Architecture

Logical Topology
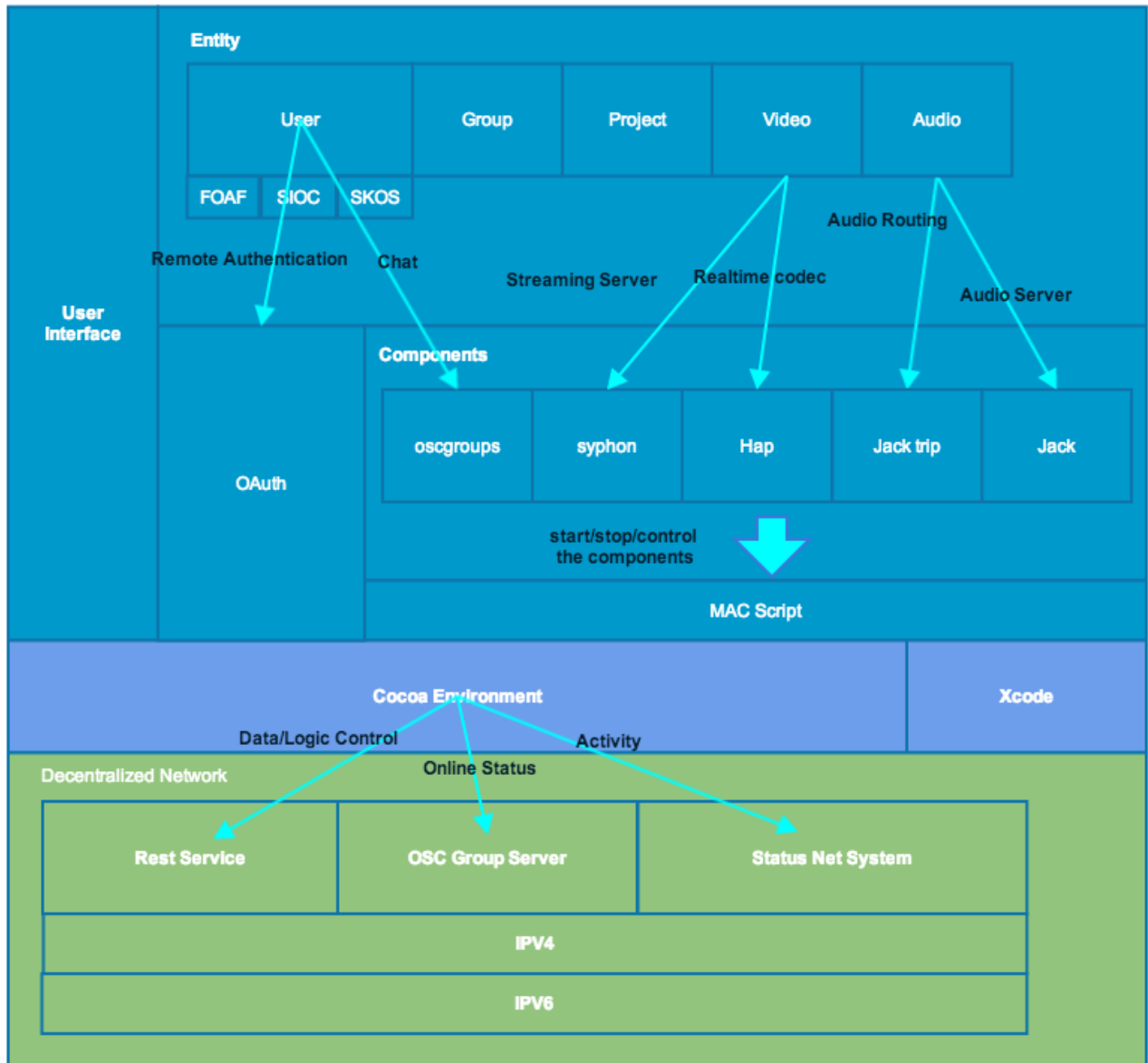
Decentralized Server Physical Topology

**Other Artsmesh
Network**

OAuth

OAuth

Server 1

Server 2

RestService,
OSCGroupServer,
StatusNetServer

OAuth

Network CCOM

Network Ucalgary
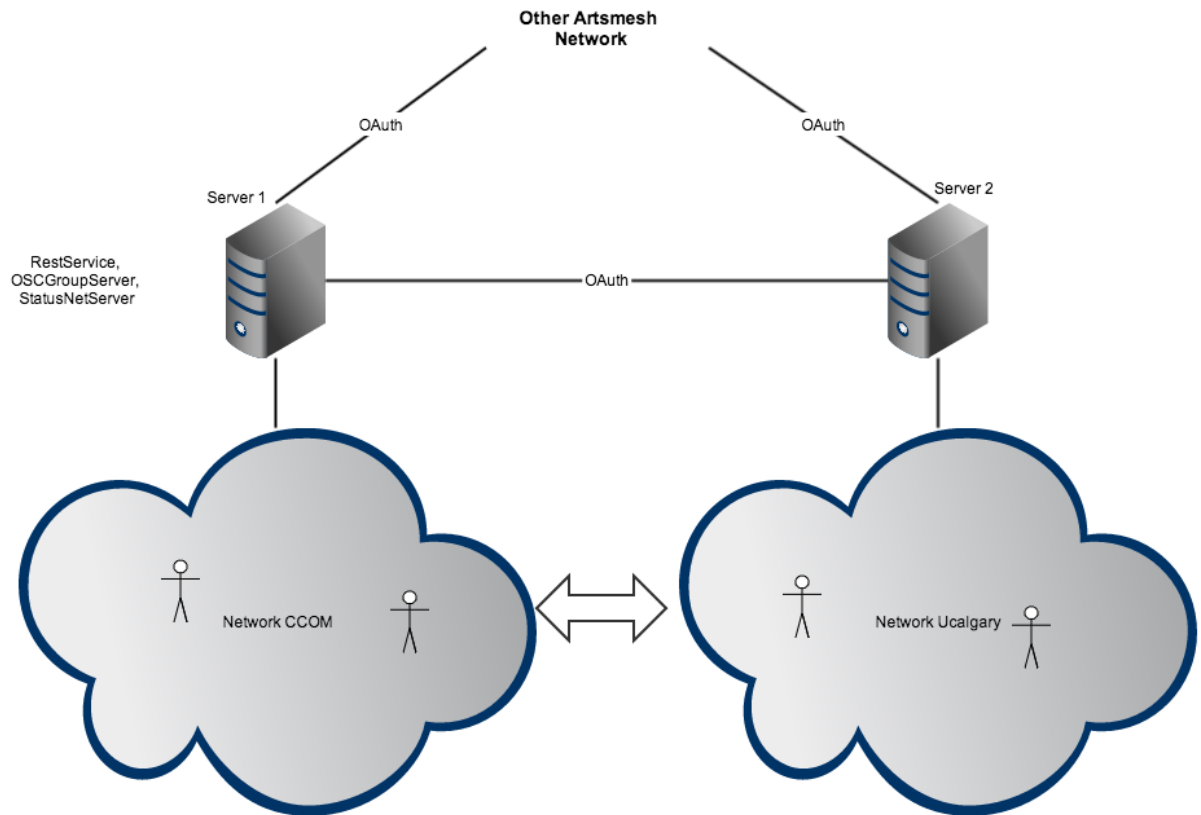
Entity Relationship
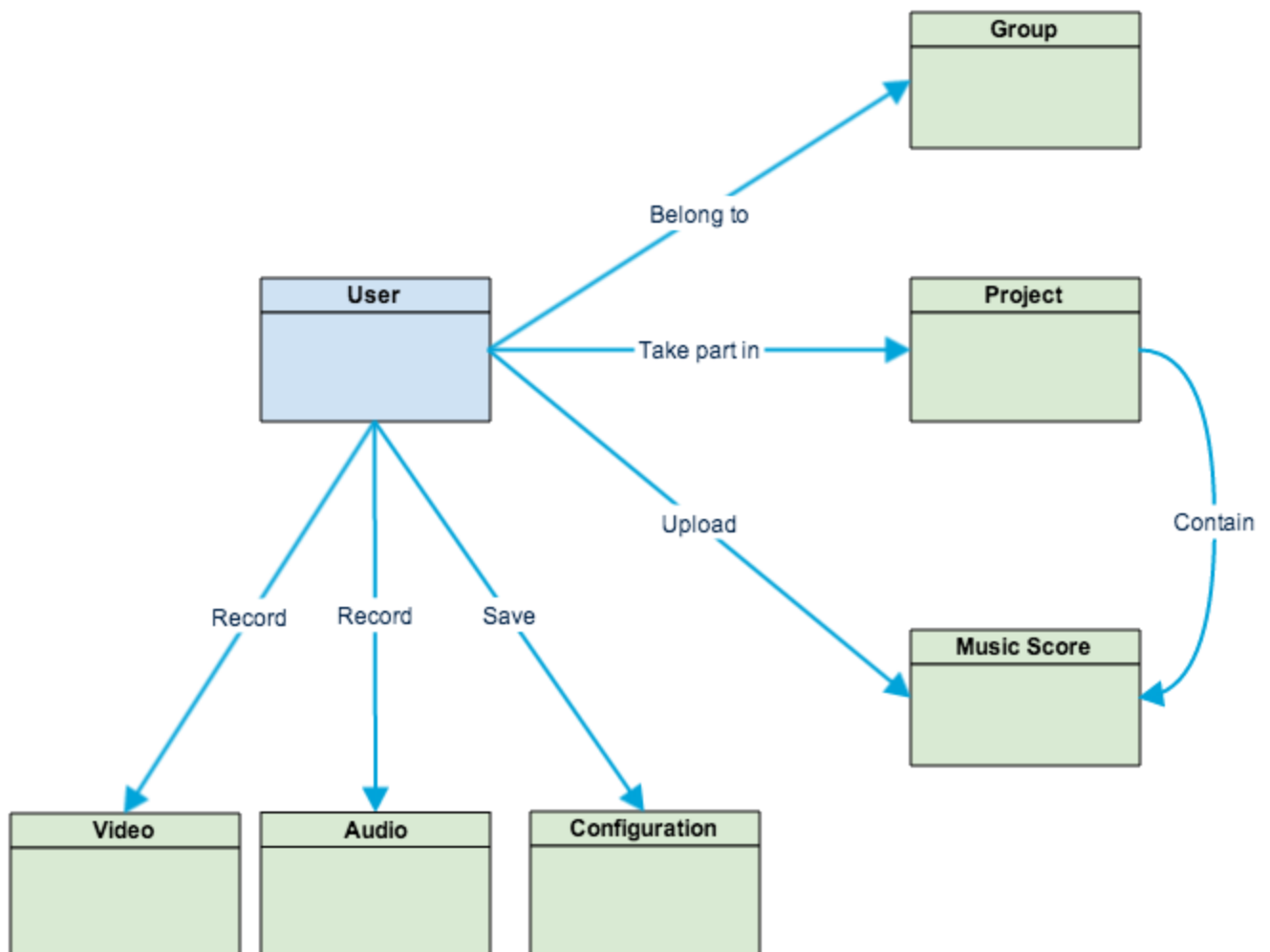
Data Model

SIOC

SIOC provides methods for interconnecting discussion methods such as blogs, forums and mailing lists to each other. It consists of the SIOC ontology, an open-standard machine readable format for expressing the information contained both explicitly and implicitly in Internet discussion methods, of SIOC metadata producers for a number of popular blogging platforms and content management systems, and of storage and browsing/searching systems for leveraging this SIOC data.

Refer to:http://en.wikipedia.org/wiki/Semantically-Interlinked_Online_Communities

SKOS

is a W3C recommendation designed for representation of thesauri, classification schemes, taxonomies, subject-heading systems, or any other type of structured controlled vocabulary. SKOS is part of the Semantic Web family of standards built upon RDF and RDFS, and its main objective is to enable easy publication and use of such vocabularies as linked data.
Refer to:http://en.wikipedia.org/wiki/SKOS

FOAF

FOAF (an acronym of Friend of a friend) is a machine-readable ontology describing persons, their activities and their relations to other people and objects. Anyone can use FOAF to describe him- or herself. FOAF allows groups of people to describe social networks without the need for a centralised database.
Refer to:http://en.wikipedia.org/wiki/FOAF_(ontology)

Components

Hap
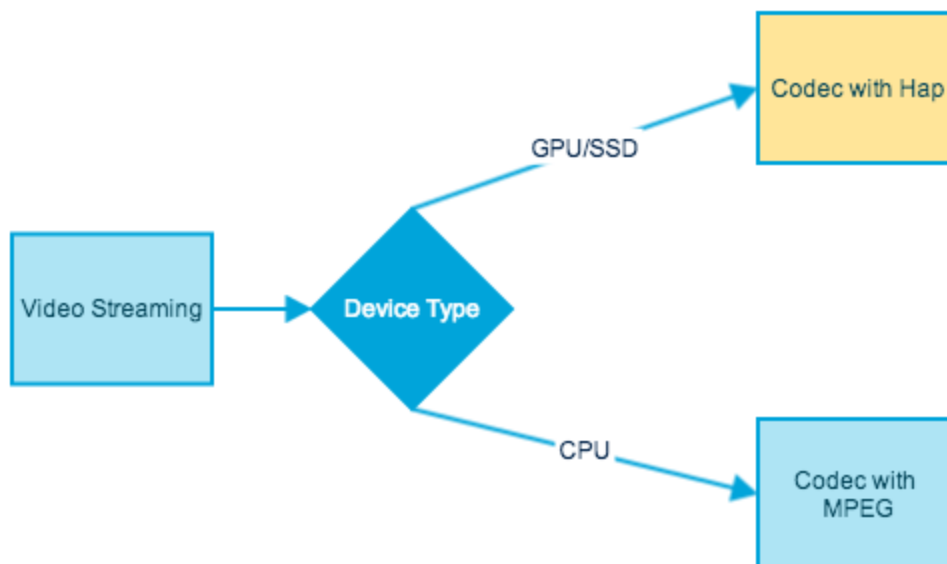
Hap is a video codec that performs decompression using a computer's graphics hardware, substantially reducing the CPU usage necessary to play video — this is useful in situations where CPU power is a limiting factor, such as when working with multiple high resolution videos in real-time.
Refer to: https://github.com/vidvox/hap, http://vdmx.vidvox.net/blog/hap

Jack

Jack (the Jack Audio Connection Kit) is a low-latency audio server, written originally for the GNU/Linux operating system, and now with Mac OS X support. It can connect any number of different applications to a single hardware audio device; it also allows applications to send and

receive audio to and from each other.
Refer to : http://jackaudio.org/

JackTrip

JackTrip A System for High-Quality Audio Network Performance over the Internet. JackTrip is a Linux and Mac OS X-based system used for multi-machine network performance over the Internet. It supports any number of channels (as many as the computer/network can handle) of bidirectional, high quality, uncompressed audio signal steaming.
Refer to: https://ccrma.stanford.edu/groups/soundwire/software/jacktrip/class_jack_trip.html

OSCGroups
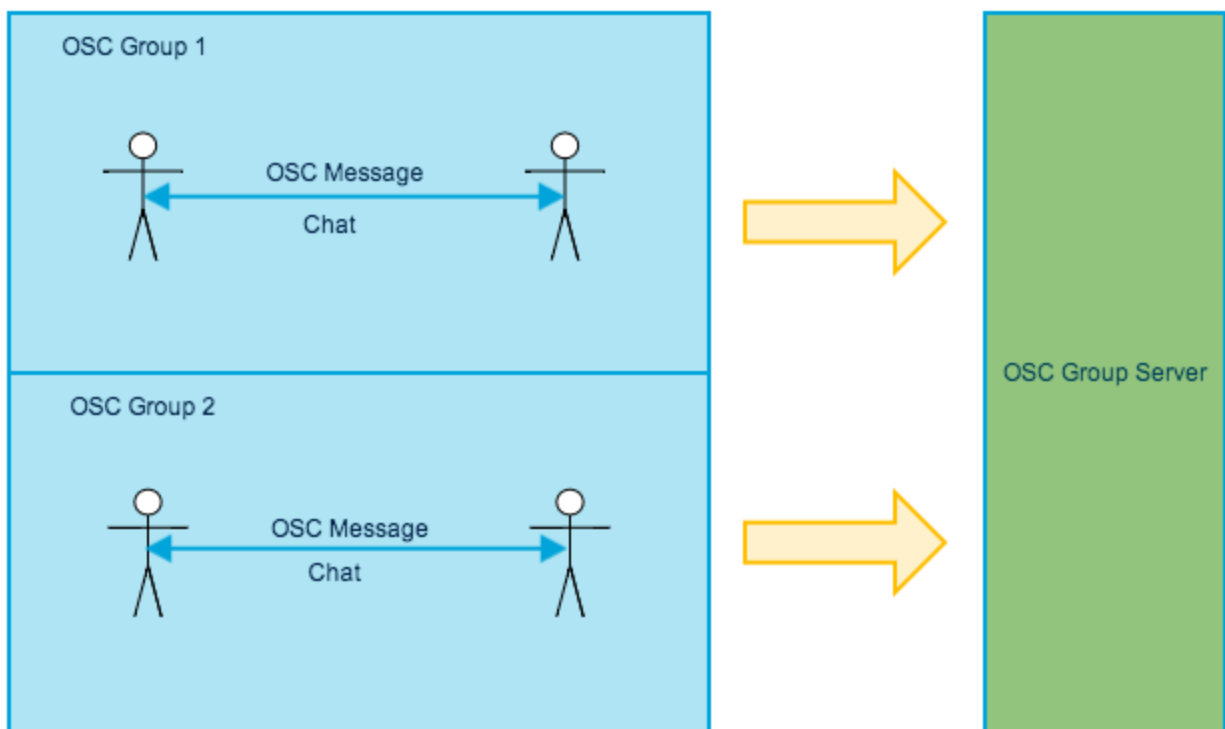
OSCgroups is a system for routing OSC messages between a group of collaborating users. It is designed to make joining and leaving a group simple, and to overcome the problem of connecting multiple users behind different NAT routers using a NAT traversal server with the usual "NAT hole punching" scheme (you can put that into google for more info). OSCgroups also implements basic group functionality similar to the concept of channels in internet relay chat.
Refer to:http://www.rossbencina.com/code/oscgroups

Syphon Server
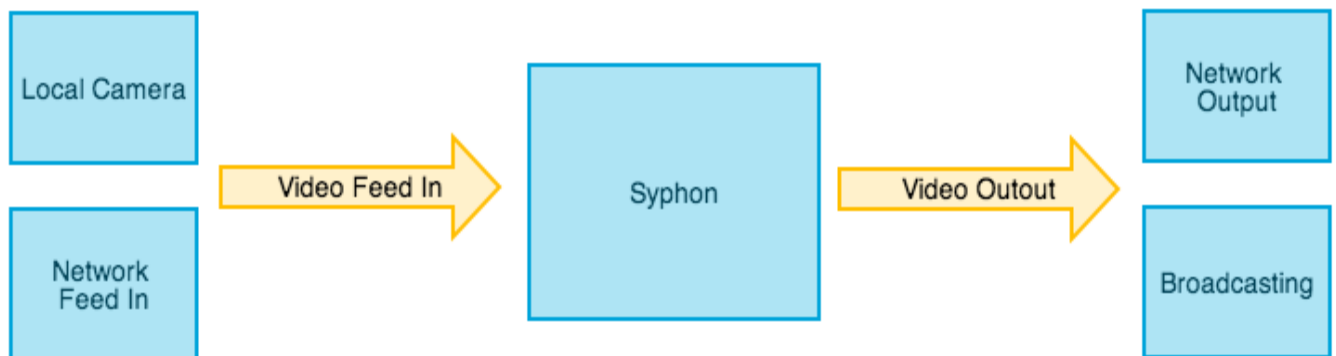
Syphon is an open source Mac OS X technology that allows applications to share frames - full frame rate video or stills - with one another in real time. Now you can leverage the expressive power of a plethora of tools to mix, mash, edit, sample, texture-map, synthesize, and present your imagery using the best tool for each part of the job. Syphon gives you flexibility to break out of single-app solutions and mix creative applications to suit your needs.
Refer to: http://syphon.v002.info/

Environment

Cocoa

Cocoa is a set of object-oriented frameworks that provides a runtime environment for applications running in OS X and iOS. Cocoa is the preeminent application environment for OS X and the only application environment for iOS.
Cocoa is Apple's native object-oriented application programming interface (API) for the OS X operating system.
Refer to: What is Cocoa, http://en.wikipedia.org/wiki/Cocoa_(API), Cocoa Framework

Xcode

Xcode is an integrated development environment(IDE) containing a suite of software development tools developed by Apple for developing software for OS X and iOS.
The Xcode provides everything developers need to create great apps for Mac, iPhone, iPad, and iPod touch. It's tightly integrated with the Cocoa and Cocoa Touch frameworks, creating a productive and intuitive development environment that is powerful enough to be used by Apple to produce OS X and iOS.
Refer to: http://en.wikipedia.org/wiki/Xcode, Xcode Tools

Decentralized Network

OAuth
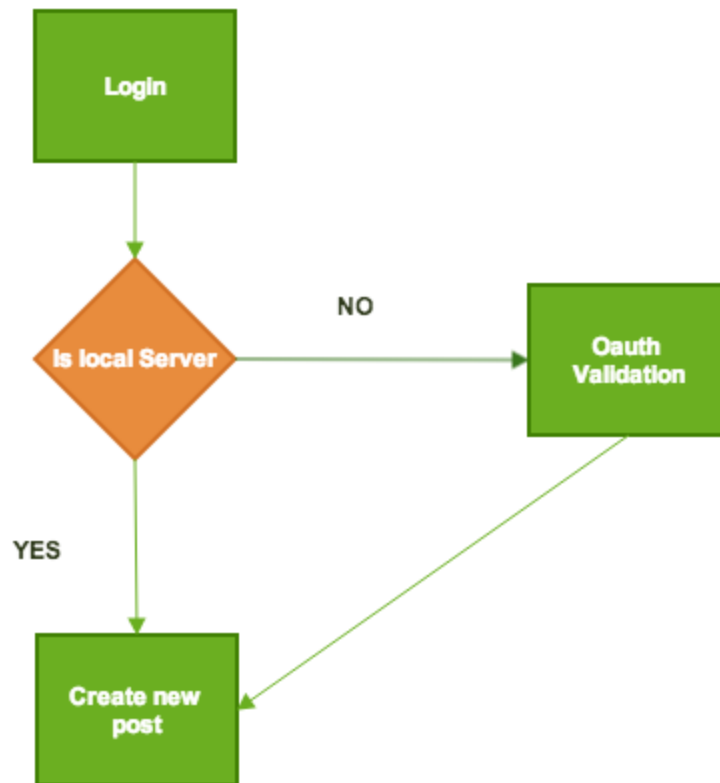
An open protocol to allow secure authorization in a simple and standard method from web, mobile and desktop applications.

OAuth provides a method for clients to access server resources on behalf of a resource owner (such as a different client or an end-user). It also provides a process for end-users to authorize third-party access to their server resources without sharing their credentials (typically, a username and password pair), using user-agent redirections.

Refer to: http://oauth.net/, http://en.wikipedia.org/wiki/OAuth

Rest Service

The REST architectural style was developed by W3C Technical Architecture Group (TAG) in parallel with HTTP/1.1, based on the existing design of HTTP/1.0. The World Wide Web represents the largest implementation of a system conforming to the REST architectural style.

Refer to: http://en.wikipedia.org/wiki/Representational_state_transfer

OSC Group Server

OSC group server is used to host the osc group ,which can bridge users' with IPV4 and ipv6 addresses and get their online status.

Status Net System

StatusNet is a FOSS microblogging server written in PHP that implements the OStatus standard for interoperation between installations. While offering functionality similar to Twitter, StatusNet seeks to provide the potential for open, inter-service and distributed communications between microblogging communities. Enterprises and individuals can install and control their own services and data.

Refer to: http://status.net/, http://en.wikipedia.org/wiki/StatusNet

Function

Account Management

User can modify account FOAF information, join and quit group ,set up ,join and quit project.

Video Management

User can config and route video.

Audio Management

User can config and route audio.

OSC Message Management

User can view OSC message diagram.

Streaming Management

User can view other player location.
User can view media stream relationship diagram.
User can import and save media stream configuration.

Configuration Management

User can check the server On/Off status and turn on/off server.
User can do all kind of configuration on the server, such as jack,oscgroup server ,syphon server configuration.

Chat

User can chat with each other.

Broadcast Video Streaming

User can broadcast compressed video streaming,
from local camera ,syphon server or other feed in to any video output.

Server Check Tools

User can use some tool such as ipref, ping, TraceRoute to check the Server's status.

Music Score Sharing

User can upload ,download and share music score in project.