Mobility and Wireless Networking

Originally Published in March 2003
Article by Ifeanyi O. Asonye

We have experienced fairly long history in the growth and history of personal computers and convergence in the communications industry. Newer digital approaches offer a tremendous connectivity, price and performance. Businesses and individuals are now empowered collaborate, to do their businesses, work and play while they interact with each other in new and many different ways.

The 21st Century brings the most exciting opportunities, and the most exciting things will happen in the Information Technology industry. Several things will begin to come together.

Let's first take a step back to look at the '90s when technology was about on the personal computers. The devices didn't connect very much. They had the green screen monitors, the character mode interface called the **Microsoft Disk Operating system (DOS).** Comparing a Personal Computer in 1983 to one in 1993, you will find many key differences.

In 1983, Personal Computers had right around 16-bit/8-bit hybrid 8088 processor at that time, nearly about one-third of the Personal Computer-compatible machines had no hard drives or disks, computer networking almost did not happen, the mouse devices were virtually unknown. Still then, almost half the systems may not have the ability to handle graphics, and the largest mass storage was the **360KB floppy disks.**

Many of us were not involved in the **Information Technology** industry in those days, around that time between, 1992 and 1997/98, I was personally studying and working on academic design projects for futuristic digital electronic communication systems in areas of **Electrical/ Electronic Communication Engineering** that made those things happen at the Hardware and Software Level. By 1993, the average PC had a 32-bit processor, very much more memory, graphics capability, a mouse, and a huge ubiquitous Graphic User Interface. Nearly, more than 90 percent of business-owned systems were now **networked**, and CD-ROM burners were around but not yet common. It also happened that all of those hardware changes demanded and needed support, and the older Operation Systems and applications lacked that support.

In studying businesses, I observed that this generation, now between the age of 6 and 26-35, and some of the Older Generation "IT Veterans" has a different perspective, thinks a lot differently, and currently demand, aggressively, big changes in the way business, society

and individuals interact. Is your work environment prepared for the imminent changes? One of the things to note is that Technology Solutions is at the center stage of all the changes that is happening and the older people who do not listen will be victims, not this younger generation. Some of the key aspects is in areas of **Collaborative Social Skills that people five to ten years younger has.**

They tend to work a lot more in teams, groups; in peer groups, prefer GUI (Graphic Users Interface) to text, a **lot more dynamic to the demands of changing environments where the use of Instant Messaging**, **Unified Messaging Systems (UMs)**, **Unified Communication (UC)** and **Streaming-Multimedia** may not be in harmony with the traditional office culture. *Older workers tend to do a lot more of individual work and take a lot of time to digest information prior offering an opinion. The idea is to understand and integrate with the best of the other generation's style*.

It is important to understand that several things work a lot more efficiently than most of the older generation realize. The people of this new generation grow with the trend and have different expectations from companies, and *one of the things being that things have become very Transparent; the idea of Transparency, in that companies will not be able to hide anything from the people, the society, both as consumers and employees.*

Mobility has become a high-speed moving target. Wi-Fi chips are making it into the handheld devices - (handheld devices are things we used to call cell phones) so, now the internet connectivity will be everywhere, ***and the kids like that.*** In countries like the Singapore, China, Nigeria and just almost everyone uses SMS - SMS is the Short Message Service. Most kids cannot be reached by email, so parents and grand parents learn to use email and SMS to keep in touch with them.

We shall briefly X-ray the mobile-wireless connectivity space, including overviews of the role of the major players in Software, Hardware and Systems Integration. Some of the systems that will be used in highly mobile computing include the Tablets, PC, .NET Compact Framework, Smartphones, Pocket PCs, and SPOT Technology, and how they take advantage of technologies like XML Web services (the Program Software Platform), Wi-Fi (Long Range Wireless System), GPS (Satellite Communication System) and Bluetooth (Short Range Wireless System).

SPOT (Smart Personal Object Technologies) - wrist-sized device it's more like paging than it is like two-way data. Now, it's very effective for some things. It has enough capacity to send instant messages, send your calendar, things that are of broad interest, like sports, video, those work very well. Citizen and Fossil, Santo are involved in building this device shipping in the fall time frame of 2003.

SmartPhones - Mobile phones w/ voice, text and video messaging capabilities as well as internet access and PDA functions built-in. 20 vendors are currently demonstrating new Smartphone-based products that range from games to productivity applications and a few of the vendors include Samsung, Sendo Ltd., Compal Electronics Inc. and HTC Corp. The Mobile operators including AT&T Wireless, Cingular Wireless, Verizon Wireless, Telefonica Moviles, Telstra Corporation, Vodafone Group, WIND, Hong Kong CSL Limited, Singapore Telecommunication Limited and Starhub Pte Ltd

Tablet PC - Tablet is an explosive PC form factor, because things like annotation, reading, working on graphics, note taking have not really been possible. The pocket-sized device is a little small for those things, and yet the portable PC is unnatural to sit and read with, because it's a fairly large device. Microsoft today has partnerships with Compaq, Acer, Fujitsu, Sony, Averatec and Toshiba for manufacturing and building hardware solutions for the Tablet PC.

We presently have the relatively less mobile computer systems such as: Laptop - Notebook or slate sized Personal Computer. The Desktop PC - Desktop Personal Computer System are much less for mobility.

The Servers- Serves files, applications, programs and software for connectivity between PCs and the devices. Many run the .NET software for networks and the internet. These devices and systems will not become a replacement or option against the other where you would have to choose which one to buy as the media will depict them. Each of the these devices will have unlimited connectivity and interaction with each other and each **one of them will be in a class of its own.**

There has been a lot of rich innovation and growth in the IT industry. Now, you might say that is kind of a surprising thing considering that the economic climate has become really very tough. The technical dreams, the prophecies and promises and dot com of the 90's have proved to be quite blown out of proportion. *Globrocks believes that this is the time that the real scenarios get put together, the hard work gets done, and we shall persevere and focus on the right things, and especially on the things we do best.*

In the emerging wireless networking technology area, we have major players such as Bluetooth for short area connections and Wi-Fi for fairly long range within and between buildings and the pervasive data networks, the **GPRS, 1XRTT, IPv6; the Next Generation Internet.** Third generation approaches being made are coming together so that neither the user nor the systems integrators would have to deal with a lot of the engineering complexity, *right now that complexity is showing through for work to be done at the software layer.*

Microsoft do the software engineering for many other software companies, including apple, and continue to stratify the Windows **platform** as one of the leading platforms that will run these devices. Microsoft continue to demonstrate deep commitment to it, and that is what the .NET Programming platform is designed to do.

The system connectivity challenges of the late 90's to 2000 were solved. The wireless and physical networks connect seamlessly with each other, with applications software and the **newer Mobile Devices** AnyWhere in the world. They combine to give you a networking and virtualization of unlimited and reliable connection to the residential, home office, small business and your workspace, using **VPN (Virtual Private Network), Remote Desktop, Citrix MetaFrame** and **Terminal Services** or your choice of connectivity software for instant access to your personal and professional information. It offers a complete personal computing experience and networking for the **"Technology-Inspired Business and Family".**

Microsoft do software engineering for majority of the software companies behind the scenes, and will have strong devices that are the more powerful devices, where you get the nice color screen, where you're connected up to data services. Sep 26, 2005, Palm and Microsoft Joined to Bring the Palm Experience to Windows Mobile!

The Microsoft's '**Software Engineering'** commitment and long term strategy has been to continue to make it easier to build connected solutions quickly from **web services on platforms residing on internet, intranet and extranet environments to the databases and to the end-user's** desktop that run business applications, email and collaboration software in diverse platforms. This is an example of how, in this decade, Consultative Business Technology talent and skills; *business, management, technology, connectivity, integration, convergence and merging will play a very big role.*

Consultative Digital Approach requires **a re-think; a different** way of looking at the **IT Business, call it a Paradigm Shift**. It is an **in-depth understanding, of not only the clients business processes, organizational structure and security needs**, *but also a thorough understanding of the insides of how the different software will work, what they are best in doing, and the required level(s) of* **mix of talents to make the technology work right. Consultative Digital Approach is inevitable; it is an imminent change that has started to happen in the IT/ Business Technology going forward from this decade.**

The **hardware industry**; the people who do the manufacturing for the chip vendors. The

software platform builders, of which Microsoft is one, developers, and the **business/technology solution providers and system integrators**, the people who implement the business technology solutions, and make the different systems of hardware and software work together in harmony, of which Globrocks is one; all of these things are coming together. **So, it's obvious to a business why they should equip their employees with mobile devices, and it's obvious to the consumer why they should keep moving up to the most powerful devices, and get more value throughout their entire day by using that device in many new and different ways.**

It's important to basically ensure all grounds are covered from the physical hardware connectivity side of the network system, to the software applications, and the business side things, then comes the business strategy, and to the individuals, end-users; the people. From most types of network, one can connect to other **network systems through** DSL, Wi-Fi, Cable Modem, T1 Lines, Fiber Optics and Wireless/Mobile Devices such as **Laptops, TabletPCs, PDA, Cell Phones, Pagers and Microsoft Exchange Outlook system** and to any third party (secondary) networking, business and unified messaging software.

Now, we are committed to the Globrocks 'Rock-Solid Connectivity', the New ERA **'Connecting Global Business and Technology', as being one of the leading business technology Services and Solution providers** and **systems integration firms that will not only** connect, network and integrate these devices and make them usable; and thus valuable for the end users, **but also bridge the gap between the complexities of these new technologies** and the **actual needs of businesses and all the end-users for the devices**.

*That is where we're focusing our energy, and that's how we measure our share of activities is against those devices for the end-user in transforming Global Technology into business solution and translating the business needs of businesses; the end-user into a simplified technology/technical solution, while ensuring a very high return on technology investments, which over time will be virtually all the businesses and all of the end-users, devices and computer systems in the developed, developing, emerging and the underdeveloped countries.

Wireless Networking - The very fact that a growing number of households now have two or more PCs represents an opportunity for companies that make networking equipment now that the technology is spreading to mainstream consumers, **who want to split the fast Internet connection of a cable modem or digital subscriber line (DSL) among several PCs, and also share computer files and peripherals such as printers and scanners.**

The home and office networking method with the most steam behind it is wireless, because it avoids the considerable hassle in time and cost of running network cable through walls. **Another plus:** Laptops, handhelds and Tablet PCs can be easily moved from your office to your home without **changing any configurations** and from one room to another, without users losing their network connections.

The most popular wireless technologies is known by the arcane name IEEE 802.11a, 802.11b,

then the newer 802.11G/N. An industry trade group has given this particular standard a friendlier name, Wi-Fi. Other wireless networking standards, such as IEEE 802.11G and 3G now showing up in the products offer faster network connection. IEEE 802.11a operates in a different frequency band than 802.11b/g/n.

Setting up a wireless network in the office or home office require at least two components: an integrated wireless switch, which connects to the modem (DSL or cable) or server PC, and a client device such as a PC with an insert card, which connects to the switch. We have seen more demand for wireless network installations than ever in the history of Computer Networking and the business sector have reported significant increase in wireless networking equipment and services sales.

Market research firm Cahners In-Stat projects that by the close of the year (2003) more than 11.5 million broadband Internet connections (more than 4.6 million DSL lines and 6.9 million cable modems) will be in service. Several consumer electronics and semiconductors companies are vying for a slice of this growing business.

Framingham, Mass.-based market research firm IDC, which has one of the more conservative estimates, believes that the market for wireless networking equipment grew to about $1.1 billion in 2000 from about $600 million in 1999, and should finish 2001 at around $1.6 billion. **This will grow from $3.4 billion in 2003 to $10.3 in 2006 according to Var Business.**

Semiconductor companies should also prosper from wireless networking. IDC analyst Ken Furer forecasts wireless local area networking chips will generate 29% annualized revenue growth between **2000 and 2005**.

Among the players in wireless networking semiconductors is Intersil (nasdaq: ISIL). In its most recent quarter, Intersil reported sales of $113.4 million and earnings of $11.1 million, or 10 cents per share, not counting onetime items. Although sales of Intersil's wider portfolio of wireless chips were down 8.6% for the quarter, sales of wireless networking chips held steady with the previous quarter. And Intersil's advance orders were said to be up by 20%.

Intersil's revenue is expected to jump 11% in fiscal 2002, to $529 million, according to Thomson Financial/IBES. And Wall Street analysts expect Intersil to post 28% annualized earnings growth over the next three to five years.

Before spinning off its chip operations into Agere Systems (nyse: AGRA), Lucent Technologies (nyse: LU) started a wireless product line called Orinoco, which includes not only home hubs and client cards, but also the infrastructure for building bigger wireless networks in places like airports and campuses. Agere reported a $3.4 billion loss on $600 million in sales for its quarter ended Sept. 30, but $2.7 billion of this stemmed from last year's Ortel acquisition.

Agere's competitors include Cisco Systems (nasdaq: CSCO) and privately held firms like Linksys and D-Link. PC makers are also jumping into this market. Such firms as Compaq Computer (nyse: CPQ), IBM (nyse: IBM) and Japan's Toshiba have started building networking client devices into their laptops as reported by forbes.com.

The history of computing has seen a lot of new technologies and connectivity solutions. Many new technologies have been and continue through series of innovations, transformations and improvements.

Things were a lot different in the 80's and early 90's, and some of the 'old-timers' has a different view about using a cell or mobile phone because at that time, it was very expensive and was mainly used by the 'drug world'. All that has changed in the past 10 - 20 years, and a lot of the new and exciting things will happen in this decade. What that means to us is simply a matter of our own perspectives and the ways that we become accustomed to the pattern, reaction to change, especially as it has a different way of thinking about it.

Many businesses set up new offices and implement Converged Technology of Computer Networking, VOIP (Voice Over IP), and Video Conferencing, Instant Messaging, Multimedia Systems and bringing all these things together into one communication system. Now, look at what some major players like Vonage and Pulver are doing with VOIP. Most recently, we have strong 'Global Competitors' such as VOIPSTUNT, among others like Skype offering free pc to phone calls to popular international destinations.

We are still waiting for the arrival of the 3G Technology , better still the **Fourth Generation (4G) wireless communications** to begin to have a good feel of how VOIP Technology devices will be used for very reliable voice communications. In the near future, we will have the new homes and home offices without wiring for telephone, cable and some type of physical networking infrastructures. While, there has been significant deployments of Fiber-To-Home (FTTH) in Korea, Sweden, Japan, and Italy- where strong residential FTTH has been underway since 2001 and have a head start on the United states, thanks to the encouragement of the telecommunications ministries in those countries. The FTTH may get a start in the US in the late 2003. Presently, 16% of Americans aged between 18 and 36 already mostly use the cell phone or digital mobile phone to be a primary phone at home and a mobile office phone. FTTH and integration with Wireless Networking would soon become the choice of every individual and business considering the bottom line of **cost, flexibility, mobility and productivity.**