

# Telemersive Toolkit

Exchange Multi Media Streams for  
Distributed Networked Performance Installations

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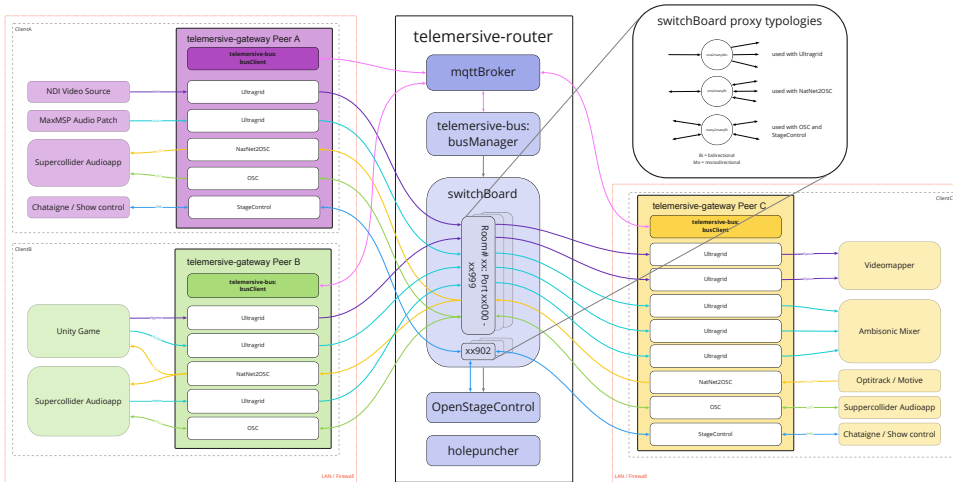
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**Overview:** The Telemersive Toolkit (TTkit) enables artists and educators to establish complex, low-latency multimedia streaming infrastructures between multiple computers via networks. It simplifies the setup process, allowing non-technical users to create streaming environments without reconfiguring local network infrastructure.



## Key Features:

- **Intuitive User Interface (Gateway):** Easy network setup and real-time status display of all streams (video, audio, motion tracking, control data).
- **Cross-Network Compatibility:** Connects computers across different network configurations.
- **Centralized Control:** Monitor and configure streaming setups of all Gateways on the network from any connected Gateway.

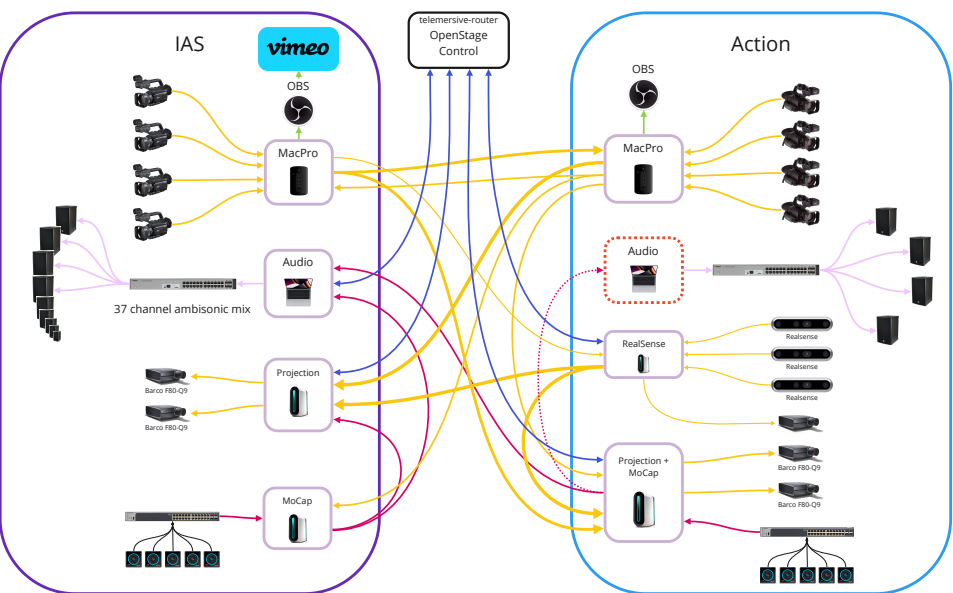


## Router:

- **mqttBroker:** Backbone for telemersive-bus, coordinating peers and router.
- **busManager:** Manages room lifecycle, connected to mqttBroker.
- **switchBoard:** Python script managing proxy relay-stations, accessed via REST-API.
- **OpenStageControl:** Web-based control surface for room management.
- **holepuncher:** Assists UltraGrid devices in establishing peer-to-peer connections.

## Room Lifecycle:

- **Creates** and manages rooms with unique room numbers and port assignments.
- **Initiates** and removes UDP proxies and OpenStageControl instances as needed.
- **Checks** peer connectivity regularly and performs housekeeping.



## Use Case: Osmosis Project

### Scenography:

Highlighted asymmetry between telematically connected spaces.

### Setup:

- Multiple MacPro and Windows machines with video, audio and OBS streaming.
- Optitrack Mocap systems and dynamic projection mapping.
- Loudspeaker array for Ambisonic rendering.

### Outcome:

Smooth video reception, robust performance, easy management of

- 31 video,
- 4 mocap, and
- 4 OSC streams.

<https://github.com/telemersion>