Scaling WebRTC deployments with multicast

Lorenzo Miniero
lorenzo@meetecho.com

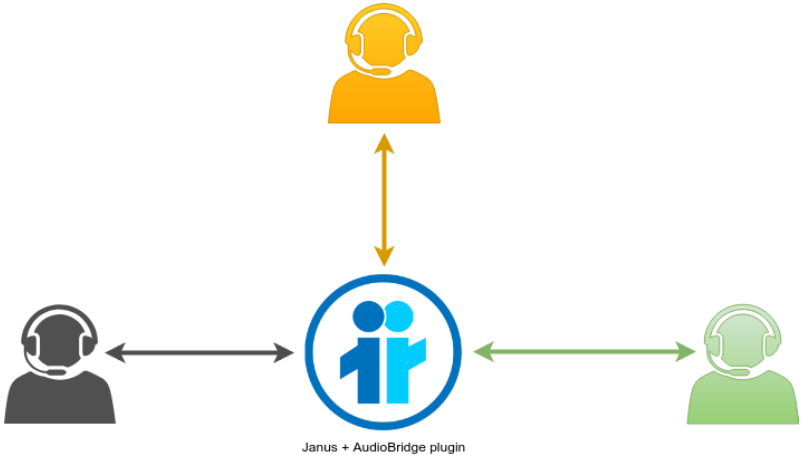
IETF 110 – MBONED WG
March 11th

Janus

General purpose, open source WebRTC server

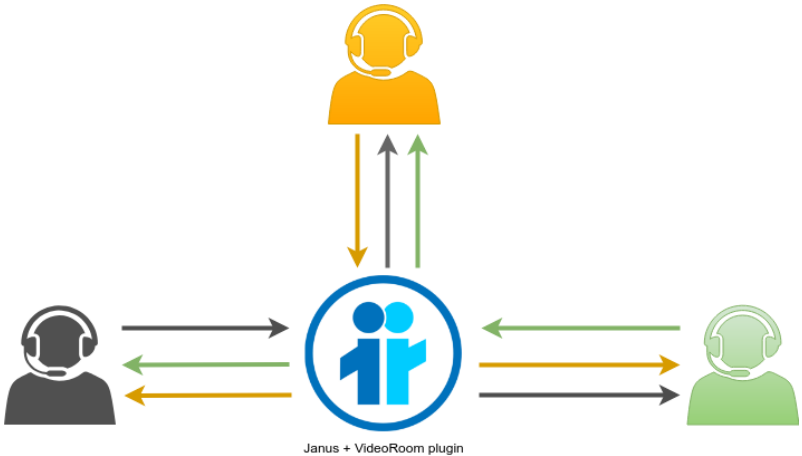
- https://github.com/meetecho/janus-gateway
- Demos and documentation: https://janus.conf.meetecho.com
- Community: https://groups.google.com/forum/#!forum/meetecho-janus

WebRTC-only MCU: AudioBridge plugin



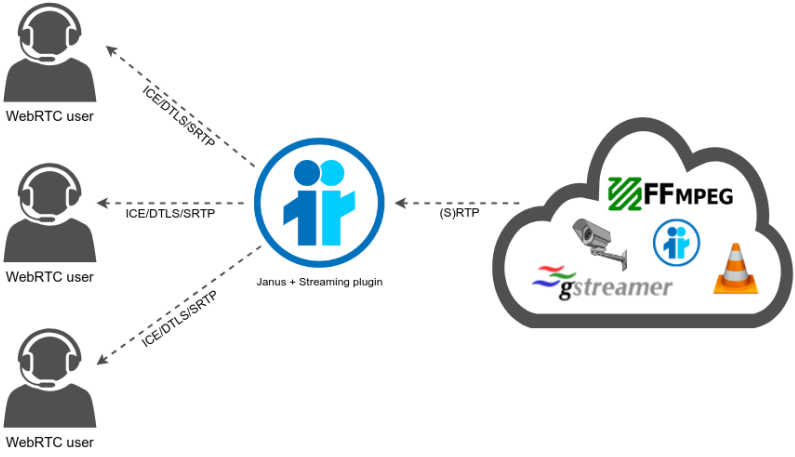
https://janus.conf.meetecho.com/docs/audiobridge

WebRTC-only SFU: VideoRoom plugin



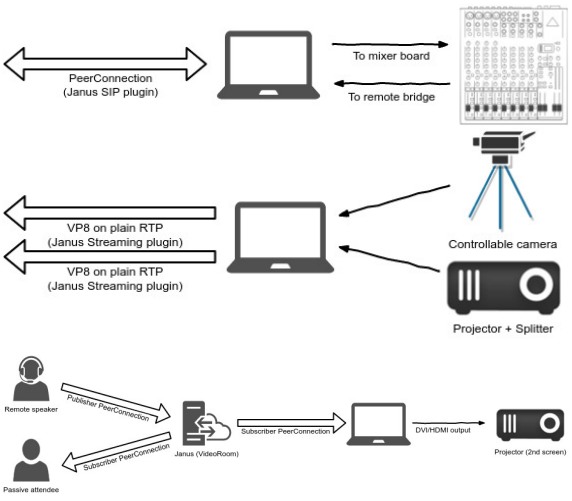
https://janus.conf.meetecho.com/docs/videoroom

Re-broadcasting RTP: Streaming plugin

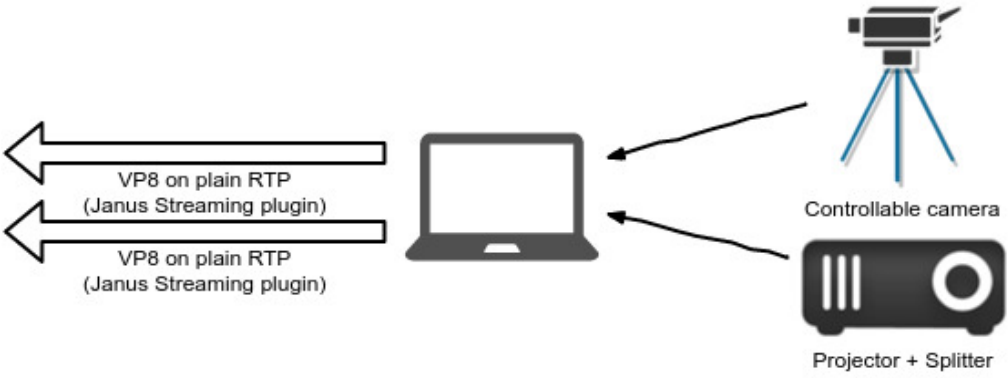


https://janus.conf.meetecho.com/docs/streaming

How we handled face-to-face IETF meetings



We used multicast a lot here!



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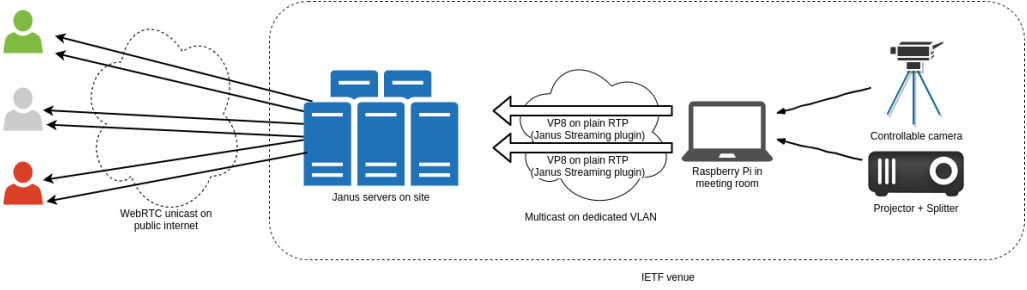
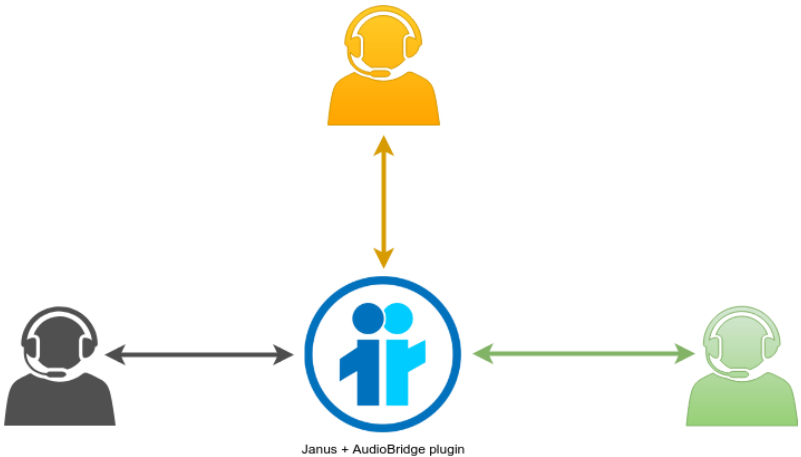


... until we had to stop meeting in person

https://youtu.be/WeoKtWfmxnU?t=285

AudioBridge + RTP forwarding



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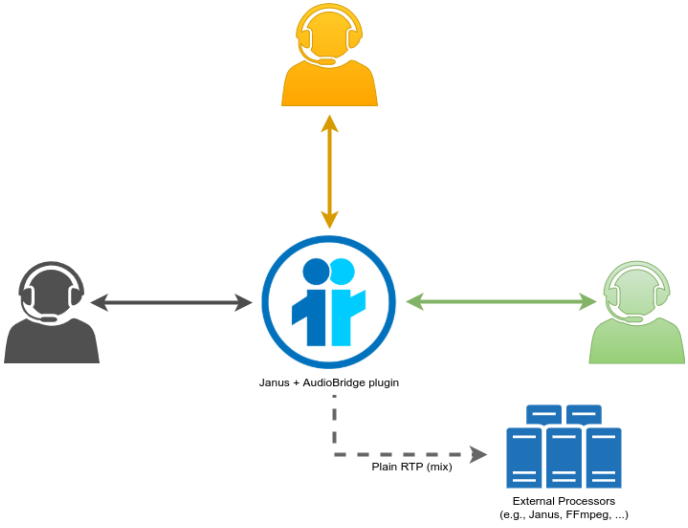
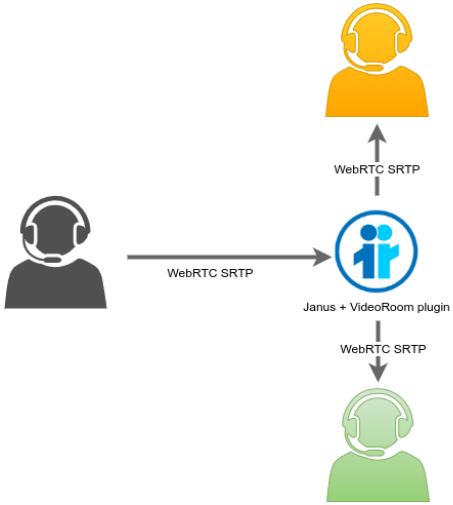


VideoRoom + RTP Forwarding



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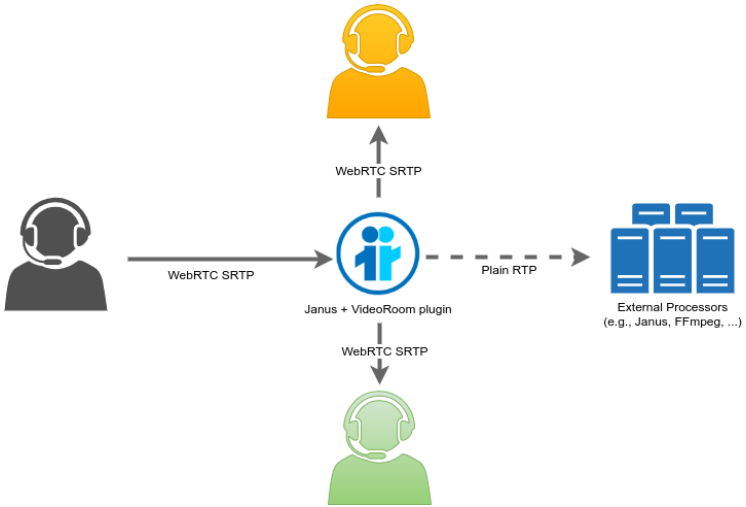
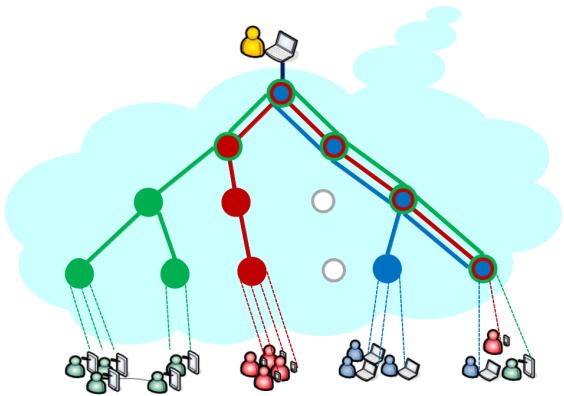


All bricks for a “WebRTC CDN” (SOLEIL)



http://www.fedoa.unina.it/10403/1/miniero_lorenzo_27.pdf

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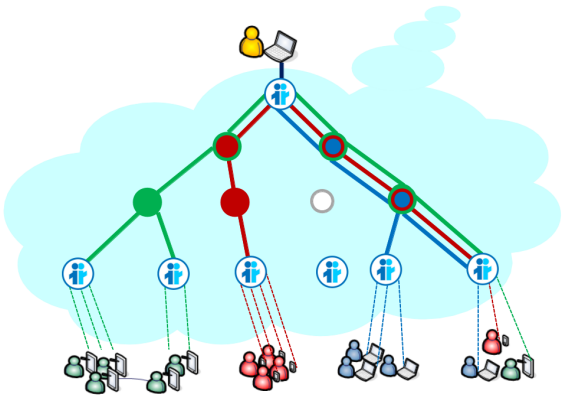

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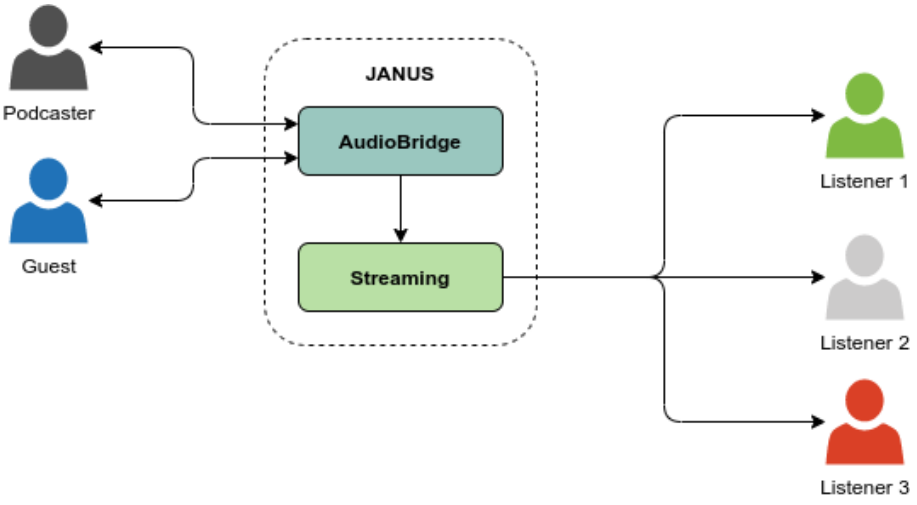
AudioBridge + RTP forwarding + Streaming



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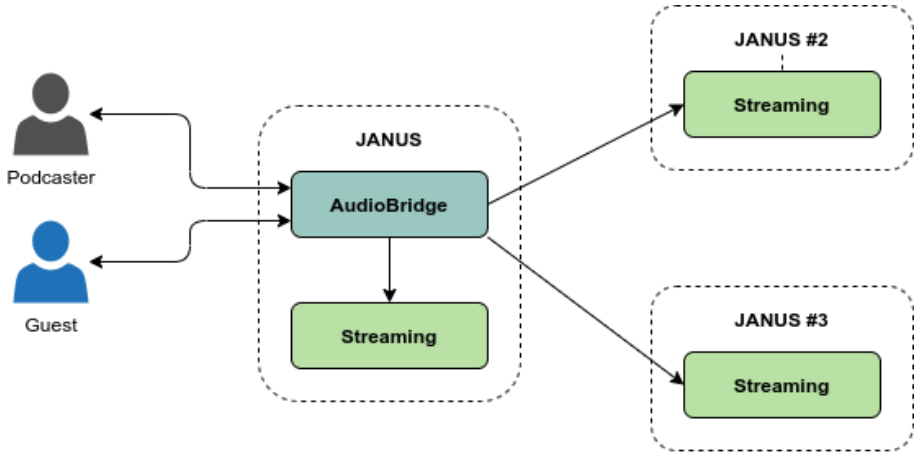
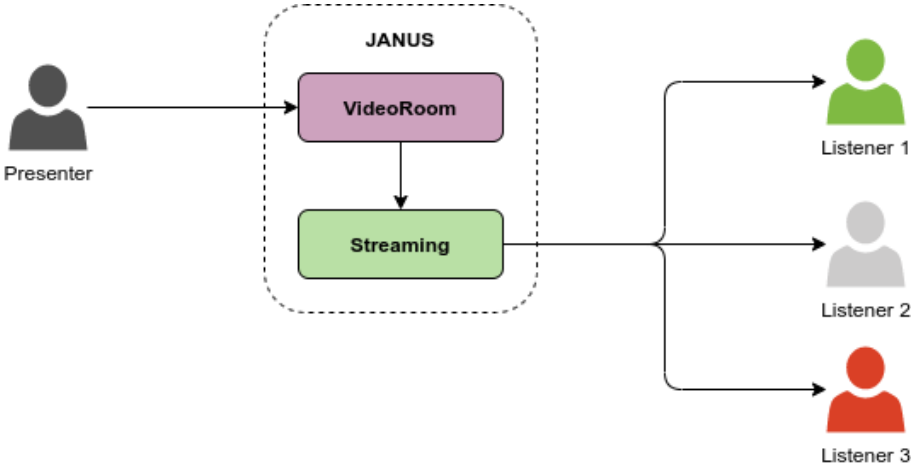


VideoRoom + RTP forwarding + Streaming



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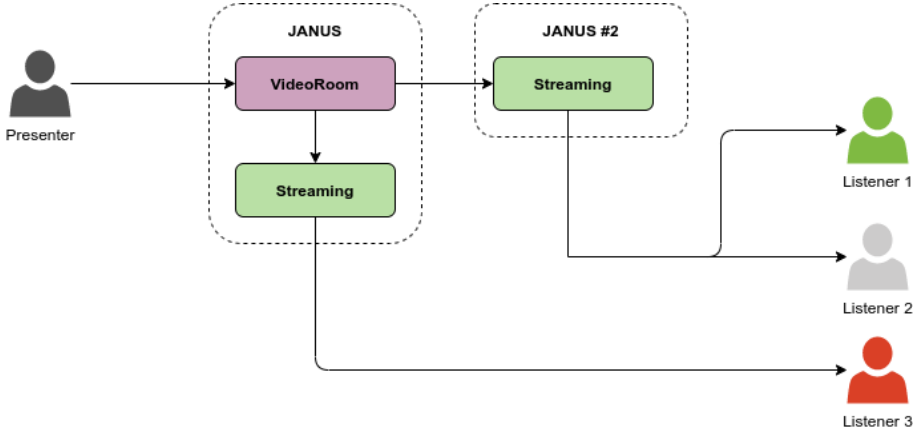

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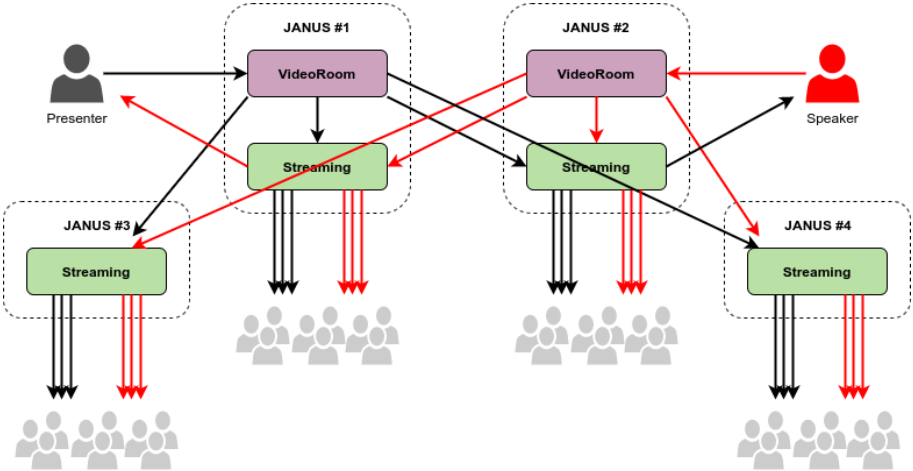
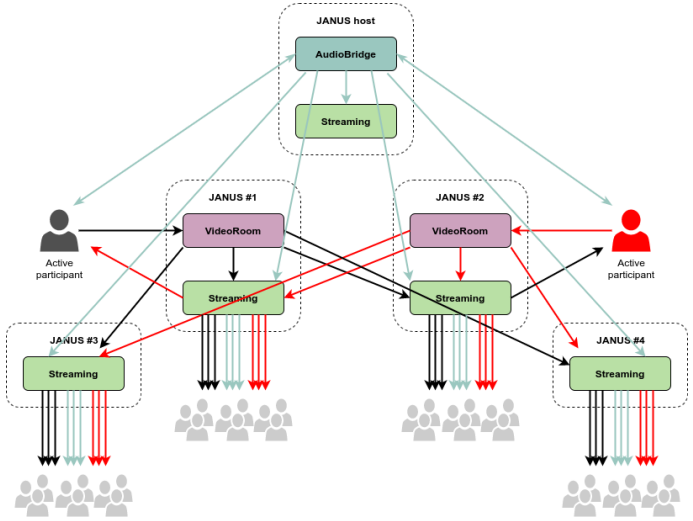
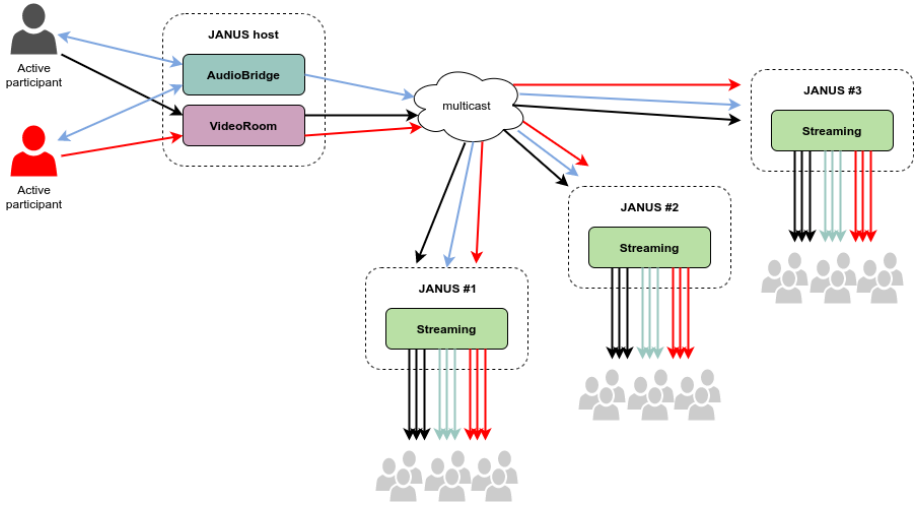


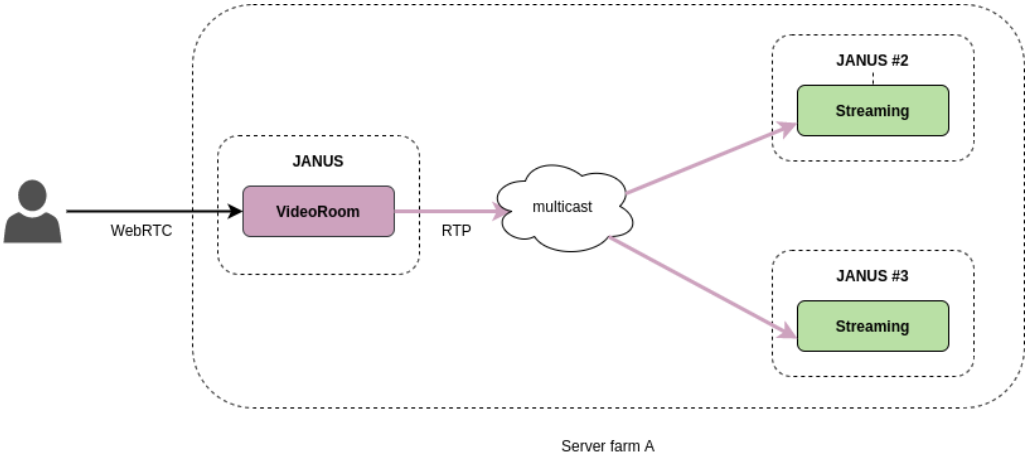
Bringing it all together for Virtual Events



Multicast would be a perfect fit here!



Pushing it even further



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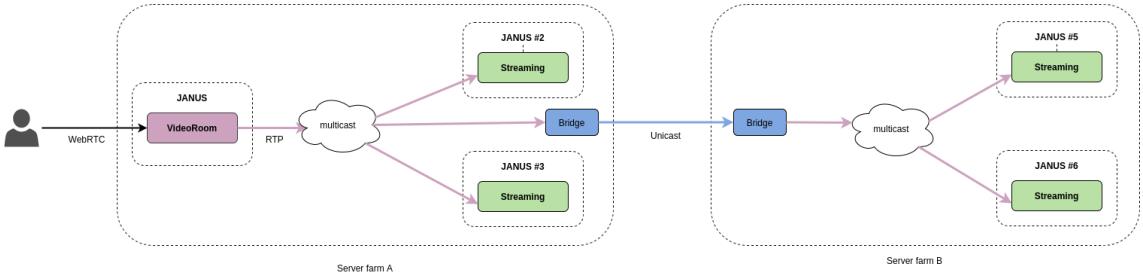

Why not multicast everywhere?

IETF

- WebRTC is ubiquitous ⟶ obvious choice
  - Simple way to allow bidirectional communication in browsers
  - Supported in all major browsers, now, so very low barrier to entry
- WebRTC doesn't support multicast, though
  - Conceived as peer-to-peer technology (servers are peers)
  - Each WebRTC PeerConnection has its own encrypted session
- There's a bit of multicast in there anyway!
  - https://tools.ietf.org/html/draft-ietf-rtcweb-mdns-ice-candidates
- Maybe some multicast could leveraged when broadcasting?
  - Automatic Multicast Tunneling may be helpful here

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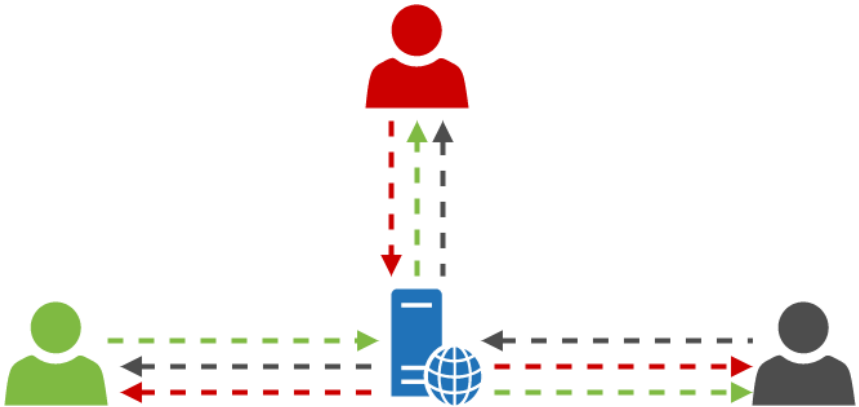
Broadcasting WGs to YouTube Live



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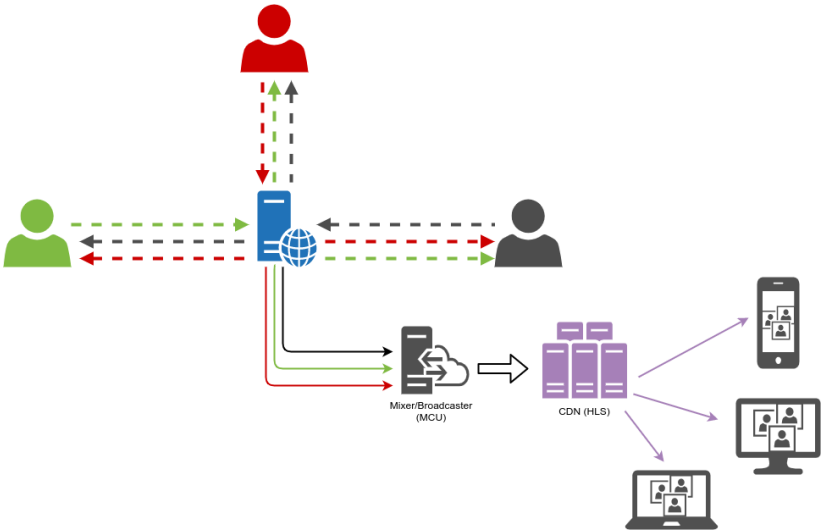
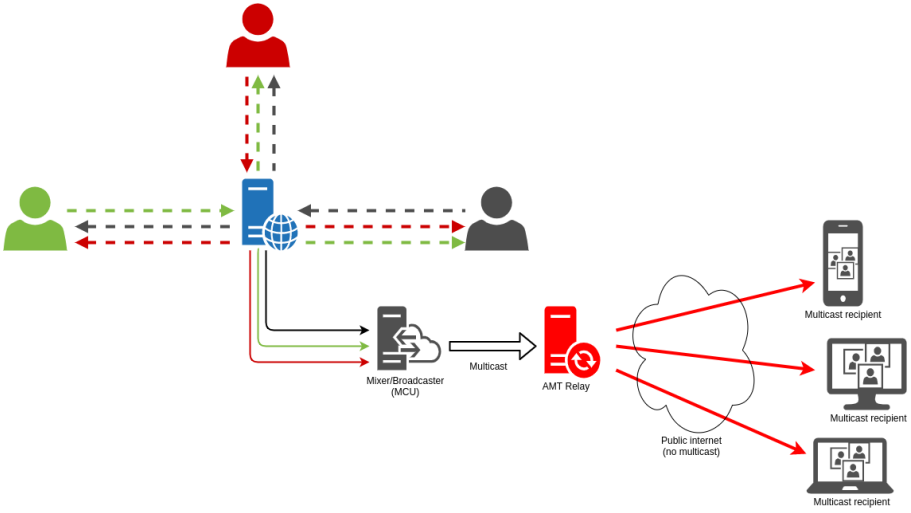


Broadcasting WGs via AMT?



More interesting things happening @ UniNA/CINI!

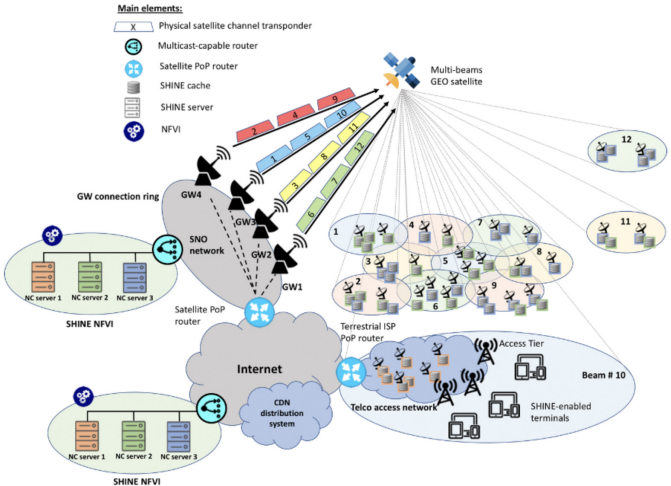


Figure 1: SHINE-enabling satellite multi-link service

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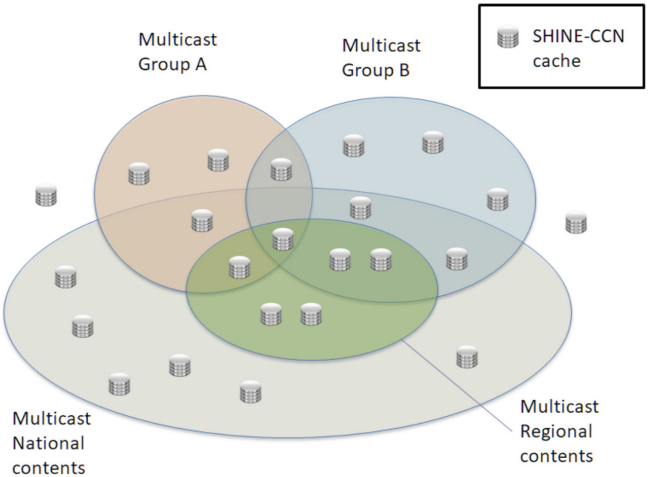
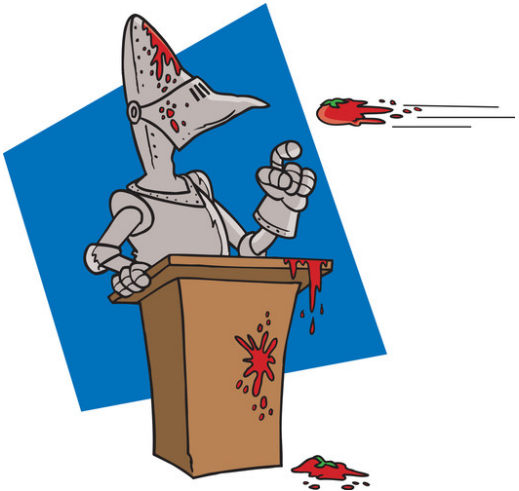


Figure 2: Multicast overlay

Thanks! Questions? Comments?