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Bridge or Barrier?

Wireless LAN, or WIFI technologies have received much hype in the past twelve months, as hotspots roll out across the maturing wireless marketplace. Concurrently, arguments have sprung up on the question of interoperability with existing and planned networks, and whether or not public access WIFI as a business proposition challenges or complements existing and planned networks. As the dialogue has developed, it has become clear that whatever the answer, both will co-exist; that they may do so cooperatively or competitively remains to be seen.

WIFI is a local area high speed broadband wireless technology that allows users within the range, or hotspot, network access at up to 11 Mbit/s. The range of the hotspots, depending on issues such as

ANTHONY BEHAN

line of sight, is anywhere between 30–180 m. It is proliferating in what Starbucks' Chairman Howard Schultz refers to as "the third place", where people are not at home and not at the office. This means coffee shops, airports, hotels, railway stations, convention centres, and so forth.

Based standard

WIFI is based on the 802.11 standard, which has various versions identified by the trailing letter. The most commonly referenced are:

- 802.11b is the current predominant standard, operating in the 2.4 GHz range, and offering up to 11 Mbit/s access speeds.

- 802.11a is the next version, which operates in the 5 GHz spectrum, and offers up to 54 Mbit/s.
- 802.11g will ultimately deliver up to 54 Mbit/s in the 2.4 GHz band, and will deliver other as yet undefined benefits.

In order to access the service, the user requires an 802.11 enabled laptop, using either a WIFI card, like a network card with an antenna, or on-board 802.11 that is beginning to proliferate (see Intel's Centrino product, and Dell's recent announcement that all latitude laptops will come with 802.11 as standard, as examples – all other major manufacturers have similar programmes).

Usually, access will be on a subscription basis, or via a prepaid scratch card or credit card account. Authentication is most often based on the RADIUS (Remote Authentication Dial-in User Service) standard, using a username and password. There are at present thousands of hotspots around the world, and these are increasing at a rate of knots. Aside from the often referenced hotels, cafes and convention centres, 802.11 is facilitating broadband access in many other locations, such as around phone booths in the United Kingdom, and even an outdoor public plaza in Australia.



A network of Cisco Systems makes this Plug-and-Play in the Hotel Estrel possible. Access points, optimally set at the Ceiling and well cabled accesses via structured cabling or Long Reach Ethernet.

Cisco

Advantages and Disadvantages

The bandwidth deliverable is indeed impressive – with wired LAN speeds at 100 Mbit/s, even 10% of that is impressive on a wireless network. There are a number of limitations, however, that isolate and differentiate the technology from, particularly, its wide area network competitors like UMTS.

First of all, the theoretical speeds are compromised by volume of users, and therefore do not represent a true picture of the product. It is likely however that WIFI will in general be significantly faster than UMTS. Secondly, it is static. Most wide area mobile network standards are designed to function adequately on bullet trains, and therefore allow for in-motion operation. Thirdly, it is a non-phone experience, and there is a requirement for significant user hardware that exceeds the requirements associated with UMTS. It is also, significantly, a very different experience. Fourthly, WIFI operates in a noisy space that is less secure than the "conventional" networks. Amongst other things, garage door controls and baby monitors in the US use the same frequencies. Fifthly, the operational area of WIFI is very small, and does

not represent a realistic proposition for wide area coverage.

It is important to note that WIFI is a widely available technology, with access points at this time well under the \$ 100 mark. Many householders now have personal live hotspots in their homes, leading to widespread adoption and acceptance of the technology. This helps to promulgate the public access network. WIFI has the advantage of being first to market in terms of wireless broadband public access. In addition, its potential as a driver for the coming PC (or more specifically, laptop) upgrade cycle has seen the aggressive entry of industry giants such as Intel and Dell in driving the technology forward. This impetus guarantees that WIFI will have a momentum that will not go quietly into the night. The innovators have come, and the early adopters are already on board. WIFI is crossing the proverbial chasm in early 2003, and will succeed or fail this year.

Will it be successful?

Every major telecommunications company in the world has a WIFI strategy. At the extremes, some are monitoring its progress carefully, and some (like T-Mo-

bile in the US) are rolling out so fast that they are barely pausing for breath. In every major economy, hotspots are rolling out, site rights are being negotiated well in advance, and entrepreneurs are taking advantage of this early stage opportunity (Before you start thinking about it, the secret's out). In many cases, it is a hedging of bets rather than a core long-term strategy. Whatever the motivation, the involvement of the carriers, both wireline and wireless, is hugely significant.

Almost every new laptop in 2003 will have 802.11 on board. Nokia and other switch vendors are preparing integrated solutions where WIFI can collaborate with and augment data networks. The infrastructure is getting cheaper and cheaper, driven to the lowest possible price point by larger companies (such as Intel and Cisco) with broader agendas. Hotspots will be concentrated in high volume, easy access locations, without the regulatory percentage coverage requirement. All of these factors will contribute to an availability and core user base that pre-equip WIFI for success as new wide area networks battle for the hearts and minds of consumers.

Having said that, integrated WIFI networks offer the best of both worlds. Users can access WIFI at the hotspot, UMTS (or another wide area 3G technology) outside the hotspot, have an always available data connection, with the benefits of hotspot access and the wide area network in one. Indeed, the early adoption of WIFI bodes well for the potential success of 3G, as these users will be presented with that technology as an upgrade rather than as a replacement. Similarly, efforts are underway throughout the world to upgrade GPRS offerings, using emerging technologies like SIM based authentication, presenting an upgrade on GPRS, as opposed to the projection of 3G as an upgrade on WIFI. The interoperability of these two businesses as opposed to technologies presents an interesting challenge, one that will inevitably be shaped by consumers.

One of the most significant threats to the WIFI market is the stability of the entrepreneur group. With international markets suffering what can best be described as volatile fortunes, the availability of venture funding is limited, and the palatability for risk is low. Investors burned by in particular the ISP sector are looking at the same problems again, and

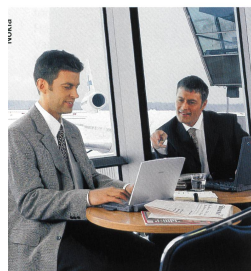
Billing Systems 2003

IIR's Billing Systems Conference & Exhibition celebrates its 10th anniversary in 2003, cementing its place as Europe's most important billing event. The 2003 event will take place at London's Earls Court Conference & Exhibition Centre, and with over 2500 participants at the event in 2002, and featuring 5000+ m² of exhibition floor space, Billing Systems 2003 will once again be Europe's largest billing event. The event features 18 operator-led conference streams, 4 intensive seminars and workshops, as well as playing host to the World Billing Awards Gala Dinner on May 14th. There will also be over 80 free product briefings during the event, as well as 5 free tutorials and problem-solving clinics. This four-day event is designed to give telecoms operators and service providers an unrivalled opportunity to network with their industry peers, to benchmark billing best practice, and to optimise their Customer Care & Billing (CCB) strategies for both today and for the future.

The innovative conference programme has been designed with flexibility at heart, so delegates can tailor the sessions to suit their specific needs. Some of the key topics being discussed at the conference include Billing Systems Strategy; Business & Service Modelling; Content & Usage Billing; Billing, Branding & Marketing; CRM, Loyalty & Churn; Fraud & Revenue Management; Service Delivery & Assurance; GPRS, UMTS & 3G Billing; Interconnect Accounting.

After an extremely successful debut last year, Utilities Billing will once again feature as a dedicated area on the exhibition floor and a separate conference stream, reflecting the growing importance utility companies are placing on their billing systems and strategies in this increasingly competitive marketplace.

IIR's Billing Systems 2003
13th – 16th May 2003
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Hotspots roll out across the maturing wireless marketplace.



Cisco

Since January 2003 the Hotel Esterel in Berlin offers its guests WiFi-access in all public spots and in all rooms, so that the guests are able to surf everywhere with high speed.

with potential exits limited, growth in the independent sector is restricted. That appears to have been circumvented as a potential barrier by the involvement of the wide area network operators, although larger companies, being more risk conscious and implicitly, therefore, less innovative. The widespread adoption

of technology, while not yet inevitable, will drive this forward.

A significant point to make is that 3G networks are about much more than high speed broadband access on the laptop, which is, essentially, where WiFi takes a bow. 3G networks allow for significantly more voice traffic than existing

Am-Beo

This article has been written as part of a series of articles for Billing Systems 2003. Am-Beo are exhibitors at Billing Systems 2003, 13th – 16th May 2003 at Earls Court Conference & Exhibition Centre.

Homepage: www.am-beo.com

networks, and in their mobility deliver opportunities for in-motion services with which WiFi cannot compete. This means that there will always be a massive market for wide area networks that WiFi does not compete with – voice is still king, and won't be going anywhere soon.

Ultimately, however, users want services, not technologies, or networks. Users want to be able to access the Internet seamlessly, transparently, wirelessly, and fast, anywhere at any time. They want services that make their lives better or easier. They want to be able to communicate with home, with the office, and with other people. However, they do not care about WiFi, or 3G, or GPRS, or UMTS. Nor do they care about bits or bytes, but rather they care about movies and conversations.

Conclusions

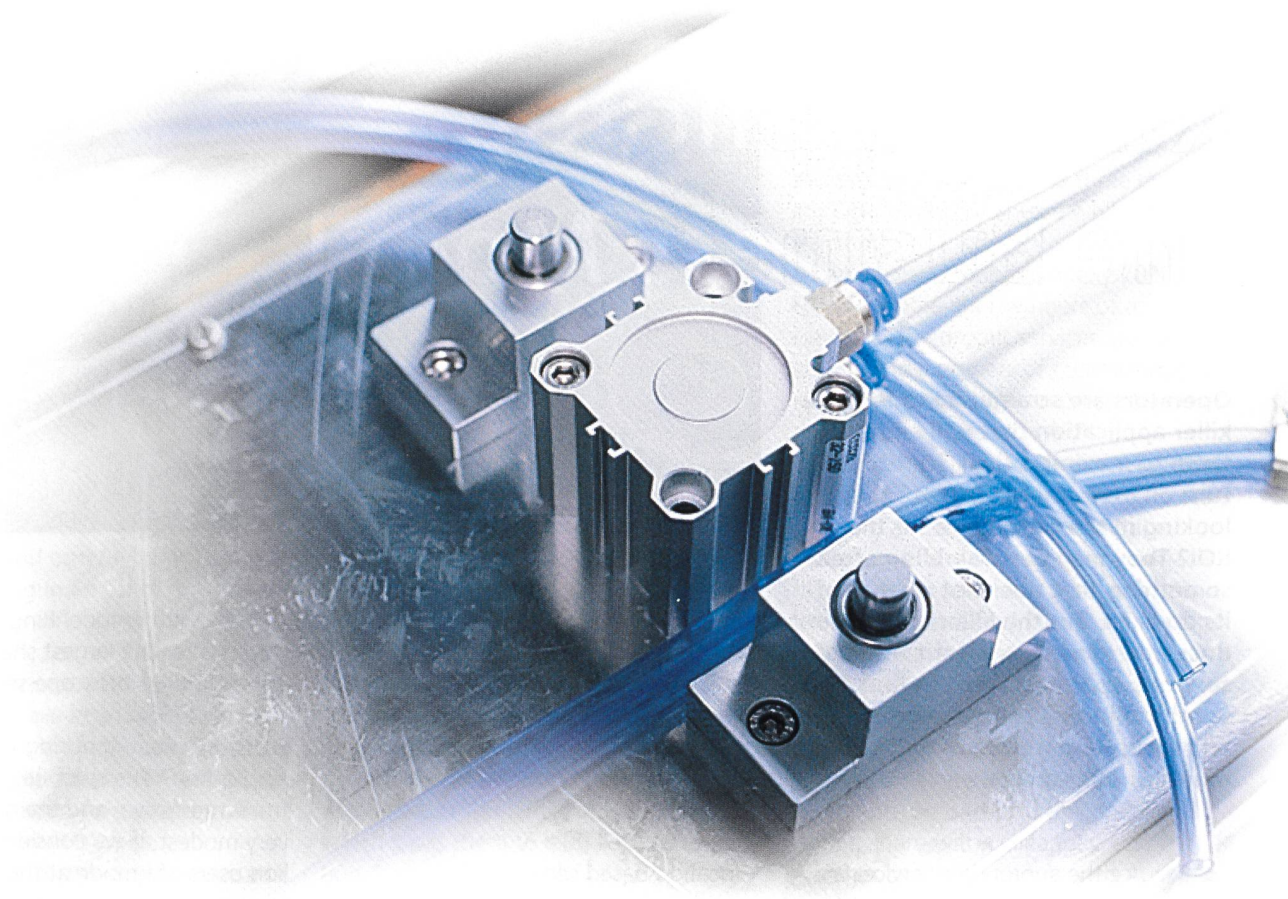
All of the technologies and networks have their advantages and disadvantages. Each will contribute to the deployment and availability of these products and services, and telecommunications companies will sell and profit from these products and services. Professionals in this market all too often tend to get lost in the jargon, and lose perspective on the bigger picture. People will pay to make their lives better, and to make their jobs better. In this context, we should examine the development of next generation networks, products and services, and ensure the delivery of what people want. 3

Zusammenfassung

WiFi

Wireless LAN bzw. die WiFi-Technik hat in den vergangenen zwölf Monaten, als der zunehmend reife Wireless-Markt immer wieder neue Hotspots entstehen liess, für Furore gesorgt. Gleichzeitig wurde die Frage diskutiert, wie es um die Interoperabilität mit den heutigen und künftigen Netzen stehe und ob ein im grossen Stil eingeführtes WiFi-Anschlussnetz diese Netze konkurrenzieren oder vielmehr ergänzen würde. Je länger die Diskussion dauerte, desto klarer zeigte sich, dass man sich unabhängig von ihrem Ausgang auf eine Koexistenz der beiden Systeme gefasst machen muss. Ob sich dieses Nebeneinander in Eintracht oder im Wettbewerb abspielt, muss die Zukunft weisen.

Anthony Behan, Founder and VP of Business Development, Am-Beo



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