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A Strategy for the ROSÆ – MIRIAH Enterprise's start up.

Recently, China and the US have destroyed satellites in Low Earth Orbit (LEO), proving that many of our most reliable and necessary assets are in danger of a knock out in the early stages of an all out war. Another common altitude for satellites is the Geo-synchronous earth orbit (GEO). This latter orbit is becoming quite crowded, and since their positions are quite deterministic, counter measures are also likely against these assets in a war. This is also true of the orbits used by many other satellites. Whereas, ROSÆ – MIRIAH is the most easily defended of all communication, navigation, or imaging satellite architectures since it has ***symmetrically*** positioned "forward facing" velocity vectors ***in every direction***.

The communication path of LEO and GEO satellites is also vulnerable, since that path includes *multiple* "up – down" relays through the atmosphere, and so these links can either be jammed, or its ground stations can be readily destroyed by conventional attack (too many of these sites are *outside* the continental US).

Clandestine interception of data flow is another weakness in these satellite architectures, whereas satellite – to – satellite architectures with narrow beam width wide bandwidth links are resistant to intercept consistent with high volume traffic. These linkages can also be further secured from clandestine intercept by the ability of all space nets to use *water vapor absorption frequencies.*

Coding is yet another method of safeguarding communication traffic from unwanted and dangerous intercepts. The most secure of all coding systems is based on *parallel* coding within time division multiplex. But parallel coding has a problem with information throughput timeliness in most cases, since this coding depends on correlation at the receiving end with apriori known decoding algorithms, all of which depend on the *time slot* of the data bits. Obviously then, parallel coding demands ***equidistant*** sat – to – sat links. And that then requires network *symmetry* (wherein symmetry is ROSÆ's "middle name").

Clearly, ROSÆ's equidistant parallel paths for sat – to – sat links, which span from one hemisphere to an opposite hemisphere, is a 180^0 shift as in Figure 1, and is ideal, since it needs only two sat – to – sat "hops" ***in series*** (with two ***par-***

allel choices). Note in Figure 1's legend, how ROSÆ's symmetry and resonant orbits enable a huge savings in cost, since its satellites can be "piggy backed" in pairs (and yet their boosters can use the ***maximum efficient*** Hohmann transfer orbit maneuver). Since boosters are ~ 90% of the cost of any space segment, this cuts costs almost in half, while at the same time *increasing reliability* of the space segment's insertion into orbit (a second capital formation asset).

But, if one parallel path and parallel coding architecture is good, then a global network comprised of *multiple* "mini-nets" (as in Figure 1), would be even better. And so we confidently recommend the numerous technical, tactical, strategic, and cost effective assets, which one can readily recognize in the list of communications functions in the MIRIAH*6 architecture, as outlined in Figure 2.

Note next how this strategy will "kill two birds with one stone" in the case of the need to also "proof test" MIRIAH before activating its new imaging service from satellites (as seen in the middle of Figure 2's legend). This is most providential, since a ground based test of MIRIAH is next to impossible, for MIRIAH is based on Interferometers, which are the world's most accurate technology for ***angular*** measurement (and so also imagery's ***phase definition***). But, ground based testing is vulnerable to vibration, and "backlash" in test model drives, etc. Whereas, nothing is as stable or as free of vibration as the environment of satellites, particularly in the case of ROSÆ – MIRIAH's ***orbital resonance*** and ***stable equilibrium*** *in Medium Earth Orbits* (MEO). Note its communication links ***exactly*** overlay MIRIAH's VLBI, so the parallel coding system will ***automatically*** calibrate it. Hence, when the Communication system is put into service, MIRIAH will be automatically authenticated. *And, note >99% of the satellite's energy budget will be devoted to communications, with <1% needed for MIRIAH.*

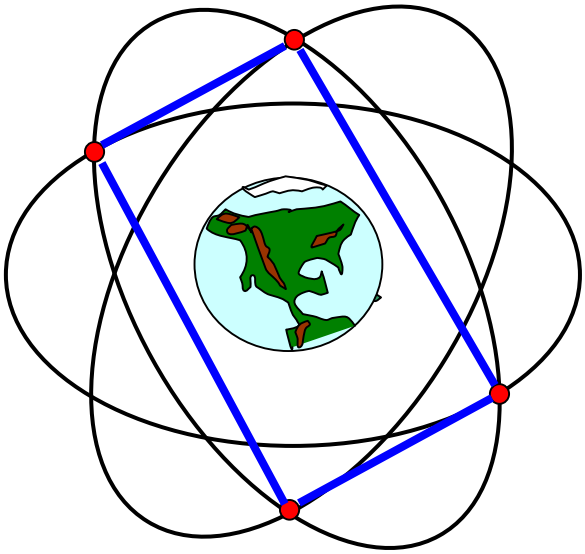
Then MIRIAH's added cost burden is insignificant. And, ROSÆ's *communication* asset is "an offer which no viable organization can refuse" (within logical need, *conventional* ***low risk*** *technology*, reliability, cost effectiveness, commercial ***international*** markets, military and commercial security, etc.). Then the "proof test" of MIRIAH is simply a ***byproduct*** of ROSÆ's communication service startup.

Once this "proof test" has been completed, we can readily activate MIRIAH's holographic imagery, and begin to enjoy the many other benefits of MIRIAH's superior imaging capabilities. These assets will be developed in stages beginning with MIRIAH*3 (please see Figure 3). Following the success of MIRIAH*3, we could then proceed to the full global coverage configuration of MIRIAH*6 (please see Figure 4), and finally to the full ROSÆ – MIRIAH multi function network (RE: the Introduction on the Internet).

William H Grisham

William H. Grisham, President

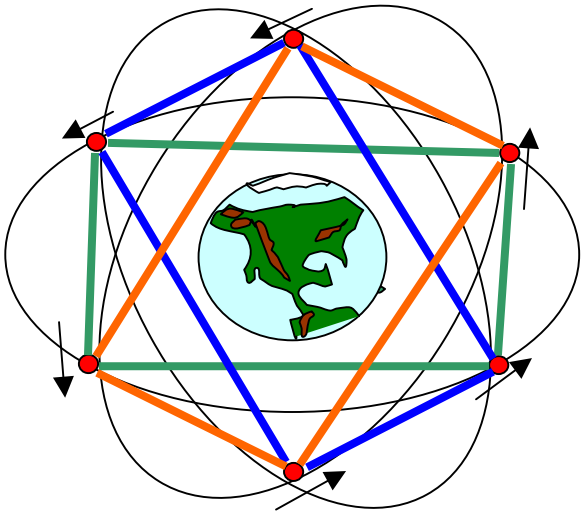
Figure 1



MIRIAH*4
“Secure Wide Band Global Communications”

No VLA (VLBI plane is vertical)
One 90 degree paired antennae,
and one drive per satellite.
75% global communication coverage
2 Boosters “Piggy Backed” = 4 Satellites

Figure 2



MIRIAH*6 (start up)

"A *global* communication net with parallel coding & side lobe free intra-sat links at water vapor absorption bands to optimize secure *global* communications"

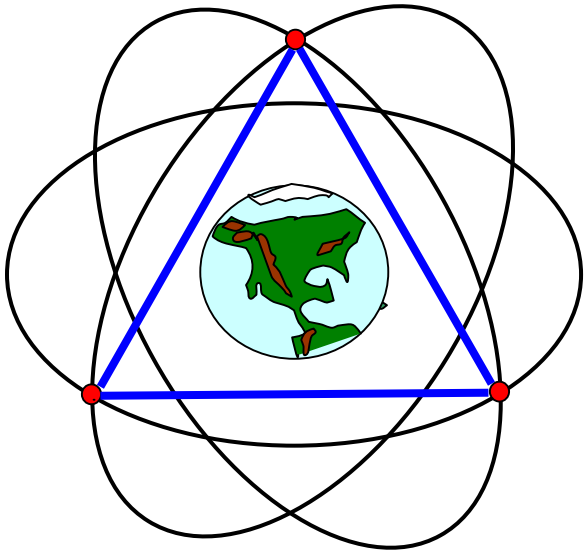
- **3 global hoping rectangular mini-nets (#1) is blue**, (#2) is **orange**, (#3) is **green**
- **Each mini-net has 2 global equidistant linkages, which uniquely enables quad parallel coding with zero buffer delay.**
- **Test/Evaluation/Calibration of MIRIAH's Interferometer Triads (proof testing VLA in space).**

4 antennae & 4 sat-sat links per sat. (But only one drive with 4 U-joints is needed).

100% global communications in real time. (Accessible from ground sites worldwide).

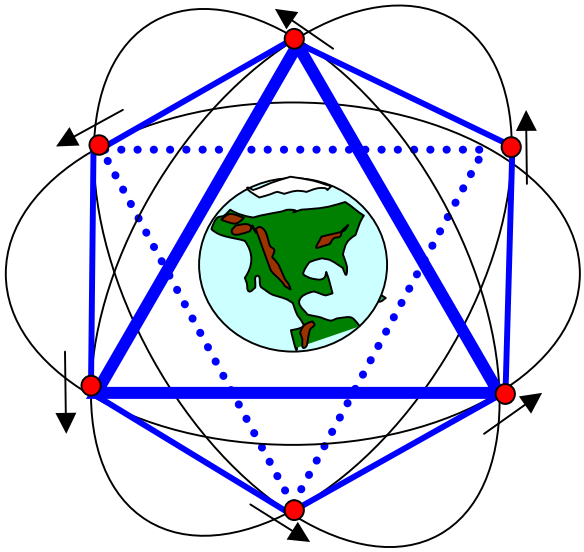
Only 3 Boosters "Piggy Backed" = 6 Satellites (Boosters are 90% of cost).

Figure 3



MIRIAH*3
“The minimum Sparse Phased Array for 3-D Holography”
1 VLA Triad
1 antennae pair and 1 drive per satellite
2 Swaths per satellite
3 Boosters – 3 Satellites

Figure 4



MIRIAH*6
“A global Sparse Phased Array conformal to an octahedron”
8 VLA Triads
1 drive to 4 U-joints per satellite
4 antenna and 4 swaths per satellite
100% global Illumination coverage in real time
100% global communications in real time
3 Boosters “Piggy Backed” = 6 Satellites