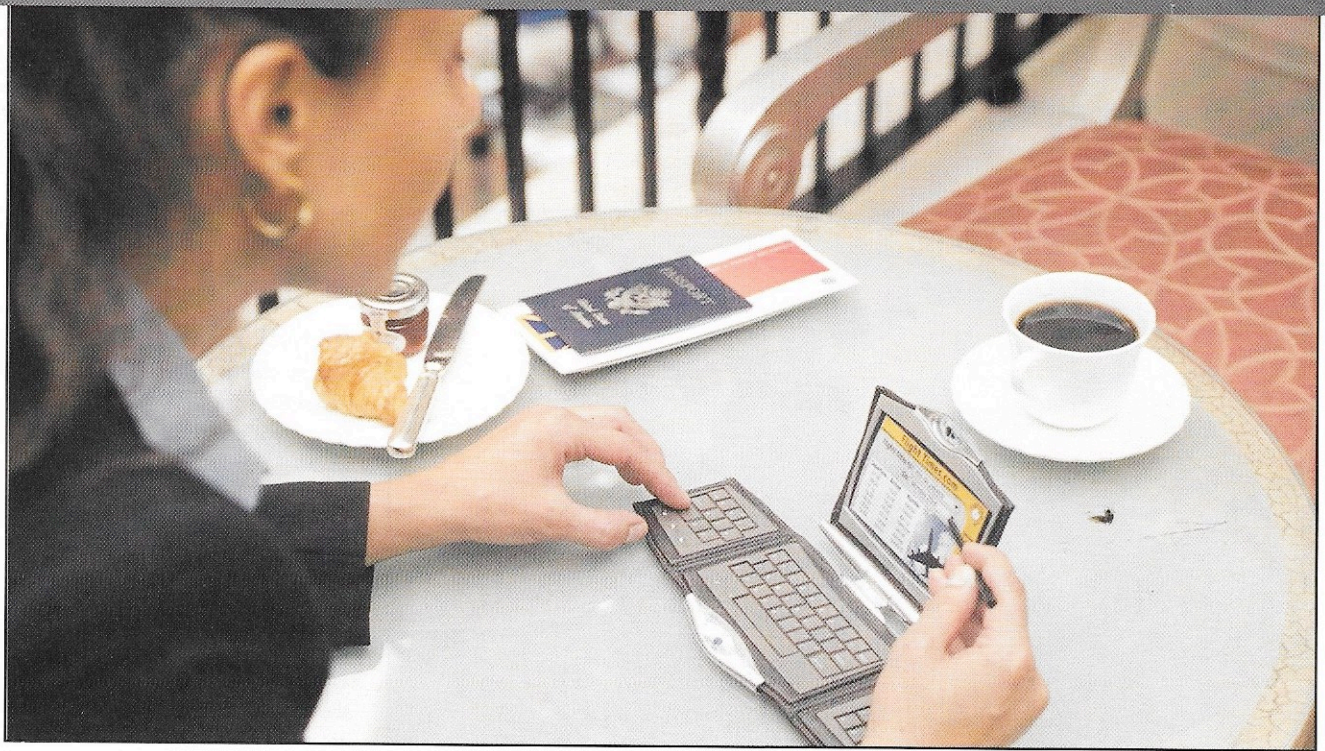
Truly wireless communication is still in its infancy. The majority of today's laptops are fitted with an infrared port, which can connect a user via an infrared telephone. In the next year or so, telephones and other wireless devices will be able to connect via a general packet radio service (GPRS), which, like broadband, will provide a continuous internet connection. Bluetooth is the latest wireless standard and will let devices such as telephones, PDAs and laptops talk to each other if they have a special chip.

● Internet service provider (ISP)

An ISP can give companies access to the internet or to a company intranet. ISPs come into their own when you're running a mobile workforce, because they can provide remote access to company information, e-mail and the internet. There are literally hundreds to choose from and it is worth shopping around, but some of the better-known companies include Demon Internet, Pipex, UUNet, BT and PsiNet.

● Laptop

Laptops vary according to their usage, from ultra-portable devices, which are small and light and ideally suited to the frequent traveller, to desktop replacement machines, which are as powerful as a



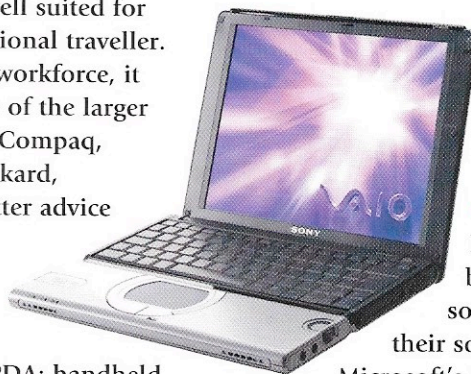
desktop computer and are well suited for home workers and the occasional traveller. Whatever the needs of your workforce, it is advisable to buy from one of the larger manufacturers such as Dell, Compaq, Toshiba, IBM or Hewlett-Packard, simply because you'll get better advice and support.

● **Personal digital assistant (PDA)**

There are two categories of PDA: handheld and palm-sized devices. First made popular by British firm Psion, handheld devices resemble scaled-down laptops complete with keyboard. Manufacturers such as Casio and Hewlett-Packard now manufacture similar devices to those of Psion and these are based on Microsoft CE, a specially developed version of the software company's desktop operating system.

Handhelds offer everything you'd expect from a PDA (calendar, address book, memo and organiser) but because they've got a keyboard this makes them better-suited to the mobile worker who needs to gain access to, as well as work on, company information and write reports on the fly.

Palm-sized devices often have a touchscreen instead of a keypad for accessing and entering information. Palm pioneered this form, although a number of devices are now also available based on Microsoft's Pocket PC operating system. Palm-sized devices are ideal for managing contacts and, as many of these are now wireless-enabled, they are perfect for sending and receiving e-mail and SMS messages. Since there's no keypad, if you want your sales force to have access to company information you may have to give some thought



to how they're going to access and view it on a small screen. Both Palm and Microsoft have approved resellers that can help with the transition from large to small screen.

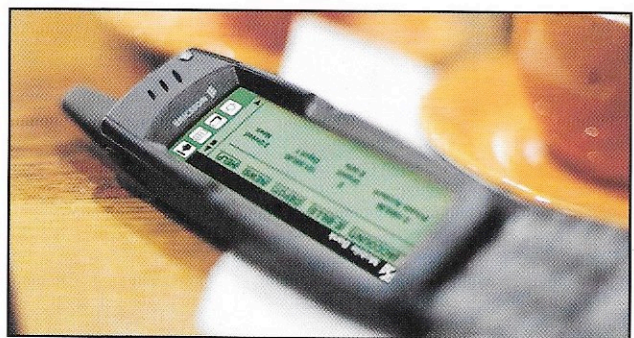
● **Software**

In the past couple of years there has been a marked shift in the attitude of software developers, and they now create their software with the mobile worker in mind.

Microsoft's latest operating system, Windows XP, is one example, and includes features such as a built-in firewall. However, it's worth bearing in mind that XP may not be the solution to your company's specific mobile needs.

● **Firewall**

Put simply, a firewall is a piece of software that controls who does and doesn't have access to your company computer. This is a must-have when you're allowing remote access to company information from outside the business. Without it you lay yourself open to hacking and the theft of sensitive company details. Firewalls are available from Novell, Symantec and Zone Labs, among others.





MICROSOFT'S MOBILE GAMBIT

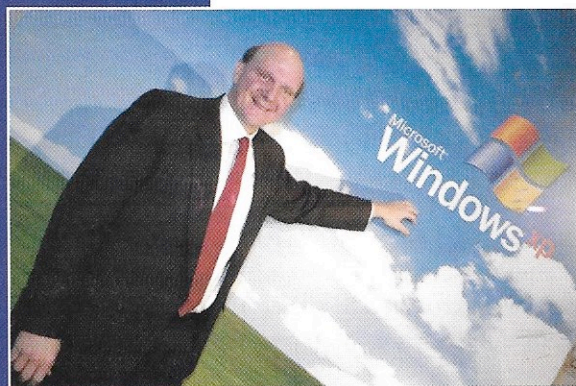
Mobile workers will benefit from Microsoft's latest operating system Windows XP (the software that manages your computer).

From the moment you start up your computer you should, according to the company, notice the difference, thanks to something called advanced configuration and power interface. This lets you put your computer to 'sleep' when you aren't using it, thus saving power, but lets it wake up in less than 30 seconds. Windows XP Professional also has a suspend mode, a deep sleep that saves even more power.

For companies with shared laptops, Windows XP Professional offers extra security features. Employees can encrypt files to protect them with a single click of the mouse or use smart cards to protect information.

But what if you want access to files back at the office from the road? Using a feature called remote desktop, users can tap into applications and files on office-based PCs, make changes and save them back to the office-based computer using their laptop. Taking important folders with you is simpler, too, using something called off-line files and folders. This enables you to access the files from a special folder within the operating system without having to connect to the internet or your company intranet first.

Wireless technology has also been embraced by Microsoft's latest operating system. If you are working from a hotel lobby, bedroom or an airport lounge, then connecting to the internet or picking up your e-mail is a much simpler process. The solution is a combination of Windows XP and wireless cards, which slot into your laptop. Using special connection ports, which Microsoft expects to become prevalent in 2002, you'll be able to connect without getting in a tangle with cables and wires.



least sick leave: the top four employees can spend their points on vouchers or extra time off.

MOBILE ADVANTAGE

Going mobile is unquestionably an investment for a business, but done properly it could net you a significant return – productively, financially and competitively. Do it right and you could also end up with a happier, more productive workforce. Twin Systems' strategy of setting its remote workers clear, achievable objectives has already paid dividends for the company: employee sickness has fallen to less than 1% and, Songaila claims, his staff are now better motivated because they are no longer distracted by any family commitments.

Mobilising your staff can reduce overheads as well. The latest statistics from the Department of Trade and Industry estimate that the average cost of simply setting somebody up with a desk within the M25 area is £2,950. Shorthouse & Martin believes the investment it has made in a new IT system has already paid dividends. Its IT consultancy, Positive

Computing, is able to gain access to its technology and also fix any problems remotely.

Perhaps the biggest benefit of going mobile is also the key motivator for doing so: becoming closer to your customers.

Creating an effective mobile workforce requires a significant

investment, both in terms of finance and in the time it will take to manage it. But if it is properly managed and monitored it won't be long until your business reaps the rewards.

Before you go ahead, decide how you are going to measure the productivity of your mobile workforce. Is it the number of visits per problem resolution? Is it based on customer satisfaction or vehicle utilisation? Apply the business benefits of going mobile and work out how much it will cost you in terms of technology, management and support.

It's a simple, yet effective way of knowing whether a mobile workforce is the way forward for your business. Then you can ask yourself, is it time for my company to hit the road, Jack? **GB**

POWERING UP

New technology is bringing the holy grail of all-day portable computing ever closer. Sarah Kidner investigates.

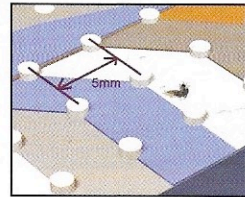
Power is your laptop's Achilles Heel. We all want smaller laptops with bigger, better screens, faster processors and lots of memory. Unfortunately, screens are one of the biggest drains on your laptop's power supply and faster processors are similarly power-hungry. Don't fret though, a number of technologies are about to emerge which could give you a day or two's worth of power, perhaps even limitless energy, from a single battery.

ANY OLD ION

Boosting battery technology is perhaps the most obvious way of improving your laptop's performance. For years the focus was on the progression from the Lithium-Ion (Li-Ion) batteries used in most modern laptops to Lithium-Polymer (Li-Polymer), which differs from Li-Ion in that it can be moulded into whatever shape you want. "Li-Ion and Nickel Metal Hydride (NiMH) batteries

are generally cylindrical in shape, which is why the Holy Grail of Lithium-Polymer was so interesting: it didn't have to be cylindrical," says Steve Crawley, a spokesperson for Toshiba. But the technology suffers from over-heating. "Hewlett-Packard brought out a polymer battery last year but it was so hot it burnt a hole in the keyboard: it wasn't their fault but it was their problem. Li-Polymer works well in a mobile phone where it isn't such a big chunky mass," says Crawley.

Toshiba hasn't given up on Lithium though. It's developed an Advanced Lithium Battery (ALB), which it claims could provide a 20 percent performance boost. ALB is a combination of Li-Ion and Li-Polymer, so the thickness of the cells can be decreased to as little as 1mm. Overheating isn't a problem because of an aluminium-laminate casing wrapped around the battery, which protects the rest of the machine.



Left: Philips' Lithylene batteries promise thinner, lower-cost batteries that will last longer

Electronics rival Philips has its own solution to the battery issue called Lithylene. Like Toshiba's ALB, it uses a polymer substance within a battery, but with a couple of crucial differences – Philips' own 'holes' technology and the type of polymer it's using. Part of the process involves making microscopic holes in the battery's components (the electrodes and separator) and pushing the special polymer through these holes.

Once the polymer sets hard it keeps the cells' active materials together so you don't need a conventional metal case to hold the battery intact – shaving 30

MRAM opens up possibilities ... PCs that turn on like TVs and laptops that run forever

percent off the size of the batteries. "The [Lithylene] batteries can be made into a flat shape so that you can use them behind your laptop's screen or in the casing of your PDA," says Hans Feil, who is general manager for Philips Lithylene. "The major benefit of the technology is the capacity of the batteries. You will get up to 40 percent higher performance with them," says Feil.

HERE COMES THE SUN

Solar powered batteries weren't an option for portable computing purposes because of their size and expense – until now. The Fraunhofer Institute in Germany has come up with a solar module which overcomes these obstacles. In addition, the battery will re-charge under office lighting, so it's possible that it will never run out of juice. A prototype is under construction, using a Casio handheld. However, it will be some time before solar powered batteries are commercially available.

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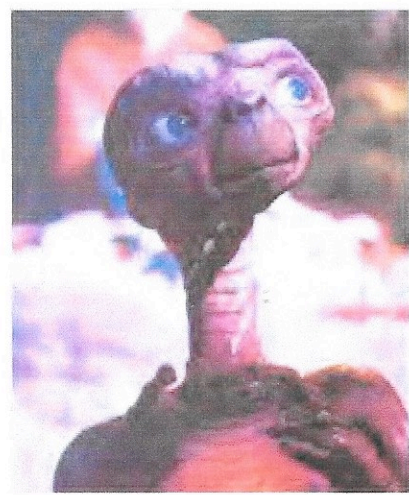
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Email messaging from Mars
25 May 2001 - by Sarah Kidner



Forget phoning home, soon ET will be able to email home using an interplanetary internet being planned by US scientists.

The proposal is being propelled into orbit by the InterPlanetary Internet (IPN) project (www.ipnsig.org), which wants to see a live test of the intra-space standards on-board the Mars mission in 2003.

IPN wants to create a re-usable communications network around the solar system for future voyagers. "They can use capabilities put in place by other missions," said Adrian J Hooke, manager of the DARPA (Defense Advanced Research Projects Agency www.darpa.mil) IPN project and co-author of the report.

The question is how? IPN's proposal is to use existing space traffic such as satellites, unmanned robots, spacecraft and crewed vehicles as the basis of an intergalactic internet.

But it warns that delays are inevitable. "We cannot assume that bits emitted by a source can travel delayed only by routing and transmission delays, to the destination. There may be physical reasons for this [for example] the source may be on the far side of the planet and can't communicate with anything," it said.

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