Volumetric Media Interoperability
Exploratory Group Proposal
FINAL

1. Proposers

Lauri Ilola, Nokia

Bart Kroon, Philips

Ralf Schaefer, InterDigital

Céline Guede, InterDigital

2. Exploratory Group Scope

Build understanding around volumetric media and draft a charter for a "Volumetric Media Interoperability" Domain Working Group.

3. Proposed Working Group Goals (and Non-Goals) and Deliverables

Opportunities for more immersive services are increasing as volume capturing and rendering devices become more readily available. As a result, more technologies are being developed to address the requirements for compressing, storing, and delivering volumetric media. Multiple SDOs (e.g. 5G-MAG, 3GPP, MPEG, VFA, SVTA, DVB, SBTVD, etc.) have established isolated focus or study groups to solve issues affecting volumetric media services.

Because of the wide-spread interest and isolated initiatives, the volumetric media ecosystem is becoming fragmented. Building understanding on various volumetric media solutions would be beneficial for the industry to try and identify possible interoperability points between different systems or contribute to harmonizing them. Establishing a platform for facilitating the discussion between multiple SDOs and industry forums as well as working on identifying and solving interoperability issues would help accelerate adoption of volumetric media services.

In the context of this domain working group, volumetric media solutions for consumer entertainment applications are considered. The scope of the group includes volumetric media delivery and representation formats. Overlap with other domain working groups or exploratory groups that are also studying the compatibility requirements, such as 3D Asset Interoperability using USD and glTF, 3D Web Interoperability, Interoperable Characters/Avatars and Digital Fashion Wearables for Avatars should be minimized.

To build better understanding on volumetric media, to identify relevant areas of applications and compatibility requirements, and to establish common requirements for different systems, it is proposed to establish a new domain working group.

Primary goals

- Build and share understanding on volumetric media by arranging learning sessions for various volumetric media coding and systems technologies.
- Explore and engage with existing initiatives and standards developing organizations which are working on volumetric media.
- Collaborate with 3D web interoperability domain working group to collect use cases and related requirements to better communicate to the industry where volumetric media can be useful.
- Document existing implementations and building blocks for volumetric media delivery.
- Define what type of volumetric media technologies should be focused on as part of the interoperability testing in the domain working group.
- Arrange interoperability test sessions or plug-fests among interested parties to identify gaps in system compatibility by collecting and sharing test vectors.

- Coordinate with other Domain Groups on technical aspects to ensure expectations from the volumetric media ecosystem are met and that overlapping work and efforts are avoided.

Secondary goals (if interest)

- Gather favorably licensed test and demo content that can be used to evaluate various volumetric media coding technologies.
- Explore possible format conversions between different technologies to identify gaps in the volumetric media ecosystem.
- Facilitate discussion on volume rendering technologies and explore potential inclusion into volumetric media interoperability domain working group mandates.

Non-goals

- No joint software development.

Potential deliverables

- Publication of white papers for disseminating the findings of the Domain Working Group. The papers may target the following topics:
  - o volumetric media definition,
  - o use cases and requirements,
  - o survey of existing coding and systems technologies,
  - o documentation of interoperability gaps, and
  - o documentation of identified issues.
- Workshops enabling a discussion platform for the volumetric media industry.
- Collection of test vectors for building blocks of volumetric media delivery pipeline.
- Contribute to conferences and trade shows to promote tested technologies and results.

4. Coordination

The group shall arrange two exploratory group calls per month to progress drafting of the charter. At least once per month seek to arrange volunteer-based educational sessions in combination with the regular calls.

The exploratory group aims to collaborate with companies with existing volumetric media coding solutions and relevant standards setting organizations. Potential list of collaboration candidates include:

- MPEG
- 5G-MAG
- 3GPP SA4
- VFA
- Streaming Video Technology Alliance (SVTA)
- DVB
- SBTVD
- Web3D Consortium and X3D standard
- 3D Web Interoperability Domain Group
- DICOM (?)
- Health Level Seven International (HL7)

5. Risk Factors

Largest risk factor is that the identified industry organizations are not interested in discussing interoperability of different solutions or initiatives. Individual companies offering volumetric media services may also lack resources to discuss solution compatibility.

6. Target timeline to create proposed Working Group charter

8-10 weeks. Target establishing the working group during 2Q24.