Putting Depth in Your Cyber Defense…

Affirmed Cyber Inc.

	Protocol and Capability	Next Generation Data Diode™	Optical Data Diode	Use Cases	Services Required	Performance
1	Using UDP - only permits traffic in one direction	√	√	A.protection of high value assets… for example generators; motors HVAC systems; production line robots and equipment; medical imagers; laser cutters. B. Preventing information bleed; for example IP protection; oil and gas database protection; mfg plant configurations.	plug and play	Gigabit transmission rates w/sub microsecond latency
2	Using UDP - AES hardware encrypted traffic in one direction	√	X	A highly restrictive hardware "air-gap bridge"; used to get data inside a network without opening full duplex route. For example continuous data streams from imaging or environmental sensors	plug and play	Gigabit transmission rates w/sub microsecond latency
3	Using TCP/IP -with either software or AES hardware encryption, permitting only valid ACK's or NAC's in reverse direction across diode to enable TCP/IP	√	X	A general hardware "air-gap bridge"; used to get arbitrary data flows inside a protected environment. For example, transmission of MS Office documents . (Routing information and documents are not validated or encrypted.)	plug and play	Gigabit transmission rates w/sub microsecond latency
4	Using either TCP/IP or UDP - bi-directional AES hardware payload encryption	√	X	A general hardware "air-gap bridge"; used to get arbitrary data flows inside a protected environment. For example, transmission of MS Office documents . Only payload data is encrypted.	plug and play	Gigabit transmission rates w/sub microsecond latency
5	Using UDP - Software encrypted traffic in one direction	√	√	Software "air-gap bridge"; (replaces physical air-gap)	system administration services: install and configure open source encryption and communication software	operating system and software dependent
6	Using UDP - with either software or AES hardware encryption, and guaranteed delivery of UDP payload using patented Turnstile approach	√	X	Remote database replication with guaranteed delivery	system administration: install and configure UDP software	Gigabit transmission rates w/sub microsecond latency
7	Using either TCP/IP or UDP - bi-directional AES hardware payload encryption, with IPSec encapsulation (so both headers and payloads are encrypted)	√	X	A general hardware "air-gap bridge"; used to get arbitrary data flows inside a protected environment. For example, transmission of MS Office documents . Both routing information and payload data are encrypted.	system admin, and network configuration	Gigabit transmission rates w/sub microsecond latency
8	Any of the aforementioned capabilities, but also does header checking including MAC and IP addresses, port numbers, and message lengths. Provides "firewall like" functionality without need to manage it.	√	X	A general "hardware air-gap bridge"; restricts data flows into a protected environment. For example, transmission of arbitrary data . Routing information is highly restricted and validated.	Specification of Firewall Rules; Automated Generation of custom hardware firewalls	Gigabit transmission rates w/sub microsecond latency
9	Any of the aforementioned capabilities, but also does payload checking(requires development services to customize the device to customers specific traffic content)	√	X	A general "hardware air-gap bridge" in which payloads are restricted and validated	Specification of payload formats; automated generation of custom payload validators	data dependent
10	Any of the aforementioned capabilities, with remote management via an out-of-band channel (for DD1000 and TSNIC models only)	√	X	A general "hardware air-gap bridge" that adds custom remote re-configuration and auditing capability; for example logging dropped traffic while changing hardware firewall rules	Specification of network management formats; custom generation of interfaces to network mgt systems	Gigabit transmission rates w/sub microsecond latency
	The capabilities described above are generally either plug-and-play or require straighforward configuration. The highlighted capabilities require additional implementation services including JSON or Javascript coding. See "Services Required" column.					