

JAN 2008

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Foreword

Wireless@NIE! That was launched in 2003 and it was a big event for all of us. We were one of the first to offer campus-wide wireless access. At that time, technology was fairly new and most laptops were not equipped with wireless facilities. To encourage trainees to use the facilities, we even had to loan out PCMCIA cards because their laptops were not equipped with wireless technology. Technology has changed all this now.

Presently, having wireless facilities in campus or in schools is a norm. Wireless technology is so pervasive that all schools, business, hotels and homes have this technology and we do expect to access this facility every time we visit these places. Wireless@SG is one of the initiatives that has pushed this wireless technology. We now no longer have to promote this kind of technology to our trainees.

Wireless technology in campus has also allowed different kinds of learning interactions. Take a walk around NIE campus, student hub, the library, and the canteen. You can see the trainee teachers working either alone or in groups with their laptops and accessing the internet through the wireless technology of NIE. This is the kind of freedom of learning that we envisage when we started our wireless programme in NIE. We have achieved this.

To continue to provide this service, NIE has to invest in new technology and to upgrade its network. We have this in mind and we are looking forward to provide better wireless coverage and faster speed of wireless

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access through newer technology. Our next challenge is to encourage faculty staff to use this form of wireless access in their lectures and tutorials.

Assoc Prof Philip Wong,
Divisional Director,
Academic Computing and Information Services



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ARTICLE



Demand for internet access anywhere and everywhere, has become increasingly important, and integrated into our everyday lives. The promise of information at our finger tips has become the buzz word in this new internet age. Social networking has played a big role in driving this demand. The drive for up-to-date information, and connectivity has now become increasingly important in the new digital age.

The 3 main Singapore telecommunications company, in anticipation of this demand, have already rolled out 3G and 3.5G offerings, that bundles up with their mobile plans, letting the users access the internet with mobile devices, or through small and friendly USB modems that you can plug into your laptops.

How does WiMax fit into the equation?

What is WiMax?

The Worldwide interoperability for Microwave Access (WiMax) is a telecommunications technology aimed at providing wireless data over long distances in a variety of ways. It is based on the IEEE 802.16 standard, which is also known as WirelessMAN. WiMax, having been



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designed using internet protocols with strong Quality of Service (QoS) and security, provides an excellent platform to run Voice-over-IP applications, like Skype, due to its strong QoS support.

There are current 2 popular standards based on the IEEE 802.16 standard. 802.16d-2004 standard, also known as the Fixed WiMax, has been designed for fixed wireless broadband. 802.16e-2004 standard, also known as the Mobile WiMax, is a new standard that is designed specifically for mobility and improve capacity and coverage.

Mobile WiMax is the standard that will put it in direct competition with the current 3G and 3.5G offerings by our main 3 telecommunications company. With added support for mobility between base stations, capacity and coverage, this standard promises the true broadband on the go service. The Mobile WiMax would also be able to prioritize different types of traffic on the go, giving higher priority to certain traffic like Voice-over-IP applications (e.g. Skype).

WiMax is different from Wi-Fi, even though they begin with the same two letters. Wi-Fi is based on the 802.11 standards, and the network adaptors can be found built-in in most of the current generation of computers and laptops. WiMax does not work out of the box with the current computers and laptops today.



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Why WiMax?

Why are some people excited over this new technology:

- Speed - It is capable of speeds of up to 70Mbits/s, depending on the distance to the base stations.
- Range - It is capable of a range of up to 50km. This brings about the promise of access to everywhere, and anywhere.
- Quality - With the support of Quality of Service (QoS) in WiMax, voice lag in Voice-over-IP applications like Skype, will be a thing of the past.

Why not WiMax?

Why are some people lukewarm towards this new technology:

- Interference - Since it is based on wireless technology, WiMax is affected by the interference from other wireless technologies that uses the same spectrum. Although it is capable of speeds up to 70Mbits/s, over a range of 50km, it depends greatly on the antenna design. For Mobile WiMax devices, speeds will be affected due to the low power antenna, and also due to the urban environment with lots of interference.
- Hardware - WiMax currently would require an additional external wireless modem. However, WiMax has the support of Intel, which



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means that Intel might be integrating this technology in the future generations of laptops and computers.

- Limited Portability - QMax, the only internet service provider in Singapore using WiMax technology, you would need to bring the modem, and the AC Adapter if you wish to make the modem portable. This is due to the fact that only Fixed WiMax products have been certified. The newer Mobile WiMax products are currently not yet available in the market.

WiMax and 3G in Singapore

3G and 3.5G broadband plans are already available in Singapore for some time. Here is a simple table showing the 2 technologies summary in Singapore, at a glance:

	3G/3.5G	WiMax
Speed	512kbps to 3.6Mbps	256kbps to 1.5Mbps
Price (not promotional)	\$10.70 to \$72.76 per month	\$11.90 to \$37.45 per month
Free Bundled Data	\$20 to unlimited	Unlimited
Hardware	Works with a small USB modem	Works with a wireless external modem
Coverage	CBD area to whole of Singapore	<ul style="list-style-type: none"> • Portable only if you bring the AC adapter along with the external modem • Certain areas in Singapore



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Quality of Service	Voice quality as the same network is used for voice calls	Has specific priorities for certain data like Voice-over-IP applications (e.g. Skype), and IPTV
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Note: The only WiMax service provider in Singapore, QMax, is currently only using the Fixed WiMax technology, as the Mobile WiMax technology was just recently ratified.

Conclusion

Looking at the technological standpoint of WiMax, WiMax promises much for consumers because it is built specifically for mobile broadband, with higher speed and longer range, and strong support for Quality of Service (QoS).

However, from the standpoint of the product offerings in Singapore, 3G/3.5G will still be here to stay, at least until the Mobile WiMax products are certified. 3G/3.5G in Singapore only requires a small USB modem to connect to the internet, while the current WiMax offering requires you to bring along the AC adapter if you require portability. In terms of mobility and ease-of-use, 3G/3.5G comes out tops for its product offerings.

The WiMax wave is only just starting off in Singapore, and we can expect more offerings in the future.



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LIFESTYLE

3G Wireless Broadband

By Ang Choon Gei, Computer Services Centre

The home usage for the WIFI is gathering and picking up in Singapore. In most home, we usually have a wired broadband modem and a wireless Router. We also have a wireless adapter to attach to your Home PC or a notebook with WIFI capabilities. This is a typical setup for the Home Wireless Network.

On the other hand, 3G Wireless Broadband has made mobility with ease. By plugging the 3G Wireless device to your notebook, you are able to access the internet as long as there is 3G coverage.

M1 is the first service provider in Singapore to launch the wireless broadband service on 6 December 2006. Starhub is not going to lag behind on the wireless broadband, it has followed up to give the consumer an additional choice and a competitive pricing scheme.

The advantages of the 3G Wireless Broadband are as follows:

Mobility

The mobility is the same for mobile phone.

Portability

The device is smaller and weighs less than the mobile phone.



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Easy Deployment

Initially, the software and driver are to be installed in the computer. Subsequently, it is plug and play.

Wide Coverage

Taking the advantage of the 3G Phone Network coverage, the 3G Wireless Broadband could be used in the indoor and outdoor or even in the suburb. Perhaps, overseas phone network is covered depending on the service agreement between local phone network provider and the oversea phone network provider.

Service Level Agreement (SLA)

The SLA is similar to the mobile phone network.

Typical Application for 3G Wireless Broadband

For both technologies WiMax and 3G Wireless Broadband, their mainstream of applications are still Email, Online Gaming and Internet Surfing.

The 3G Wireless broadband can be used as a plug-in device or be used in the 3G Mobile Router whether in the education environment or in the corporate environment.

Education environment: Student and Staff

The mobility and wide coverage of 3G Wireless Network could provide a good out of campus elearning experience, possibly in the high biodiversity area (which is usually a remote place) such as Labarodor Park (



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<http://habitatnews.nus.edu.sg/news/labrador/blog/>) or the Chek Jawa in Pulau Ubin (<http://habitatnews.nus.edu.sg/news/chekjawa/>).

Corporate environment: Mobile Wireless Local Area Network

The 3G wireless could extend to set up a mobile wired network or a wireless network. The corporate can take the advantage for mobility of 3G Wireless Broadband to set up offsite network quickly for the below-mentioned sites with the aid of the additional 3G Wireless Router device (<http://www.dlink.com.sg/products/dlhome.asp?sec=0&cid=217&pid=547>) :

- Disaster Recovery Site
- Business Continuity Plan Site
- Company Road Show or Exhibition
- Company Retreat
- Off Site Meeting

2008 Singapore Holiday

Public Holiday Recess Vacation

- | | | | | | |
|--------------|------------------|----------|--------------|-------------|-----------------|
| 1 January | New Year's Day | 1 May | Labour Day | 1 October | Hari Raya Puasa |
| 7/8 February | Chinese New Year | 19 May | Vesak Day | 28 October | Deepavali |
| 21 March | Good Friday | 9 August | National Day | 8 December | Hari Raya Haji |
| | | | | 25 December | Christmas Day |

January							February							March						
Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat
		1	2	3	4	5						1	2	30	31					1
6	7	8	9	10	11	12	3	4	5	6	7	8	9	2	3	4	5	6	7	8
13	14	15	16	17	18	19	10	11	12	13	14	15	16	9	10	11	12	13	14	15
20	21	22	23	24	25	26	17	18	19	20	21	22	23	16	17	18	19	20	21	22
27	28	29	30	31			24	25	26	27	28	29		23	24	25	26	27	28	29

April							May							June						
Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat
		1	2	3	4	5					1	2	3	1	2	3	4	5	6	7
6	7	8	9	10	11	12	4	5	6	7	8	9	10	8	9	10	11	12	13	14
13	14	15	16	17	18	19	11	12	13	14	15	16	17	15	16	17	18	19	20	21
20	21	22	23	24	25	26	18	19	20	21	22	23	24	22	23	24	25	26	27	28
27	28	29	30				25	26	27	28	29	30	31	29	30					

July							August							September						
Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat
		1	2	3	4	5						1	2		1	2	3	4	5	6
6	7	8	9	10	11	12	3	4	5	6	7	8	9	7	8	9	10	11	12	13
13	14	15	16	17	18	19	10	11	12	13	14	15	16	14	15	16	17	18	19	20
20	21	22	23	24	25	26	17	18	19	20	21	22	23	21	22	23	24	25	26	27
27	28	29	30	31			24	25	26	27	28	29	30	28	29	30				

October							November							December						
Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat
			1	2	3	4							1		1	2	3	4	5	6
5	6	7	8	9	10	11	2	3	4	5	6	7	8	7	8	9	10	11	12	13
12	13	14	15	16	17	18	9	10	11	12	13	14	15	14	15	16	17	18	19	20
19	20	21	22	23	24	25	16	17	18	19	20	21	22	21	22	23	24	25	26	27
26	27	28	29	30	31		23	24	25	26	27	28	29	28	29	30	31			

*Note: Recess and Vacation for October to December 2008 is not available when this calendar is created.



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LIFESTYLE

Cooler Wireless Updates

By Benny Lam, Converscient Pte Ltd



voWLAN Updates

What is voWLAN?

voWLAN (Voice over WLAN) is a method of sending voice information in digital form over a wireless broadband network. Essentially, voWLAN is VoIP delivered through wireless technology. voWLAN is basically Skype or Google Talk on the move.

voWLAN for education

Merging voice and data networks opens up a world of opportunities for improved communication between teachers, parents and students. voWLAN in the future would provide better interaction between parents and teachers due to its cost effectiveness and pervasiveness. voWLAN also supports voice and video conferencing to better keep parents in the loop. Technology in this case could foster stronger ties between teachers and family members in order to improve on student's performance in the schools. Currently Skype is a commonly used communication channel for NIE students as there is a pervasive WIFI network in the campus.



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Distance learning enables educators to reach students bridging vast proximity. VoIP adds another dimension to online classes. Incorporating voice chat lets students experience a synchronous learning environment that is spontaneous and lively. voWLAN also helps students working on academic projects over long distances.

Another frequently overlooked area is course content; virtual textbooks can include rich multimedia content right on their pages and saves on printing costs, furthermore students can easily produce their own books as part of their coursework.

Lastly, one of the most exciting ways to use VoIP in the classroom is to take the class online. VoIP/voWLAN can liven up a virtual classroom by adding real time voice chats and video conferences. Some students can participate better in online classes because they're not standing up in front of a room full of people.

voWLAN and GSM

As broadband penetration increases, VoIP internet phone users have skyrocketed, with no slow-down in sight. VoIP is a cost-effective voice communication means that is able to bridge long distances across countries. Will it finally overtake the GSM cellular phone?

voWLAN offers a richer user experience at a lower cost. A video conference call over the wireless LAN has more clarity and possibilities and cost much less than the GSM network in an education institute environment. GSM infrastructure cost is much higher and less extendible than a data one.



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voWLAN gadgets

An example of a voWLAN gadget would be skype phones which can make free calls to other skype users in the world. Check out these cool gadgets:



From left to right:

Netgear Skype WIFI phone:

<http://www.netgear.com/Products/CommunicationsVoIP/Skype/SPH101.aspx>

Belkin Skype WIFI phone:

<http://www.belkin.com/skype/howitworks/>

Linksys Skype WIFI phone:

http://www.linksys.com/servlet/Satellite?c=L_Product_C2&childpagename=US%2FLayout&cid=1127783455701&pagename=Linksys%2FCommon%2FVisitorWrapper

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Return of e-books



Technology evangelists have predicted the emergence of electronic books for as long as they have envisioned flying cars and video phones. It is an idea that has never caught on with mainstream book buyers.

“Books represent a pretty good value for consumers. They can display them and pass them to friends, and they understand the business model,” said Michael Gartenberg, research director at Jupiter Research, who is skeptical that a profitable e-book market will emerge anytime soon.

“We have had dedicated e-book devices on the market for more than a decade, and the payoff always seems to be just a few years away,” he said.

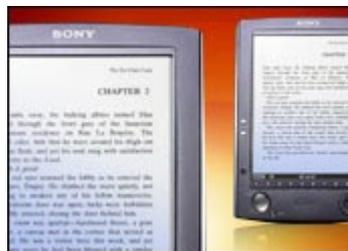
That disappointing history goes back to the late 1990s, when Silicon Valley start-ups created the RocketBook and SoftBook Reader, two bulky, battery-challenged devices that suffered from lackluster sales and a limited selection of material. The best selling e-books at the time, tellingly, were “Star Trek” novels.

E-books may potentially change the distribution style of information in the education of future. Gone are the stacks and stacks of publication but on the forefront of e-learning are books on disks.



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Sony Pushing Reader



Hopes for e-books began to revive last year with the introduction of the widely marketed Sony Reader. Sony's US \$300 gadget, the size of a trade paperback, has a six-inch screen, enough memory to hold 80 books and a battery that lasts for 7,500 page turns, according to the company. It uses screen display technology from E-Ink (www.e-ink.com), a company based in Cambridge, Mass., that emerged from the Media Lab at the Massachusetts Institute of Technology and creates power-efficient digital screens that uncannily mimic the appearance of paper.

The Reader has apparently done well enough that Sony recently increased its advertising for the device in several major American cities.

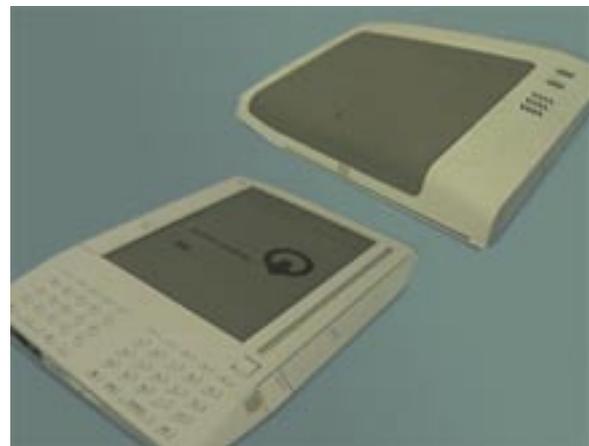
"Digital readers are not a replacement for a print book; they are a replacement for a stack of print books," Ron Hawkins, vice president for portable reader systems at Sony, told the Times. "That is where we see people, on the go, in the subway and in airports, with our device."



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Amazon's E-Book Reader

The online retailer Amazon.com will unveil the Kindle, an electronic book reader that has been the subject of industry speculation for a year, according to several people who have tried the device and are familiar with Amazon's plans. The Kindle will wirelessly connect to an e-book store on Amazon's site.



That is a significant advance over older e-book devices, which must be connected to a computer to download books or articles. The Kindle will be priced at US \$400 to \$500.

Amazon device will feature a black-and-white screen from E-Ink and a keyboard, apparently so users can take notes and search the Web for content. Reportedly, it will feature cellular capabilities that will allow it to operate over EVDO networks. A scroll wheel and a progress indicator next to the main screen, will help users navigate Web pages and texts on the device.

People familiar with the Kindle also have a few complaints. The device has a Web browser, but using it is a poor experience, because the Kindle's screen, also from E-Ink, does not display animation or color. Some complain about the fact that Amazon is using a proprietary e-



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book format from Mobipocket, a French company that Amazon bought in 2005, instead of supporting the open e-book standard backed by most major publishers and high-tech companies like Adobe. That means owners of other digital book devices, like the Sony Reader, will not be able to use books purchased on Amazon.com.

Online Books from Google

Google has no plans to introduce an electronic device for reading books. Its new offering will allow users to pay some portion of a book's cover price to read its text online. For the last two years, as part of the Google Book Search Partner Program, some publishers have been contributing electronic versions of their books to the Google database, with the promise that the future revenue would be shared.

The service could be useful especially to students and researchers who find information they need through a Google search, but it is also likely to include material suited for leisure reading. It will be separate from an effort called the Google Book Search Library Project, which is digitizing the collections of some libraries.

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CLOSING

Unwired Newsletter bids farewell

Hey! This is the 10th issue of the Unwired Newsletter and we have come to the last issue.

We hope readers have benefited from our write up and are able to keep abreast of wireless technology. Possibly, we could embrace the wireless technology to enhance the elearning lesson.

Thank you for your support.

Computer Services Centre



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How To Report Low Wireless Coverage

Computer Services Centre encourages all users of Wireless @ NIE to report any poor wireless coverage in NIE Yunnan Garden Campus. You can visit Wireless Support Website (<http://wireless.nie.edu.sg>) and fill in the Feedback Form. Though we can't guarantee immediate fix for every area, your valuable feedback will help us to plan and extend the wireless coverage accurately.

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