Title	NMOS Itentity and Timing Model
Proponents	BBC, Sony, Streampunk Media, CBC, Riedel...

Business purpose:	This proposal is to create an identity and timing model that can be used for future AMWA NMOS specifications. This will replace the WIP model at https://github.com/AMWA-TV/nmos-content-model and take into account additional user stories that were out of scope of the original activity of the Incubator, extending beyond live operation to near- and non-real time workflows. The model will provide a suitable basis for future revised/new mapping specifications such as RTP, HTTP, files / access API. It is a pre-requisite for a consistent architectural approach for these. The model is aimed at supporting users' needs to identify and synchronise separate but related content through a workflow ("end-to-end"). There are many relevant user stories here – below is a high level summary of some of these. AS A content producer I NEED TO easily identify elements of video, audio and data that come from a range of different sources SO THAT I can combine the correct elements to create content of value. AS A content producer I NEED TO easily identify particular times within video and audio elements SO THAT my production processes run efficiently. AS A content producer I NEED TO combine related elements with appropriate synchronization through a range of operations and technical equipment SO THAT I can maintain high production quality without having to expend operator effort on manual selection and synchronization. AS A content producer I NEED TO work with live and non-live elements of video, audio and data in a consistent and correctly synchronized way SO THAT I can optimize my operations without the overhead of supporting different ways of working. AS A broadcaster I NEED TO automatically combine various combinations of video, audio and data with appropriate synchronization to support a range of different audience needs (platform, language, accessibility, etc.) SO THAT I maximize the value of my content. AS A broadcaster I NEED TO be confident that a programme or other product that has been created from multiple video, audio and data elements will be played out or otherwise distributed with those correct elements in the correct synchronization SO THAT my reputation is not compromised. AS A content producer I NEED TO be sure my content can be rendered correctly in different forms (picture size, qualities, aspect ratio, HDR/SDR, conventional/3D/VR, etc.) with correct synchronisation between the video, audio and data elements SO THAT the quality of my output is not compromised on some platforms. AS A facility owner / broadcaster I NEED a model that allows both legacy and future equipment to be used consistently through a workflow SO THAT my investment in currently available solutions can be protected.

	AS AN implementer / integrator of packetised technologies such as ST 2022 and ST 2110 I NEED a model that can represent – within an end-to-end context – any content that has been subject to near-term synchronisation mechanisms SO THAT my investment is protected. AS A manufacturer OR software developer I NEED a clear model for my customers' future plans for handling content in different types of networked media environment SO THAT I can plan my product development. AS A manufacturer OR software developer I NEED to understand how technical (meta)data about the content is handled SO THAT I can plan my product development. AS AN implementer / integrator of web-based technologies I NEED a model that can identify and synchronise content within an end-to-end context using best practice in my domain SO THAT I can be sure my investment in techniques and technologies in implementing the model is worthwhile.

Architecture:	The starting point for this work will be the JT-NM model. The model will take into account the approach taken so far in the Networked Media Incubator, and the WIP content model and RTP mappings, but will not be bound by it. We expect the concepts of Source and Flow (as defined in the JT-NM Glossary) to remain, so consistency with IS-04/05 will remain. Initial work from this activity will provide input into the AMWA architectural summit in January 2018, and this activity will take into account output from the summit.
Deliverables:	Logical identity and timing model, expressed as UML and text with supporting documentation about application of the model to a range of different synchronization and identity use cases.
IPR Mode	RAND-Z
Resourcing:	Resources required should be small as this is a modelling activity. BBC will make available output of modelling work carried out since the initial NMOS content model was made available. BBC can provide Webex and other collaboration resources.
Additional Comments:	The AMWA board identified addressing the lack of end-to-end timing/id in ST 2110 as a priority. There is already a NMOS WIP for mapping source/flow id and timestamps into RTP header extensions; however the case for these has not yet been proven in the industry. A flexible identity and timing model that supports end-to-end workflows will allow AMWA to be both joined-up and agile in what can specify.
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