

Applied Professional Training



Newsletter

Issue 11.07.05

www.aptc.com

November 2005

APT – Who We Are

Applied Professional Training

We are a CWA represented training vendor; Local 9509 (San Diego, CA), with the following affiliations: DETC, American Council on Education, Electronics Technicians Association, ACES International, Fiber Optics Association, and Federal Communications Commission.

Corporate and Educational Philosophy

Our intent is to design training classes enriched with up-to-date information so that students will achieve success in their corporate and personal goals. Our motto is “If our students achieve success, then APT has achieved success.” Our focus is **QUALITY**...quality in our instructors, quality of training materials, and quality in our staff.

What’s New at APT?

APT continues to lead the training industry with new courses for the fast-changing technical environment. New courses offered or under development include:

- Broadband VoIP; including ETA Certification
- Wireless Communications Technology
- Convergence Technologies; including IPTV (under development for ETA Certification) ➔

Convergence – Telecomm, Television and the Internet

“WE'RE not a telephone company anymore; I sort of resent that,” says Lea Ann Champion, an executive at SBC, America's second-largest “Baby Bell”. “We're a communications and entertainment company.”

This quote is taken from the July 2005 edition of *The Economist*, where Ms. Champion refers to the delivery of TV, movies and other entertainment, to customers via enhanced broadband connections using internet protocol. This, in a nut-shell, defines “**convergence**”. Convergence, as it relates to the telcos, is the offering of these services via a service called IPTV which has quickly become the competitive strategy in competition with cable companies, wireless mobile phone providers and VoIP providers.

We know that cable and wireless mobile companies have competed with the telcos for some time. However, with the new threat from what many economists feel is, arguably, the most dangerous threat to the telcos, VoIP providers now use the Internet to transport voice services which, for decades, has been the bread and butter of the telco Public Switched Telephone Network or “POTS” Network as we lovingly call it.

VoIP is growing at a tremendous rate. The July 2005 edition of *The Economist* states: TeleGeography, a research firm, estimates that the number of subscribers to VOIP services such as Vonage, which lets users plug their traditional phones into a gadget connected to the internet, will grow from 1.8m at the start of this year to 4m by the end of December in America alone; by 2010, it projects over 17m American subscribers.

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IPTV

What is it?

Today we are witnessing a "battle for the living room" in which telcos, wireless companies, and cable companies are competing for the privilege of providing television service to the consumer in the home. One of the "hottest" technologies involved in this battle is Internet Protocol Television or IPTV.

The problem, however, is that many people still don't understand what this technology is about, even many technical professionals. What is IPTV...its true meaning and potential? This article will strive to provide some clarity to these questions.

We will begin by clarifying that IPTV is not TV that is broadcast over the Internet; people will not access television programming by logging onto their favorite website. This is a common misconception stemming from the fact that the name includes the letters IP which stands for Internet Protocol. Web-opedia defines IPTV as follows: (Source: *IPTV News*)

IPTV, uses a two-way digital broadcast signal that is sent through a switched telephone or cable network by way of a broadband connection, along with a set top box programmed with software that can handle viewer requests to access media sources. A television is connected to the set top box that handles the task of decoding the IP video and converts it into standard television signals. The Switched Video Service (SVS) system allows viewers to access broadcast network channels, subscription services, and movies on demand.

Why is it Considered Superior?

The reason for this is that IPTV can be viewed as a customized or "personal" entertainment experience. It can be viewed this way because IPTV is a sort of point-to-point service instead of a broadcast service. This means that the IPTV service providers can deliver only those specific channels that a customer wants to see at any particular time. This is different from traditional broadcasting where every channel is delivered to

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every home on the network. For the first time, it will be economical to deliver a Super-Bowl game, a World Series game, or even a re-run of "Cheers" to only those who want to see it; rather than to an entire local or regional community.

In addition, there are other benefits. For example, it raises interactive television to a new level. Interactive TV has been around for more than a decade, but it really has offered little more than a choice of camera angles from which to view an event. IPTV now gives the viewer access not just to the event, but also to information related to the event such as player statistics. The viewer will even have the ability to look at statistics and live footage of one game, while watching another game, because IPTV uses window-on-window technology. In fact, most telcos have contracted with Microsoft to develop the set-top-box windowing software to allow for windowing much like we see on our computers.

Remote Access

Other benefits include the ability to remote access your set-top box. With IPTV you will have the ability to retrieve photos or home movies from your PC right onto the TV through a wireless connection. You will be able to send text messages to your friends while you both watch a show "together" across great distances, and you can receive caller ID information from your TV screen to decide whether to answer a call.

Security and Business Impact

Because of the personalized Point-to-Point nature of IPTV service content theft is greatly reduced. This is because the idea of a "black box" used to intercept and steal cable broadcasts today will not work with IPTV. This type of content theft costs the cable companies billions of dollars in lost revenue. The technology also allows for better targeted delivery of advertising as companies will be able to better determine information regarding a subscriber's preferences from the programming they define. In short, providers will realize real opportunities for improved security and business results.

In summary, building IPTV capability into a network allows a service provider to integrate voice, data and video, where this "all-IP"-based communications will not only change our entertainment experience but our entire communications experience. APT's Convergence Technologies course covers IPTV technology. ♣

WiFi and WiMax – what they mean to the telcos

Over the past year, the deployment of Wi-Fi Wireless LAN (WLAN) applications has blossomed. Wi-Fi is short for Wireless Fidelity, which is defined as the IEEE 802.11 Standard. The original idea behind Wi-Fi was for use as a private inside-building broadband technology. This intent was then expanded with the creation of open public “Hot Spots”. Hot spot is a term for a location that offers wireless public access to the Internet. These locations share their DSL, cable or T1 broadband connection via an Access Point that transmits a signal to a receiver within a user's Wi-Fi-enabled device, such as the wireless adapter on a laptop computer. Multiple users can connect to the Internet through a log-in page within their Internet Web browser. Coverage typically extends over a limited distance of 100-300ft from the access point. Wi-Fi has become increasingly popular. Several providers now offer commercial (for-profit) hot spot services locally, regionally and nationally.

A parallel technology that has sprung from Wi-Fi is something called Extended Range Wi-Fi. Extended range Wi-Fi allowed for the creation of wireless-community networks for metropolitan markets. This technology, however, encountered stiff operational and legal challenges when DSL and cable modem providers chose to enforce their service agreements that prohibited subscribers from sharing their broadband connections.

The work-around to this became something we call “WiMax”. WiMax is a wireless Metropolitan Area Network (WMAN) technology that could provide a mesh network topology for Wi-Fi hot spots (it can also provide a wireless extension to cable and DSL). WiMax is a vast improvement over Extended Wi-Fi having the ability to provide up to 30-32 miles of service range without direct line-of sight to the base station, and shared data rates of up to 70 Mbps. This is enough bandwidth to simultaneously support hundreds of homes or many businesses using T1 connectivity.

This means that the broadband services such as VoIP, and potentially IPTV, that we provide over copper-based DSL lines can also be provided over wireless connectivity. It also means the wireless industry is here to stay, and its growth is causing major impact on broadband competition.

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A look at today's numbers suggests that even this is being exceeded. So then, what do the telcos decide? They decide to respond to these threats by also adopting Internet technologies. If you think about it, this is a major shift for the telcos. For decades, the focus has been to develop services that are delivered by the existing switched services technologies...the 5ESS and DMS100 switches that we find in Class 5 Central Offices. This strategy shift now focuses on developing services that will be delivered via broadband connections that interface with the data networks; i.e. the ATM switches and Internet Network Access Points (NAPs) that comprise what we call the Public Packet Network. Every large telecom firm is investing to migrate from old, circuit-switched networks to new internet-based networks.

Consider also, that this is a global positioning environment. SBC has recently acquired AT&T; Verizon has recently acquired MCI; VSNL, the top operator in India for international calls, is in process to buy Teleglobe, the world's largest international wholesale VOIP carrier, and British Telecomm is considered the fastest moving of the International telcos to make this migration.

What does this mean to you, the telco employee? It means that you are quickly entering an environment where the “POTS” jobs as we know them are heading towards the way of the dinosaur. By switching to fast, new internet-based networks, telecom companies will be able to catch up with their rivals by offering entertainment, internet access, voice services and wireless connectivity over their networks; all via a set-top box that is windows and IP based.

You need to be prepared for this environment. To be job competitive in this environment you will need to know fundamentals of Data Communications, VoIP and IPTV. You will need to know about packet switching over fiber optics. This is why APT strives to provide training in all of these areas; training that will prepare you for the jobs of the future. ➤

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Impact on the Telcos?

Obviously, for the telcos, competition from the wireless industry for broadband services is not a good thing. New technologies, while they give the industry new life and new directions to grow in, also provide for some fierce competition between players. We've all seen the downsizing that has taken place in recent years in the telcos. One article in the WiFi Online Newsletter commented on a Wall Street Journal Article that described Verizon fighting with the City of Philadelphia over their city wide WiFi. Similar battles are starting to happen across the nation. A recent FCC VoIP ruling states that VoIP cannot be taxed by states, as it is an Internet Service...not a phone service. This was a major ruling for the VoIP Industry and will add billions of dollars in capital from investment banks and venture capital firms to encourage further growth in IP-based services over wireless technologies.

The Telco Response?

Basically, it comes down to the old saying..."if you can't beat them...you join them". The telcos are jumping in:

- AT&T is installing a 4-Tower WiMax service

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in Atlanta, Georgia

- BellSouth will provide broadband wireless in Athens, Georgia
- Verizon Wireless launched wireless broadband access in San Antonio, Texas

Other telco efforts towards competing with wireless broadband include aggressive lobbying of state legislatures to restrict or prohibit local governments from providing such services. Thirteen states (including Pennsylvania) already have enacted some restrictions. SBC was looking at ways to partner with cities such as Anaheim, Calif. where city officials don't seek to compete with the telcos due to concerns about using tax dollars to fund services that private companies are offering. The bottomline...wireless broadband, using mesh network WiMax technology, is already a major player in the competition to be the single service provider for all IP based services.

Impact to You?

Clearly, the impact to you is the rapidly changing technical environment that will include wireless technologies. How you fit into this environment will depend on the knowledge and skills you gain through training. APT offers a recently updated Wireless Communications Technology course that includes Wi-Fi and WiMax technologies; geared towards providing the knowledge and skills. ➤

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