SRT Overview

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Mile High Video 2019

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Agenda

- Overview and a Brief History
- SRT Protocol Fundamentals
- Use cases
- SRT Development Update and Roadmap
- How to get involved
- Q&A

*Enabling **low-latency video** contribution & distribution and **fast file transfer** over unpredictable networks.*

SRT – Secure Reliable Transport

The Mission: Deliver high-quality, low-latency video across the public internet over even the most unpredictable networks.

The How: It accounts for packet loss, jitter and fluctuating bandwidth, maintaining the integrity and quality of your stream.

The Benefits:

Pristine Quality

Protect against jitter, packet loss and bandwidth fluctuation, so your viewers get the best viewing experience.

Low Latency

Configurable control to deliver low latency video while overcoming network challenges.

Firewall Friendly

Establish quality streams from event centers and unknown locations without IT involvement.

Secure

End-to-end 128/256 bit AES encryption makes sure your content is protected from contribution to distribution.

Open Source

Wide adoption assuring interoperability and longevity, a strategic networking partner for the top clients.

Design Targets

SRT Attributes & Targets

- Unicast only
- UDP with ARQ
- Fast retransmission
- Selective retransmission
- Sub-1s tunable and fixed latency
- Real-time, no chunking
- FEC compatible (for unidirectional and multicast support)
- Not focused on consumer delivery
- Scale to thousands not millions
- SDI to IP/TS over WAN workflows
- Minimal compute overhead and memory footprint

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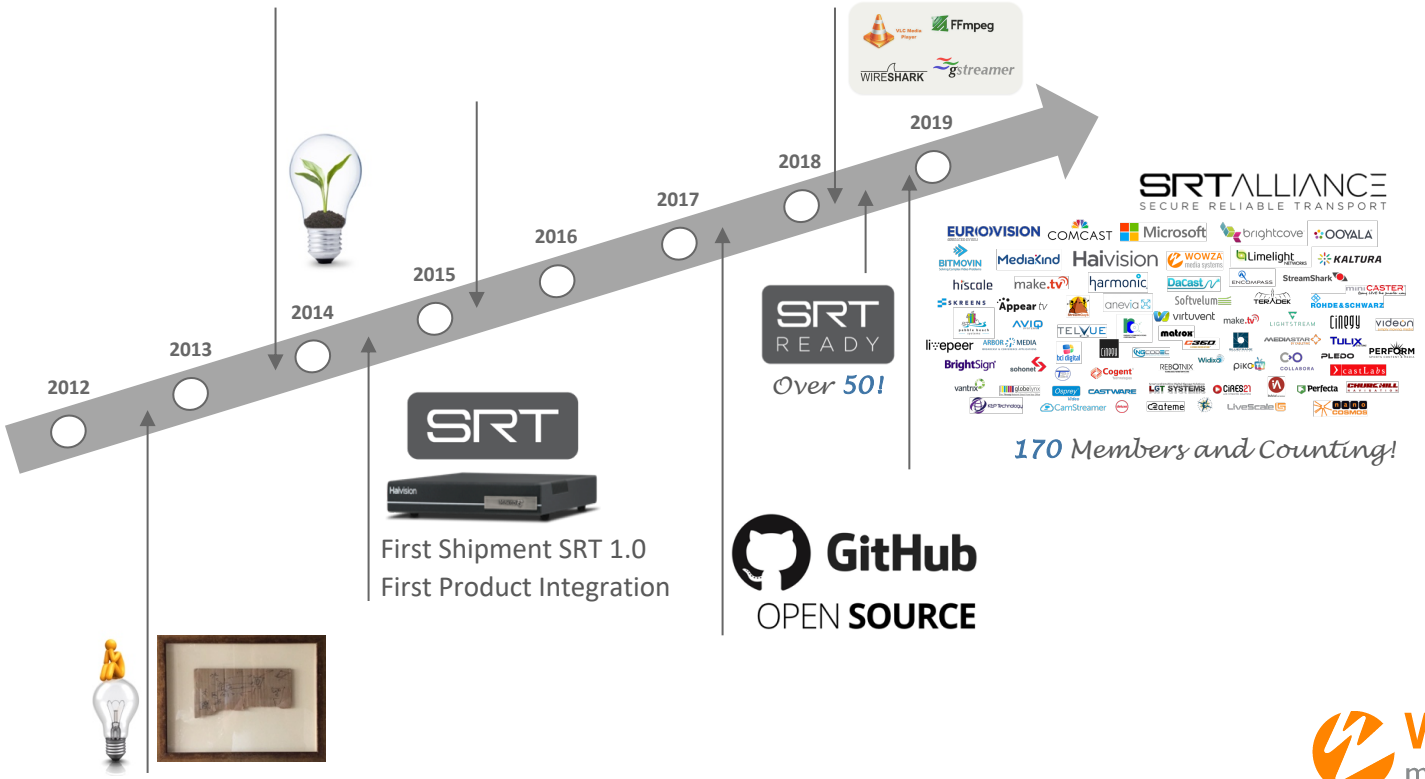
A brief history



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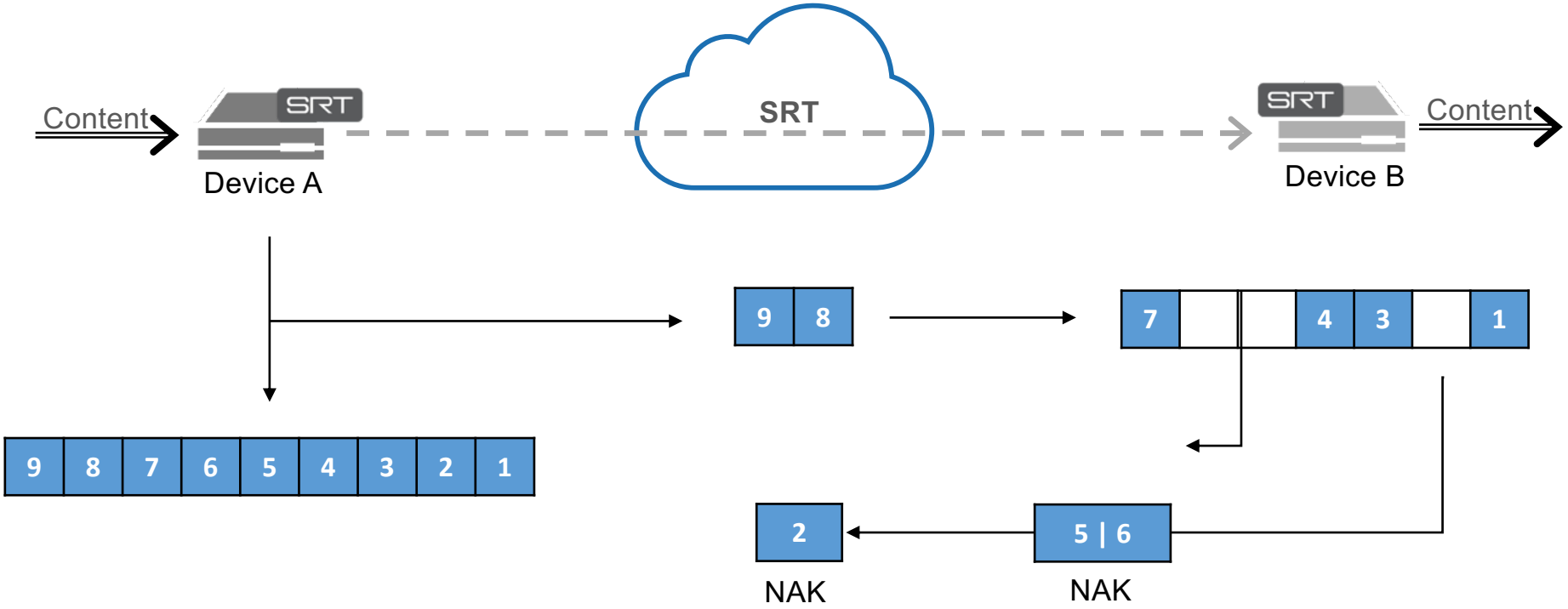
Buffering and Latency



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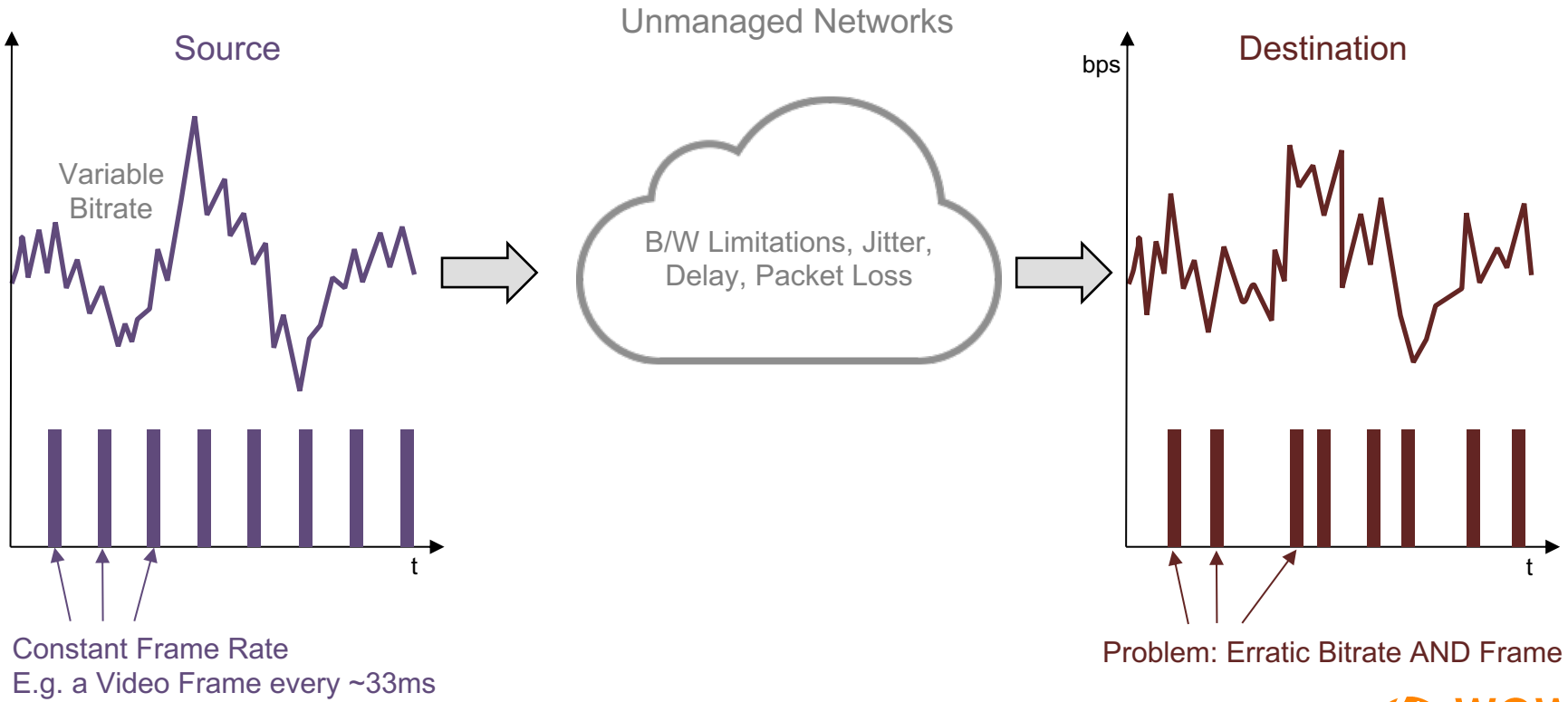
Stream Integrity



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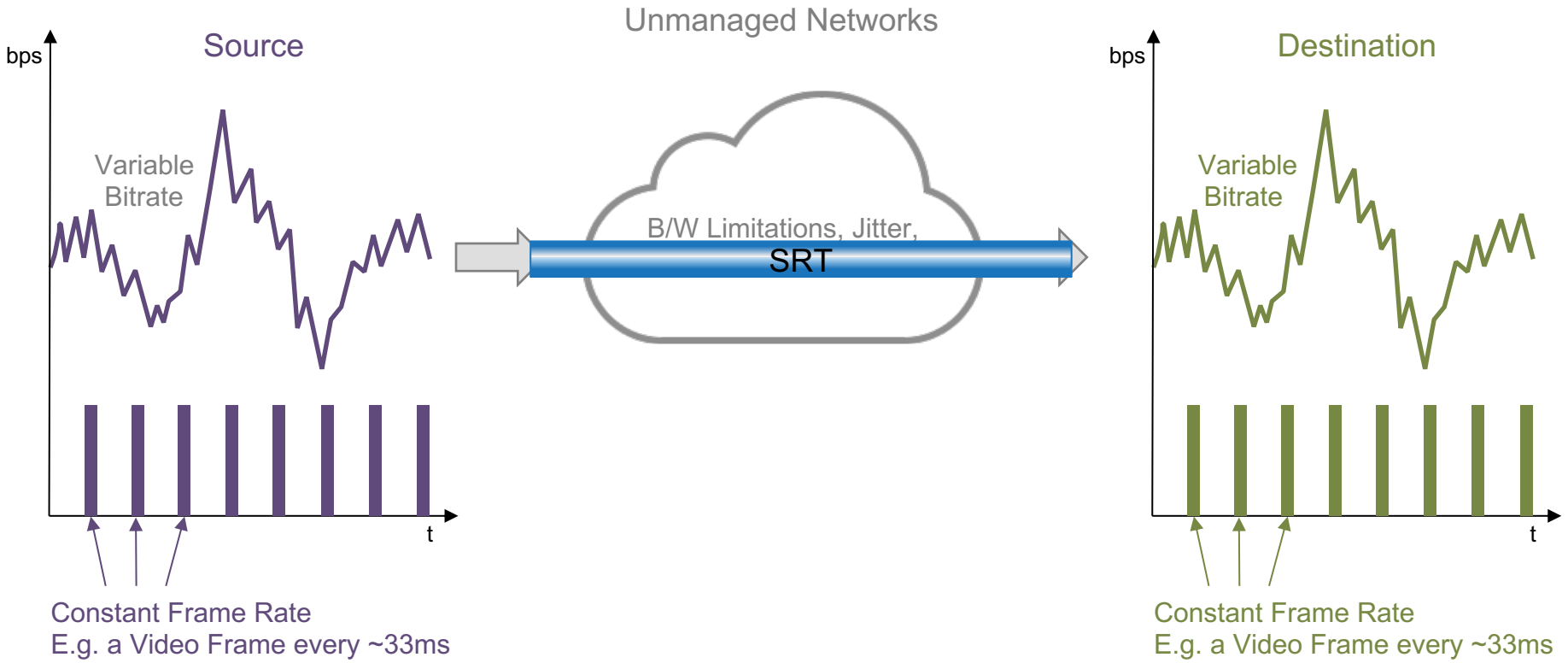
Stream Integrity



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Security and Encryption

- DDOS attack prevention
- AES 128/192/256-bit encrypted
- Payload encrypted with cipher in AES-CTR mode
- Secret/pass-phrase is not part of the protocol (application layer)

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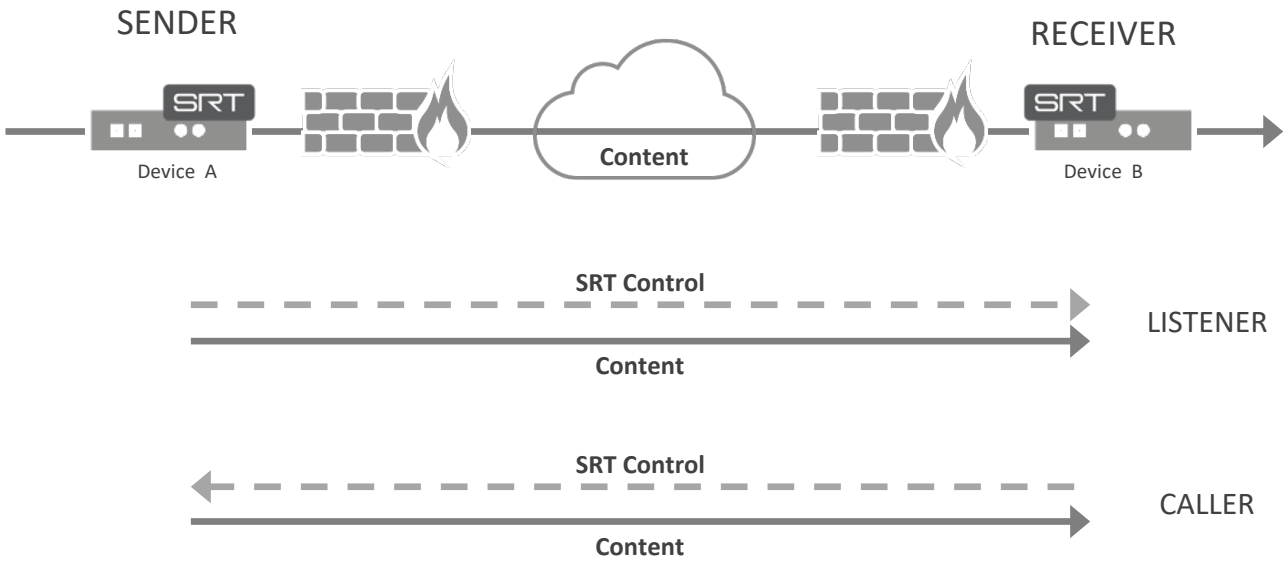
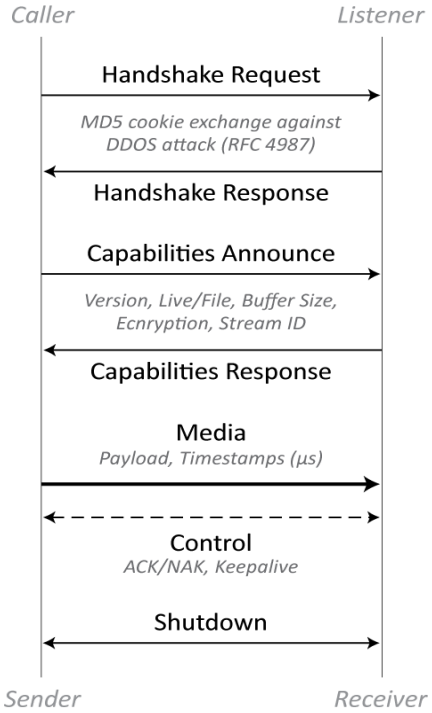
Data and Control Flow





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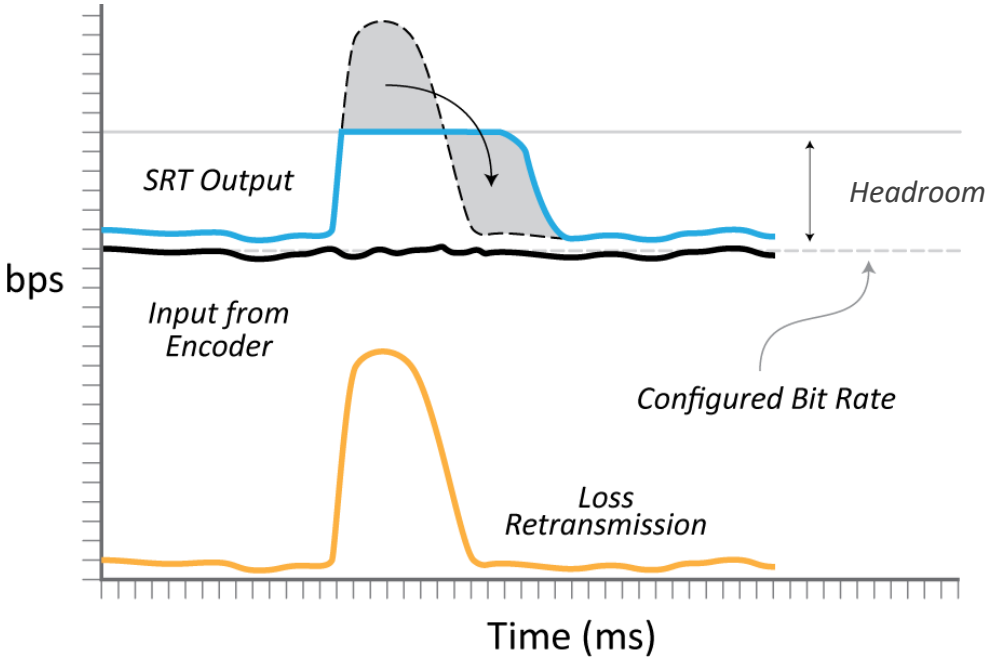
Packet Pacing (ceiling and headroom)

- Headroom for possible retransmission
- Packet recovery pacing
- Maintain a ceiling to avoid snowball effect



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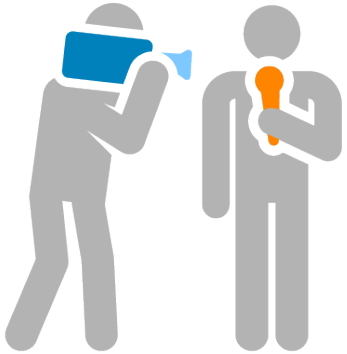
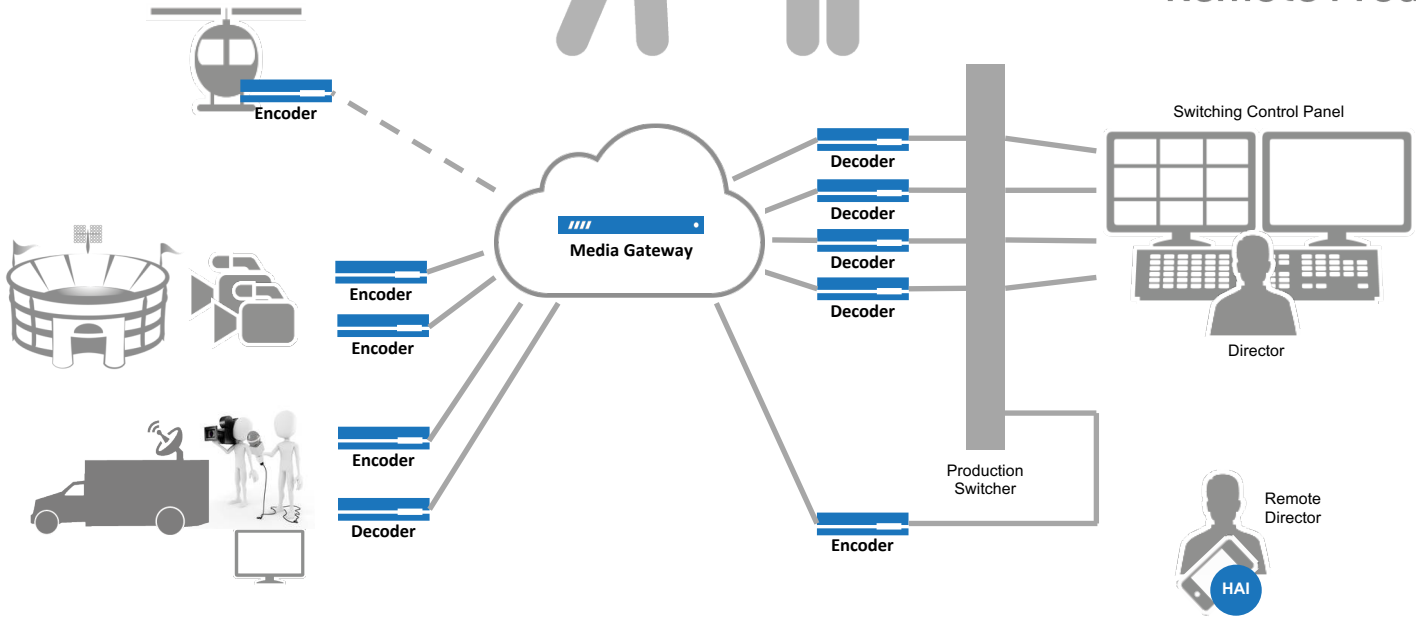
First Mile Contribution

CONTRIBUTION



Field Contribution (News & Sports)
Return Feeds
Confidence Monitoring
Live Interviews
Remote Production



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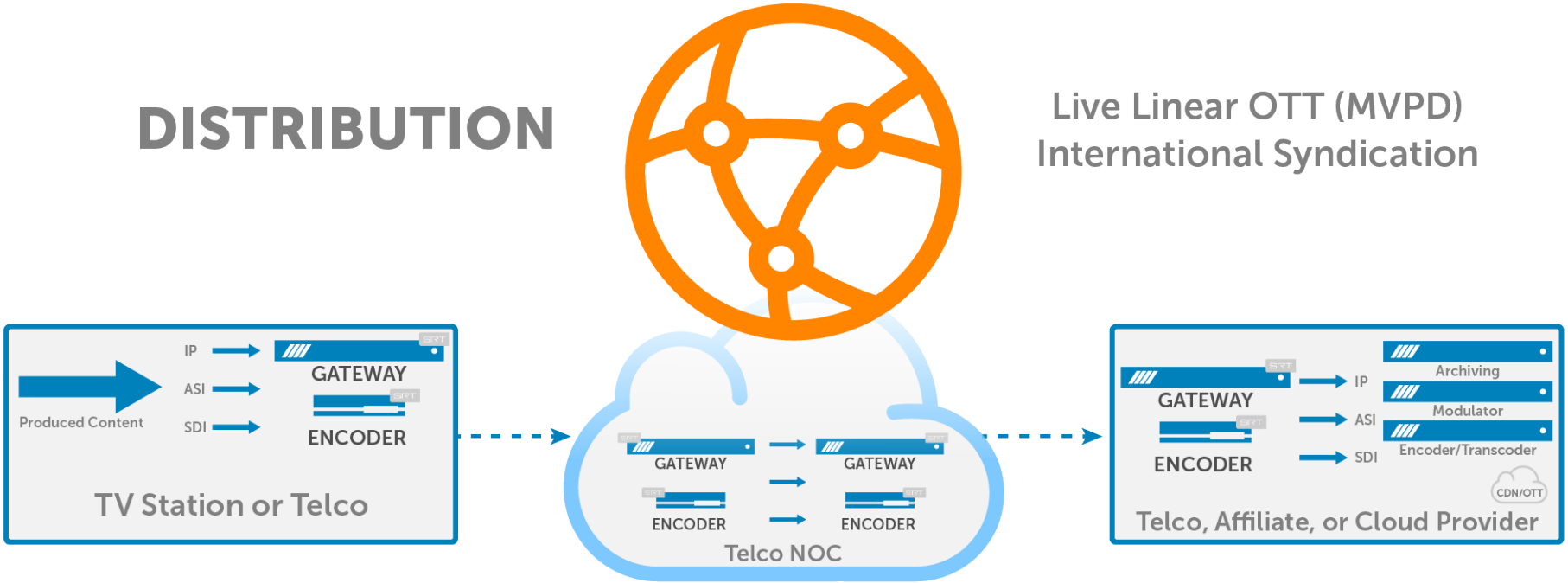
Distribution



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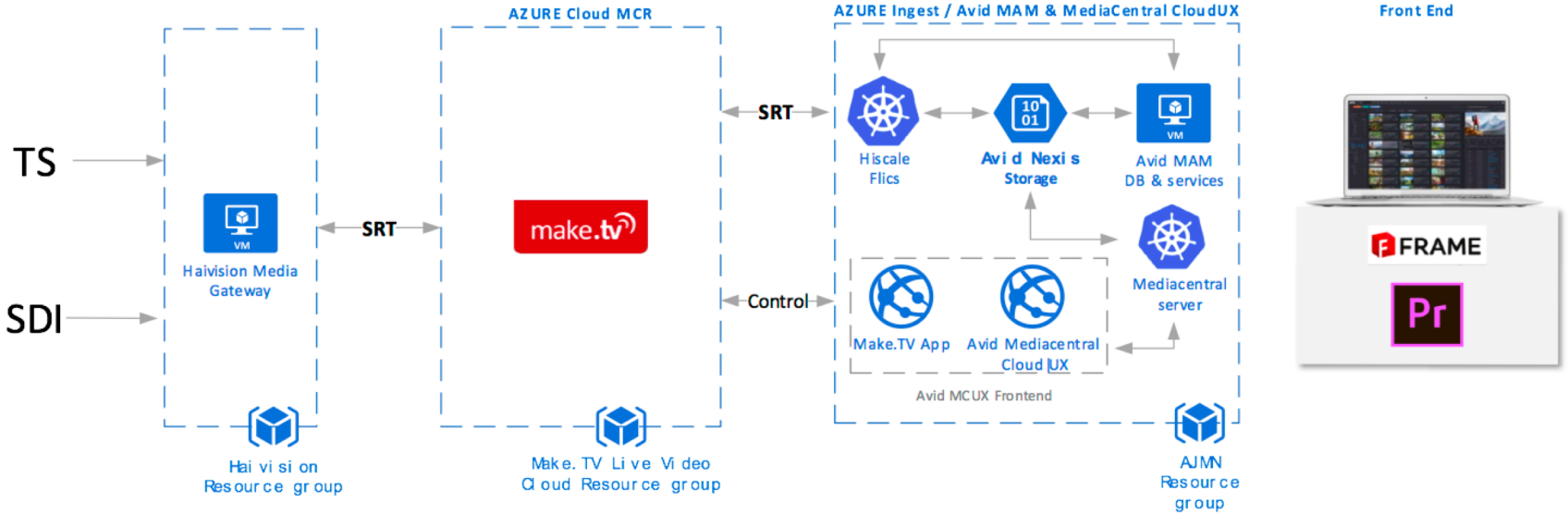
Customer Story

ALJAZEERA

Newsroom in The Cloud



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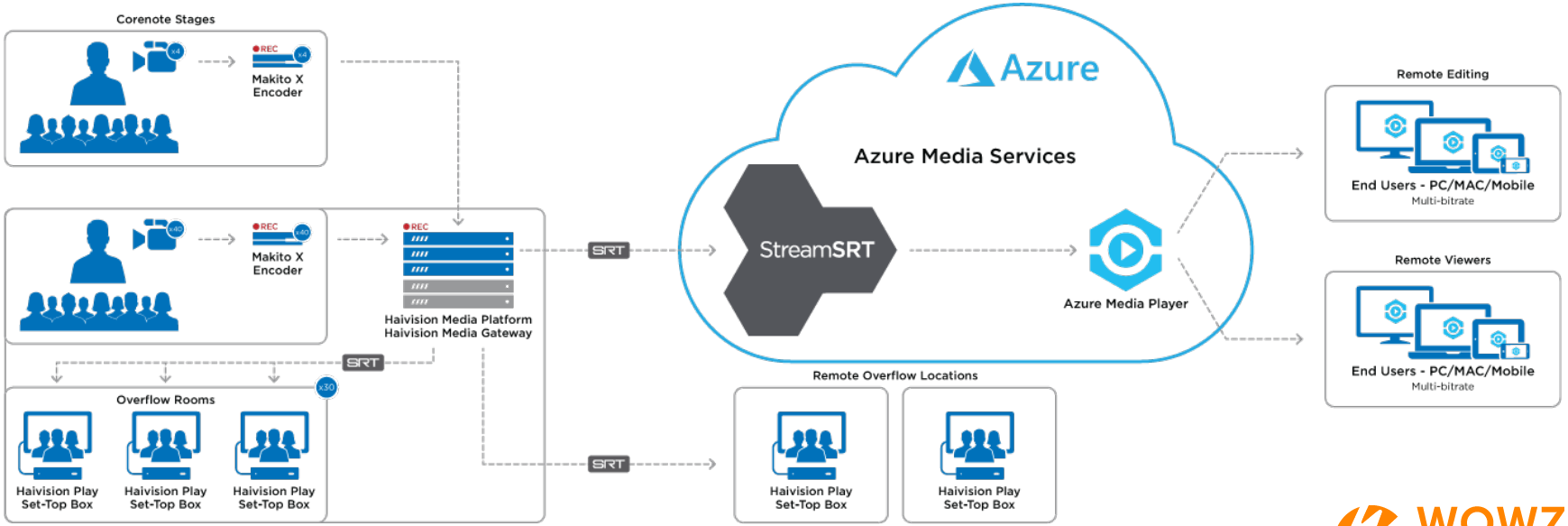
Customer Story

Microsoft

Live Streaming for Multi-site Events Around the Globe



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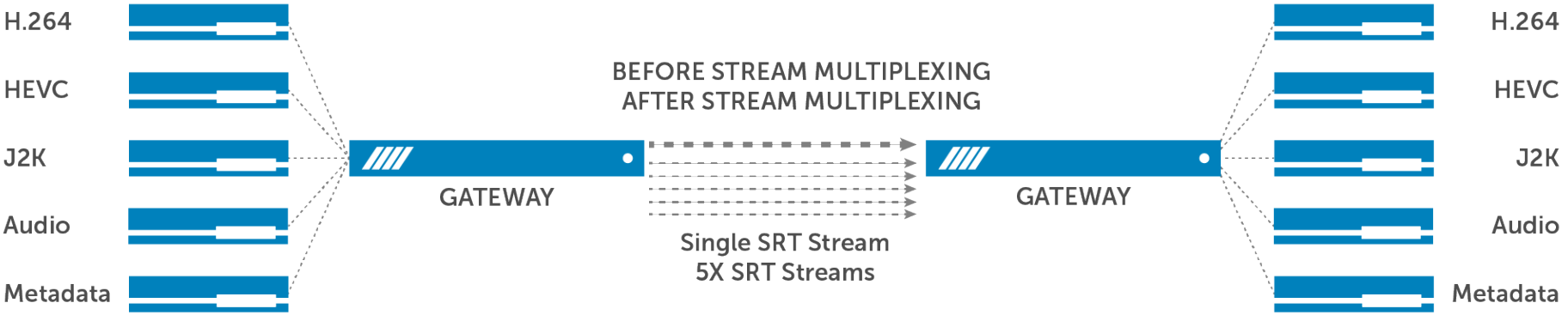
SRT 2019 Technical Updates/Highlights

Stream Multiplexing



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Roadmap

RECENTLY RELEASED

- SRT 1.3.1
  - Stream Multiplexing

- SRT 1.3.2
  - Introduced “Enforce Encryption” a way to enable only encrypted streams to connect to a listener

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Roadmap

COMING SOON

- SRT 1.3.3
  - Support for mbedTLS as encryption library

- SRT 1.4
  - Plug-in API for third-party developers for extending SRT protocol functionality – FEC for example
  - Improved congestion control for file transfer

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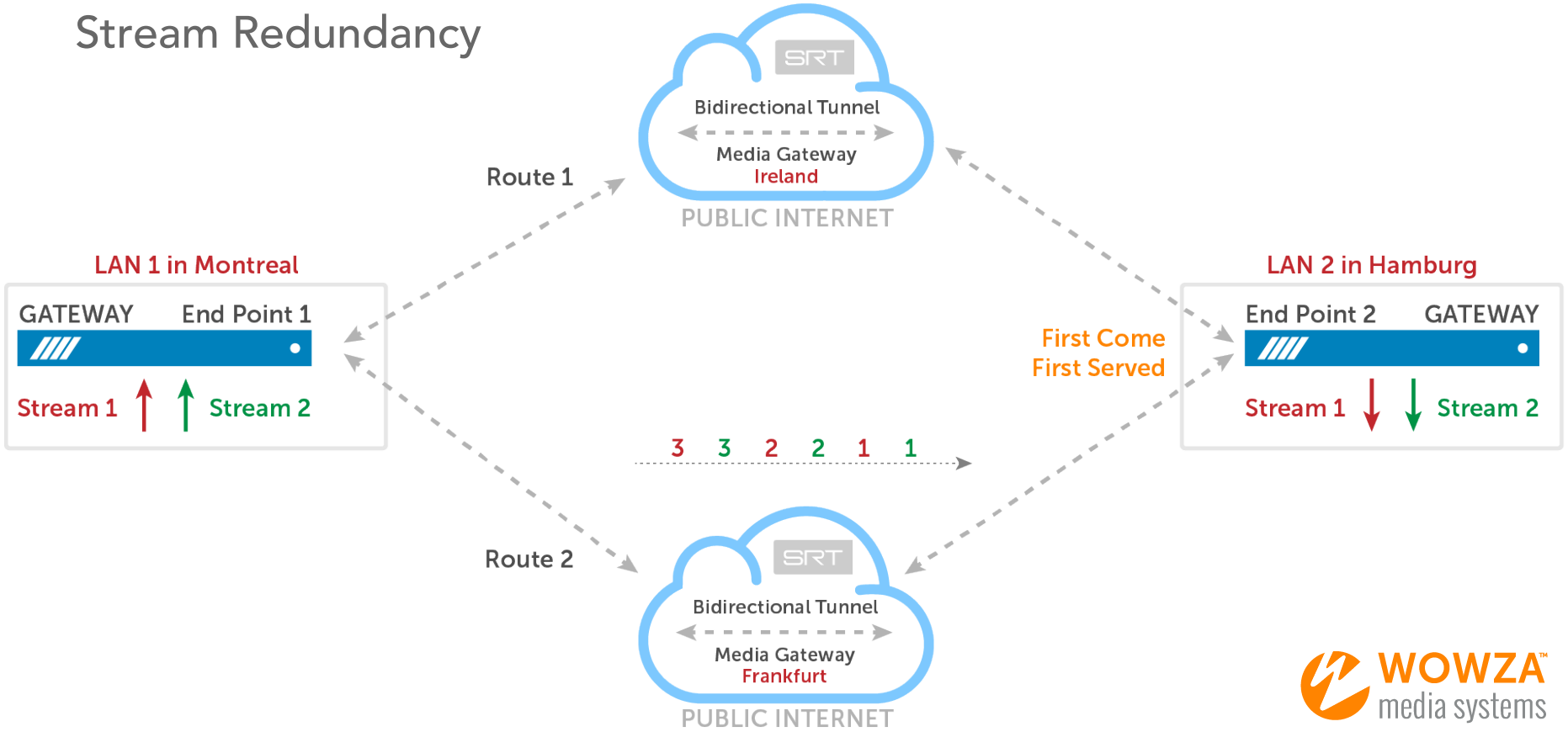
SRT 2019 Technical Updates/Highlights

Stream Redundancy



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Roadmap

IN THE PIPELINE (Experimental Branch for IBC)

- Socket Groups
  - Mode1: Full route Redundancy
  - Mode2: Main/Backup Links
  - Mode3: Bonding
- Sync Signal passthrough
- Reliability tuning parameter (0 to 100) → Latency vs. Quality
- Stream prioritization in multi-stream scenarios
- Packet prioritization (e.g. for audio packets or key frames in video)
- Bi-directional metadata and control data transport

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170 Members to date!
SRTALLIANCE
SECURE RELIABLE TRANSPORT
SRT
Open Source

How to get involved

GitHub

github.com/Haivision/srt

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SRTalliance.org

slack

https://slack.com