

Indexer Clustering Internals & Performance

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Agenda

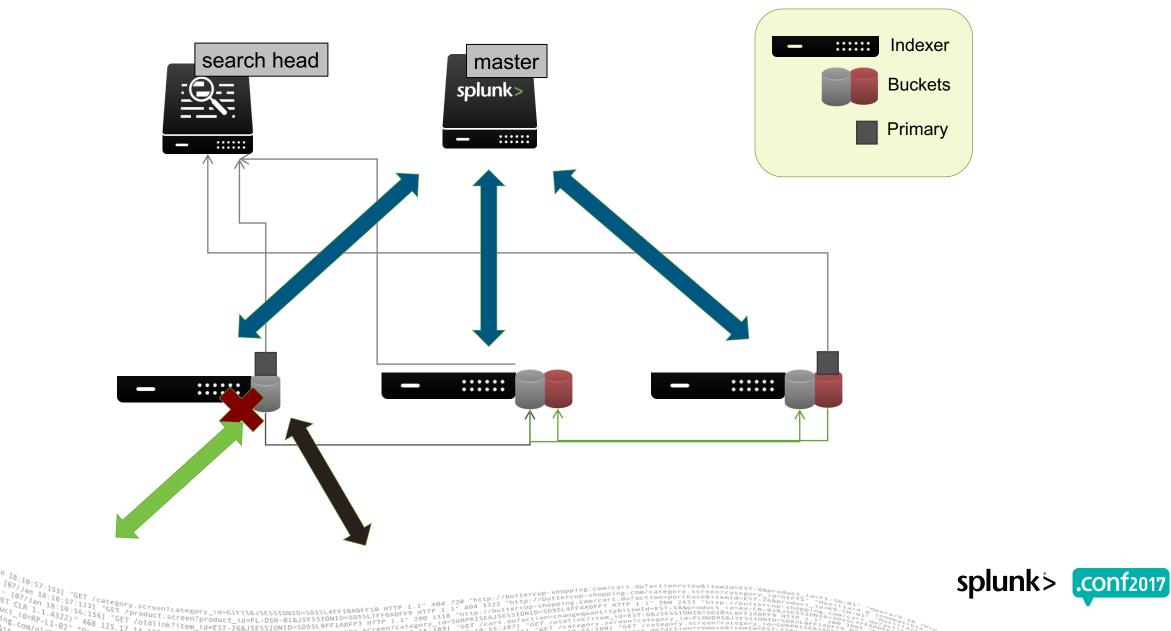
Indexer Clustering Overview	 How Clustering works Communication Through Endpoints metrics.log, splunkd_access.log Cluster Activity
Peers and Buckets!	 Inspecting Buckets More Buckets More Problems Settings for Large Clusters
Performance Testing	 Testing Setups Multisite Testing Results Bundle Pushing Results 5M+ Buckets Results
	► Q&A

"6":10:57:153] "GET /Category.screen?category_id=GIFTS&JSESSIONID=SDISLATF10ADEF10 HTTP 1.1" 404 720 "http://buttercup-shopping.com/cart.do?action=view&itemId=EST-6&, F1 CLR 1.18:10:57:123] "GET /Category.screen?category_id=GIFTS&JSESSIONID=SDISLATF10ADEF10 HTTP 1.1" 404 720 "http://buttercup-shopping.com/cart.do?action=view&itemId=EST-6&, uct_id=1.4.322] "des /product.screen?category_id=GIFTS&JSESSIONID=SDISLATF10ADEF10 HTTP 1.1" 404 720 "http://buttercup-shopping.com/cart.do?action=view&itemId=EST-6&, id=Category_id=SUBJORCE_Category_id=GIFTS&JSESSIONID=SDISLATF10ADEF10 HTTP 1.1" 404 720 "http://buttercup-shopping.com/cart.do?action=view&itemId=EST-6&, id=Category_id=GIFT_category_id=GIFT_category_id=GIFTS&JSESSIONID=SDISLATF10ADEF10 HTTP 1.1" 404 720 "http://buttercup-shopping.com/category_id=ECOMERSUBGESECONID=SDISLATF10ADEF10 HTTP 1.1" 404 720 "http://buttercup-shopping.com/category_id=EST=6&, id=Category_id=GIFT_category_id=GIFTS&JSESSIONID=SDISLATF10ADEF10 HTTP 1.1" 404 720 "http://buttercup-shopping.com/category_id=EST=6&, id=Category_id=GIFT_category_id=GIFTS&JSESSIONID=SDISSIOFF1ADEF30 HTTP 1.1" 404 720 "http://buttercup-shopping.com/category_id=EST=6&, id=Category_id=EST=6&, id=Category_id=GIFT_category_id=GIFTS&JSESSIONID=SDISSIOFF1ADEF30 HTTP 1.1" 200 III # thtp://buttercup-shopping.com/category_id=EST=6&, id=Category_id=EST=6&, id=Category_id=GIFT_category_id=GIFTS&JSESSIONID=SDISSIOFF1ADEF30 HTTP 1.1" 200 IIII # thtp://buttercup-shopping.com/category_id=EST=6&, id=Category_id=EST=6&, id=Category_id=GIFT_category_id=GIFTS&JSESSIONID=SDISSI

Indexer Clustering Overview



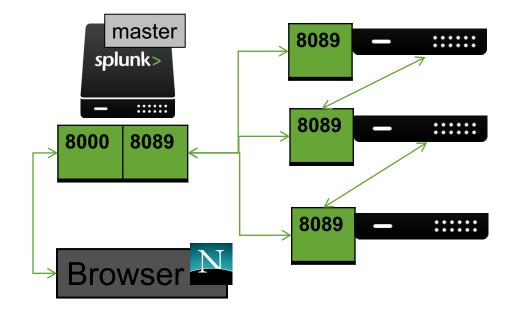
Cluster!



Communication Through Endpoints

The cluster master and peers communicate amongst themselves through the clustering endpoints on the management ports. Some examples:

- Peers->Master:
 - /services/cluster/master/peers
 - Add Peer to cluster
 - Heartbeat to master
 - /services/cluster/master/buckets
 - Alert master there is a new bucket
 - Alert master a bucket changes (hot -> warm, warm -> frozen)
- Master->Peers
 - /services/cluster/slave/buckets
 - Change primaries
 - Become searchable / unsearchable

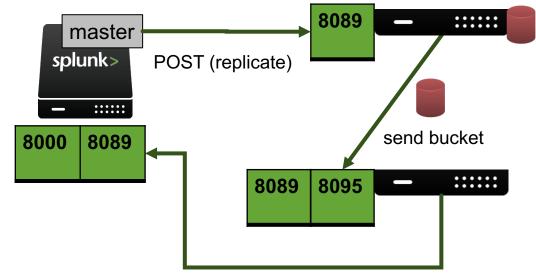




Communication Through Endpoints

Bucket replication example

- 1. CM sends a replicate command to the indexer
 - POST slave/buckets/BID1/replicate
- 2. Indexer receives the command, and starts replication!
 - Sends the bucket through the replication port
- On success / failure, the indexers will report the result to the CM



POST (replicate success/failure)



Inspecting The Cluster

Endpoints, Logs, and Metrics



Cluster/Master Endpoints

The services/cluster/master/ endpoints contain lots of information about the cluster.

- Cluster/master/generation
 - Peer overview
 - Current generation information (Searchable? RF met? SF met?)

Cluster/master/peers

- Bucket counts and states for every peer
- Bucket primary counts

Cluster/master/buckets

- Lists all the buckets in the cluster
- Individual bucket states and copies



Cluster/Master/Peers

49A0D210-5662-4AC0-AC3B-72777066C271

active_bundle_id	6EFA36E8BI	6EFA36E8BE12EB09D0F4D4C97223522A			
	invalid_bun	dle	bundle_validation_errors		
	a_baii		invalid_bundle_id		
apply_bundle_status	reasons_for	r_restart			
	restart_requ	uired_for_apply_bundle	0		
	status		None		
base_generation_id	1				
bucket_count	1638				
	_audit	79			
bucket_count_by_index	_internal	13			
bucket_count_by_index	_telemetry	27			
	main	1519			
buckets_rf_by_origin_site	default 16	38			
buckets_sf_by_origin_site	default 16	38			

Cluster/Master/Peers

	Searchable	1638	
search_state_counter	SearchablePendingMask 0		
site	default		
status	Up		
	Complete 163	1	
status_counter	StreamingSource 3		
	StreamingTarget 4		

Cluster/Master/Buckets

frozen	0					
index	main					
origin_site	default					
		bucket_flags	Oxffffffffffffff			
		checksum				
		checksum_state	StableCksum			
	49A0D210-5662-4AC0-AC3B-72777066C271	search_state	Searchable			
	49AUD210-3002-4ACU-AC3B-72777000C271	server_name	p1			
		status	Complete			
		summaries_data_models				
		summaries_report_accs				
peers		bucket_flags	0x0			
		checksum				
		checksum_state	StableCksum			
	99B08D78-F5CD-454A-A72B-11564161E269	search_state	Searchable			
	33D00D70-F3CD-434A-A72D-11304101E203	server_name	p2			
		status	Complete			
		summaries_data_models				
		summaries_report_accs				
rep_count_by_site	default 2					

Cluster/Master/Buckets

clustermasterbuckets - Splunk https://marsha.sv.**splunk.com**:11090/services/cluster/master/bucket Splunk Atom Feed: clustermasterbuckets Updated: 2015-09-09T00:58:27-07:00 Splunk build: 6.3.0 Feed links: create - acl audit~58~56605911-7851-49A5-8FC5-8B7FC49B093 bucket size 416918 constrain to origin site app can list can_write modifiable system 1. ad admir admir eai:acl 4. splunk-system-role 1. ad admir admin 3 everything splunk-system-role removal force_roll 0 0 frozen index audit site3 origin si

 79F4ED1E-9675-48E4-ACFF-3A2EB6C29B66
 bucket_flags
 0x0

 checksum
 checksum
 stableCksum

 search_state
 Unsearchable

 server_name
 Cindy_Peer

 status
 Complete

There's so many buckets! How do I find one that I care about? Why would I care?

Filters! services/cluster/master/buckets?filter=

- Which buckets do not have primaries?
 - buckets?filter=has_primary=false
- Which buckets do not meet my RF=3?
 - buckets?filter=replication_count<3
- Which buckets are frozen?
 - buckets?filter=frozen=true
- Standalone?
 - buckets?filter=standalone=true
- Standalone and frozen?
 - buckets?filter=standalone=true&filter=frozen=true
 - (don't think this is a thing)
- Don't meet RF=3 and index=main?
 - buckets?filter=replication_count>3&filter=index=main

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Endpoints Are Logged!

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date_second 60		>		on HTTP/1.1"			/Sep/2015:16:	:29:03.397 -07	UUJ "PUSI	/services/c	uster/	stave/buc	.Kets/DUCK	ecs/cha	nge_masks	routput_	_ino
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e1 e						•	-										

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Bucket primary changes! Buckets being frozen!



Metrics.log

>	9-08-2015 22:59:15.184 -0700 INFO Metrics - group=subtask_seconds, name=cmmaster_service, to_fix_streaming=0.000, to_fix_data_safety=0.016, to_fix_gen=0.000, to_fix_rep_factor=0.036, to_fix_search_fac or=0.032, to_fix_sync=0.000, service=0.085
>	9-08-2015 22:59:15.184 -0700 INFO Metrics - group=subtask_seconds, name=cmmaster_endpoints, clustermastergeneration_edit=0.018000, clustermasterinfo_list=0.018000, clustermasterpeers_edit=0.185000
>	9-08-2015 22:59:15.184 -0700 INFO Metrics - group=subtask_counts, name=cmmaster_service, to_fix_streaming=0, to_fix_data_safety=97, to_fix_gen=0, to_fix_rep_factor=235, to_fix_search_factor=235, to_fi _sync=0, to_fix_added=0, to_fix_removed=0, to fix total=235, count=15
>	9-08-2015 22:59:15.184 -0700 INFO Metrics - group=subtask_counts, name=cmmaster_endpoints, clustermastergeneration_edit=18, clustermasterinfo_list=18, clustermasterpeers_edit=185
>	9-08-2015 22:59:15.184 -0700 INFO Metrics - group=executor, name=cmmaster_executor, jobs_added=0, jobs_finished=0, current_size=0, smallest_size=0, largest_size=0, max_size=0
>	9-08-2015 22:59:15.184 -0700 INFO Metrics - group=cmmaster_servicejobs, serviced=0.000000, current_size=0.000000
>	9-08-2015 22:58:44.184 -0700 INFO Metrics - group=subtask_seconds, name=cmmaster_service, to_fix_streaming=0.000, to_fix_data_safety=0.016, to_fix_gen=0.000, to_fix_rep_factor=0.036, to_fix_search_fac or=0.031, to_fix_sync=0.000, service=0.084
>	9-08-2015 22:58:44.184 -0700 INFO Metrics - group=subtask_seconds, name=cmmaster_endpoints, clustermastergeneration_edit=0.019000, clustermasterinfo_list=0.019000, clustermasterpeers_edit=0.181000
>	9-08-2015 22:58:44.184 -0700 INFO Metrics - group=subtask_counts, name=cmmaster_service, to_fix_streaming=0, to_fix_data_safety=97, to_fix_gen=0, to_fix_rep_factor=235, to_fix_search_factor=235, to_fi _sync=0, to_fix_added=0, to_fix_removed=0, to_fix_total=235, count=16
>	9-08-2015 22:58:44.184 -0700 INFO Metrics - group=subtask_counts, name=cmmaster_endpoints, clustermastergeneration_edit=19, clustermasterinfo_list=19, clustermasterpeers_edit=181

- Cluster master/slave activity can be found under cmmaster* or cmslave* groupings/names
- Metrics about cluster endpoints
 - How many times each endpoint was hit
 - How long we spent in those endpoints
- Metrics about jobs (rep fixup jobs, searchable fixup jobs, freeze jobs, etc)
- How many # of buckets do we still need to fix?



Clustering Logs/Activity

splunkd_access.log metrics.log Metric information with regards to Clustering Activity, Each individual endpoint access (master-side) services/cluster/master/... recorded every 30 seconds (indexer-side) services/cluster/slave/... How long we've spend at the endpoint (ms) name=cmmaster endpoints Higher times indicate the CM/Indexer is group=subtask_count total number of accesses swamped with work (>50ms? >100ms?) group=subtask seconds time Splunk spent The response (200 = success, non 200 = failure) responding to these endpoints name=cmmaster executor "Jobs" the CM has scheduled, finished, and current size of jobs to complete Jobs are responsible for hitting the endpoints and performing the action (move-primary, freeze, etc) group=jobs, name=cmmaster Actual counts of the jobs and their jobnames Indexers have their own corresponding jobs (cmslave)



Jobs Metrics (metrics.log)

Q New Search					Save As ∽ Close
<pre>index=_internal source=*me</pre>	trics.log group=jobs na	me=cmmaster timechart max	(*Job*) span=10s		Date time range ~ Q
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I Column Chart > Format 1,000 100 10 10 10 10 10 10 10 10 10 10 10					max(CMChangeBucketJob_build) max(CMChangeMasksJob) max(CMRepJob)
1:41 AM Tue Sep 5 2017	1:42 AM	1:43 AM	1:44 AM	1:45 AM	
	J			RF+SF Met	
30.60.4 28.24.20.82 317 27.160.9 temId=EST.15.00.6 Control Control		D15L4FF10ADFF10 HTTP 1.1" 404 720 "http://b S510NID=5D55L7FF6ADFF9 HTTP 1.1" 404 3322 " S510NID=5D55L7FF6ADFF9 HTTP 1.1" 200 J318 "http://butt SL9FF1ADFF3 HTTP 1.1" 200 J318 "http://sejisc SL9FF1ADFF3 HTTP 1.1" 200 J318 "http://sejisc.	utterCUB-shopping.com/cart.do?action=view& http://buttercup-shopping.com/category.scre http://buttercup-shopping.com/category.scre prcup-shopping.com/category.itemIdesT-18&produ STONID=SD9514FF4ADFF7 W&itemIdesT-18&produ g?action=changequantity_desT-6&JSS510NID= g?action=changequantity_desT-6&JSS510NID= g?action=changequarties_rest-6&JSS10NID= g?action=changequarties_rest-6&JSS10NID= g?action=changegory.ast	tomid=Est-G&product_id=ri_SW-gin sentestery_id=GtFi_SW-gin kitomid=Est-G&product_id=ri_SW-gin id=AV-CBrCUp_shoppid=rows is area solist_BtFiAbFig id=Fisionersis is foodersis MERSAJSESSFOND=BORI_1: Solestit, and solition is a MERSAJSESSFOND=BORI_1: Solestit, and solesti	nk> .conf2017

Jobs By Time (splunkd.log)

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0w ² /2/20/07/Jan 18:10:57:153] "GET /category.screen?category_id=GIFTS&JSESSIONID=SDISLAFF? ;//mid5.1; SV1: - 107/Jan 18:57:123] "GET /product.screen?category_id=GIFTS&JSESSIONID=SDISLAFF? ;02action=Sproduct_CLR 1.1.810:56:156] "GET /product.screen?product_id=FL=DSH=01&JESSIONID=SDISLAFF? ;/burker.cup.sproduct_id=Rp-LI-02: "GET /oldlink?item_id=EST=26&JSESIONID=SDISLAFF? ;/burker.cup.ca.scgei.com/nl.92: "GET /oldlink?item_id=EST=26&JSESIONID=SDISLAFF? ;/ca.scgei.com/nl.92: "GET /oldlink?item_id=EST=26&JSESIONID=SDISL9FF1A	0ADFF10 HTTP 1.1" 404 720 "http://buttercup-shopping.com/Cart.do SDS5L7F6ADFF9 HTTP 1.1" 404 3322 "http://buttercup-shopping.com JDS5L7FF6ADFF9 HTTP 1.1" 404 3322 "http://buttercup-shopping.com/Cart.do?ac JFF3 HTTP 1.1" 200 J318 "http://buttercup-shopping.com/Cart.do?ac crreen?cateSory.id=SURPRISE&JSESTION1cater_catesory.screen?cate crreen?cateSory.id=SURPRISE&JSESTION1cater / cateSory.screen?cate crreen?cateSory.id=Supping.cate.do?actf7cater / catesory.screen?cates	<pre>?action=view&itemId=EST=d&product id=F1=5w_e1* /category.screen?category_id=catF1s="d=F1=5w_e1* tion=purchase&itemId=EST=scoreProduct id=cations=id=category d=EST=18&product_id=AV-cB-e1& imopTime=%p-cm/d=00+er d=EST=18&product_id=AV-cB-e1& imopTime=%p-cm/d=00+er d=EST=18&product_id=AV-cB-e1& imopTime=%p-cm/d=00+er d=EST=18&product_id=AV-cB-e1& imopTime=%p-cm/d=00+er d=SD=SD=SD=SD=SD=SATEgory=00+er d=SD=SD=SD=SD=SD=SATEgory=00+er d=SD=SD=SD=SD=SD=SATEgory=00+er d=SD=SD=SD=SD=SD=SATEgory=00+er d=SD=SD=SD=SD=SD=SATEgory=00+er d=SD=SD=SD=SD=SD=SD=SATEgory=00+er d=SD=SD=SD=SD=SD=SD=SATEgory=00+er d=SD=SD=SD=SD=SD=SD=SD=SD=SD=SD=SD=SD=SD=</pre>	splunk	> .conf2	017

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Configuring Large Clusters



More Buckets More Problems

indexer Glus	stering: Master Noc	le			Edit V More Info V Documentation
× 1	All Data is Searcha	ble 🔺 S	earch Factor is Not Met	A Re	eplication Factor is Not Met
		O not searchable Peers		32 searchable Ind	O not searchable exxes
Peers (150) In	dexes (32) Search Heads (1)				
filter		100 per page 🗸 🛛 Bucket Status			
ndex Name 🗘	Fully Searchable 0	Searchable Data Copies 🗘	Replicated Data Copies 0	Buckets 🗸 ?	Cumulative Raw Data Size 0
ndex10	✓ Yes	2	3	34680	65.56 GB
ndex17	✓ Yes	2	3	34519	66.54 GB
ndex01	✓ Yes	2	3	33968	65.09 GB
ndex16	✓ Yes	2	3	33948	64.70 GB
ndex20	Yes	2	3	33876	66.09 GB
ndex03	✓ Yes	2	3	33767	63.43 GB
ndex15	✓ Yes	2	3	33640	66.33 GB
ndex25	✓ Yes	2	3	33564	60.89 GB
ndex07	✓ Yes	2	3	33554	70.02 GB
ndex13	✓ Yes	2	3	33545	64.44 GB
ndex18	✓ Yes	2	3	33522	63.62 GB
ndex11	✓ Yes	2	3	33396	64.23 GB
ndex12	✓ Yes	2	3	33369	65.71 GB
ndex08	Yes	2	3	33253	62.88 GB
ndex29	Yes	2	3	33194	63.73 GB
ndex02	✓ Yes	2	3	33054	64.54 GB
ndex19	✓ Yes	2	3	33042	63.57 GB
ndex04	✓ Yes	2	3	32961	61.66 GB
ndex28	✓ Yes	2	3	32792	60.72 GB
ndex30	✓ Yes	2	3	32722	62.15 GB
ndex26	✓ Yes	2	3	32717	61.21 GB
ndex05	✓ Yes	2	3	32697	64.35 GB
dex24	✓ Yes	2	3	32637	62.12 GB
ndex14	✓ Yes	2	3	32615	64.45 GB
ndex21	✓ Yes	2	3	32443	62.57 GB
ndex09	✓ Yes	2	3	32339	62.48 GB
ndex23	✓ Yes	2	3	31975	60.81 GB
ndex22	✓ Yes	2	3	31789	61.27 GB
ndex06 ndex27	✓ Yes	2	3	31711	62.87 GB



Creen?product id=FL-DSH-01&JSESSIONID=

More Buckets More Settings

server.conf	
cxn_timeout rcv_timeout send_timeout (CM+Indexer)	 Specifies how long before an intra-cluster connection will terminate. Default = 60. If a cluster indexer times out, it will re-add itself to the CM, which itself is a busy operation (it needs to resync the state of all its buckets). These can be bumped up for busier and larger clusters (300s).
indexes.conf	
rotatePeriodInSecs (Indexer)	Specifies how often to check through all the buckets – rolling them from hot->warm- >cold as necessary. Default = 60 • 10min=600



Splunk 6.6 Scaling Improvements

Since Splunk 6.6, we scale well with 5 million+ buckets. Lots of negative feedback loops have been broken. Busy clusters no longer have their indexers continuously re-add (remove all buckets, add all buckets).

See the talk "Scaling Indexer Clustering – 5 Million Unique Buckets and Beyond"





Performance Testing



Scale Testing

Component	#
Indexers	1,000
Indexes	1,000
Unique buckets	5,000,000
Forwarders	100,000

butte

404 3322

nttp

404

Screen?category_id=GIFTS&JSESSIONID=SD1SL4FF10ADFF10 HTTP 1.1 Oduct

//screen?category_id=GIFTS&JSESSIONID=SDISL4FF10ADFF10HTTP1.1 TFT /product.screen?product_id=EL-DSH-01&JSESSIONID=SDSI/FF6ADFF0HTF1.1 200 1318 ET /oldlink?item_id=EST-268JSESSIONID=SDSIJSFF1ADFF3HTFP1.1 200 137 1 defender.com/screensession/screensession/screensession/screensession/screensession/screensession/screensession/ 1 defender.com/screensession/screenses screensession/screensession/screensession/screensession/screensession/screensession/screensession/screensession/screensession/screensession/screensession/screensession/screensession/screensession/screensession/screensession/screensesio

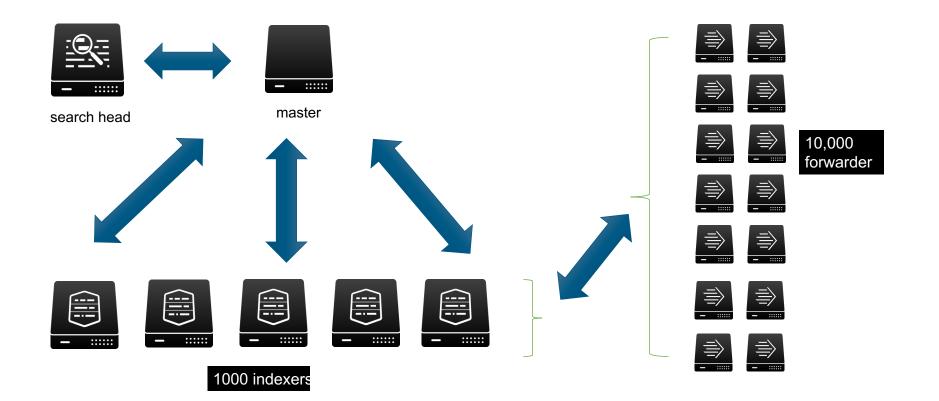
"GET

"GET /oldlink?item

:1561



Test Configuration



ction=view&itemId=EST_c



1] "GET /isrclategory.screen2category_id=GIFTS&ISESSIONID=SDISL4FF10ADFF10 HTTP 1.1" 404 720 "http://buttercup-shopping.com/category_isrcen7category_id=GIFTS&ISESSIONID=SDISL4FF10ADFF10 HTTP 1.1" 404 7322 "http://buttercup-shopping.com/category_id=GIFTS&ISESSIONID=SDISL4FF10ADFF10 HTTP 1.1" 404 720 "http://buttercup-shopping.com/category_id=GIFTS&ISESSIONID=SDISL4FF10ADFF10 HTTP 1.1" 404 4322 "http://buttercup-shopping.com/category_id=GIFTS&ISESSIONID=SDISL4FF10ADFF10 HTTP 1.1" 400 1316 "http://buttercup-shopping.com/category_id=GIFTS&ISESSIONID=SDISL4FF10ADFF10 HTTP 1.1" 200 1316 "http://buttercup-shopp

Test: Peer Failure

1. Take down a peer

./splunk stop –f

- 2. Peer registers as "Down" on cluster master
- 3. Wait for:
 - Searchable
 - Replication factor met
 - Search factor met



Test: Peer Failure - Results

Splunk Release	Non- clustering/Clustering/ Multi-site	Avg Indexer Throughput	Total Test Time
6.5	Non-clustering	15.07 MB/s	-
6.5	Clustering	11.6 MB/s	261s
6.5	Multi-site	11.7 MB/s	352s
6.6	Non-clustering	15.49 MB/s	-
6.6	Clustering	12.8 MB/s	297.6s
6.6	Multi-site	12.64 MB/s	358.2s

LAFF10ADFF10 HTTP

Screen?product_id=FL-DSH-01&JSESSIONID=SD5SL7FF6ADFF9



Test: Site Failure

1. Take down 1 site (333 peers)

./splunk stop –f

- 2. All peers register as "Down" on cluster master
- **3**. Wait for:
 - Searchable
 - (we don't wait for RF/SF since we've lost an entire site)

Test: Site Failure - Results

Splunk Release	Non- clustering/Clustering/ Multi-site	Total test time
6.5	Non-clustering	-
6.5	Clustering	-
6.5	Multi-site	7.8s
6.6	Non-clustering	-
6.6	Clustering	-
6.6	Multi-site	8.4s

Screen?product id=FL-DSH-01&JSESSIONID=SD5SL7FF6A



Test: Master Restart

1. Force restart of master

./splunk restart -f

- 2. Master completes restart
- **3**. Wait for:
 - Searchable
 - Replication factor met
 - Search factor met



Test: Master Restart - Results

Splunk Release	Non- clustering/Clustering/ Multi-site	Total test time
6.5	Non-clustering	-
6.5	Clustering	10.8s
6.5	Multi-site	10.8s
6.6	Non-clustering	-
6.6	Clustering	11.4s
6.6	Multi-site	11.4s

Screen?product 1d=FL-DSN-01&JSESSIONID=SD5



Test: Rolling Restart

- 1. Perform rolling restart (on cluster master)
 - ./splunk rolling-restart cluster-peers
- 2. All peers perform restart
- 3. Wait for:
 - Searchable
 - Replication factor met
 - Search factor met



Test: Rolling Restart- Results

Splunk Release	Non- clustering/Clustering/ Multi-site	Total test time
6.5	Non-clustering	-
6.5	Clustering	370s
6.5	Multi-site	353s
6.6	Non-clustering	-
6.6	Clustering	360.2s
6.6	Multi-site	355.2s

Screen?product 1d=FL-DSH-01&JSESSIONID=SD5



Resource Utilization

Splunk Release	%CPU (Cluster master)	Memory (Cluster master)	%CPU (indexer)	Memory (indexer)
6.5	1.96%	64.58 MB	232.03%	218.54 MB
6.6	1.97%	67.51 MB	216.85%	203.45 MB

screen?product id=FI-DSH-01&JSESSIONID=SD3



Bundle Push Testing



Configuration Modifications

Master's server.conf

- Max_peers_to_download_bundle = 0 (default)
- Max_peers_to_download_bundle = 1
- Max_peers_to_download_bundle = 2
- Max_peers_to_download_bundle = 3



Test Results

<pre>index=main chart max(total_time) by</pre>	bundle_size, max_peers_to	_download			Last 24 hours ~ Q
✓ 48 events (2/1/17 3:00:00.000 PM to 2/2/17 3:18:	:08.000 PM) No Event Sampling	~		Job 🛩 🛛 II	🔳 🤌 🖶 🛓 🌻 Smart Mode 🗸
Events Patterns Statistics (6)	Visualization				
II Column Chart ∽ ✓Format ∽					
1,500					
a e					
1,000 500					
500					
-					
	1.7	2.1	5.3	3.1	n. N
		bu	ndle_size		

404 3322

200 1318

id=GIFTS&JSESSIONID=SD1SL4FF10ADFF10 HTTP

/product.screen?product_id=FL-DSH-01&JSESSIONID=SD15L4FF1@ADFF1@ T /oldlink?item_id=EST-26&JSESSIONID=SD5SL9FF1ADFF3 HTTP 1: 7 14 sitem_id=EST-26&JSESSIONID=SD5SL9FF1ADFF3 HTTP 1: 7 14 sitem_id=EST-26&JSESSIONID=SD5SL9FF1ADF73 HTTP 1: 7 14 sitem_id=EST-26&JSESSIONID=SD5SL9FF1ADF73 HTTP 1: 7 14 sitem_id=EST-26&JSESSIONID=SD5SL9FF1ADF73 HTTP 1: 7 14 sitem_id=EST-26&JSESSIONID=SD5SL9F1ADF73 HTTP 1: 7 14 sitem_id=EST-26&JSESSIONID=SD5SL9F1ADF73 HTTP 1

"GET /oldlink?item



splunk>

.conf2017

Validation

master active_bundle checksum=55BD1789FD910A50C8F245CD9F605F03 timestamp=1486067118 (in localtime=Thu Feb 2 12:25:18 2017) latest bundle checksum=55BD1789FD910A50C8F245CD9F605F03 timestamp=1486067118 (in localtime=Thu Feb 2 12:25:18 2017) last validated bundle checksum=A92FF82E8AFAD1125783CA3B67D258A3 last_validation_succeeded=1 timestamp=1486067118 (in localtime=Thu Feb 2 12:25:18 2017) cluster_status=None idx_02_204.107.141.240 0A6F2664-4A4F-4DD9-A3DD-BF367A688228 site2 active_bundle=55BD1789FD910A50C8F245CD9F605F03 latest_bundle=55BD1789FD910A50C8F245CD9F605F03 last_validated_bundle=55BD1789FD910A50C8F245CD9F605F03 last_validation_succeeded=1 restart_required_apply_bundle=0 status=Up idx_05_204.107.141.240 1E60D874-687D-40AE-B94C-B63655115849 site2 active_bundle=55BD1789FD910A50C8F245CD9F605F03 latest_bundle=55BD1789FD910A50C8F245CD9F605F03 last_validated_bundle=55BD1789FD910A50C8F245CD9F605F03 last_validation_succeeded=1 restart_required_apply_bundle=0 status=Up idx_09_204.107.141.240 53BE0C69-56EB-4C7D-9107-56A10C5EB934 site3 active_bundle=55BD1789FD910A50C8F245CD9F605F03 latest_bundle=55BD1789FD910A50C8F245CD9F605F03 last_validated_bundle=55BD1789FD910A50C8F245CD9F605F03 last_validation_succeeded=1 restart_required_apply_bundle=0 status=Up idx_08_204.107.141.240 6016D796-91C2-4F36-A546-39D79AB9A774 site2 active_bundle=55BD1789FD910A50C8F245CD9F605F03 latest_bundle=55BD1789FD910A50C8F245CD9F605F03 last_validated_bundle=55BD1789FD910A50C8F245CD9F605F03 last_validation_succeeded=1 restart_required_apply_bundle=0 status=Up A. SCLEEUSCAFESOLA TIG=CILL2872ES210M /product.screen?product_id=FL-DSH-01&JSESSION

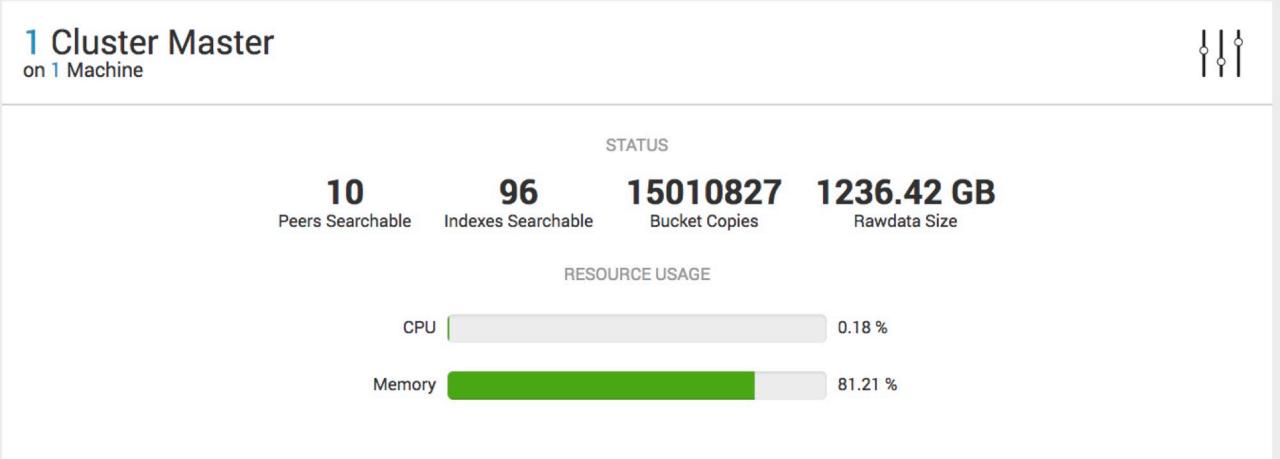
/oldlink?item id=EST

DSH-01&JSESSIONID=SD53 HTTP 1.1" 200 J SIONID=SD5SL9FF1ADFF3 HTTP 1.1" 200 J

5 Million Buckets Testing

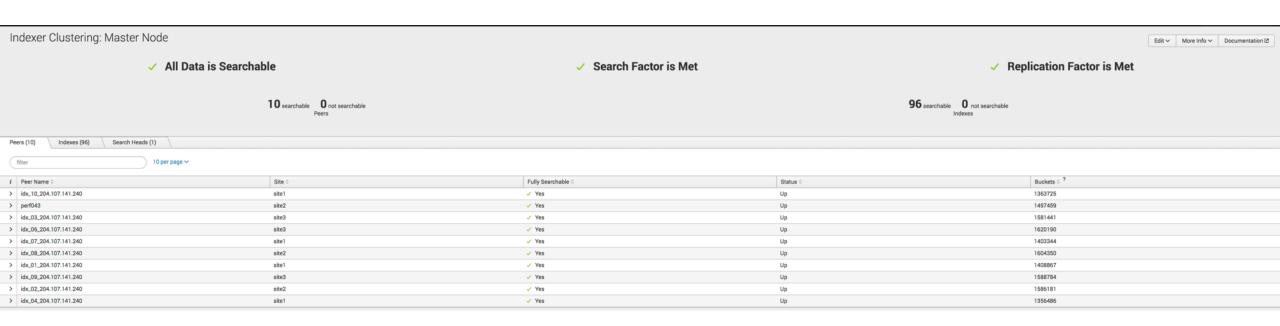


5 Million Buckets Cluster





5 Million Buckets Cluster



18:10:57:153] "GET / Category.screen?category_id=GIFTS&JSESSIONID=SDISLAFF10ADFF10 HITP 1.1" 404 720 "http://buttercup-shopping.com/cart.do?action=vick&itomid=Est-0&product_id=Kitomi



Regression Test Results

Splunk Release: 6.6

Test	Test time	Time to be searchable	Time to meet rf	Time to meet sf
Peer failure	104.4s	10.3s	-	-
Site failure	196.2s	194.9s	-	-
Master restart	206.4s	159.2s	10.1s	31.5s

SCreen?product_1d=FL-DSH-01&JSESSIONID=SD5SL7FF6ADFF9



Resource Usage

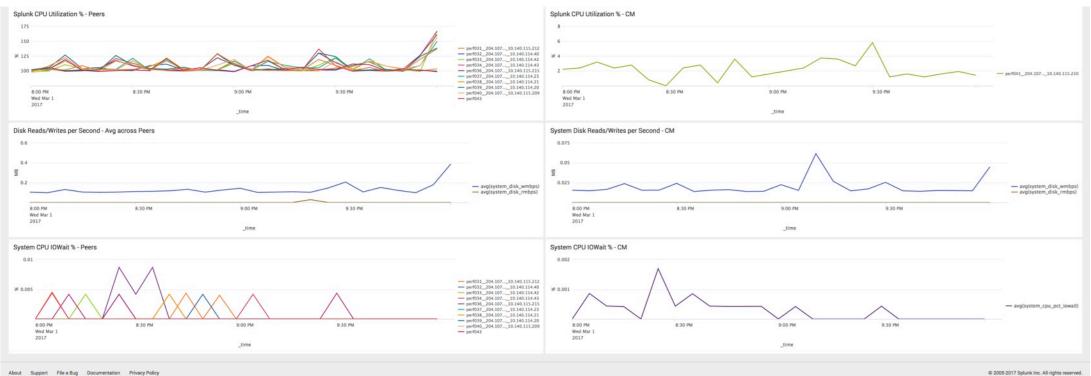




220 [07,

- 82

Resource Usage



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APPENDIX Searches

- 1. index=_internal host=MASTER source=*splunkd.log* CMRepJob running job | timechart count by job
 - Master jobs ran
- 2. index=_internal source=*metrics.log* name=cmmaster group=jobs | timechart max(CM*)
 - Master jobs metrics
- 3. index=_internal source=*metrics.log* *fix* host=MASTER | timechart max(to_fix_*)
 - to_fix list sizes
- 4. index=_internal source=*metrics.log* group=subtask_seconds name=cmmaster | timechart max(service)
 - Master time spent calling service() in between previous log to metrics.log (every 30s)

