Algorithms and Distributed Systems 2022/2023 (Lab 03)

MIEI - Integrated Master in Computer Science and Informatics
MEI – Master in Computer Science and Informatics
Specialization block

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Class structure:

- Recall ViewChange in PBFT
- Discuss how ViewChange should work in our application
- Key API calls to implement
- More progress with assignment

Protocol: view change

- Backups watch the primary
- If some backup suspects the Primary, it calls for a view change
  - When a backup receives a valid view change request it starts a timer (if it is not running)
  - When the timer expires, the Primary must be faulty. Decide to change view.

  - If backups receive requests from the primary, when receiving no request, how will it be suspected?
    - Clients that do not receive a reply send the request to all servers

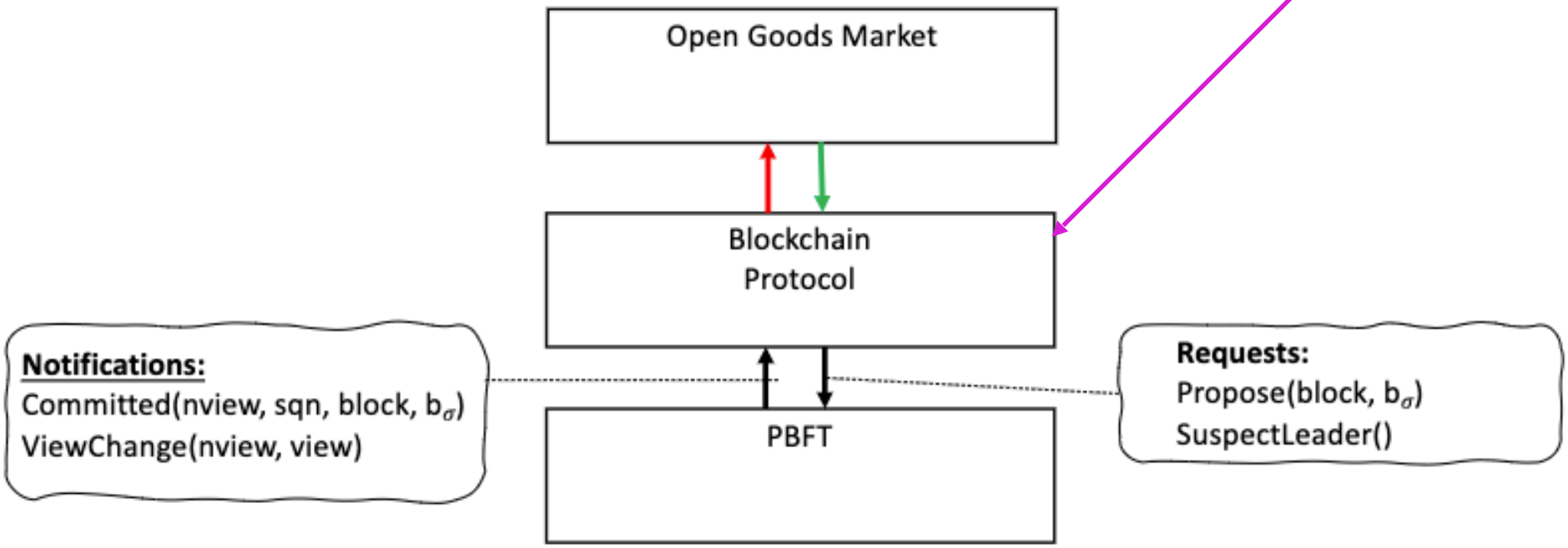
Difference:
We are going to ignore check-pointing because Blockchains do not garbage collect messages

Protocol: view change

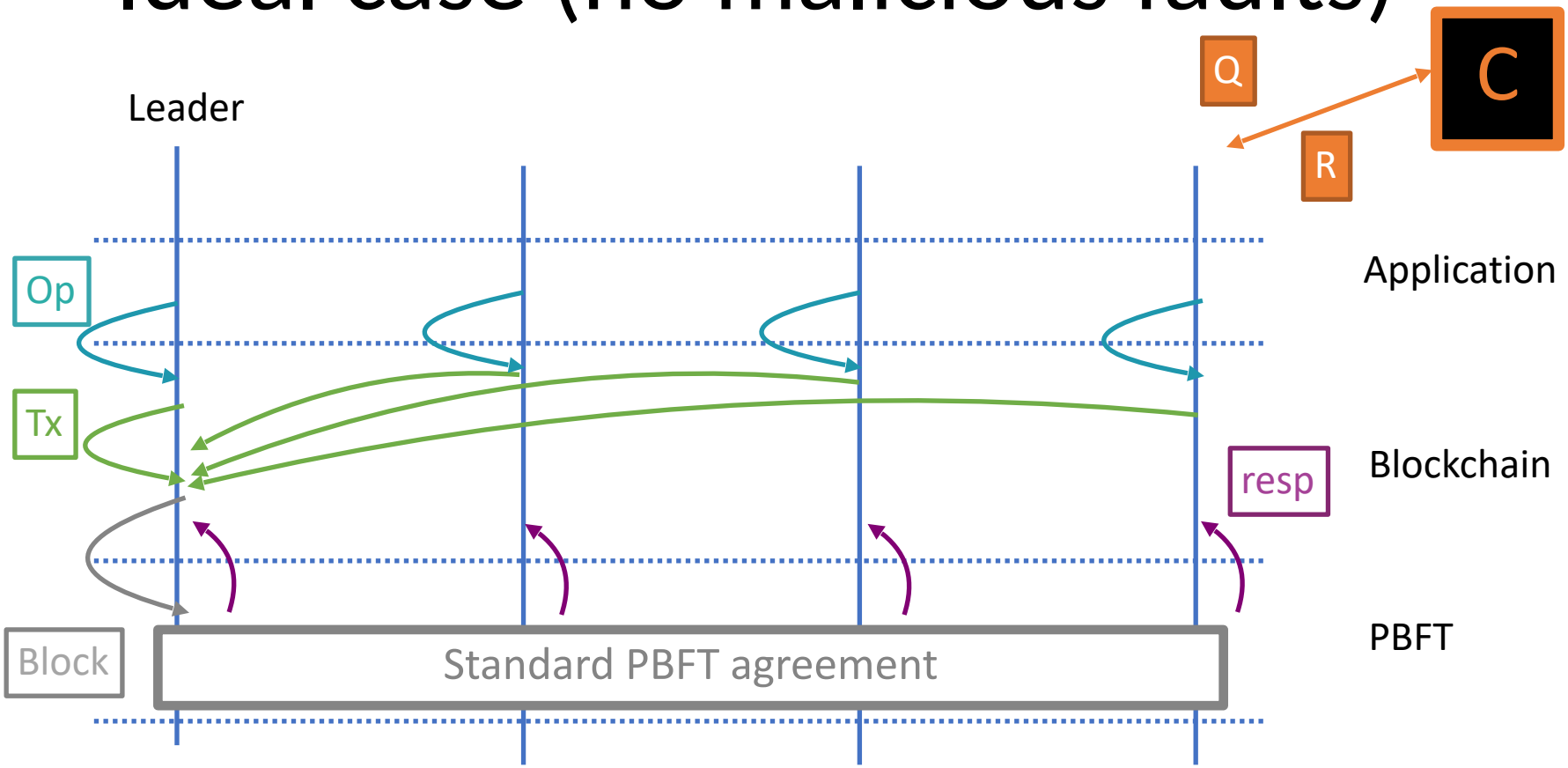
- A backup sends a view-change message
  - Request includes check-pointing information + messages prepared
- When the primary of the new view receives 2f view-change messages from other replicas
  - Declares the new view
  - Sends a new-view message, including:
    - a proof that 2f+1 nodes decided to change the view
    - all prepared messages that were not completed in the previous view

Protocol stack

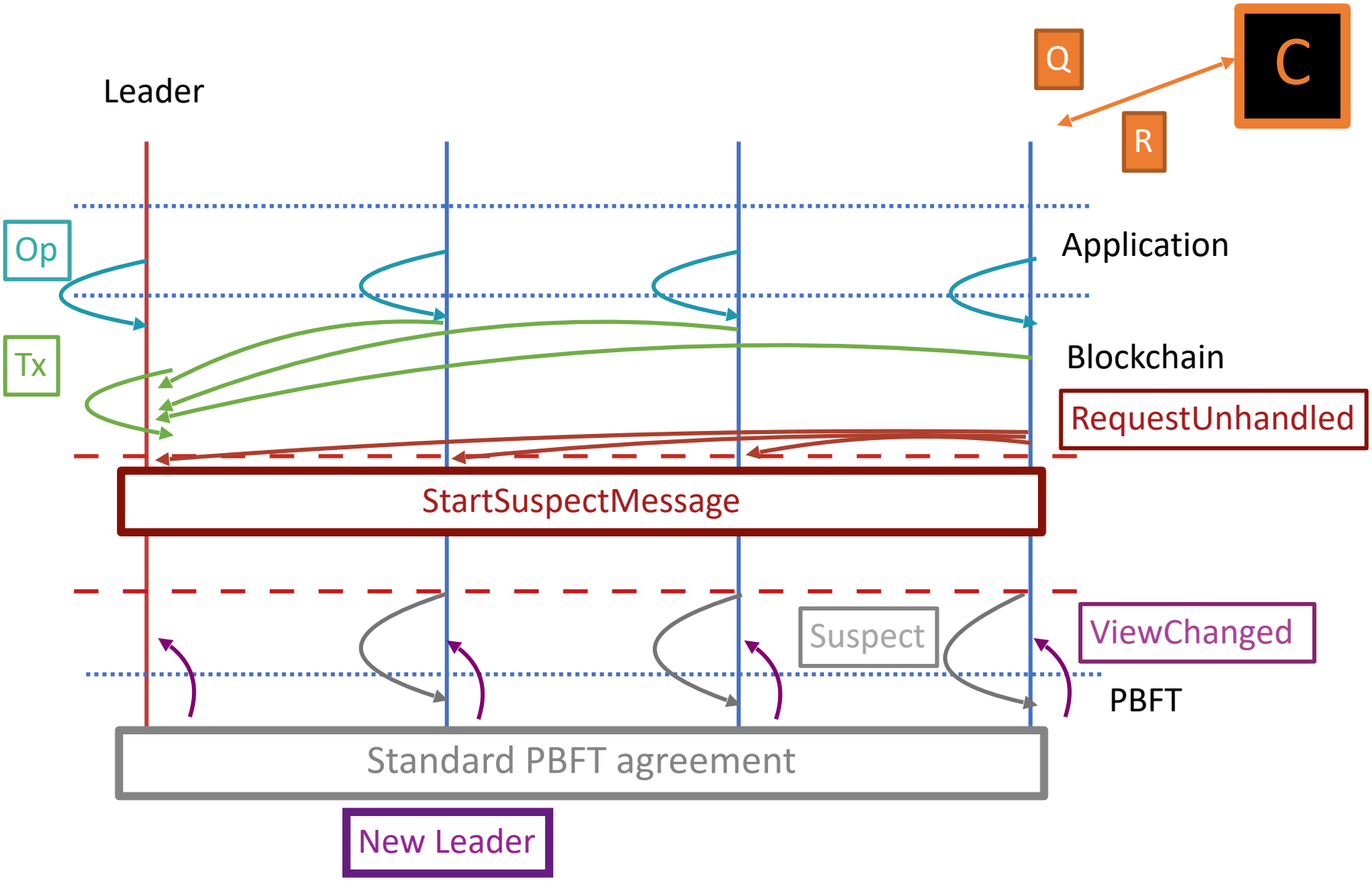
Difference:
We are going to implement the **ViewChange** formulation at the Blockchain layer



Ideal case (no malicious faults)



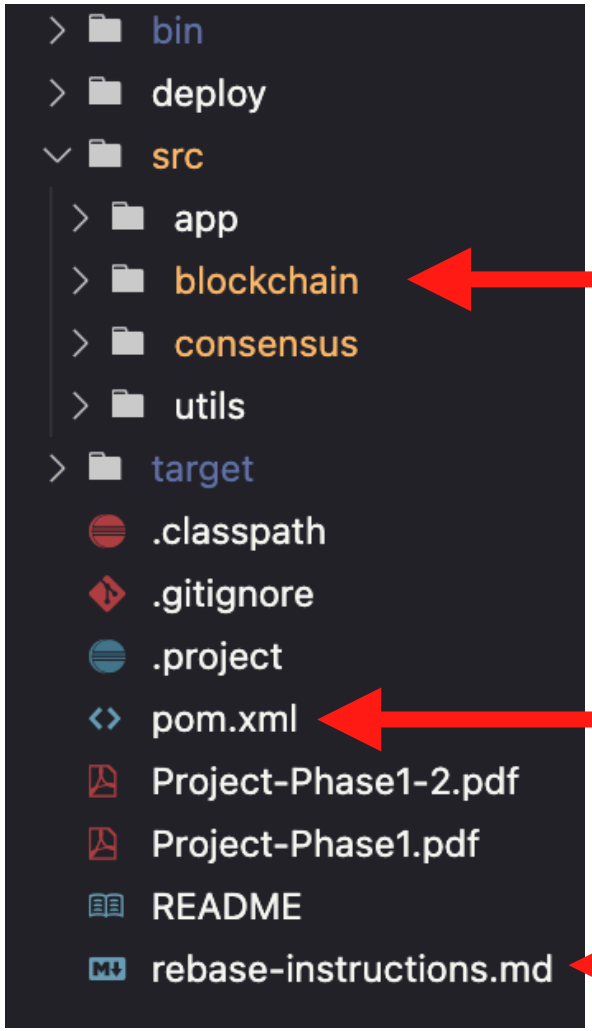
With malicious faults



Implementation API

- Need to take account ‘Suspect’ messages, and also handle responses of ‘ViewChanged’ from client layer
- **Remember:** The blockchain in our application is the client, rather than the client of the *application-layer*
- We don’t need to worry about the blockchain layer at the moment
- But you should be aware of the API that is required
- Updated code: https://github.com/UNL-MEI-CSD/csd-project-phase1 (need to rebase)

Code changes



Blockchain layer example code

- Some message structure
- Details either empty or unfinished

```
<build>
    <sourceDirectory>src</sourceDirectory>
```

Fixes for bugs last week

- pom.xml changed to include new tag

Rebase instructions

- To get new code locally

Last things

- My office hours are every Tuesday at 14:00 - 16:30, P2;17

- My email: a.davidson@fct.unl.pt

- Any questions: please ask!