

1722.1 Assumptions

Dec 2009 – F2F

Green Text = Agreed to at a Face 2 Face (was Blue)
Blue Text = Newly Agreed to (was Red at last Face 2 Face)
Black Text = Not Decided
Changes Marked with Red from last version

Don Pannell
Marvell
dpannell@marvell.com

Revision History

- 1722.1-pannell-assumptions-1109-v2: Dec 2009 F2F
- 1722.1-pannell-assumptions-1009-v1: Oct 2009 F2F

Definitions

- Talker: An AVB end station that can source one or more streams
- Listener: An AVB end station that can sink one or more streams
- End station: As defined in 802.1Q
- Stream: A sequence of IEEE 1722 packets with the same Stream ID
- Stream Source: Source of a single 1722 stream
- Stream Sink: Destination of a single 1722 stream
- Media Source: ??
- Media Sink: ??
- Channel: One component of stream (e.g., the left channel of a stereo stream)
- Potential Stream: A stream that is advertised but has no Listeners associated with it
- Reserved Stream: A successful SRP (Qat) reservation associated with a given Talker but data is not flowing
- Active Stream: A successful SRP (Qat) reservation associated with a given Talker and data is flowing

Phase 1 - Device Discovery

- Definition: The process that a 1722.1 end station uses to identify other 1722.1 capable end stations
- Our current base line is to use Zeroconf – see zeroconf.org
 - We need to define Zeroconf DNS-SD (Domain Name Service – Service Discovery) record
 - These are a: txt record, srv record and a ptr record (Matt to propose)
- Devices (Talkers and Listeners) **must support** DNS-SD (to resolve unique names)
- Talkers must guarantee they are using unique StreamID's and Stream DA's. 1722 MAAP may be used to acquire the unique multicast stream addresses.
- IP Address assignment is out of scope of 1722.1

Phase 2 - Enumeration

- Definition: Finding the capabilities of the device
- Use the types defined in 1722 (i.e., 61883...)(Rob S. to propose)

Enumeration Items

- Sample Rate
- Direction (Input vs. Output)
- Stream (Channel?) count
- Word format
- **Clock source of a stream (media clock domain)**
- Plane-to-plane delay (1722 to human interface and visa versa)
- Version Control – i.e., 1722.1 STD Rev of the Spec
- ID Record
 - Mfg fixed and User settable (when set – I'm configured)...
- Pass-through for generic communications
 - For example: to get Latency numbers for non-integrated devices
- Locate device
 - Light up an LED on a specific device – or a Label display
 - Press a button on a device
 - Enumerated
- I'm OK or I'm not OK bit (i.e., low battery)

Min. Parameters

- E.g., VGA mode for displays – probably different per profile
- Need to discover a device
- Need to know what it can do
- What layer do we use? – should control packets be routable from the internet? It would be nice for this to work over a VPN. To just talk to Controllers or to talk directly to end nodes? We want low cost end nodes (i.e., UDP?).

Phase 3 - Connection Management

- Definition:

Phase 4 - Control

- Definition:

1722.1 Goals

- Need to be able to send out a single 7.1 (8 channel) stream where each speaker attached to it receives this stream and attaches its single speaker to one of the stream's channels
 - This requires a device like this has some form of an enumerator (a switch to select left-rear, etc.)
- Need a set of minimum capabilities that all devices in a given category must support (i.e., all speakers must support xyz)

Device Profiles

- Consumer
 - True Plug-n-Play
 - Control: Standardize Mute, Volume up/down
 - Support for WiFi and/or other wireless technologies
 - User settable and readable settings (i.e., left read speaker)
- Professional
 - True Plug-n-Play
 - Redundancy
 - Control: Don't want in 1st standard
 - No support for WiFi (as it is today) – but support future low latency wireless
 - Wireless for intercom
 - Recover in the absence of a Controller back to the last known state
 - New Controller need to sync to existing network state
 - Be able to swap devices in and out
 - Fast boot up time in the order of ?? secs
- Automotive
- Standardize a way to control devices (volume)
 - Report what a device is capable of doing (aka, USB 2.0)
 - Although desirable, this may be too much for a 1st standard
- Consumer model is a subset of the pro model

Device Classes

- Speaker
- Mic
- STB (Set Top Box)
- Video Display

Diagnostics

- Cloud Issues
 - New issues that are introduced by AVB
- Legal Issues (e-911 – IEC 60849 & ISO 7240, 7241)
 - Life safety issues

Problems

- Support a roaming endpoints
 - Need 802.11 to support full bridging protocols
- Security
- Authentication
- Device Naming
 - One from manufacture & one for user
 - Steam name & its alias
 - Canned default names/attributes
- Redundancy
- Fault Diagnosis
 - Reporting failures and why – where is the error