Communications Services Tax Working Group

August 21, 2012 Meeting Materials

Addendum #1

- Materials added to Agenda Item #6 – Developments in Technology
Safe Harbor Statement

Cautionary Language Concerning Forward-Looking Statements

Information set forth in this presentation contains financial estimates and other forward-looking statements that are subject to risks and uncertainties, and actual results might differ materially. A discussion of factors that may affect future results is contained in AT&T’s filings with the Securities and Exchange Commission. AT&T disclaims any obligation to update and revise statements contained in this presentation based on new information or otherwise.
1. The Changing Face of the Internet

2. The Internet as a Value Added Platform

3. The Power of Convergence
1. The Changing Face of the Internet

2. The Power of Convergence

3. The Internet as a Value Added Platform
How Consumers “See” the Internet

- **Amazon.com**: shopping
- **Google**:
  - YouTube
  - Google Search
  - Google Earth
  - e-Bay
- **Disney**:
  - movies
  - games
  - shopping
- **Yahoo!**:
  - Yahoo Search
  - e-mail
  - photos
How the Internet Really Works

Local Access Network

Global Backbone Network

Global Backbone Network

Regional Backbone Network

Local Access Network

Local Access Network

Global Backbone Network

Local Access Network

Global Backbone Network

Global Backbone Network

Global Backbone Network

Local Access Network

Local Access Network

Local Access Network

Global Backbone Network

Global Backbone Network
AT&T’s IP Network is one of the 200,000+ Networks that Comprises the Internet
## Where are We Today?

<table>
<thead>
<tr>
<th></th>
<th>2007</th>
<th>2010</th>
<th>2012</th>
<th>% increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electronic data generated this year (exabytes)</td>
<td>38</td>
<td>180</td>
<td>309</td>
<td>713%</td>
</tr>
<tr>
<td>Internet users (billions)</td>
<td>1</td>
<td>1.8</td>
<td>2.26</td>
<td>126%</td>
</tr>
<tr>
<td>YouTube daily downloads (millions)</td>
<td>100</td>
<td>2,000</td>
<td>4,000</td>
<td>3900%</td>
</tr>
<tr>
<td>Active Facebook Users (millions)</td>
<td>50</td>
<td>400</td>
<td>800</td>
<td>1500%</td>
</tr>
<tr>
<td>Tweets per Day (thousands)</td>
<td>5</td>
<td>50,000</td>
<td>250,000</td>
<td>50,000%</td>
</tr>
</tbody>
</table>

*Source: Facebook.com, HubSpot.com, blog.twitter.com*
The Online World Stats for 2012

- 156 Million Blogs
- 555 Million Websites
- 3.146 Billion Email Accounts
- 901 Million Facebook Users
- 124+ Billion Tweets/yr
- 4 Billion Video Playbacks on YouTube/day
- 2.267+ Billion internet Users
- 107+ Trillion Emails Sent

Sources:
As of 2010 nearly 30% of all U.S. households disconnected their landlines--up from 25% the year before. (Averaging 1% increase per quarter)

Households without landlines
Percentage of U.S. adults and children living in homes that use cell phones as their primary home phone, July 2009-June 2010.

Florida:
27.3% (age 18 & older)
34.2% (under 18)

Source: National Center for Health Statistics
Worldwide Mobile Subscribers: 6 Billion 4Q2011

IN 2010:
• Strategy Analysts predicted 5.8 billion by 2013
• 286 million mobile phones in US

Source: Informa Telecoms & Media, December 2011 WCIS+
Mobile Traffic Estimates: Video in High Demand

In 2010 on a global basis mobile phones were used more for accessing data than they were to make calls, and that global data traffic exceeded an Exabyte of data.

Source: Cisco, graph at: www.itu.int/net/itunews/issues/2010/06/35.aspx

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The “Internet of Things”: Machine to Machine (M2M)
1. The Changing Face of the Internet

2. The Internet as a Value Added Platform

3. The Power of Convergence
What the Internet Does

Provides a value-added platform to deliver content & services at lower cost to consumers

Distributed Data

Distributed Text

Distributed Content: www

Distributed Voice

Distributed Video
## What the Internet Does

Provides a value-added platform to deliver content & services at lower cost to consumers

<table>
<thead>
<tr>
<th>Distributed Data</th>
<th>Distributed Content: www</th>
<th>Distributed Voice</th>
<th>Distributed Video</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Distributed Text</strong></td>
<td>E-mail</td>
<td>Instant messaging</td>
<td>Text messaging</td>
</tr>
</tbody>
</table>

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What the Internet Does

Provides a value-added platform to deliver content & services at lower cost to consumers

- Music
- Software distribution
- Retail sales
- Public information
- Games
- Books
- Publishing
## What the Internet Does

Provides a value-added platform to deliver content & services at lower cost to consumers

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<td>Distributed Text</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- VoIP phone calling
- Chat
- Audio conferencing
- Answering services
- Record and send
What the Internet Does

Provides a value-added platform to deliver content & services at lower cost to consumers

- Distance learning
- Medical consultation
- Remote monitoring for security & medical
- Video conferencing
- Video distribution
1. The Changing Face of the Internet
2. The Internet as a Value Added Platform
3. The Power of Convergence
Five Major Technology Discontinuities Are Enabling Convergence

1. IP networks (common protocol)
2. Broadband Everywhere
3. Ubiquitous Wireless
4. Multi-access Interactive devices
5. Delayered and Open Network and IT platforms
Network Convergence

**The Past**
Multiple backbones for each access technology or service

**Today**
Multiple access technologies & services on one IP-based backbone
Internet Protocol (IP) separates applications from the network:

- Voice is not longer restricted to telephone networks
- Voice becomes another IP data application
Video Becomes Another Data Application On an IP Network

Internet Protocol (IP) separates applications from the network:

- Video is not longer restricted to cable or Satellite networks
- Video becomes another IP data application
Application/Service Convergence

1. Traditional Services Move to IP
2. Integration of Multiple Real Time Applications
3. Fourth-Generation Services and Applications Emerge

- Voice & Video Conferencing
- Sensor & Ad-Hoc Networks
- Business Intelligence @ Scale
- IPTV
- Online Gaming
- Grid Computing, Cloud and Mesh Computing
- Online Gaming
- Skype
- Document Collaboration
- Instant Messaging
- Click-to-Dial

Application/Service Convergence

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Delayered Network and IT Platform Enabled by Internet Protocol

IP operates in layers that allow applications to be separated from the infrastructure

- Enables multiple players to enter the market at different layers and compete, stimulating innovation
- The type of the network (electric, co-axial, copper, wireless, fiber) no longer dictates the application or services
Players can enter the Market at Different Levels to Compete, Stimulating Innovation

<table>
<thead>
<tr>
<th>Logical Layer</th>
<th>Physical Layer</th>
<th>Device Layer</th>
<th>Application Layer</th>
<th>Content Layer</th>
</tr>
</thead>
<tbody>
<tr>
<td>IP addressing, wireless handoffs, etc.</td>
<td>(electric, co-axial, copper, wireless, fiber)</td>
<td>(phone, PC, tablet, GPS,...)</td>
<td>(voice, video, web, chat, e-mail, IM, text, etc.)</td>
<td>(movies, maps, books, papers, info, etc.)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Layer</th>
<th>AT&amp;T U-verse IPTV</th>
<th>Ooma VoIP</th>
<th>Garmin GPS</th>
<th>Amazon Kindle</th>
<th>Skype Video calling</th>
<th>Apple iPad</th>
</tr>
</thead>
<tbody>
<tr>
<td>AT&amp;T / Partners</td>
<td>Cable &amp; DSL</td>
<td>Satellite &amp; FM radio</td>
<td>Amazon / Global 3G providers</td>
<td>Cable &amp; DSL, Wireless</td>
<td>Apple / AT&amp;T 3G or broadband wifi</td>
<td></td>
</tr>
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<td>Apple / Global 3G providers or wifi</td>
<td></td>
</tr>
<tr>
<td>AT&amp;T / Set top box mfgr</td>
<td>Ooma/Phone Number Administration</td>
<td>Garmin / map, TMC traffic providers</td>
<td>Amazon / content owners</td>
<td>Apple / content owners</td>
<td></td>
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Realization of the Vision:
Any Application from Any Device to Any Device over Any Network

- Laptop with Camera
- Smart Meter
- LAN
- Personal Hotspot
- Internet/IP Networks
  (200,000+ networks)
- Cable, DSL, Fiber, Wireless and Satellite
- Broadband Modem
- WiFi Hotspot
- Broadband Modem
- Broadband Modem
- WiFi
- Set top box
- IPTV
- iPBX (Gateway)
- IP Phone
- IP Softphone
- Cordless Phone
- VoIP Gateway
- Broadband Gateway
- Home Controller
- Personal Hotspot
- Laptop
- Camera
- Netflix
- Wii/Playstation
- IPTV
- Smart Meter
- LAN

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Service Comparison Discussions
Voice over IP
Google Voice

Consumer pays Broadband Provider for Broadband service

Consumer is provided a “google” number for all devices for free; pays Google for international calls
Ooma VoIP

Consumer pays Ooma for (a) device with unlimited US local and LD calling, (b) optional monthly subscription fee for advanced phone features (c) optional rate plan for international calling

Consumer pays Broadband Provider for Broadband service
U.S. Voice Communications Trend

U.S. Service Provider Voice Lines / Active Users

Video Calling/Conferencing using IP
Skype

AT&T Connect

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Skype

Customer pays broadband provider for monthly service

Invitee pays for broadband provider for monthly service

Customer pays Skype for calls to landlines and mobiles, SMS messages, and voicemail
Teleworker pays broadband provider for monthly service

Teleworker’s company pays AT&T a monthly invoice based on contracted rates; have the option to have audio portion via phone

Invitee pays for broadband provider for monthly service
<table>
<thead>
<tr>
<th><strong>Skype Statistics</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total number of Skype users as of Jan. 2012</td>
<td>31 million</td>
</tr>
<tr>
<td>Average time spent on a Skype conversation</td>
<td>27 minutes</td>
</tr>
<tr>
<td>Number of time that active Skype users spend on Skype per month</td>
<td>100 minutes</td>
</tr>
<tr>
<td>Total percentage of small businesses that use Skype as primary communication service</td>
<td>35%</td>
</tr>
<tr>
<td>Number Skype enabled television sets</td>
<td>50 million</td>
</tr>
<tr>
<td>Number of iphone Skype downloads in 2010</td>
<td>7 million</td>
</tr>
<tr>
<td>Number of people who have ever used Skype</td>
<td>560 million</td>
</tr>
<tr>
<td>Total percentage of Skype calls that are video to video</td>
<td>40%</td>
</tr>
<tr>
<td>Average spent yearly by a paying Skype user</td>
<td>$96</td>
</tr>
<tr>
<td>Skype revenue in 2010</td>
<td>$406.2 million</td>
</tr>
<tr>
<td>Number of monthly log-ins to Skype</td>
<td>124 million</td>
</tr>
<tr>
<td>Number of monthly paying Skype users</td>
<td>8.1 million</td>
</tr>
<tr>
<td>Amount of money spent by Microsoft to acquire Skype</td>
<td>$8.5 billion</td>
</tr>
</tbody>
</table>

Source: http://statisticbrain.com/skype-statistics/

Date Verified: 3.28.2012
TeleGeography estimates that cross-border Skype-to-Skype calls (including video calls) grew 48 percent in 2011, to 145 billion minutes. TeleGeography estimates that Skype added 47 billion minutes of international traffic in 2011—more than twice as much as all the telephone companies in the world, combined.

IP Television
Hulu IP Video

AT&T U-verse IPTV
Hulu IP Video

Customer pays broadband provider for monthly service

Customer gets basic service free which includes upfront ad; optional premium service with a monthly charge just announced
AT&T U-verse IPTV

Customer pays AT&T for monthly TV & broadband; VoIP phone optional
In August of 2009, Hulu had More Viewers than Time Warner Cable

Hulu Plus is very successful, writes Hulu CEO Jason Kilar. It has now 1 million paying subscribers, and Kilar believes it will soon bring in half of Hulu's revenue.

Apple, Hulu Reach Collaborative Agreement July 31, 2012
(NASDAQ:AAPL) Apple and Hulu reached an agreement without much fanfare Tuesday, as Hulu began its Hulu Plus streaming service on Apple TV boxes. Hulu joins several other third-party providers – like the NBA, NHL and MLB.TV, among others – to offer its streaming service to Apple TV users.

Netflix ended 1Q12 with 22.7 M domestic streaming subscribers and about 3 M international users.
AT&T ended the same quarter with 4 million U-verse TV subscribers.
Verizon reported that it counted 4.4 million FiOS TV subscribers.


Source: various analyst reports
Customer purchases a game console and pays Netflix a monthly fee for streaming movies
Mobile TV via Slingbox

Customer pays TV and broadband provider(s) monthly fee

Customer purchases Slingbox and Internet capable device. Customer may pay wireless provider a monthly fee.
“Though less than 5 percent of TV households, homes with broadband Internet and free, broadcast TV are on the rise—growing 22.8 percent over last year. These households are also found to exhibit interesting video behaviors: they stream video twice as much as the general population and watch half as much TV.”
