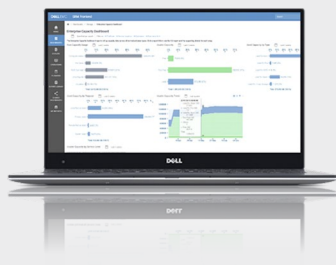


# Dell Storage Resource Manager (SRM)

Visualize, analyze and optimize your storage environment

## Essentials



### Visualize:

- View relationships and topologies from application to storage array
- Correlate application health with storage key performance indicators (KPIs)

### Analyze:

- Gain insight into block, file, and object capacity utilization across multivendor, traditional and software-defined storage environments
- Validate configuration compliance
- Simplify configuration change planning through what-if analysis

### Optimize:

- Align application workloads to the right tier of storage
- Streamline capacity planning via automated trends analysis
- Increase cost transparency through multitenant, chargeback or show-back reporting

## Control Storage Costs

According to leading industry analyst estimates, the data managed by enterprises is expected to grow to over 40ZB in 2020. Datacenters must be designed for speed, agility, mobility and growth. Rapid data growth combined with increased service level expectations introduces new management challenges for traditional storage environments. Dell Storage Resource Manager™ (SRM) is a market leading, comprehensive, storage monitoring and reporting solution that helps IT to visualize, analyze and optimize their end-to-end heterogeneous storage environments. SRM monitors inventory, capacity, performance, data protection and configuration details of storage along with the connected resources like hosts, fabrics and applications to generate proactive alerts and useful reports through a single-pane-of-glass. SRM helps to manage today's storage investments while providing a management framework that supports investments in data storage.

## Visualize

SRM was built to manage the complexity of growing, heavily virtualized storage environments. With SRM, you obtain detailed relationship and topology views from the application, to the virtual or physical host, down to the LUN to identify service dependencies. You can view performance trends across the data path and identify hosts competing for resources. SRM enables you to understand and manage the impact that storage has on your applications. With this improved insight, you can optimize storage resources to control the cost of rapid data growth.

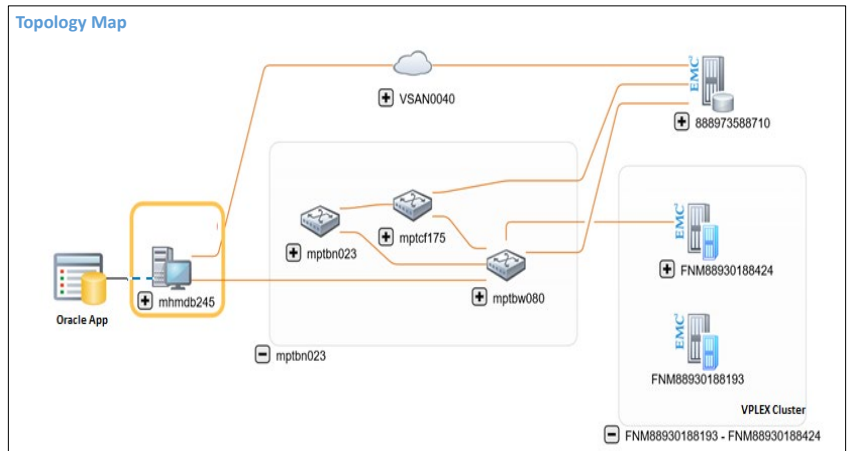


Figure 1: Visualize end to end topology and application to infrastructure mapping.

## Analyze

SRM helps you analyze health, configurations and capacity growth. You can quickly spot SLA problems through custom dashboards and reports that meet the needs of a wide range of users and roles. With SRM you can also track block, file and object capacity consumption across your data centers with built in views to help you understand who is using capacity, how much they are using, and when more will be required.

Service Level Capacity				
6 elements found, displaying 1 to 5. 1 column(s) have been hidden.				
Service Level	Usable (GB)	Used Trend (GB)	Free (GB)	Usage (%)
FAST VP	11,515.86	10,733.04	782.82	93.20
Gold	2,963.45	43.29	2,920.20	1.46
Bronze	3,123.92	366.30	2,757.63	11.73
Platinum	110,599.04	1,478.98	113,577.81	1.34
Other	5,767.56	395.09	5,372.47	6.85
<b>Total</b>	<b>133,969.82</b>		<b>125,360.92</b>	

FAST VP							
5 elements found, displaying all elements. 4 column(s) have been hidden.							
Array	Vendor	Array Model	Service Level	Usable (GB)	Used Trend (GB)	Free (GB)	Usage (%)
Unified_VNX5400_APM00140634211	EMC Corporation	VNX5400	FAST VP	461.57	18.07	443.50	3.91
Falcon_APM00164514651	EMC Corporation	Unity 600	FAST VP	68.91	68.91	0.00	100.00
APM00133776801	EMC Corporation	VNX5800	FAST VP	9,405.38	9,367.56	37.82	99.60
LGLBW100	HP	HPE_3PAR 7400	FAST VP	1,880.00	1,278.50	301.50	80.92
000197801199	EMC Corporation	VMAX250F	FAST VP	0.00	0.00	0.00	
<b>Total</b>				<b>11,515.86</b>		<b>782.82</b>	

Figure 2: Analyze capacity utilization by service level.

You can continuously validate compliance with your design best practices and the Dell Support Matrix to ensure your environment is always configured right to meet service level requirements. Also SRM provides configuration change “what if?” analysis to proactively detect potential mis-configurations that could result from a configuration change.

Breaches											
21 elements found, displaying 1 to 5. 5 column(s) have been hidden.											
Severity	BreachName	Device	Device Type	Affected Objects	Policy	Rule	Creation Time	Last Modified Time	Status		
MAJOR	Zone is missing a host port	100000533AAMF8	Fabric	Zonemgg0R1_HBA1_Symem92L_W1	Zoning Best Practices	Zone must Contain a Host Port	2017/09/28 10:33:41 EDT	2018/02/05 08:20:40 EST	ACTIVE		
MAJOR	Too many initiators in a zone	100000533ASB96	Fabric	UCS_Chassis_3_B25M2_EDX_Chassis_3D	Zoning Best Practices	Single Initiator Zoning	2017/09/28 10:35:18 EDT	2018/02/05 08:20:40 EST	ACTIVE		
MAJOR	Zone is missing a host port	100000533ASB96	Fabric	ZoneBrcade_3PA1_3PA2_VNXs	Zoning Best Practices	Zone must Contain a Host Port	2017/09/28 10:33:38 EDT	2018/02/05 08:20:40 EST	ACTIVE		
MAJOR	Path Management Software Interoperability	mgp021.liv.smc.com	Hyperstore		EMC Support Matrix	Path Management Software Interoperability for EMC Array	2018/02/04 09:29:23 EST	2018/02/04 22:30:08 EST	ACTIVE		
MAJOR	IO Path Redundancy	ehreg011	Host	HBA.com.emulex.LPa12002.FC0404858595.Array88876588482	SQL Server High Availability Physical Connectivity	IO Path Redundancy	2018/02/01 13:15:00 EST	2018/02/03 05:43:00 EST	ACTIVE		
MAJOR	Too many initiators in a zone	100000533ASB96	Fabric	UCS_Chassis3_B25M2_EDX_Chassis_VMAXs	Zoning Best Practices	Single Initiator Zoning	2017/09/28 10:35:58 EDT	2018/02/05 08:20:40 EST	ACTIVE		
MAJOR	Path Management Software Interoperability	mgp0202	Host		EMC Support Matrix	Path Management Software Interoperability for EMC Array	2018/02/04 09:29:23 EST	2018/02/04 22:30:08 EST	ACTIVE		
MAJOR	Zone is missing a host port	100000533ASB96	Fabric	Zonemgg16L_VMAX2	Zoning Best Practices	Zone must Contain a Host Port	2017/09/28 10:33:31 EDT	2018/02/05 08:20:40 EST	ACTIVE		
MAJOR	Zone is missing a host port	100000533ASB96	Fabric	Zonemgg02R_HBA1_16cL_VMAX104_2ab	Zoning Best Practices	Zone must Contain a Host Port	2017/09/28 10:36:17 EDT	2018/02/05 08:20:40 EST	ACTIVE		
MAJOR	Zone is missing a host port	100000533ASB96	Fabric	Zonemgg16L_VMAX2	Zoning Best Practices	Zone must Contain a Host Port	2017/09/28 10:36:17 EDT	2018/02/05 08:20:40 EST	ACTIVE		

Figure 3: Validate compliance to best practices and the Dell EMC Support Matrix.

## Optimize

SRM helps you optimize capacity and improve productivity to get the most out of your investments in block, file and object storage. It shows historical workloads and response times to determine if you have selected the right storage tier. SRM also helps you optimize the workload distribution to make sure there's no contention and reduce performance impact.

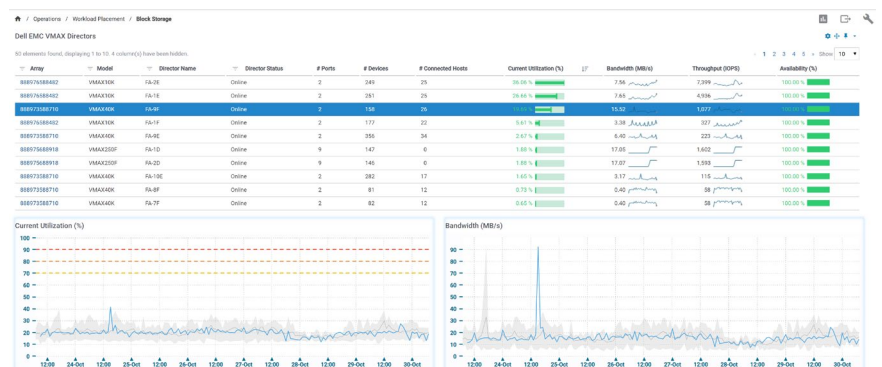


Figure 4: Optimize storage based on workload trends.

SRM discovers all storage assets and gives you insights about where you can reclaim unused storage (LUNs with no IOPs, unmasked LUNs) or make greater use of thin provisioning to improve storage utilization.

Detailed capacity reporting and forecasting capabilities improves planning to enhance purchasing processes and reduce costs. Armed with this information, you can optimize your storage environment to improve your ROI.



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SRM



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