

AR WAVE Federation protocol

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Aim

- Need an “open” protocol to facilitate server-to-server exchange of geolocated data
- Much of the discussion and developments in AR to date has focused on platforms for a few publishers to distribute geolocated data to the masses
- Little consideration has been given for an AR equivalent of e-mail or for the social exchange of information between select groups

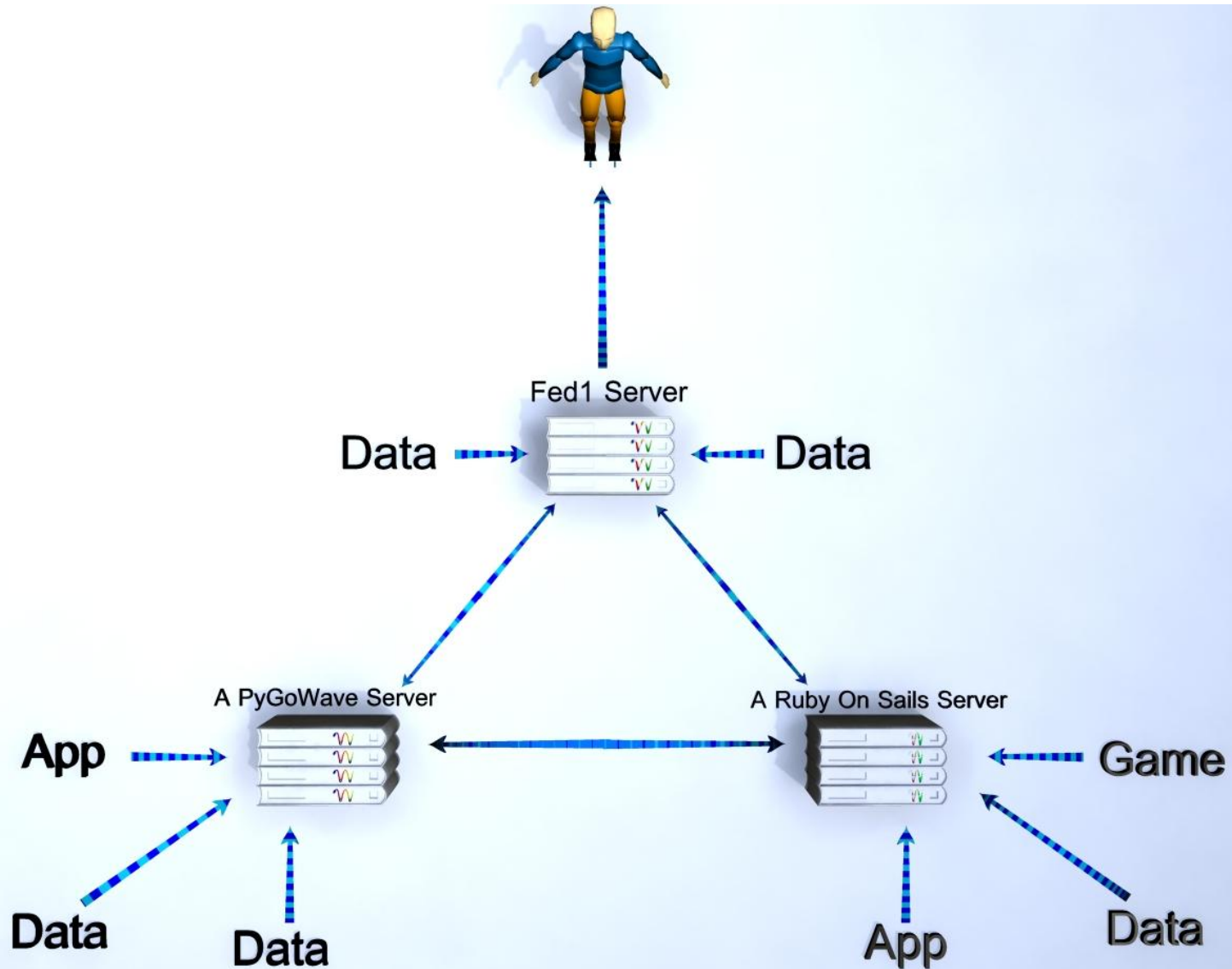
WAVE Federation Protocol (WFP)

- Why use WAVE?
 - Wave is a federated decentralized system. It allows anyone to share content between just a few people *without* all them having to depend on the same 3rd-party server.
 - Without an open server-to-server standard such as WFP, there is a danger of a single dominating company emerging to do this task, such as we have seen with social networking sites on the web today.

WAVE (cont.)

- What is WAVE?
 - WAVE is a system that aggregates content into a list of streams of information for the user.
 - Traditional Web is pull based (?)
 - WAVE by comparison would let clients automatically download nearby data from the WAVES the user has subscribed too.
 - Scalable: anyone can make a WAVE-server and join the federation

Nuts and bolts of WAVE



WAVE positioning format example

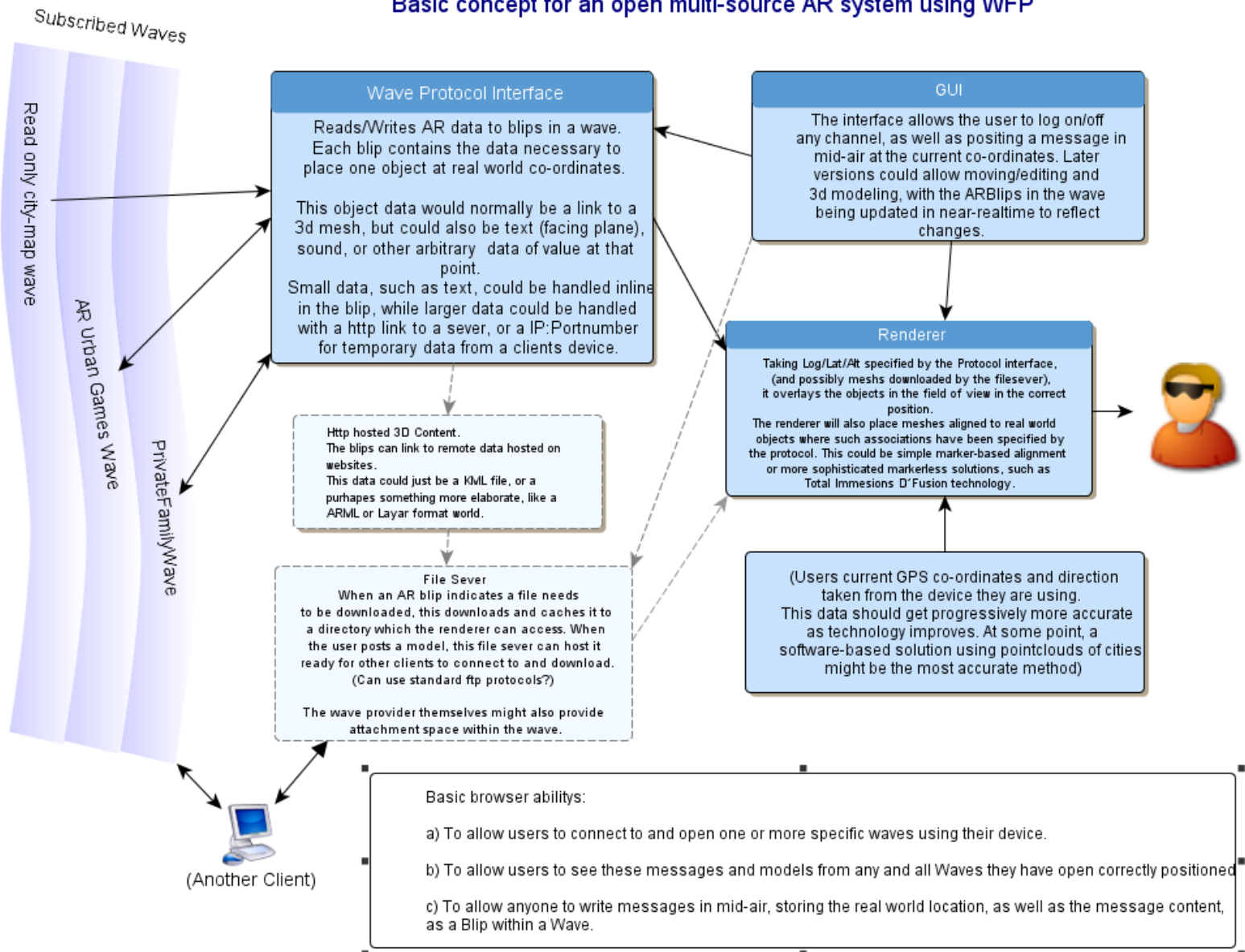
- WAVE is a proposal for how to exchange the positioning information; not a specification for what data is being positioned.

WAVE positioning format

Key	Value Description
Log Lat Alt	'double' type numerical values specifying Longitude, Latitude and Altitude to position the data. Alternatively, a single number+offset could be used if this proves more practical.
Roll	degrees of rotation around the front to back (z) axis. (Lean left or right.)
Pitch	degrees of rotation around the left to right (x) axis. (tilt up or down, aka elevation)
Yaw	degrees of rotation around the vertical (y) axis. (relative to magnetic north, aka bearing)
Data Reference Link	Instead of a fixed position specified by the above, data can be positioned by an image specified here. The image orientation determines its position and rotation in space. If both a numerical position and a image-link is specified, then the position is considered as a offset to the tracked image.
Co-ordinate System	A string specifying the co-ordinate standard used for the above.
Data MIMEType	The MIME type of the data linked too. (the data is not necessary 3d-mesh, but could be sound, text, markup etc)
Data / Data URI	This link could be a normal static IP-hosted http-server but could also be a IP & port-number pointing to temporarily hosted data on a client.
DataUpdateTimestamp	The last time the linked data was updated.
Metadata	Metadata could be a single string field of descriptive tags, or (more usefully) a separate set of key/value pairs with a common starting pattern to help form a more detailed semantic description of the object linked too.

Example of a WAVE AR client

Basic concept for an open multi-source AR system using WFP



Examples

