Sital Safe and Secure vs. Alternative 1553 Cyber Solution

Feature/Aspect/Issue	Sital Safe and Secure	Alternative Cyber Solution	Advantage/Benefit
Size	Zero. Involves use of existing 1553 transceiver, FPGA and processor resources.	1 box per node or 1 large centralized box. Centralized box might not be feasible for some applications	**Sital**. For some applications, there might not be room for extra boxes
Weight	Zero. Involves use of existing 1553 transceiver, FPGA and processor resources.	1 box per node or 1 large centralized box. Centralized box might not be feasible for some applications	**Sital.** Reduced weight results in reduced fuel consumption.
Power Consumption	Zero. Involves use of existing 1553 transceiver, FPGA and processor resources.	Requires power input, requires internal power supply	**Sital.** Greatly reduced power requirements, reduces fuel consumption.
System Reliability	Doesn't contribute to LRU or system failure rate.	Boxes can fail, reducing LRUs' effective MTBFs and system-level MTBF	**Sital.** Lower failure rate, higher MTBF.
Number of required protection points	One per bus, possibly embedded in an existing node.	One box for each node on bus	**Sital.** Fewer add-on devices to install, provide power to and maintain.
Cost	Lower	Higher	**Sital.** Lower cost
Provide source authentication	Makes high-reliability determination of source node based on unalterable physical layer signal characteristics	Low-reliability determination of data source based on data analysis	**Sital.** Very low false positive rate for determining authentication violations
Electrical/wire fault protection	Detects intermittent and continuous open and short circuit faults in bus and stub cables, couplers, connectors and LRUs.	None	**Sital.** Enables maintenance, informs BC to switch active bus. This increases system-level availability and reliability.
Fault location	Locate open and short circuit faults	None	**Sital.** Enables maintenance, increases system-level availability and reliability.

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Real time determination	Determine authentication violations and electrical faults immediately following each message.	Requires analysis of multiple messages to determine source violations. Can't detect electrical faults.	**Sital.** Makes immediate determinations of authentication violations and electrical faults.
Require encryption key management	No	Yes	**Sital.** Reduced cost of ownership
Protect against untrusted LRUs and Prevent loading of malicious operational programs onto LRUs	Positive protection based on unalterable physical layer signal characteristics of loader/verifier nodes. Can't be "faked out" by software.	Less stringent protection that can be "faked out" by software.	**Sital.** More robust/reliable authentication method.
Meets stringent delay constraints for the MIL-STD-1553 protocol.	Introduces zero delay	Delays introduced by two 1553 transceivers, protocol logic and encryption and decryption mechanisms. Could result in response timeouts.	**Sital.** Guaranteed to be non-disruptive to 1553 message timing and frame scheduling.
Fleet maintenance central lab	Sital's SnS lab maintains a database of all fleet electrical faults in bus and stub cables, couplers, connectors and LRUs.	None	**Sital.** Enables determining best available platforms and prioritizing of preventive maintenance.
Prevent unauthorized eavesdropping	Option to include data encryption and decryption to prevent unauthorized eavesdropping.	Prevent unauthorized eavesdropping by encrypting all data transmissions.	**Even.** Use of encryption and decryption can prevent eavesdropping by unauthorized "listeners".