VTAS - MANUFACTURER RESPONSE

StarLeaf GT and PT Mini

Page 1

Cons:

- *Restricted image quality when sharing presentation material due to the 1.5Mbit/s max call speed*

StarLeaf: With the StarLeaf Cloud Release 2.0, which is being rolled out in July 2014, this is mitigated with more bandwidth being dedicated to presentation sharing.

- *System does not support Picture outside Picture (POP) layouts, only Picture in Picture (PIP) is supported.*

StarLeaf: Support and other layouts are planned for a future version.

- *Non-standard funding model.*

StarLeaf: It's worth noting that the ongoing charges, which provide a lot of the value add of the StarLeaf service, are reasonable – often less than the hardware only support contracts for other vendors' endpoints.

However for those that prefer to pay upfront, very competitive lifetime licences are available.

Page 4

1. HDMI Monitor Overscan

Many HDMI monitors crop the image also known as "Monitor Overscan" this effect will particularly impact on the Presentation Image, the extremities of the image for example the task bar will appear cropped and not visible to the user. There is no adjustment within the GT or PT systems to compensate for this cropping. Using our monitors DVI input resolved this issue.

StarLeaf: All modern monitors/TVs all have modes that allow you to specify that they do not over scan. StarLeaf believe it is far better to use the monitors/TV feature rather than replicate this functionality in the endpoint as this ensures a correct 1 to 1 pixel mapping and hence the optimum picture quality.

Page 7

2. Main Video Channel Frame Rate

The data sheet states that the GT Mini can transmit and receive 720p@60 frames per second and the PT Mini can receive 720p@60 therefore it would have been expected that 720p@60 would have been experienced in connection from the GT to the PT system. At no point in the evaluation was 720p@60 experienced.

StarLeaf: 720p60 is currently not enabled on the StarLeaf cloud. The StarLeaf hardware is all capable of 720p60 as specified here. StarLeaf Cloud 2.1 upgrade in August 2014 will enable this feature.

Page 12

3. MCU Presentation Channel resolution

During a StarLeaf MCU conference the maximum resolution of the Presentation image was 1080p, when some legacy endpoints were connected to the StarLeaf MCU conference this was reduced to 1152 x 656.

StarLeaf: The StarLeaf conference MCU does support 1080p content and this does work as expected for endpoints that support it including StarLeaf endpoints.

However there was an issue of reduced content resolution found in testing when calling StarLeaf endpoints into JVCS's Cisco (Codian) MCU when the conference on the Codian MCU had the content mode sent to "hybrid". In this mode the MCU limits the content an endpoint can send it to 1280x720 – so StarLeaf endpoints should at least be able to send this much. However there is a minor interoperability issue with StarLeaf endpoints leading to them to send slightly less (1152x656). If the Cisco MCU is set to transcoded or passthrough mode content does work as expected. In passthrough mode the Cisco MCU does allow StarLeaf endpoints to send their 1080p content. The issue is addressed in the StarLeaf Cloud 2.0 release in July 2014.

Page 13

4. Standby/Sleep Mode

When not in a call the system does not go into sleep mode and while the monitor output changes from the StarLeaf Logo to black the Touchscreen and Monitors remain on at all times.

StarLeaf: PTMinis already do power down their monitor when they have no active PC input – this means that the monitor functionality will remain the same

with a PTMini installed as when it was connected directly to the PC.

With the StarLeaf Cloud 2.0 Release in July 2014 the GTMini now can use CEC control to turn off connected TVs after a period on no use. The same CEC functionality is used to power on the TVs to the correct input and set them to the correct input if required.

Page 15

5. Video Quality

> *When presentation material was transmitted and the limited 1.5Mbit/s maximum connection bandwidth was shared between the main and H.239 presentation channels the quality was very good on static presentation images. However the maximum 12fps frame rate and the available bandwidth of ~700Kbit/s limited the performance of the presentation channel. When significant motion was displayed within the presentation channel for example full screen motion video the restricted frame rate and at times blockyness of the image was noticeable.*

StarLeaf: With the release tested by JANET only 50% of bandwidth was dedicated to the content channel. For the StarLeaf Cloud 2.0 Release in July 2014 that has been increased to 75% when calls are made to single screen systems in order to reduce the blockiness with motion. Furthermore, with this release there have been improvements in our rate control algorithms that further improve the presentation channel with motion.

Page 15

6. Lip Sync

> *At times the Lip Sync appeared further in advance that would be expected, this was inconsistent and on many occasions the Lip Sync was acceptable.*

StarLeaf: With version StarLeaf Cloud 2.0 Release in July 2014 there have been large improvements with lip sync – including an all new jitter buffer and lip sync implementation across all of the StarLeaf products. This should guarantee lipsync is always at least as good as the occasions where JANET noted it was acceptable and will no longer appear in advance of that would be expected.

Page 16

7. Interoperability

> *In connections with Lifesize systems the resolution of the presentation channel received by the StarLeaf systems was 704 x 480.*

In connections with a Tandberg 6000MXP presentation material could not be shared in either direction.

StarLeaf: Lifesize content issue: This was an interoperability issue between StarLeaf and older Lifesize endpoints. This was addressed in StarLeaf Cloud 2.0 Release in July 2014

For the Tandberg MXP 6000: These calls were made via SIP. Had they been made via H.323 all would have worked as expected. The reason that SIP did not work is that the MXP range do not support H.264 content sharing – it only supports H.261 and H.263. Currently the StarLeaf cloud does support H.264, H.263 and H.263+ content sharing with H.323 but only H.264 content sharing with SIP calls. This will be addressed in a cloud update in Q3 2014. In the meantime customers using either H.323 or using SIP with more modern endpoints will not run into this issue.