



What is Digital Convergence?

Digital Convergence is the **priming** of underlying digital technology components and features such as **voice, texts, video, pictures, broadcasts, presentation, streaming media, global connectivity** and **personalized services**; the combination of all of these features and abilities from multiple electronic systems into a simplified, converged and computer-mediated communication system to enable individuals interact, play, communicate, collaborate and share information in many new and different ways.

-Defined by Ifeanyi O. Asonye

Digital convergence is an evolving reality, not a future pipe dream. This is amazing advances in computational capability forecasted by **Moore's Law** and made into reality by semiconductor manufacturers that are the primary engine. Computer Systems has been digital since the first computer about **2000+ years ago**.

The first computer system was built by Abacus. **Blaise Pascal** has been credited in the history of computer for building the first digital computer systems in **1642**, which basically added numbers entered with dials, and was made to help his father, a tax collector. That's how the digital 0's and 1's has been used to represent quantities in computer systems. **I have often been asked, 'what the 0's is and 1's, the bits and the bytes?'** 'Is it important to understand how computer systems use bits and bytes to work with them? If you are really interested to learn how the computer systems work and communicate, the answer is yes, you must understand the *bits and bytes*, however, an end-user only needs to know how to use a digital system productively, so, do not be daunted or overwhelmed much less become scared of the Digital Convergence Technology.

Nonetheless, there is no doubt that a thorough understanding of the **Fundamentals of Digital Systems (the 0s and 1s)** is the **key** that unlock understanding for designing, architecting, implementing, integrating, fixing and troubleshooting all global digital systems.

It is an understatement to say that **convergence** between computers and consumer electronics is escalating, creating challenges and opportunities for both businesses and consumers. Now, it cannot be over-emphasized that the consolidation of separate **email, voice, and video, fax** and **data** resources presently offers an opportunity for system integrators and **significant savings** for business of all sizes. Accordingly, the challenge of integrating email, voice, video, fax, and data is becoming a rising priority for many network managers.

In this decade, we are just beginning to tap into the numerous benefits and features of **Digital Convergence** using digital technology, made possible due to the ability of the many different things such as pictures, voice, video and data to be digitized into the 0's and 1's and subsequently into very small files.

Digital Convergence Technology

Technology is changing so fast that no one may be capable of giving you a one hundred percent detail of what is happening at any given time.

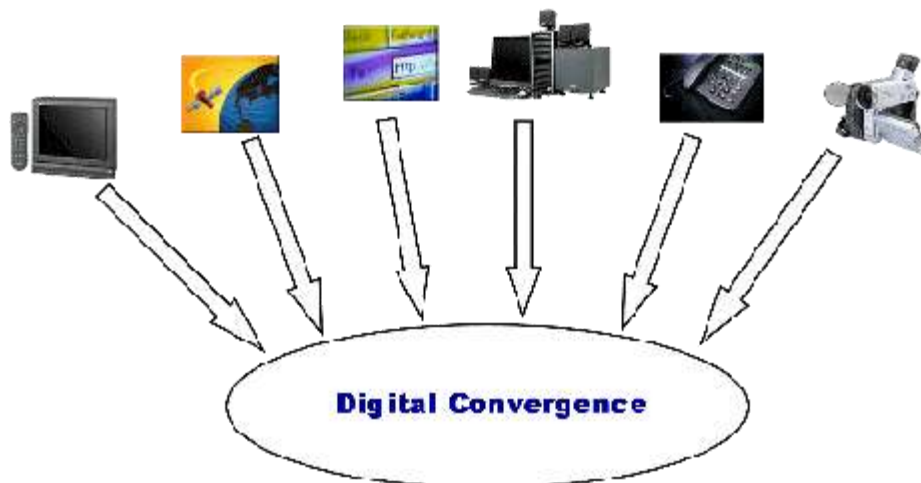
It is worth noting that presently, there are tons of Futuristic designs in software and hardware. Many of which happened several years ago and are still fairly expensive for the consumer market. Many of the current systems and designs are still very expensive to upgrade. There is lots of prototype in the research laboratories. In the academic area, algebra, physics, engineering math and algorithms has many constants and variables. From "silicon chips" to the 'point charges', the possibilities and products of the end results in combination with physical properties of the materials are exceedingly great.

Many of the potentials are yet to be offered and implemented for consumers. When you go to the Microsoft® Research for example, you will see lots of things that are going on there. Microsoft® spends billions of dollars researching technologies that has nothing to do with windows, office, and one think the consumers will not need them.

You will observe that if you upgraded or purchased a new business PC with an Operating System such as Windows 2000, and if you are not a "Power User", there's probably not enough reason to upgrade very quickly in 2003-2004. What we are seeing is transition on how computer systems will be used in many different ways in the very near future, and that is the promise of the Digital Convergence Technology.

Digital Convergence would have become wide-spread before we can seize complete control of the internet and enjoy its full capabilities. We shall discuss Digital Convergence briefly so that you can explore, enjoy and profit from the new capabilities offered by the emerging Digital Convergence Technology.

Understanding Digital Convergence is neither about the ability to identify components of the emerging digital environment nor the ability to quickly and visually distinguish between say, a Palm Pilot PDA, Digital Mobile Phone, a Pocket PC, or the Tablet PC and a Laptop. It is important to understand the features and benefits for you as an individual or a professional in today's fast paced and competitive business environment.



The Convergence of Computing, Digital Communications Technology, and Digital Media (technologies and content).

Voice Over IP Solutions (VoIP) application meets the challenges of combining the legacy voice networks and packet networks by allowing both voice and signaling information to be transported over the packet network. The concept of **VoIP** is used in **Wireless LAN** Networks; and sometimes referred to as **wVoIP**, **VoFi**, **VoFi**, **VoWi-Fi** and **Wi-Fi VoIP**.

A fax-over—Internet protocol (FoIP) application enables the interworking of standard fax machines with packet networks. It accomplishes this by extracting the fax image from an analog signal and carrying it as digital data over the packet network. The **email fax system** allows you to send and receive faxes using a regular fax number(s) over the internet using any email account.

An IPTV- provides an integrated environment to deliver broadcast-quality video over the IP-based communications using high-speed internet broadband networks such as DSL, High-Speed Internet Cable, and T1, T2 and T3 lines.

***Article Update June 17th 2006-** There is a recent and huge explosion with the major telecommunications companies around the Globe, starting in Europe. They are beginning to offer consumers what is called **triple play of voice**, high speed Internet, and an **interactive TV- All at once!** Basically, you get all that you already can get right now, and even much more. **This decade and century is extremely promising!**

An end-user experiences all the market-leading features such as **instant channel change (ICC)**, **multiple picture-in-pictures (PIP)** along with **VOD**, **DVR** and **PVR**. It's nice to know that the system will integrate seamlessly with PCs, phones, pocket pcs and other consumer electronic devices.

Presently, **June 2006**, the commercial delivery of **Cable TV**, **Broadcast TV**, all formats, all kinds of content- **including HDTV**, and all media information to be delivered **over IP-Based High-Speed** Internet connections are ready, complete, and in progress with the leading broadband network operators around the world.

When we take the **Global "Mobility" features of the new generation Internet Protocol, the IPv6 into the picture and design architecture**, we will get the capability to take all our **Cable TV**, **Broadcast TV**, **Streaming Media**, **Radio**, **Voice**, **Phone**, **Text**, **Video**, and **Data** along with us **to any of our electronic devices and PC from anywhere to any part of the World** using the **Global Compatible Digital Architecture and Infrastructure** that has continued to be put into place.

The PHASES of DIGITAL CONVERGENCE Technology:

During the Digital Convergence Phase 1, convergence existed in many consumers' minds, at that time; contents were bulky with lots of delivery delays, flickering texts and cumbersome navigation. Yet with all the applications of convergence - from microwaves, that bank to Internet appliances that do your laundry, lock your doors and turn on your sprinklers - you would think that we had finally reached convergence nirvana with all of our needs fully realized.

Making the case for Digital Convergence is similar to communicating the need for high-speed Internet access in the late 1990s, when consumers' limited understanding of the benefits of high-speed technology hampered its wide-scale adoption. In the 1990s, consumers bought only the bandwidth they needed to support their Internet usage.

The popularity of television encouraged an experiment with convergence in the mid-1970s in Columbus, Ohio. There, Warner Amex introduced an interactive television service named QUBE. It

was a costly failure. People weren't ready to interact with the folks behind the broadcast. The success of the VCR, a passive machine, reinforced that finding. By the late 1980s, the rapid adoption of communication devices such as pager, fax machine and cell phone made us far more willing to interact with devices in general.

In Digital Convergence Phase 2, as we embraced e-mail, streaming media, internet broadcasts, online shopping, instant messaging, internet phone calls (VOIP – Voice over IP) technologies and the latest of all the Media Centers and we discovered what the Internet had to offer, these devices took on one or more functions of the others. Faxes could be sent and received via the computer; radio could be heard via the Internet; and wireless phones could be used to receive text data and browse the internet. People realized that interacting with content could be convenient as well as entertaining. **The Internet was now training us to take control.**

Beyond the rather generic and multiply defined e-commerce and e-business, typical topics are enterprise-wide opportunities to use technology in enterprise resource planning, supply-chain management, and customer relationship management. Some books by professors, executives, and consultants have also explored the impact of technology on large organizations. These usually focus on global technology-facilitated business and organizational concepts such as human capital, the networked organization, and business arrays, said Andy Covell director of Information Technology at the SU School of Management and the author of *Digital Convergence Phase 2*.

In reality, I believe that in this decade, individuals and businesses will mostly need Consultative Digital Approach, the infrastructures, connectivity solutions, the right Global Standard Forest and 'Domain' Configurations, Design and Implementations. The right applications may be required to interact with these devices in many different ways to even begin to take advantage of the Digital Convergence Technology and its associated devices, said Ifeanyi O. Asonye, an Independent Business Technology Consultant, Project Manager and Coach at Globrocks Corporation. Ifeanyi, is a Unified Systems and Unified Communications Evangelist at Globrocks. Globrocks is a US based Business Technology Solutions and Services Provider.

With **gaming companies'** heads in the right place, the market is ripe for pure innovation. For gamers, the advantage of connecting gaming consoles to the Internet is the ability to extend the gaming community indefinitely: Gamers can compete against other users across the world. Through instant messaging, they can share game secrets, learn to access levels they couldn't get to on their own and trash-talk with their opponents.

For **entertainment buffs**, convergence is transforming common devices such as DVDs and TVs into home entertainment centers, with interactive technology enabling manufacturers to set apart their products on competition-laden store shelves. The evolution of features such as digital photo viewing capabilities allow users to view their family photos on their big-screen TVs using their DVD players, and even create personal slide shows. Audio enhancements let consumers connect their MP3s to DVD players or rip songs from CDs.

We're seeing digital convergence redefined in the consumer electronics market today - just as we've seen with the cell phone adding on relevant features such as text messaging, and the automobile now coming equipped with a global positioning system and even TVs for passengers.

At the same time, adding **Internet connectivity** can make these added features even richer. With Internet-enhanced DVD players, consumers have the ability to access extra Web-embedded content on DVDs. In addition, consumers with interactive TVs and DVDs will be able to watch coming attractions, be among the first people to see new trailers and be invited to sneak previews in their areas.

People will spend time in virtual theaters, watching films with movie fans all over the world, and join online events or chats. It will even be possible to chat with actors, directors and special effects artists during the movie. With the use of a remote control, consumers can download screenplays, buy opening-day tickets to new movies and purchase advanced copies of DVD movies.

As these pieces - simplicity, creative applications and innovative technology - come together, digital convergence will migrate from a Jetson-era notion to a consumer-driven necessity.

Computer Projects - Electronic Communications 1998.z

*'The **Destiny of Multimedia Computer- Mediated Communication Utilizing Microprocessors.**'*

*This paper x-rayed the cutting edge technology of the application of Microprocessors in **Multimedia communications**. With the latest and the greatest Advanced Micro Devices and Pentium Chips, below the size of 0.25 microns and capable of high speeds above 700MHZ, **multiprogramming, multiprocessing, multitasking and co-processing**, with the Internet, offer instant information for reaction to changing situation anywhere in the universe.*

*With technological advancement of **multimedia and computer communication applications** embracing digital videotext, motion pictures, with the Internet, television, CD, tape player, radio and voice recognition software; most electronic systems may soon **become obsolete** and replaced by **converged** computer systems. Multimedia computing may continue to change our lives, irreversibly competing with many of the human abilities.*

Design and Construction of a Frequency Selective Circuit and a Ten Band Stereo Equalizer (Filter) of 140 Watt * 2 Power Amplifier Output.

*This system of **electronic frequency filter** is used in communications engineering to select frequencies as required for **multiplex channeling of video and audio signals and fidelity in audio signal processing** and transmission in communication systems. This design uses a newly invented output mute to prevent switch on clicks associated with IC's. The Equalizer unit is an active RC filter, while the power amplifier stage is operated in the class B mode with compensating diode to eliminate cross over distortion associated with the B mode. The power supply stage is directly coupled to the driver stage and the Equalizer unit for optimal performance.*

*A Graphic Equalizer basically adds a new dimension to audio systems such as radio, pc, tape and compact disc of digital quality performance. **Laser signal transmission is very feasible**. The system **eliminates output hum** which is essentially AC harmonics appearing at the output. **In this process, precision engineering, fidelity, high transmission speeds and frequency selection is optimized and can be adopted to suit the need of any Telecommunications outfit.***

Ifeanyi O. Asonye has held several Technical/Computer Presentations in the United States and often speaks to students during career awareness sessions at the local community colleges in Chicago, IL. In 1998, Ifeanyi O. Asonye won a first place prize after successfully completing futuristic academic and research projects and the presentations held at the University of Port-Harcourt (UNIPORT) Nigeria, in West-Africa.