PART SIX
Efficient SMEs

Build the network

6.1

As you grow from a room to a floor to a site to a chain, ***Marco van Beek*** *at Forget About IT™ discusses how to make sure your IT system keeps up and how you can avoid finding yourself in network hell*

As a business grows, its networking infrastructure must be able to grow with it. When you first start a business, sharing data with your colleagues is not really a problem. You might not have any yet, and even if you do, most likely you are all working from home and e-mailing each other. However, as a business grows, sharing resources can be a very powerful way of controlling costs, as well as enabling your staff to have tools that on their own they cannot justify.

When you have a handful of users, a small ADSL or cable wireless router is a practical way of setting up a network, and most manufacturers will say that they are suitable for up to 20 or 30 users, but in reality their performance will start to drop even with half a dozen people on the network. The main reason for this is that a wireless network doesn't scale unless you are prepared to spend a lot of money, and by this I mean that if you get a quote and it is less than a wired network of equivalent size, you are probably not spending enough.

Although wired networks offer at least a tenfold increase in speed over wireless, this is not the main reason they are faster. They are faster because each user can have a dedicated connection, rather than sharing bandwidth on a wireless channel. Ethernet switches have the ability to prioritize traffic, as well as queuing it in a way that optimizes the utilization of the heavier loads. However, used incorrectly, they can degrade the performance just as easily.

Most ADSL or cable routers include a small Ethernet switch, giving you four or more ports that you can use for a wired network. Wherever possible, you should use these for devices that do not have screens and will tend to be left on all the time: printers, network attached storage (NAS) devices, servers etc.

As your business grows, you will fill up those four ports very quickly, so the next infrastructure purchase should be a proper Ethernet switch. Your choices are straightforward: managed or unmanaged, rack-mounted or desktop. The difference between a managed and unmanaged switch is that with a managed switch, you can configure the behaviour of the device, and it can be used to troubleshoot problems. The more complicated the network the more likely it will be that you need a managed switch. If you do not have anyone who understands how to use a managed switch, there is no point in buying one. Stick with an unmanaged switch until such a time when your network has grown to make it a requirement. As to the physical shape of the device, the main reason to buy a rack-mounted device is because you have a rack to put it in. If you do not, then most of the advantages of a rack-mounted switch are wasted. You should also buy a switch with around twice the capacity you currently have. Not only is this because you will need it, but because the most efficient network is one with as few hops between devices as possible, so you want to be able to re-plug all of the devices on your network into the new switch.

This, however, does lead to a network's biggest problem. From an efficiency point of view you want all of your devices connected to a single central device, but that also makes it a single point of failure. First of all this is not as bad as it seems. They have few, if any, moving parts. As an electrical device it is susceptible to mains spikes and surges, so it is good practice to connect them via a filter, or better, to an Uninterruptible Power Supply (UPS). Also, the simpler units are quick and easy to replace, so for a small business, having a spare to hand is as close as the nearest PC store.

As the business grows from a group of desks to a larger floor area, there is a temptation to just buy another small switch and stick it under the new desks. However, daisy-chaining switches is the easiest way to network hell, so if you cannot easily run the cabling back to your central point, then you need to expand it carefully.

Once you need more ports than a single switch can offer, you can get stackable switches. These devices have a 'bus' to interconnect them, turning them into one big switch. They are expensive, complicated, and you will probably never be able to add a new one to a stack when you need it as they will have gone out of production, so this gets expensive. If you need stackable switches, buy them all in one go and buy some spares at the same time. You don't want to rely on eBay to get your network back up and working.

If you cannot bring everything back to a single point (for example, your business now covers more than one floor) you should avoid having more than three switches between end devices. This used to be a golden rule of Ethernet network design, but modern switches often allow you to get away with it. That doesn't mean it is good, though. So for a good Local Area Network (LAN) design, you want a central switch, and a series of secondary switches plugged in to it. You have your core devices (servers, routers, main printers) that everybody needs to access on the central switch, and all the workstations on the secondary tier.

You can link these switches together via fibre if you need to, and this allows you to exceed the CAT5e/6 cabling 100m maximum segment distance. Where possible, you want to link your primary and secondary with a faster speed than the links to your workstations. You can do this by buying Fast Ethernet (100Mb/s) switches with a couple of Gigabit ports, that you use to link back to your primary, Gigabit (1000Mb/s) switch.

Fibre can also be used to link between buildings. If you are lucky, and have two buildings on the same trading estate, the landlord may allow you to run your own fibre through the ducts under the pavement. Alternatively, you can rent what is called a 'dark fibre' from a number of infrastructure providers. Dark simply means that it is not down to them to 'shine' the data down the fibre.

Once you have multiple sites, you need to consider how to link them into the network. The simplest way is to use a Virtual Private Network (VPN). All you need to do this is an Internet connection at each end, and a router, firewall or server capable of establishing a VPN at either end. As well as that, you need to link the essential network services at the remote end to the core. The most important of these are the tools used to find services and computers on the network. On simple networks, computers often find each other by broadcasting on the network. However, this will not work across subnets. A subnet is a part of your network that is local. Any traffic that is not local must travel out from the router to somewhere else. A routing database on the router will determine where that is. In your network settings, your subnet mask determines how much of your network address is local.

So to get to a computer or service on a remote subnet, you need a way of finding where it is other than broadcast. For most computers, this is called DNS, or Domain Naming Services. In a properly set up network, your computer will register itself with an internal DNS server so that others can find it. This is often called Dynamic DNS. In some cases you have to hard code a device into DNS to allow it to be found. Windows computers can also use a service called WINS for this. It has been superseded by Dynamic DNS, but is a usable alternative. On most systems WINS and DNS will be linked so that one can interrogate the other when it does not have the answer you need.

VPNs are limited by the slowest speed at each end. This means that on an ADSL line, you will be limited by the upload speed at the other end, usually only 10 per cent of your download speed. This means that while we are pushing 1,000Mb/s on LANs, we are very lucky to get even 1Mb/s over a VPN using ADSL. If you have multiple sites linking in to your central hub, this gets even slower. It is possible to get dedicated LAN-to-LAN links, but expensive for a small business.

At this point you can save a lot of money by a careful choice of the technology used at the remote sites. A number of applications have been written with remote workers in mind. For example, an application written using Microsoft's Access database is unusable over most Wide Area Networks (WAN), whereas the same application using Microsoft's SQL database back-end would work.

Browser-based applications work well over WANs, as little data is actually sent over the link. However, if all your users want MS Office, than you really have two choices, provide them with a local workgroup server, which is then replicated or backed up to the Core, perhaps out of hours, or a remote desktop system such as Terminal Services (sometimes referred to as RDP). With a remote desktop solution, the user is actually using a computer (or a share of a computer) at the core, and only the screen, keyboard and mouse information is sent over the WAN. This system is often unsuitable for graphically intensive applications such as AutoCAD, Photoshop or PowerPoint.

Once you start to exceed the capacity of your ADSL line, you could move to an SDSL line. This often sounds like a step backwards, since the download speed will be slower than your ADSL line, but the upload is faster, so you will get up to twice the VPN speed. Alternatively you can find ISPs who can bond multiple ADSL lines together, although this requires expensive hardware, or you can use multiple lines separately; for example, one for the VPN and one for the local users to access the Internet. Some routers can talk to each other, exchanging routing information and redirecting traffic down different routes. Although this gets complex, it can sometimes be the only way to break a bottleneck, and has the advantage of providing redundancy.

There is no need to spend a fortune on an IT system. A proper system should be designed to grow with your business and, more importantly, grow by evolution rather than revolution.

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Marco van Beek has been working with computers since 1984, when he was working with the world's most advanced automated lighting company, Vari-Lite Inc. He first started using e-mail in 1987, but stopped when it was superseded by fax machines (yes, you did read that right). In 1998 he set up his own consultancy company, Supporting Role Ltd, which specializes in IT support for companies in the event and entertainment industry. In 2005 he took a product that had been developed internally and created an innovative, fixed price IT solution for small and micro businesses. Marco's attitude towards computers is that they are tools, and are only as good as the person using them. There is no 'one size fits all' in IT.

Strategic sourcing 6.2

*Plan to get the most out of your suppliers, says **David Noble**, CEO at CIPS*

Any business, whether a start-up or an established firm, needs reliable, innovative supplies of services or goods to keep it a going concern. Every organization needs a robust supply chain that feeds business, helps it grow and keeps customers happy.

So what do you do? The first step would naturally be to compile a list of suppliers, whether local, national or global, depending on what each can offer, what you need and at the cost you have budgeted for. You then choose the supplier based on your criteria, develop the relationship and get your goods and organize your services. Job done?

Though a completely professional approach, this is a very reactive way to build a reliable supply chain. Fine if you're in a hurry and your previous supplier has let you down and you need a contingency in place for a low-value, low-risk item, but a purely transactional approach to the development of your supply chain won't be enough for your business in the long term.

So, take another scenario. Your marketing team wants to take on board a technological development that's fast moving and the latest thing. It's a tactical move designed to add value to your business and you have to move fast to take advantage of the opportunity. But, if it's a high-risk item, do you go ahead regardless, or do you step back and take a strategic approach, and call in your procurement team specialists, even if that 'team' is actually just you?

Strategic procurement is a core activity in the management of supply chains. It can be complex, needing a high level of competence and is defined as satisfying a core business need using a proactive and planned analysis of suppliers to develop keen business solutions. Your business may need to manage its costs more tightly, so your core need may be a cheaper supplier, but a strategic approach helps you look at the entire need, which could range from anything such as faster delivery, to a more innovative product.

Develop a strategy

A regularly updated, living, breathing strategy document is a good start. Keep purchasing and supply management aligned with the core values of the business and maintain its importance and prominence in the business. Competent professionals in the field of procurement will give the most value, as their expertise in supplier relations or category management will get you the best expertise.

Analyse, analyse, analyse

To spend time monitoring and evaluating your processes will seem like an onerous task when the everyday activities of running a business will seem more pressing. But, it will make the difference between a strategy that works, and one that may lead you down the wrong path.

What do your customers, and your business need?

Be customer-focused and understand the strategic direction of your business. This and your procurement strategy should be closely aligned.

Analyse your spend

Include an historical look at where your hard-earned cash has gone on goods and services; how you have positioned your suppliers; a brief history of who your suppliers are and how long you've been using them; a cost analysis of all your transactions; the critical nature of your products and services, categorized as high risk, high spend etc.

Your future spend

What will your business need in the coming months and years? What are the trends you've identified in your market and how are your competitors responding?

A full market analysis

This analysis should include an understanding of the capacity and capability of the market (and the individual markets within); who holds the power in your supply chains (you may be surprised); supplier preferencing; the position of your organization; a cost analysis of your supply chain; a breakdown of local, national and international sourcing; the actual size of your current supply base and how big your supply base could actually become.

Mapping your supply chains

Not for the faint-hearted. A complex and long process involving time and resources, so a risk assessment across the whole organization will give you a good idea of how long you need to spend on this process. The analysis and mapping stages can realistically take up to six months, but the long-term benefits and developing a strategic procurement approach will bring dividends.

So, how and what to map?

- pinpoint your profit and gross margins in your supply chains;
- recognize how many 'tiers' of supply chains you currently operate with – can they be reduced?
- understand who has the power in your supply chains – you may be surprised;
- map your goods and services against these supply chains and see where the interdependencies lie;
- be clear on where you're spending money on suppliers, based on category of spend and business unit or department;
- look at any patterns in pricing structures, using both historical and forecast data;
- what is the history of each supplier, and how have they performed over the time you've used them?
- future market trends and where your costs are likely to be;
- the true value of your supply chain – it's not just about cost;
- what are your critical products and services?

Your options

Now you have all your data, which way now? All this consolidated data presents opportunities to take your business in the direction you want it to go. It's also a chance to be creative and come up with innovative solutions with your suppliers. Rather than buying computers for your office as goods, could an outsourced desktop service be a better solution for you?

As you have your options spread before you, now's the time to do a risk and SWOT analysis on each, just to make sure you haven't got carried away… keep your options in line with your strategic business goals. That's why keeping procurement aligned with the boardroom, and supported by the head honcho, will keep everyone focused on joint goals.

Working so closely with the board, or the boss, you'll have to have your figures close to hand. Each of your options should be supported by evidence of a Return on Investment (ROI).

Your preferred plan

Once the right option has been agreed, sourcing plans are the next step, which is where you can get really creative. Supporting the organization's mission and vision, sourcing plans should create clearly defined workstreams with milestones for each task ahead and project teams to make these plans a reality.

Keep managing the performance of your new and existing suppliers at the uppermost level of your mind, to keep everything on track. You may also have to persuade your internal colleagues to see purchasing in a different way. It's not all about price and cost alone, bringing true value such as agility or innovation is also valuable.

New suppliers identified

So you think you need a new supplier, how do you go about it? Some options are quite obvious, such as trawling through the Internet, or looking through local directories. For more specialized suppliers, seeking out recommendations from associated trade bodies, or going to trade fairs means you get more immediate information on possible partners you can work with. Try networking with other buyers in a similar sector to yourself and discover the suppliers they're working with and could possibly recommend. Barring any competitive obstacles you may encounter of course.

Shout about your strategy

Part of the success of your strategy is to let all your key partners know about it, and that includes your internal stakeholders, including staff and peers. You may be called upon to lead the contracting process and coach or mentor your colleagues to follow the plan. Soft skills requirement alert.

Measure your success

It's pointless planning and implementing if you can't measure your success to help you build strategic plans of the future. Measure the deliverables from your new plan as compared to the outcomes of your purchasing practices before. You could do this with a post-contract audit, make notes from any regular meetings with suppliers, or a look back at any creative and innovative ideas that may have been suggested by your suppliers (they'll always be eager to help as it will develop their business too). Make a point of discussing the findings, not just with the project teams, but your procurement team if you have one, and with the board too. The results may influence the strategic direction of the whole business.

Effective, sound strategic procurement is one of the recipes for a successful business. It's not rocket science though, as the skills-set can be learned, but they need to be constantly developed, refreshed and honed and they are fast becoming one of the key skills in trained procurement professionals. The ability to source in a smart, strategic manner requires resource and key management information.

So, strategic procurement. It's not just about buying stuff.

David Noble is CEO at the Chartered Institute of Purchasing & Supply. CIPS, the world's largest professional body representing purchasing and supply management professionals, and is the worldwide centre of excellence on purchasing and supply management issues. CIPS has over 65,000 members in 150 different countries, including senior business people, high-ranking civil servants and leading academics. The activities of purchasing and supply chain professionals can have a major impact on the profitability and efficiency of all types of organization. Tel: 01780 756777; e-mail: **press@cips.org**; website: **www.cips.org**.

How to find your ideal office

6.3

***Rob Hamilton**, founder and chief executive of Instant, discusses the best office solutions for entrepreneurs and growing businesses*

Moving house is often cited as one of the most stressful experiences any of us will endure in our lifetime. The whole process, from finding the house, dealing with estate agents, mortgage advisors, and the final act of moving itself, can be a draining exercise. But how does this experience really differ from the trials and tribulations of moving office? On average we spend more waking hours at our place of work than in the comfort of our home, spending more time with our work colleagues, clients and business partners than we do with friends and family. And with research increasingly highlighting the role of physical workspace in contributing towards staff performance, morale, motivation and ultimately company performance, choosing the right workplace is absolutely fundamental to the future success of your business.

Whether you're starting a new company, setting up a new division or establishing a presence in a new location, the search for a new office can be daunting and time consuming. Finding the right premises, at the right price, can be a minefield for an experienced property professional, never mind if you are focusing on building a business. It's a big decision and in these times of economic austerity, the decision is more vital than ever. Getting it wrong could not only be costly, but could prove to be a major setback for the company in the crucial early weeks and months in getting a new business off the ground.

Essentially, there are three main options available when choosing an office.

1. A serviced office. This option is ideal for a small and growing business. Serviced offices provide companies with a ready-made space, all fitted out to a high standard, with manned reception facilities, meeting rooms and kitchen areas. You can take on just the amount of space you need with the flexibility to grow over time. There are no set-up costs and you can move in very quickly, needing to sign only one contract.
2. A conventional lease. This is the most traditional route and involves you finding an office, usually through an agent, and doing all of the set-up work yourself, including dealing with lawyers, architects and other contractors. You will also need to manage the day-to-day running of the office for the whole period of the lease as well as sorting out any exit requirements when you

eventually move on. This type of lease works best if you know exactly where you want to be and how much space you will need for a number of years – most conventional leases are typically for 10 years, although shorter leases can be found.

3 A managed office. This approach is increasingly popular and is ideal for companies looking for their own environment but with a degree of flexibility. The process starts with a brief from you to a specialist supplier. They will then find the right space, fit it out to your specification, deal with all the contracts upfront and for the whole duration of the lease. This is done in return for a fixed monthly fee for the period of the contract and will cover any exit costs and dilapidations when you move out. By outsourcing the entire process of setting up an office, you avoid the need for initial capital outlays, reduce the time spent and just work with a single, specialist supplier.

Whichever route you go down, here are five top tips for choosing office space:

1. *Location, location, location* – Location should be at the heart of the business strategy, get it right and you are laying the foundations of the company from which to build. Get it wrong, and it could be a costly and harmful mistake for your business. Your office is part of your company's brand. Where you choose to locate your business says a lot about you, but it's important to balance this with how much you are willing (or able) to spend. Clearly, the most prestigious locations will also be the most expensive, so it's important to consider – at the outset – what you want your office to say about you. And don't forget to factor-in travel costs for your colleagues and customers, to weigh against the location benefits.
2. *Consider taking professional advice* – A broker or agent has access to the whole market and will be able to recommend offices that you may not have considered. In addition, a broker can negotiate on your behalf and take much of the workload off your hands, leaving you free to run your business. It is worth spending a bit of time choosing a suitable broker – search the web for one that suits your needs.
3. *How much space does your business need?* – If you take on too much space, your overhead goes up; too little and you'll need to move again. The amount of space should be determined by the number of employees and how you wish to occupy the space – do you want open plan or closed offices or both? In serviced offices, there will be rooms set up for different numbers of people, with kitchens, meeting rooms and so on provided on a communal basis. If you take your own space, you should estimate about 100–120 sq ft per person, which will include the communal areas.
4. *Be sure to consider all the costs* – It is vital that you consider all the costs associated with office rental, not simply the headline rent. For example, in serviced offices the base rent covers all the running costs of the space, but telephones, internet and meeting rooms are charged as an extra. There may also be an exit fee when you leave. If you are taking on a traditional lease, you'll need to look at service charges, business rates and the costs of fitting out

and running the office day-to-day. All of these costs can add up to more than double the headline rent. If you take a managed option, all of these various costs are included in the monthly fee, so you can be clear from the start what your outgoings will be before you sign on the dotted line.

5 *Think about where you will sit* – This may sound obvious but research has shown that the layout of an office has a significant impact on the productivity of a team, with open plan offices being more conducive to good relationships between colleagues, while closed offices are preferable if elements of your work are confidential.

Unfortunately there is no one-size-fits-all set of rules that can be followed to find your perfect office. Every business and every decision is different, indeed the one thing that all businesses do have in common is that they are all unique. The most important thing is to find the office that is right for you and your business, and that the process of making that decision is given due planning and consideration. It should not be viewed as a distraction from the core business, but an excellent opportunity to find a home for your company on which to build its success.

Rob Hamilton is founder and chief executive of Instant, the company that matches businesses with the perfect flexible office space. The company uses its expert knowledge of availability around the world to broker executive suites, find leased space and operate managed offices. The company has a dedicated Managed Office business, which provides occupiers with a bespoke, full service delivery of workspace. Aimed at companies requiring between 10,000 and 50,000 sq ft on a one- to five-year lease, the service provides budget certainty through a fixed price, while outsourcing risk and project management through a single supplier. Further details: e-mail: **RH@instantoffices.com**; tel: +44 (0)20 7298 0600; website: **www.instantoffices.com**.