

# RTP Payload for ATRAC-X

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# Background & Purpose

- ATRAC-X
  - Newest member of ATRAC family of perceptual codecs
  - ATRAC technology widely used in MDs and solid-state recorders/players
- Adoption
  - ATRAC-X is a competitive alternative to other codecs; standardization for streaming has potential value in future applications

# Features of ATRAC-X

- Higher sound quality at lower bit-rates
- Wide range of bit-rates, from 8kbps to 1.4Mbps
- Support for multi-channel encoding
- Flexible format for future extensions
- Suitability for streaming, including scalability and fixed frame lengths

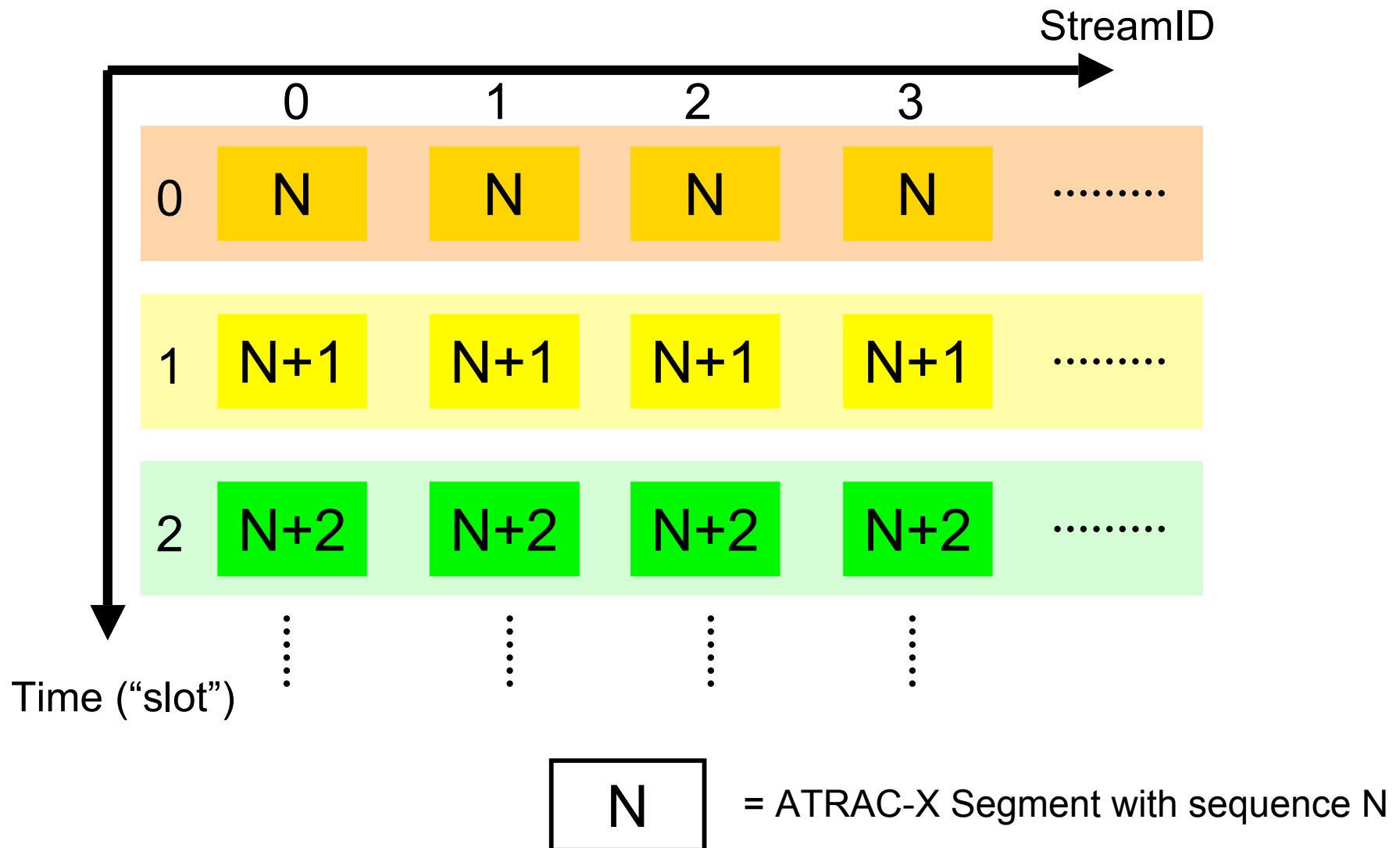
# Features of the ATRAC-X Payload Format

- Multiple bit-stream packetizing
- Support for metadata
- Packet loss resolution via “redundant data”
- Support for fragmentation

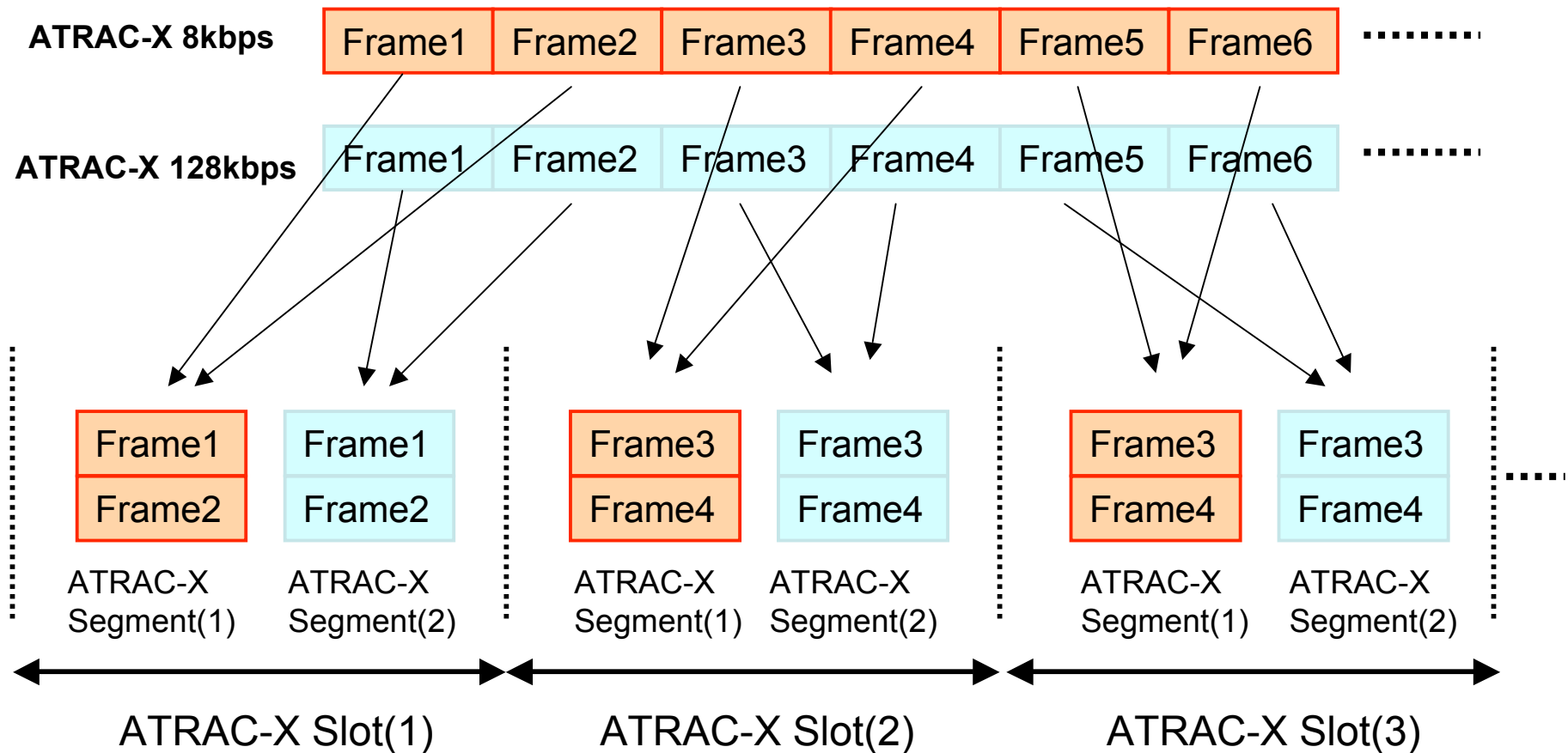
# Some Definitions

- ATRAC-X Audio Frame
  - Smallest unit of ATRAC-X data
  - 2048 PCM samples
- ATRAC-X Segment
  - Unit of ATRAC-X data inside RTP packet
  - Any combination of audio, metadata, and respective redundant frames
- ATRAC-X Slot
  - Unit of time within which all audio frames of an ATRAC-X segment belong.

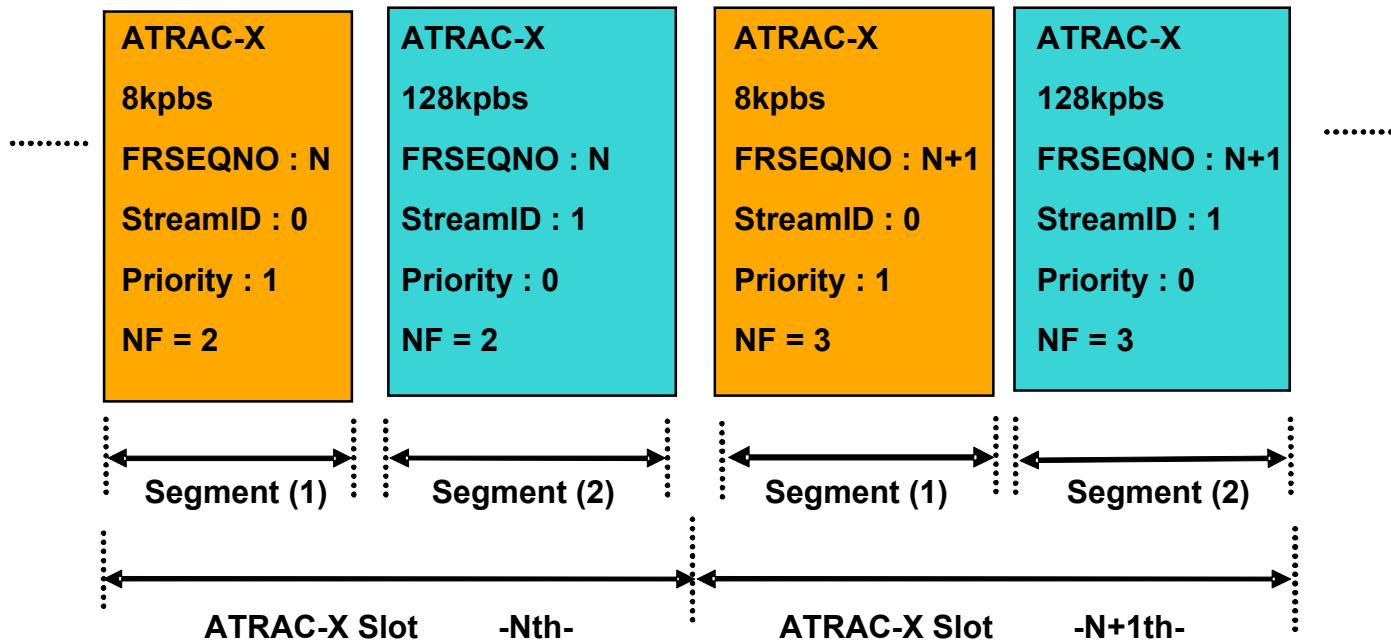
# Overview of ATRAC-X streaming on RTP



# ATRAC-X streaming in more detail



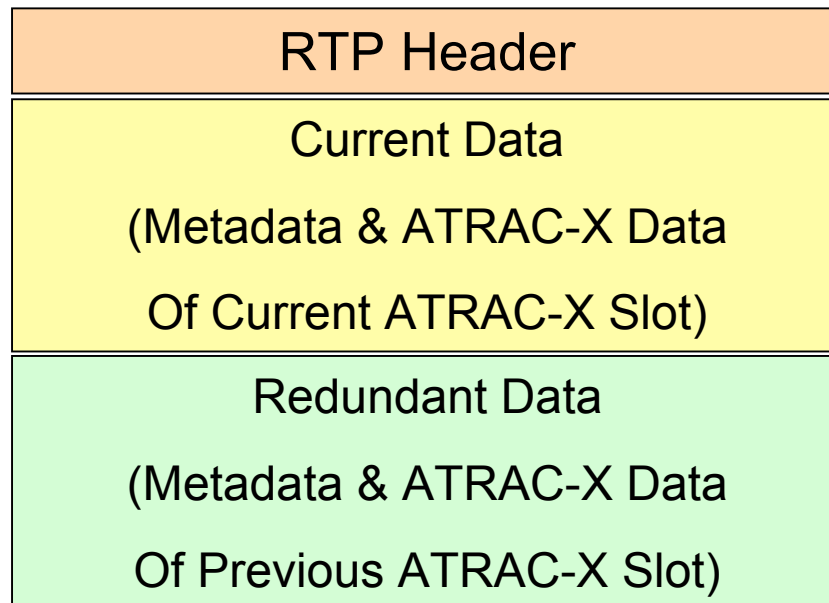
# Stream Example



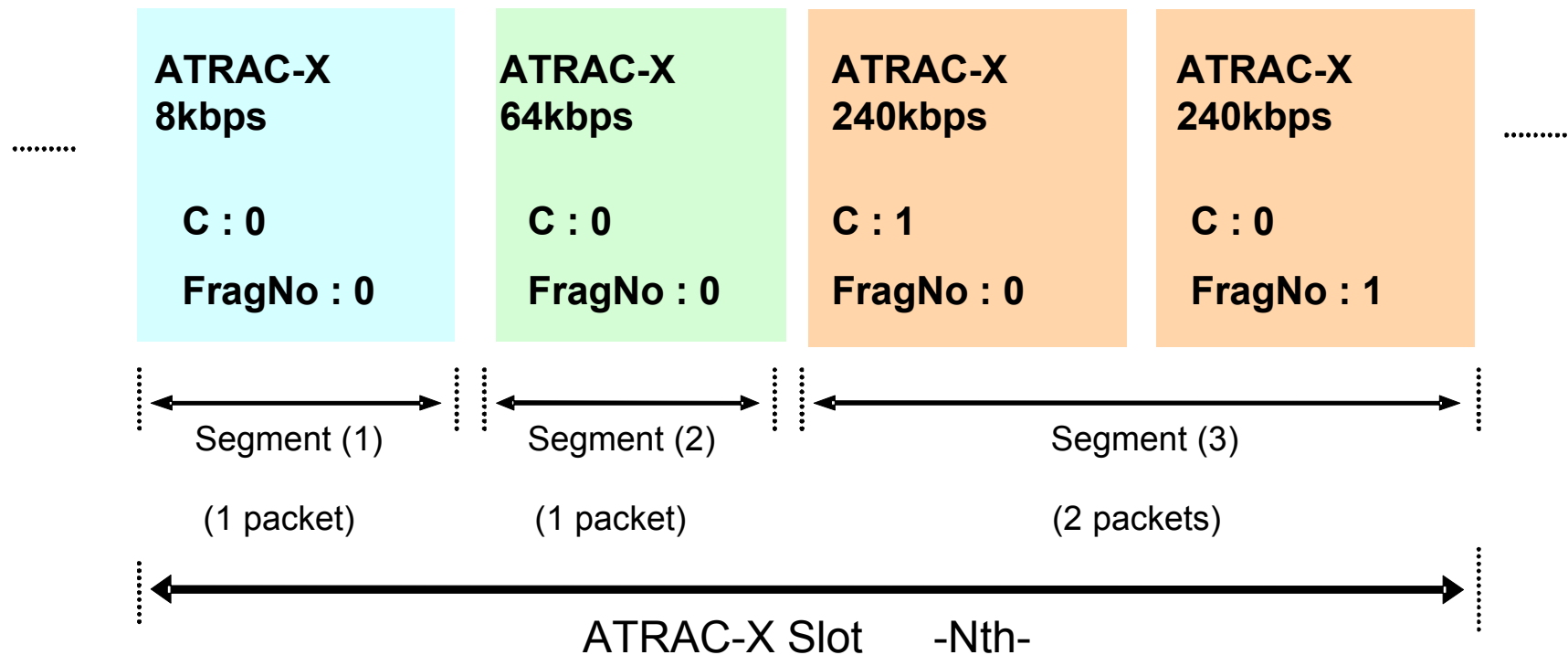
Transmission of two ATRAC-X streams  
in one ATRAC-X RTP session



# Sketch of Redundant Data Payload Format



# Fragmentation Example



# Open Issues for AVT WG

- Metadata ID allocation – is this reasonable?
  - How should we handle static IDs?
- How should timestamp information within the RTP header be determined?
  - We currently use server's transmit time
  - Presentation time can be determined using ATRAC-X RTP header information