Private candidates

draft-jgc-netconf-privcand-00

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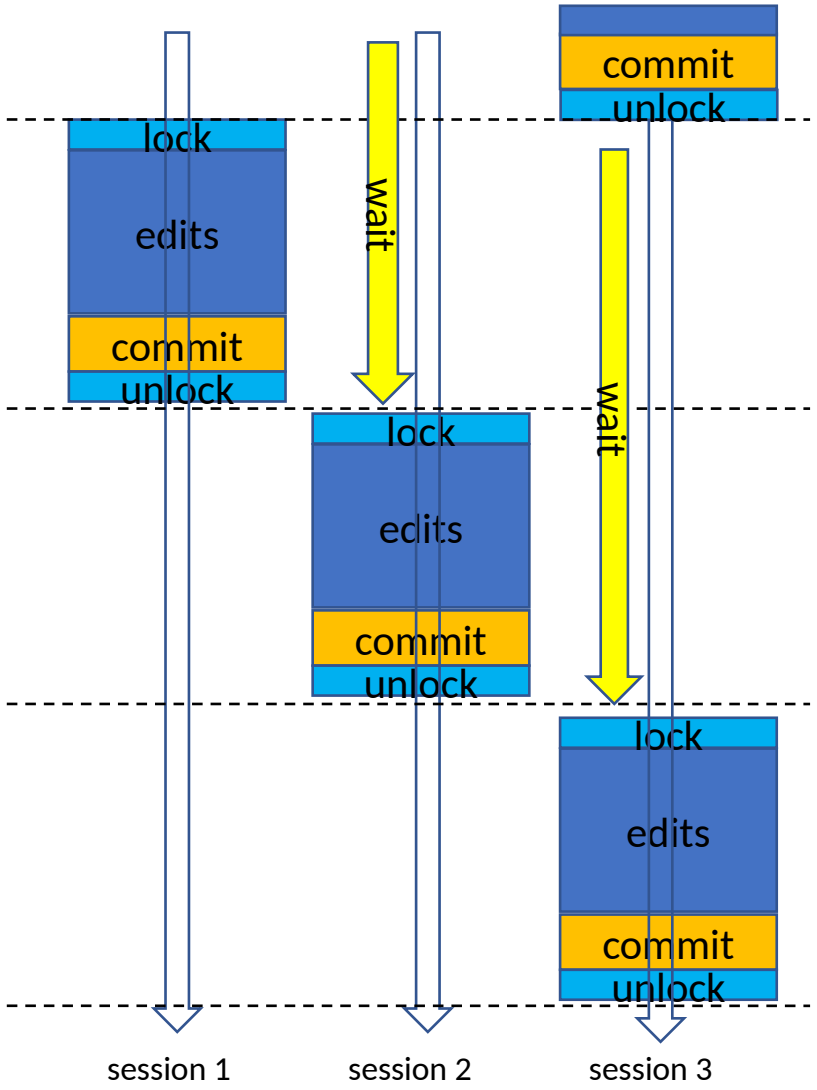
Problem space

- Existing Netconf “candidate” is a shared candidate
  - Multiple clients can make changes to the same datastore before committing
  - Therefore, one client may unwittingly commit another client’s changes
- Existing solution: Locking
  - Only allows one client to make changes at a time
- Many existing devices support the ability for a client to make changes and commit only those changes
  - “Private Candidate”
  - Want to standardize this

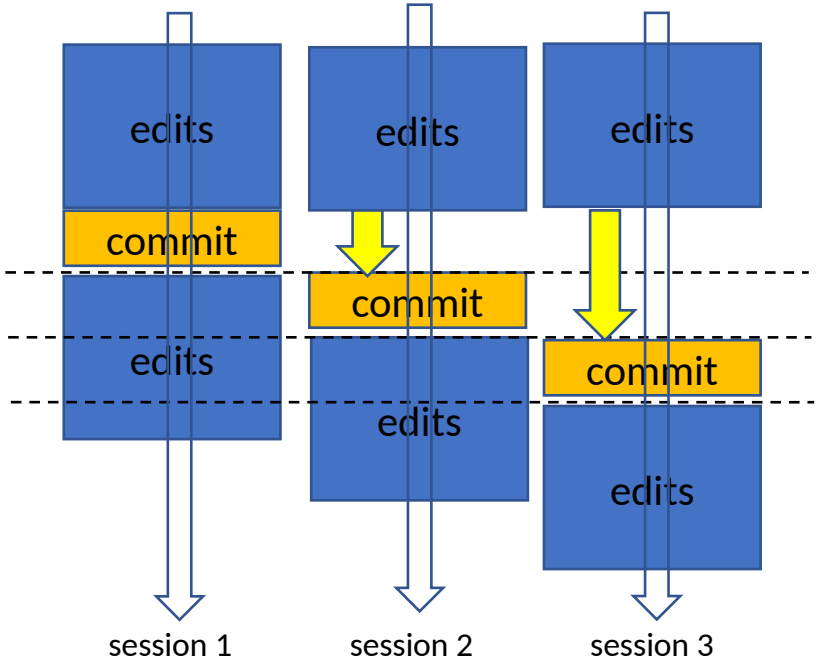
Locking the Global vs Using Private Candidates

Global candidate with locking

- Clients wait for other clients to complete entire update cycle before starting their edits (wait on lock)



Private candidates



- Only commit stage is serialized
- Edits parallelized

High level aims

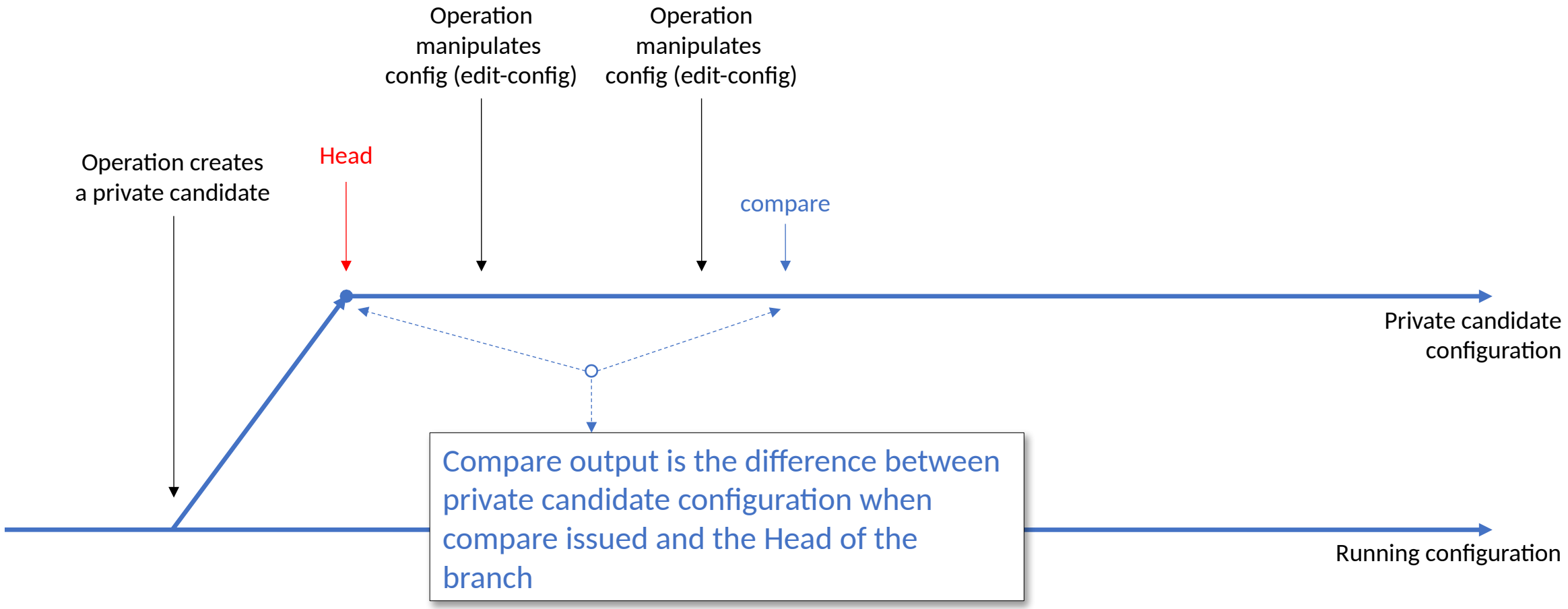
- Define a what a private candidate is
- Define how a private candidate is created and manipulated using NETCONF
- Define how and when conflict resolution is performed

- Is this a problem space the working group is interested in?

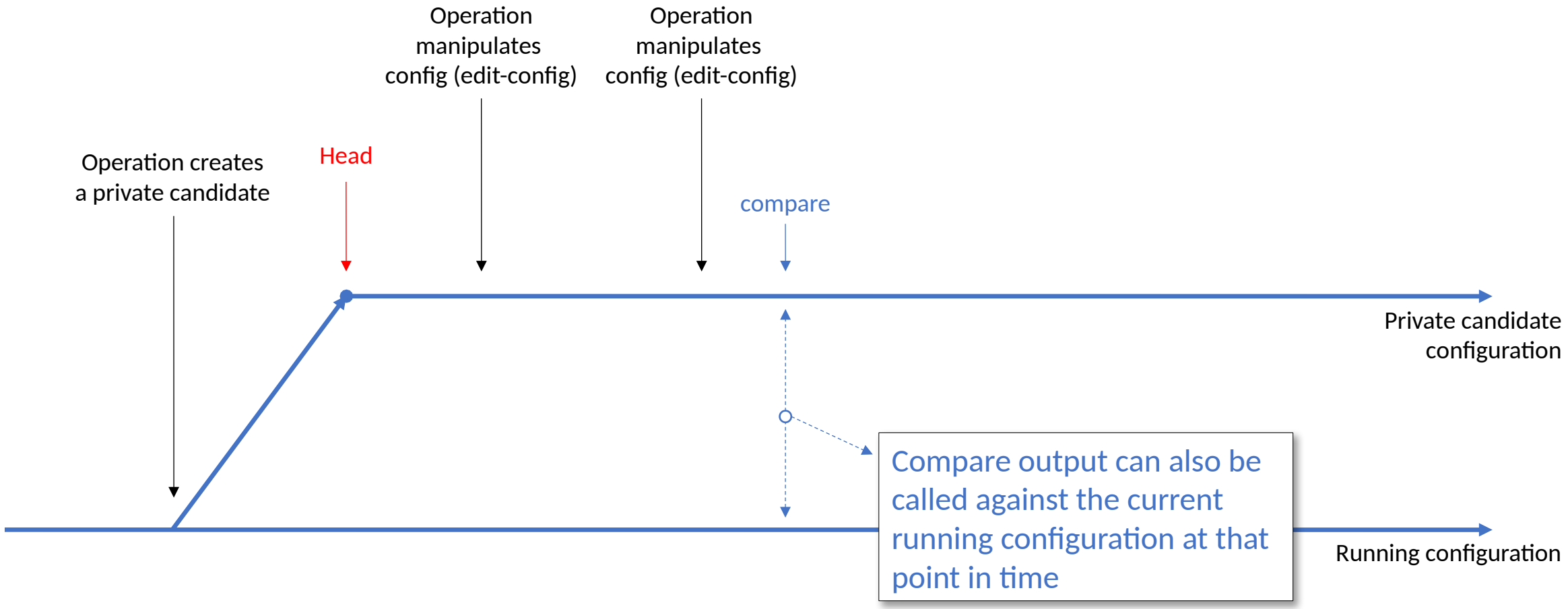
What is a private candidate

- A candidate configuration datastore to which
  - Is not visible to anyone else
  - Is not accessible to anyone else
  - Provides a workspace for a user to stage new configurations
- Created when the first NETCONF operation requires it by branching the running configuration
- Contains a full router configuration including all changes made to it

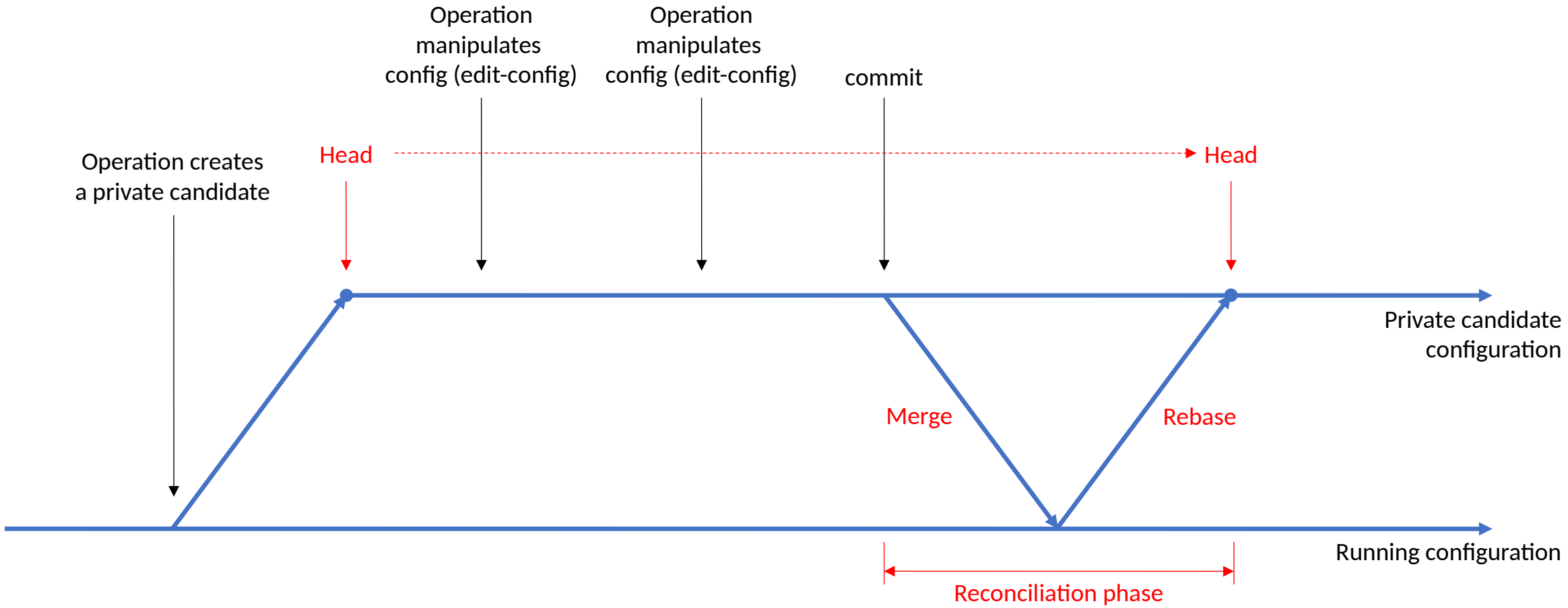
Private candidate conceptual use



Private candidate conceptual use



Private candidate conceptual use
(Static branch mode)



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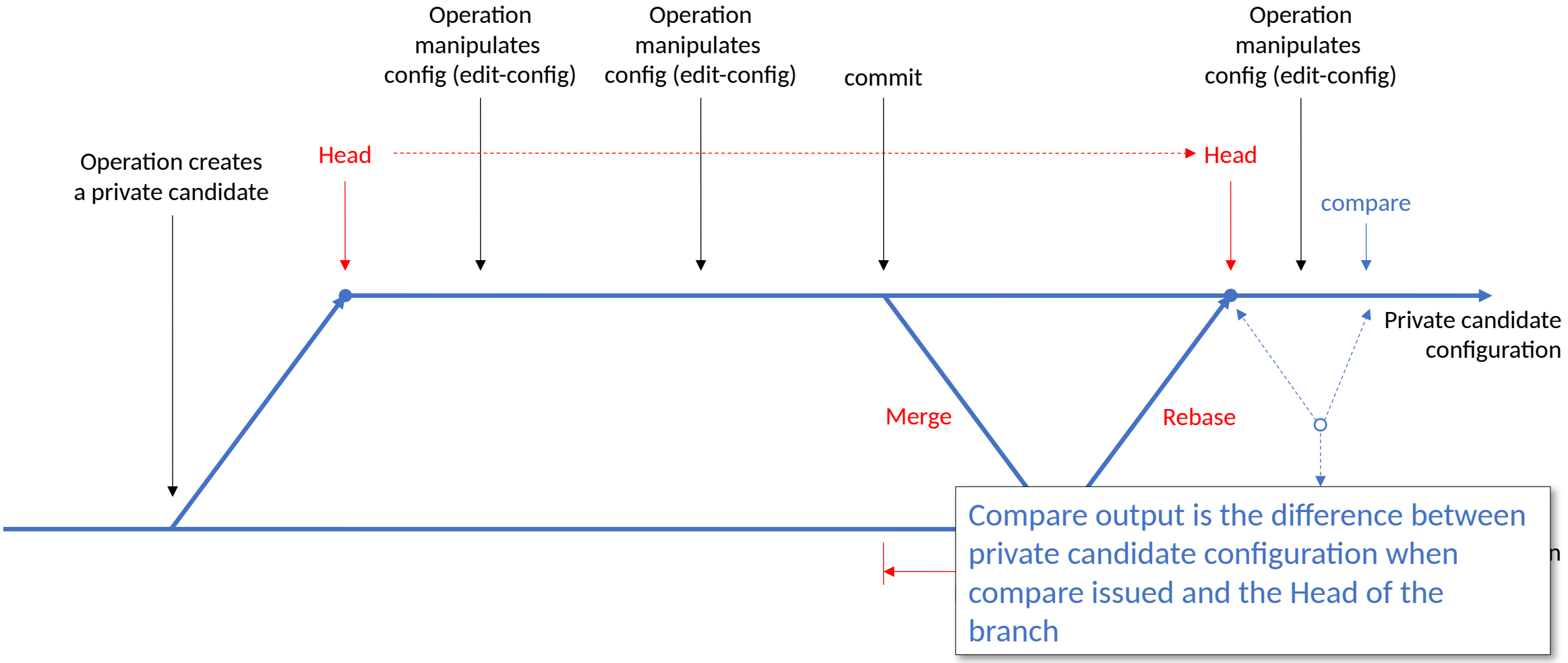
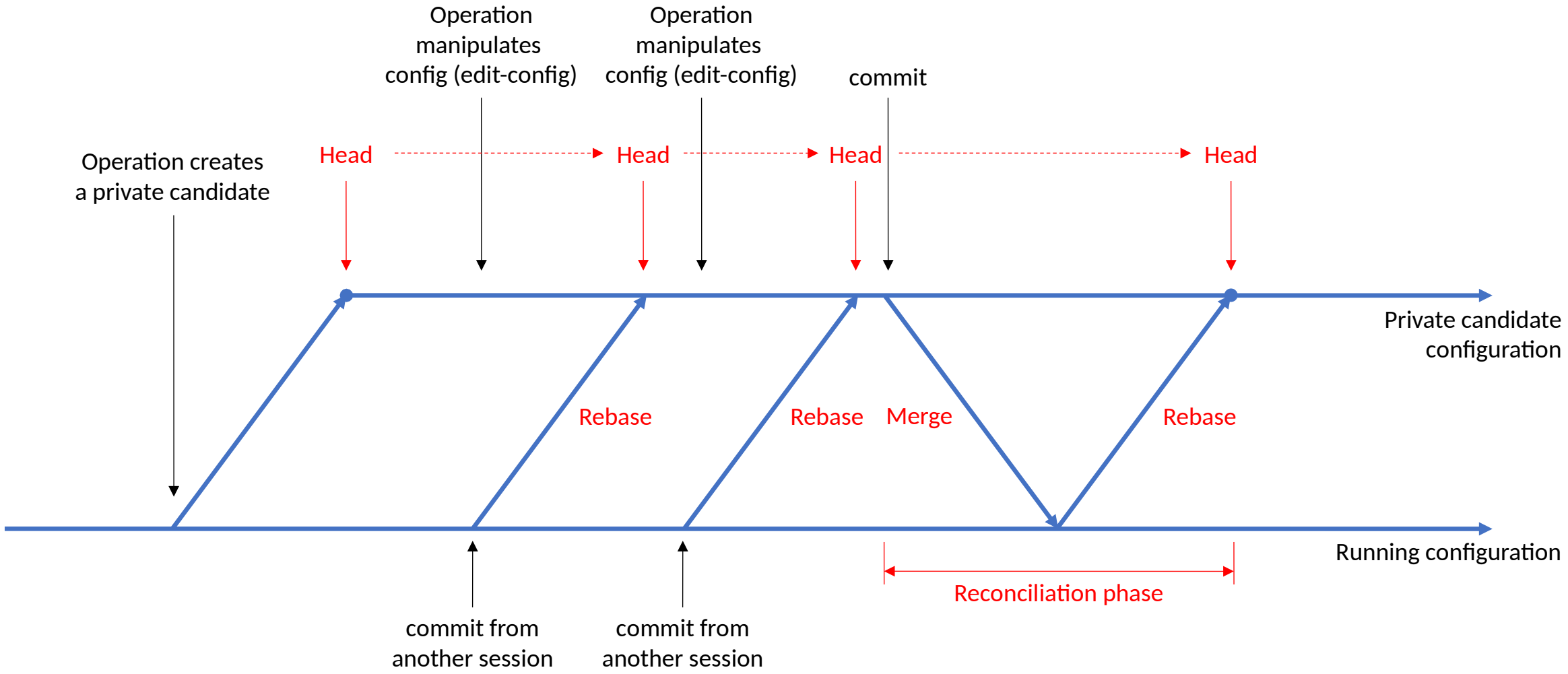


Private candidate conceptual use (Continuous rebase mode)



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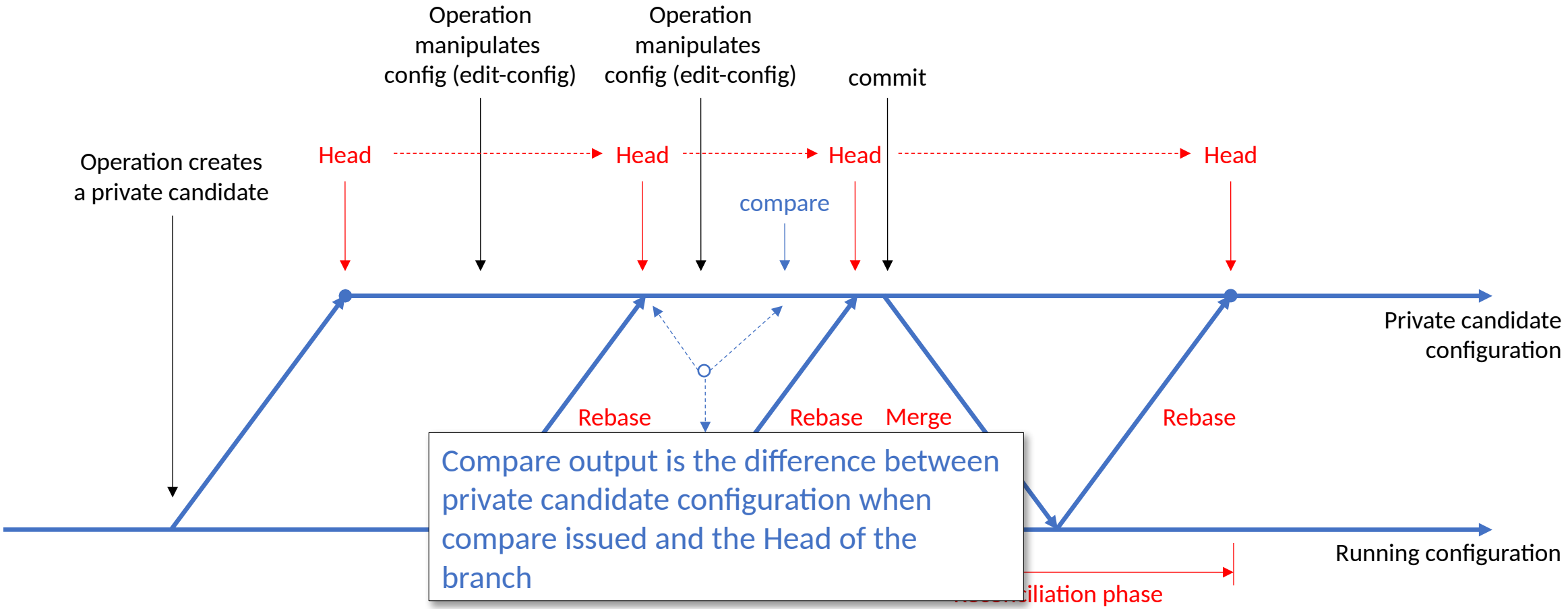

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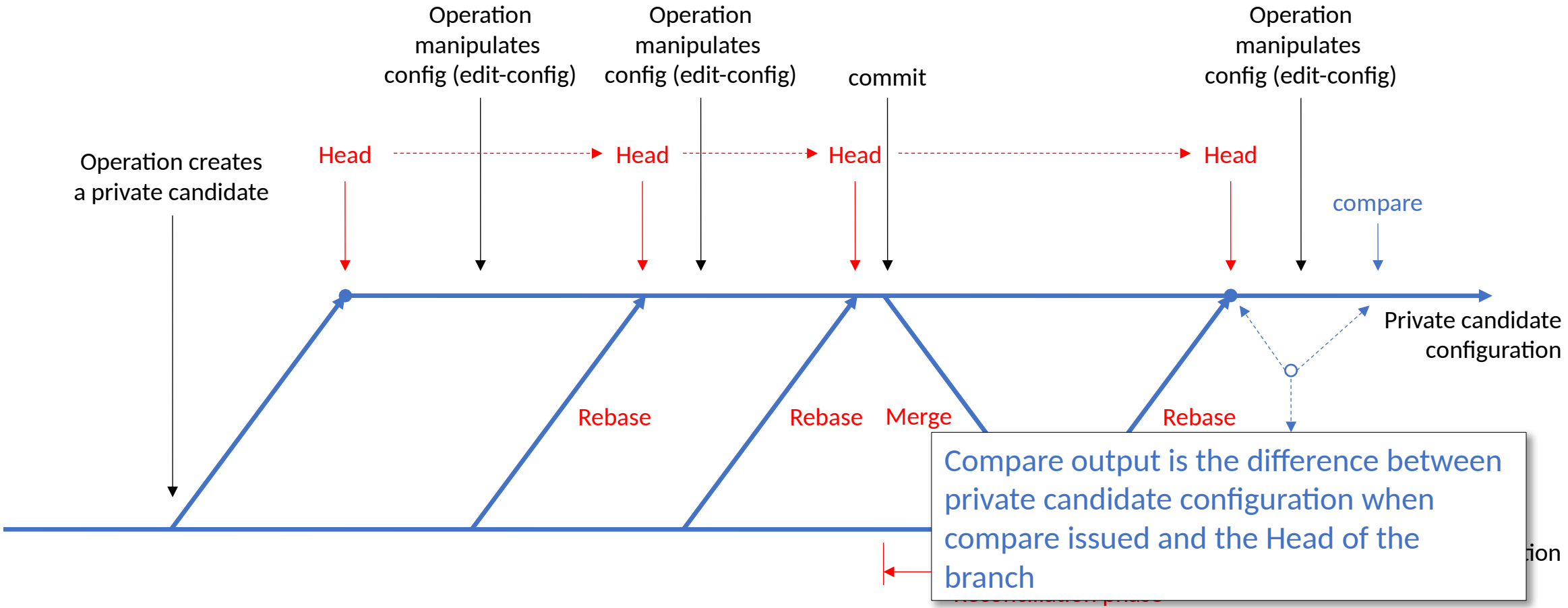

Interaction methods

- Client capability
  - New “private candidate” capability indicates that the client/server wants their candidate datastore to be a private candidate
  - Easy compatibility with existing Netconf clients
- NMDA private-candidate datastore
  - Define a new NMDA datastore
  - Existing get-data, edit-data operations against this datastore
- Not necessarily mutually exclusive

Collision detection

- Multiple places where collisions could occur:
  - Static branch mode: When committing
  - Continuous rebase mode: When running config changes
- How might collision detection be resolved?
  - An option for ”merge” is an “update” RPC
  - “Force” option
  - Still actively thinking about options here!

Working items

- Reconciliation methods
  - Select one / support both
- Interaction methods
  - Select one / support both
- Conflict resolution