# *edumeet – easy and low cost VC for NRENs*

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# *WebRTC video-conferencing service for research, educational and art societies*

WebRTC

- Set of communications protocols and APIs
- Enables real-time communication over peer-to-peer connections
- Application examples: video conferencing, file transfer, chat, or desktop sharing without plugins

**Supported Browsers & Platforms**

Edge 

Chrome 

Firefox 

Opera 

Android 

iOS 

Safari 

## Design assumptions

- Introduce to NRENs a **complete, alternate service** to commercial solutions
- Develop technical **infrastructure** and **components** for open WebRTC services
- Provide open-source **service** for research, educational and art societies
- Simplify real-time communication and introduce **web browser based tools**

## Historical view

- **GN4-2**
  - T4 – European tender for VC commercial services
  - T5 – development of own, cost effective and simple service
- **GN4-3**
  - PLM processes, alpha → beta → production
  - Promotion and dissemination
  - Involvement in related standards
  - Service support & new features development

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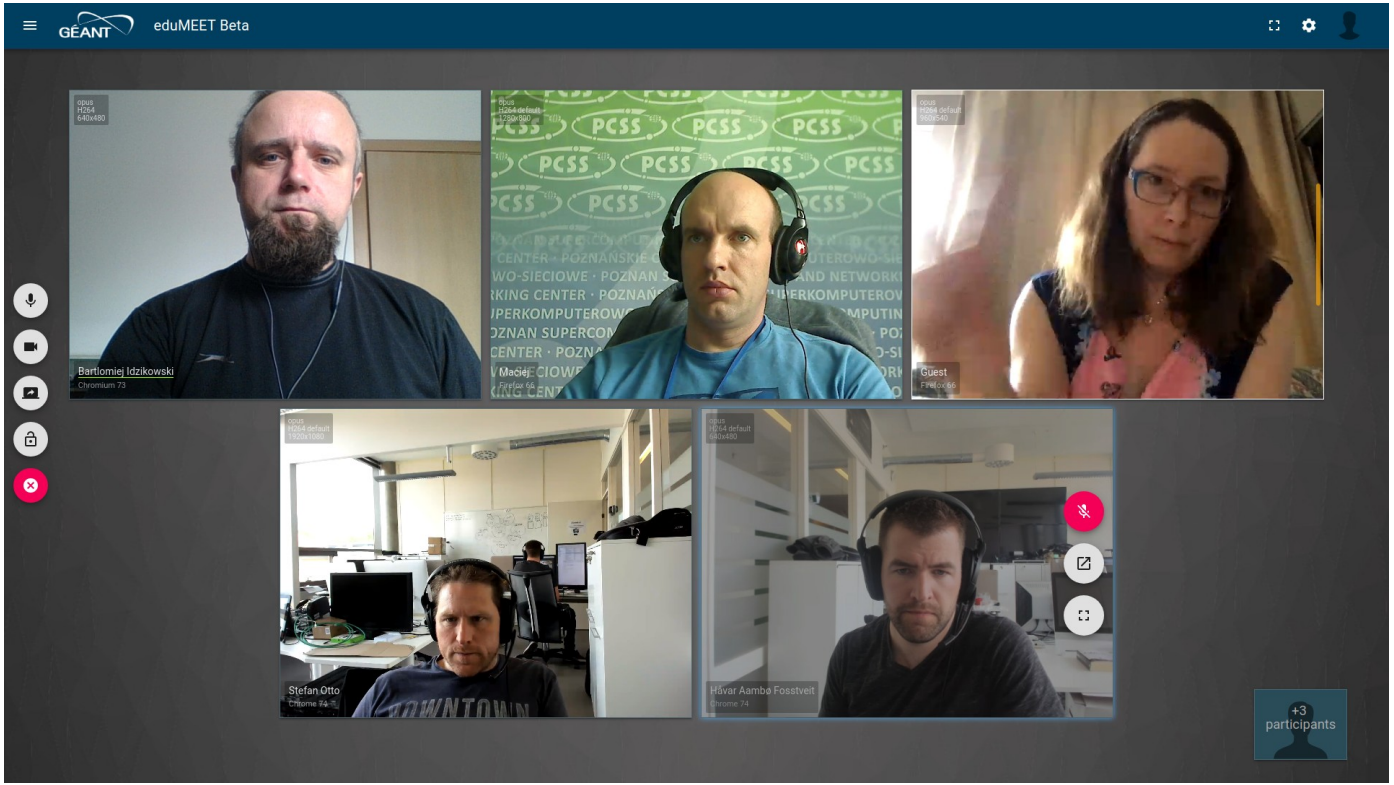
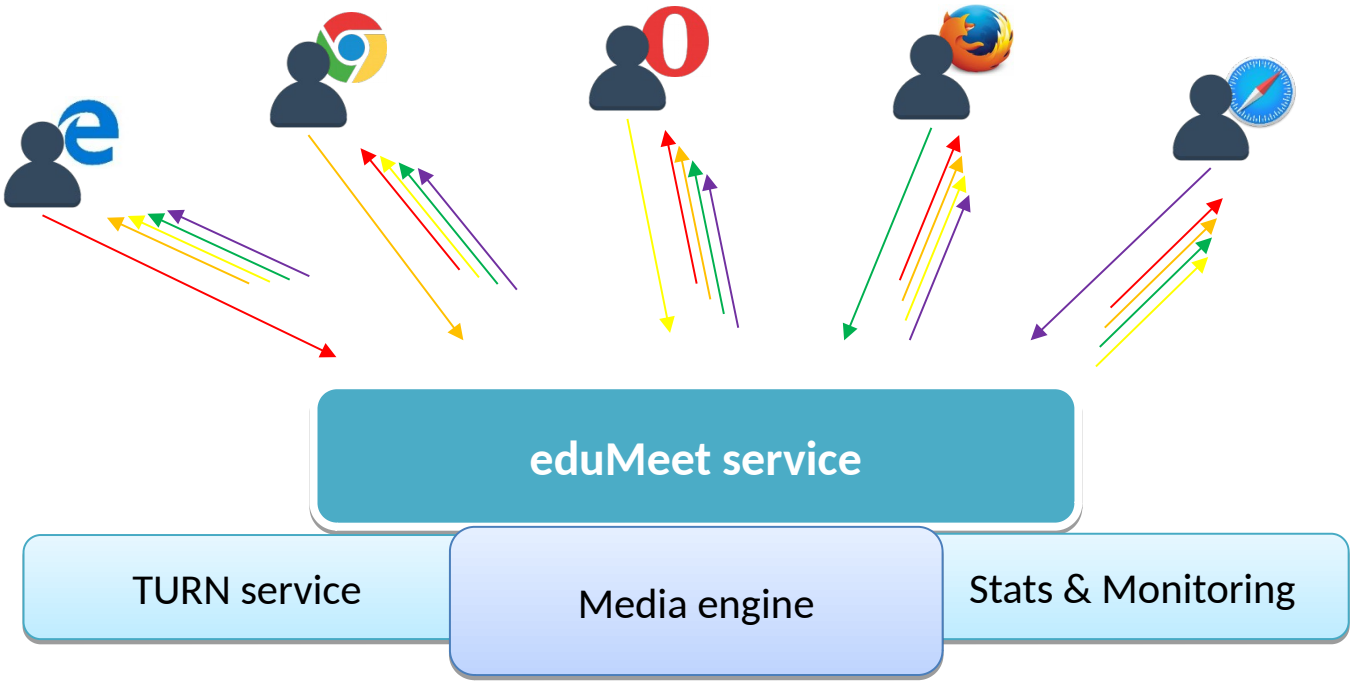


## Architecture overview



## Service overview

- Scalable for educational scenarios
- WebRTC-based VC client and server backend
- Runs in a web browser
- No need to install clients or plugins
- VC service support infrastructure – back-end
  - NAT and firewall traversal
  - Monitoring

## Functional features

- Audio–video communication
- Screen sharing
- Chat and file sharing
- Federated login, including eduGAIN

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- Locking room
- Raise hand
- Pop-out window with stream from one of participants
- Local audio and video devices management
- High resolution support (tested up to 4K)
- WebRTC – SIP gateway

## Distinguishing features

- Open source, created by research society for research society
- Security – no spy-ware, external recorders, chat analyzers, …
- Keeping traffic in GÉANT network
- Deployment scenarios:
  - Docker/Ansible
  - Hosted
- Distributed TURN service located in research network

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**Roadmap**

- Session recording
- Streaming for very big audiences
- Room control: Claim, lock, kick-out, lobby
- Securing access to the room by password / eduGAIN
- Identity verification by eduGAIN
- Privacy mode with direct media and data connection between participants
- Integrations into other systems
- Admin API- and web-frontend
- Redundancy / horizontal scaling
- Investigate new research and technical areas, including modern AV technologies (as 360deg., 3D, VR or AR)

# Thank you!

Get the code: https://github.com/havfo/multiparty-meeting

Try it: https://letsmeet.no

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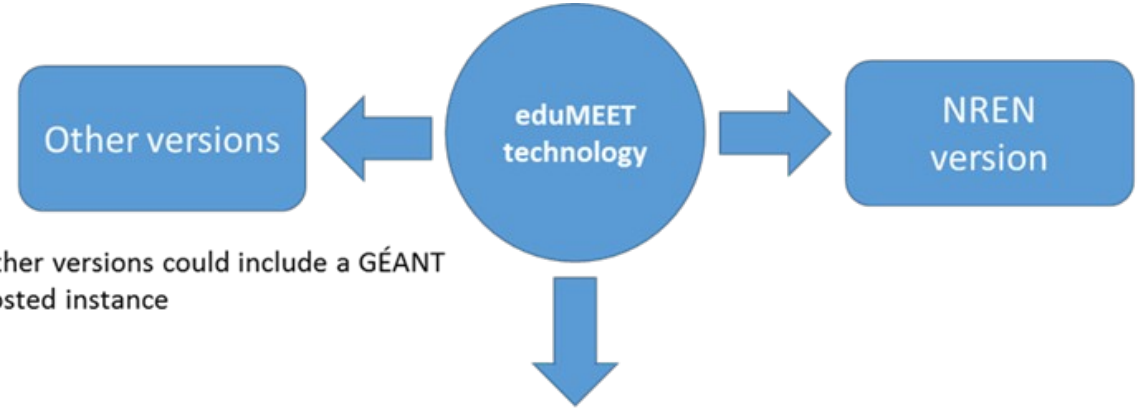
## Service instance types




- Other versions could include a GÉANT hosted instance

- Installed nationally
- Local branding e.g. https://letsmeet.no
- Maintained by the NREN

- The service delivered by GÉANT being;
  - Software
  - Instructions
  - Best practice (GDPR)

- Installed in GÉANT for Project members
- Maintained by the GÉANT
- An easy way to increase awareness

## Distributed TURN service

- Pilot implementation of federated, distributed STUN/TURN infrastructure
- Based on co-turn: open source implementation of TURN
- Traversing NAT, packet filters and firewall obstacles
- Routing traffic inside the GÉANT and NRENs' networks
- Not limited to VC services
- Nodes located in 10 countries, 2 other locations are pending

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## Monitoring, statistics and testing

- Another set of services supporting eduMEET
- Central instance of Munin for monitoring purposes
- Engines for gathering anonymized statistics from browsers
- Testing infrastructure based on the Selenium platform, to automate test procedures with headless browsers

## Roadmap

- extend the service and it's applicability via reaching out the community
- foster GÉANT's service eduMEET in order to make it common, known and recognizable in similar level to eduGAIN and eduroam
- promote the service for both on-prem and cloud installations
- search for new edu and research services – to implement WebRTC as their main, built-in communication channel;
- continue integration with legacy VC systems;

## Potential scopes of collaboration:

- **common scenarios**
- **common testing**
- **common infrastructure**
- **share your needs and ideas**
- **meetings and conferences support**
  (TNC case – for remote speakers)

## We will support your VC nodes in a long term!

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**5 NRENs directly involved in current development and pilot phase:**







**Cooperation:**

# Thank you!

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