

Final

Architecture Note

#5

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The emergence of The Galactic Harbour Vision

Michael A. Fitzgerald

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Prolog

This write up is meant to be a systems engineer's description of a vision. I was certain about what I said ... Not necessarily right or wrong; just certain of my vision.

Most of it was initially composed in April 2016 when several of us were trying to gather the system design considerations for the Space Elevator's GEO Node, Apex Anchor, and the Space Elevator Communications. THAT was a conversation that reached back into 2015.

Summer 2015 - We Pondered; what are we?

The argument is about whether we needed a GEO Node Segment in the Space Elevator Transportation System. Some people thought we absolutely needed a GEO Node segment. Some people didn't. Some people say we needed a GEO Node; but not until after IOC. (That will all be resolved when we build the 2 baselines --- as discussed last month in Architecture Note #4). Some people say the stuff that goes on in the GEO Node region will be services ... services that go beyond the essential purpose of the Space Elevator as a transportation system providing access to space. Good system engineering discussion.

In my opinion, The Space Elevator Enterprise will have a GEO Node (we now call it the GEO Node Region) as a discreet segment. It will show up soon after Initial Operations Capability (IOC). Most all the products and payloads that are moving along the Space Elevator's Tether inside the Space Elevator's Climber will pass through the place; coming and going.

It was probably best we had that extended system engineering thought into whether we needed a GEO Node and what it should be. The Space Elevator will go to or through the GEO region ... if we want to go anywhere. We would like to think that payloads and products will go to or through often and safely. Some of the payloads will be sent along to earth orbits. Some of the payloads will move higher; headed to other destinations. After a time; products from space go through to Earth.

We already see that the Earth Port is an important part of the total enterprise. It is the entrance. It is the departure lounge. It is the safety checkpoint. It will be many things. It will be a center of activity. It sends

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cargo up the Tethers to the GEO Node and beyond. It will be a famous place.

Spring 2016 - Pondered some more:

It was this notion of “place” that got me thinking. I have been around. I have seen a lot of places. Some places are just places – by accident. Most of the places are places for good reasons. West Point was a strategic location on an important river; a good place for Benedict Arnold to hang out. Colorado Springs had water and a great view of nearby mountains and God’s Garden. It was also just south of a place the local Native Americans thought was haunted by wind gods; but could be sold to the unsuspecting. New York and Boston each have a harbor; a good reason to be a place. I am sure there are similar good reasons for Atlanta, Denver, Dallas, Dayton, and lots of other important places.

Then there are those other places. They are places for no apparent reason. Have you ever been to Lincoln, Nebraska? Now, it is a great place to pass through; but why is it there? (Salt as a product and a university) How about Gallup, New Mexico? (Railroad) or Lubbock, Texas; as places. Lubbock is interesting. Texas Tech is there. Texas Tech students make Lubbock a place. Las Vegas is a place; and you know the reasons. All those workers building that big dam made it a place. Buggy helped; in a way. These are examples of some good places that started essentially as places to hang out or just pass through. They are in the middle of nowhere. They became places to hang out after they became places for no reason. The GEO Node Region has reasons to be a place

I Pondered to a conclusion

That brings us to the GEO Node Region as a place. Is it a place with a reason like New York? ... or is it a place in the middle of nowhere; to just pass through? I happen to think wherever we have Space Elevator activity THAT wherever will become a place. For example, New York became a place because it had a natural harbor. After it became a place, other things started happening at that place. Like a Port of Entry, Wall Street, Fulton’s Fish Market, the Bronx Zoo, Broadway, or the museums; all because it was lucky enough to have a harbor. Eventually, cruise ships stopped there.

Now in my mind, the Space Elevator at the GEO Node Region is not just a place to just pass through. As a place ... it is more like New York

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and its harbor. It is different than Lincoln, Nebraska; Lubbock, Texas; or Gallup, New Mexico. The GEO Node Region seems like part of a larger thing. It is a port of entry and return; part of the Galactic Harbour.

It also seems that the GEO Node Region will be a place where businesses start hanging out shingles. The shingles will say Space Elevator refueling, GEO Region satellite repair, Space Elevator power station, Space Elevator Zoo, the GEO Region Fish Market, or Space Elevator transfer tugs, and so on. It will be one hell of an important place. Eventually, cruise spaceships will stop there.

Michael A. Fitzgerald

Galactic Harbour Vision

In our vision... we see a great Space Elevator Transportation system that opens Space; in the same way the railroad opened up the US west. It is a marvel of Kepler's physics and a marvel of humankind. We see the Galactic Harbour importing needed commodities (Power and unique minerals) and exporting the noxious (Nuclear waste and Space debris).

As part of that Harbour, we see a place above; that is enabling improvement in life's quality ... and its enjoyment. We call that place the GEO Node Region. In and near that region we see unique small, spacecraft that refuel ... that repair ... that inspect ... that do whatever they are asked to do. We see all that occurring in the GEO Node Region in the 2040's; all part of the Galactic Harbour.

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