

6.033 Design Project Errata

Updated on: April 29, 2020

1. There is a 100% probability that one LEO satellite is in contact with the ground. There is a 50% probability that two are in contact with the ground, 25% of three (not 12.5%), and so forth.
2. Table 1 originally had a couple of mistakes in it. All the bandwidth numbers should be in bytes, not bits, so the LEO bandwidth capacity is 2GB/s, the GEO is 1.2GB/s, and the Relay is 622MB/s.
3. The document was missing some details about custody. First, although the document identified two types of single bit flags with respect to custody, there was some clarification needed. Bit 3 indicates that the bundle in question requires custody. What was missing was that if Bit 3 is set, the “current custody” field in the primary block will contain the address of the current custody node. This is the node that currently has custody of a bundle. In order for custody to be passed from one custody node to another, the whole bundle (not only some of the fragments) must arrive at another custody node and then the receiving node must send an administrative bundle to the “current custody” node indicating that it has received the whole bundle and is prepared to provide persistent storage for it until custody can be handed off to another custody node. The second flag indicates a request that as a bundle custody exchange completes, another administrative bundle will be sent, this time to the report-to node. This would allow for the report-to node to track the progress of a custody node, if so desired. This is reflected in Section 2.1.C (p. 10).

The second update is in the information the routing table provides. (Update in Section 2.2 p. 11.) The routing table will provide three types of information not two. The first two are the same, the next hop on the path to the destination, including the connection time and the two nearest neighbors of the same category of device. The third piece of information is the custody routing information. It includes two addresses, the next custody node and the next node toward that custody node. It also includes the connection time available for the next node.

4. In Table 2, the action taken for Bit 15 was incorrectly reported to be to send a report to the previous custody node. It is sent to the “Report-to” node. This has been corrected in the newest version of the original document.