

Real-time communication services infrastructure support

Task update & 4K support status

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Real-time communication services infrastructure support

GN2020 GN4-2 JRA4 T5

technical infrastructure support for real-time
communication services

Real-time communication services infrastructure support



Key elements:

Develop components for a technical infrastructure that interconnects real-time communication services.

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JRA4-T5 develops an underlying technical infrastructure, which:

- enables and interconnects a pan-European Web-RTC based set of real time communication and multimedia services and
- links these to traditional conferencing systems and infrastructures.

This includes:

- service verification
- unified dialing
- addressing
- directory harmonisation
- monitoring

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8 NRENs directly involved:



Cooperation:



Latin American Advanced Networks Cooperation
Argentina, Brazil, Colombia, Costa Rica, Chile, Ecuador, El Salvador, Guatemala, Mexico, Uruguay and Venezuela

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WebRTC / legacy VC:

- Mihály Mészáros - NIIFI
- Stefan Otto - UNINETT
- Carole Hounkonnou - RENATER

Monitoring / testing:

- Saša Davidović - CARNet
- Tobias Appel - DFN (BADW-LRZ)

Mobile solutions

- Lino Valdivia - RedIRIS (i2CAT)
- Luca De Cicco - GARR
(Politecnico de Bari)

Programming / development:

- Dariusz Janny (volunteer) - PSNC
- Piotr Skąlecki (volunteer) - PSNC
- Carole Hounkonnou - RENATER

Integration / testing / documents:

- Maciej Stróżyk - PSNC
- Sergiusz Zieliński - PSNC

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Key objectives:

- to provide the technical aspects of infrastructure for interconnecting a pan-European Web-RTC based set of real time communication and multimedia services
- to link these Web-RTC based set of services to traditional conferencing systems and infrastructures
- follow appropriate GN4-1 SA8T2 recommendations (roadmap report)

Provide a complete solution to end user:

- make one or more easy to use WebRTC desktop videoconferencing service available to all European R&E users through the GÉANT Cloud Catalogue
- closely track market developments for the WebRTC data channel as it has potential for interesting R&E use cases
- establish a GÉANT STUN/TURN pilot service to support WebRTC technology early adoption

Provide functional blocks for integrating by end users:

- continue to investigate the concept of, and possibilities for, a GÉANT Media API Service to facilitate low-cost, R&E domain-specific, contextual communication
- add a WebRTC-to-SIP and WebRTC-to-H323 gateway to the GÉANT cloud catalogue
- investigate the feasibility of establishing a GÉANT service that may act as a hub for key Unified Communication data

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Provide services to the community:

- GÉANT STUN/TURN service to support WebRTC technology early adoption (several locations)
- GÉANT WebRTC MCU
- WebRTC-to-SIP (and WebRTC-to-H323) gateway

Extend basic functionality:

- WebRTC infrastructure monitoring
- Testing engines
- Mobile WebRTC solutions

Follow-up previous tasks:

- eduCONF support + functional follow-up
- directories integration

Is WebRTC mature enough to support high resolutions?



Software

- Windows 10
- Firefox 48.0, 49.0
- Chrome 53

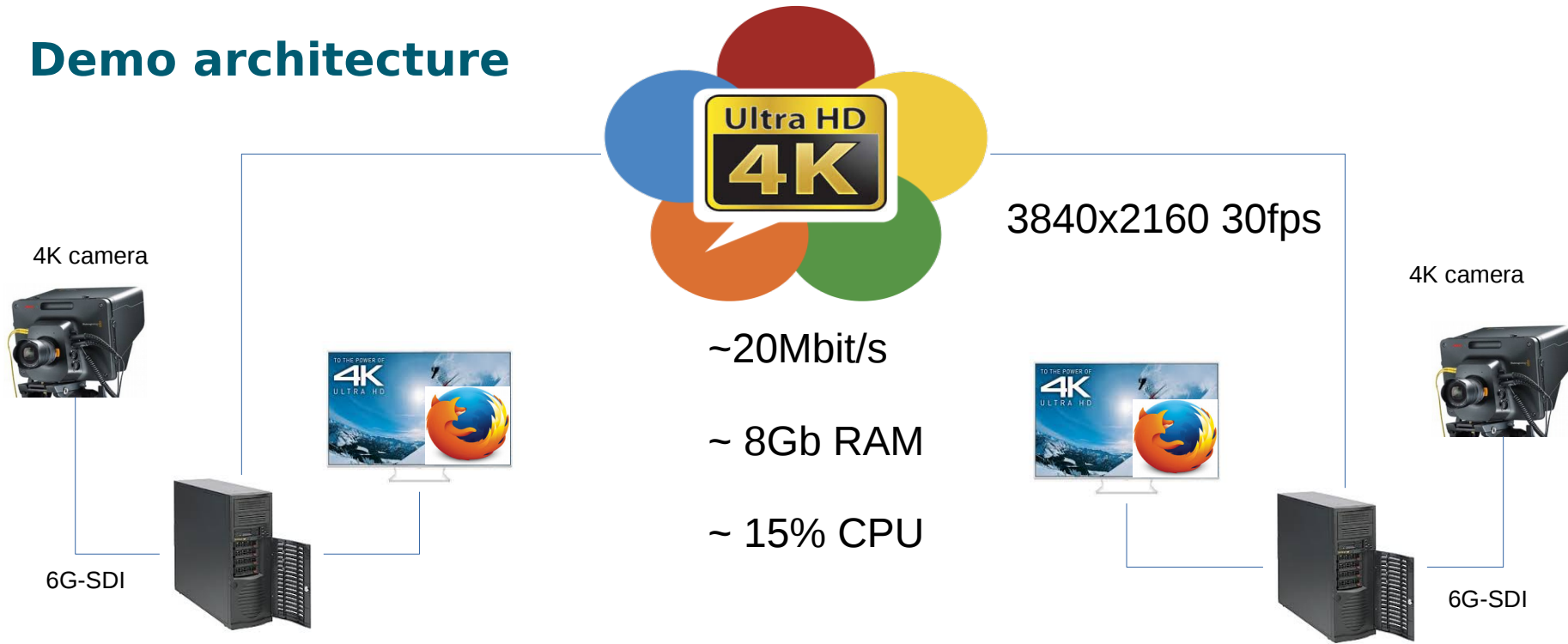


Hardware

- PC workstation (2x XEON E5-2687w)
- 4K ready graphics card (Nvidia 980GTX, M4000)
- 4K Blackmagic Studio Camera
- 4K Blackmagic DeckLink 4K Extreme capture card



Demo architecture



Browsers

- Firefox 48.0
 - Config modifications required:
 - `media.navigator.video.height - 2160`
 - `media.navigator.video.width - 3840`
 - Full support, bi-directional 4K connection (<https://appr.tc>)
- Firefox 49.0
 - Frozen Video, Crashes



Browsers

- Chrome 53
 - 4K video local preview in the browser with resolution constraints 3840x2160
 - 4K video is not sent



Codecs

- **VP8**
 - Firefox - preferred codec
 - Chrome - supported by default
- **VP9**
 - Chrome - preferred codec
 - Firefox - configuration modifications required:
 - `media.mediasource.webm.enabled - true`
 - `media.peerconnection.video.vp9_enabled - true`
- **H.264**
 - Firefox - supported by default
 - Chrome - supported by default

WebRTC applications

- Appr.tc
 - 4K support (used for demo)
- Appear.in
 - 4K support, some problems with grabbing 4K video (1 way connection tested)
- Rabb.it
 - 4K support, some problems with grabbing 4K video (1 way connection tested)
- Jitsi.org
 - 4K support (1 way connection tested)

4K WebRTC



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Thank you!

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