

Dell Technologies Validated Design for Manufacturing Edge with Litmus

Solution Overview

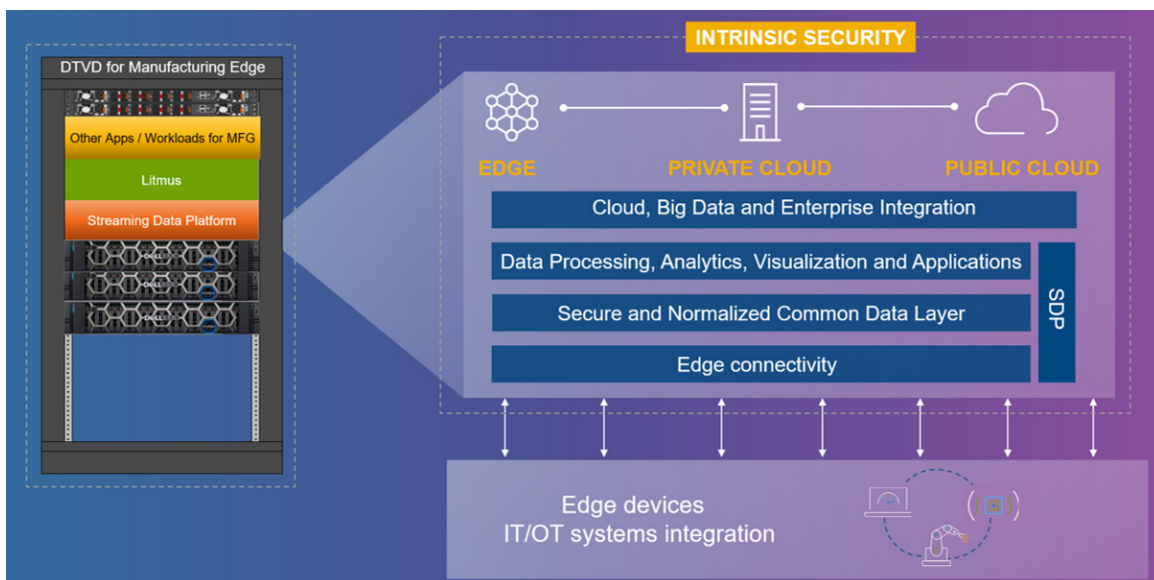
The Dell Technologies Validated Design for Manufacturing Edge with Litmus is a solution that simplifies the path to smart manufacturing outcomes by:














- Streamlining deployment and integration from edge devices to cloud applications for faster time to value
- Powering live insights out of the box for OT, IT, and the business with better, faster decisions
- Ensuring resiliency and security to manage at the global scale while minimizing disruptions.

Solution Detail

Within the Dell Technologies Validated Design for Manufacturing Edge with Litmus, there are four key building blocks that comprise the architecture to support the use cases and workloads for the smart manufacturing outcomes.

- **Dell EMC VxRail:** The VxRail hyperconverged infrastructure creates a turnkey deployment at Edge that offers maximum flexibility for HA, scale and consolidation of OT workloads and applications.
- **Dell EMC PowerEdge Servers:** For scenarios where HA is not required at the Edge, the solution will run on single node PowerEdge server running VMware ESXi. Also, within the solution we have validated ruggedized server platforms (XR11 and XR12) that can offer deployment flexibility for the solutions outside of the datacentre.
- **Dell EMC Streaming Data Platform:** Streaming Data Platform provides a storage capability for OT data streams. Also, SDP has built-in analytics capabilities. SDP is built on open source platforms and runs on the VxRail as a VM specifically for this solution. SDP acts as the “aggregation point” for the data ingested across Litmus Edge instances in this solution. One or more SDP instances can be deployed depending on the deployment scenario.
- **Litmus:** Litmus Edge is a Linux based OS that provides the IT/OT connectivity and capability to contextualize and normalize OT data. It can be run within a VM or on a Gateway Device. Litmus Edge Manager is the management solution that allows you to manage all the Litmus Edge deployments within the environment.



	        		
Workload size	Small up to 5,000 tags	Medium up to 15,000 tags	Large up to 30,000 tags
Dell EMC PowerEdge servers 	XR11, XR12 or R650	XR11, XR12, R650 or R750	R650 or R750
Dell EMC VxRail HCI 	E660F, D5610F or E560F	E660F, D5610F or E560F	P570F, E660F or D560F
Dell EMC Streaming Data Platform			
 Litmus Edge software: Foundation, Growth or Scale			
 VMware® vSAN® or VMware vSphere® Enterprise Plus or ESXi			

Technical Specifications

PowerEdge and VxRail Specifications.

	Form Factor	#CPU	Compute	Memory	Storage
Small >= 5,000 tags	XR 11	1U	1 Xeon® Silver 4316 2.3G, 20C/40T, 10.4GT/s, 30M Cache	6 x 16GB RDIMM	4 x 1.92TB SSD SAS Mixed Use
	XR 12	2U	1 Xeon® Silver 4316 2.3G, 20C/40T, 10.4GT/s, 30M Cache	6 x 16GB RDIMM	4 x 1.92TB SSD SAS Mixed Use
	R 650	1U	2 2 x Xeon® Silver 4310 2.1G, 12C/24T, 10.4GT/s, 18M Cache	12 x 8 GB RDIMM	4 x 1.92TB SSD SAS Mixed Use
	VxRail E560F	1U	1 Xeon® Gold 6226R 2.9G, 16C/32T, 10.4GT/s, 22 M Cache	6 x 16GB RDIMM	1 x 800GB SSD SAS Write Intensive 3 x 1.92TB SSD SAS Read Intensive
	VxRail D560F	1U	2 2 x Xeon® Silver 4215 2.5G, 8C/16T, 9.6GT/s, 11M Cache	8 x 16GB RDIMM	1 x 800GB SSD SAS Mix Use 3 x 1.92TB SSD SAS Read Intensive
	VxRail E660F	1U	1 Xeon® Silver 4314 2.4G, 16C/32T, 10.4GT/s, 24M Cache	8 x 16GB RDIMM	1 x 800GB SSD SAS Write Intensive 3 x 1.92TB SSD SAS Read Intensive
Medium < 15000 tags	XR 11	1U	1 Xeon® Gold 5318N 2.1G, 24C/48T, 11.2GT/s, 36M Cache	6 x 32GB RDIMM	3 x 3.84TB SSD SAS Mixed Use
	XR 12	2U	1 Xeon® Gold 5318N 2.1G, 24C/48T, 11.2GT/s, 36M Cache	6 x 32GB RDIMM	3 x 3.84TB SSD SAS Mixed Use
	R650	1U	2 2 x Xeon® Silver 4310 2.1G, 12C/24T, 10.4GT/s, 18M Cache	12 x 16GB RDIMM	3 x 3.84TB SSD SAS Mixed Use
	R750	2U	2 2 x Xeon® Silver 4310 2.1G, 12C/24T, 10.4GT/s, 18M Cache	12 x 16GB RDIMM	3 x 3.84TB SSD SAS Mixed Use
	VxRail E560F	1U	1 Xeon® Gold 6252 2.1G, 24C/48T, 10.4GT/s, 35.75 M	12 x 16GB RDIMM	2 x 800GB SSD SAS Write Intensive 4 x 3.84TB SSD SAS Read Intensive
	VxRail D560F	1U	2 2 x Xeon® Silver 4210 2.2G, 10C/20T, 9.6GT/s, 13.75M	12 x 16GB RDIMM	2 x 800GB SSD SAS Mix Use 4 x 3.84TB SSD SAS Read Intensive
	VxRail E660F	1U	2 2 x Xeon® Silver 4310T 2.3G, 10C/20T, 10.4GT/s, 15M Cache	8 x 32GB RDIMM	2 x 800GB SSD SAS Write Intensive 4 x 3.84TB SSD SAS Read Intensive

	Form Factor	#CPU	Compute	Memory	Storage	
Large < 30000 tags	R650	1U	2	2 x Xeon® Platinum 8368 2.4G, 38C/76T, 11.2GT/s, 57M Cache	16 x 16GB RDIMM	6 x 3.84TB SSD SAS Read Intensive
	R750	2U	2	2 x Xeon® Platinum 8368 2.4G, 38C/76T, 11.2GT/s, 57M Cache	16 x 16GB RDIMM	6 x 3.84TB SSD SAS Read Intensive
	VxRail D560F	1U	2	2 x Xeon® Gold 6242 2.8G, 16C/32T, 10.4GT/s, 22M Cache	16 x 16GB RDIMM	2 x 800GB SSD SAS Mix Use 6 x 3.84TB SSD SAS Read Intensive
	VxRail E660F	1U	2	2 x Xeon® Gold 6326 2.9G, 16C/32T, 11.2GT/s, 24M Cache	16 x 16GB RDIMM	2 x 800GB SSD SAS Write Intensive 6 x 3.84TB SSD SAS Read Intensive
	VxRail E570F	2U	2	2 x Xeon® Gold 6246R 3.4G, 16C/32T, 10.4GT/s, 35.75M Cache	16 x 16GB RDIMM	2 x 800GB SSD SAS Write Intensive 6 x 3.84TB SSD SAS Read Intensive

Litmus

Litmus Edge 3.1.5.0 and Edge Manager 2.1.1

Predefined Config	Tags	Litmus VM(s)	LM VM	CPU/Mem Per Litmus VM	CPU/ Mem LM VM	Storage Litmus Per VM	Storage LM VM
Small	5000	1	0	4 Cores/8GB	N/A	60GB	N/A
Medium	15000	3	1	4 Cores/8GB	4 Cores/8GB	60GB	100GB
Large	30000	6	1	4 Cores/8GB	8 Cores /16 Gb	60GB	200GB

Litmus Features

		FOUNDATION (10000 Tags)	GROWTH (15000 tags)	SCALE (30000 tags)
Features	Product			
Industrial Common Data Layer (All Industrial Drivers) LoopFlows Integrations Data Storage	Litmus Edge	✓	✓	✓
Centralized Edge lifecycle Management Centralized Data Connectivity Centralized OTA Firmware Update Centralized Backup-Restore Centralized Template management	Litmus Edge	✗	✓	✓
Public Marketplace Access Native Docker Application Support	Litmus Edge	✗	✓	✓
Edge Analytics Manufacturing KPIs Edge Machine Learning Runtimes	Litmus Edge	✗	✓	✓
Vision Processing Modules	Litmus Edge	✗	✗	✓
	Litmus Edge Manager	✗	✗	✓