Space Elevator Transportation System Management

Architecture Note #20

Architecture Baseline has been found
&
A Myriad of Tests and Demonstrations are needed

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Personal Prolog

This is an Architecture Note. It is the opinion of ISEC's Chief Architect. It represents an effort to document ISEC's ongoing science and engineering discussions and is one of many to be published over time. Most importantly, it is a sincere effort to be the diary, or the chronicle, of the multitude of our technical considerations as we progress; along the pathway developing the Space Elevator.

Michael A. Fitzgerald

The 2018 Conference results from an Architect's perspective

Introduction

The Year 2017 was a big year. It was so big that it has taken nearly 3/4 of 2018 to get our story straight; and if we could just get people to join with us and our vision; all would be good. Right?

Not really, we need to change or improve a few things and **then** all would be good. Right? Not really, we will need to change or improve a few more things and then all would be good.   Right? Well … maybe; but I doubt it. Therefore, I have an announcement!

We should be prepared for a decade of changes; followed by another series of changes; and after that, more changes. An immutable change approach is essential so that all working on the Space Elevator are working on the same thing. The "**change approach**" matures into a detailed **change process**; the latter used during the Elevator's design and development.

It is a little early to get involved in documenting the change process, but we must be aware that it is coming. Our modular design approach (See Architecture Note #1) and our application of sequenced Architecture Engineering principals (See Architecture Notes #6 through #8) must adhere to the fundamental Architecture theme that mission performance in one segment can affect mission performance in other segments. Thus, we must define a baseline (and change it if need be) between now and the

Culminating demonstrations (see the Architectures and Roadmap Report - ISEC's report for 2014).

So, What!?

The 2018 Space Elevator conference reviewed a presentation of the Space Elevator Transportation System Baseline. The finding was that the baseline was well documented. No glaring errors were found. No citations of water running up hill or other miracles. It is a classic first baseline.

However, the documentation is scattered across several reports and some descriptions are vague and some functions need to be quantified. Therefore, ISEC must initiate a cleanup task fairly soon.

The current investigation of the Multi Stage Space Elevator by John Knapman's team is not the baseline approach. However, John's investigation may well portend that it is a better baseline. In the same way, the investigation of the graphene sheeting approach may prove a viable Tether solution for our Space Elevator Transportation System. We shall see and change the baseline if need be. Probably will.

If evidence shows that one or the other portends functional success, your respected Chief Architect will declare a "Call for Improvement". In that Call, we will seek to assess what serves best as our baseline; one, both, or neither. A series of experiments & demonstrations will be the basis of ISEC's assessment; showing that the needed performance can be attained. If "it" is an improvement, it enters our baseline.

Another thing

At the conference, the ISEC membership wrestled with the overall Technology Readiness of the baseline. In two thorough mini-workshops, the membership outlined the tests, experiments, and simulations that are necessary to declare "technology ready". The members gave feedback for all six segments of the Transportation System. The compilation of the feedback will be available soon. The overall sense of the feedback was … **"We can do this, but we have a lot of work to do!"**

In closing

Final

Every year at the conference, I am humbled by the wisdom of our membership. We need to enlarge our membership … but the current quality is damn fine.

Fitzer