VDM Challenge

Beyond the Clouds

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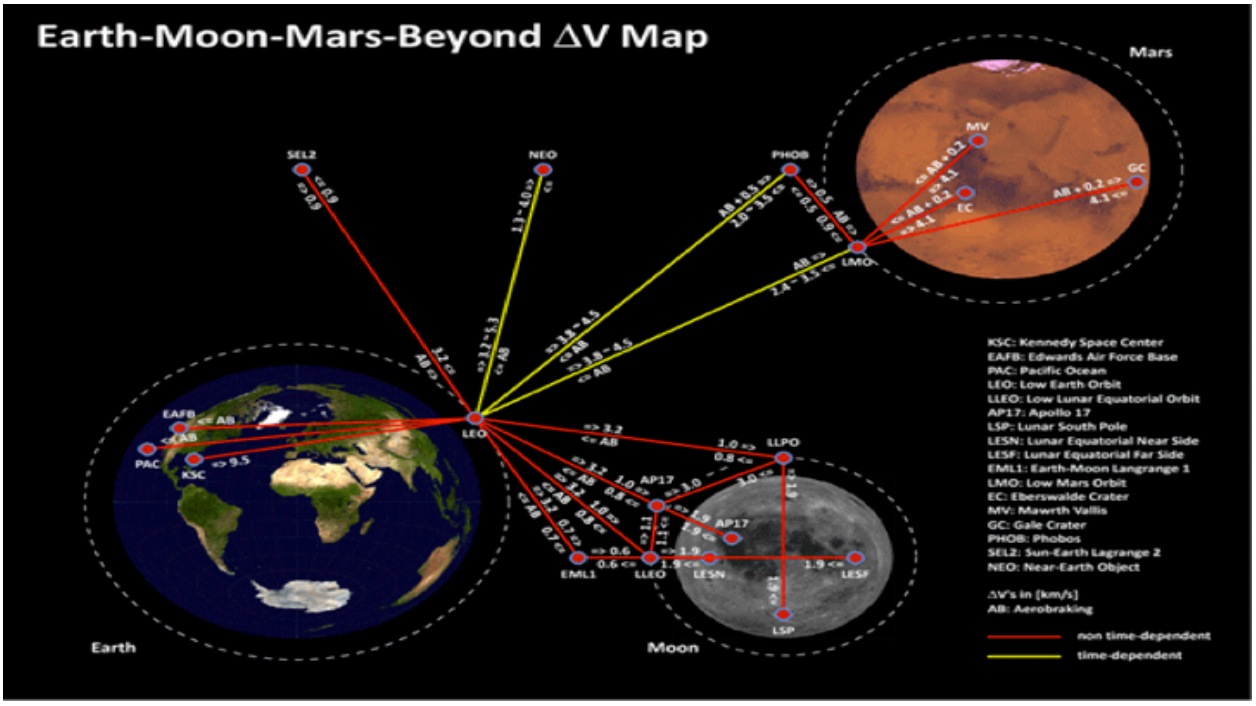

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1 Challenge Summary

The last version of vSphere that was released before the outbreak was vSphere 5.5. vSphere 5.5.5 was still under development, and we need to finish it. It is up to you to determine what the new ground breaking features are that will be released in the completely fictional vSphere 5.5.5.

1.1 Scope

Having nearly completed the exodus of humanity to Mars, Mr. Billionaire is not quite done. The plague has taught us how fragile human survival really is and that concentrating humanity on a single planet opens us to a single point of extinction. To overcome this limitation, Mr. Billionaire has set forth a plan to not only colonize Mars, but other habitable planets and exo-planets including monitoring of conditions on Earth for a possible return in the future. In order to make this a reality, requires low latency communication networks that work over the vast distances of space. In response to this requirement, vSphere 5.5.5 fully supports Quantum Ultra Bandwidth IP Transport for VM, management and vMotion networks and NAS storage.

2 Quantum Ultra Bandwidth IP Transport (QUBIT)

2.1 Description

Quantum Ultra Bandwidth IP Transport (QUBIT), is a communications protocol derived from the work of DARPA, the Max Planck Institute of Quantum Optics, the Los Alamos National Laboratory, NASA. QUBIT transmits encoded data as quantum bits rather than traditional signaling mechanisms. It is estimated that through the use of quantum entanglement encoding and more traditional lossless IP protocols, QUBIT can effectively support high bandwidth deep space communications.

2.2 Use Case

- Long Distance vMotion

  QUBIT is ideal for configuring a Long Distance vMotion network as it provides both high bandwidth and low latency at extreme distances.

- IP Datastores/VVOLs

  QUBIT low latency is ideal for dispersed storage. QUBIT allows for initial storage to be located non-adjacently to the compute resources. This can be advantageous where facilities are considered non-permanent and/or conditions would be too harsh for storage devices to reliably function.

- Disaster Recovery

  QUBIT easily accommodates the requirements for a planetary zero-data loss MetroCluster design and/or long distance asynchronous replication for use with SRM.

3 References

Phys.org	http://goo.gl/Meu29n
NASA Institute for Advanced Concepts	http://goo.gl/zDznvp
NASA	http://goo.gl/rLCxpg
Nature	http://goo.gl/C0oLpR