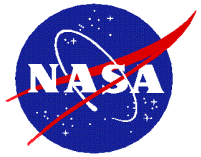

Dealing with Processing Chapter 10 Files from Multiple Vendors

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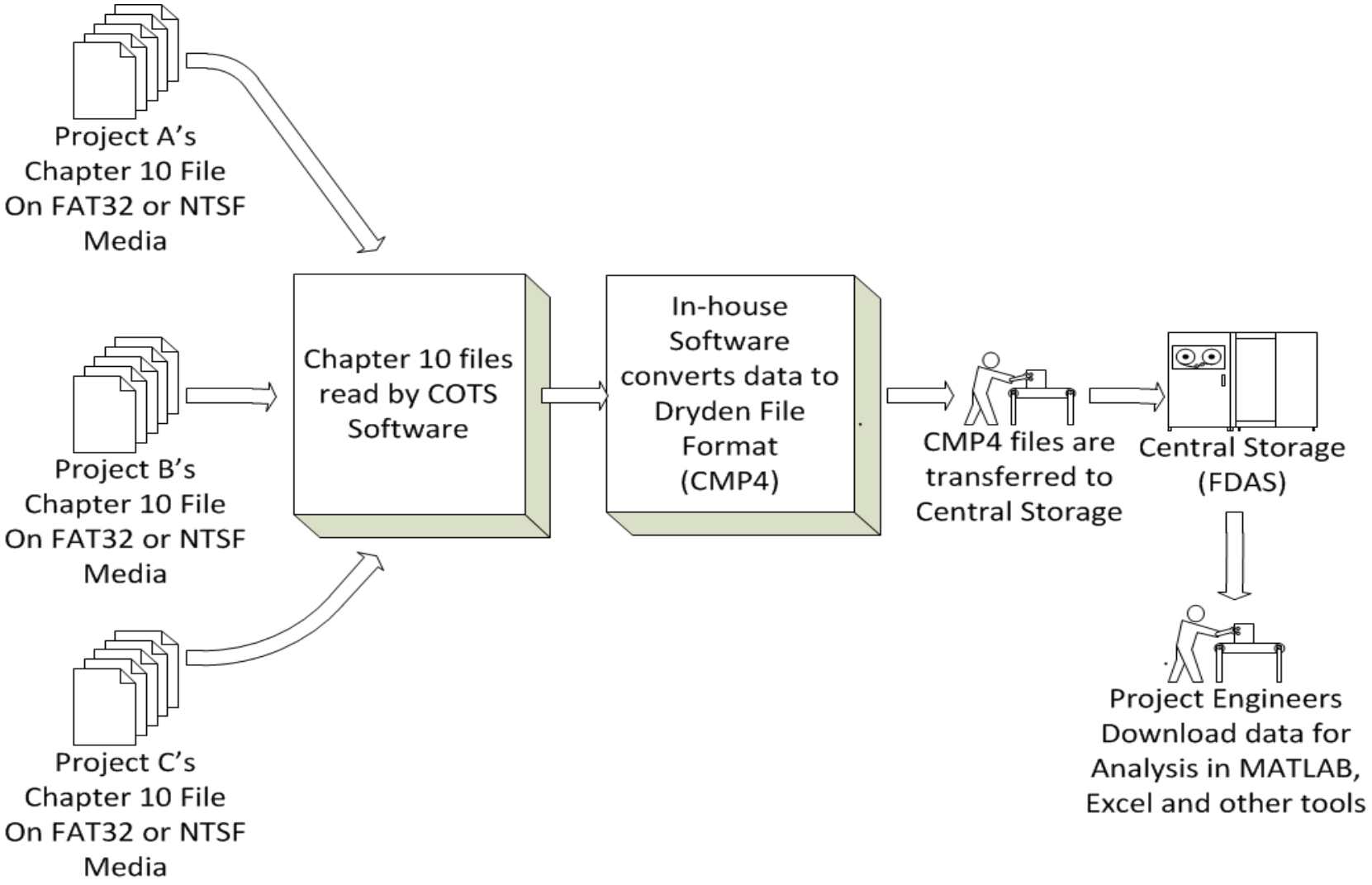
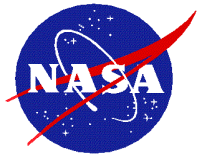
May 11, 2011

Agenda

- NASA Dryden's Post-Flight Processing Environment
- Chapter 10, a Common File Format?
- Organizational Considerations
- Managing the Files
- Problems in Processing the Data
- Coming to the Realization
- Delivering the Data
- *Chapter 10 Tools* Application

NASA Dryden's Post-Flight Processing Environment

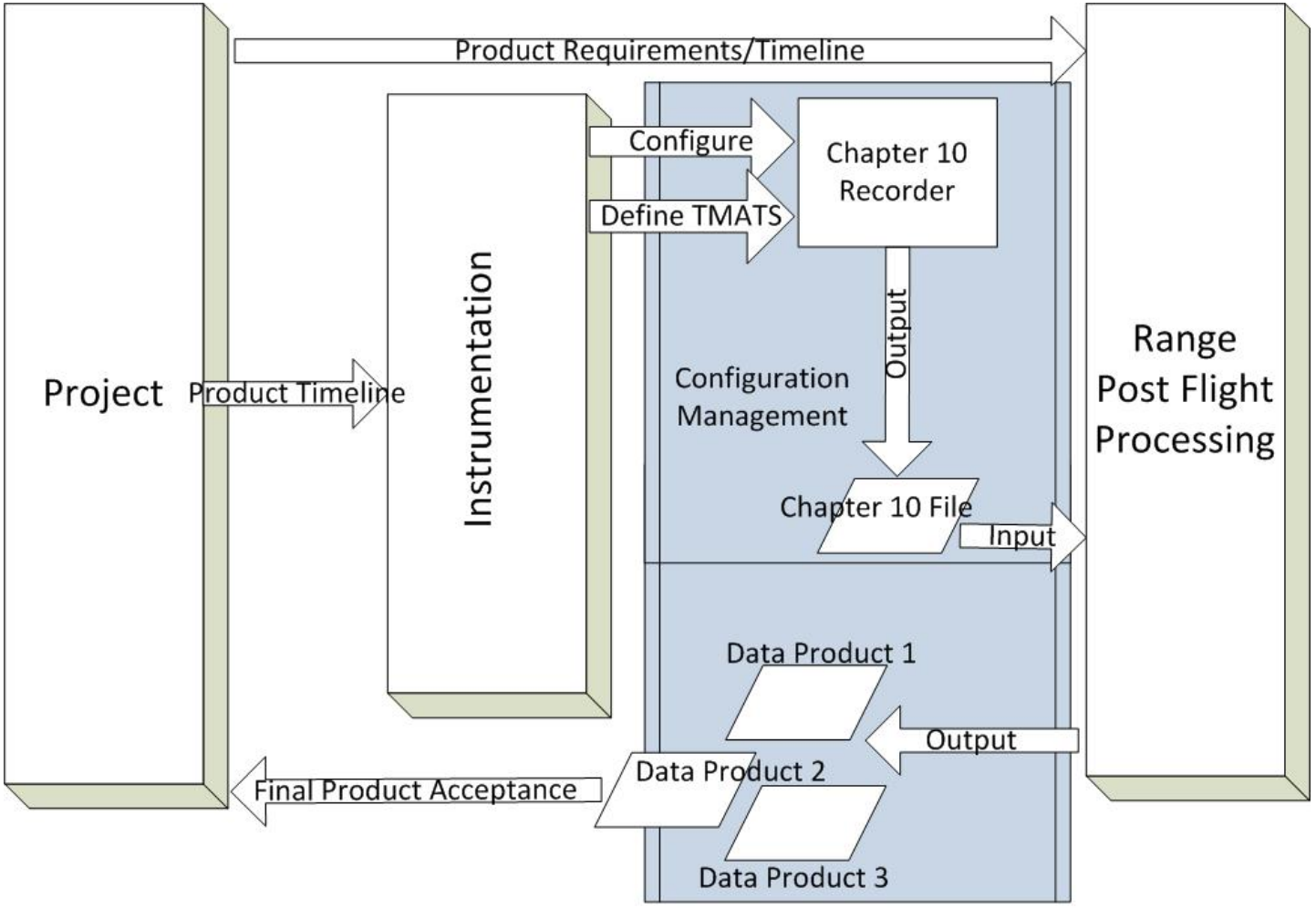




Chapter 10 - A Common File Format?

- Inter-range operations pushed for a standardized method of recording flight data digitally.
- The Inter-Range Instrumentation Group (IRIG) developed a common file structure (Chapter 10) leveraging off existing standards and specifications.
- The IRIG Chapter 10 standard evolved to address issues that arose in early versions of the specification (2005, 2007, and 2009).
- Flight recorder vendors adopted the standard early.
- Flight recorder vendors promoted the idea of “vendor independence “ because of a standard file format.

Organizational Considerations



Organizational Considerations Rev B.vsd
April 22, 2011

Managing the Files

Establish a file transfer process

- Identify the media
- Identify the file system of media
- Identify all of the information that you need to process and manage the files
  - Project Name
  - Request Date
  - Test Vehicle
  - Mission Date
  - Required by Date
  - TMATS File (Setup Definition)
  - Recorder information (Manufacturer, models, serial number, firmware version)
  - Chapter 10 version - 05, 07, or 09
  - Channel & Data Type
  - Data Products (DVD, CD, Disk, Network Storage)
  - File Type (CSV, Chapter 10, MPEG, WMV…)
  - Data Product Identification and Management

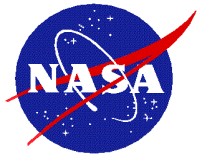
Problems in Processing the Data

- The commercial software used to read the Chapter 10 files is unable to process the files

  The software identifies an error and stops processing
  - Verify error condition through third party validator
  - Validator does/doesn't verify error

  The software stops processing with no error identified
  - Try to identify the error through third party validator
  - Validator does/doesn't verify error

- Real errors and differences in interpretation
  - Time
  - TMATS
  - Structure



Coming to the Realization…

- Each vendor has, at the very minimum, a slightly different implementation of Chapter 10

- Further, one's ability to process the data is constrained to the implementation of the software that is used to process the Chapter 10 files

  - What does the software think is an error?
    - Need to identify the cause
  - How does the application handle the error?
  - Errors in Application?

- Final realization, one does not need a correct Chapter 10 file, one needs a Chapter 10 file that the processing application thinks is correct.

Delivering the Data, the Only Thing That Matters

Regardless of the cause, the Project wants the data

- Find a solution
  - How can I make this work?
    - Quick and ugly: manually edit the file
  - Are there alternatives for processing the data?
    - Different application and work flow
- Create a solution
  - Many roads to get to the same destination
    - Work with your current vendor
    - Standardize on a single vendor solution
  - Create it yourself
    - *WATR's Chapter 10 Tools* Application

Chapter 10 Tools Application

- Development started at the end of 2010
- Summer 2011 - Release 1
- Capabilities
  - Chapter 10 file structure validation
  - Chapter 10 packet validation
  - TMATS viewer/editor
  - Packet viewer/editor
  - Error detection (TMATS, PCM)
  - User specified automatic detection/correction (time)
  - Some automatic detection/correction (headers and trailers)
  - Create a Chapter 10 file we can process.