TABLE II
SPECIFICATIONS OF UNITY-EDGE CONNECT SD-WAN HARDWARE PLATFORMS (SOURCE: SILVER PEAK)

	Edge Connect US	Edge Connect XS	Edge Connect S	Edge Connect M	Edge Connect L	Edge Connect XL
Architecture	Home Office	Small Branch	Large Branch	Small Hub	Large Hub	Data Center
Bandwidth	1-100 Mbps	2-200 Mbps	10-1000 Mbps	50-2000 Mbps	1-5 Gbps	2-10 Gbps
Connections	256,000	256,000	256,000	2,000,000	2,000,000	2,000,000
Average Throughput	25 Mbps	50 Mbps	200 Mbps	500 Mbps	1 Gbps	5 Gbps
Redundancy	No	No	No	Power and SSD	Power and SSD	Power and SSD
Interfaces	3xRJ45 10/100/1000	4xRJ45 10/100/1000	6xRJ45, Dual 1/10 Gbps short reach, or long reach fiber module (optional)	4xRJ45, 2x 1/10 Gbps fiber, fail-to-glass (bypass) 4xRJ45, 2xSFP plus (pluggable)	4xRJ45, 2x1/10 Gbps fiber, fial-to-glass (bypass) 4xRJ45, 2xSFP plus (Pluggable)	4x 1/10 Gbps fiber, fail-to-glass (bypass) 6x 1/10 Gbps SFP plus, 10/25 Gbps SFP28 (pluggable)

securing the data from the IoT edge devices to the cloud. These network architectures usually have multiple NGFW to secure the sensitive energy installations.

VII. CONCLUSIONS

SD-WAN is a software-based approach to wide area networks, essentially a virtual WAN for mission critical IoT and 5G applications. It can be used to connect any application with bandwidth and latency requirements using flexible communication frameworks, whether MPLS, 5G, 4G/LTE, or broadband Internet. SD-WAN offers QoS controls to differentiate data in multiple ways, and it offers business-driven solutions for challenges such as latency, high data rates, bandwidth, configuration, and performance. It also offers data-driven decision making capabilities and NGFW that can defend the network from external cyber attacks. While SD-WAN will build on the past successes of more mature technologies like SDN and WAN, it may hold the key to the promising future of our vast and growing global energy network ecosystem.

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