AuraLink Bandwidth Guide

A bandwidth perspective down the Ethernet Pipeline

Assumptions

Several terms and assumptions to be addressed, below:

- Ethernet Pipeline
  - A series of tubes from your computer and network to the WWW and back to you.
- P2P = (Point to Point) not a meeting room – A Direct AuraLink call.
- Speed may be roughly converted into Bandwidth
  - 1,000 Kbit/s (Kilo Bits Per Second) ⇔ 1 Meg (Megabyte) of Bandwidth
- Down Pipe
  - The Data coming into your Computer from the Auralink Conference (all of the conference participants data, except yours).
  - **Directly reflects or is limited by your local network and the amount of shared usage on that network or subnet.**
- We assume that the resolution of VGA can be met by all computers in the below examples.
  - VGA uses about .5 Meg Bandwidth
  - HD Resolution uses about .8 Meg Bandwidth
- A single user in an AuraLink Conference with the Resolution of VGA to their screen will approximately use .5 meg of Bandwidth or 500 Kbits/s of speed
- Remember that User Bandwidth usage is bi-directional; up and down
- Up is always 1 (you are sending your image, audio and maybe content up the Pipe,)
- Down uses the formula of N-1=Users*bandwidth (N=the number of people in the meeting). You do not count yourself, for example:
  - A meeting of 4 people in an AuraLink Meeting Room
  - N-1=4-1=3 3*500Kbits/s=1,500Kbits/s or 1.5 Meg Bandwidth Down the Pipe to your computer.
- Assumptions change when you or all of the meeting users go full screen.
  - Full-Screen verses the windowed startup Desktop size uses additional Bandwidth to try to maintain the VGA resolution.
  - For example: A 4 person meeting Down Pipe at Full-Screen, could use the Bandwidth of 3 Meg Down, and 1 Meg Up the Pipe, at Full-Screen, and a higher Resolution of VGA
- AuraLink has a Bandwidth ceiling of about 4.5 Meg. Most Meetings of any size are limited to not go above 5 meg of Bandwidth. To be User friendly.

Resolution is Scalable

The AuraLink Desktop is totally scalable:

- Depending on the User's Computer and the following specs that may affect the over-all resolution:
  - RAM (Memory)
  - Processor Type
  - Processor Speed
  - Displays set Resolution or capability
  - Your Ethernet Down Pipe to your computer

Down Pipes

- T1:
  - About 1.5 Meg Bandwidth (Shared)
    - Good P2P
    - About 3 – 4 Users in a Meeting (Scaled Down)
    - If more users are sharing the same T1 Pipe then you may not be able to hold a 4 User meeting.
- Business DSL:
  - About - from .5 Meg Bandwidth to 10+ Meg Bandwidth (Shared)
    - Good P2P
    - About 4 Users in a Conference in HD resolution
    - About 6 Users in a Meeting (Scaled Down)
    - If more users are sharing the same DSL Pipe then you may not be able to have 6 Users in a meeting.
- Business Cable:
  - About – from 15 to 30+ Meg Bandwidth (Varies and has Burst Down)(shared)
    - Great P2P
    - About 6 Users in a Conference in HD resolution
    - About 8 Users in a Meeting (Scaled Down)
- T3
  - About 44.7 Meg Bandwidth (shared)
    - Great P2P
    - About 10 Users in a Conference in HD resolution
    - About 15 Users in a Meeting (could be Scaled Down)
    - Recommended Bandwidth to fully benefit from the Complete AuraLink experience!
- 3G - *Wireless*
  - About 1.4 Meg Bandwidth (Varies)(shared)
    - Good P2P
    - About 4 Users in a Meeting (Scaled Down)
    - If more users are sharing the same 3G network Pipe then you may not be able to have 4 Users in a meeting.
- 4G - *Wireless*
  - About 10+ Meg Bandwidth (Varies)(shared)
    - Great P2P
    - About 4 Users in a Conference in HD resolution
    - About 6 Users in a Meeting (Scaled Down)
    - If more users are sharing the same 4G network Pipe then you may not be able to have 6 Users in a meeting.
    - As the speed for 4G increases the amount of Users in a Meeting and the Resolution of the Meeting will increase.
- Refer to the Table below for additional

Internet connection bandwidths

Please refer to The Link: http://en.wikipedia.org/wiki/Bandwidth_(computing) for the table showing the maximum bandwidth (the physical layer net bitrate) of common Internet access technologies:

Base Scale

- The amount of Bandwidth required to maintain, a good quality conference.
- About 0.3 meg Bandwidth per User – Down Pipe.

The Power of AuraLink

- Scalable Video for Desktop Conferencing and adjustment.
- Meeting rooms reside in the AuraLink Routers each with a Bandwidth of 22 Meg.
- When a user is limited by Bandwidth, the system does not common denominate (bring the whole Conference down to the lowest level of the lowest End Point [like the Legacy Codecs]), as the lower Bandwidth will only effect that one particular lower Bandwidth, User.
- Gradual Behavior:
  - The scaling adjustment is Gentle and Gradual – progressive, intuitive, real time detection of bandwidth
  - Gradually Scales the video Up or Down to the ever-changing Bandwidth needs or availability of each User.
  - Gradually Scales the FPS (Frames per Second) Up or Down to the ever-changing Bandwidth needs or availability of each User.
  - This Gradual adjustment of Scaling helps to eliminate the Pixelazation of the AuraLinkDesktop Image
  - Helps eliminate the Stop action video or freezing of the AuraLinkDesktop image
  - Over-all Auralink: provides a Business Class, Quality, Desktop Conference, you can use daily!

Your Network Speed Test

- Links are provided below in the Auralink Support Page:
  - Auralink Support Page

Disclaimers

- All information given in this Guide is subject to change.
- The Conference Quality and Resolution, is Affected by the Users Computer, a huge variable.
- The reference of Bandwidth to Speed is a relative comparison.
- The Bandwidth may change dramatically (spike and / or plummet), unknowingly to you, on your own network at any given time. As stated above, a T3 or better speed network is recommended to realize a continuous resolution of HD.
- Performing a Speed Test on your network is only a result of a slice in time Bandwidth, and can change dramatically from one moment to the next, and may not reflect the true average Bandwidth. Shared Networks also exasperate the issue.
- There are too many variables involved in determining the network bandwidth in a slice in time to nail down any of the Speeds (FPS), Resolution (SD vs. HD), Performance, and Quality of any given Conference or Meeting!
- If your Network Bandwidth goes below the .3 Mbs BASE, per User, then your conference or your connection to the Auralink Portal, may be severed!

For technical support please contact:
Phone: +1-888-454-6863 or (610) 344-7007 option 2
Email: AuraLink Support