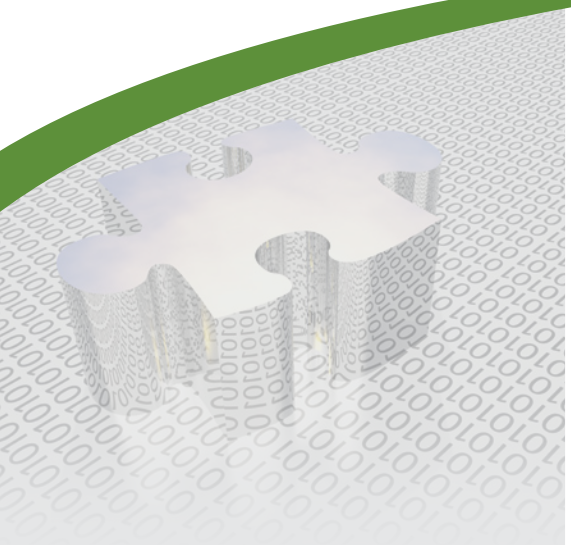
APTARE®



White Paper

Essential Backup Objectives and Technology Considerations

APTARE reporting provides a comprehensive view across the entire backup process

Without APTARE it would be almost impossible to monitor and validate every backup job. With APTARE this information is available with one click.

It's no secret that storage and backup environments are growing more complex putting additional strain on organizations, users, and storage administrators. As a result, reporting, long an overlooked factor of capacity and data protection strategies, is growing in importance. Organizations face the following reporting challenges:

- Users want proof that their backups are actually complete
- Users want to know exactly what they are paying for and they want proof they are not being overcharged for storage
- Users want predictability for future storage needs
- The company wants lower OpEx, which is achieved by optimized storage and backup processes
- The company wants lower CapEx, which is achieved by improved utilization of current storage and reduced purchases of new storage
- Internal and external auditors require compliance with many diverse storage requirements and proof of compliance

Delivering Visibility into Storage and Backup

By providing extensive visibility into storage allocation, utilization, and backup, APTARE StorageConsole helps to meet many diverse needs.

Taking Inventory

APTARE StorageConsole can discover the entire backup infrastructure—including how many backup servers, clients, policies, and schedules. APTARE can even go outside the backup environment and discover storage arrays and the number of raw terabytes associated with those arrays. In a virtual environment, APTARE can discover ESX servers, the CPUs configured on those servers, switches, switch ports, and more.

Backup Products	Backup Servers	Clients	Job Volume (GB)	DataDomains	Array Vendors	Arrays	Raw TB	ESX Servers	CPUs	Switches	Ports
Veritas NetBackup	2	30	963	0	IBM XIV	6	77	10	64	4	128
Legato Networker	6	267	11,031	4	EMC VNX	0	0	0	0	0	0
Tivoli Storage Manager	4	532	10,245	2	HDS NetApp	5	54	5	40	2	64
Veritas NetBackup	1	240	13,696	4	HP EVA HDS	6	0	0	0	0	0
Veritas NetBackup Veritas Backup Exec	1	22	85	0	EMC Symmetrix HDS	6	256	13	0	0	0
Veritas NetBackup EMC Avamar	2	50	1,735	0	NetApp	36	1,930	0	0	0	0
Commvault	3	429	2,671	1	HDS NetApp	7	55	0	0	0	0
Veritas NetBackup	1	277	14,549	2	EMC Clariion EMC VNX (Celerra) NetApp	0	0	0	0	0	0
Veritas NetBackup	1	72	3,570	0	IBM SVC IBM XIV	0	0	0	0	0	0
Veritas NetBackup	1	68	1,475	0	NetApp	4	67	17	212	0	0
Tivoli Storage Manager Veritas NetBackup	21	3,954	58,218	1	EMC Symmetrix NetApp	6	1,423	0	0	1	256
Veritas NetBackup	1	252	247,679	0	EMC Clariion	11	1,449	84	1,928	0	0
	0	701	270,629	20		101	6,016	162	3,084	57	1,135

FIGURE 1: A typical APTARE dashboard showing backup status of distributed infrastructure.

Meeting SLAs

APTARE can also report how backup resources are performing against SLAs by determining actual client success. While most vendor reporting tools will report on the number of backup failures, APTARE reports on the ultimate success of those backups, confirming that backups were finally completed, independent of backup failures.

Backup Job and Client Status per Backup Server

Server Group=Global Storage Infrastructure | Sep 29, 2012 03:54:00PM - Oct 02, 2012 03:53:59PM
Yellow Threshold: 80% Red Threshold: 90%

Total Row(s): 6

Backup Server	Backup Product	Volume	Jobs		Successful	Partial	Failed	Job Success	Clients		Successful	Partial	Failed	Mixed	Client Success
aptarenbu-win	EMC Avamar	.00 TB	11		0	0	0	.00%			0	0	0	1	.00%
seattle	HP Data Protector	1.53 TB	963		0	0	6	.00%	70		65	0	0	5	92.86%
backupexec1	Symantec Backup Exec	1.41 TB	48		18	0	22	37.50%	19		7	2	9	1	36.84%
Aptare	Tivoli Storage Manager	.96 TB	1,702		1,394	75	29	86.31%	156		81	62	0	13	51.92%
everest	Veritas NetBackup	2.34 TB	367		295	67	5	98.64%	139		71	54	3	11	51.08%
cindy	Legato NetWorker	2.71 TB	413		408	4	1	99.76%	61		56	0	1	4	91.80%
		8.95 TB	3,504		2,115	146	63		446		280	118	13	35	54.08%

FIGURE 2: An APTARE report shows actual backup success versus job success.

Uncovering Problems

APTARE can alert administrators to backup issues that are not manifested in the form of errors or job failures. For example, an APTARE Suspect Client Variance Report (FIGURE 3) can alert the administrator when the volume of data in the backup is much larger or smaller than normal based on preset thresholds. Smaller data volumes can indicate an undetected backup failure. Larger data volumes can indicate that extra data is being backed up unnecessarily. In both of these cases, the problem would not be detectable via a report that only registers backup failures or errors.

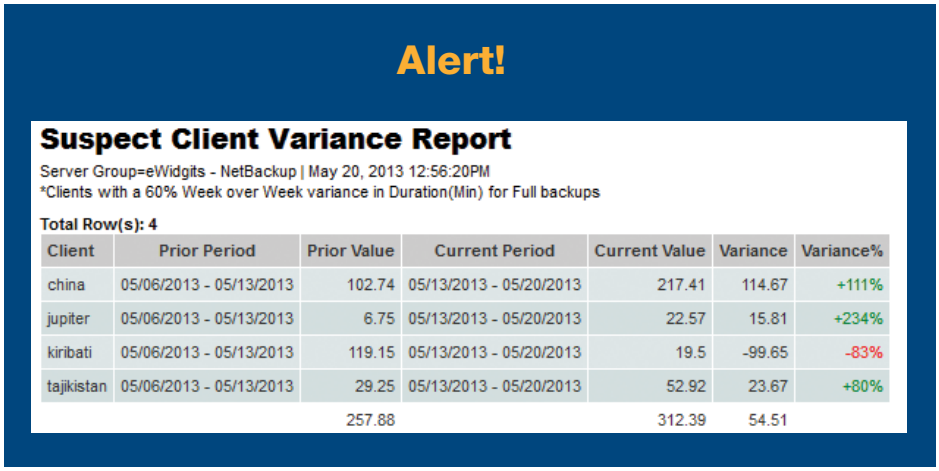


FIGURE 3: APTARE alerts administrators of backup issues not related to failures.

Tracking Throughput

APTARE provides an easy-to-understand graphic dashboard showing throughput across all media servers and tape drives. Color-coded thresholds show average throughput over any period of time to highlight drive performance.

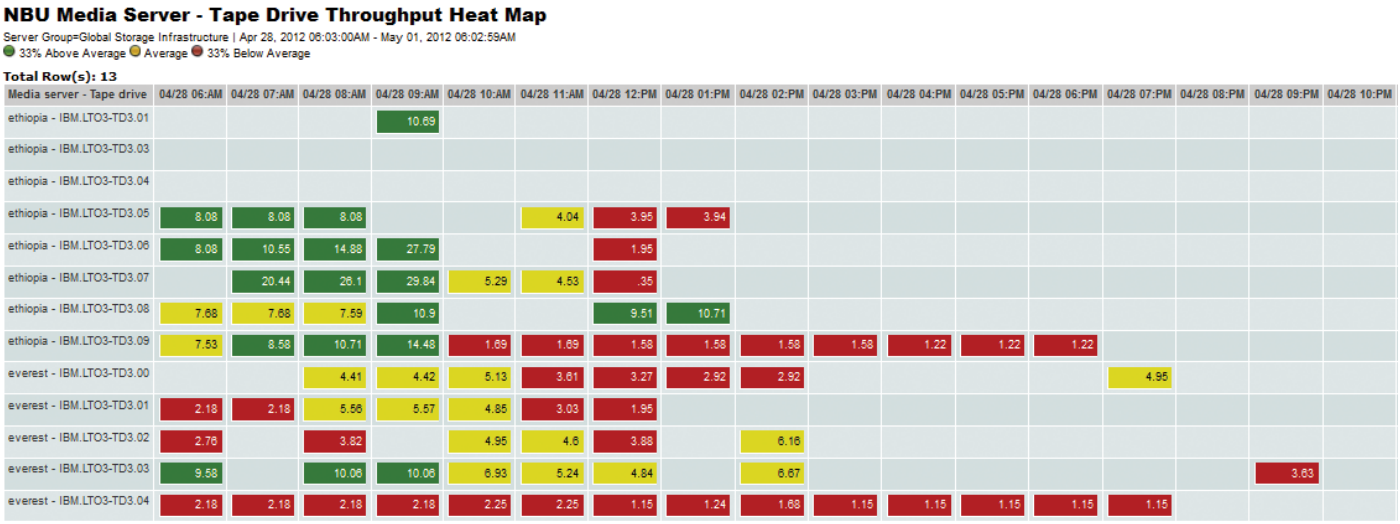


FIGURE 4: Backup performance is tracked in this APTARE report.

Drive performance issues can cause nightly backups to fail. Without a report like this it would be impossible to determine what was causing the backup failure. An administrator might assume that more drives are needed to complete the backups resulting in additional capital expenditures. Using this APTARE report, an administrator can identify drives that are performing slower than expected and take action to correct the situation such as fixing the NIC cards rather than purchasing more drives.

Ensuring Backup Integrity

In today's complex backup environment, thousands of backup jobs can be processed at the same time representing complex processes generating multiple copies in different locations. The challenge is knowing the backup process has completed properly for all required copies. APTARE can track all backup jobs and validate completion of all copies to show stakeholders or auditors. Without APTARE, it would be almost impossible to monitor and validate every backup job. With APTARE this information is available with one click.

NBU 3 Copy End to End Protection Detail

Server Group=APTARE | Nov 14, 2012 01:50:00PM -Nov 15, 2012 01:49:59PM
Please Hover Mouse Over The Status Icons For More Information

Total Row(s): 143

Master Server	Client	Copy	Source	Size	Expiration		Copy	Source	Size	Expiration		Copy	Source	Size	Expiration	
aptare_nbu1	aptoracle100	1	Disk	.06 GB	Nov 28, 2012 03:04:48PM		2	Disk	.06 GB	Dec 15, 2012 03:04:48PM		3	Tape	.06 GB	Dec 15, 2012 03:04:48PM	
aptare_nbu1	aptoracle100	1	Disk	.06 GB	Nov 28, 2012 03:32:30PM		2	Disk	.06 GB	Dec 15, 2012 03:32:30PM		3	Tape	.06 GB	Dec 15, 2012 03:32:30PM	
aptare_nbu1	aptoracle100	1	Disk	.06 GB	Nov 28, 2012 04:21:05PM		2	Disk	.06 GB	Dec 15, 2012 04:21:05PM		3	Tape	.06 GB	Dec 15, 2012 04:21:05PM	
aptare_nbu1	aptoracle100	1	Disk	.06 GB	Nov 28, 2012 04:57:05PM		2	Disk	.06 GB	Dec 15, 2012 04:57:05PM		3	Tape	.06 GB	Dec 15, 2012 04:57:05PM	
aptare_nbu1	aptoracle100	1	Disk	.06 GB	Nov 28, 2012 06:02:50PM		2	Disk	.06 GB	Dec 15, 2012 06:02:50PM		3	Tape	.06 GB	Dec 15, 2012 06:02:50PM	
aptare_nbu1	aptoracle100	1	Disk	.06 GB	Nov 28, 2012 07:49:09PM		2	Disk	.06 GB	Dec 15, 2012 07:49:09PM		3	Tape	.06 GB	Dec 15, 2012 07:49:09PM	
aptare_nbu1	aptoracle100	1	Disk	.06 GB	Nov 28, 2012 11:52:39PM		2	Disk	.06 GB	Dec 15, 2012 11:52:39PM		3	Tape	.06 GB	Dec 15, 2012 11:52:39PM	
aptare_nbu1	aptoracle100	1	Disk	.06 GB	Nov 29, 2012 12:35:20AM		2	Disk	.06 GB	Dec 16, 2012 12:35:20AM		3	Tape	.06 GB	Dec 16, 2012 12:35:20AM	
aptare_nbu1	aptoracle100	1	Disk	.06 GB	Nov 29, 2012 02:31:50AM		2	Disk	.06 GB	Dec 16, 2012 02:31:50AM		3	Tape	.06 GB	Dec 16, 2012 02:31:50AM	
aptare_nbu1	aptoracle100	1	Disk	.06 GB	Nov 29, 2012 03:09:15AM		2	Disk	.06 GB	Dec 16, 2012 03:09:15AM		3	Tape	.06 GB	Dec 16, 2012 03:09:15AM	
aptare_nbu1	aptoracle100	1	Disk	.06 GB	Nov 29, 2012 03:13:14AM		2	Disk	.06 GB	Dec 16, 2012 03:13:14AM		3	Tape	.06 GB	Dec 16, 2012 03:13:14AM	
aptare_nbu1	aptoracle100	1	Disk	.06 GB	Nov 29, 2012 03:41:12AM		2	Disk	.06 GB	Dec 16, 2012 03:41:12AM		3	Tape	.06 GB	Dec 16, 2012 03:41:12AM	
aptare_nbu1	aptoracle100	1	Disk	.06 GB	Nov 29, 2012 04:41:22AM		2	Disk	.06 GB	Dec 16, 2012 04:41:22AM		3	Tape	.06 GB	Dec 16, 2012 04:41:22AM	
aptare_nbu1	aptoracle100	1	Disk	.06 GB	Nov 29, 2012 05:12:42AM		2	Disk	.06 GB	Dec 16, 2012 05:12:42AM		3	Tape	.06 GB	Dec 16, 2012 05:12:42AM	
aptare_nbu1	aptoracle100	1	Disk	.06 GB	Nov 29, 2012 06:41:23AM		2	Disk	.06 GB	Dec 16, 2012 06:41:23AM		3	Tape	.06 GB	Dec 16, 2012 06:41:23AM	
aptare_nbu1	aptm1bdb03	1	Disk	.00 GB	Nov 28, 2012 07:17:43PM		2	Disk	.00 GB	Dec 15, 2012 07:17:43PM		3	Tape	.00 GB	Dec 15, 2012 07:17:43PM	
aptare_nbu1	aptoracle100	1	Disk	.06 GB	Nov 28, 2012 03:23:00PM		2	Disk	.06 GB	Dec 15, 2012 03:23:00PM		3	Tape	.06 GB	Dec 15, 2012 03:23:00PM	
aptare_nbu1	aptoracle100	1	Disk	.06 GB	Nov 28, 2012 04:13:00PM		2	Disk	.06 GB	Dec 15, 2012 04:13:00PM		3	Tape	.06 GB	Dec 15, 2012 04:13:00PM	
aptare_nbu1	aptoracle100	1	Disk	.06 GB	Nov 28, 2012 05:48:31PM		2	Disk	.06 GB	Dec 15, 2012 05:48:31PM		3	Tape	.06 GB	Dec 15, 2012 05:48:31PM	

FIGURE 5: APTARE provides insight into the success of multiple backups of the same data.

Outlining Chargebacks

APTARE chargeback reports offer granular visibility into storage allocation and utilization for chargeback purposes. The report outlines exactly how much storage was used by each department or other stakeholder. Server groups can even be created for each department. APTARE can identify if the storage is physical or virtual, if it is running Oracle or SQL Server, or if the servers are being replicated—all the metrics that impact the cost of the storage assembled in a single universal chargeback report.

In addition, the administrator can associate a specific dollar value to the megabytes backed up or to various tiers of storage further clarifying exact costs in the chargeback report.

Chargeback Detail by Department

Server Group=SAN Hosts | Apr 30, 2013 12:00:00AM - May 29, 2013 12:02:26PM
*All Sizes in GB unless otherwise specified

Total Row(s): 29

Department	Hostname	Backup Size	# Tapes Used	SAN Switch Ports	Storage Alloc SAN	Storage Used SAN	Virtual # CPUs	Virtual Memory Size	Virtual Machine Size	VM Disk Size	Oracle Alloc Size	Oracle Used Size	MSSQL Alloc Size	MSSQL Used Size	Exchange Size	SRDF Replicated	BCV Allocated	True Copy Replicated
Accounting	aptarebue11d	9	17	0									0	0	0			
Legal	hds_linux	478	23	0	483	402												
Manufacturing	hds_hpux	21	17	0	483	483												
Accounting	hds_aix	7	17	0	648	648												
Sales	hds_win1	57	0	0	483	483												
Sales	hds_win2	662	28	0	483	483					25	20						
Sales	hds_win3	344	21	0	483	483												
Marketing	hds-sun1	1,133	25	0	23													
Accounting	qa_auto_deploy	1,539	59	0			2	2	138	160								
Marketing	vmlinux1	1,606	25	0														
Accounting	aptaredev1	31	33	6			4	4	63	160								
Sales	aptarew2003	5	21	0			2	1	101	120								
Marketing	sun	4	22	0														
Manufacturing	w2k3-64bit	285	23	0														
Marketing	winprod1		0	0														
Sales	hebe		0	0	409	409												
Legal	hemera		0	0	2,946	2,946												
Finance	heracles		0	0	2,946	2,946												
Accounting	pheme		0	186		1,364												
Finance	aptare1		0	0	27,900	25,416												
Manufacturing	aptare2		0	0	27,900	25,416												
Accounting	kiribati	28	24	0														
Marketing	cuba	3,072	65	0														
Legal	greece	12,539	72	0														
Accounting	kiwi	1,106	53	0	4	4					25	20						
Sales	portugal	7,012	41	0														
Manufacturing	samoa	3,257	40	0														

FIGURE 6: APTARE enables chargeback strategies.

Identifying Retention Periods

The APTARE NBU Ad Hoc Occupancy Distribution Report (Figure 7) shows all backup data and its retention period enabling easy identification of retention policies that have been set incorrectly.

NBU Ad Hoc Occupancy Distribution

Server Group=APTARE | Jan 11, 2012 12:00:00AM - Jan 17, 2012 10:15:59AM
Unexpired data (Occupancy) by Master Server, all values in (TB)

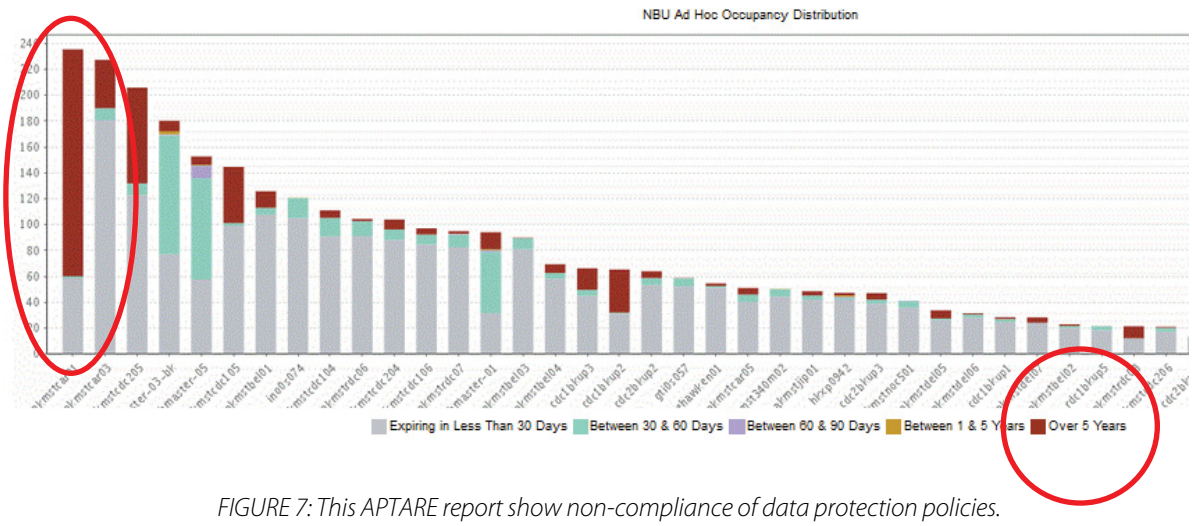


FIGURE 7: This APTARE report show non-compliance of data protection policies.

Planning for the Future

APTARE reports can show available capacity per stakeholder or across the enterprise based on current utilization. By setting variables, such as percentage increase in clients, administrators can use APTARE to predict future utilization and costs for specific time periods and pinpoint when additional capacity will need to be purchased.

Tape Drive Activity and Idle Time

Server Group=Dynamo Corp - TSM | Aug 24, 2012 05:21:00AM - Aug 27, 2012 05:20:59AM
*Tape Drive Idle Time in HH:MM:SS format

Total Row(s): 13

Backup Server	Media Merver	Library	Drive	In Use	Not in Use	Not in Use%	# Samples	Samples/Hr	Available Hours	Idle Time
Aptare	Aptare	3494LIB	DRIVE100	32	10	23.81%	42	1	17.14	17:08:34
Aptare	Aptare	3494LIB	DRIVE111	23	21	47.73%	44	1	34.36	34:21:49
Aptare	Aptare	3494LIB	DRIVE200	20	24	54.55%	44	1	39.27	39:16:21
Aptare	Aptare	3494LIB	DRIVE210	18	27	60.00%	45	1	43.20	43:11:59
Aptare	Aptare	3494LIB	DRIVE301	24	19	44.19%	43	1	31.81	31:48:50
Aptare	Aptare	3494LIB	DRIVE311	39	4	9.30%	43	1	6.70	06:41:52
Aptare	Aptare	3494LIB	DRIVE330	20	24	54.55%	44	1	39.27	39:16:21
Aptare	Aptare	3494LIB	DRIVE341	38	5	11.63%	43	1	8.37	08:22:19
Aptare	Aptare	3								
Aptare	Aptare	3								
Aptare	Aptare	3								
Aptare	Aptare	3								
Aptare	Aptare	3								

What if Client Count Increased

Server Group=ral-util01 | Apr 26, 2012 12:00:00AM - May 25, 2012 02:26:59PM
*All values in (GB), Max Theoretical Capacity = 500, What Clients Increased by 10%

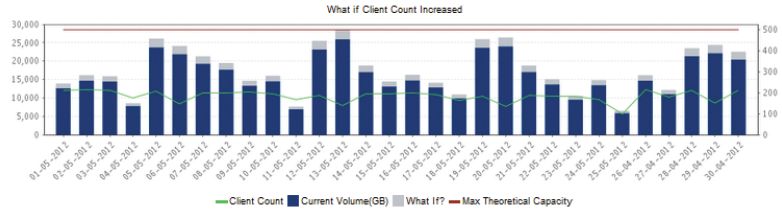


FIGURE 8: APTARE calculates future storage needs.

Improving Capacity Utilization and Reducing CapEx

The visibility provided by APTARE reports helps customers achieve a variety of benefits including improved capacity utilization, reduced CapEx on storage purchases, increased administrator productivity, strengthened data protection, and audit compliance.

The following are a few real world examples:

Customer Discovers Incorrect Retention Policies

One APTARE customer used the solution to identify retention periods on an unusually large backup of 171 TB of data written in one week. The report showed that the majority of the data had a long-term retention period. Drilling into the information on the clients, APTARE found that the retention policies had been incorrectly set to infinite retention. The customer was not aware this was happening until they ran the APTARE report. By correcting this situation and eliminating these backups the customer saved hundreds of thousands of dollars per year and achieved ROI on APTARE within the first week.

Customer Uncovers Underutilized Drives

A customer was unsure whether 18 drives in the tape library would satisfy the company's backup requirements. Using APTARE, they were able to see that 50 percent of the drives were underutilized and took steps to reduce backup volume in one data center by 16 percent. This delayed the purchase of at least one backup system for 12 months. In addition, the streamlined process provided by APTARE reduced capacity planning reporting from three days per week to two hours.

Visit APTARE.com today to learn how you can make your backup environment more efficient through greater visibility.

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