Frame Comparison (2)

FDSP

pureUDP

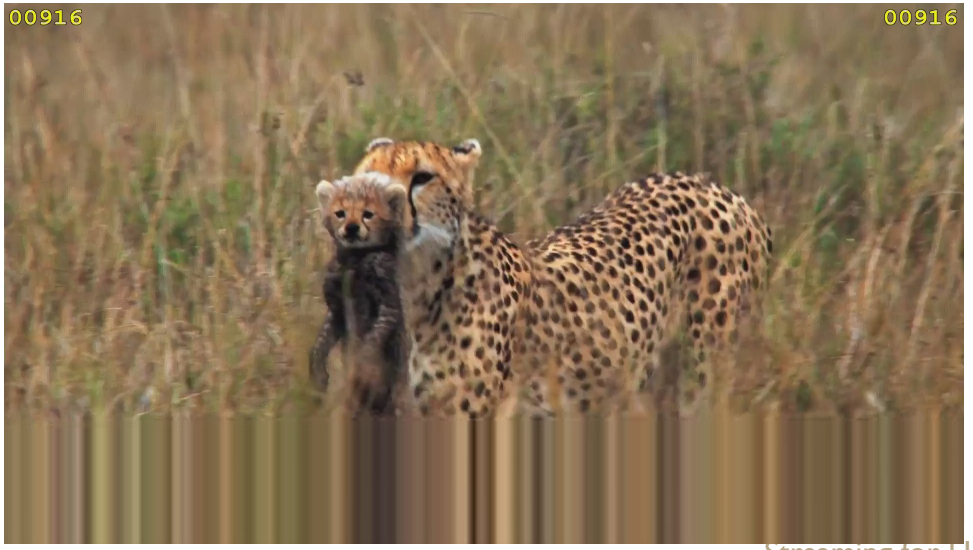
Frame Comparison (3)

FDSP

pureUDP

Frame Comparison (4)

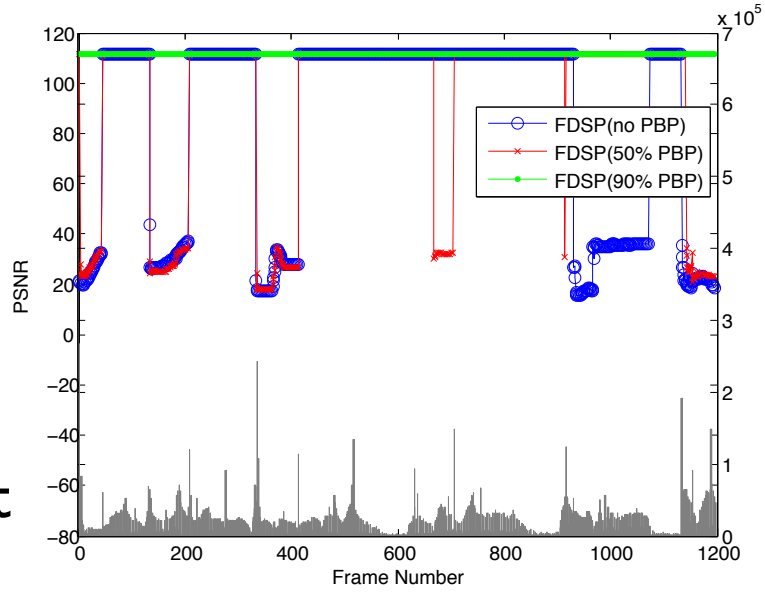
FDSP



pureUDP

Percentage-Based Prioritization

- Ready times for FDSP for all three scenarios are earlier than playout deadline.
  - More data can be sent via TCP tunnel to improve visual quality.
- PBP used to prioritize I-frames.

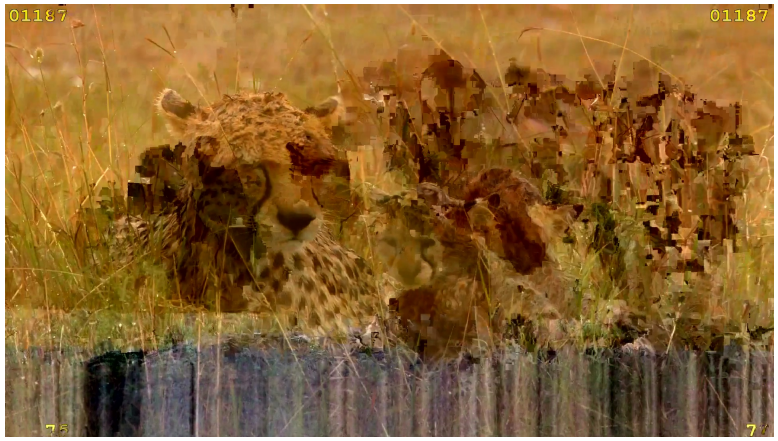


Sub-stream	FDSP Ready Time (sec.)			Playout Deadline (sec.)
	no PBP	\w 50% PBP	\w 90% PBP	
2	4.80	7.35	9.83	10
3	7.92	12.02	14.13	20
4	11.47	16.47	17.84	30

Visual Improvement of PBP

Frame 1187

Pure-UDP



FDSP (\w no PBP)

FDSP (\w 50% PBP)

FDSP (\w 90% PBP)

Conclusion and Future Work

- FDSP utilizes the benefit of both UDP and TCP.
- Two additional enhancements, called Sub-stream Overlapping and Percentage Based Prioritization, further improve performance of FDSP.
- Our analysis shows that FDSP achieves higher PSNR than pure-UDP and less buffering time than pure-TCP.
- As future work, we plan to look at how to dynamically choose optimal threshold and PBP values to send TCP data for the next substream.

Questions?

Little Bit About Me…