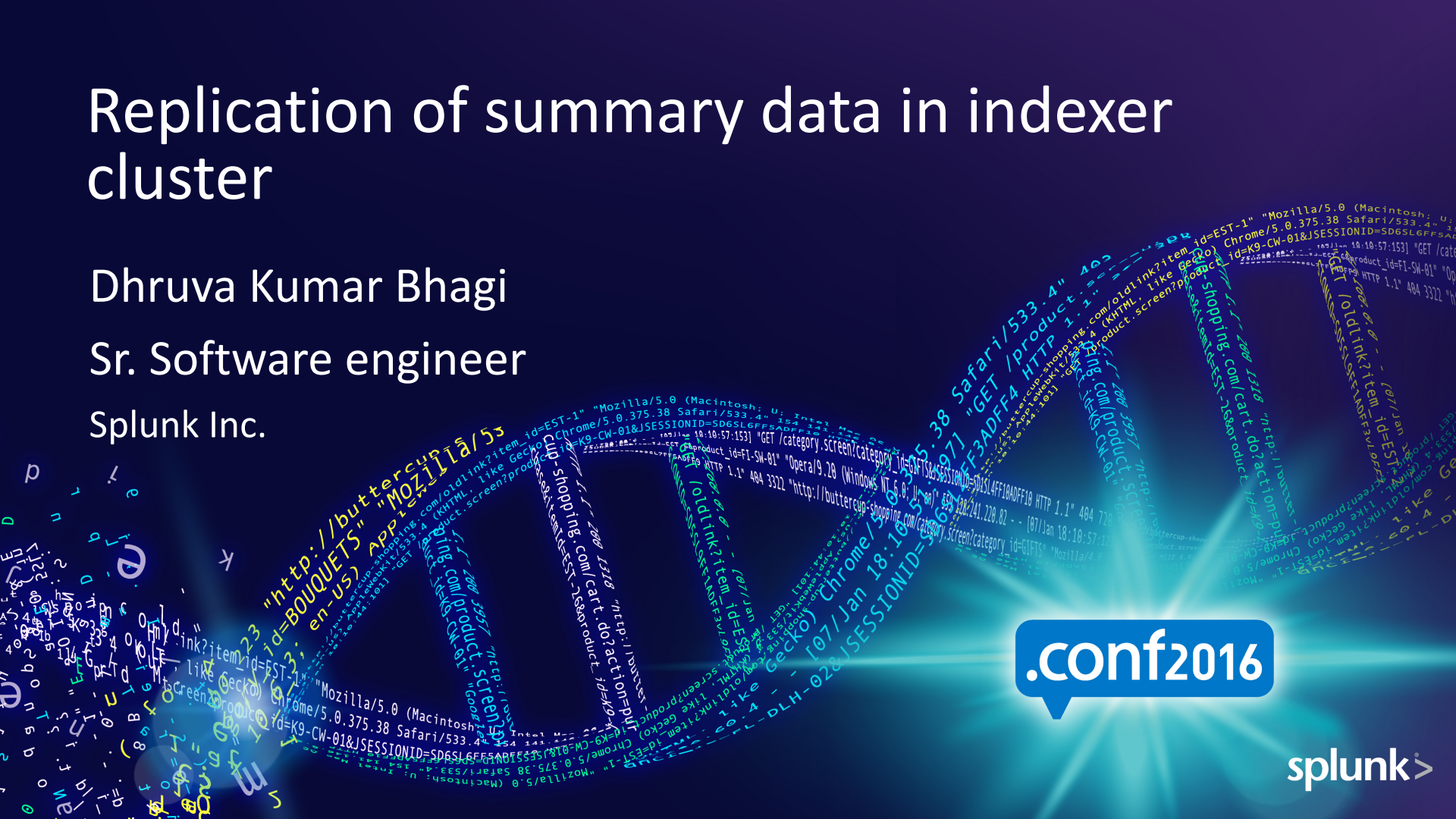
Replication of summary data in indexer cluster

Dhruva Kumar Bhagi

Sr. Software engineer

Splunk Inc.



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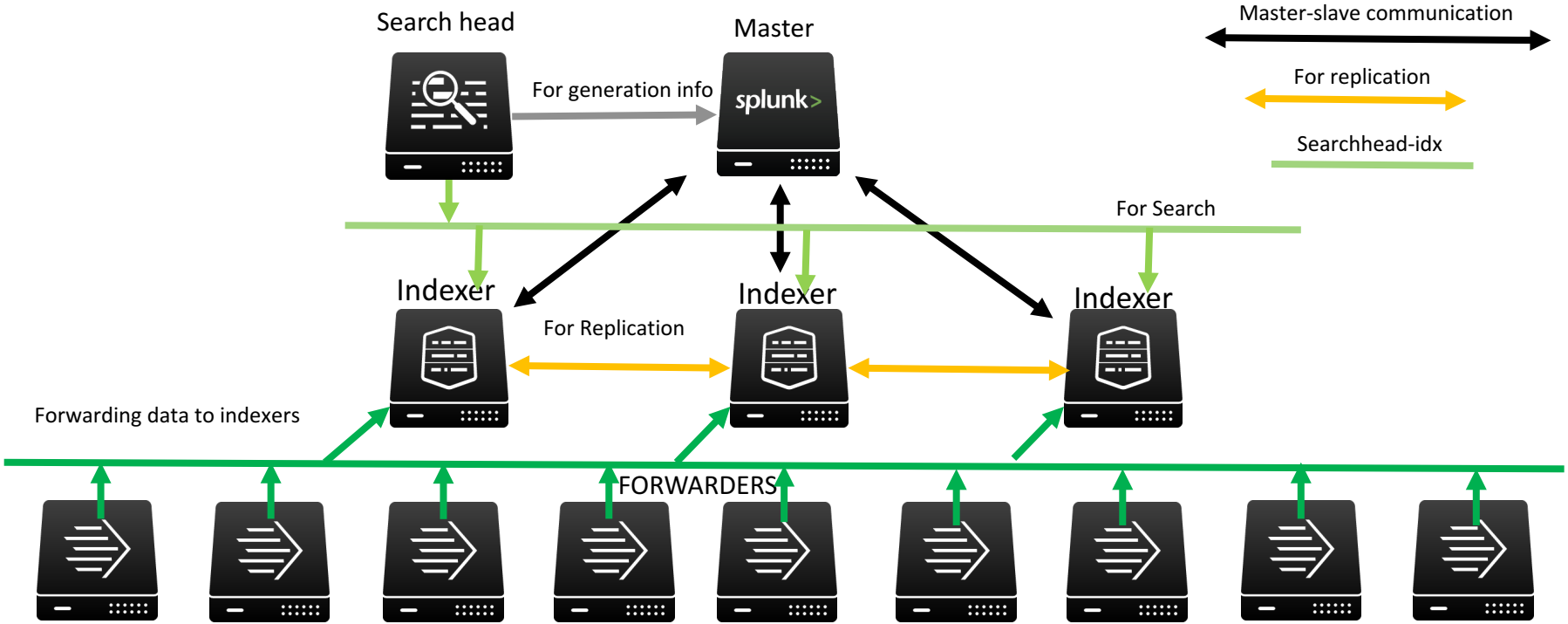
Indexer cluster topology



Summaries

- **Summaries** are higher level representation of the search results
- Reside on indexer to help accelerate the execution of long running searches originating from search heads
- Applicable for statistical searches like '**index=main | stats count**'

Summaries

- Two types of summaries:
  - **Report acceleration summaries** – Generated by accelerated reports/searches
  - **Data model summaries** – Generated by accelerated data model pivot searches
- Reside under INDEX/{datamodel_summary|summary}/BID/SH_ID/summary_name/…
- **Note**: summaries are different from summary index

Problem

- Summaries were previously never replicated
- If an indexer with a summary goes down, bucket primaries move to another searchable copy, and searches will not have access to the summaries (until they get regenerated), thereby searches run slow.
- Regenerating summaries can take lot of time

Replicating summaries

- From version 6.4, Splunk can replicate DA & RM summaries in indexer cluster environment
- Peers maintain the list of their summaries (just like buckets) and reports them to CM during registration (or) on any state change
- If any peer is missing a summary for a bucket, master schedules a summary replication with this peer as a replication target
- Only replicate summaries for warm/cold buckets (not hot)
- services/cluster/master/buckets/BUKCET lists summaries of each bucket

Summaries for hot buckets

- For hot buckets, summary searches from searchheads hit all the searchable copies (instead of just primaries for normal searches) thereby letting indexers build the summaries individually for hot buckets.
- No need for summary regeneration even on individual node failures.
- Running summary generating searches on all searchable copies of a hot bucket introduces more resource usage (longer search process, extra memory usage)!

Volume Retention

- Summaries can be set up in a volume to manage space usage
- If indexer exceeds the volume space (**maxVolumeDataSizeMB**), splunk starts trimming summaries
  - A trimmed summary leaves tombstone indicating the trimmed state
  - Tombstone avoids regenerating summaries in the subsequent search runs
  - Once we trim a summary, we propagate this info to the CM, and the CM will issue a trim to all other copies of the summary.

Configuration

- To turn on summary replication, make **summary_replication=true** under clustering stanza on cluster master.
- By default summary replication is turned off.
- **max_peer_sum_rep_load** (defaults to 5) configures how many maximum summary replications per peer
- Config changes are reloadable (i.e. does not require a splunk restart)

THANK YOU

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Wednesday, Sep 28 **3:00 PM - 3:15 PM**