

wired vs wireless

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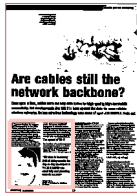
*Wireless technology is now a 'must have' in most corporate networks. But has it usurped the cable when it comes to safe and reliable connectivity?*



SXC/AMBER ALSHUKAITI

# Are cables still the network backbone?

Once upon a time, cables were the only safe option for high-quality, high-bandwidth connectivity. But developments like 802.11n have opened the door for more reliable wireless networks. So has wire-free technology now come of age? JON HOWELL finds out



**C**ables have been the core of connectivity since the telephone first appeared in the late 1800s. Wireless technology, however, has appeared comparatively recently and has gone through all sorts of problems, from its early analogue days where quality and robustness were an issue, through to security problems when WEP was shown to be insufficiently safe. But as successive generations of Wi-Fi have been developed, they have brought with them both improvements in security as



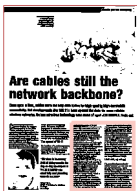
well as increases in transmission speeds. 802.11a/b/g began to be incorporated in all sorts of devices including, most importantly, in business tools such as laptops. Nowadays, most smartphones have Wi-Fi connectivity that supports the most recently ratified addition to the Wi-Fi stable: 802.11n.

### **The spread of Wi-Fi**

The timeliness of re-evaluating wireless networking with respect to its wired counterpart is all down to the latest version of Wi-Fi. “The advent of 802.11n has seen an almost exponential

**“Wireless is becoming just as indispensable for day-to-day operations in the 21st century as electricity and plumbing were in the 20th”**

*Morgan Kurk,  
Senior VP of Enterprise Intelligent  
Buildings,  
Commscope*



increase in the uptake of WLAN technology within the enterprise market place,” says Mark Pearce, director of Channel and Alliances at Enterasys Networks. The company is part of Siemens Enterprise Communications which supplies both wired and wireless networking solutions. “Whether it’s healthcare, higher education, transportation, or financial services, the huge increases in rate, range and now price are all having a positive impact on the adoption of this technology.”

There is certainly no doubt that Wi-Fi has benefited from increases in speed since the first standards were ratified. The specifications jump up from 54Mbps (802.11g) to 300Mbps (802.11n). Cisco says that it tested its access points in real world scenarios by running a bandwidth-heavy task, video streaming, and found a jump from 22Mbps to 140Mbps of sustained throughput. This exemplifies the importance of the new standard. Businesses who previously wanted to run such applications as video-conferencing would have found the number of access points necessary for such bandwidth-intensive applications prohibitively high. 802.11n changes all this. But hasn’t wireless always had a much closer connection with the consumer market? Not anymore.

It seems as though the demand for wireless products has been particularly high for the enterprise market. Figures from ABI Research state that global shipments for wireless routers, access points, and gateways in both the consumer and enterprise markets were more than 18 million in the second quarter of 2010 – a six per cent increase on the first quarter of the year. Pearce, on the other hand, reports that Enterasys has seen year-on-year growth figures exceeding 60 per cent in its 802.11n shipments. So it certainly appears as if business has woken up to the advantages that wireless networks can bring and demand is high.

### **Look ma, no wires!**

The overwhelming attraction for wireless networks – at least from the end user’s perspective – is the flexibility that they offer. For instance, you don’t have to find a socket to plug your computer into. Moreover, as many portable devices are now equipped with Wi-Fi as standard, employees can become mobile and stay connected as they move around their workplace, supporting new concepts such as hot-desking. From a purely practical point of view, it’s also far simpler to cover an office with a handful of access points



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*Geoff Wilde,  
Data installation product specialist,  
Nimans*

rather than install dozens of cable runs to specific desks. But it's not just the needs and desires of business that's bringing in the change.

“The migration to wireless is being driven as much by consumers, the ‘iEverything’ generation, as much as IT departments pushing the boundaries of how we work,” says Gareth Green, vice president of sales, EMEA, at Aerohive. “The ratification of 802.11n and proliferation of wireless devices have transformed wireless LANs from a ‘nice to have’ into an essential business infrastructure. Wi-Fi is cheaper to deploy compared to wired infrastructure, and facilitates greater workforce flexibility, efficiency and productivity.”

Roger Hockaday, director of marketing at Aruba Networks EMEA, believes employees wanting to access work applications using their own devices is a reality that network managers are just going to have to get used to. “The battle has been lost,” he says. “The question is no longer how to stop consumer-grade computing devices getting on the corporate network; the question is, what impact they will have?”

He points out that with half of the world's largest companies now evaluating the *iPad* with a view to using it as a corporate client-device, wireless is a necessity. This is not least down to the simple fact that such devices don't have a built-in Ethernet socket to connect them to a wired network. Hockaday believes that such devices will force a re-focusing from wired to wireless connectivity, as well having to provide ubiquitous rather than just hotspot network coverage.

## Ready for wireless

Companies are certainly increasingly turning to wireless solutions according to Green. “In the majority of greenfield or network refresh environments wireless is predominantly the connection of choice,” he says. So does that mean that the technology has shaken off the negative connotations it attracted in its early days? Mike Silva, sales director for the EMEA region for the Network Management Division of Ipswitch, a maker of network management solutions, believes it has. “Wireless networks have been ready for the prime time for years,” he says. “The single largest reason that wireless networks have been delayed in ubiquitous deployments is down to (often unfounded) security concerns rather than the actual technology itself.” He cites unfortunate cases of companies who failed to adequately secure access points which carried sensitive data. In 2007 for example, retailer TK Maxx was responsible for one of the biggest losses of credit-card data in history largely because of an IT security breach. 45.7 million credit card details were stolen because only WEP (the ironically named ‘Wired Equivalent Privacy’) had been enabled. At the time

of the incident, WEP had already been shown to suffer from fundamental weaknesses which meant it certainly didn't offer a level of security that was comparable to a wired connection.

Despite such high profile cases, the move to wireless is seen as an inherent progression of the networking world. “Across all sectors, companies are migrating to wireless networking technologies as the natural successor to traditional wired enterprise environments,” says Ram Appalaraju, senior vice president of marketing at wireless solutions provider Meru Networks. “Wired networks lack the flexibility and scalability needed to accommodate the variety of new devices and applications that have been introduced onto the network by staff across all departments.”

Commscope's senior VP of Enterprise Intelligent Buildings, Morgan Kurk, goes further. He believes wireless should now be thought of as the fourth utility. “Wireless is becoming just as indispensable for day-to-day operations in the 21st century as electricity and plumbing were in the 20th,” he says. “The rapid uptake of wireless devices in every strata of society has made ‘universal coverage’ – comprehensive coverage everywhere, all the time – a necessity.”

## Making it pay

However, demand isn't everything. You don't always get what you want, especially if there's a cost equation involved. But Appalaraju believes this is where wireless can also deliver. “With wired environments, the costs of the

initial roll-out and ongoing maintenance are high, whilst the planning and expansion of a network can logistically be a very complex process,” he says.

A cautionary note is sounded by Aerohive's Green: “Wi-Fi is cheaper to deploy compared to wired infrastructure, and facilitates greater workforce flexibility, efficiency and productivity. However, its technical complexity, coupled with end-user expectations for wire-like resilience and performance, often results in Wi-Fi being more costly and onerous to run than its Ethernet equivalent.”

Of course, the world of wireless is not all about Wi-Fi. There are also in-building DAS (distributed antenna systems) and cellular connections. Although in-building 3G coverage tends to be not always ideal, Michel Robert,



managing director for managed services provider Claranet, suggests that it can have a useful role to play. "An office can now be open for business almost immediately", he says. "Rapidly deploying a 3G network solution enables suitable connectivity for the new location while the primary telecommunications service is being implemented."

Robert also recounts how, even though it's only intended as an interim measure, the 3G service can be used as a backup, providing a passive link to the network if and when needed.

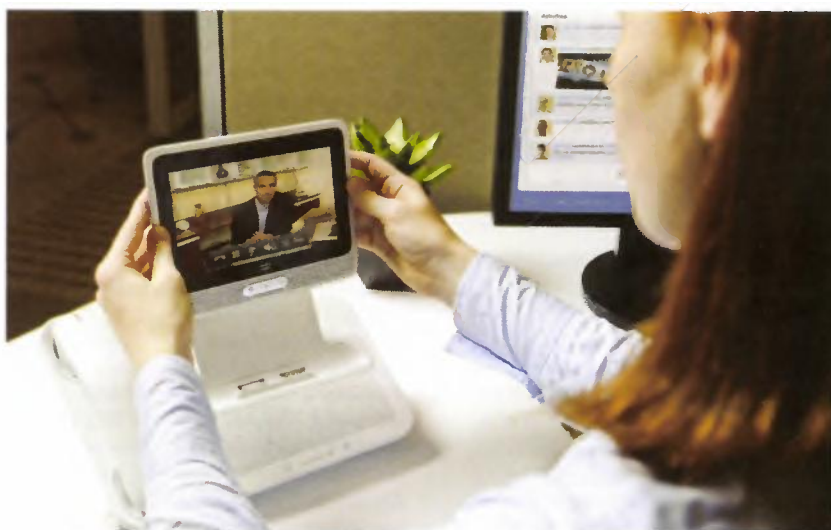
### **Wires: still the core**

There are, however, always going to be situations where wireless just can't cut it. Lars Koelendorf, Wireless Segment manager EMEA for HP, acknowledges that there will be industries which will stay wired if they have environments where they use equipment that causes disruption to the wireless network. "Networks that require considerable switching capacity or use the network for routine but heavy activities like extensive backup are likely to stay wired too," he says.

VoIP is another notable example. "We've been delivering voice over IP to small businesses since 2002, and in that time we've tried all manner of IP phones, both wired and wireless," explains Peter Gradwell, MD of ISP Gradwell. "In this context, wired phones win hands down for quality and reliability. They have a guaranteed amount of bandwidth, a consistent and reliable network connection, and typically 'just work'."

Wired connections are ultimately at the core of networking. "From a business networking perspective, the vast majority of enterprises still require wireline connectivity (copper, coax and/or fibre) to support their WAN infrastructure," says Dave Parks, product marketing director at Ciena. His view is that bandwidth intensive applications, such as cloud computing or data centre networking, are driving firms to move from E1 to Ethernet and wavelength-based 10Gbps services. And it's not just fibre that's seeing interest.

MLL Telecom – which offers both wired and wireless solutions to service providers, systems integrators, and the public sector – has seen wireless take over connectivity for the "last few metres" of a network. But as the data from all these wireless devices



*Devices that offer both wired and wireless connectivity are more suitable for enterprise networks. For example, Cisco's Cius shown here can be used as a portable, or plugged into a base station that turns it into the screen for a video-conferencing capable desk phone*



aggregates there comes a time where only a wired connection will do. The firm's head of strategy, Richard Brandon, reports on how MLL is deploying more copper-base connections than ever before into businesses, and public sector schools and offices, by delivering high speed Ethernet over bonded copper.

Of course, no wireless system is ever 100 per cent wire-free and it must rely on cables at some point. Nimans, a specialist telecoms distributor, has found traditional cabling sales remain equally strong not only as part of a wireless infrastructure but also for standalone solutions. "Wireless devices still rely on a cable connection as part of the overall network. Wireless access points are still connected by a switch somewhere. Cabling will always be there," says Geoff Wilde, one of Nimans' data installation product specialists.

"At the end of the day, the internet is a cabled network and will always be a cabled network, mainly for security if anything," adds Paul Hudson, Buffalo's UK and Northern Europe sales director.

### Let's work together

Cabling solutions providers certainly don't seem worried. "At Nexans we see wireless as a complementary rather than a competing technology, and both have benefits and drawbacks," says the firm's CTO Harry Forbes. "Most organisations use the two technologies together to achieve the best result and often have a secure fixed cable network for main workstations and office environments, but also overlay a wireless network to provide flexibility."

The overall consensus is that wired and wireless aren't really fighting for top position at all. As Mathew Bain, principal consultant at Servo says: "We mainly recommend wireless as a complementary technology, not as an alternative to wired, as good quality structured cabling is still the most reliable way of delivering network services." In its role of designing, deploying, and managing its customers' IT infrastructures and services, Servo has found cable more reliable than wireless. It says that this is because cables are less susceptible to interference from other equipment or by temporary constructions such as office partitions.

"Most organisations will have a combination of wired and wireless networks and I believe this will continue to be the case for the foreseeable future," says Dirk Paessler, CEO, Paessler, a global provider of network monitoring

solutions. "At Paessler for example, we do not expose our internal LAN to the outside world using a WLAN. Our WLAN is located in a DMZ which is sandwiched between our firewall to the WAN and another firewall to the LAN. Wireless clients can access the LAN only through our Cisco VPN. Whilst this is more complicated, it's also more secure."

The goal, for both users and network managers, seems to be unification. "It will no longer be feasible to maintain two separate networks – wired and wireless – with different security policies, different service levels, and different management systems," says Aruba's Hockaday.



**"The end user doesn't care whether they are connected wired or wirelessly, the network just needs to work for them."**

*Lars Koelendorf,  
Wireless Segment manager EMEA, HP*

HP's Koelendorf echoes this: "The end user doesn't care whether they are connected wired or wirelessly, the network just needs to work for them. HP sees unified network access as the aim of the network manager. Enterprises should see access based on the user or the device and should not be concerned about the medium of access being used."

So, are cables still king? Probably. But if that's the case, then wireless makes an indispensable queen. ■