Cable Beach and VWRAP

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What is Cable Beach?

• Researching the next steps in virtual world scalability

• How will the introduction of more virtual worlds and larger virtual worlds impact content, identity, and service deployment?

• How can we keep innovating without starting over every few years?
What was the purpose?

- Many similar worlds with common protocols are appearing, but no interoperability

- The barrier to entry for running a virtual world is too high

- Innovation is difficult without a way to connect different services or introduce new services
The vision

• Millions of independent virtual worlds
  – Many will join common trust domains or subscribe to trust brokers, many will remain completely independent

• Moving between worlds as seamlessly as possible
  – Federated identity, service delegation

• Sharing services between worlds
Why a separate project?

- Originally unclear whether the projects had common goals

- Keep the research flexible. Provide input to VWRAP without setting the direction

- The opportunity to start from scratch
The project history

• Cable Beach Asset Server
• Cable Beach Grid Services
• Cable Beach Core 1.0
• realXtend’s Naali/Taiga
• MMOX -> OGPX -> VWRAP
Lessons learned: assets

• Lots of data, caching is critical, has access control list requirements

• This is a content distribution network, we can leverage existing solutions

• How do we design the rest of the system to work well with existing solutions?
Lessons learned: inventory

• If assets are blocks of data, the inventory service provides inodes

• By moving all of the mutable metadata for assets into the inventory layer you open the door to immutable content optimizations

• It’s difficult to separate the data and the inodes into separate trust domains when there are access restrictions
Lessons learned: identity

• Virtual world identity is a rich set of data
  – Name and profile
  – Avatar appearance
  – Presence

• Federated identity is only one piece of the puzzle

• Service delegation gets us closer to the goal
Lessons learned: cross-domain services

- World administrators need policy controls over what services can and can’t be used in their worlds

- Users need the ability to bring their own preferred services (if the destination world allows it)

- Tying preferred services to identity is a natural fit for the current direction of VWRAP

- OAuth WRAP was the best match for our requirements
Implementing LLSD/LLIDL

• LLSD is relatively easy to implement and provides a useful type system on top of loosely structured (JSONish) data

• Pruning out default values and using JSON or binary encoding produces reasonably efficient serializations

• LLIDL seems mostly useful as a human-readable interface description language and possibly in unit testing. Is there a use case where this would be deployed in production services?
Implementing web authentication

• Moving authentication from the rich client to the web simplifies the implementation
  – Supporting OAuth, CAPTCHAs, Terms of Service agreements, etc. with a rich client is possible, but not preferable for prototyping

• We invented the cablebeach:// URI for testing, the VWRAP launch document replaces this

• Best practices for OAuth logins are still being fleshed out by the web community
Implementing OGPX (VWRAP)

• I built a region domain in C# to better understand the OGP drafts and test the Snowglobe implementation

• Even with OGP drafts, the spec is not complete enough to implement

• VWRAP documentation needs an overhaul. Aggregate the current docs and prune outdated information
Merging Cable Beach and VWRAP

• The Cable Beach research project is now entirely folded into VWRAP development efforts

• Working with the Open Metaverse Foundation and OpenSim community to build a new virtual world backend: SimianGrid

• The existing Cable Beach code and region domain implementation are being ported to SimianGrid
The new platform: SimianGrid

- A set of virtual world backend services written in PHP. Natively supported in the latest OpenSim
- Implements the Second Life / OpenSim model of providing centralized agent domain services to a grid of simulators
- Generic enough to support simulators other than OpenSim (originally tested with Simian)
- Currently in beta grid deployments, ironing out bugs
- A good candidate for a VWRAP region domain implementation
SimianGrid needs developers!

• Initial development has focused on reducing the barrier to entry for developers
  – Open Metaverse Foundation project. BSD licensed
  – Widely used language (PHP) with few external dependencies
  – Complete API documentation
  – Small but active developer community

• VWRAP is flexible. We need to prioritize which policy controls and deployment patterns are supported first

http://openmetaverse.googlecode.com/
#vwrap on Freenode