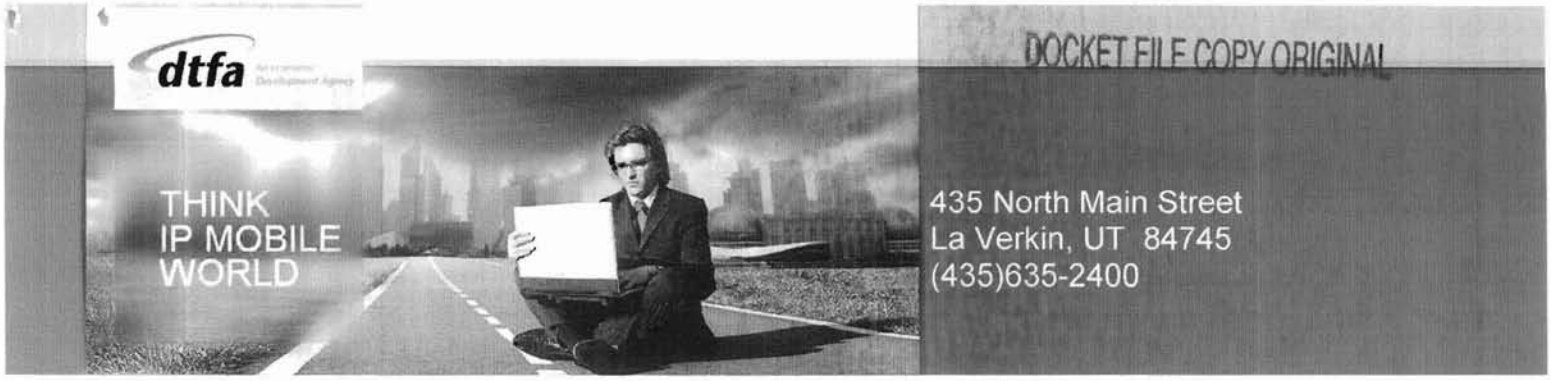

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Received & Inspected
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FCC Mail Room

RE: GN Docket No. 10-127

Incorporation by Reference:
All materials, comments, and arguments made by the DTFA in its – NOTICE OF EX PARTE ORAL ("POWERPOINT") SUBMISSION, GN Docket No. 09-51 and MEMORANDUM SUMMARIZING THE PRESENTATION, DA-09-2610, presented and submitted to the Commission on January 28, 2010 – are herein incorporated by reference, in their entirety, including the approved hyperlinks below which content was also submitted by Compact Disc via U.S. Postal Service first-class.

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TABLE OF CONTENTS

Introduction 2
A. Background 4
B. Approaches to Classification 11
Establishing a Local Government Entity program as part of the National Broadband Plan is not only possible, it may be the only proper and legal route for the FCC to both continue its Information Service Classification for ancillary authority as well as expand its authority to encompass all of Title II of the Act for the true internet access providers. 13
1. Continued Information Service Classification and Reliance on Ancillary 13
Authority 13
2. Application of All Title II Provisions 17
3. Telecommunications Service Classification and Forbearance 21
§ 201, 202, 208, 222, 254, 255 and other sections under Title II of the Telecommunications Act 24
C. Effective Dates 25
D. Terrestrial Wireless and Satellite Services 27
E. Non-Facilities-Based Internet Service Providers 31
F. Internet Backbone Services, Content Delivery Networks, and Other Services 32
G. State and Local Regulation of Broadband Internet and Internet Connectivity Services . 33
H. Related Actions 34

Dear Chairman and Commissioners:

Introduction

On behalf of the Dixie Technology Funding Agency ("DTFA") please accept this response to your NOTICE OF INQUIRY ("NOI") released June 17, 2010. This response addresses each of the three areas of inquiry posed by the Commission: first, whether the current information service classification of broadband Internet service can still support effective performance of the Commission's core responsibilities; second, comment on the legal and practical consequences of classifying the Internet connectivity component of broadband Internet service as a "telecommunications service" to which the full weight of Title II requirements would apply, and whether such a classification would accurately reflect the current market facts; and third, comment on a way, under which the Commission would classify the Internet connectivity portion of broadband Internet service as a telecommunications service but would simultaneously forbear, using the section 10 authority Congress delegated to the FCC from all but a small handful of provisions necessary for effective implementation of universal service, competition and small business opportunity, and consumer protection policies.

From the DTFA perspective, the internet, even from its earliest days perhaps in the 1960s, has been and always shall remain a "virtual" realm – in other words, a subjective idea about a place where communications media, such as telephone and

television services, are reshaped or redefined using systems of interconnected technologies.

Using the above mentioned areas of inquiry as a guide, and considering the ramifications of the court decision in *Comcast v. FCC*[3], the DTFA's answer to your inquiry will not focus on "re"classification of the internet, but rather will suggest a "de"classification – to reflect the internet's true virtual nature and global scope.

The term "internet" is much more a concept than it is a particular infrastructure or service. Therefore, with an internet declassification approach, the FCC can properly move toward classification of the major "telecommunications services" where each service utilizing the internet may receive its separate and unique classification to most fairly carry out the authority granted by congress.

It may be quite possible that the Internet Service Provider (ISP) giants in our nation have been working against progress rather than for it. Therefore, the DTFA would support the Commission's regulation against the unfair protectionist restrictions of the internet by those ISP giants. Coming to grips with the regulatory landscape in a post *Comcast*[4] framework is extremely important to ensure the success of currently developing technologies for several reasons:

1. Wired and wireless "triple play" capable networks;
2. pads, tablets, phones, and slates,
3. multiple-radio capable devices, with onboard VOIP and/or SIP telephony
4. seamless convergence (3G, 4G, LTE, Wi-Fi, WiMax – Sprint, T-Mobile, ATT, etc.) means the call is not dropped when passing from one cloud to the next;
5. millisecond hand-off between nodes ensures the call is not dropped, when traveling in a car for example, and making a call on the VOIP/SIP capable handset; and
6. high bandwidth data off-load locally.

Right now, in the USA, we have an opportunity to take a major step forward in the paradigm shift happening in telecommunications around the world, transitioning from the old "channeled" capacity models of cable and wired broadband internet into the "segmented" capacity of wired and wireless "cloud" computing models. Either the USA takes the lead in this, or it continues to drop behind the rest of the world.

The National Institute of Standards and Technology (NIST) has issued a draft working definition of "cloud computing" which defines the term as "a model for enabling convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction" and included "five essential characteristics:"[5]

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[3] *Comcast Corp. v. FCC*, 600 F.3d 642 (D.C. Cir. 2010)

[4] *Id.*

[5] The *NIST Definition of Cloud Computing,* Authors: Peter Mell and Tim Grance, Version 15, 10-7-09

On-demand self-service. A consumer can unilaterally provision computing capabilities, such as server time and network storage, as needed automatically without requiring human interaction with each service's provider.

Broad network access. Capabilities are available over the network and accessed through standard mechanisms that promote use by heterogeneous thin or thick client platforms (e.g., mobile phones, laptops, and PDAs).

Resource pooling. The provider's computing resources are pooled to serve multiple consumers using a multi-tenant model, with different physical and virtual resources dynamically assigned and reassigned according to consumer demand. There is a sense of location independence in that the customer generally has no control or knowledge over the exact location of the provided resources but may be able to specify location at a higher level of abstraction (e.g., country, state, or datacenter). Examples of resources include storage, processing, memory, network bandwidth, and virtual machines.

Rapid elasticity. Capabilities can be rapidly and elastically provisioned, in some cases automatically, to quickly scale out and rapidly released to quickly scale in. To the consumer, the capabilities available for provisioning often appear to be unlimited and can be purchased in any quantity at any time.

Measured Service. Cloud systems automatically control and optimize resource use by leveraging a metering capability at some level of abstraction appropriate to the type of service (e.g., storage, processing, bandwidth, and active user accounts). Resource usage can be monitored, controlled, and reported providing transparency for both the provider and consumer of the utilized service.

With Cloud Computing, today, the term "broadband" (or large capacity two-way data communications) must take on new meaning which includes more than just the "internet." The reason this has not happened before is because cable, copper, satellite, fiber, and wireless technologies were not quite there yet in capacity, bandwidth, data rates, and consumer device availability. All that is changed now!

A. Background

While we would prefer not to be critical of the last 8-10 years or so in fiber, cable, copper, and wireless technology innovation, we are going to be critical of some of those so-called "investment" strategies that have taken place in this country surrounding fiber to the home and municipal wifi projects – and the "hype" which has allowed some players to enter markets taking advantage of both small and large communities promising "better faster internet" with "bundle and save" services where consumer adoption has failed to materialize even close to the levels predicted.

The problem: "better faster" and "bundle and save" are only a different angle on the same thing – the internet. The DTFA proposes that merely offering hotspot or faster better internet "connection speed" to the home is never going to foster consumer adoption or industry growth. While these communities may have had the best of intentions, the true key to consumer adoption will not be found in the internet, but it will be in the introduction of innovative systems and services with a paradigm shift from the internet to the home into the ubiquitous mobile cloud

computing that will truly drive growth. The internet will always remain an important and vital part of these new services, but the internet alone cannot be the driver; it must be the services themselves.

Historically, the Commission has taken the regulatory approach of lumping together the "services" portion of the internet with the "infrastructure" portion of the internet. Linking the two together into just one definition for "broadband internet" encompassing "information service classification of broadband Internet service." This lumped definition is exactly where the problem becomes immediately clear. From reading the *Comcast* decision, it seems that the courts might begin favoring a split (or separate) definition for "broadband" and for "internet."

Relying on *American Library Ass'n v. FCC*:[6] "The Commission . . . may exercise ancillary jurisdiction only when two conditions are satisfied: (1) the Commission's general jurisdictional grant under Title I [of the Communications Act] covers the regulated subject and (2) the regulations are reasonably ancillary to the Commission's effective performance of its statutorily mandated responsibilities." 406 F.3d at 691–92; see also Order, 23 F.C.C.R. at 13,035, ¶ 15 n.64 (citing the American Library test).

The two part test cannot be condensed into a one part test. "The question of whether an issue is within [an] agency's primary jurisdiction is different from the question of whether the agency actually has exclusive statutory jurisdiction to resolve an issue."[7]

What can be gleaned from the Comcast Decision – Certainly, this is not to become some power struggle between the FCC and FTC, or DOC and perhaps NTIA, or a battle for power with the Courts. The FTC and FCC are independent agencies which often function as miniature versions of the tripartite federal government with the authority to legislate (through the issuing, or "promulgation" of regulations), to adjudicate disputes, and to enforce agency regulations (through enforcement personnel). The National Telecommunications and Information Administration can also be considered an agency although it often exhibits less autonomy from the President than do the Agencies. The Department of Commerce, on the other hand, is a United States executive department. The listed Departments are: State, Treasury, Defense, Justice, Interior, Agriculture, Commerce, Labor, Health and Human Services, Housing and Urban Development, Transportation, Energy, Education, Veterans Affairs, and Homeland Security.

There has to be some overlap in the Agencies, but when it comes to wired and radio communications, even those duties and authorities over trade and the airwaves promulgated to those other agencies, the FCC is still the ultimate regulatory authority over all things considered with broadcast and telecommunications. The Courts may answer whether or not both prongs of the two part test were met and decide if previous administrative rulings amounted to estoppel. However, in this *Comcast* case, using the "internet" as the starting point, the Commission was caught arguing the private restriction of data flow "in abstract" (generally) rather than specifically as in the private restriction ("management") of specific communication services by Comcast.

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[6] *Am. Library Ass'n v. FCC*, 406 F.3d 689, 692 (D.C. Cir. 2005)
[7] *Comcast Corp. v. FCC*, 600 F.3d 642 (D.C. Cir. 2010) (Comcast)

This private restriction of the network management, when analyzed generally, allowed the court to go down the estoppel path. The court ruled precisely that Comcast can do exactly what the court said the FCC cannot do – namely limit the consumer's use of the internet. The Commission must from here out, therefore, begin to defend its exercise of ancillary authority on a case-by-case and more importantly on a "service-by-service" basis.[8] It is going to have to regulate the specific services that use the internet.

The conclusion for the FCC is simple. It must change its approach of classification of "broadband internet" and it must begin to classify those words separately. The two are related, but not necessarily intertwined. Especially in the new "cloud" computing environment the US must enter. If this Nation is going to remain any kind of economic or information super power in the world, "Cloud" computing is where the nation must go and the old definitions of "broadband" and "internet" are now separated.

In *Comcast*, the Commission got caught in this issue when it should not have. The Commission could have conceded that it cannot regulate or prevent Comcast from blocking all types of P2P data traffic; but it could regulate the blocking or passing of specific P2P content such as copyrighted materials like TV, music, movies and others. The Commission can stop seeking ancillary authority to regulate the nebulous concept of the internet and instead adopt a proper regulation of specifically classified services, in the "cloud," separate from internet or even broadband.

The DTFA has consistently presented and promoted its proposition to the FCC that the Local Government Entity (or "LGE") Local data off-load and convergent networks are just the key to solving this conundrum in defining the internet and what those "local access services" are – apart from whatever the subjective term "internet" may entail. And soon we will see that with a local build out of infrastructure, the peer-to-peer (P2P) functionality for the consumer to watch their TV when and where they want, on what device they want, and within the cloud with ownership of digital rights storage for both data and media, will evolve just like their CATV predecessors of the past.[9]

The key to this innovation has nothing to do with the "internet" technology, but everything to do with the business architecture. They business key of course will become the Multiple Bandwidth Convergence, or "Carrier Convergence" which Local Government Entities "LGEs" can provide.

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[8] "Reasonably ancillary to the Commission's effective performance of its responsibilities" now must meet two categories: 1) congressionally delegated policy and 2) those that arguably delegate regulatory authority to the Commission. The FCC must meet both prongs. Policy statements alone can no longer provide the basis for the Commission's exercise of ancillary authority.

[9] DECE LLC (Digital Entertainment Content Ecosystem) was a consortium announced September 2008 as a way to ditch Tapes, DVDs – BluRay. It is a service with a goal of providing movies, TV shows (and potentially any other form of digital content) to customers through any internet-enabled device they own. Members include Adobe, Alcatel-Lucent, Ascent Media Group, Best Buy, Blueprint Digital, CableLabs®, Catch Media, Cisco, Comcast, Cox Communications, Deluxe Digital, DivX, Dolby Laboratories, DTS, ExtendMedia, Fox Entertainment Group, HP, Intel, Irdeto, Liberty Global, Lionsgate, Microsoft, MOD Systems, Motorola, Movie Labs, Nagravision, NBC Universal, Netflix, Neustar, Nokia, Panasonic, Paramount Pictures, Philips, RIAA, Rovi, Roxio CinemaNow, Samsung Electronics, Secure Path, Sony, SwitchNAP, Tesco, Thomson, Toshiba, Verimatrix, VeriSign, Warner Bros. Entertainment, Widevine Technologies Inc. and Zoran. It's corrolarry "KeyChest" announced October 21, 2009 by Disney-Apple promoted similar universal Digital Rights Storage.

The Convergence approach will allow more consumers more choices and more opportunities for innovative businesses to supply more services. Local access level services as opposed to only world-wide-web services will drive newer internet media and data "segmented" capacity. But the local businesses will also need help in finding these new pathways; they are not just going to do it all by themselves just because you build a network.[10]

This business building process is the job of the special purpose local government entity, regulated by the Commission, which follows our prescribed designs for this business architecture. This community mobile architecture in turn creates entirely new industries around the local access that did not exist before. What this segmented capacity means is that the internet need only be the agent (or authorization package carrier) whereas, the local wireless network becomes the actual segmented capacity carrier needed to deliver the large file and high bandwidth hogs for high definition digital media and data. Either way, the internet is certainly not the end-all to the community mobile connection services.

What does this carrier convergence mean to you and what will it mean to the declassification of the internet? Imagine you are driving into a Community who has installed a Mobile wireless Cloud over the city or rural community. Also imagine you are entering the cloud for the first time on business, so you have your laptop with you and you turn it on to begin "scouting" out any local wireless hotspots you might use to connect to the internet to check your email or to just online for your business needs.

Instead of finding a hotspot connection, you find a whole new "local access" network complete with high definition local access tv, community information, and a wide variety of premium service offerings from high speed internet, to cable tv channels, to e-commerce portals. If you like just the local access services, you continue to have them for free and unlimited. If you need connection, however, to the world-wide-web and if you are happy with a basic (throttled) high-speed internet connection, you have the one-day free pass to try it out. If you are staying for more than a day, you might consider subscribing to a premium internet connection service package or maybe even a tv channel package. There are any number of other media or service packages you can choose from. This Community Mobile business architecture actually creates the sandbox in which many new industries can play and develop and grow – and at fiber like speeds without lacking the mobility, the consumer has a real quality of service experience without limitations.

Now, imagine that you are not a traveler, but that you live in this same community. You may already have a high speed internet connection in the home and then you likely already have a wireless residential gateway with a Linksys, D-link, NetGear, or other wireless router so you can communicate from your laptop to your desktop, network area storage, or even a file server/media server within the home.

What the multiple carrier convergence means is that both the technologically sophisticated and unsophisticated consumers have each just as much to gain as the other from adopting onto the

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[10] Local TV Digital Networks, for example:
http://www.mediapost.com/publications/?fa=Articles.showArticle&art_aid=114293 (reference only; no hyperlink embedded; must copy or cut and paste hyperlink into a browser to view the article)

Community Mobile "cloud" computing. With an HD gateway added to the home, that sophisticated and connected user can now simply take her residential gateway with her on the road. She need not have to buy any other services, like an internet connection for example, because through the Community Mobile network, she already has a connection to her home, which in turn already has a connection to the internet. Again, the multiple carrier mesh block convergent (MBC) approach to ubiquitous interconnectivity allows for people to choose only the services they need – if and when they need them. The internet connection through the cloud can come directly from her home and need not be routed anywhere else while she is in the cloud. But ubiquitous connectivity also allows for service providers to market even more services to those same consumers without limitations. What the ISP giants like Comcast seem to have yet to learn is that the ubiquitous convergent connectivity models enhance their ability to provide those services rather than diminish it.

Internet access is already available at every hospital, school, and health care facility in practically every city in the entire United States. Any proposed program which offered only internet connections to those institutions, could not deliver any enhancements. A robust "Multiple Carrier Community Mobile" system, on the other hand, will enhance and ensure efficiency, portability, and security, with reduced costs of implementation, to create ubiquity in mobile and wearable technologies. These mobile and wearable technologies can then be used in health-care, online and remote classroom education, and in child safety.

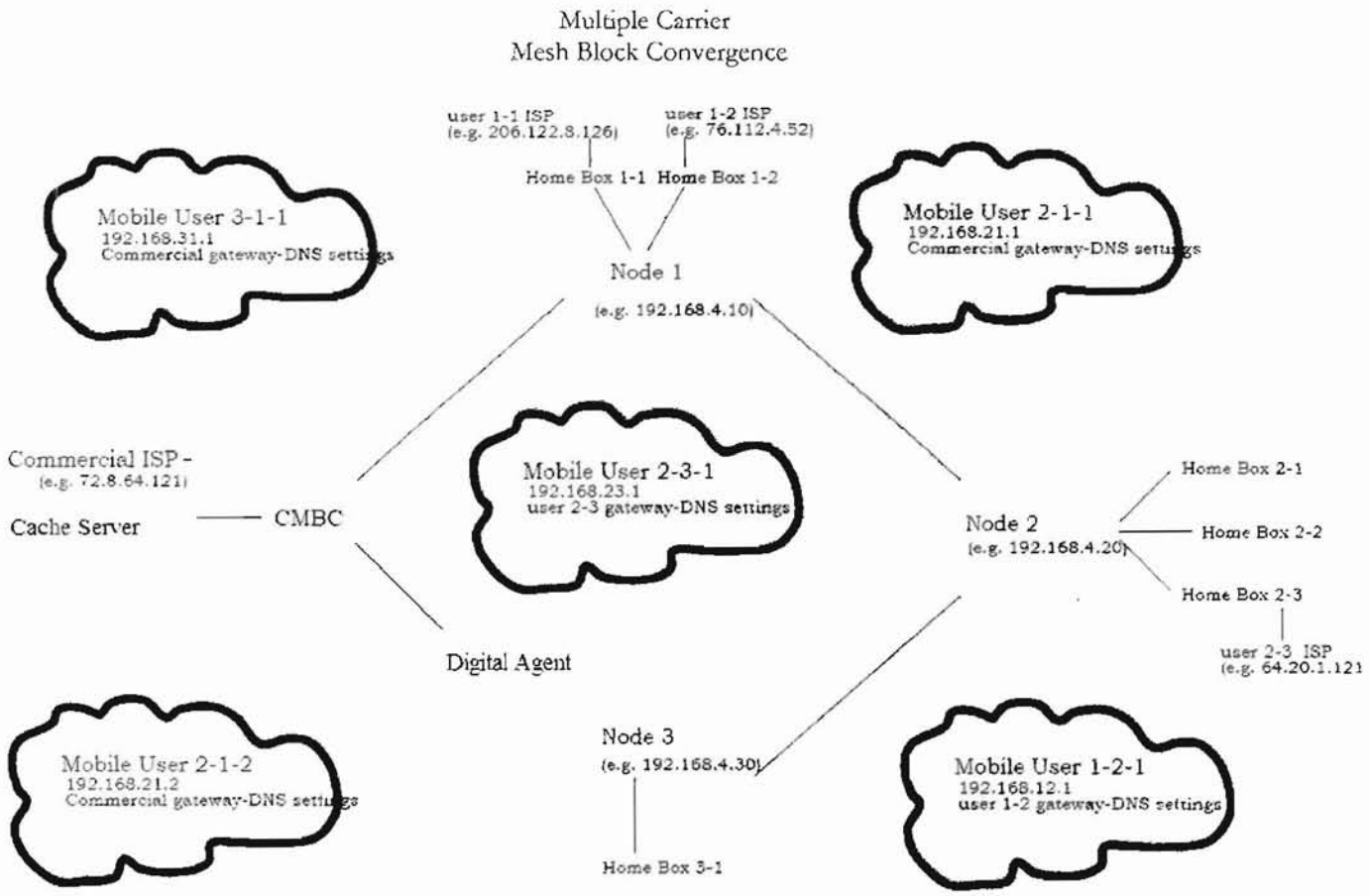
Wearable location ID and health monitoring systems, for example, when integrated into a Community Mobile Cloud environment, will increase safety, access, functionality, data availability to support early detection. With a fully IP core Wi-Fi enabled mobile phone, PDA, or bracelet technology, the location of children or patients can be quickly determined. If privacy with these monitoring systems is a concern, a fully IP core system with 256 bit encryption can ensure that only those who need the information can obtain the information.

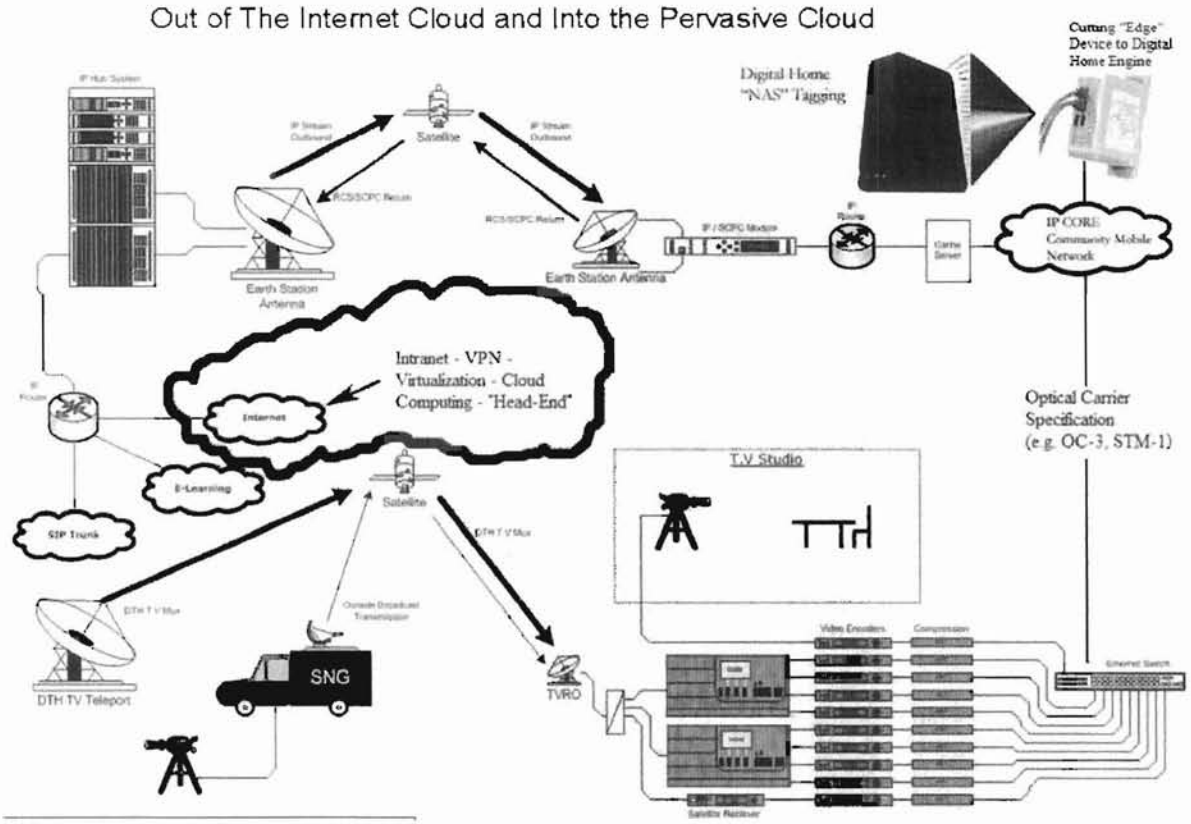
Many patients can benefit from continuous ambulatory monitoring as a part of a diagnostic procedure, optimal maintenance of a chronic condition, or during supervised recovery from an acute event or surgical procedure. The important limitations overcome by Community Mobile that will enable wider acceptance of wearable health monitoring systems are accomplished through the mobile broadband environment created. With this change in paradigm for wireless networks we will expect to see even further advancements in MIMO "subnetting" technology, micro-fabrication, integration of physical sensors with embedded microcontrollers and microchip interfaces engendering a whole new generation of even more advanced wireless sensors suitable for many applications, such as stroke monitoring, surgery rehabilitation, myocardial infarction detection, or even prevention of traumatic brain injury.

Real-time remote classroom interfaces with broadband will allow a higher quality for distance learning (as well as distance teaching) i.e. multiple students with laptops in multiple locations can reach one instructor with two-way high definition audio and video, while conversely one instructor in a remote location could be piped into large K-12, STEM and NCLB class room settings or auditoriums simultaneously. Community Colleges, Universities, Libraries, Hospitals, Health Clinics, and others can have improved skills, awareness, and education. Capabilities for city wide connected real-time video surveillance in public areas can ensure early detection and

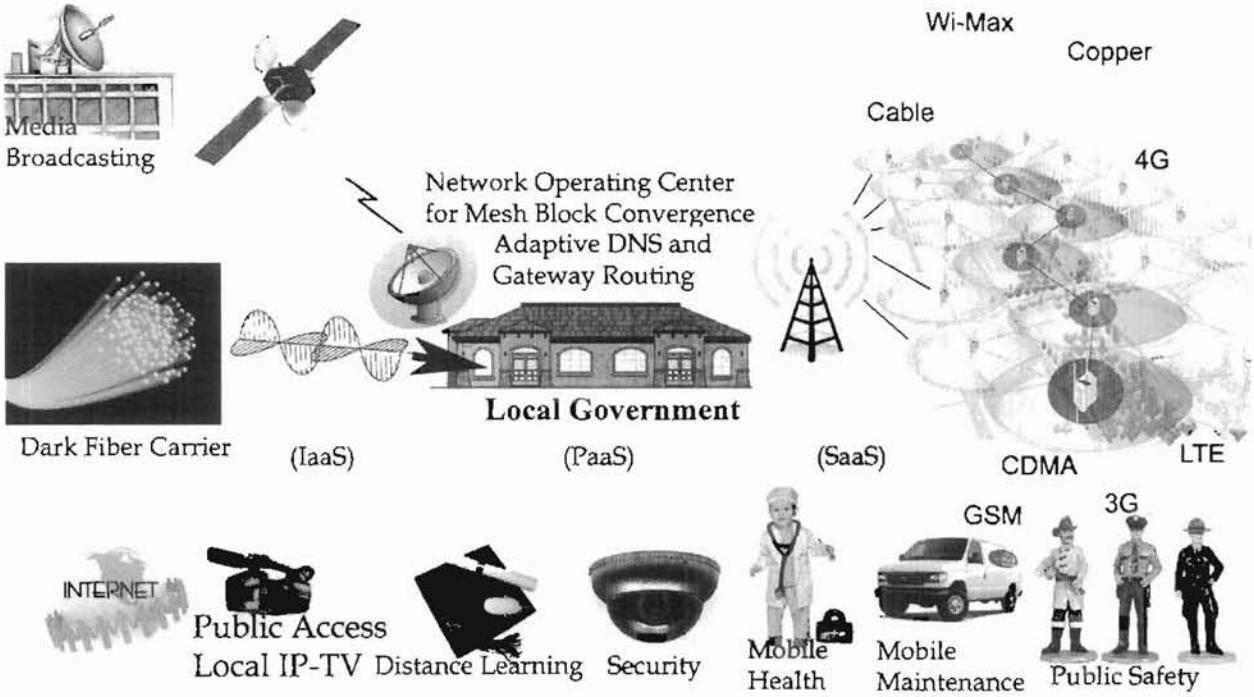
prevention crime. More solid state data storage, in more public places, will allow police officers, for example, to access to both stored and real-time video of a select location, and in the instance of a crime like child abduction, this in turn would stimulate crime prevention and crime deterrence.

These unlicensed "subnetting" networks are also green and energy efficient simply by the nature of low power emission standards, but P2P capability in the tunneling VPN, space-shifting, and place shifting technologies is a must for these entrepreneurial ventures to develop. The ISPs simply cannot be allowed to disrupt progress by clinging to the old protectionist models of the "Ma Bell" eras of the past.





"NEW MEDIA" CLOUD ARCHITECTURE



Not only "cloud" but "hot cloud" technologies are emerging everywhere. How long before we can connect wirelessly – wherever – whenever – seamlessly? It is becoming abundantly clear that if the Local Government networks can take hold, seamless connectivity can become reality just around the corner. There is nothing technologically stopping us from doing it right now. Seamless connectivity means that the end-user is going to stay connected using a variety of different networks and is not going to know if she is on one network or another network, she is just going to stay connected with the best network at the lowest price. In other words, she will be able to use one mobile device everywhere: home, office, on the road, painlessly tapping into a quilt of networks without missing an email or a call.

Verizon recently announced that it may be ready to launch its LTE network as soon as November 15th, 2010. It claims it will offer super fast mobile Internet access with speeds as high as 12 Mbps. While we have not yet seen or confirmed a fully operational LTE system, we can none-the-less easily assume that whatever the technology or spectrum, true broadband mobility will become a reality and it will occur in the very near future.

The FCC can encourage even greater innovation through providing a licensed bandwidth to facilitate quality of connection such as the FCC proposed AWS-3 —totally free internet access. Through the use of "Digital Agents" like our proposed HD agent in the home, a licensed frequency (always up) connection with limited bandwidth can be used to ensure continuous connection so that the end-user may experience occasional wait times when transporting very large file or large bandwidth transactions, but will never have to suffer some kind of interconnectivity problems due to interference or other bandwidth limiting forces that may occur. The beauty of melding some form of licensed spectrum into the HD home agent is that capacity can be shifted upon demand requirements in the unlicensed spectrum, but connectivity to the end-user can be maintained throughout without interruption or interference in the licensed spectrum.

B. Approaches to Classification

Instead of the combined "broadband" and "internet" classifications, in the new ubiquitous and mobile broadband environments, the classification should become one of *what type of service* will be delivered. From a local or tribal government entity approach, rather than focusing on what type of speed, data, or physical infrastructure is being offered, we look to what types of services utilizing the internet can best promote investment and innovation and protect consumers rights. In the very near future connection speeds will become ubiquitous and the end-user will desire to have only the connection speed that is needed at the time it is needed. For example if the end-user merely needs to receive a text email, then that is the only low-speed connection they will require at the time. If the person needs to download a High Definition Television series on disk, then a higher bit rate is desirable for a longer amount of time.

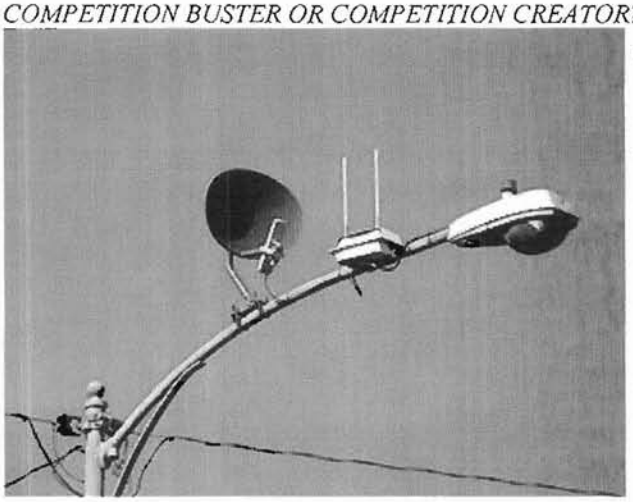
The insight the *Comcast* decision should have provided – is a directive for the FCC to begin building that roadmap into what types of "cloud" services the FCC is going to regulate: Information as a Service (IaaS); Platform as a Service (PaaS); or Software as a Service (SaaS). These new classifications will include public access TV, National Network TV, IP-TV,

Education networks, Security and Surveillance, Mobile Health, Mobile Maintenance, Public Safety, and others.

In many respects, Comcast had already followed the FCC regulations prior to the law suit.[11] The court case was really only about the FCC authority and how far a private provider could be regulated. If an ISP giant like Comcast comes along who wants to use a protectionist policy to prevent consumers from using P2P to get access to these services or programming (other than those Comcast provides) the Local Government Entity ("LGE") with either an Earth Station or Dark Fiber Carrier connection would create a natural deterrent to Comcast's own unwise protectionist efforts by offering an alternate gateway. It is amazing what kinds of content can be brought in locally with a simple VSAT antenna connected to broadband-IP gateway device.

SEAMLESS CONVERGENCE

COMPETITION BUSTER OR COMPETITION CREATOR?



AP May 16 2007: A transmitter with two antennas, one for wireless and one for high-speed Internet access, strapped to a light pole on a residential street in Lompoc, Calif.

The reason such systems never materialized into any type of new economic development was that the old visions and schemes of "scarcity" rather than abundance for data connectivity were never adopted. Residential and municipal networks merely offered "internet" rather than "local access services" like public access TV, National Network Mobile-TV, IP-TV, Education networks, Security and Surveillance, Mobile Health, Mobile Maintenance, or Public Safety.

The "possibilities" of seamless convergence in both voice and data off-load could be endless ... yet it will still fail to create more and/or open competition in broadband unless and until the FCC classification structures for the internet are revisited and protectionist ISP practices can be regulated.

In other words, if the ISP wants to block the access to the internet for certain services, there is no reason why non-internet analog and digital data communications could not be cached locally -- to bring the same content to the consumer – through the LGE – and then redistribute (or re "dish" tribute in the case of satellite broadcasting) through wired and wireless IPv4 and IPv6 networks – similar to what the cable companies did themselves with local TV stations years ago.[12]

You see – the old cable TV "head-end" system now joined with a true net neutrality and open competition model on a local IP infrastructure – will have a wonderful way weeding out those ISP giants unwilling to move into the 21st century in telecommunications. In the end, it is clear that the ISP giants will certainly benefit from seamless converged connectivity, but for now they

[11] op.cit. *Comcast*

[12] When cable and satellite carriers first came into being, the local TV stations got scared thinking that only national superstations could survive. The result was exactly the opposite, local broadcast stations can now thrive by serving a nationwide customer base – where people in LA can get local TV broadcasts from New York or Chicago.

are still just the monkey holding onto the banana.[13] Let's help move them into a rain forest full of bananas.[14]

Establishing a Local Government Entity program as part of the National Broadband Plan is not only possible, it may be the only proper and legal route for the FCC to both continue its Information Service Classification for ancillary authority as well as expand its authority to encompass all of Title II of the Act for the true internet access providers.

1. Continued Information Service Classification and Reliance on Ancillary Authority

What is the Internet? Everybody has a different idea about what it is and how it works. We may wish to think of it as the wires or fiber or other infrastructure that carries the data from one computer to another. But, those wires are just the media on which data flows. We may wish to think of the internet as a service whereby a "carrier" offers "connection" to the internet as a communication service. But that service is nothing more than a system of charging fees for the data flow into a virtual realm.

Administrators of the internet must realize this virtual realm the internet resides should begin and end with the public. The connection happening at the end-user's computer today, however, shows us that the ISPs ("service" provider's) are really just avoiding a classification of supplying internet access. In other words, the ISPs are behaving as Internet Access Providers (IAPs) – only they want to call themselves ISPs merely because they want to limit the ability to be regulated. There is certainly a place for true ISPs in the market place, but none of the current ISPs seem to be behaving that way.

The historical "word play" between an Internet Service Provider (ISP) and an Internet Access Provider (IAP) must come to an end. Last-mile must be last-mile, middle-mile must be middle-mile, and first-mile (or tier provider) must be first-mile. The "last mile" or "last kilometer" is the final leg of delivering connectivity from a "communications" provider to a customer. The "middle mile" is the segment of a telecommunications network linking a network operator's core network to the local network plant, typically situated in the incumbent telco's central office.

"First mile" and "last mile" (even though the terms have often been used interchangeably) for the sake of this NOI, must have distinct definitions. From the IAP's perspective it is easy to see the

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[13] In India there is a story told about monkeys. They anchor a bottle to the ground with the neck of the bottle just large enough for a monkey's hand to fit through. Then, they put a small banana in the bottle. Before long a monkey reaches his hand into the bottle, and grabs it. But, the monkey discovers that he can't get his hand out of the bottle while holding onto the banana. There is loud chattering and squealing as the person who set the trap walks up to the monkey and places a burlap sack over him. The monkey could, of course, let go of the banana and run before getting caught. Why not? Because the monkey is unwilling to let go of immediate value. So unwilling that he gives up his life for it. People do the same thing. People get trapped by their thoughts in the same way monkeys get trapped by bananas.

[14] In the figure above, labeled New Media Cloud Architecture, it is easy to see a path where content media could be delivered via satellite broadcast to the "head-end" system and thereafter transmitted (downloaded) to an enduser device through the local network with the data stream never having touched the internet.

last mile as the connection that finally reaches the end-user even in remote locations. From the customer perspective, however, that same connection is the first mile or "first connection" which has been traditionally with an ISP. The first mile can appear physically to be the same last mile or "local" physical media (cable or wires) that connect them to the ISP. However, we would prefer and recommend to the Commission that the term "first mile" should only be used when it refers to that "service" contract between the ISP and the consumer and the tiered connectivity it really represents. Whenever the subjective consumer distinction would lead an end-user to believe she has purchased an "internet" connection – then the "first mile" should only be interpreted to encompass "internet access" or "tiered" connection for regulatory purposes. Those "internet access" services by definition will already fall under the Commissions broad authority under several Titles of the Act (see Application of All Title II Provisions, below)

In a converged network environment, however, as was suggested herein and above as the clear direction for the National Broadband Plan, where the actual "interconnection" desired or needed by the end-user becomes ubiquitous and seamless between the carriers, the Commission can regulate the true ISPs under both its statutorily delegated and its ancillary authority and require them not to interfere with any open competition among any of the IAPs. In a seamless converged environment, instead of competing over the person as an internet customer, the IAPs will be competing over the connection desired at the time it is desired.

Thus, an IAP may differ from an ISP, but both will facilitate access to the Internet. But, an IAP actually provides the connection, whereas an ISP, in order to remain an ISP, should be really be mandated to remain in an open competition framework and should not be able to "franchise" or prefer one IAP over another. Most State law concerning municipal providers would already support this notion.

This "open" model of course is the framework being proposed by the Commission and based on the Commissions statements on open internet and net neutrality, it appears to be the right one – not only because it is fair, but because it is the one decision that will result in a game changing experience that brings more economic development potential to the Nation.

Today, the distinction between ISP and IAP has been blurred. One ISP might focus on providing services to endusers, while the other ISP might focus on 2nd tier services to provide businesses and other ISPs access to better connections with "bigger bandwidths" or more strategic locations. In the end, the ISP analysis always leads us back to the same conclusion – an ISP connects its customers using a data transmission technology appropriate for delivering Internet Protocol Paradigm, such as dial-up, DSL, cable modem, wireless or dedicated high-speed interconnects. All the major ISPs in the country have "pulled a fast-one" over the US citizens by calling themselves "service" providers when they are actually selling "access."

In the converged carrier environment, an IAP then may offer the ISP some sort of leased or "dedicated" line connection to some sort of better "hub" or "spoke" leading to a better world-wide-web connection. In the convergent environment, however, the reality for the IAP will still be plenty of opportunity for the same types of deals, but with many groups and other people trying to do the same. This increased competition will not decrease the amount of data flow that the IAP can provide; it will increase it.

Some people might call the internet nothing more than a "Big Pipe" because the actual physical layers are hard to find and where the "Big Pipe" actually lays, nobody can tell you. So, the ISPs of the world can and should be regulated under the Commissions ancillary authority as an IAP unless and until those ISPs truly offer open competition. The road to that regulation, however, can and should be realized with the use of the Local Government Entity (LGE).

It can be stated, this way: when an ISP *offers, advertises, or contracts* with an end-user for a "connection to the internet," they are actually operating as an IAP no matter what crafty business entity shifting attempt they may perform to make them appear *not* as a common carrier.

Why should an ISP get away with declassifying the internet itself? For example, when a car dealership sells you a car, chances are the presale ownership of the vehicle is tied up in many different entities. Yet, the sales contract is between the dealership and its customer. It is the dealership who is ultimately subject to all the legal and regulatory restrictions. Yet, when an ISP purchases bandwidth from a first, second, or even third tier provider, the ISP wants to be classified as merely a "Service provider" and not a "carrier." The regulatory focus, therefore should be on the contract with the customer – not on the ownership of the infrastructure. If the ISP is selling "an internet connection," then they are a carrier, no matter what the business structures used in between may conceal.

The problem now is simply that we have decades of regulatory and judicial history that supports the ISP in the charade they have created. That is why the only road to true correction in the ISP/IAP debacle is through new State, local, and tribal government mandates for open competition and net neutrality.

The majority of the States already have statutes and case law on point. For those few States who do not have municipal or regional carrier statutes in place, ISPs may be subject to Federal pre-emption under FTC, FCC, and other agency regulation, unless and until State laws (which are not contradictory to federal fair trade and communications laws) are put in place. Wherein, we introduce this idea of "intranet" or "intra"state communications as opposed the "internet" or "inter"state communications – and how LGEs operating local convergent network facilities necessarily bring just these types of fair and open "local access" services.

In other words, state law is always free to regulate so long as it is *not* within the exclusive jurisdiction of the federal government. But we must also remember that state law can and must fit within the constitutional and federal statutory framework or the state law will be overturned. The two prong analysis in *Comcast*, therefore can be both good law and be precisely turned on its head, where federal preemption exists if either a) there is no state law on point (exclusive jurisdiction) or b) state law is contrary to the federal law (preemption).[15] Thereby an LGE has its operational oversight on the state level, but must be compliant with all federal agency mandates,

[15] Supremacy Clause of the Constitution which states that the "Constitution *and the laws* of the United States...shall be the supreme law of the land...anything in the constitutions *or laws* of any State to the contrary notwithstanding." emphasis added. See also *Pennsylvania v. Nelson* 350 U.S. 497 (1956), "When Congress has taken the particular subject matter in hand, coincidence is as ineffective as opposition, and a state law is not to be declared a help because it attempts to go farther than Congress has seen fit to go."

wherever interstate communications (or even an offer of them) is made to a consumer. Thereby the FCC must stop "classifying" the internet and start regulating interstate communications. It can do that most effectively through local government entities (LGEs).

We must remember, however, that a local or tribal entity could send data across wires from one computer to another, even using IPv4 or IPv6 protocols – and yet never have to use the "internet." For example we do that every day on local "intra" nets where the communications from one computer to another take place inside the company or residence. This type of communication is using internet protocol, but it is not using internet "access." Likewise, VPN tunneling uses internet protocols and sometimes transmits internal company data across many miles from State to State or Country to Country on the same wires and switches of the internet, but never actually "accesses" the world-wide-web.

Connecting to the internet cannot be defined as only establishing an IP protocol such as IPv4 or IPv6 with a computer outside our residence or company. Under the Act, even communications protocols do not seem to authorize the FCC to set limits for internet.[16] Some might say an "internet user" must at some point find its way to Tier-1 which is herein defined as an IP network that participates in the Internet solely via Settlement Free Interconnection, also known as settlement free peering. But, ultimately any high speed or high availability to the world-wide web through either direct or very close ties into Tier-1 will not reflect what ISPs call connection speed.

ISPs typically sell two types of connection speed: 1) subscriber based, or 2) dedicated business connection. A common point of contention among people discussing Tier 1 networks is the concept of a "regional Tier 1" versus a "global Tier 1." In the end, connection speed is only the resultant speed obtained by the enduser – or ultimately the actual data transmission rate experienced, whether between an internet server or between other endusers in peer-to-peer "client" systems.

The DTFA cannot stress enough the importance of understanding local connection speed. In your home with a cat-5e ethernet connection, that connection speed is either a 10 Mbps or 100 Mbps depending on routers and NIC cards used in the computers. In a cat-6e wired connection in the home, there is the possibility of a 1 Gbps connection speed again depending on the routers and switches being used. It is important to note that the bandwidth hogs of high definition (HD) media can be best handled on these local access levels with all the "segmented capacity" gates on the local access side with all the caching capabilities and other optimizations that ensure both service quality and quality of service (QoS) which the "Big Pipe" is not intended to provide.

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[16] Under SEC. 3. [47 U.S.C. 153] DEFINITIONS, (22) INTERSTATE COMMUNICATION.--The term "interstate communication" or "interstate transmission" means communication or transmission (A) from any State, Territory, or possession of the United States (other than the Canal Zone), or the District of Columbia, to any other State, Territory, or possession of the United States (other than the Canal Zone), or the District of Columbia, (B) from or to the United States to or from the Canal Zone, insofar as such communication or transmission takes place within the United States, or (C) between points within the United States but through a foreign country; but shall not, with respect to the provisions of title II of this Act (other than section 223 thereof), include wire or radio communication between points in the same State, Territory, or possession of the United States, or the District of Columbia, through any place outside thereof, *if such communication is regulated by a State commission.* emphasis added.

In comparison, one HDTV broadcasting unit (such as Disney, News Corp., Sony, Viacom, Universal, or others) would never seek to establish direct connection from one server to every single end-user who may be "tuned" into the broadcast. The old "big three" (ABC, CBS, NBC) always broadcast the "national feed" to separate local stations who in turn broadcasted radio signals to the "TV set" in the home. The same content feed to a local "head-end" or "caching" server can and does happen all the time with internet businesses today.

This power to regulate, therefore, also demands the distinction between local access ISP services and internet access IAP services. The power to regulate the ISP on behalf of the consumer is already a part of the Commissions ancillary authority – it just has not yet promulgated the proper policy or local/tribal approach to the authority in order to accomplish it. Anyone claiming to be an ISP must be mandated to not offer or advertise any "internet connection" services or in anyway indicate to the public that they as a person or entity are the ones providing the "internet" access – else they in fact are Internet Access Providers.

Furthermore anyone claiming to be only an Internet Service Provider (ISP) must not be allowed to interfere with any Internet Access Provider (IAP) from competing on the local access network with any other IAP. What the "local" service provider can do, however, is to provide the market place where actual "internet" access providers can compete. If an ISP is limiting competition, in any way for actual connection to the internet, then the service provider can be classified as an IAP.

There are tons of local access services that can be provided and offered in a market place which do not need to engage the consumer in "internet access" services. As stated above, local access services can encompass Information as a Service (IaaS); Platform as a Service (PaaS); or Software as a Service (SaaS), all run on the subnet, without ever having to use the internet. They can then provide the market place for others to compete in new classifications of consumer offerings including public access TV, National Network TV, IP-TV, Education networks, Security and Surveillance, Mobile Health, Mobile Maintenance, Public Safety, and others.

When the Commission regulates a true ISP demanding open internet and net neutrality, by definition, they are only regulating under their clear ancillary authority over just those services which qualify under the two prong analysis, i.e. legislated authority and statutorily mandated responsibilities. Local/tribal control of the data communications or transmissions on the local level are by far the best choice for delivering and/or regulating these services, because by definition they are not subject to the "interstate or foreign" communications definition. If however, the traditional ISP chooses to offer services to consumers which qualify as internet access, then the ISP is not an ISP (it is an IAP) and subject to the full application of all Title II provisions.

2. Application of All Title II Provisions

Like all good attorneys before we can even begin to discuss application of provisions in a law, like Title II of the Act for example, we must first turn to the *definitions* found in the Act. What is very interesting about this law is that telecommunications technology has advanced so quickly that we may at first think there is very little if any application of 1934 law to today. But, of

course we know that the law has been amended from time to time, but at the heart we can consider the original intent of the Act.

Typically, when interpreting rule, statute, claims, clauses of a contract, etc., we do so from a juxtaposition of at the time of enactment. Or, in the case of amendment, we consider what was meant at the time of the amendment. In other words – what was meant by the statute at the time the legislature created the new law or amendment? Then, we have to consider, if it is workable today, or how it would apply to today. Where it is not workable, we simply assume that the statute does not apply.

Under the Act, the term "broadcasting" means the "dissemination" of radio communications intended to be received by the public, directly or by the intermediary of relay stations. The term "broadcasting" must also be reconsidered in the realm of a local or tribal government convergent (subnet) IP network. "Dissemination" under the act is different from publication, provisioning, acquiring, or distributing."[17]

"Dissemination" is not specifically defined by the act, but in order to understand "broadcasting" we need to know at the time, that dissemination meant" to scatter widely or to spread to multiple locations."[18] Therefore, at the time of the 1934 Act, the word "dissemination" clearly did not apply to *one-to-one* communications like ham radio. It may have included some form of mobile communication, but the first radio receiver/transmitter to be widely nick-named a "Walkie-Talkie" was not until the Motorola SCR-300, created by an engineering team in 1940 at the Galvin Manufacturing Company (fore-runner of Motorola). The walkie-talkie of course can be seen as the precursor to the cell phone.

In all of this consideration of what was meant by the 1934 Act, we must realize that the first successful demonstration of transmitting radio signals had only occurred about 38 years prior to the 1934 Act, where in 1896, Italian inventor, Guglielmo Marconi, first noted the capability of what he call "'Hertzian" waves to travel over two miles after he had read about the experiments of Heinrich Hertz. Marconi was perhaps the first to conclude the possibility of using these waves as a means of signaling.

Then moving on to the definition found in the Act, we can begin to analyze just what a Title II common carrier is. Then also by the definitions found under § 3 (47 U.S.C. 153) of the Act, all IAPs, as described herein, must necessarily by "common carriers."[19]

However of course, we know that many of the definitions in the Act as amended must be interpreted differently today than they were in 1934. For example, radio "broadcasting" under the definition today includes data transmissions which are relayed by radio. Where the data is sent to more than one recipient simultaneously, under the "dissemination" terminology, this can be considered broadcasting. But if each end-user is making a unique connection with a unique

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[17] Communication Act of 1934, 47 U.S.C. § 151 et. seq.

[18] c.1600, from adj. disseminate "scattered widely" (early 15c.), from L. disseminatus, pp. of disseminare, from dis- "in every direction" + seminare "to plant, propagate," from semen (gen. seminis) "seed" (see semen). Related: Disseminated; disseminates; disseminating.

[19] Id @ §3-10

occurrence of the media transmitted, then under the Act, this may not constitute an actual "dissemination" and thereby is not broadcasting.

Also, "simultaneous" broadcasting today can be sort of a misnomer, because today we know in the "quantum" world and complexity of semi-conductor technology, there is no such thing as absolute simultaneity in any data transmission; there is only subjectively the concept of simultaneous or parallel processing.

In the early days of the internet, a "broadcaster" was merely a person with a web server who "posted" content that could be accessed. Since millions of people had "access" to the internet, the broadcaster wanted to believe that millions of people had "access" to his website. It was never intended that each of those millions of users was ever going to actually "access" his website simultaneously – less the web server would ultimately experience service denial at some point due to its own "bandwidth" non-scalability. So, today we know that in order to properly define an internet "broadcaster" we must test to see whether the broadcast is done simultaneously (in a non-quantum sense) transmitting to multiple end-user clients.

Yet, IP-TV and event streaming on the internet have typically been provisioned to deliver the stream simultaneously to multiple recipients, albeit with filters and "caching" technology that make it objectively not simultaneous, yet subjectively, the entire intent is to be simultaneous, i.e. "live" events. Certainly when a fiber backbone network delivers "triple-play" services to the home over the IPv4 network, the broadcast TV channels portion of the bandwidth is not run over the internet, but through TV "head-end" systems with dedicated bandwidth.

Therefore, we must make distinctions, in applying the 1934 Act, of whether or not the broadcasting (or streaming) is being relayed through caching or "head-end" systems. This distinction today, then, merely depends on whether the end-user is receiving time delay, filtering, or otherwise duplicate broadcasting. Thus we get into the notion of space-shifting, time-shifting, and place-shifting. These concepts are also very important to the "new media" revolution and whether or not someone is a "common carrier" or "contract carrier." A "common carrier" differs from an independent "contract" carrier, because a "common carrier" does not simply offer its services to one or a few specific people or companies, it offers its carrier services to the all takers in its service area.

New Media breaks the notion of broadcasting and replaces it with "interactive" and "on-demand" systems, which can be defined to encompass the amalgamation of traditional media such as film, images, music, spoken and written word, with the interactive power of computer and communications technology, computer-enabled consumer devices and most importantly the internet. Understanding now that broadband is not the connection to the "Big Pipe" but rather the conceptual connection between two or more computers simultaneously sharing information – the reason a common carrier differs from a "public" carrier, is not that it offers its services to the public; it is that a common carrier is simply not a public entity.

Time-shifting is relaying a broadcast to a later time. Space-shifting is taking the data that is the broadcast and changing its format to a different file or to play on a different device. Place-shifting is the new area primarily pioneered by "Sling-Media" which allows a one-to-one digital

rights ownership, under copyright fair use, to listen or view the same media stream in a different place – for example, be it pausing your DVR in your living room and then going to the bedroom and hitting "Play" on your remote to continue watching your show in a different place – or, that different place could even be miles away in your hotel room, or in a different country. You use your "sling-player" to control your DVR from a distance, yet still there is only one instance of the DVR and any person viewing from a distance must still watch the same program or recording that is playing on the one DVR at home.

Now, let's take a delivery of a feature length film "download-to-own" for example. A download-to-own media asset, also called the EST (Electronic-Sell-Through) is a large file containing media, delivered from a seller (a content distributor) to a buyer (an end-user on a client device). Trying to regulate the true local ISP service as a common carrier in this instance would make no sense at all. Regulating the content owner as a common carrier equally makes little sense.

When data connection services are truly providing only direct or leased line services, those media services become IAPs. Or in other words, they become common carriers whenever the data can be shown to have crossed state lines.

Data sent over wires, even across state lines or into different countries, does not always mean access to the internet. It is merely a physical means of data transport being utilized -- a means whereby no matter how many intermediary servers are employed (even if the data is routed through China) the digital viewing rights of that feature length download-to-own film are still being transmitted from the content owner (whether in New York or Burbank California) to the end-user who may be in Chicago, Atlanta, Phoenix, or anywhere in the world.

The local or tribal government entity again creates the perfect avenue to promote investment and innovation and protect consumers. The common carriers who are actually providing the interconnection services to that local access network can be forced through the local ISP to compete under the Commission's ancillary authority to regulate the local access service provider.

Also in the local or tribal government entity run "cloud" scenario, the common carrier must only offer its services to the general public under license or authority provided by the regulatory body, in this case the Commission. The Commission has been granted "authority" by the legislation which created it. The Commission may create, interpret, and enforce its regulations upon the common carrier (subject to judicial review) with independence and finality, as long as it acts within the bounds of the enabling legislation.

Who is the common carrier in this case? It is simple. Whenever the contract with the consumer for services implicitly or explicitly defines the service as providing "internet," the ISP itself is an IAP. Or, if the local entity end-user contract is merely providing a local IP connection which only allows access to the IAP and whenever the ISP can fully demonstrate that it offered the services completely within the virtual realm, with open competition to all carriers, it becomes those IAPs who tie the ISP to the Big Pipe and the IAP is the common carrier – *not* the ISP.

The distinction may be subtle, but it is still pretty simple to see. In the end, any seller, leasor, or provider of "access" to the internet who claims some type of "dedicated" "direct" or "always up" connection the "internet" cannot have his cake and eat it too. In other words, any "ISP" who is claiming to deliver "access" to the internet, it is providing both a "service" and a "connection." The moment the first data bit is "transmitted" to the "internet" whether through third party or not, there is necessarily an "interstate or foreign communication by wire or radio"[20] which has been contracted to the consumer.

Thus, we must also come to a better definition for the term "broadband" because when an ISP or IAP tells you that they are supplying you a "connection" speed -- they are usually lying.

Now that may sound like a bold statement, but those "subscriber based" residential "connection" speeds are merely a "burst" speed capable of being tested between an enduser client and the ISP's gateway server. On a subscriber line, if every subscriber accessed the internet at the same time, the ultimate advertised "connection speed" is shared and would be nowhere near the speed that was advertised.

Thus, the standard for determining whether or not an ISP is conducting interstate or foreign communications cannot be determined by the actual infrastructure owned by the ISP, but rather must be determined by what service it is they are telling their customer that they provide. If they want to call it "broadband"[21] then they are providing "access" to the internet and they are providing both internet services and internet access even if they only want to only pin the term "common carrier" onto one or more of certain other entities or agencies.

A local government entity, on the other hand, which merely provides the local IP cloud (wired or wireless local access services) with peer-to-peer or server-to-client connections for all users only within the community – where that operating unit obeys the rules of open internet and net neutrality – then, they are truly not an IAP.

Open internet or net-neutrality would also demand that the LGE is regulated and must allow any and all IAPs who wish to conduct business within that community and wish to utilize that local access network to sell their bandwidths to the public, shall be subject to open competition with one another and be regulated under the full Title II regulatory authority under the Act.

3. Telecommunications Service Classification and Forbearance

Even though the Commission has somewhat limited autonomy to regulate in all things pertaining to telecommunications, when specifically regulating as to *competition* and *economic development*, the Commission must realize there is necessary overlap with the Federal Trade Commission (FTC) and with its umbrella organization, the Department of Commerce (DOC). While neither the FCC nor the FTC are actual "operating units" of the DOC – the NTIA is an operating unit of the DOC, and even a forbearance statute as part of the Act cannot create a

[20] Id @ §3-10

[21] The RUS/NTIA BIP/BTOP Round 2 stimulus programs defined "broadband" as "Two-way data transmission with advertised speeds of at least 768 kilobits per second (kbps) downstream and at least 200 kbps upstream to end users, or providing sufficient capacity in a Middle Mile project to support the provision of broadband service to end users."

bright line between where telecommunications begins and where consumer protection with fair competition and anti-trust ends.

Forbearance, therefore, arises under the 1996 amendment to the Act and is codified under 47 U.S.C. § 160(a):

> (a) Regulatory flexibility Notwithstanding section 332(c)(1)(A) of this title, the Commission shall forbear from applying any regulation or any provision of this chapter to a telecommunications carrier or telecommunications service, or class of telecommunications carriers or telecommunications services, in any or some of its or their geographic markets, if the Commission determines that - (1) enforcement of such regulation or provision is not necessary to ensure that the charges, practices, classifications, or regulations by, for, or in connection with that telecommunications carrier or telecommunications service are just and reasonable and are not unjustly or unreasonably discriminatory; (2) enforcement of such regulation or provision is not necessary for the protection of consumers; and (3) forbearance from applying such provision or regulation is consistent with the public interest. (b) Competitive effect to be weighed In making the determination under subsection (a)(3) of this section, the Commission shall consider whether forbearance from enforcing the provision or regulation will promote competitive market conditions, including the extent to which such forbearance will enhance competition among providers of telecommunications services.
>
> If the Commission determines that such forbearance will promote competition among providers of telecommunications services, that determination may be the basis for a Commission finding that forbearance is in the public interest. (c) Petition for forbearance Any telecommunications carrier, or class of telecommunications carriers, may submit a petition to the Commission requesting that the Commission exercise the authority granted under this section with respect to that carrier or those carriers, or any service offered by that carrier or carriers.[22]

Once again, the LGE by its very nature provides all the proper elements to establish forbearance when needed. What the DTFA presents here should be of extreme importance to the FCC because the FCC is not the FTC. If the Commission is not analyzing government collaboration in telecommunications with private companies with the same vigor as the potential plaintiffs in an antitrust lawsuit, the affect of legal battles could nullify any progress that might be had in developing technologies. Legal battles will destroy wireless projects and no amount of spectrum control from the NTIA can possibly turn around years of litigation over telecommunications and government backed monopolies.

Government Collaboration in Telecommunications has been perhaps the most frequently litigated topic since the Bell System Divestiture of 1982. The Dixie Technology Funding Agency is and example of a Local Government Agency that should be duplicated in other States and cities across the country. In Utah, the entity was formed under Utah (U.C.A. 1953 § 17C-3-1 et seq.) and since its inception has been dedicated to understanding and solving this very legal issue of government collaboration in telecommunications infrastructure. A 600 page thesis on this topic would only begin to scratch the surface of the history and legal precedence in this

[22] 47 U.S.C. § 160(a)

determination, but under this limited response to your NOI, we simply introduce the DTFA capabilities and persuade the reviewers to truly consider whether the FCC and FTC under their umbrella Department of Commerce organization has thoroughly thought through these legal matters.

Walking headlong into litigation is something that the FCC and FTC must avoid at all costs. Ironically, Federal preemption is a main topic of the legal debate since 1982; any public/private strategic alliances in telecommunications would by definition be bound by any constitutionally correct State telecommunications laws which have been consistently free from Federal Preemption. e.g. *Nixon v. Missouri Municipal League*, 541 U.S.125 (2004).

Under most State law today, local governments can provide public internet as an ISP or even as an IAP provided the entity remains free to contract with private industries for technology and support; but all of those third party providers must be subject to State money management for competitive bidding, relieving the Department of Commerce of this burden. The DTFA would eliminate possible improprieties within the FCC rulemaking and leave the oversight to the States. And, the DTFA has constructed its own municipal wireless cloud already; currently installed in the City of LaVerkin, Utah, which is in an open space laboratory setting.

The benefits of broadband in increasing communications are clear – the great freedom train cannot be stopped when people are informed, educated, and self sufficient. These benefits are empirically demonstrable in some developing foreign nations where freedom of information cannot be stopped by governments. Technology will raise student test scores and active involvement in the community and government will result.

The great harm, on the other hand, in local government broadband solutions has been their tendency to franchise to only one "internet access" provider and thereby lock out both competition and innovation. There are already many fair competitive advantages for limited monopoly existing for service providers within Federal and State law which innovative new industries can take advantage of, such as patents, trademarks, copyrights, and trade secrets, just to name a few.

The local telecommunications *franchise* simply needs to at least be limited, or possibly even done away with altogether. Our State, local and tribal governments need to instead be focused on nurturing competition rather than limiting it. Creating and enforcing new federally mandated policy in "open" broadband infrastructure is by far the best path to economic development through telecommunications.

City wide real-time wireless broadband coverage for most public areas for public safety is perhaps one of the most underutilized local broadband solutions. City wide wireless has been technologically ready for some time, but it has been the lack of innovative business models that has prevented success in these areas.

Perhaps, the major stumbling block to utilizing full time wireless digital surveillance has been due to an irrational fear of "big brother is watching you." Surveillance of public places is just that – public places – and the fear of incursions into private property or personal privacy are just

unfounded. Misuse of technology, compared to the mere existence or availability of technology, are two very different topics. People should not fear technology advancement itself; they should merely fear the establishment of improper policies that would allow the use of technology to infringe upon privacy or upon the rights to open competition.

A robust "Multiple Carrier Community Mobile" system will enhance and ensure efficiency, portability, and security, with reduced costs of implementation to create ubiquity in high definition video as well as in mobile and wearable technologies. Heavy encryption used in these technologies will increase privacy controls and not diminish them. Ubiquitous availability of high definition video can also promote remote classroom education and child safety. Wearable location ID and health monitoring systems, for example, when integrated into a Community Mobile Cloud environment, will increase safety, access, functionality, data available to support early detection. Where privacy is a concern, network architecture can ensure that only those who need the information can obtain the information.

Given the new and robust "cloud computing" environment described above, the FCC must not repeat the conundrum by classifying the internet as a "telecommunication service." Rather, the FCC should declassify the internet by calling it a "virtual realm" which it is, and then classify each telecommunications service that is utilizing the virtual realm. This is the only way to fairly and individually classify services in the context of the local or interstate communications that the service actually exhibits – from the consumer standpoint and not the standpoint the ISP wants to create to avoid regulation.

§ 201, 202, 208, 222, 254, 255 and other sections under Title II of the Telecommunications Act

Given the above "local access" analysis, forbearance under any of the listed sections in the NOI can become a non-issue for a Local Government Entity (LGE). Therefore, the choice to either enforce or to forbear enforcement of the sections mentioned in the NOI are simply not very applicable to a municipal, regional or other state or tribal regulated entity – unless they operated as a common carrier, which most antitrust and state law prohibits anyway.[23] However, in areas where the LGE interacts with a common carrier, then the regulations in Title II will apply to that common carrier and can affect the LGE as local carrier.

As long as the LGE is not operating as a common carrier, most sections of Title II will not apply, for example, the *new business structures* of a community mobile mesh block convergent network are not "new technology" pursuant to §157 of the Act because it is merely a business model for economic development and therefore forebearance is not applicable anyway.

Nor is an LGE necessarily a "public broadcast station" pursuant to §397 – unless for some reason the LGE chooses to carry only non-commercial media. Certainly an LGE operated community mobile network should offer public service media like weather, traffic, public access TV, visitor information, etc., but it should not be restricted to only public service content.

[23] Or if the LGE conducts operations or businesses directly covered in Title II, such as using utility poles, for example, as regulated under §224.

Perhaps the most important forbearance, however, for regulating the LGE to ensure economic growth, will not come under the sections listed in the NOI, but rather it will be section 541. The DTFA will recommend to the FCC that consideration of forbearance as a matter of the public interest is necessary for select subparts of §541.

For any private carrier or ISP provider, the FCC could forbear enforcement of some of the subparts of §541 only where open and fair competition is not thwarted through limited franchise agreements. For the Local Government Entity that is already controlled by State or tribal law, such as State communications Acts,[24] to allow forbearance may only be required when State law is not already controlling.

Granted, there was a day when digging up streets and laying fiber or cable at astronomical costs required some franchising in order to stimulate investment, today's wireless and/or radio backhaul solutions allow for much quicker and less expensive roll-out, where franchising becomes more of a deterrent to growth that it is an incentive for investment.

C. Effective Dates

This current system of classifying all ISPs and IAPs together, using "broadband internet" defined as a "telecommunications service," is inherently unfair and needs to be corrected soon. But to begin classifying on a service by service basis and essentially "declassifying" the internet back to its virtual realm (or in other words subjectively public and global realm) will require a disclosure period for the incumbent ISPs – and an information gathering period for the Commission.

The ISP/IAP distinction framework is a change in the approach, but we must remember this is not a change to the regulatory schemes under the Act. Classifying internet services separately from internet access will not be taking away anyone's customers; it will merely be opening up the possibility of new customers for in-the-cloud services.

Going back to a time when ISPs operated only as local access providers, was the beginning of when ISPs were not to be regulated under Title II. Historically, however, this has changed and today all ISPs really are IAPs. This service-by-service classification process will merely be an information gathering period for the Commission to find out who, if any, of the ISPs actually can be said to still operate as only a service provider – not contracting for internet access. Those who might decide to continue to contract for "internet access" with its customers will remain IAPs and will be subject to Title II regulation as a common carrier. Those who will be willing to open up their local infrastructure to the multiple carrier framework will become the true ISPs.

For those incumbent ISPs who will adopt and change over to the new service-by service paradigm, under the same old Act, they may need time in deciding whether or not they are willing to allow their privately owned local infrastructure and assets to be used in this way. Which will essentially mean that as an ISP, if they want to continue to avoid the classification as

[24] In Utah, "Municipal Cable Television and Public Telecommunications Services Act" *U.C.A. § 10-18-101 et seq.*

a common carrier under Title II, they will only be able to operate as a pass-through gateway – for multiple common carriers (IAPs).

The hope is that those ISPs may realize that there will be numerous opportunities for new services on the "local access" subnet without the internet, or they may want to stay the course and continue competing for both "last-mile" and "first mile" within the cloud.

However, the proposal herein is that wherever possible, providers who are operating as both the ISP and the IAP, must be given an adequate amount of adjustment period allowed, avoiding interruption of service. Therefore, to accomplish the change in an orderly and systematic manner, the first step is simply a requirement that all ISP's must disclose the nature of their end-user contract with the consumer, while at the same time disclosing the full nature of their peering contract with the tier-1 and tier-2 providers. If the local IAP does not have a direct tier-1 or tier-2 type provider or contract with a telco, then they need to "pass-on" this requirement to their immediate "access" provider, who must in turn be required to disclose the information to the local IAP, whereby the local IAP can disclose to the Commission.

It is precisely those exclusive connectivity agreements or franchises between the ISP and IAPs that are allowing certain of the larger ISPs to mask the fact that they are truly operating as access providers. They are using this third entity masquerade simply as means for leverage to manage the competition and/or limit the regulatory authority of the FCC.

In theory, this reporting period could be done in just a few months, however, given the current political nature of grass roots movements going about the country in attempts to stonewall and/or thwart anything and everything that is the Federal Government – legal challenges should be expected. The effort will be an attempt to cause delay to any such reporting requirements. Again, however, the beauty of utilizing LGEs is that it will be the states and not the federal government in control of the oversight. The Federal Government merely sets forth the regulatory policy. This use of federal regulation is not a move to bigger government, but rather a move toward fair and productive policy.

The reporting could end up being held off for years to come, unless however, establishment of several LGEs with open competition and carrier convergent networks can be put in place within months. With those networks up and running on the new paradigm, those communities may become the greatest driver of change.

Many of the possible legal challenges will land on deaf ears – or at least dispensed with and dismissed within fairly short order if LGEs are utilized. When the federal courts realize that the Agencies have no preemptory powers over State law on point, most legal challenges using the Federal courts systems will be eliminated through lack of standing.

Certainly the general public will have little opposition to free local access via the convergent network. The opponents of open competition and net neutrality will soon realize that the real enemy will be their very own customers. And companies usually do not like to sue their own customer even if they are pushed.

We can also then expect a challenge in the State court systems. Those opposed to the LGE in State courts will soon realize that it will be fair trade laws controlling and not communications law. The ISP/IAP reporting to the Commission cannot and will not invoke challenges to its regulatory powers where the Commission has clear authority to simply request the information.

Once this reporting period is over, the ISPs must be given another small amount of time to come into compliance with their own State laws as to open competition under the new classifications for ISPs and IAPs. It is important to remember (as describe above) that a "local access data off-load and convergent network" is the epitome of open competition. The enduser is free to contract a local ISP for her local connection, but will also have the right to know who the IAP is or even keep her current IAP and tie her residential gateway into the local cloud so she can take her internet with her. The IAP, in turn, will also have a right to offer services to the any endusers within the cloud and the interconnectivity to interstate communications can happen seamlessly.

While at the same time as bringing on this reporting requirement for the ISPs, a broad movement to consider all state law with respect to local and tribal governments, must be undertaken by the FCC. There have been many wonderful advancements in technology over just the last few years and we can expect technology to advance exponentially (not just incrementally) over at least the next few years. The tendency, however, for businesses and government to jump in ahead of the curve in technology, yet falling behind the curve in actual business structure has been the primary cause of failure and wasteful spending and investment in broadband that has hit state, tribal and local governments the hardest.

Governmental broadband initiatives must begin to utilize the Community Mobile segmented capacity models if the time tables to truly address the employment, literacy, public safety, open government, physical plant, health, and education needs of tomorrow are ever going to be reached.

D. Terrestrial Wireless and Satellite Services

In the new re"dish"tribution world of multiple carrier convergence, finally the terrestrial wireless and celestial satellite services can best be leveraged for their intended purposes. That purpose being to move the large bandwidth media files between the enduser and the fiber backbone services already built along the "middle mile."

Considering "new media," the satellite can deliver media as a "master" copy rather than a "distributed" copy and the terrestrial wireless services can in turn deliver the distributed copies. In other words, the wireless and Satellite Services become the model for local data off-load that is so greatly needed. Huge advancements in security, digital rights management, and serial copy management, have spear-headed this ability to make "master" and "distributable" copies of media locally.

While neither wireless nor satellite has ever been able to keep up with the fastest or latest fiber or wired speeds, their ability to move analog signals or even digital files at speeds rivaling those of legacy wired communications have always kept pace with technology change.

Satellite has also had its own bandwidth limitations, but today data rates far exceed what wired communication infrastructure is delivering in remote access areas. Today in wireless, Gigabit per second (Gbps) speeds are becoming very common and can capably deliver large amounts of data wirelessly and in conjunction with satellite extremely efficiently. Most our current wired facilities today are no faster than wireless or satellite. While the new 10 GigE and/or USB 3.0 will give 10x the data rate of its GigE or USB 2.0 predecessors, we cannot easily rewire our entire nation to meet the new requirements.

Wired versions will likely continue to outpace the wireless versions for high-speed data transmission, but only incrementally, and only at high cost to bring it to the masses. This situation will likely continue in the new future. Wireless technologies on the other hand are much more inexpensive and readily adaptable to technology change in that upgrade typically only involves only the replacement of a few radios.

The trick to coming to grips with this technology change, however, is that not every data file delivered to an end-user must always come from the same computer that handled the file access or authorization, because in today's emerging cloud computing environment it is almost never the case that the selling computer or platform server is going to transmit the file directly. In the very near future, the data and software services become extremely ubiquitous. The connection between the end-user client and the digital rights authorization services requires very little bandwidth. The high bandwidth actually takes place locally with all the segmented capacity, routing, and local caching necessary to make the file delivery quick and seamless. Internet caching and-or data off-loading is becoming very real – and an extremely important feature in the new "cloud" computing models.

Going back to our "download-to-own" digital model suggested above, for example, if multiple consumers were to purchase a "digital copy" of their latest favorite Blu-ray compatible file format in a download version, the content owner (such as Disney, News Corp., Sony, Viacom, Universal, or others) would not have to transmit their file directly from their satellite earth station to every single consumer who demanded it; they would not have done it this way in the old cable TV model and they need not be tied into those models now.

Instead the Network Operating Center earth station for the content owner could transmit the HD digital media via Satellite to various client end local earth stations where it can be cached and re"dish"tributed to the end customer. The only thing stopping this much more efficient method of media delivery has been the notions of bandwidth scarcity, content security (pirating), and economic protectionism from the cable and satellite companies.

However, in the new mesh block converged and controlled local access proposed herein, every consumer device that connects through the cloud must by definition do so through a secure socket layer which using 256-bit or better encryption. With the big content providers and consortiums like Disney/Keychest, Apple, and the DECE LLC[25] all moving toward universal content serial copy management systems in the very near future, those concerns over security leaks will become moot.

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[25] *Op. cit.* note 8, page 5. DECE LLC/Keychest

It is amazing how the content pirating excuse has been used to thwart advancement for new media in the past, when currently, there is very little protection what-so-ever, where every new Hollywood movie is usually out on a "Bit Torrent" from an off-shore website even before the movie even hits the theater. We would think that the big distribution companies would also welcome a standard serial copy management format, yet they persist in blocking these movements only because it might interrupt with their ability to control the competition in DVDs and Blu-ray.

The key to getting this problem under control is not to design a "hack-proof" digital right management (DRM) system, but rather to make purchasing of the content more appealing than stealing it. Thereby, it will become advantageous for content owners to begin considering how they might supply a national satellite feed into the various local "head-end" markets complete with full distribution agreements and constant vigilance over media security.

For example, a current "Bit Torrent" download of a feature length film may take over 8 hours, or even up to a day or more, depending on how many "seeds" are needed to complete the download and how many seeds have actual current information associated with them. Next the user will probably have to re-encode the file several times to prepare the movie in order to play it on her several different devices. Finally, the Bit Torrent downloading system is fraught with spams, scams, and viruses that tend to destroy her computer.

If a person could simply go out and buy a digital rights copy of the HD movie at a reasonable price and have it delivered almost immediately to her home network area storage or onto a local caching server with all the permanent digital rights storage where she could easily log in and check the status of her download and/or her catalog on file, she may just not want to spend the hours and/or legal risks that go along with trying steal something.

Thus, the fair price one pays for digital assets in this evolving "new media" architecture is not based on the scarcity of the item, but the scarcity of the services used to conveniently deliver the item. The price of the service which delivers it to the consumer in the most immediate and convenient methods will ultimately garnish the highest price.

Right now, $19-$29 for a HD feature length film delivered to your digital rights storage locker in a matter of minutes sounds pretty reasonable compared to the time and difficulty it takes to steal it or rip it from a Blu-ray which one has already paid for. Internet pirating thieves might actually even have to consider taking up a new career which would allow them to make more money – simply by delivering media to customers legitimately. Piracy strategy therefore no longer needs to work on "preventing" copying. That has never worked. But instead, policy and strategy can focus on making it much more difficult to copy and transmit illegal copies, while at the same time making purchasing and viewing legal digital copies legal and affordable.

Sure, there will always be some silly person out there who may want to spend hours stealing something. But for the vast majority, there will be better things to do with their limited time in life. If an average person's time is worth at least minimum wage and the opportunity costs for spending time to hack a sophisticated system will not be worth it, most honest people will realize

that it is smarter to pay for a convenient delivery it is to waste their time and resources trying to steal an inconvenient delivery.

The local government entity (LGE) is once again a perfect regulatory vehicle to launch huge economic growth potential in the field of new media in connection with satellite re"dish"tribution delivery and local terrestrial wireless services. These LGEs facilitating the delivery of new media will easily fall under numerous Titles of authority under the Act.

A local data off-load and convergent network is truly a last-mile infrastructure solution. 3GDO (or "3G data offload") is already a tested function for the emerging "hot cloud" technologies in rural communities, and new MIMO technologies including those recently announced abroad in HSPA (DC-HSPA) and others may offer great promise to the local data-offload networks.

The definition for "Convergence" – a term used to describe the transition from a separate circuit-switched voice network and packet-switched data networks, to a single packet-switched network supporting both voice and data protocols – can now have much broader importance to the National Broadband Plan ("NBP") than may have been previously thought. The new definition for "Convergence" should include any cross-platform voice and data control or sharing. Nearly every media rich device released by the consumer electronics industry during the past couple of years has included 3G and/or WiFi convergent capability (the awaited "iPad" announcement was no exception). Yet, actual network design and architecture supporting both 3G and WiFi convergence has primarily remained stagnant.

The telecommunications industry has primarily looked to on-board applications with handhelds to accomplish cross-platform convergence. But we need not necessarily become tied to any particular technologies like 3G or WiFi – convergence could be best enabled through local public network architecture designed to work within the convergent enabled handheld playing fields as well as within the stationary devices like set top boxes, home media services, and business local area networks.

Consumer demand for bandwidth has far exceeded industry ability to provide it – estimating somewhere in the realm of 7000 per cent. Spectrum shortage and smart phones are stretching service providers to the limit. Providers have wanted to market content with their network to increase Average Revenue Per User (ARPU) but have traditionally seen unlocked phones with dual band capabilities as a threat to revenue. Herein, we contend that an industry education movement needs to be underway where the fiber, cable, copper, and wireless industries are persuaded that the adaptive DNS and multiple internet gateway routing of the "hot cloud" 3G-WiFi mesh block convergent networks, with its open competition model, for example, would not lower ARPUs in any of those industries, but actually increase them because of the adaptive and carrier agnostic properties. Many wireless companies are now working with large carriers who are asking for that help.

We might also point out that not only is the open internet and the open competitive provider model desirable for these emerging hot cloud rural networks, but that it was mandated by State law on point in Utah (and in several other states currently) for municipal owned telecommunications networks. Because the Sate law is on point and the evolving federal case

law directs us as such, the Local and Tribal government entities would create the ideal situation for regulating the emerging "hot cloud" technologies for maintaining open internet, open competition and net neutrality.

Our Ready Community Mobile Hot Cloud can help this movement by including a clear path for creating the local access Infrastructure as a Service (IaaS), Platforms as a Service (PaaS) and Software as a Service (SaaS) "in the cloud industries" to create local jobs. These local jobs "in the cloud" will come in the form of wireless based DTV (in addition to signal based), media, distance learning, security and surveillance, mobile health monitoring, public safety, public information, commerce, mobile maintenance, finance, banking, and literally hundreds of other industries that can benefit from local access networks along side signal based and internet based industries. With over 3,000 Counties in the US that could mean up to 6 million new and sustainable jobs!

E. Non-Facilities-Based Internet Service Providers

As is typical of almost any case heard before the United States Supreme Court, *Brand X* case concerned a very limited but important issue concerning non-facilities based internet providers.

The Court stated in its opening remarks:

> The Communications Act of 1934, as amended by the Telecommunications Act of 1996, defines two categories of entities relevant here. "Information service" providers–those "offering ... a capability for [processing] information via telecommunications," 47 U.S.C. § 153(20)–are subject to mandatory regulation by the Federal Communications Commission as common carriers under Title II of the Act. Conversely, telecommunications carriers–*i.e.*, those "offering ... telecommunications for a fee directly to the public ... regardless of the facilities used," §153(46)–are not subject to mandatory Title II regulation. These two classifications originated in the late 1970's, as the Commission developed rules to regulate data-processing services offered over telephone wires. Regulated "telecommunications service" under the 1996 Act is the analog to "basic service" under the prior regime, the *Computer II* rules. Those rules defined such service as a "pure" or "transparent" transmission capability over a communications path enabling the consumer to transmit an ordinary-language message to another point without computer processing or storage of the information, such as via a telephone or a facsimile. Under the 1996 Act, "[i]nformation service" is the analog to "enhanced" service, defined by the *Computer II* rules as computer-processing applications that act on the subscriber's information, such as voice and data storage services, as well as "protocol conversion," *i.e.*, the ability to communicate between networks that employ different data-transmission formats.[26]

Crucial to the Supreme Court's determination is the following:

[26] *National Cable & Telecommunications Assn. v Brand X Internet Services*, 545 U.S. 967 (2005).

1. This new concept that any classification of telecommunications or services must be "seen from the consumer's point of view ..."[27]
2. The Commission's construction of "the parallel terms "telecommunications service" and "information service" substantially incorporated the meaning of "basic" and "enhanced" service" was ambiguous on its face.[28]
3. "The traditional reason for its Computer II common-carrier treatment of facilities-based carriers was that the telephone network was the primary, if not the exclusive, means through which information service providers could gain access to their customers."[29]

and

4. "There is nothing arbitrary or capricious about applying a fresh analysis ..."[30]

F. Internet Backbone Services, Content Delivery Networks, and Other Services

The fiber and GigE networks are the backbone of the internet and operate within a completely different niche than wireless and satellite. These developing internet backbone services along with local wireless and convergence will limit the need to lay more fiber to the home. Development of GigE, 10 GigE, fiber, and other backbone services will continue to dominate investment and interest, because that is truly the art of building better world-wide communications. However, the carrier agnostic local networks are much less expensive, but will accomplish much different goals. The local carrier agnostic local network could be seen as the equivalent of attaching really long chords to your automobile or other transportation services (fortunately, just without the chords).

We have already seen wi-fi hotspots cropping up in areas anywhere from local parks to cross-continental airplane flights. Municipal wide local access networks will simply become the natural outcropping as "seamless converged" connectivity becomes a reality. Customers will literally be taking their home and business internet connection with them on the road.

None of these systems can work without ultimately connecting to the internet. These backbone services, terrestrial and celestial content delivery networks and other delivery services will remain the core of what we know as the internet.

The internet, of course, is ultimately a public communications system. The ISP might also be a public communications system. While there is endless opportunity for service providers to create private companies to conduct commerce on the internet, the internet should begin and end as a publicly owned and operated system.

Here is just a short-list of samples for some of the types of "local access" (subnetting) services that can run on a local convergent network – in most cases with or without the internet:

1. Free Highspeed: Free high speed internet connection to all end-users inside the cloud – throttled (load balanced) to 256K+256K up/down with adaptive gateway pipe sizing.

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[27] *Id.* @ 969
[28] *Id.* @ 970
[29] *Id.* @ 972
[30] *Id.*@ 972

2. Business Dedicated Broadband: Competitively bid for premium broadband services offered to all end-users inside the cloud. Dedicated T-1 (1.5M) through OC-3 (155M)
3. Consumer Subscriber Based Internet: Competitive bid for premium broadband service up/down (5M/1M, 6M/2M, 10M/2M) interconnection "connection speeds".
4. Free Local Access IPTV (wireless based): for local and traveler information to all endusers inside the cloud.
5. Fee Generating Local Access IPTV (wireless based): Economic Developmental IPTV including local business advertisement; video content delivery; news, traffic, weather, traveler information; security and surveillance; game content delivery; software as a service, platform as a service; and other competitive service offerings.
6. Fee generating cable network broadcasting: Limited HD channel services from within the cloud to client based PC, MAC, and/or mobile devices.
7. Fee Generating VOIP/SIP Platform: with seamless convergence to GSM for competitive national and international voice calling plans.
8. Fee Generating "3GDO": (3G, 4G, LTE, "data offload" services) to support growing bandwidth demand by end-users of notebook, macbook, pda, tablet PC, and iPad type data transmissions.
9. VLAN Support Services: New media home ('in the cloud" residential gateway) is a home media appliance which allows end-users access to home based media and data from anywhere within the cloud – including external internet gateway if available.
   a. This is a mesh block convergent service that allows for a cloud configured laptop to utilize local area "subnetting" to access media from their own home as well as interconnection gateway IP routing and DNS settings from the preconfigured enduser's home router.
   b. Where more than home access is required, VLAN mesh block convergent services allow the mobile end-user not to be forced to purchase additional internet interconnection in the cloud, so long as they already have an internet "interconnection" paid for in the home.
10. Public safety VLAN services (Apollo Server): Like the VLAN support for residential consumers above, anchor institutions, like the Regional Medical Centers (for example) which are miles away from the proposed rural services (are in different cities) areas provided software clients which allow mobile public safety vehicles and paramedics to virtually exist within the local area network of the anchor institution.

All of these would be entirely new businesses that can help grow the local economies.

G. State and Local Regulation of Broadband Internet and Internet Connectivity Services

As it has already been introduced in the discussions above, State and Local Regulation will play a very important role once declassification of the internet occurs with the reclassification of services apart from "access services" on a service-by-service basis. It should immediately become apparent that the true ISPs who are supplying local access and are not contracting for "interconnection" services, will ultimately be governed by State law, since by definition there is no "interstate or foreign" communication. The trade-off being that internet connectivity services

(or IAPs) will find themselves squarely lodged within the common carrier Title II of the Act regulation by the FCC.

H. Related Actions

The FCC should immediately compile a panel to conduct a thorough analysis of every State for state law pertaining to municipal, regional, or government telecommunications providers.

Community Mobile projects offer something different then muni-wifi – and something more than just internet. Community Mobile offers an entirely new and free "local access" connection service for all. Those who live within the community mobile coverage and need the internet can do so through their own residential gateway (which can also be connected to the Community Mobile with a simple VPN or what we like to call a Home Digital Agent or "HD agent"). Or, the local consumer may choose to pay for a Community Mobile system provided connection to the internet.

Spectrum design strategy must consider the true source of the problem at hand, which is not that the technology still has to develop, but that this country has grown from an agricultural community, to an industrial based society, eventually to a service based economy. While we certainly do not advocate the FCC base its entire strategy on this notion, we would recommend this as a major communications theme for a new world resource-based communications strategy that replaces the need for the scarcity oriented communications business structure we have now. While this vision is certainly much farther off than some have predicted, it none-the-less depicts a world that is rich in natural resources and energy and that — with modern technology and judicious efficiency — the communication needs of the global population can be met with abundance, while at the same time removing the current limitations of what is deemed possible due to notions of economic viability.

Jacque Fresco, a self-educated industrial designer, once said, "At the beginning of World War II the U.S. had a mere 600 or so first-class fighting aircraft. We rapidly overcame this short supply by turning out more than 90,000 planes a year. The question at the start of World War II was: Do we have enough funds to produce the required implements of war? The answer was No, we did not have enough money, nor did we have enough gold; but we did have more than enough resources. It was the available resources that enabled the US to achieve the high production and efficiency required to win the war."

To employ this thinking into an IP-Core Community Mobile environment, the FCC will have to look at the available wireless frequencies: in addition to the traditional 2.4Ghz wireless structure, in 1997, the FCC put into place its Unlicensed National Information Infrastructure (U-NII) radio band as part of the radio frequency spectrum used by IEEE-802.11a devices and by many wireless ISPs. It operates over three ranges: U-NII Low (U-NII-1): 5.15-5.25 GHz. Regulations require use of an integrated antenna. Power limited to 50mW; U-NII Mid (U-NII-2): 5.25-5.35 GHz. Regulations allow for a user-installable antenna, subject to Dynamic Frequency Selection (DFS, or radar avoidance). Power limited to 250mW; U-NII Worldwide: 5.47-5.725 GHz. Both outdoor and indoor use, subject to Dynamic Frequency Selection (DFS, or radar avoidance). Power limited to 250mW. This U-NII spectrum was added by the FCC in 2003 to "align the

frequency bands used by U-NII devices in the United States with bands in other parts of the world".

U-NII Upper (U-NII-3): 5.725 to 5.825 GHz. Sometimes referred to as U-NII / ISM due to overlap with the ISM band, regulations allow for a user-installable antenna. Power limited to 1W, which in the new MIMO configurations creates the Gbit backhaul and long distance point to point capabilities.

Consider the times you may have entered into a community and began looking for potential wifi connections for your laptop and have seen as many as 30 SSIDs in one location, ranging from home residential gateways to hotel-motel guest systems. Now consider a commercial cloud (or canopy, e.g – TM Motorola, or 4G-HSPA EMobile/Ericsson). Thanks to the U-NII and now the new OFDM MIMO technologies, the amount of bandwidth in these spectrums is abundant. The FCC should consider opening up even more channels within these bandwidths to handle and control even more traffic.

These Community Mobile last mile networks can tie into both fiber and satellite tier-1. The IP-Core principled design opens up and creates a newer better organized and more useful paradigm for the spectrum. All business wireless and home residential gateways will be able to continue to operate just as they have with plenty of room for all. Again, the FCC need not create more unlicensed spectrum, but merely announce and advocate for better controls and uses of the spectrum. As soon as consumers realize that their home wireless gateways are not the means to the end in the newly created secure ubiquitous environment, there will be a greater willingness to share channel space with the larger community and "test bed" programs in the 70-80-90 GHz ranges can begin to move forward with the "auction chips" falling where they may. It is the unlicensed spectrum that affects the end-user because that is the frequency of receiving and transmitting end-user device.

Community Mobile architecture is connectivity the way it was meant to be – out of the internet cloud and into the Ubiquitous pervasive cloud. Community Mobile is not a network, device or application, but at its heart, Community Mobile is "IP-Core technology," which unknown by many – is really a business strategy type of architecture – and does not refer simply to —Internet Protocol. In network design, an intellectual property core, IP block, IP core, or logic core is a reusable unit of logic, cell, or chip layout design.

IP-core then, very precisely parallels what Multiple Carrier Community Mobile Cloud brings to rural broadband communications business logic. IP-core fulfils necessary business architecture for local access communications through its cloud design, which basically means virtual private networking (VPN) and cloud application services are the natural consequence of an IP-core Mesh Block MAC level control. A home or business subscriber can have all of her media and back-up files on a desktop PC, home server, or home network area storage (NAS) device, delivered and viewable on a local area network in the home as well as within the Cloud. Add 300+ Mbps bandwidth on the local subnet and the past problems of bandwidth and bottlenecks of the internet are eliminated.

Ubiquitous broadband communications are not the same as internet. No matter how fast your internet connection speed may be, if you are downloading from a website that does not have the same speed or scaleability, there is no way to speed up the data transmission other than burning a DVD, hopping into the station wagon, and delivering it yourself.

In Community Mobile the term "wireless" is changed to "fiberless" because it is a misnomer that fiber necessarily has the largest bandwidth. On the contrary, the attractiveness of fiber is in the network architecture where large bandwidths can be carried over larger distances. When it comes to bandwidth alone, a cat-6 cable with Gibabit Ethernet ports, switches, and routers can be every bit as fast and handle bit rates as just as fast and well as fiber; they just can't take it the same distances.

Today, Gbit "fiberless" technology can change everything with end-to-end data packet delivered with or without the internet. The IP-core principles do not treat the subscriber as just one logic unit, or just one census block. It is the service to the person that is the business opportunity, not the interconnection. IP-Core services have no geographical boundaries.

It is the HD agent (HDA or "Home Box") device that really opens up this ubiquity. The key is that this Home Box is not like any other Set Top Box ("STB") of which there are many on the market (although it performs a few of the same functions). The Home Box HDA is the equivalent of a VPN appliance, yet it also registers a MAC address level of control for playback: The device is registered to a user who is in turn registered to a media collection and in turn registered to a number of devices. It is pretty easy to see how this satisfies playability issues for the user: she just registers a number of devices with the Home Box. Although it works on similar principles, this is called "serial copy registry" not "Digital Rights Management" because the internet is only used to deliver the authorization. The media itself flows only through "segmented capacity" gates on the local access side with caching and other optimizations.

Community Mobile principles are not focused on a particular technology. Technology changes; it is a particular architecture. Again, the beauty of the Community Mobile architecture as opposed to the Muni-WiFi hotspot architecture is that it places minimal burden on manufacturers to create new devices. Many of the Muni-Wifi networks could already be prepared to convert fairly quickly. Some may need updated radios in the mesh nodes to bring them up to speed with the new "MIMO" technologies, but at their base, they are already prepared for the new RF equipment. Community Mobile architecture will make the building and installing these networks and time to market a plus rather than a liability. None of the existing equipment authorization processes at the FCC would need to be modified or relaxed in order to simplify the process.

Applications and services will lead innovation and that way the proper technologies will follow. One of the key principals to quality functional deployment engineering ("QFD") is that the consumer demands must lead the engineering design instead of the other way around.

DIGITAL MEDIA COLLECTION

SERIAL COPY REGISTRY

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The new competitive landscape for "segmented capacities" in two-way digital communications.

PROPRIETARY

PUBLIC DOMAIN

BARRIERS TO ENTRY

SUPPLIERS

DIGITAL RIGHTS MANAGEMENT

(NEW PLAYER MARKET FORCES)

In the previous decade, mobile wireless applications were largely limited to paging, voice service, and text messaging. Now, thanks in part to significant advances in both network infrastructure and mobile device capabilities, the market for mobile wireless applications has dramatically expanded to include, for example, web browsing, location services, music services, instant chat, streaming video and radio services, downloadable ringtones, and many other uses.

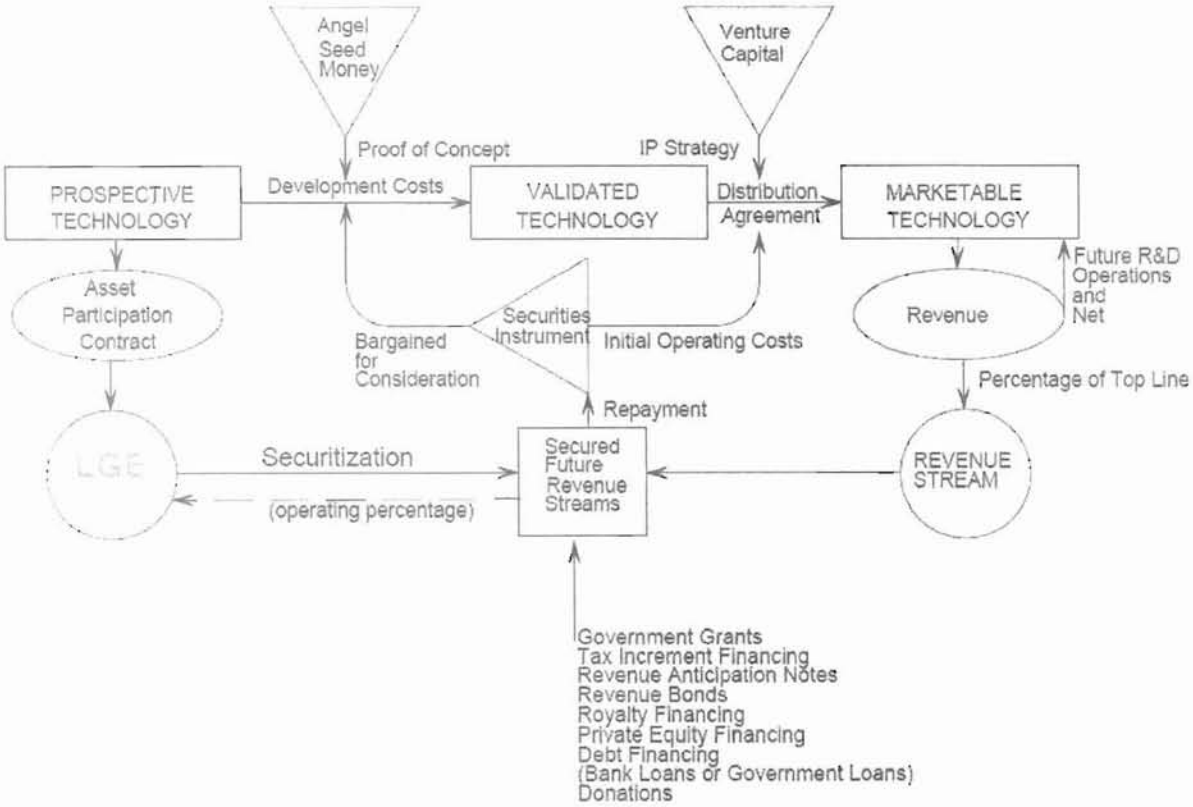
The FCC can vocally encourage just these very types of innovations that will spurn further growth opportunities and job creation in the telecommunications sectors. It should be obviously clear at this point that the DTFA's recommendations to the FCC are that the Business Models and Practices are far more important to successful development of wireless strategies than any other particular technology. This concept now stumbles upon the realization that the FCC is going to have to work this from an "interagency" perspective and take into consideration that the Department of Commerce is the over-arching authority that should be encouraged to show leadership and provide direction in these matters.

A local Director of Contracts (DOC) Organizational Scheme used by LGEs is also the best means to ensure that interests of fair local competition along with uniformity of principles and guidelines are properly carried out. Because more competing resources can be made available to wireless infrastructure projects through outsourcing, a DOC organizational scheme for the LGE is the best structure when it comes to fast-paced technology. The old adage of bigger is better simply does not apply. The Dixie Technology Funding Agency DOC has a track record which has demonstrated great accomplishment. The key to the success and sustainability in a complex project has been the DOC small organizational operating unit.

Though small, a DOC allows for the greatest flexibility in keeping up with all the available technology resources. We know that technology is constantly changing at an alarming pace. The likelihood of a specific technology becoming outdated even before its implementation is becoming common place. Regulatory implementations usually follow. A DOC is the most agile form of organization to be able to jump —on and not necessarily —ahead of the curve. The FCC controls only the airwaves, yet the FCC, working through a local nurturing organization can obtain involvement in the business aspects during the entire development process without overstepping its boundaries to help create local wireless digital-tv stations to operate either along side the local digital signal based tv stations. In communities that have local tv, or on its own in communities that may not be large enough to bring in the signal based stations, with greater interaction and more business opportunities, local wireless digital-tv stations can thrive.

Given this exponential pace of change in technology, only the DTFA is properly formed and agile enough to legally leverage the Recovery Act or other federal or state developmental programs to bring about the evolving Community Mobile Cloud. In addition to grant funds, an exciting and proven securities instrument called the "asset participation contract" can leverage municipal securities including tax increment financing, revenue anticipation notes, industrial revenue bonding, royalty financing, private equity financing, loans, and public donations to provide nurturing and private funding for sustainable growth and technology upgrades.

Local Government Entity ("LGE") Technology Nurturing



Initial capital injections like those from federal grants and other resources can serve as the springboard. With subscribers, all future revenue securities instruments with inter-city and inter-State agreements can follow with oversight resting at the community level, but policy making at the federal level.

Finally, the DTFA Director of Contracts structure along with its local government entity (LGE) technology nurturing platform can leverage even more advancements in fostering innovation and investment in the Wireless Communications Market, developing a National Broadband Plan for our future. Because the DTFA takes a very strong technology neutral position with an absolute "no franchise" approach to any services running on the network, it fosters the greatest amount of open competition for sustained development of new technologies. With this in mind, the DTFA has not been sitting back and waiting for the innovation to come to them. The DTFA has built a first of its kind Ready Community Mobile: evolving real-time subnet IP Cloud; fast roaming 802.11a/b/g/n MIMO (multi-in-multi-out); millisecond handoff; Wi-fi capable, 300+ Mbps bidirectional (fiberless); IP Core VOIP/SIP support; seamless convergence to GSM/CDMA; Gbit backhaul; bridging rural communications to the world with Last-mile triple play; clearer voice calling; and deployment at a fraction of the cost. This all comes as a result of its unique technology nurturing business structure.

The DTFA would ask the FCC not to just keep the information gained in these and other responses to the NOI only to itself, but to proactively seek out those other agencies under the Department of Commerce and US Department of Agriculture including the Rural Utility Service, National Telecommunications and Information Administration, and Federal Trade Commission to develop coherence in the goals and programs described herein.

Thank you for this opportunity to provide our input. If there is any substantive defect in our submission or in following proper submission procedures, please contact us using the below information and we would like the opportunity to correct it.

Sincerely,

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