Accessibility

aka a11y

VWRAP in two sentences:

This protocol is intended to carry information about the virtual world: its shape, its residents and manipulatable objects existing inside the world. The objective of the protocol is to define an extensible set of messages for carrying state and state change information between hosts participating in the simulation of the virtual world.

VWRAP for a11y in two sentences:

This protocol is intended to carry information about the virtual world in such a way that messages about its shape, residents, and manipulatable objects existing inside the world are accessible to clients which display information to an end user through multiple means of representation. In addition, each aspect of the protocol shall be able to have all its capabilities accessed using multiple forms of hardware & software control and input.

protocol affects accessibility

- a11y encourages multi-modality, meaning that information is delivered in as many formats as possible; protocol has to understand this.
- a11y may require additional information to be delivered over the protocol to satisfy this need
- example: HTML alt attributes in image tags provide information in both text and image format

universal usability

- "universal usability" describes a best practice in software a11y
- coined by Ben Shneiderman, University of Maryland College Park
- universal usability has three major parts:
    1. Supporting a broad range of hardware, software, and network access (this is directly the concern of protocol developers)
    2. Accommodating individual differences among users (this is a user agent concern)
    3. Bridging the knowledge gap between what users know and what they need to know about a specific system (this is left to individual client developers and "first hour" experience work)
- <u>multi-layer designs</u> are the most promising approach to achieving universal usability. when a single design cannot accommodate all use cases, multiple versions should be available.

universal usability

- using universal usability instead of traditional models of accessibility allows us to design the protocol with hooks for many different types of users including: mobile users, users with reduced bandwidth, users who do not speak the language our platform was created in
- **thinking about the constraints imposed by varying ways to access technology can allow us to think more broadly about building robust support for a wide range of different types of use cases.**

protocol can encourage a11y

- handling mandatory a11y oriented meta-data could force implementers to at least think about it, even if the answer is "we're not handling it."
- if a11y oriented meta-data is defined and available, it decreases the cost of making a client accessible.
- current accessible SL/OpenSim clients all depend on good faith by builders to label objects in world in descriptive ways or on fully-sighted third parties to go around describing them using a special HUD
- accessibility cannot be dependent on people being "good citizens" (this is like saying that you'll carry people in wheelchairs up steps); we have to architect to make it easy, possible, and likely that people will do the right thing.

going beyond protocol

- a protocol can't or shouldn't mandate client rendering decisions.
- but client accessibility guidelines will tell protocol developers what's needed in the protocol.
- the community has enough experience with Second Life, OpenSim and others to make concrete guidelines: many users have built hacks to provide accessibility - we need to provides stronger protocol support for these.
- there is precedent for this - W3C WAI has a11y guidelines for use of the markup language, and a11y guidelines for user agents which are used directly by humans.
- **the protocol, language, and user agent are separated, but accessibility is thought about throughout the information lifecycle - a cross-cutting concern**

the big question

- who does this work?

- does the IETF currently have the expertise?

- what about W3C WAI?

- how about independent experts who publish informational RFCs on the subject?