Software

Intel® Collaboration Suite for WebRTC Introduction

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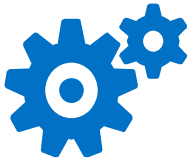
Intel® Collaboration Suite for WebRTC

Conference Server



- Full functional and scalable MCU server
- VP8/H.264 real-time transcoding and mixing
- Multi-streaming
- Intelligent QoS control
- Trickle-ICE

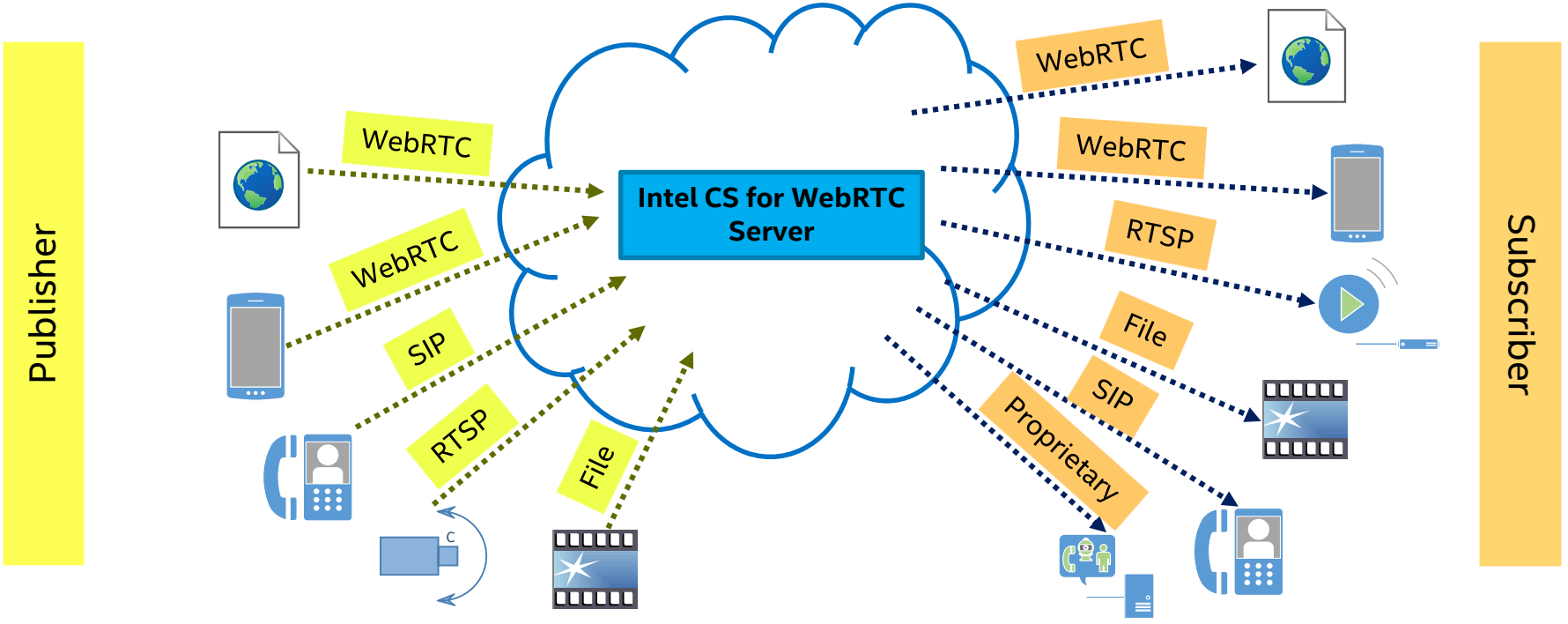
Gateway

- Multiple target RTC systems support, e.g., SIP-based IMS
- Protocol translation
- Codec transcoding
- Intelligent QoS control

Client SDK

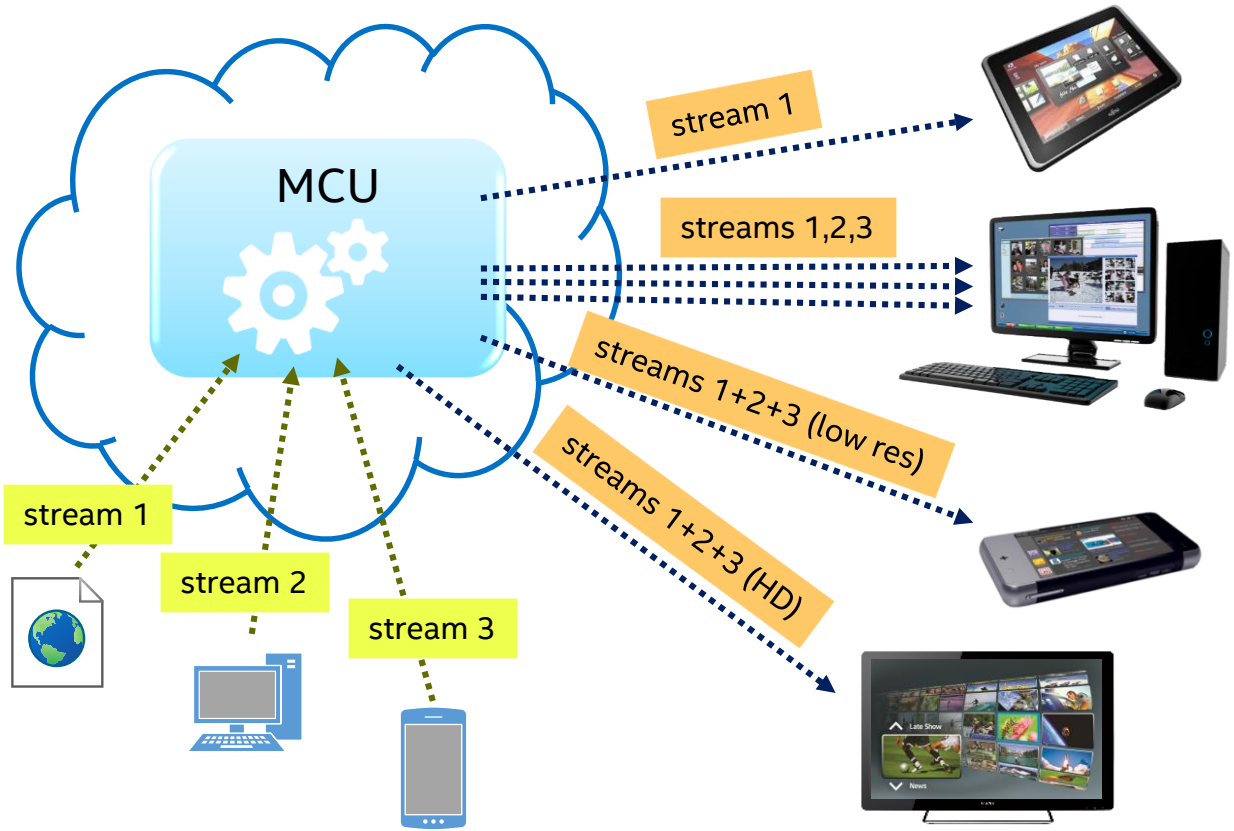
- Connections/Sessions
- Streams, Events, Controls
- JavaScript* SDK
- Android* native SDK
- iOS* native SDK
- Windows* native SDK
- Internet Explorer* plugin

Connecting Endpoints with Different Protocols



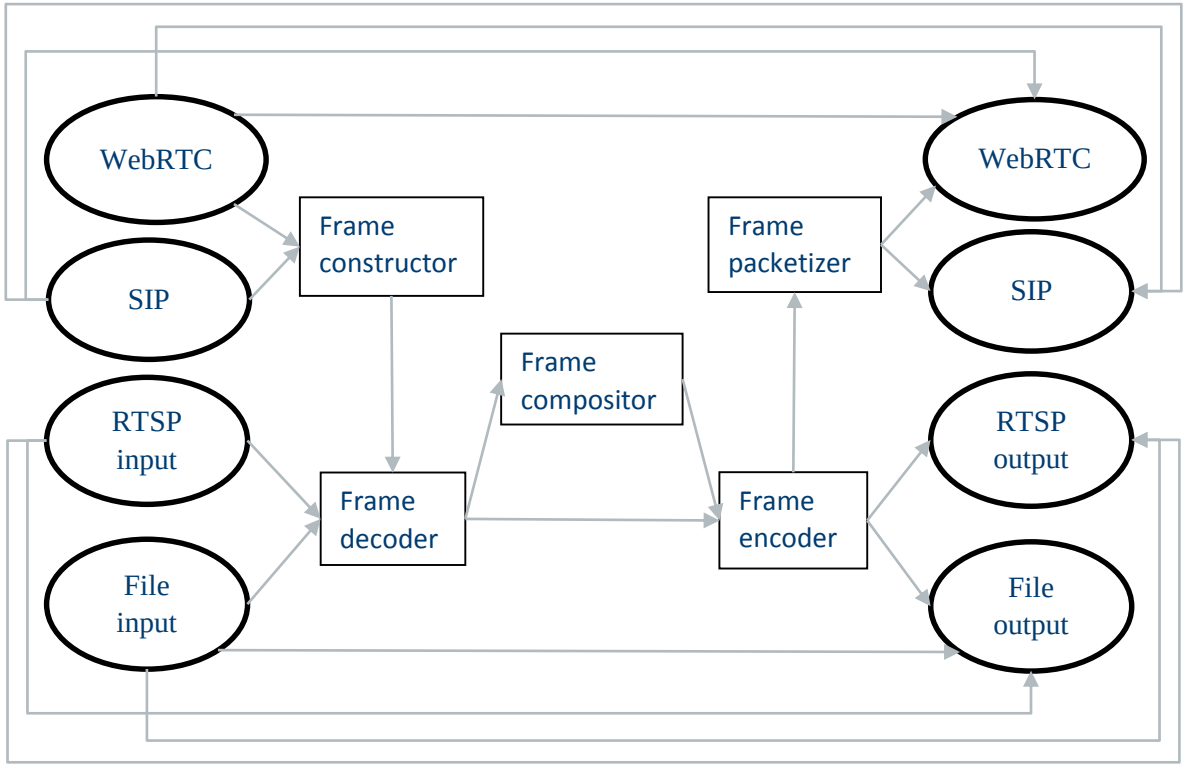
Allows communication between WebRTC endpoints and endpoints that use other protocols

Selective Forwarding and Mixing

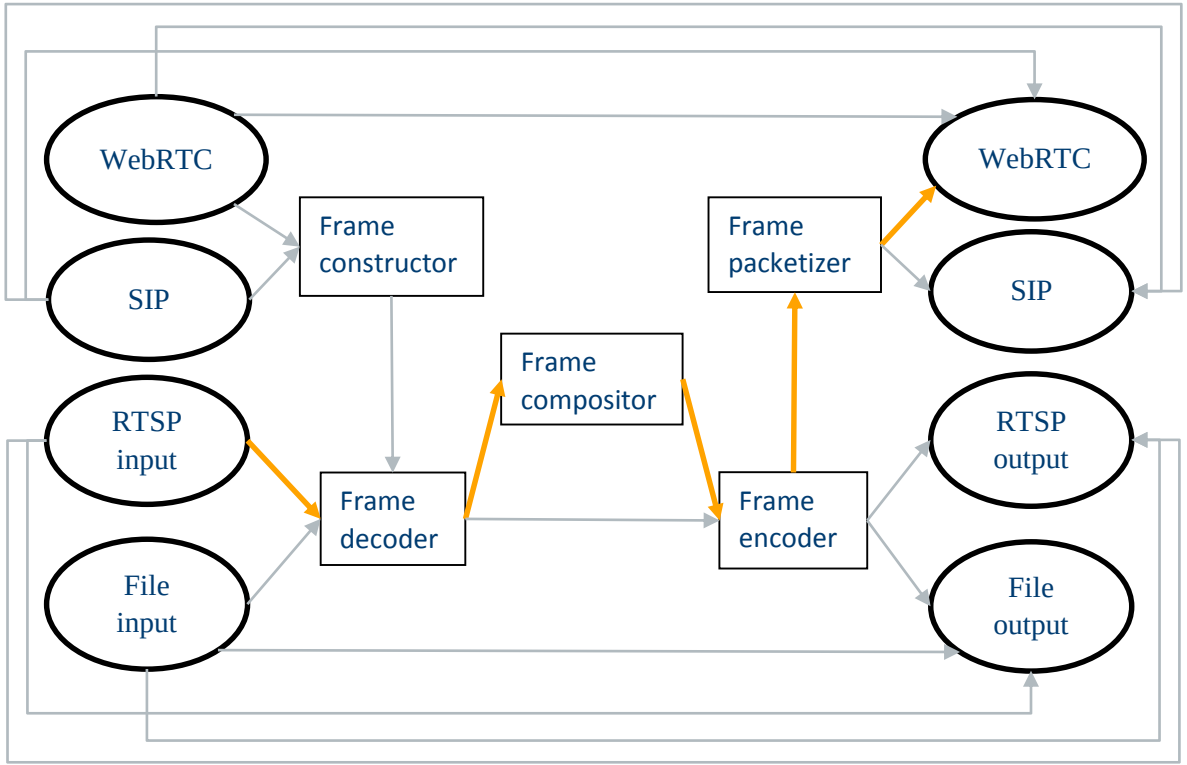


Client can receive either forwarded stream or mixed stream with different quality, depending on the device computing capability and network condition

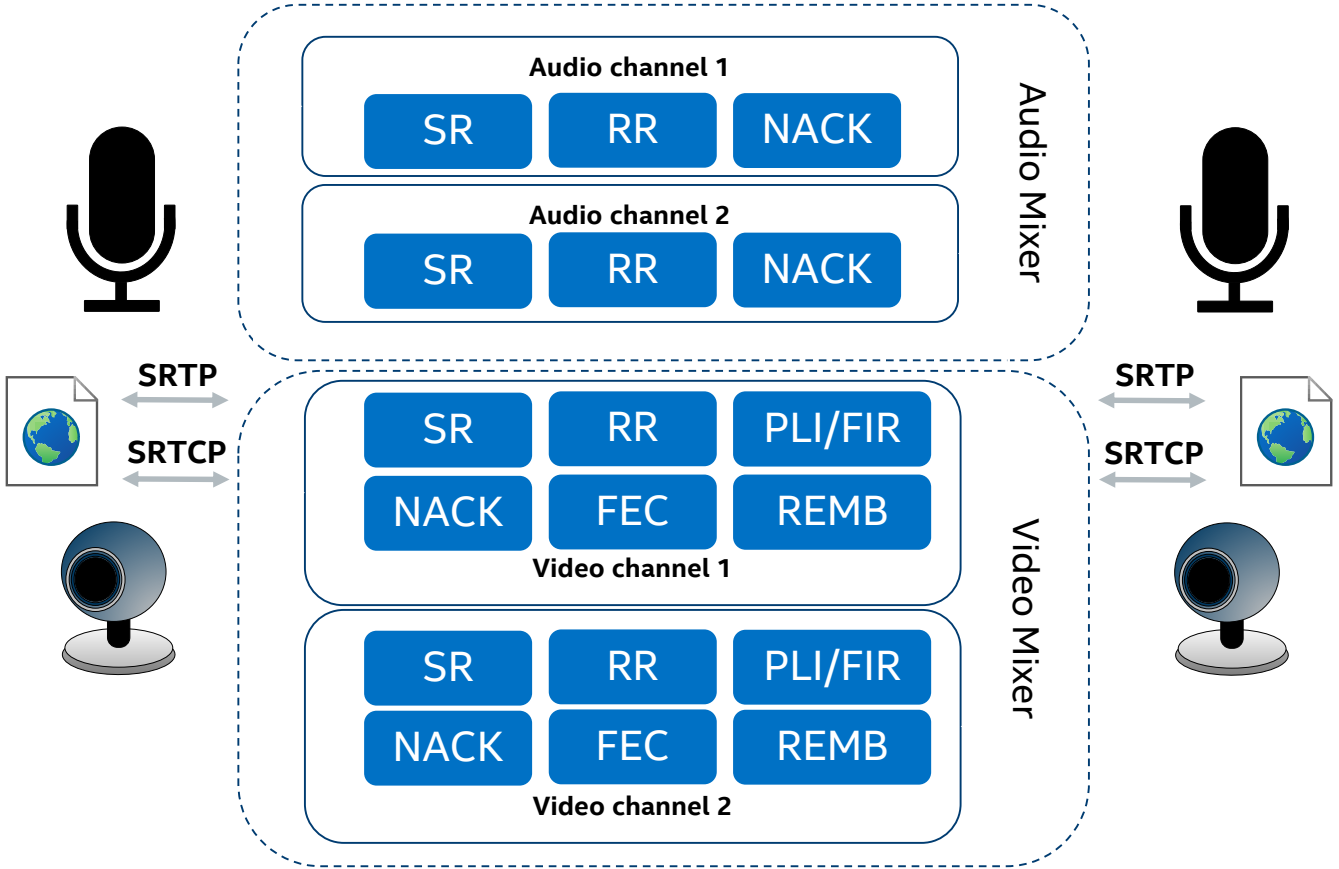
MCU Media Pipelines



MCU Media Pipelines

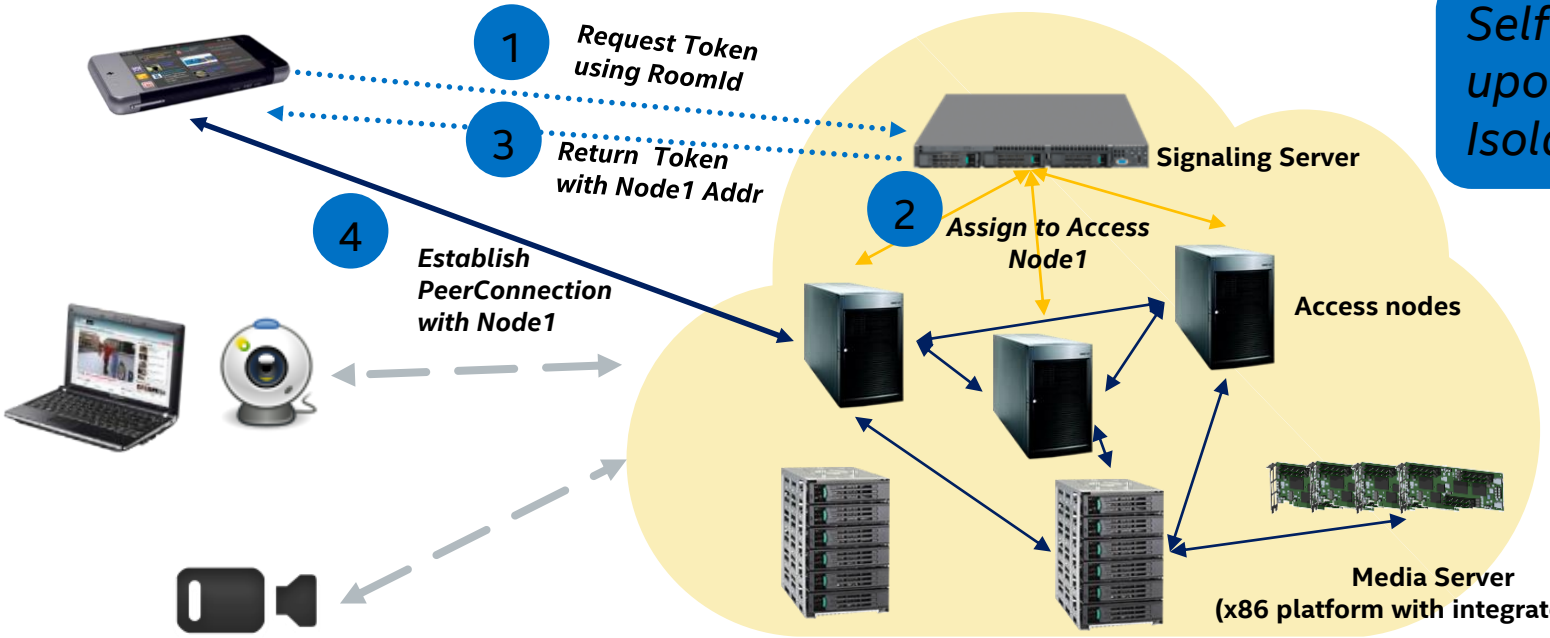


Adapting to Network



Packet loss protection and recovery A/V sync

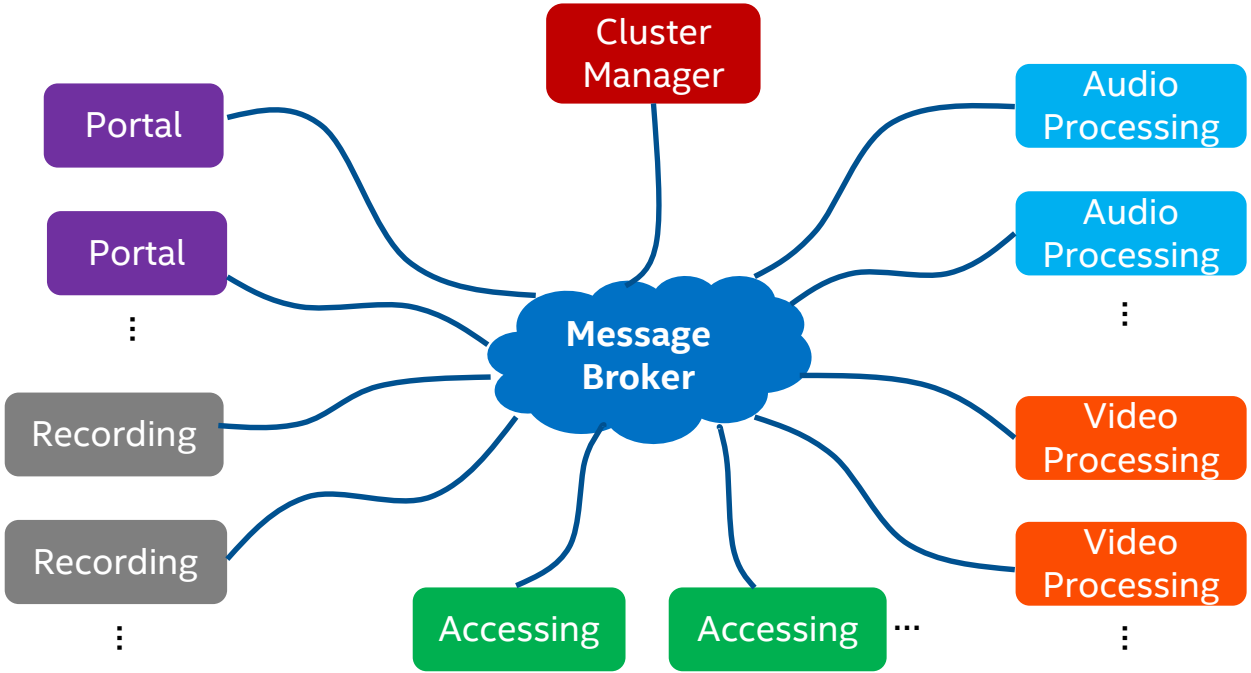
Providing High Availability Service with Distributed Scalable Architecture



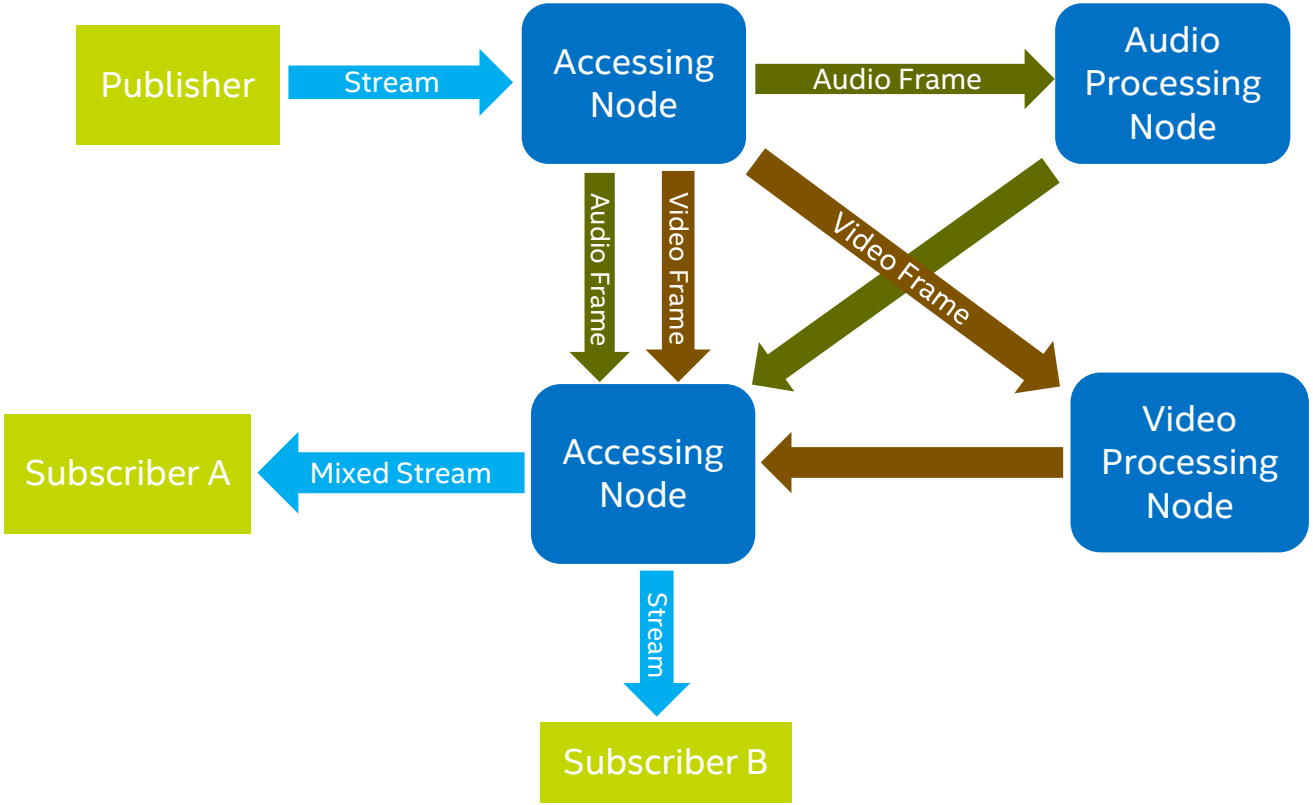
Self recovery upon failures Isolation

Distributed accessing allows endpoints at different locations/networks to connect to different servers

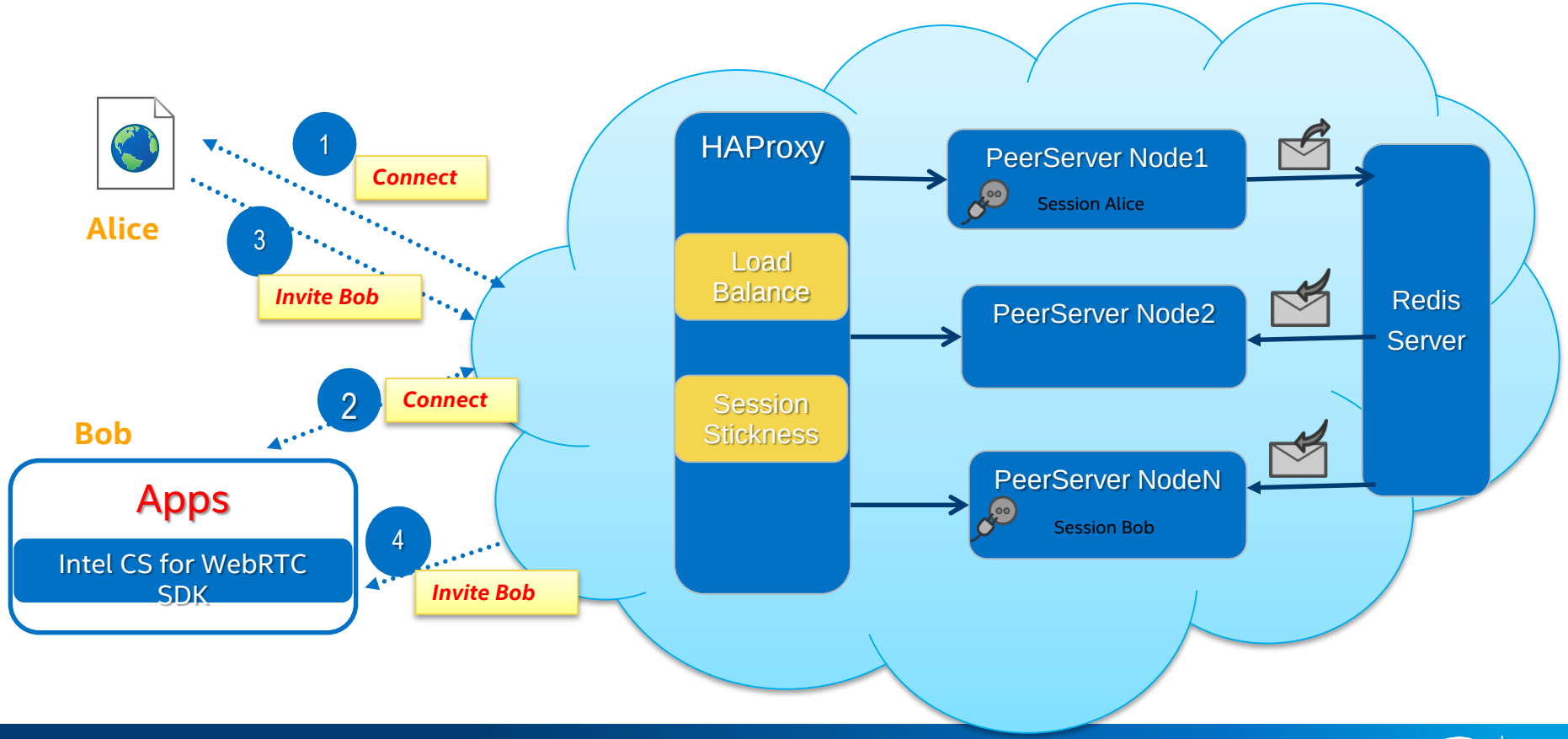
Control Messages in Distributed MCU



Media Stream Flow in Distributed MCU



Scaling out WebRTC signaling server



Leveraging Hardware Capability

X86 instructions to accelerate encryption/decryption

Media capturing and rendering optimizations on Intel® Architecture Android*/Windows*

Hardware accelerating video codecs

- Intel® Graphics or Intel® Visual Compute Accelerator in MCU server
- Client SDK running on Intel® processor-based devices

Hardware Codec	JavaScript*				Android SDK	Windows SDK	iOS* SDK
	Chrome*-Windows	Firefox*-Windows	Chrome-Android	Firefox-Android			
VP8 decode	√	-	√	√	√	√	-
VP8 encode	-	-	√	√	√	-	-
H.264 decode	-	-	N/A	√	√	√	√
H.264 encode	-	-	N/A	√	√	√	√

Intel® Visual Compute Accelerator Card

- Enables 4K HEVC Transcode
- 3x Intel® Xeon® processor E3 with Iris™ Pro Graphics
- 12x 2.9GHz Broadwell microarchitecture based cores with Intel® Advanced Vector Extensions 2 (Intel® AVX2)
- Up to 96GB of DDR3 memory
- Full Length, Full Height, Double-width Gen3 PCI Express* x16 Card
- Cent OS 7.1 on Host and VCA; Xen* and KVM supported
- Virtual Ethernet provides connectivity between card and host

- Brings Media Processing to existing Intel Xeon E5 infrastructure
  - Combines Intel Xeon processor E3 graphics capabilities with Intel Xeon processor E5 Compute Power
- Outstanding TCO (Price/Performance/Power) per Channel
  - Delivers real-time HEVC transcoding: low storage and network cost
- Flexible software architecture
  - Full access to integrated CPU & GPU for excellent quality/ performance

† Projected

H.264 Transcode 1080p 30fps	**†54x RT**
H.265 Transcode 1080p 30fps	**†6x RT**
H.265 Transcode 4K 30fps	**†1x RT**

Intel® CS for WebRTC Client SDK

	JavaScript	Android	iOS	Windows
Video/audio communication	√	√	√	√
Screen sharing	√	-	-	-
Data channel	√	√	√	-
P2P customized signaling	√	√	√	-
VP8 video codec	√	√	√	√
H.264 video codec	√*	√	√	√
NAT traversal	√	√	√	√
Media and network parameters control	√	√	√	√
Real-time connection status retrieval	√	√	-	-

*[1]conditional: only FireFox supports H.264;
Chrome 50 supports H.264 behind a flag

Getting Started with Client SDK

Similar APIs for JavaScript, Android and iOS SDKs

- Easy to get started; code samples are available
- Additional APIs for advanced features

```
var conference=Woogeen.ConferenceClient.create({});
conference.on('stream-added', function (event) {
  // subscribe remote stream or ignore
});
conference.join(token, function (resp) {
  conference.publish(localStream); });
```

```
ConferenceClient conf = new ConferenceClient(config);
// observer is an object which implemented the
// ConferenceClientObserver interface. You may override
// OnStreamAdded to subscribe remote streams.
conf.addObserver(observer);
conf.join(tokenString, new ActionCallback<User>(){
  @Override
  public void onSuccess(User myself) {
    conf.publish(localStream, option, callback);
  }
  ...  // Also handle onFailure  }
```

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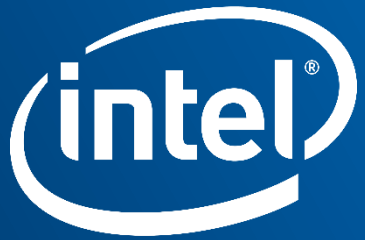

Software

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