DFDL Schema Composition

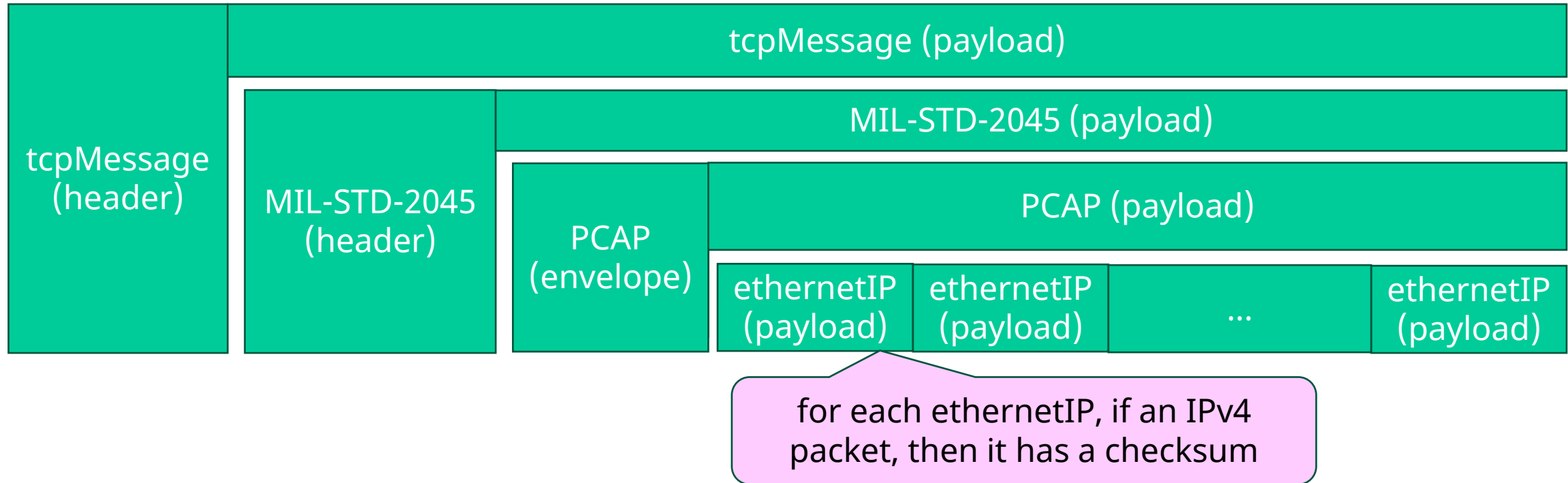# Multi-part Schema Assemblies from Component Schemas

Multi-Part DFDL Schemas

- Some formats naturally split into separate *reusable* DFDL schemas

- Terminology:
  - Component Schemas
  - Assembly Schemas - put together multiple components
    - can themselves be components in larger assemblies

- For example: Header + Payload
  - Header format is shared by many different payload formats
  - MIL-STD-2045 (github) is a header

Multi-Part DFDL Schemas

- DFDL schemas are packaged as jars, and work just like Java jar files
- Automated dependency management assembles schema
  - From dependencies on other DFDL schemas
  - From dependencies on Daffodil plug-ins
    - user defined function libraries
    - layer libraries
    - charset encoder/decoder libraries
  - Java/JVM CLASSPATH is searched (in order) for files of multi-file schemas
- Dependencies are resolved transitively

Envelope-Payload Schema

- DFDLSchemas envelope-payload (on github) assembles 4 schemas together
  - tcpMessage - header
  - MIL-STD-2045 - header
  - PCAP
    - Is itself an assembly using the EthernetIP schema as a component
    - EthernetIP - uses Daffodil Layers (extension of DFDL) to compute IPv4 checksum

Limitations (As of 2025-11-19)

- Public DFDL Schemas are not being published to Maven Central
  - You must obtain and package them locally