



Fault tolerant time distribution on dual transport network

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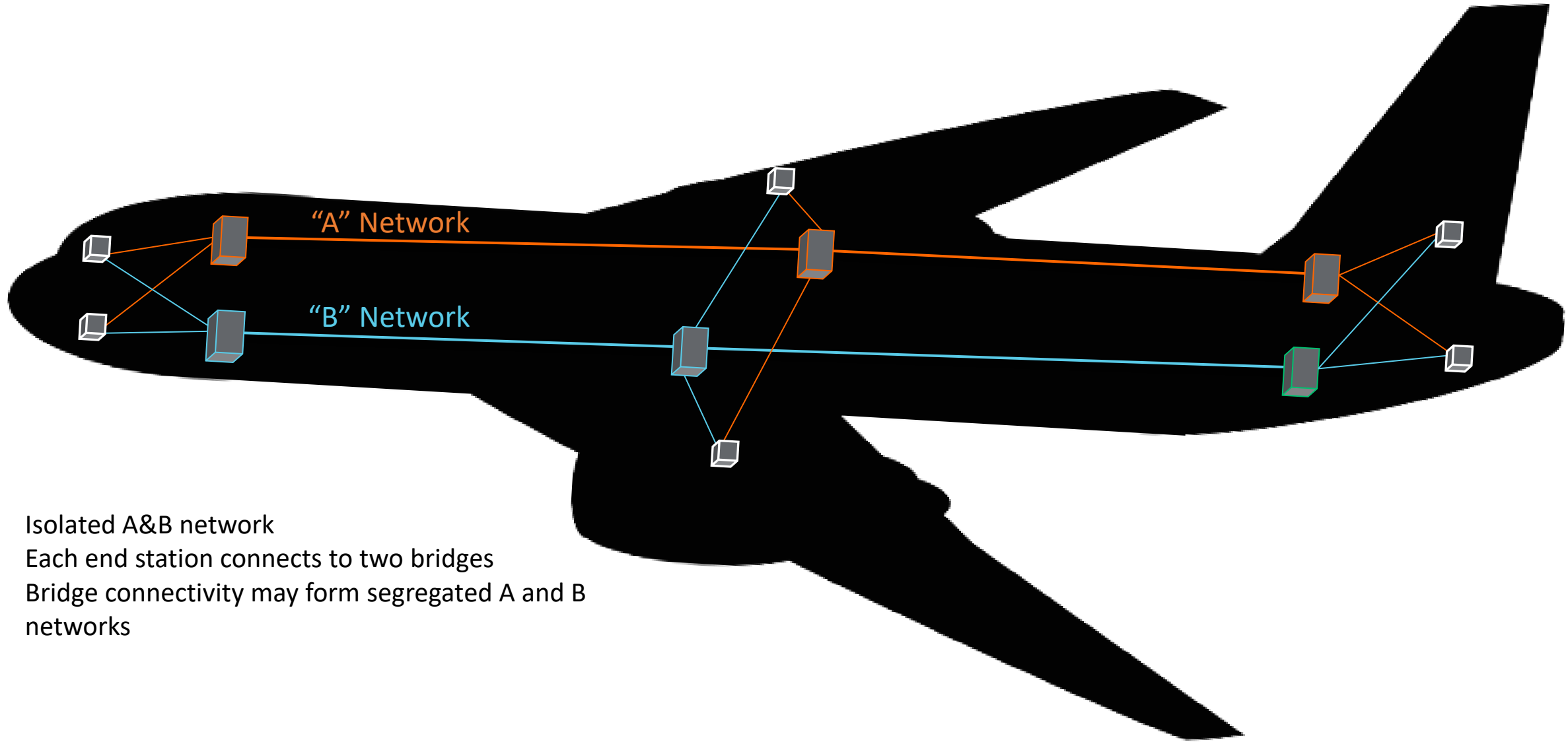
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Objective

- Example of fault tolerant time distribution for avionics networks
 - Typically, dual redundant networks
- Show feasible architecture using DP proposed components

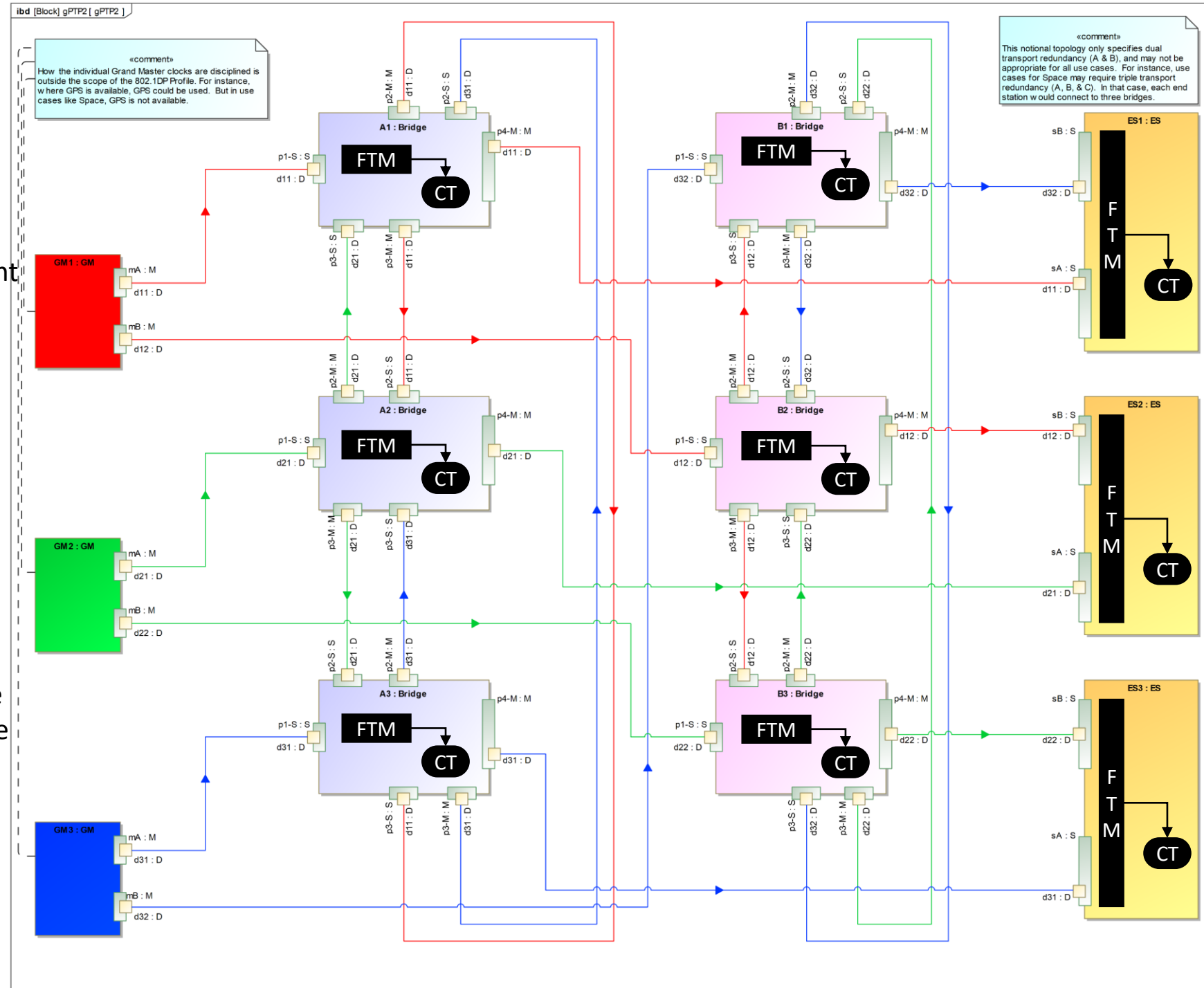
Dual Redundant Transport Networks



- Isolated A&B network
- Each end station connects to two bridges
- Bridge connectivity may form segregated A and B networks

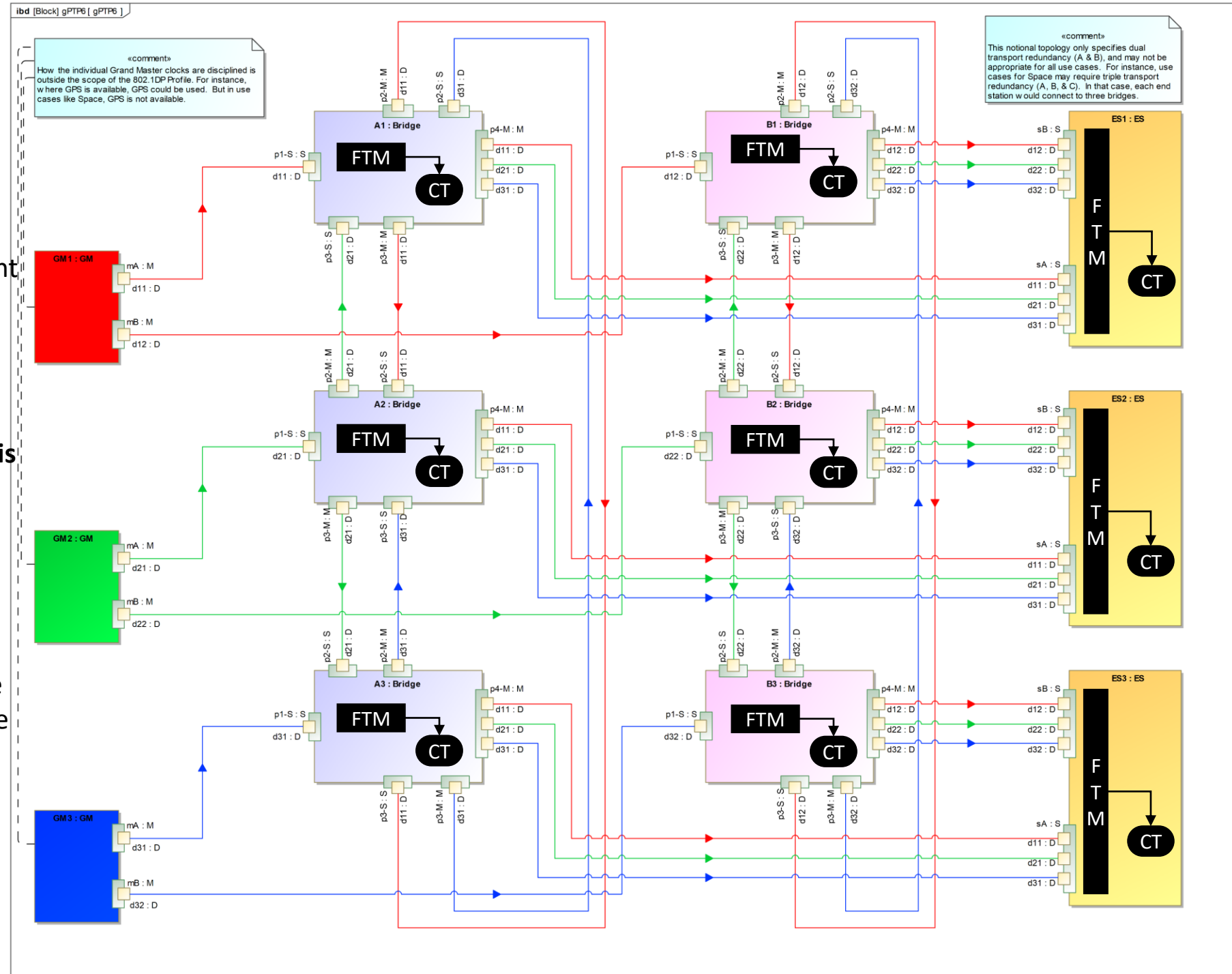
Example Use Case # 1

- Distributed redundant transport
- Triple redundant independent GMs
 - 3 independent domains (red, green, blue)
 - Domain numbers are coded to identify independent and dependent domains
- Each end station has two PTP end instances (one on each port)
 - Uses different domain numbers for each PTP instance. Although it is possible to have the same domain number
- Each bridge has 3 PTP instances (one relay and 2 end instances)
- Every time-aware entity has a fault tolerant module operating on available PTP instances to determine “best” time
 - Fault tolerant module maximizes availability and integrity
 - FT module on bridges does not change PTP relay behavior



Example Use Case # 2

- Distributed redundant transport
- Triple redundant independent GMs
 - 3 independent domains (red, green, blue)
 - Domain numbers are coded to identify independent and dependent domains
- Each end station has six PTP end instances (3 on each port)
 - Uses 6 different domain numbers for each PTP instance. Although it is possible to have only 3 domain numbers
- Each bridge has 3 PTP instances (one relay and 2 end instances)
- Every time-aware entity has a fault tolerant module operating on available PTP instances to determine “best” time
 - Fault tolerant module maximizes availability and integrity
 - FT module on bridges does not change PTP relay behavior



Summary

A design pattern for aerospace time sync distribution on dual redundant transport networks was presented