Proposal for Extension

Time Dependent Solutions, allowing for changing connectivity information

Currently there is only one ZoneGridConnectivity_t allowed per zone. So, for time-dependent solutions, no attempt is made to account for changing connectivity information. For example, for Rigid Grid Motion, in the Time-Dependent Flow chapter in the SIDS manual, it currently states: "… no attempt is made in the RigidGridMotion_t data structure to require that ZoneGridConnectivity_t information be updated to be consistent with the new grid locations. Whether the ZoneGridConnectivity_t information refers to the original connectivity (of GridCoordinates) or the latest connectivity (of the moved or deformed grid) is currently left up to the user."

One problem with this state of affairs is that OversetHoles_t is a child node of Zone-GridConnectivity_t, so by not accounting for possible multiple connectivities in time, one is not able to describe situations where the overset holes change for a moving grid.

Proposal:

1. Allow multiple (0,N) rather than (0,1) instances of ZoneGridConnectivity_t. Name = ZoneGridConnectivity (original connectivities); User defined (additional connectivities). (This naming convention mirrors what is currently done for GridCoordinates.)
2. In the SIDS, under ZoneIterativeData_t, add an optional DataArray: Zone-GridConnectivityPointers:

DataArray_t<char,2,[32, NumberOfSteps]> ZoneGridConnectivityPointers; (o)

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