



IETF

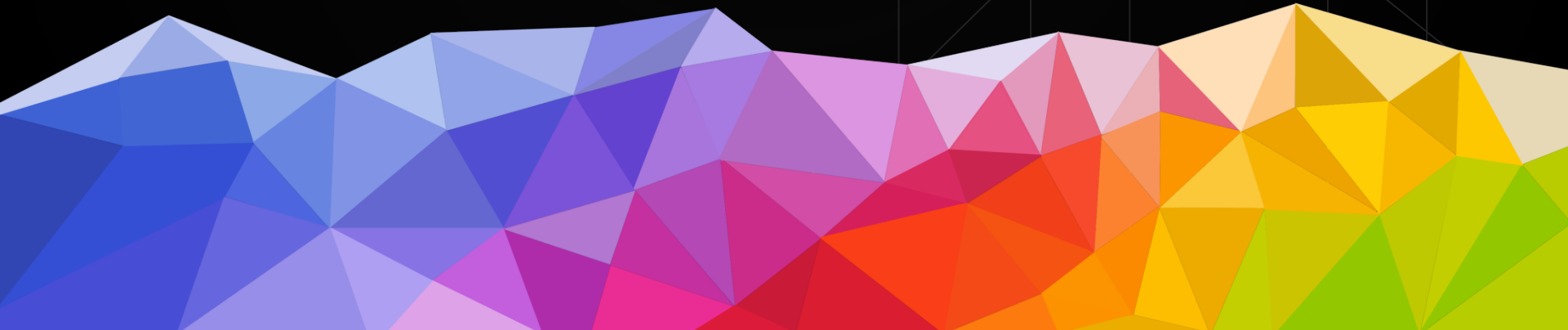
Media-Related Activities



SAMSUNG

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Transport

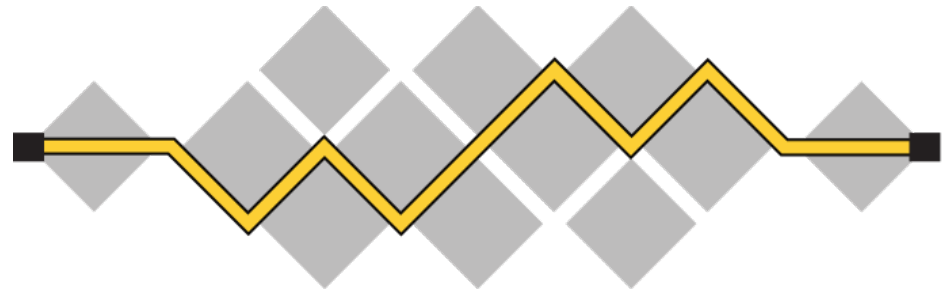
- SPUD
- SCTP
- MPTCP
- Qik

RAI

- WebRTC
- CLUE

IRTF

- SDN
- NFV



I E T F[®]

■ Transport Service (TAPS)

- New, more advanced APIs to give more control of the transport protocol to application
- Get detailed status information and set protocol parameters

■ SPUD

- Investigates the evolution of transport protocols
- Main issue: how to get rid of implicit behavior by middle boxes
- Consider explicit signaling between end-points and middle boxes

■ Quic

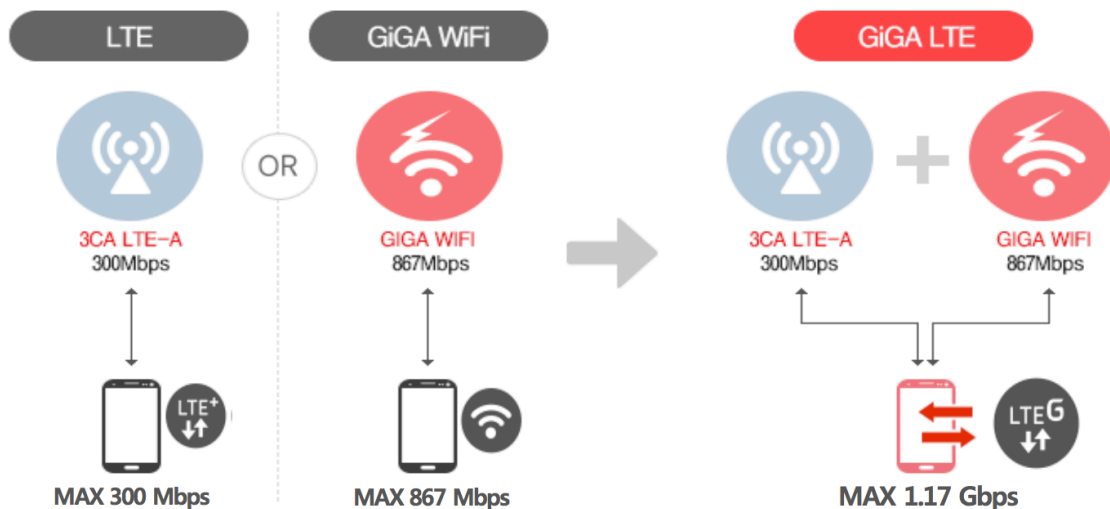
- Not a standard track activity yet
- Google uses this in chrome
- Protocol runs in user space
- Integrates different concepts:
 - Flow identifier to cope with IP address changes
 - XOR-based FEC
 - Protocol header authentication and encryption
 - Multiplexing
 - Flow control

- Motivated by the availability of multiple network interfaces at receivers
- Is backwards-compatible/compatible with TCP, i.e. same socket API
- Regular TCP connection establishment, sub-flows added later
- Use tokens to cope with NATs
- Big problem: how to prevent man in the middle attacks, where attacker creates sub-flow and slowly takes over the whole connection => use keys/security
- Issues with out-of-order delivery, gaps in sequence numbers => use a sub-flow sequence number but keep the flow sequence number

■ Main Open Issues:

- MPTCP Proxies: e.g. used by mobile operators to offload part of the traffic to WiFi

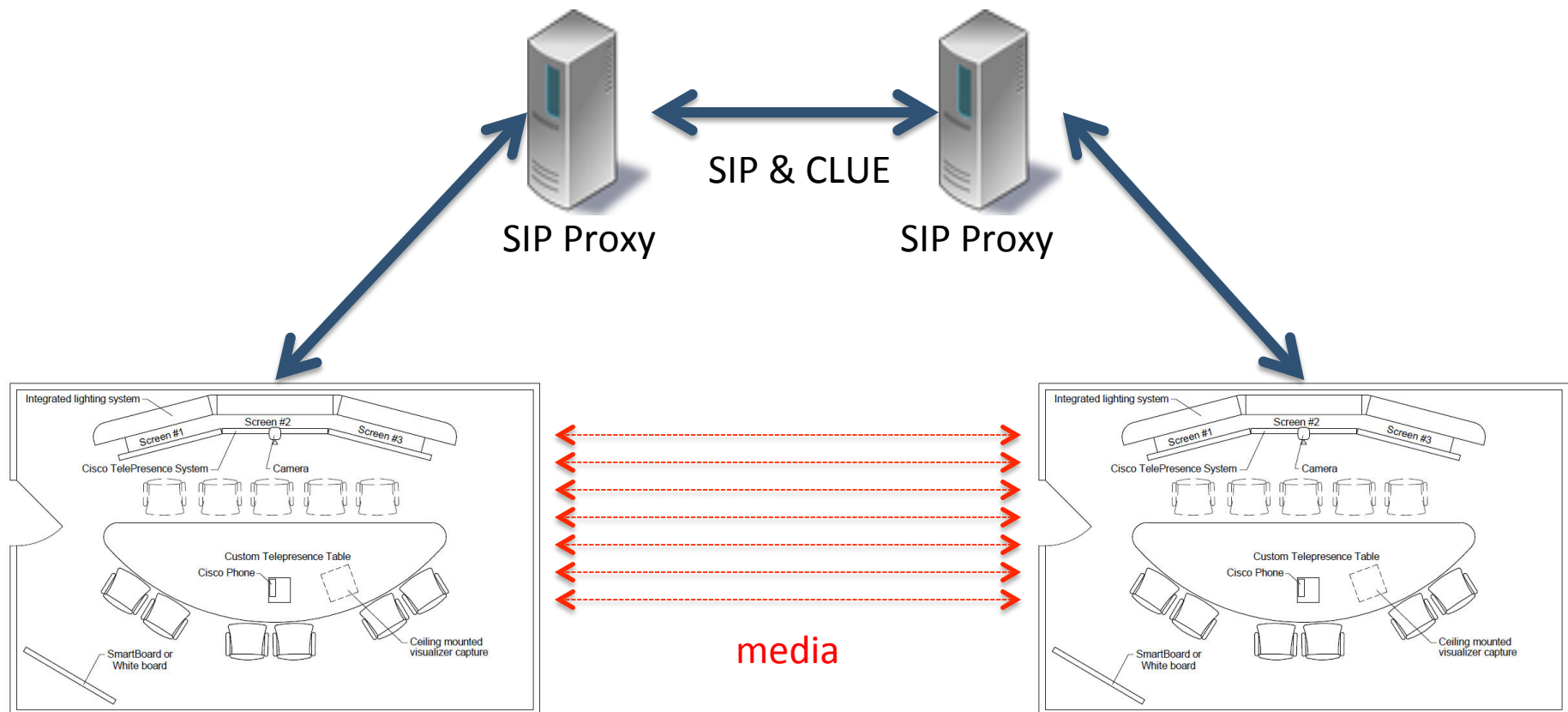
Multi-path RTP activity started



KT's MPTCP Deployment

- Real-Time Communications in Web Browsers
- Native support in the Browser (no need for plug-ins)
- Browsers download Real-Time application from web server using HTTP
- Encrypted RTP is used to secure media during transport between browsers
- SCTP is used for direct browser-to-browser data exchange
- W3C WebRTC group developed APIs for usage of WebRTC
- Current Activity Focus:
 - RMCAT working on congestion control solutions
 - FEC and FEC framework for WebRTC
 - Gateways to WebRTC
 - Evolution of TURN

- Protocol for the control of multiple streams for Tele-presence session
- Targets conferencing systems with multiple cameras and displays
- Allows advertisement and selection of media capabilities and streams
- Much richer than SDP



■ Building on the OPUS success

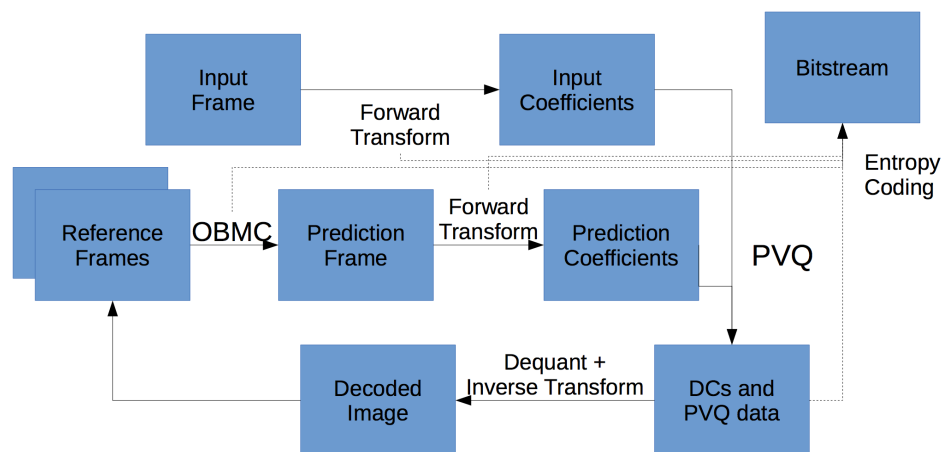
■ IETF trying to create an IPR free video codec for RTCWeb

■ Daala

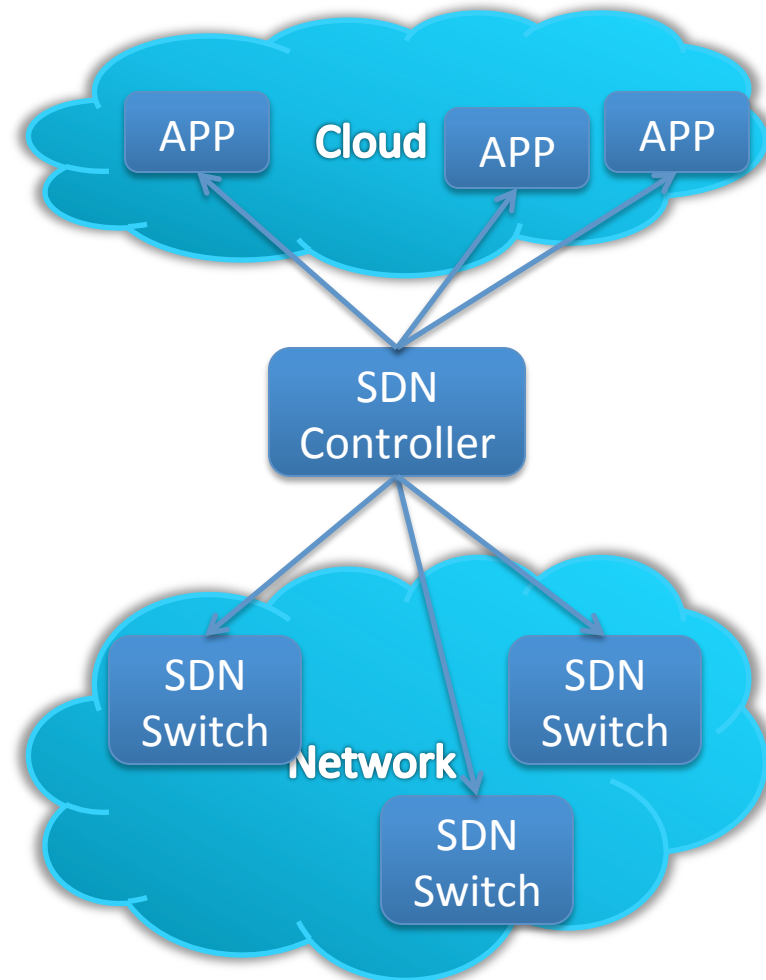
- Prediction in frequency domain instead of spatial domain
- Lapped Transform
- Perceptual Vector Quantization
- Scaling and reflection instead of substructure
- Non-binary Arithmetic Coding

■ Thor

- Traditional hybrid codec architecture
- Same transform as HEVC
- VLC-based entropy



- IRTF has a group looking at SDN and NFV
- Wide agreement that this is the direction
 - ETSI has a publication on NFV for mobile core
 - C-RAN relies on SDN and NFV to simplify and reduce cost of network
 - SDN protects investment and accelerates introduction of new technology as only controller needs to be updated
- Current focus on security aspects





Thank You