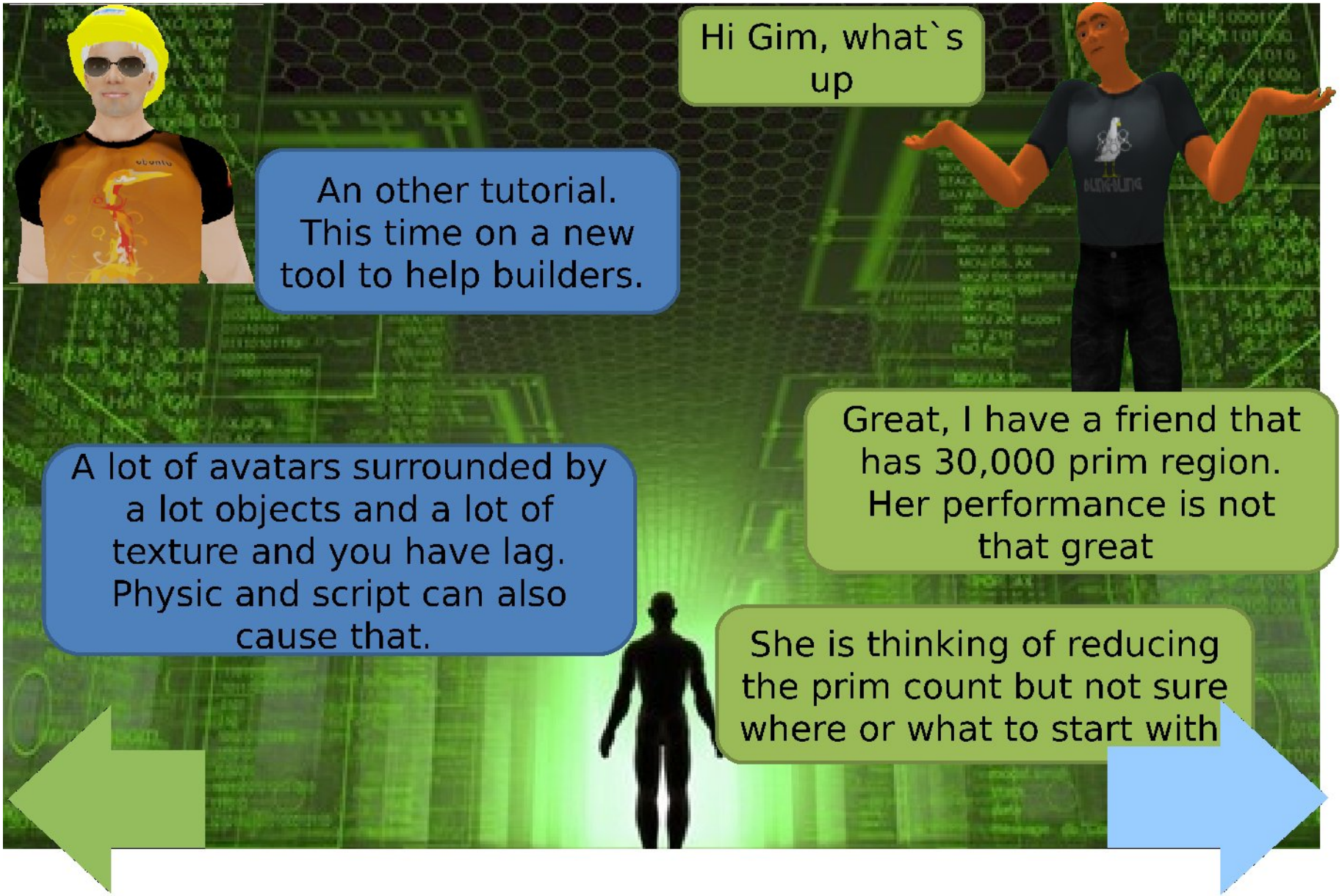
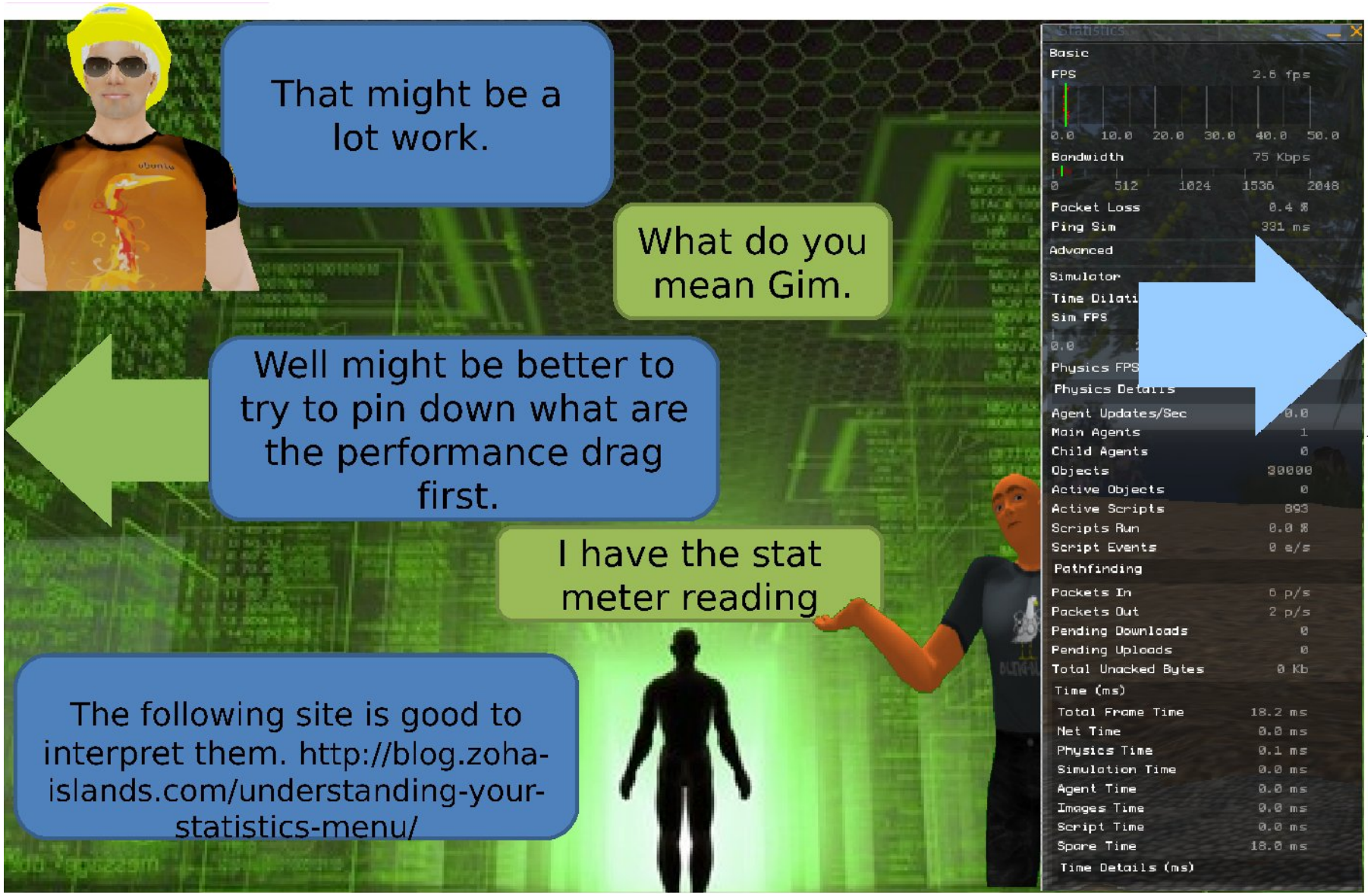
SCANNER
O.A.R.
LAG

OAR Scanner


Hi Gim, what`s up
An other tutorial. This time on a new tool to help builders.
Great, I have a friend that has 30,000 prim region. Her performance is not that great
A lot of avatars surrounded by a lot objects and a lot of texture and you have lag. Physic and script can also cause that.
She is thinking of reducing the prim count but not sure where or what to start with

OAR Scanner

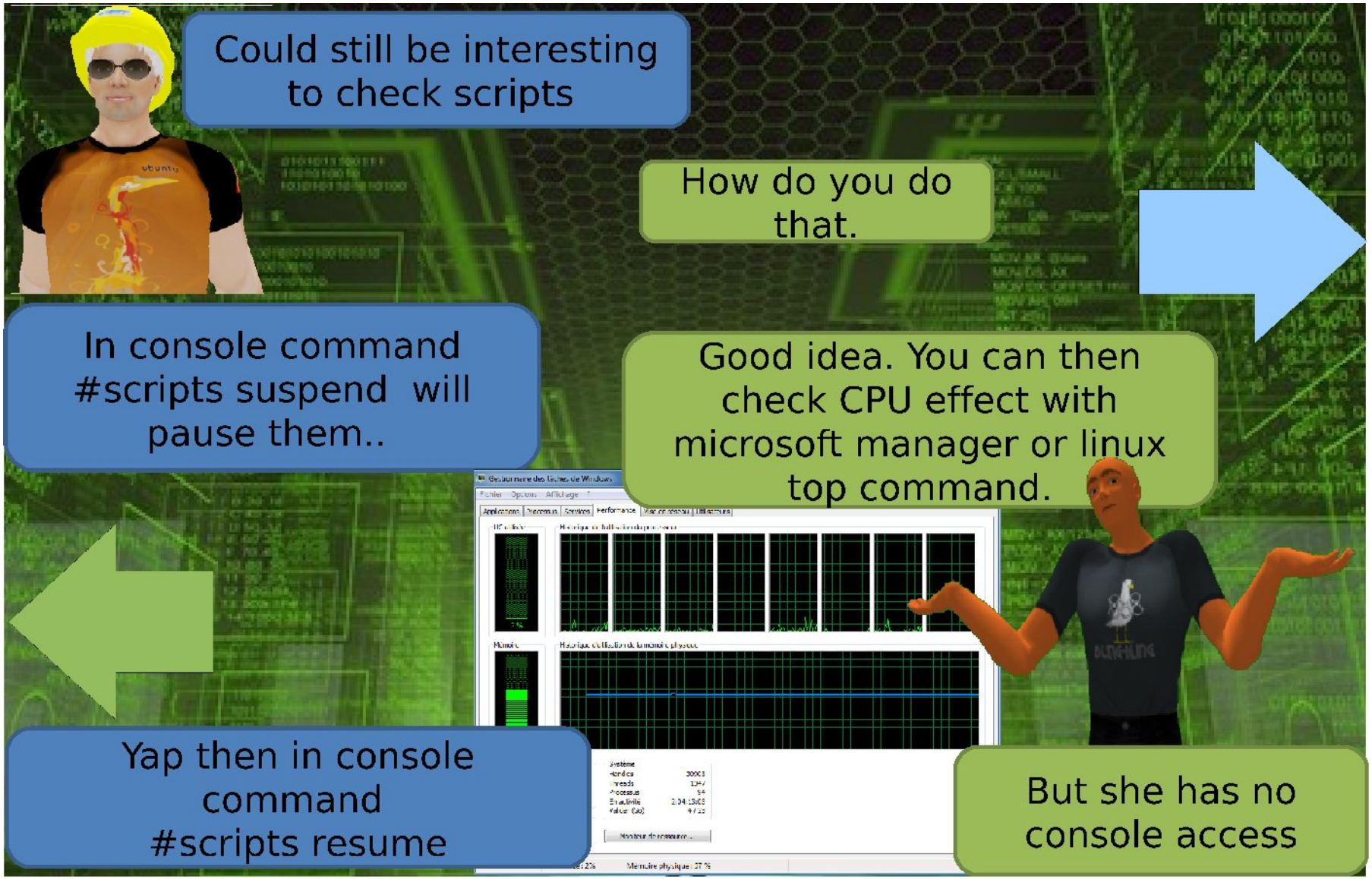

That might be a lot work.
What do you mean Gim.
Well might be better to try to pin down what are the performance drag first.
I have the stat meter reading
The following site is good to interpret them. http://blog.zoha-islands.com/understanding-your-statistics-menu/
Statistics
Basic
FPS 2.6 fps
0.0 10.0 20.0 30.0 40.0 50.0
Bandwidth 75 Kbps
0 512 1024 1536 2048
Packet Loss 0.4 %
Ping Sim 331 ms
Advanced
Simulator
Time Dilati
Sim FPS
0.0
Physics FPS
Physics Details
Agent Updates/Sec 0.0
Main Agents 1
Child Agents 0
Objects 30000
Active Objects 0
Active Scripts 893
Scripts Run 0.0 %
Script Events 0 e/s
Pathfinding
Packets In 6 p/s
Packets Out 2 p/s
Pending Downloads 0
Pending Uploads 0
Total Unacked Bytes 0 Kb
Time (ms)
Total Frame Time 18.2 ms
Net Time 0.0 ms
Physics Time 0.1 ms
Simulation Time 0.0 ms
Agent Time 0.0 ms
Images Time 0.0 ms
Script Time 0.0 ms
Spare Time 18.0 ms
Time Details (ms)

OAR Scanner

Dont see what is wrong

Total time below 22ms with a lot of spare time and nothing on script nor physic

OAR Scanner


Could still be interesting to check scripts
How do you do that.
In console command #scripts suspend will pause them..
Good idea. You can then check CPU effect with microsoft manager or linux top command.
Yap then in console command #scripts resume
But she has no console access

OAR Scanner

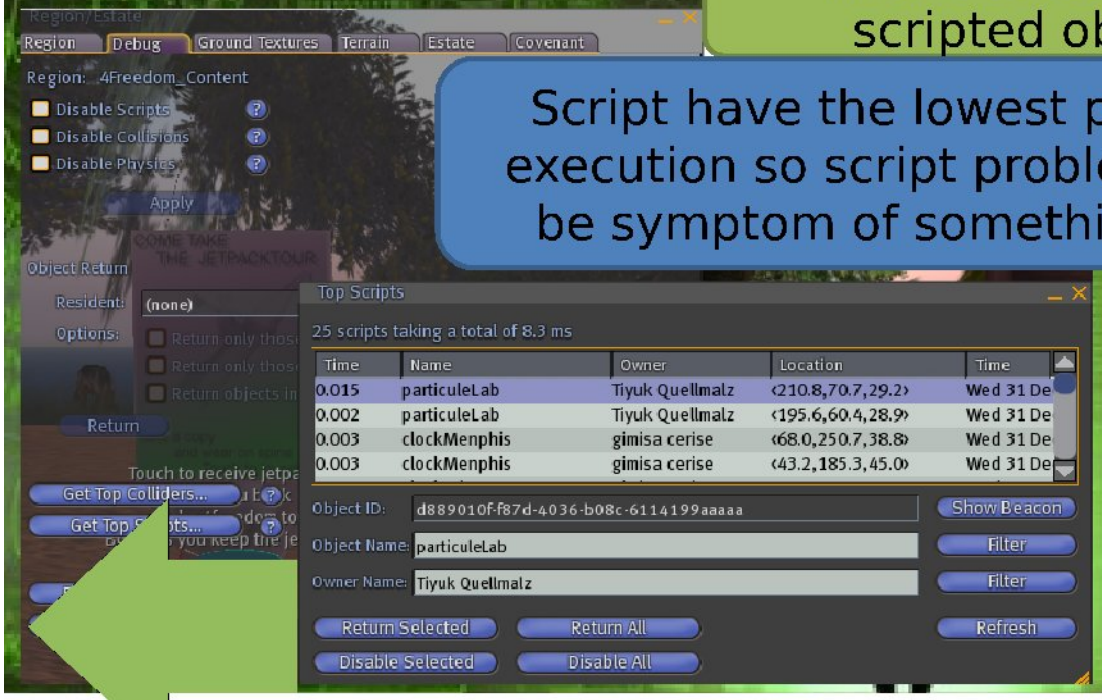
Is she Estate owner / manager

Yes, she is estate owner so she could check at estate console for high collider and script execution.

Yes top collider object can be change to phantom if possible.

And a decision on heavy scripted object made.

Script have the lowest priority in execution so script problem might be symptom of something else.



OAR Scanner

In regards to the 30,000 prims we could look at debug screen with texture information.
Well its useful for a build. But honestlyslty it does not work well as overall tool
Yes a bit clumpy to say the less. Is there something else.
File Edit View World Tools Help Advanced
Consoles
HUD Info
Rendering
World
UI
XUI
Character
Network
Memory Management
Caches
Media
High-res Snapshot
Types
Features
Info Displays
Render Tests
Deferred Rendering
Textures
Animate Trees
Axes
Hide Selected Objects
Tangent Basis
Selected Texture Info Ctrl-Alt-Shift-T
Selected Material Info Ctrl-Alt-Shift-A
Reload Selected Texture Ctrl-Shift-U
Reset Vertex Buffers
Wireframe Ctrl-Shift-R
Automatic Alpha Masks (non deferred)
Automatic Alpha Masks (deferred)
Run Multiple Threads
Font Glyphs Batching
Cheesy Beacon
Attached Lights
Attached Particles
Load Meshes At Max LOD
Enable Mesh Deformer
Render Batches
Update Type
Animated Textures
Texture Priority
Avatar Rendering Cost
Texture Area (sqrt(A))
Texture Size
Face Area (sqrt(A))
LOD Info
Build Queue
Lights
Particles
Composition
Glow
Raycasting
Sculpt
512x512 (0 1 2 3 4)
512x512 (0)
Fly
Snapshot
Search
Build
Radar
Mini-Map
Map

OAR Scanner

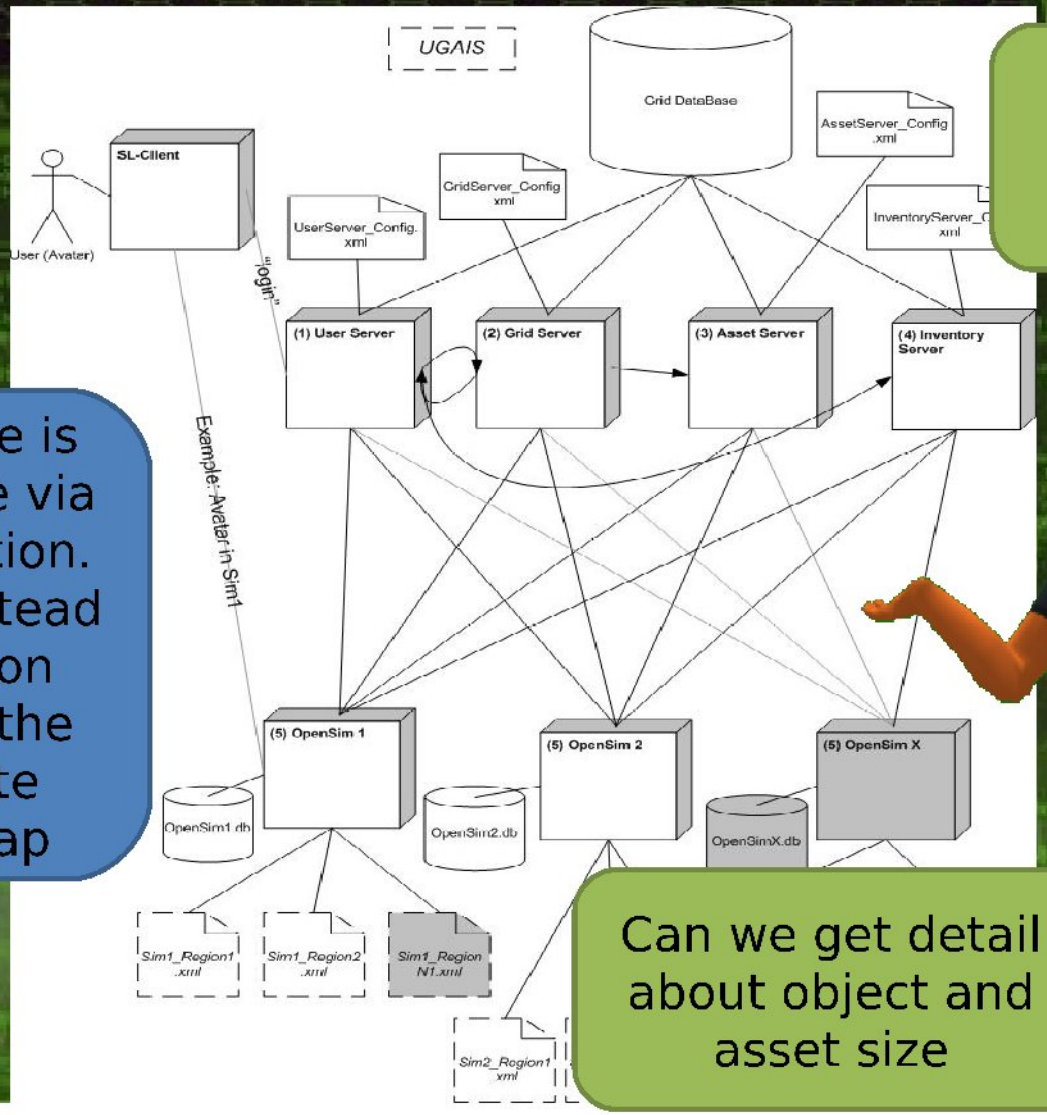
There is the viewer inspection detail tool.

Streaming cost:	25.944691	Streaming cost:	0.96281	Streaming cost:	1.376244
Triangle count:	959	Triangle count:	166	Triangle count:	512

This does not exist in firestorm nor singularity. Even then its per object again.

We need a region scanner of some sort that could point out the heavy object for the region.

OAR Scanner

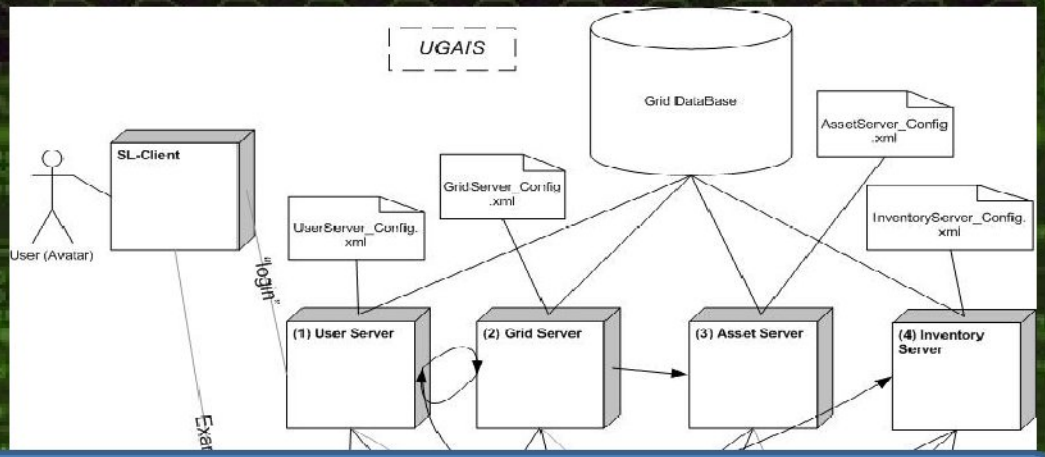


Why not making it a database check.

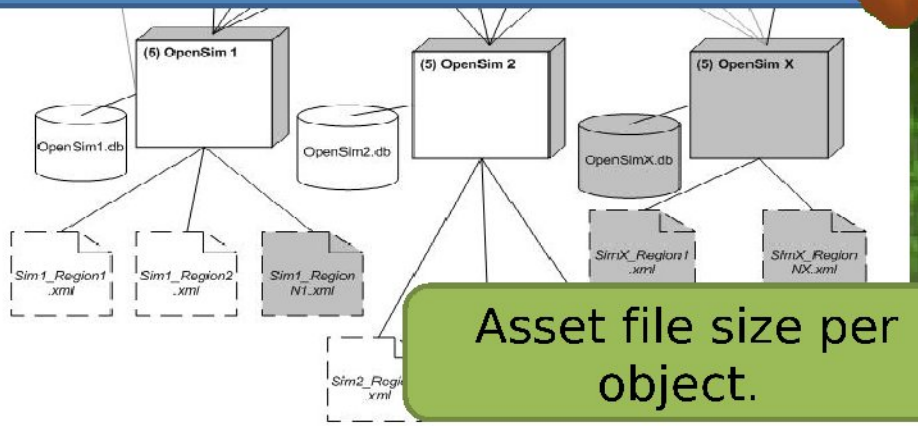
Well database is not accessible via scripted function. We should instead make a region scanner like the one to locate avatar in map

Can we get detail about object and asset size

OAR Scanner



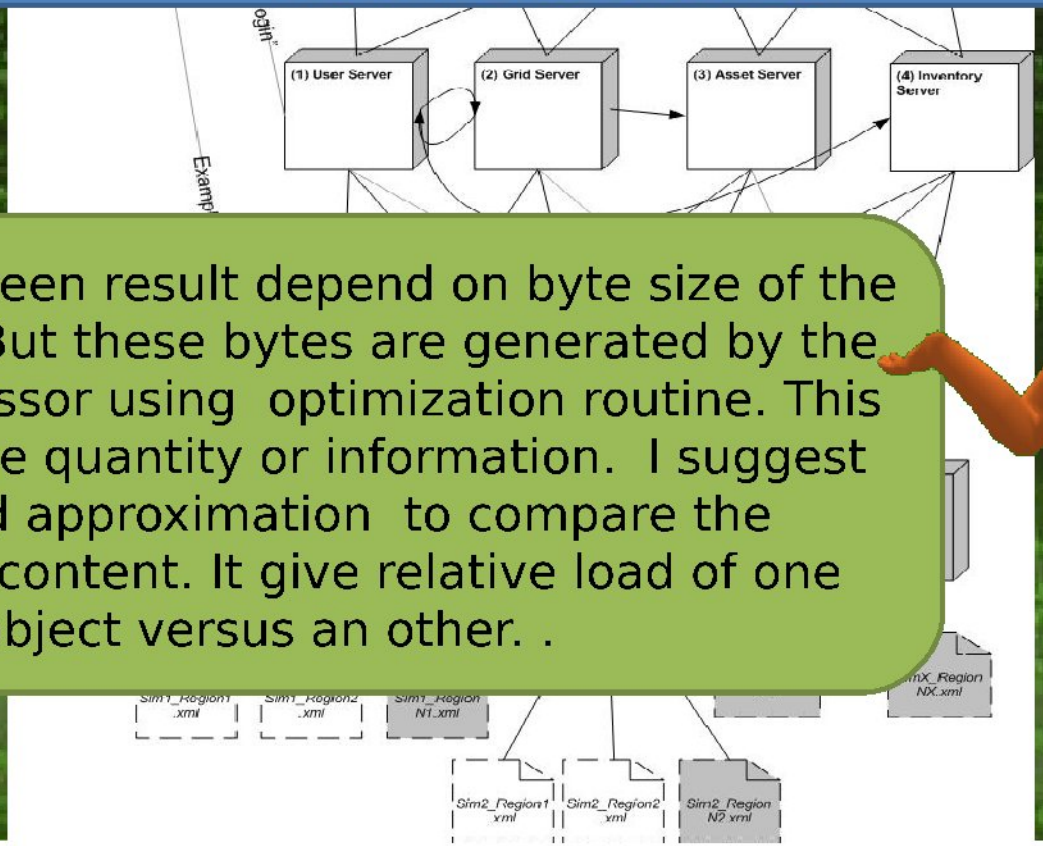
No. In SL there is objectDetail function giving some server impact but that is not functional in OSGrid. What information would you want from opensim database



Asset file size per object.

OAR Scanner

Texture and sculpty map are stored as jpeg2000. You know that texture memory is always determined by the amount and depth of the actual pixels in the image, not the bytes in which the file is stored.

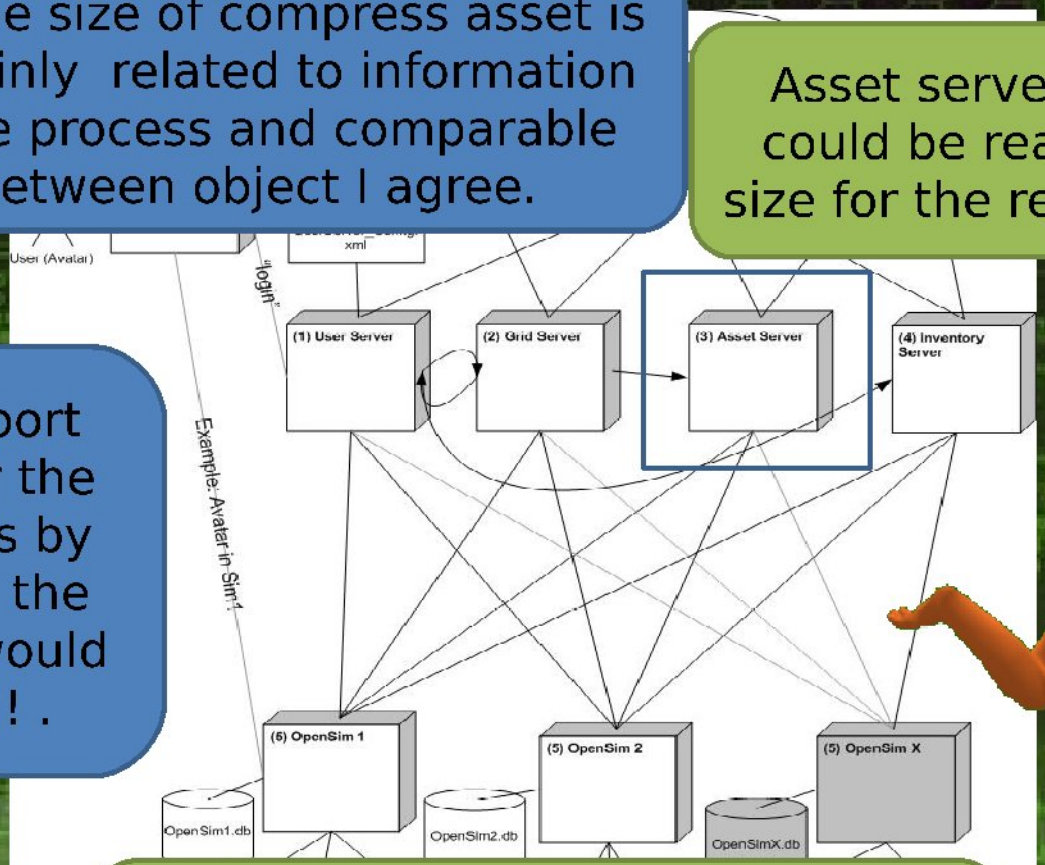


Its true the screen result depend on byte size of the image ONLY. But these bytes are generated by the graphic processor using optimization routine. This depend on the quantity or information. I suggest its a good approximation to compare the information content. It give relative load of one object versus an other. .

OAR Scanner

Yap file size of compress asset is certainly related to information to be process and comparable between object I agree.

Asset server database could be read for asset size for the region object.

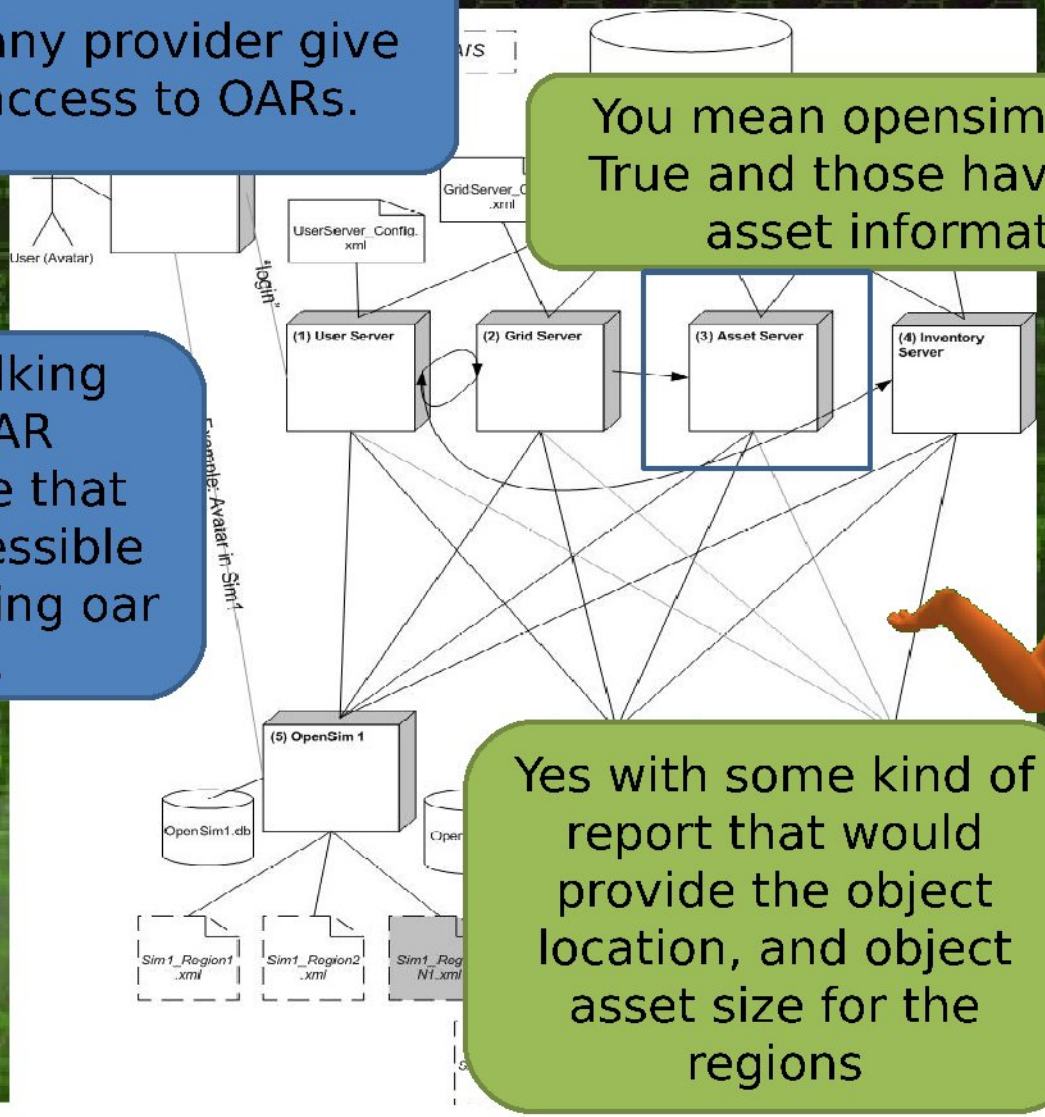


Yap and a report generated for the top 12 objects by asset size for the region. That would be GREAT !!! .

This mean a module development. That would not be accessible to my friend.

OAR Scanner

Many provider give access to OARs.



You mean opensim archive. True and those have object asset information.

Yes so we talking about a OAR scanner . One that would be accessible to all user having oar in hands.

Yes with some kind of report that would provide the object location, and object asset size for the regions

OAR Scanner

Following find the scan result for 1216-taolia.oar.tgz,
with a total prim count of 5086 in 652 objects.
The Asset count is 3794. with asset size of 166.4MB and per object average load of 261.3KB

List of the 12 first object sorted per size

No	Size	Object Name	Prim(s)	posX	posY	posZ
0	2.3MB	[illegible]	31	173	141	3535
1	2.2MB	[illegible]	1	247	117	3530
2	1.8MB	[illegible]	24	166	50	2007
3	931.9KB	[illegible]	84	145	127	2036
4	858.6KB	[illegible]	20	136	119	2032
5	827.4KB	[illegible]	81	201	60	[illegible]
6	752.0KB	[illegible]	46	128	107	[illegible]
7	667.6KB	[illegible]	45	107	137	[illegible]
8	558.6KB	[illegible]	7	114	153	[illegible]
9	542.8KB	[illegible]	15	249	114	[illegible]
10	513.8KB	[illegible]	1	117	[illegible]	[illegible]
11	452.0KB	[illegible]	1	[illegible]	[illegible]	[illegible]

So how about this report. OAR name prim count , and object count. With sorted top 12 objects per asset size, with prim count and position.

object list with peculiar position

Object Name	posX	posY
S:T:.Fairy wings	202	106
Primitive	-3368	-1
Primitive	412	1686
Primitive	382	1488
Primitive	412	1686
Primitive	412	1686

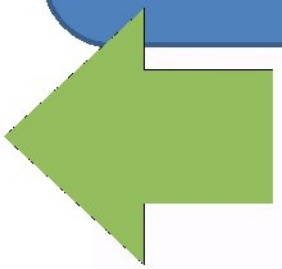
Great and I like the object pecular position. Naturaly this is for regular region size 256x256

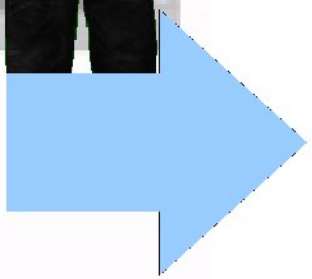
OAR Scanner

Note the object position. Most people build on the ground. So all big asset object are located at proximity of each other. This example here is different and smart.

Yes build density is interesting most people have their draw set to 128m. Building in height hide it from viewer and reduce lag.

Also some people think that object they dont see behind others don't load the graphic card . That is wrong all the scene is draw then the graphic card processor erase the hidden object or part of objects. This feature is use in preloading the texture of this tutorial for example



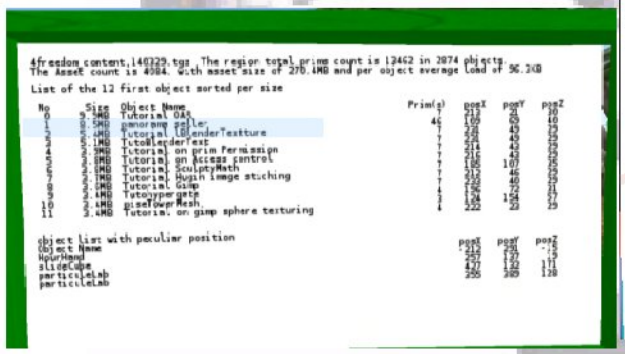


OAR Scanner

What would a user do with that now that he know the relative size of his objects

He could try to reduce the texture of his object that have the most impact on region.

I just tied it and I took two reading of my region while reducing texture on item number 1. I changed 15 prims form 1024x1024 to 128x128 without noticeable rendering difference.With size changed from 8MB to below 3!!!



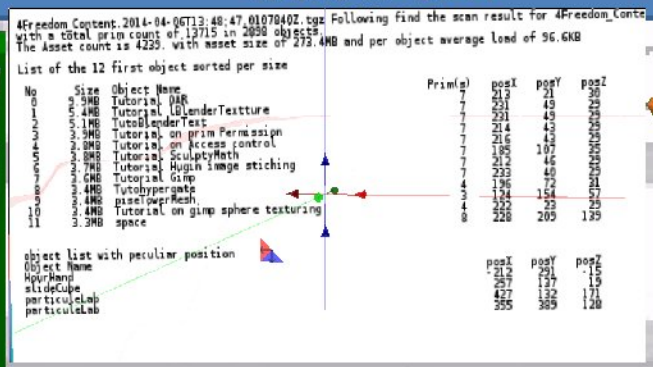
4freedom_content,140229.tgz The region total prim count is 13462 in 2074 objects
The Asset count is 4084. With asset size of 270.4MB and per object average load of 56.5KB

List of the 12 first object sorted per size

No	Size	Object Name	Prim(s)	posX	posY	posZ
0	9.5MB	Tutorial OAR	46	100	49	40
1	8.6MB	panoramic sphe	7	226	49	52
2	5.4MB	Tutorial LBLenderTextture	7	228	49	52
3	5.1MB	TutoBlenderText	7	214	49	52
4	3.8MB	Tutorial on prim Permission	7	216	49	52
5	3.8MB	Tutorial on access control	7	195	107	56
6	3.7MB	Tutorial SculptyMath	7	212	46	52
7	3.6MB	Tutorial Hugin image stiching	7	233	40	55
8	3.6MB	Tutorial Gimp	4	196	72	31
9	3.4MB	Tutobypermate	3	124	154	57
10	3.4MB	pixelpowerMesh	4	222	29	25
11	3.4MB	Tutorial on gimp sphere texturing				

object list with peculiar position

Object Name	posX	posY	posZ
HourHand	212	291	-15
slideCube	257	137	15
particuleLab	427	132	171
particuleLab	355	389	120



4Freedom_Content.2014-04-06T13:48:47.0107040Z.tgz Following find the scan result for 4Freedom_Conte
with a total prim count of 13715 in 2050 objects.
The Asset count is 4235. with asset size of 273.4MB and per object average load of 56.6KB

List of the 12 first object sorted per size

No	Size	Object Name	Prim(s)	posX	posY	posZ
0	9.5MB	Tutorial OAR	7	213	21	38
1	5.4MB	Tutorial LBLenderTextture	7	231	49	52
2	5.1MB	TutoBlenderText	7	231	49	52
3	3.9MB	Tutorial on prim Permission	7	214	43	52
4	3.8MB	Tutorial on access control	7	216	43	52
5	3.8MB	Tutorial SculptyMath	7	195	107	56
6	3.7MB	Tutorial Hugin image stiching	7	212	46	52
7	3.6MB	Tutorial Gimp	7	233	40	55
8	3.4MB	Tutobypermate	4	196	72	31
9	3.4MB	pixelpowerMesh	3	124	154	57
10	3.4MB	Tutorial on gimp sphere texturing	4	222	29	25
11	3.3MB	space	8	228	205	139

object list with peculiar position

Object Name	posX	posY	posZ
HourHand	212	291	-15
slideCube	257	137	15
particuleLab	427	132	171
particuleLab	355	389	120

OAR Scanner

Ya and sometimes people use a new texture on each side of the prim instead of reusing one 1024 for all side with appropriate zoom and pan. 8 unnecessary 512 textures use twice the memory of a single 1024 one.

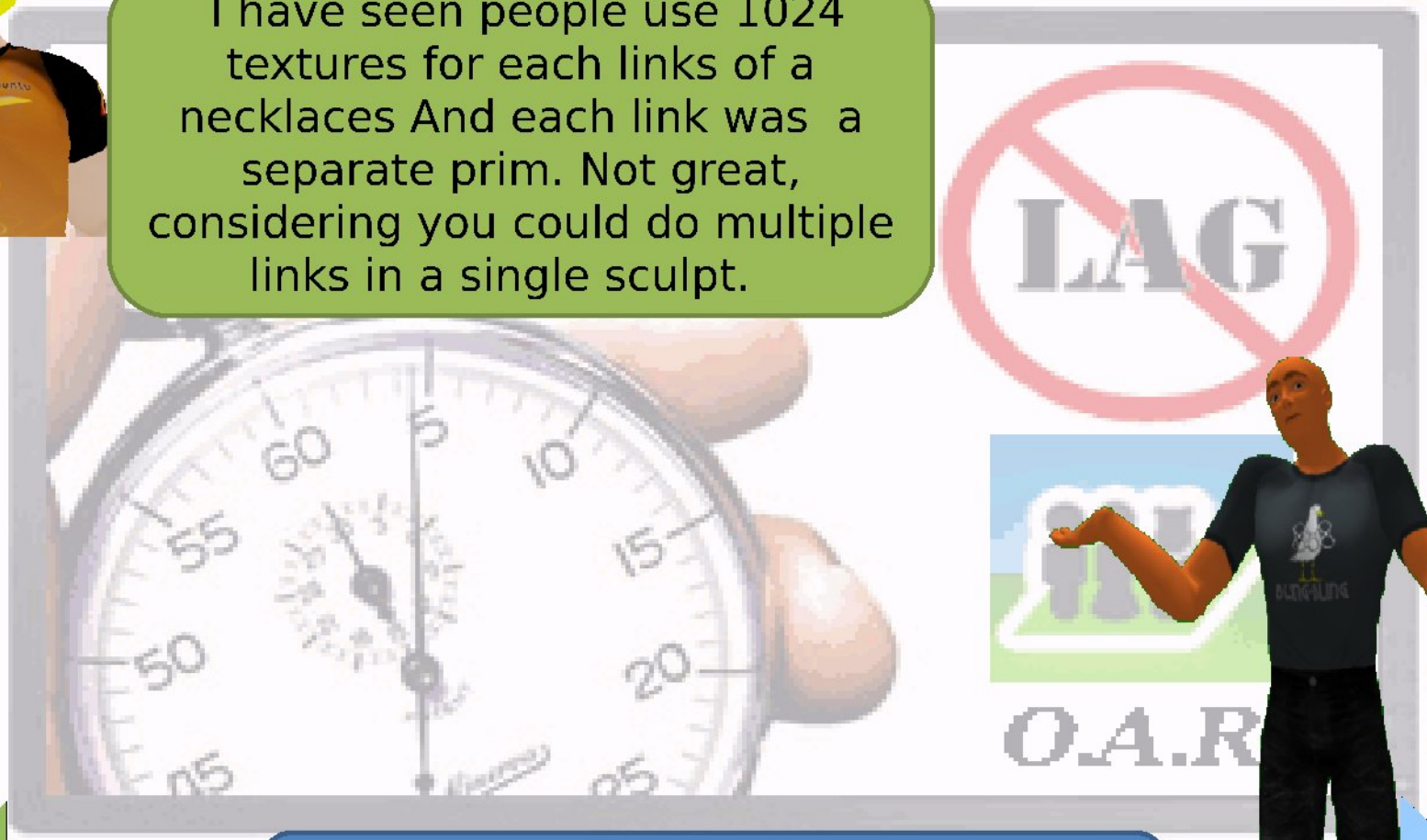
If you think that the majority of screen today have between 72 and 150 pixels per inches. You can calculate that a 1024 size correspond to something that appear as 10 inches on the screen.

Yes anything lower then 250mm as seen on the screen will not render more anyway. So a brick on the wall that in real life 7x4inches would be textured at 700x400 pixel if one intend to see it full scale on the screen

Who want to look at a brick in full scale!!!!

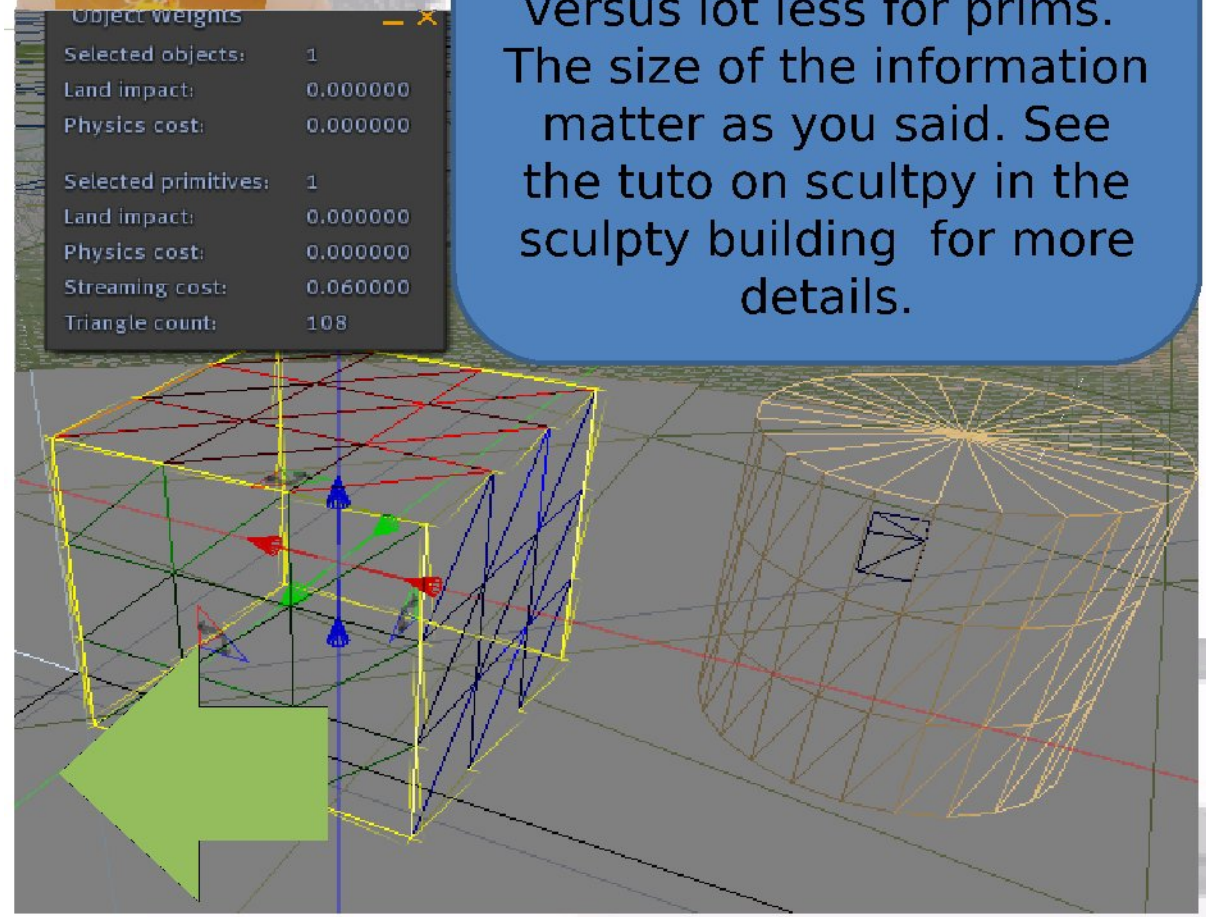
OAR Scanner

I have seen people use 1024 textures for each links of a necklaces And each link was a separate prim. Not great, considering you could do multiple links in a single sculpt.



Yes I dont think someone zoom a link to 10 inches on the screen.

OAR Scanner

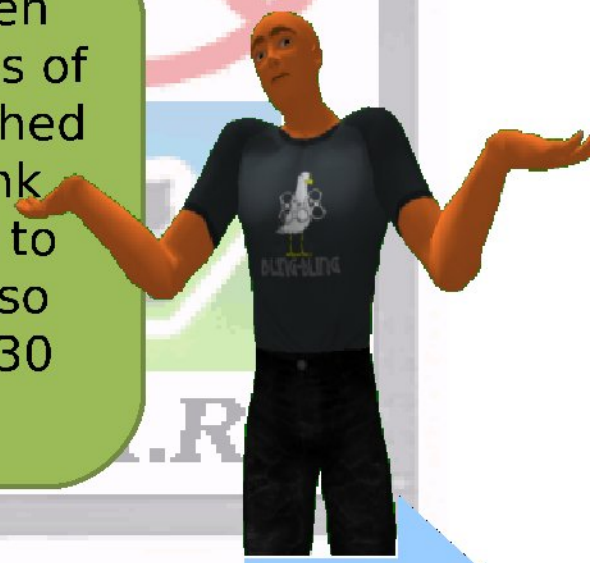


But bear in mind that a sculpty is 2048 triangles, versus lot less for prims. The size of the information matter as you said. See the tuto on scultpy in the sculpty building for more details.

OAR Scanner

The typical set of human eyes has an angular resolution on the order of one arc minute. That is a third of a millimeter wide at arm's length.

Well a popular trend with mesh I've seen with mesh tails is, they make 30 versions of the tail in all the positions between swished to the left, and swished to the right, link them into one object, then use a script to change the transparency on each one so only one is visible at a time, changing 30 times a second.

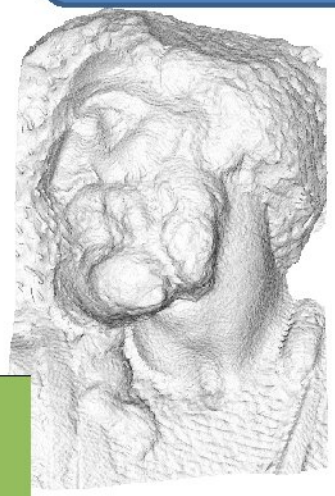


OAR Scanner

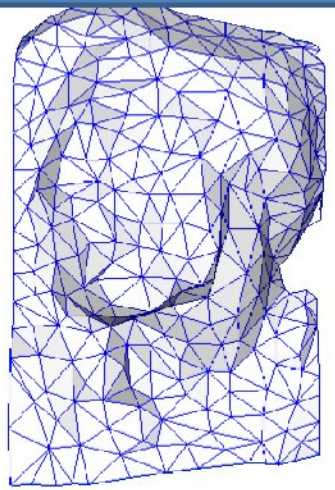
Mesh file is treated as an asset and its size reported by the tool.

If its a Mesh they could try to reduce the triangle count and use the new NORMAL MAPPING now available with material.

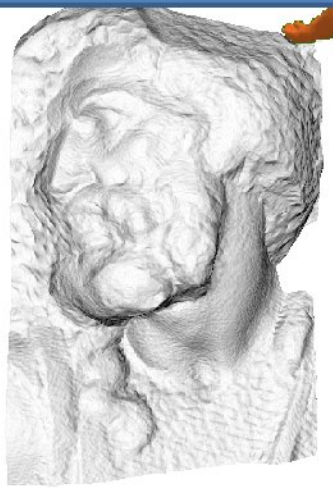
One have to balance mesh file size reduction with increase texture load



original mesh
4M triangles



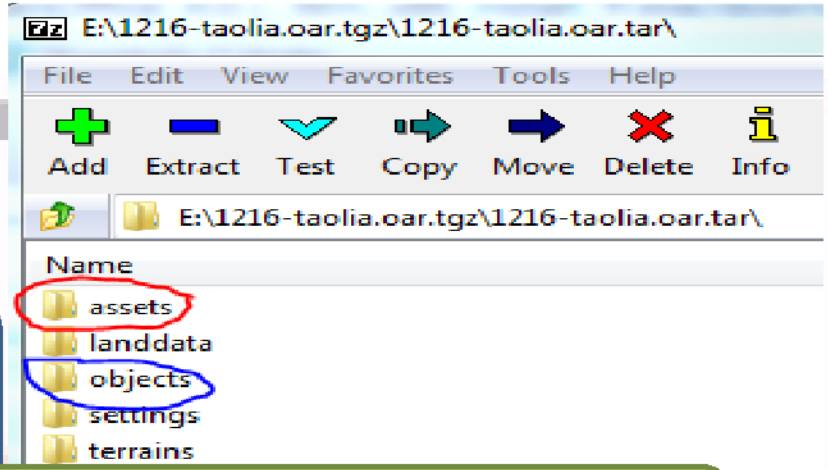
simplified mesh
500 triangles



simplified mesh
and normal mapping
500 triangles

OAR Scanner

So what the tool does is examine OAR.



Yes if you want to examine the oar yourself use 7zip (www.7zip.com) on the oar . But fist change its extension to .tgz.

So you scan the objects in the oar and for each object you search for its asset right .

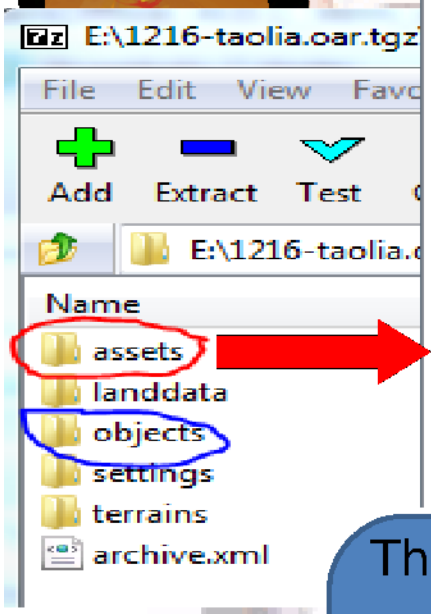
Yes and if an asset is use by many object we divide the size of the asset by the number of object and apply that result to each.

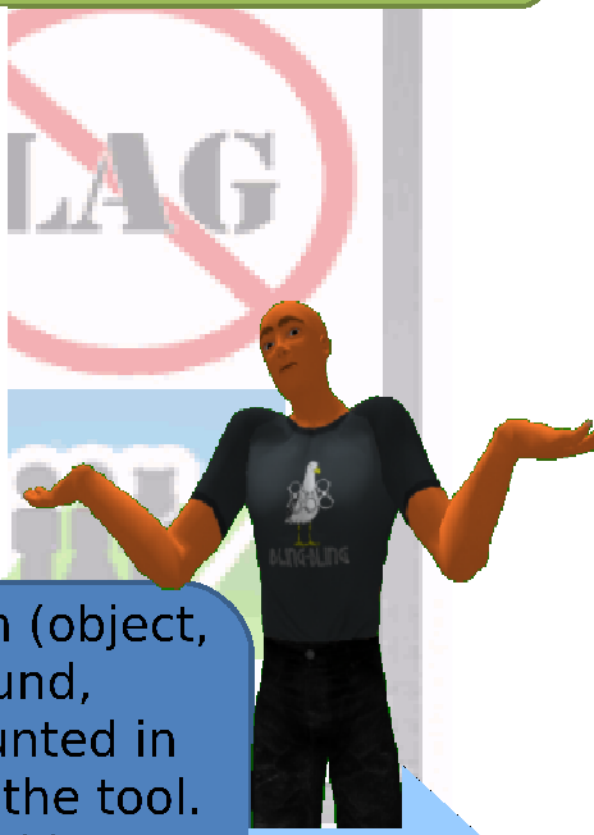
So that a reused asset is properly represented for each object using it. What about Mesh

A mesh , a scultpy map , a texture these are all assets that are presented and divided among object using them.

OAR Scanner

What about script in the object. How do you account for that.
Ref http://opensimulator.org/wiki/Object_Formats

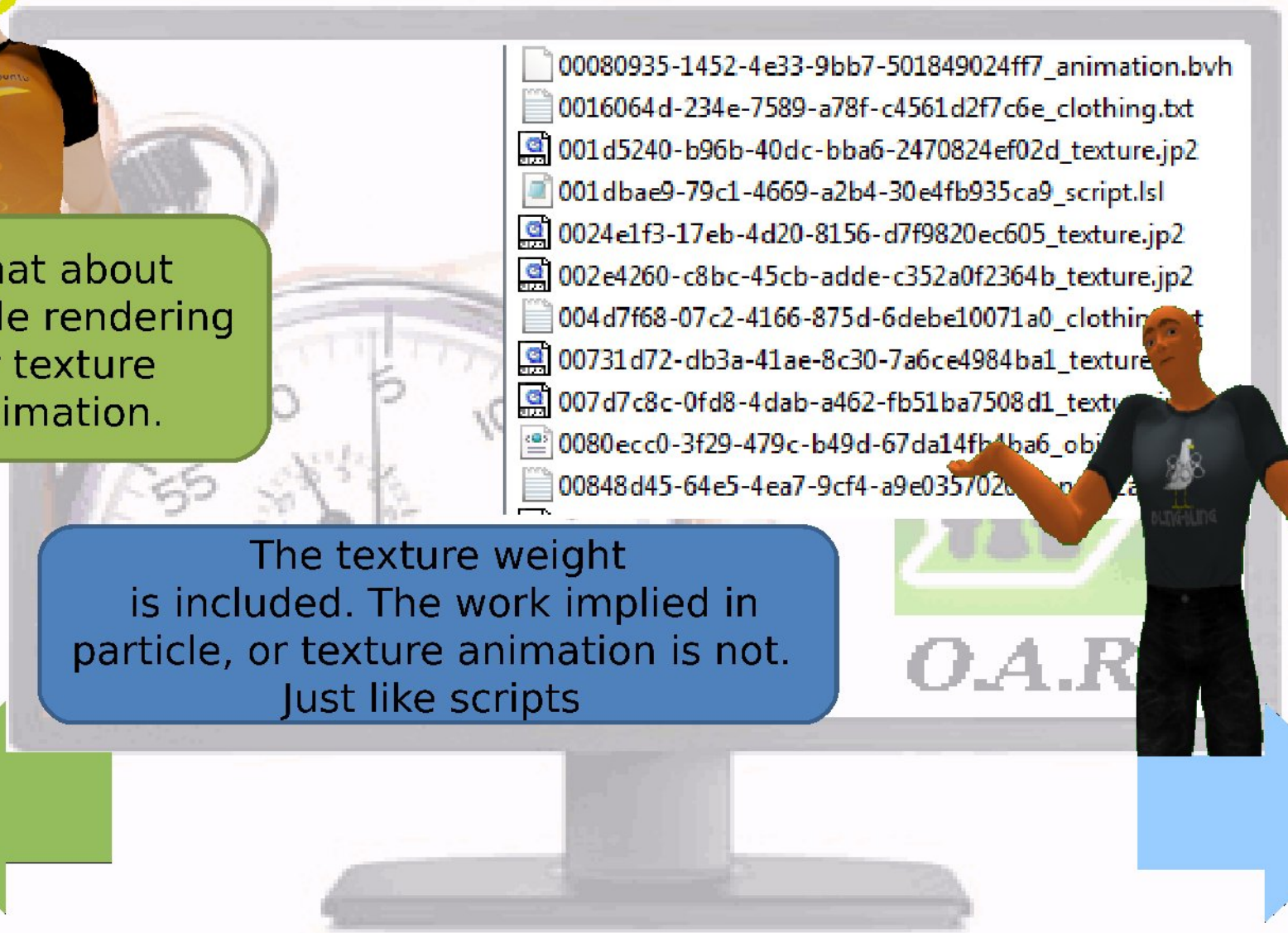




Those and other inventory or task item (object, clothing, body part, animation, sound, notecards) are also in oar but not counted in the tally of asset size for the object by the tool. The information of the total asset stored in OAR and the rendered asset size tally is provided in the report.

OAR Scanner

What about particle rendering or texture animation.



The texture weight is included. The work implied in particle, or texture animation is not. Just like scripts

OAR Scanner

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with a total prim count of 5086 in 652 objects.
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List of the 12 first object sorted per size

No	Size	Object Name					
0	2.3MB	Laputa Robot mesh	20	136	119	2032	posX 202
1	2.2MB	beauty01 wood	81	201	60	3527	-3368
2	1.8MB	PALMS	46	128	107	3894	412
3	931.9KB	wild-grasses-and-blackeyed-susans	45	107	137	2008	382
4	858.6KB	tao-tente03b	7	114	153	22	412
5	837.1KB	Lulumins Piano Forte (Created by Gene Jordan)	15	249	114	3535	412
			1	117	116	3521	
			1	149	129	3892	

So that is the tool that can be use on any opensim world.

Yap. You touch the object in world . It will present a web page for your oar upload. The result will show on the top panel on the object inworld. It can take some time so be patient (30,000 prims one hour)