CGNS Telecon Minutes

Tuesday, 30 January 2018, 10:00am Eastern Time

1. The meeting was called to order by Bob Bush. Attendees are listed in Appendix A.

2. 24 October 2017 minutes were approved as published on the website.

3. Steering Committee Issues

    a. None.

4. Steering committee attendance:
    a . Committee members (telecon last date attended):

Airbus	01/2018
ANSYS	01/2018
Boeing	01/2018
Cenaero	01/2018
Colo State	01/2018
HDF	01/2018
IL	10/2017
NASA LRC	01/2018
Numeca	01/2018
ONERA	01/2018
P&W	01/2018
Pointwise	01/2018
SAFRAN	10/2017
Sandia	10/2017
Tecplot	10/2017
TTC	11/2016
U Colo	01/2017
U Kansas	01/2018

5. Discussion
    a. Brief discussion held concerning points that came up during Marc Poinot and Chris Rumsey's paper presentation at SciTech. One comment: for a newcomer, CGNS is too overwhelming; seems too complicated and has a huge learning curve; no one seemed to know about the User's Guide. So maybe we need to make simple explanations like the User's Guide more prominent / easier to find on the website. Maybe a "Quick Startup Guide" or more sample code would be helpful. In further discussion, 2 major general stumbling blocks were mentioned: (1) CGNS has too many ways to write the same thing (too flexible; more prescriptive might be better), (2) problem determining compliance. The group thought that making the website easier to negotiate should be a relatively easy fix, but tackling the "too many ways to write the same thing" could be very difficult, because the flexibility is a philosophy that has been with CGNS since the beginning. A first start might be to at least try to document some of the ways that multiple writing of the same thing is allowed in CGNS. Another suggestion: at least for new features we should try to be more directive (don't allow many options). A very important case in point would be future encoding of the CAD affiliation of mesh entities, where ambiguity should be avoided, given the growing importance of high order/adaptive codes. Suggestion was made to start the discussion on CAD classification from the next meeting onward.
    b. Status of high order extensions: Hillewaert sent out and described the beginnings of two separate CPEXes: for storage of data & curved grids (including Lagrange and functions), and for encoding functions. These are on Google Docs. Hillewaert to email details of the 2

preliminary high order CPEXes to the committee, and ask for feedback by March 1 2018. To wit: Are the principles sound? Will this work in CGNS as encoded?

c. Discussion of CPEX 0041 (for parallel ngon data structure, already accepted, but not yet implemented). Legay informed the committee that an alpha implementation in the MLL has been completed. It is not clear yet whether a new CPEX is needed to extend the same idea to mixed and nface elements, or whether the current CPEX can be easily extended. Legay to make alpha implementation of CPEX 0041 implementation available on github, for trial and feedback by others on the committee. Not sure yet the best way to interface it: new function, or change existing function and lose compatibility.

6. Review action items
    a. Continue to review outstanding JIRA items/tasks.
        i. Item carries. Still trying to track down some MPI issues prior to next release. Some patches are being worked for Windows. Gutzwiller mentioned that CGNS-85 and 109 are big roadblocks for them; he offered to help Breitenfeld as needed.
    b. Hillewaert and sub-committee of experts to continue with CPEX proposal(s) for storage of high-order grids and data.
        i. In process, but action item wording changed to reflect progress made.
    c. Breitenfeld to add Windows documentation as appropriate.
        i. Done. Documentation added to FAQs page.
    d. Garratt to work with Breitenfeld to update documentation for cmake and compression.
        i. In process, carries.
    e. Guzik to finalize implementation of CPEX 0040.
        i. Not done yet, carries.
    f. Legay and Poinot to implement CPEX 0041.
        i. In process, but action item wording changed to reflect new alpha implementation.
    g. Duque to work with Breitenfeld and Wang to determine if CGNS can be part of a new DoE SBIR call.
        i. Not successful, but Breitenfeld has started working with someone in DoD, and there may be a possible interest for them to join the steering committee in the future.
    h. Rumsey to arrange for an informal CGNS get-together immediately after the MVC-06 session at SciTech 2018.
        i. Done.
    i. Wang, Hillewaert, and others to decide if/how to unify P4 elements for CGNS, gmsh, and Pointwise
        i. Not done yet, although they appear to be leaning to changing the CGNS definition (P4 point locations) to be consistent with the existing (textbook) standard. Hillewaert to specify how the CGNS standard for P4 high-order mesh definitions needs to be changed to be consistent with existing textbook standard.

7. Ongoing action items
    a. Continue to review outstanding JIRA items/tasks.
    b. Hillewaert to email details of the 2 preliminary high order CPEXes to the committee, and ask for feedback by March 1 2018.
    c. Garratt to work with Breitenfeld to update documentation for cmake and compression.
    d. Guzik to finalize implementation of CPEX 0040.
    e. Legay to make alpha implementation of CPEX 0041 implementation available on github, for trial and feedback by others on the committee.
    f. Hillewaert to specify how the CGNS standard for P4 high-order mesh definitions needs to be changed to be consistent with existing textbook standard.

8. The next meeting is tentatively scheduled for Tuesday, 27 March 2018 at 10am Eastern.

9. Adjourn

Appendix A – Attendees

Pat Baker	Pointwise
Steve Karman	Pointwise
Scot Breitenfeld	HDF Group
Bob Bush	Pratt & Whitney
Simone Crippa	Airbus
Tony Garratt	ANSYS
David Gutzwiller	Numeca
Stephen Guzik	Colorado State
Koen Hillewaert	Cenaero
Dimitri Kamenetskiy	Boeing
Pierre Jacques-Legay	ONERA
Chris Rumsey	NASA Langley
ZJ Wang	U Kansas