

# **Saving Database Copies in the OCI Immutable Storage**

Andrei Duma, supervised by Sebastien Masson // openlab Lightning Talks, August 16th, 2023

# Context

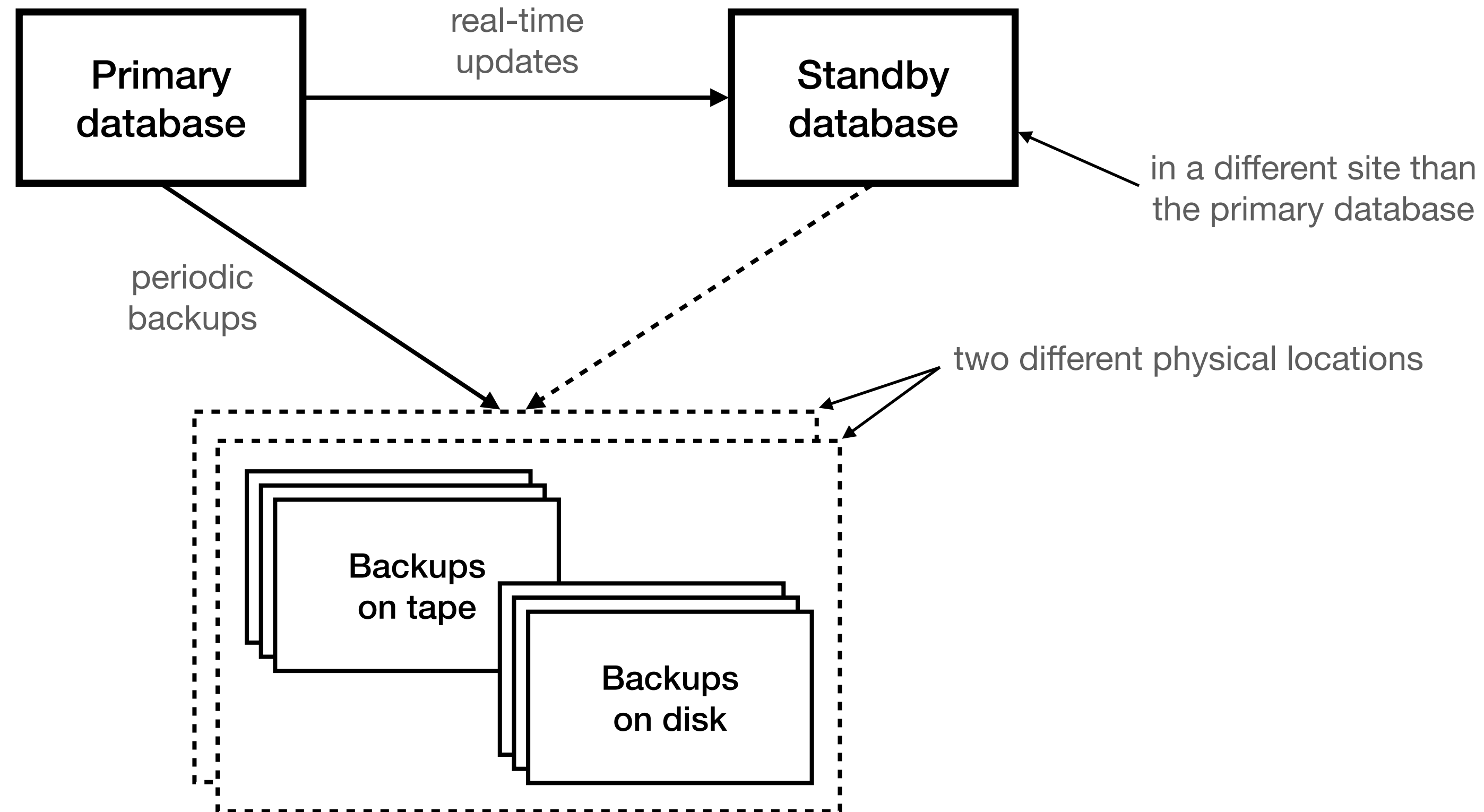
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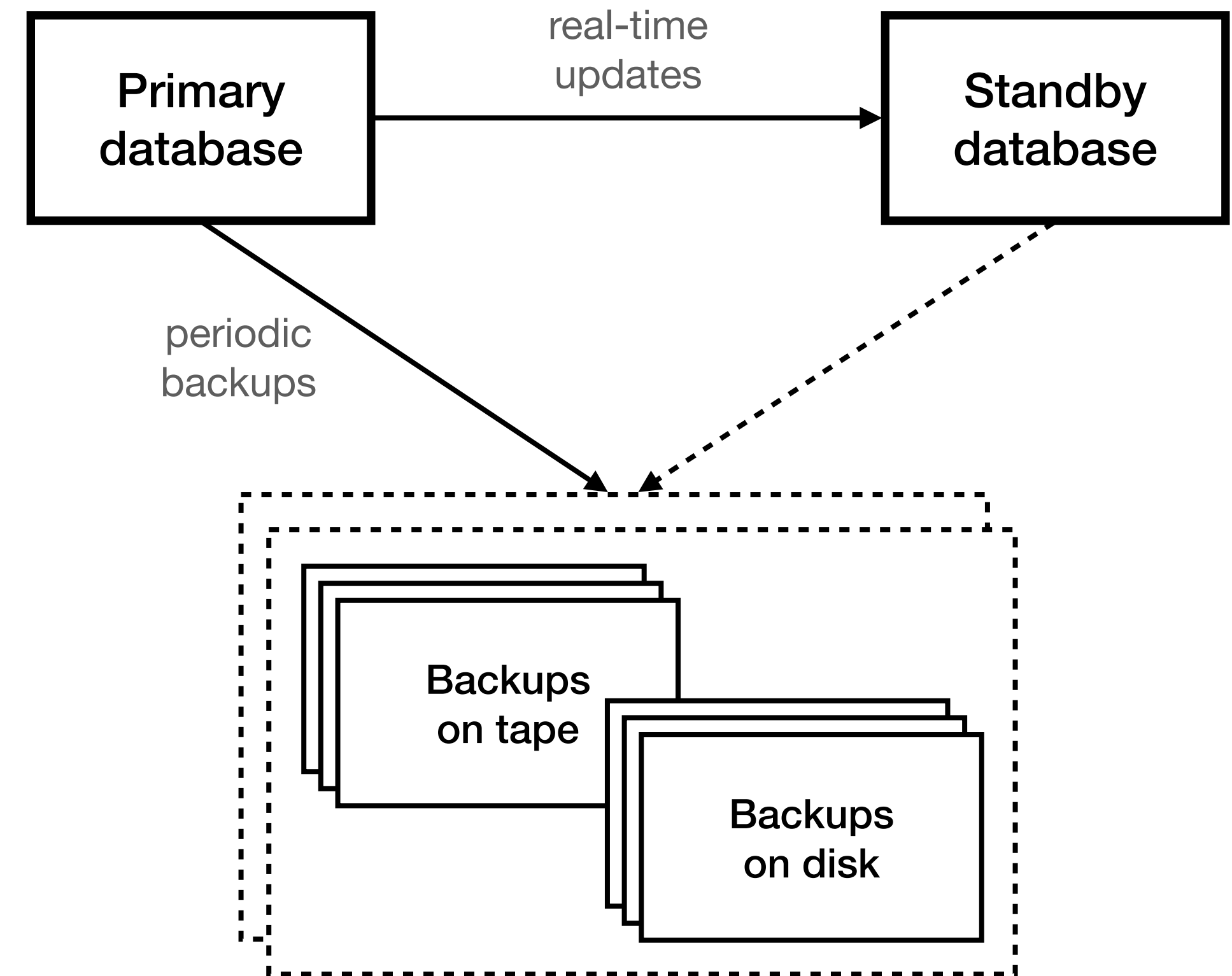


# Risks

- What about malicious access?

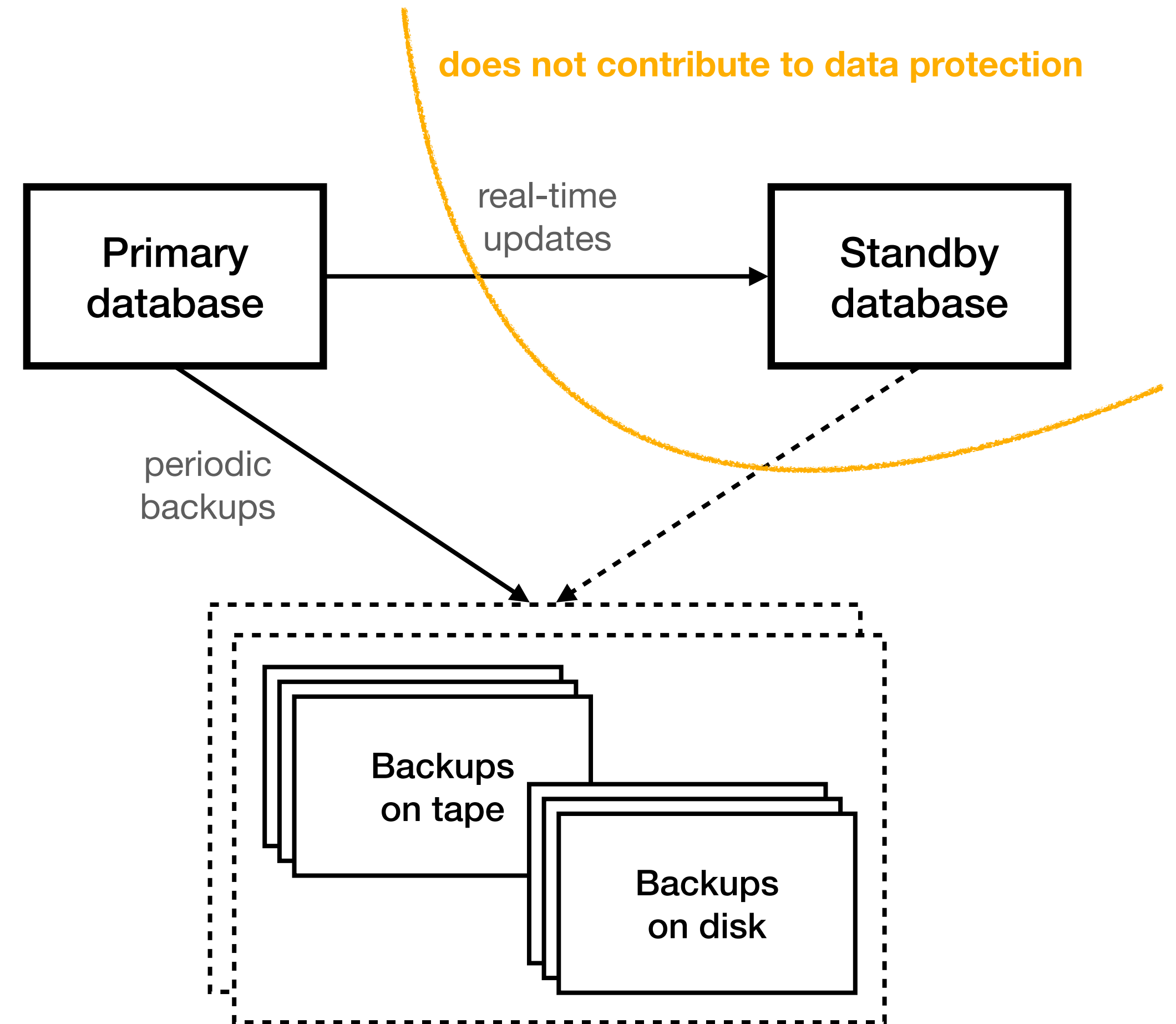
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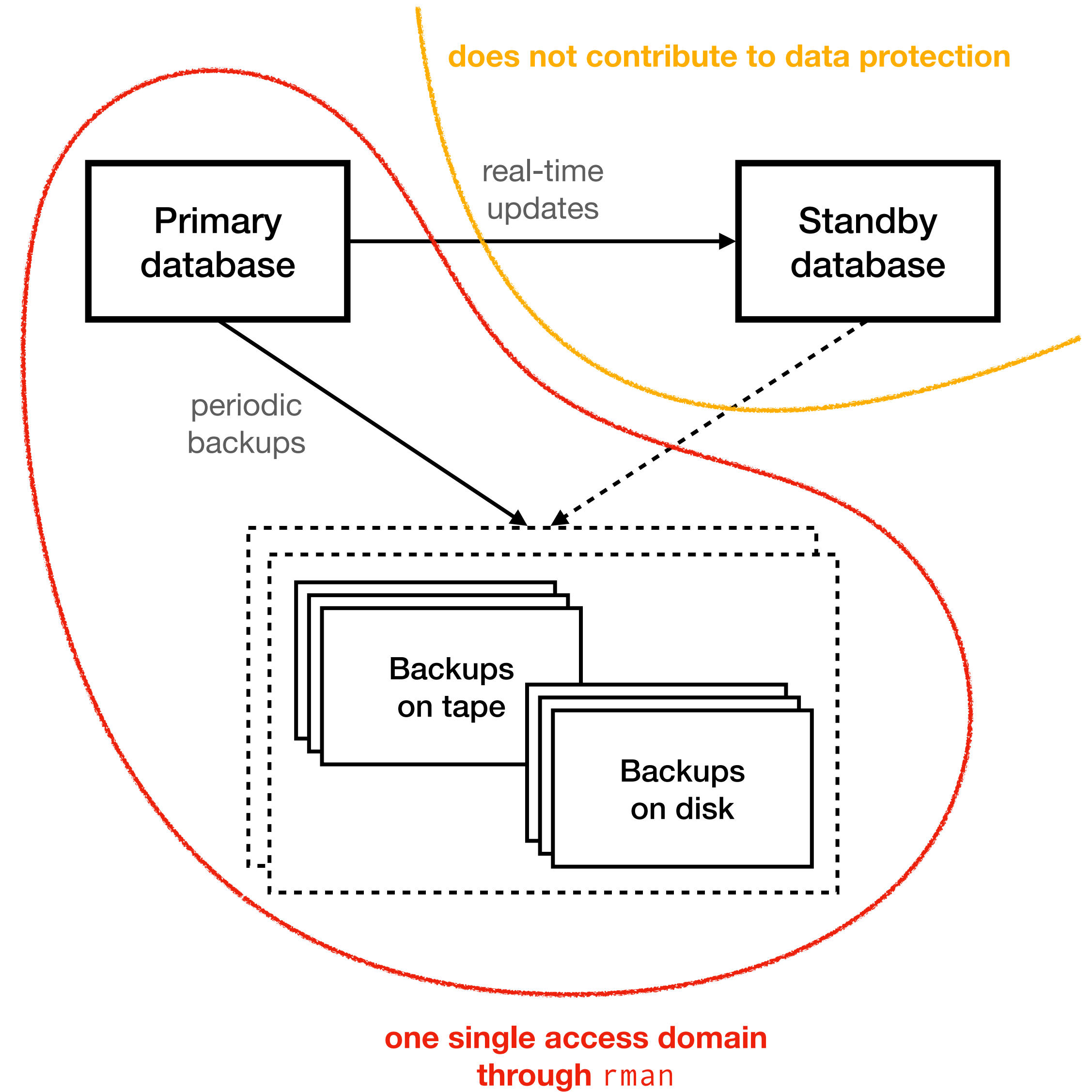
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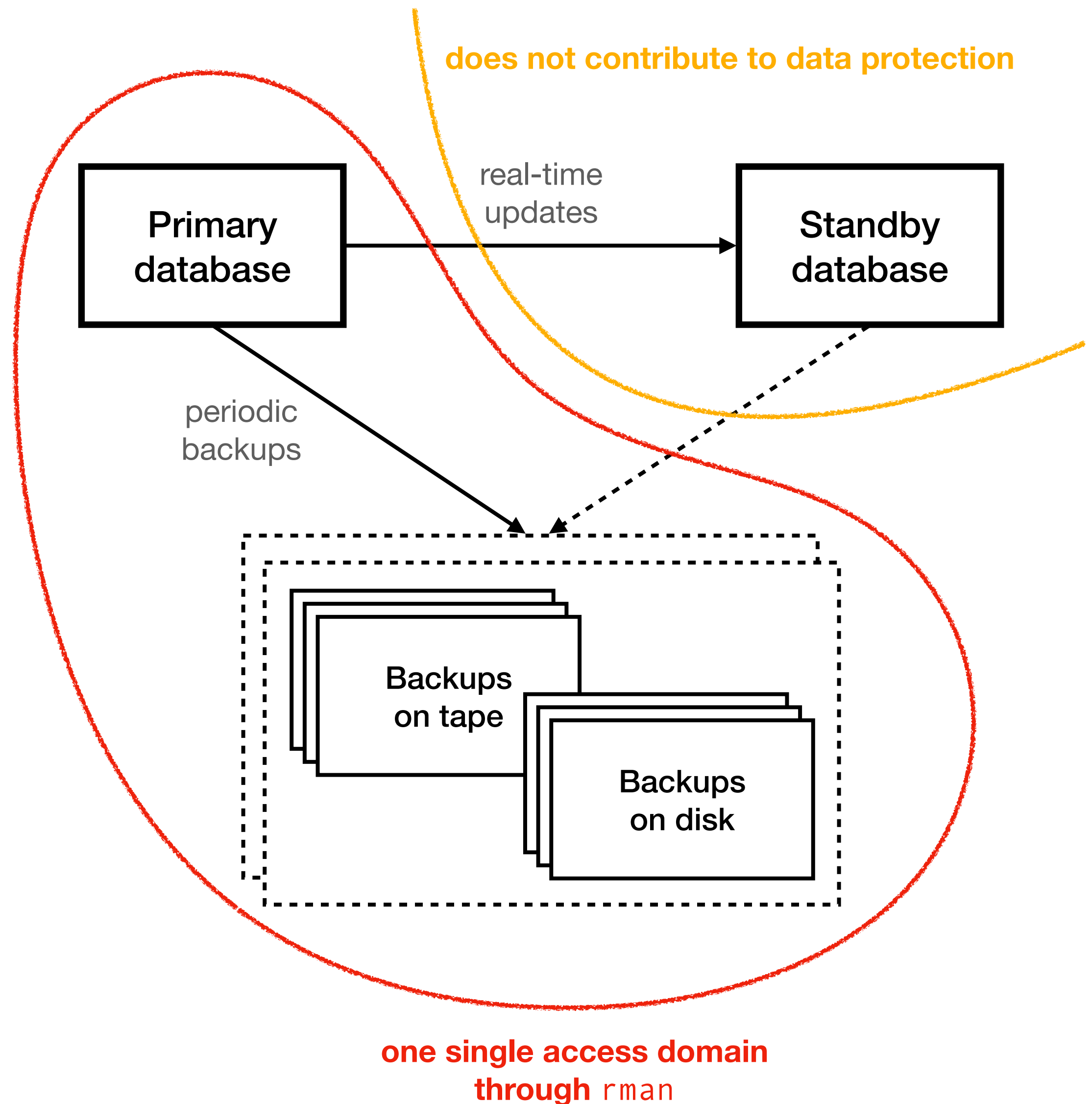
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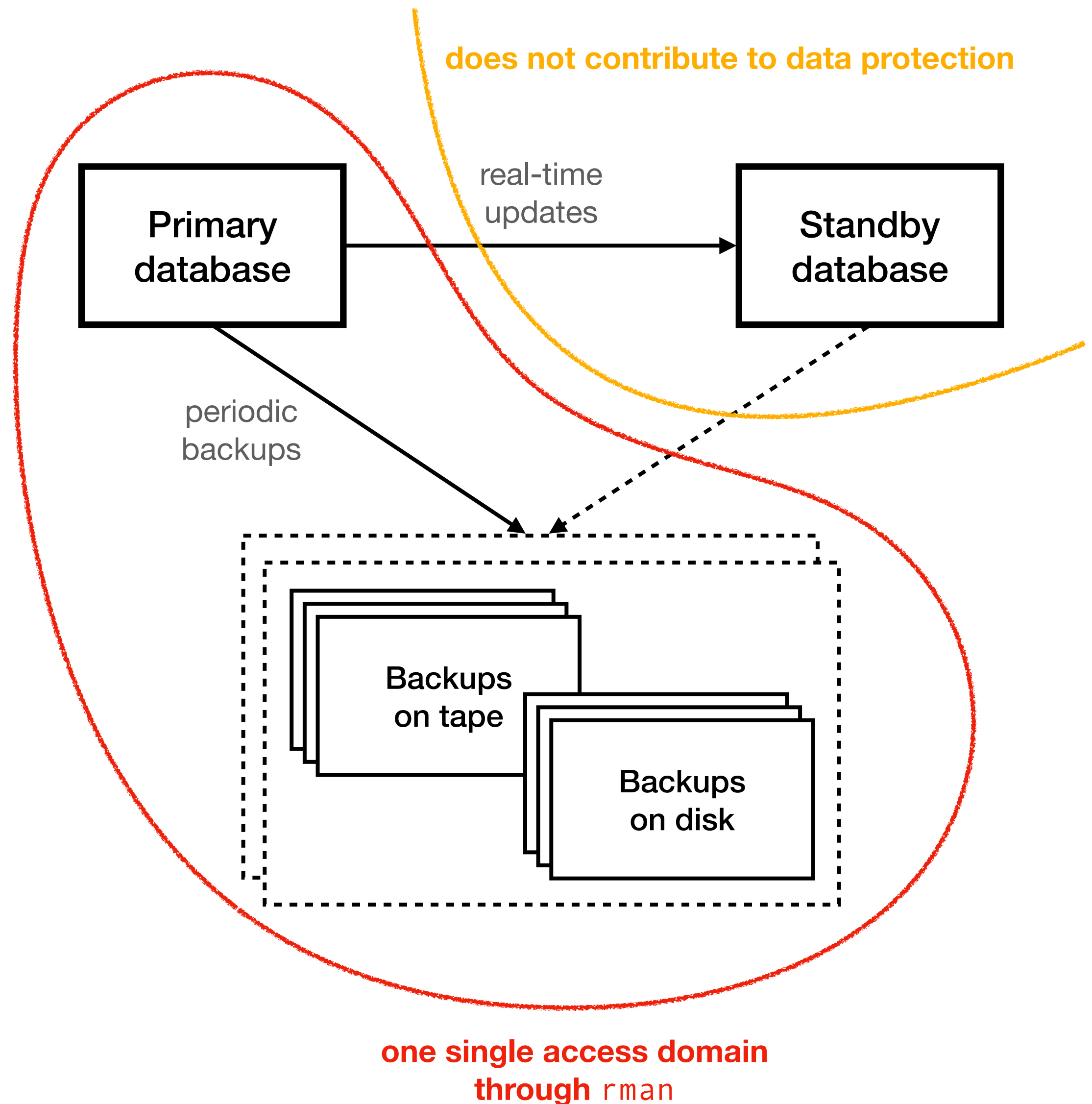
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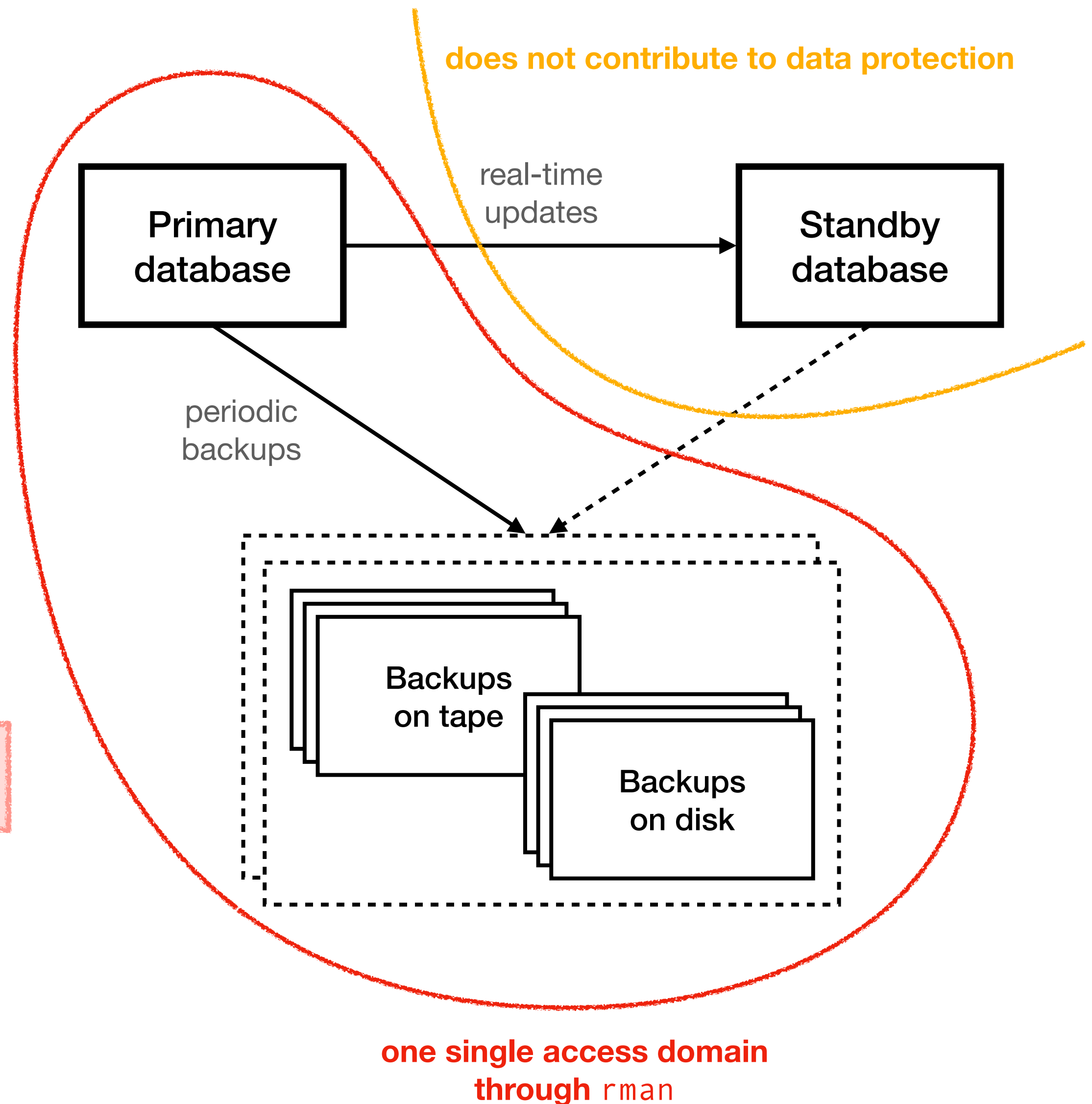
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```
RMAN> DROP DATABASE INCLUDING BACKUPS NOPROMPT;
```

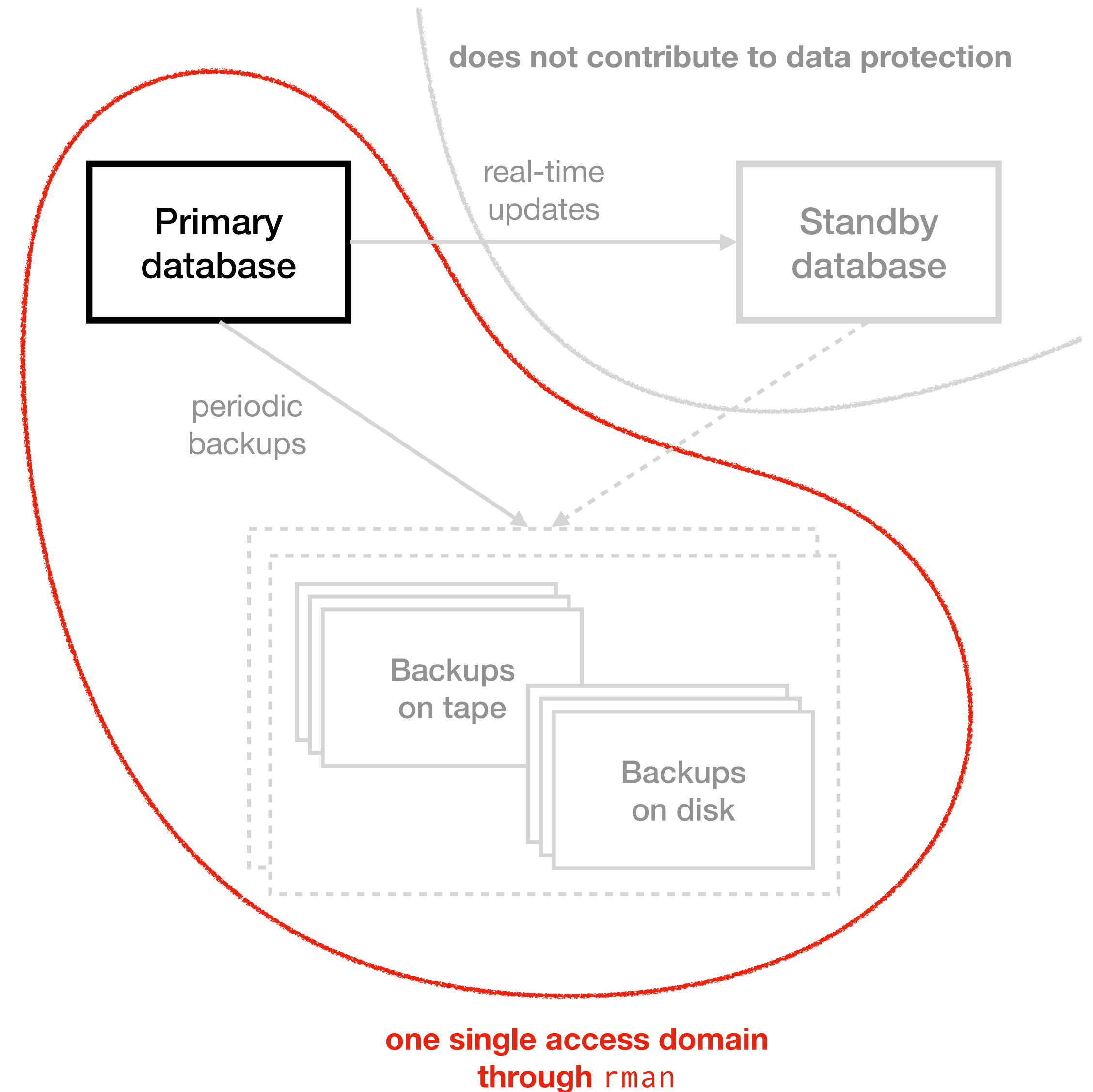


# Our proposal

- Periodically send a copy of our data somewhere outside of our tools' control.

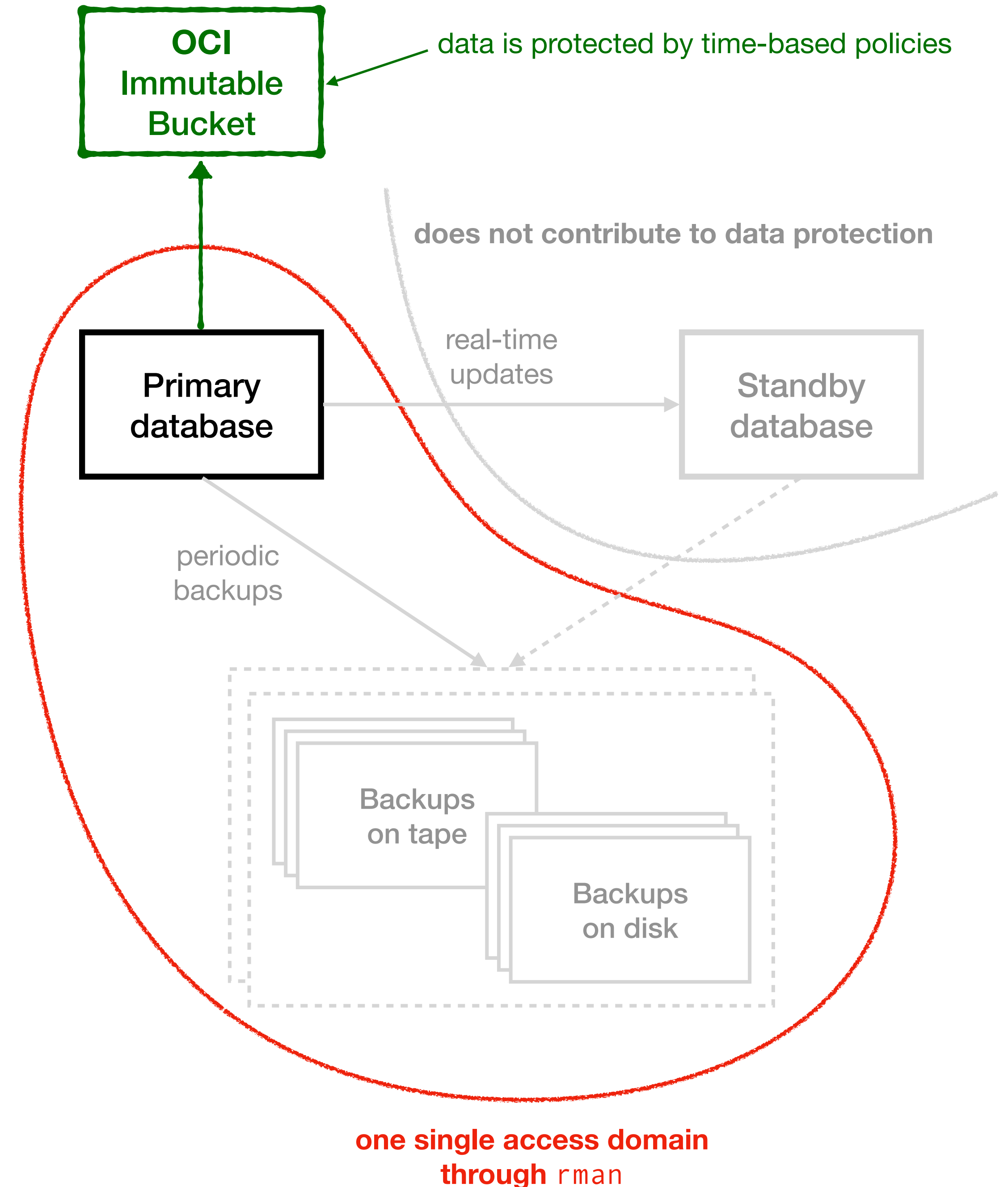
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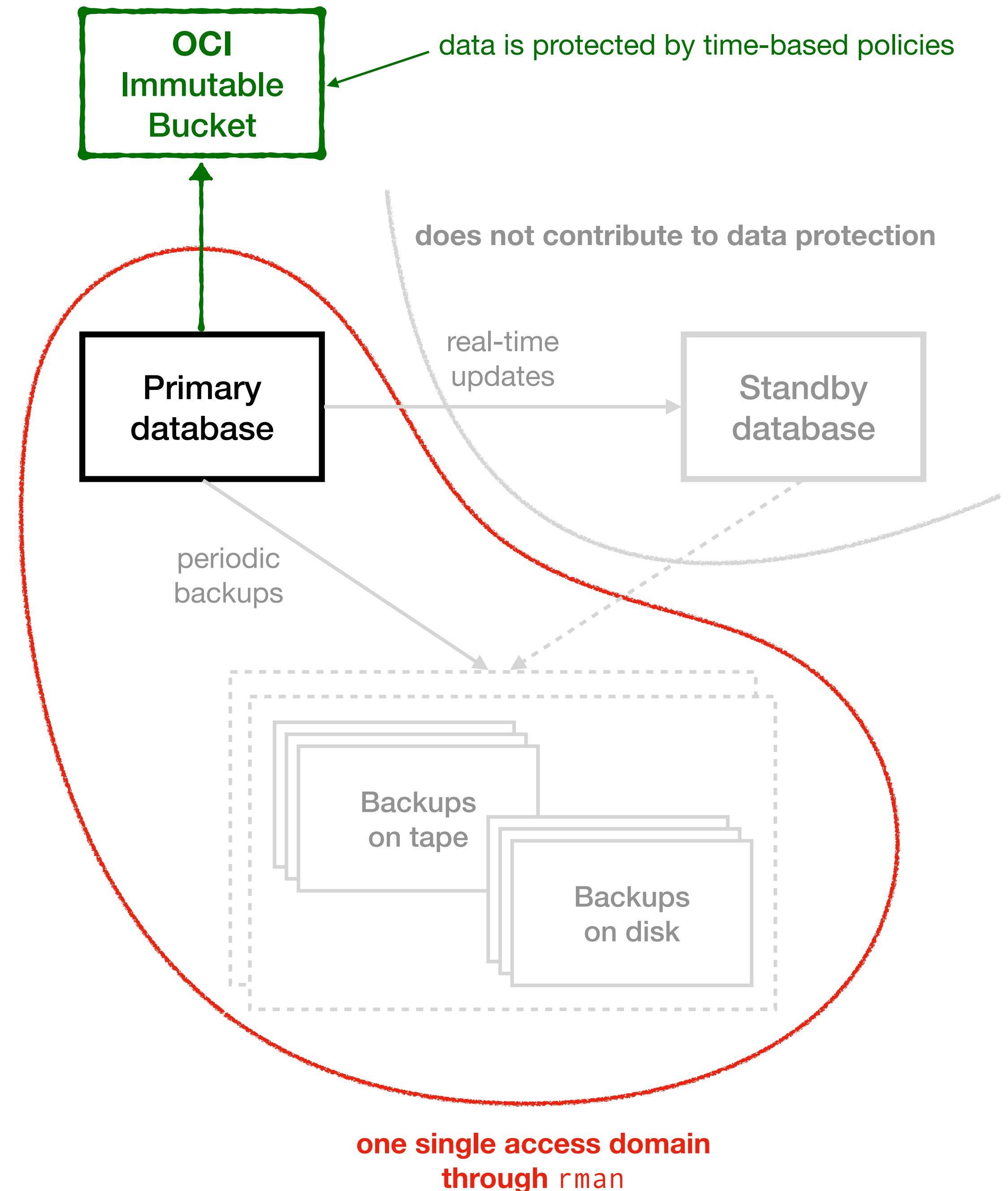
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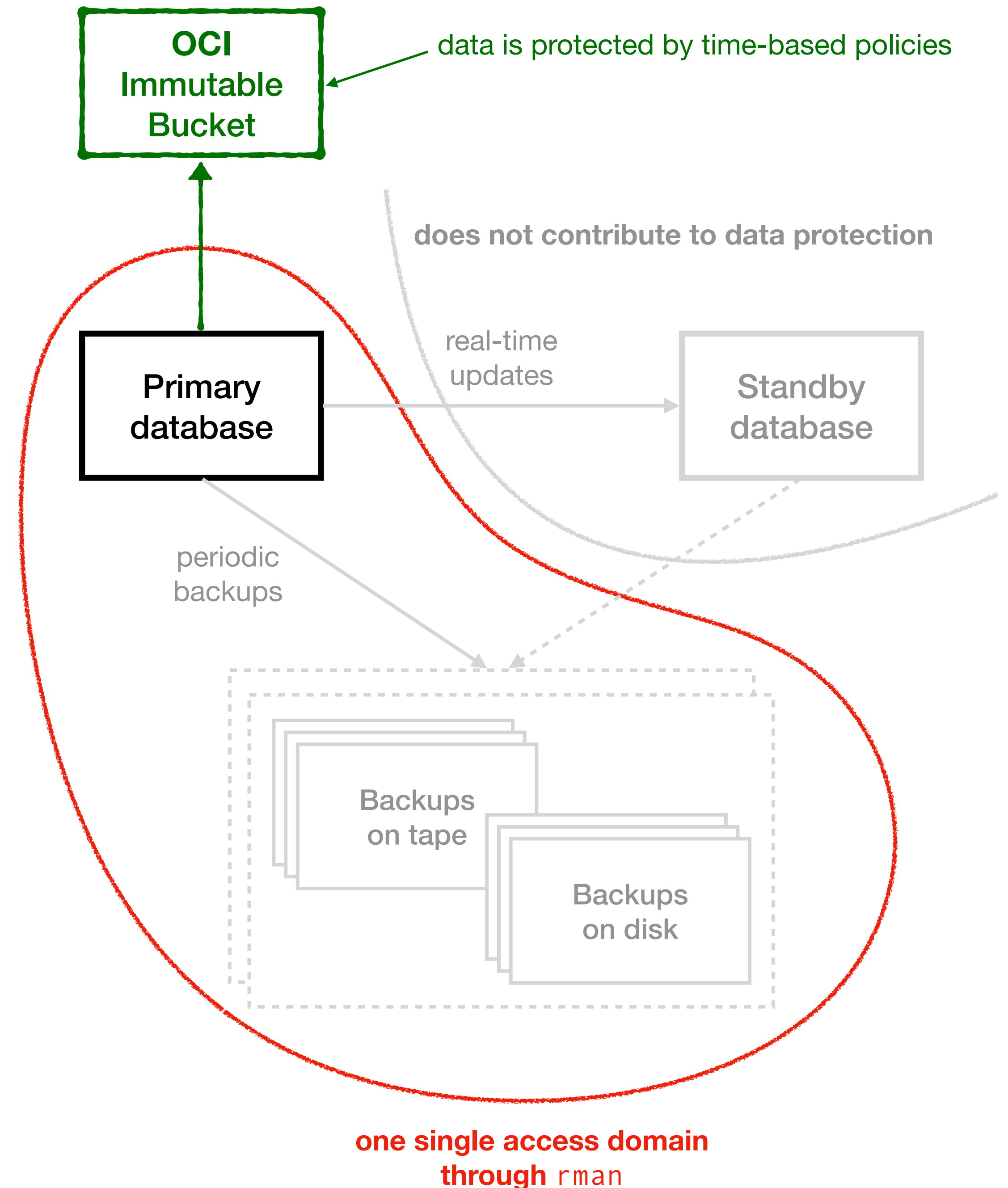
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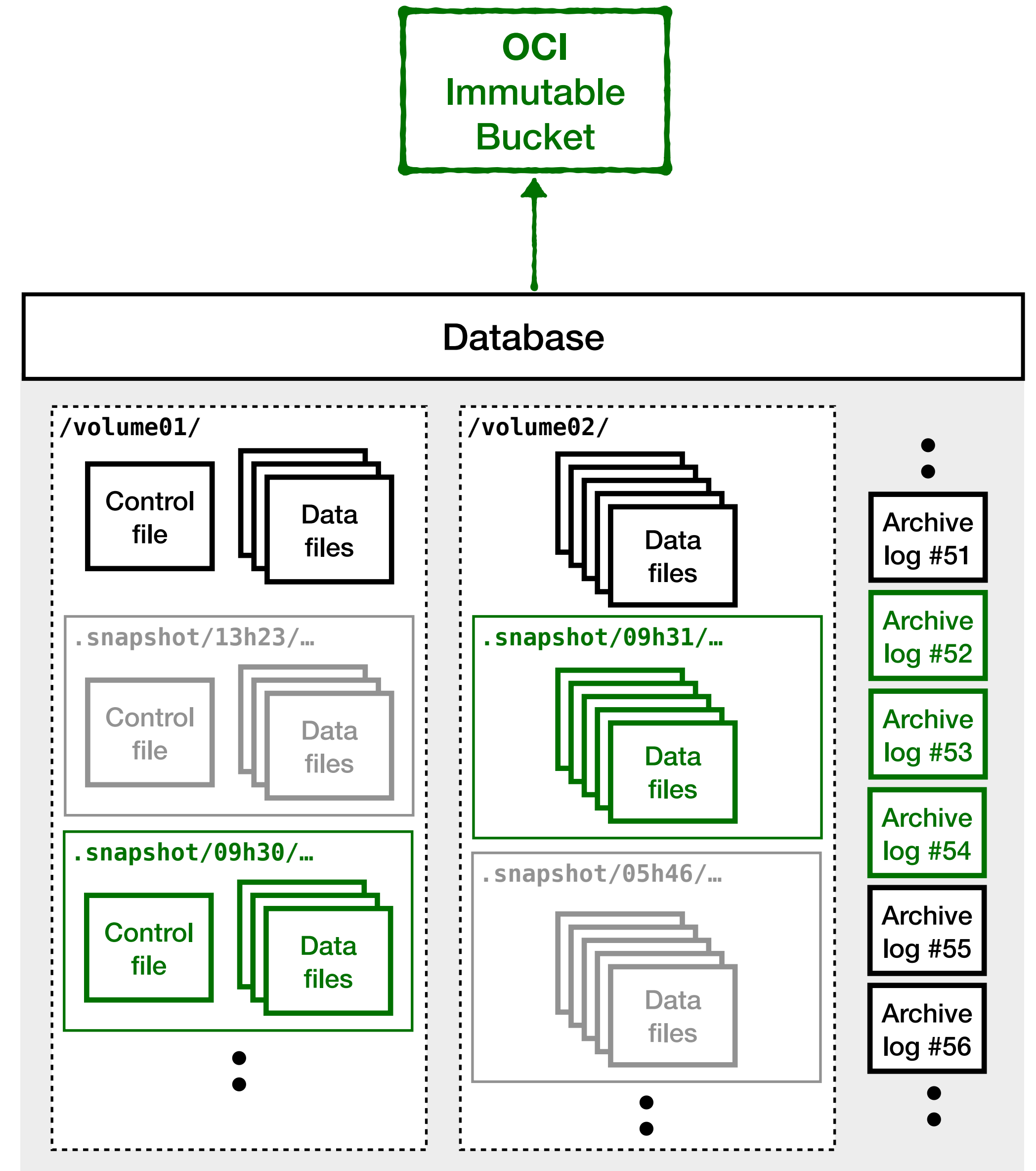
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- OCI's Object Storage provides **Immutable Buckets**, “governed by time-bound retention rules that protect data from modification or deletion for a specified duration”.
- Not even an administrator can modify the protected data!
- Reportedly, licenses and/or credits for OCI already exist.





# Technical approach

- Periodically, for each database:
  - For each NAS volume used by the database's **data files**, select a recent\* snapshot;
  - Based on the timestamps of these snapshots, determine the **archive logs** required for a successful recovery;
  - Copy all selected data files and archive logs plus a backup of the **control file** to an OCI bucket directory;
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  - Copy all selected data files and archive logs plus a backup of the **control file** to an OCI bucket directory;
  - Set a time-bound retention rule on the directory to make the data immutable.
- In case of disaster, copy the files back from OCI and start the recovery process.

