Hopskotch and Hackathon

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May 12, 2021

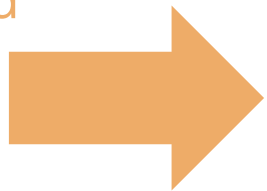
SNEWS 2.0

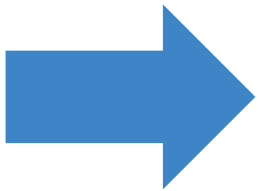
Essential components:

1) Function to read messages and decide if there's an alert

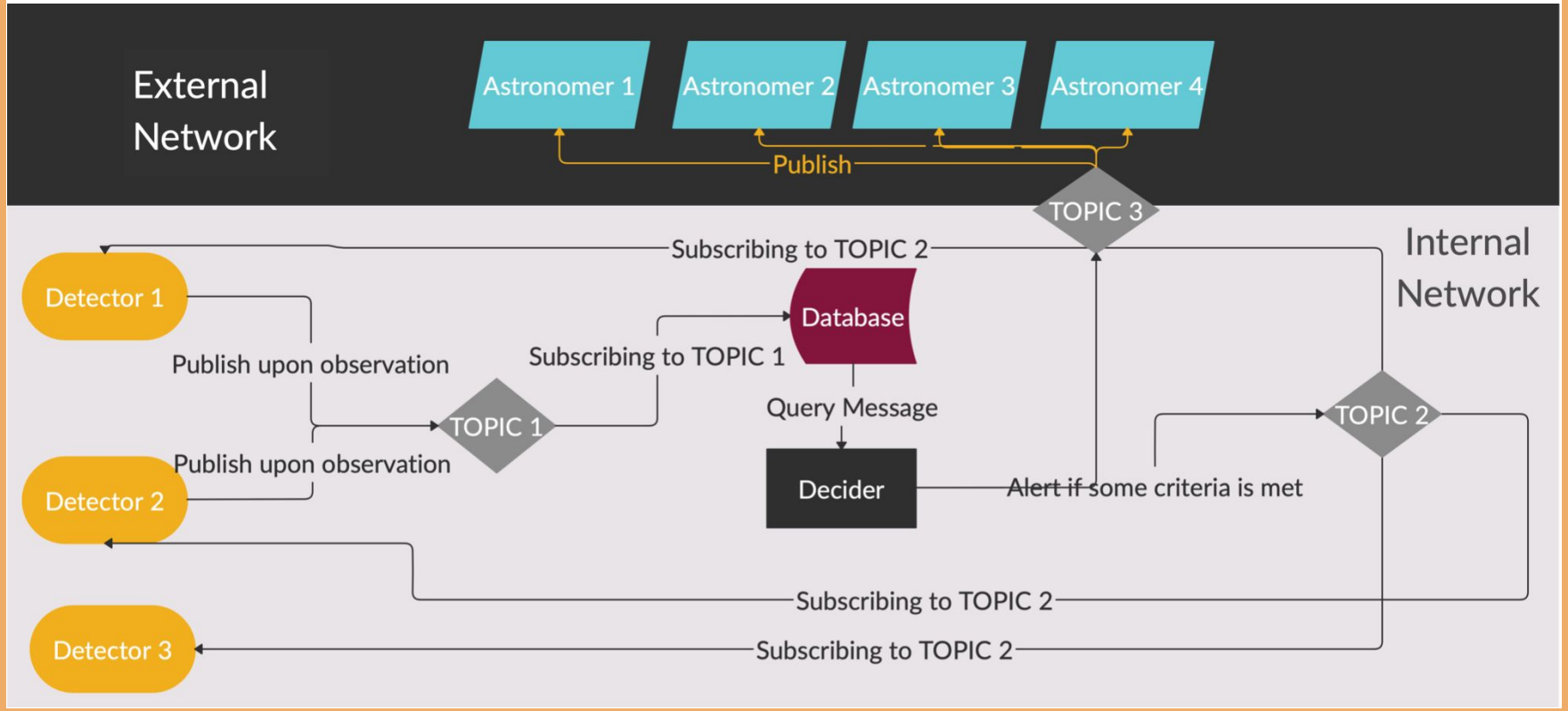
2) Message interfacing for clients

3) Server infrastructure to coordinate messaging

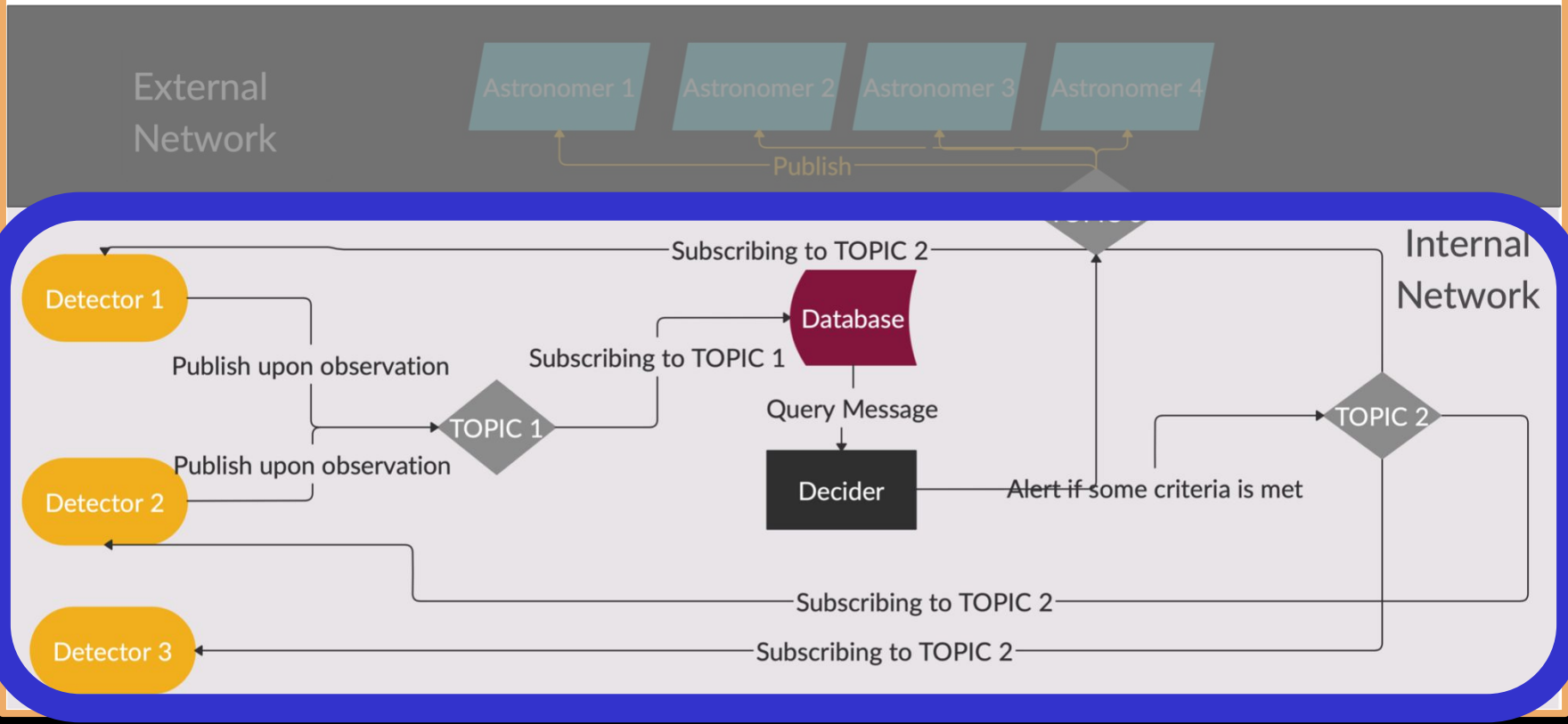




SNEWS 2.0 prototype: *snews* + Hopskotch



SNEWS 2.0 prototype: *snews* + Hopskotch



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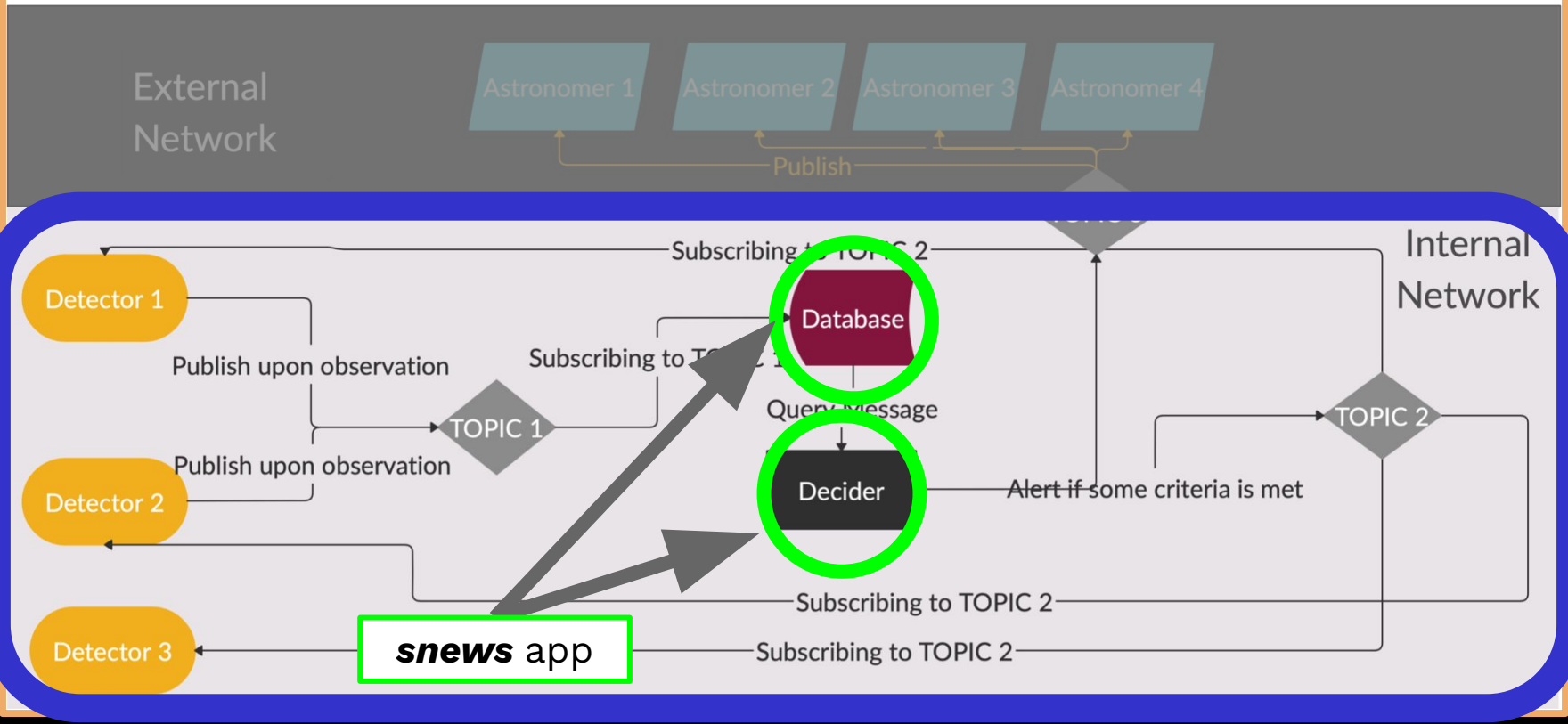

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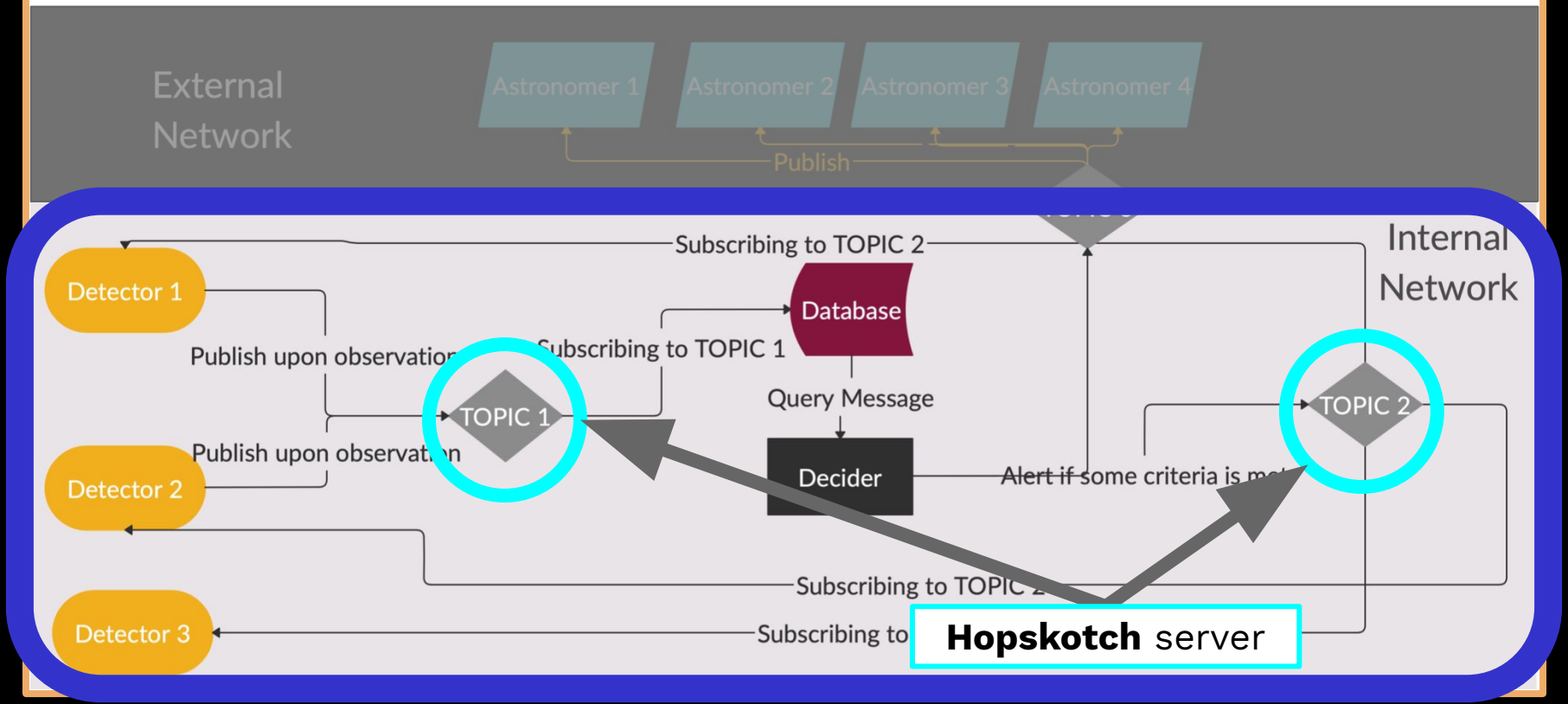


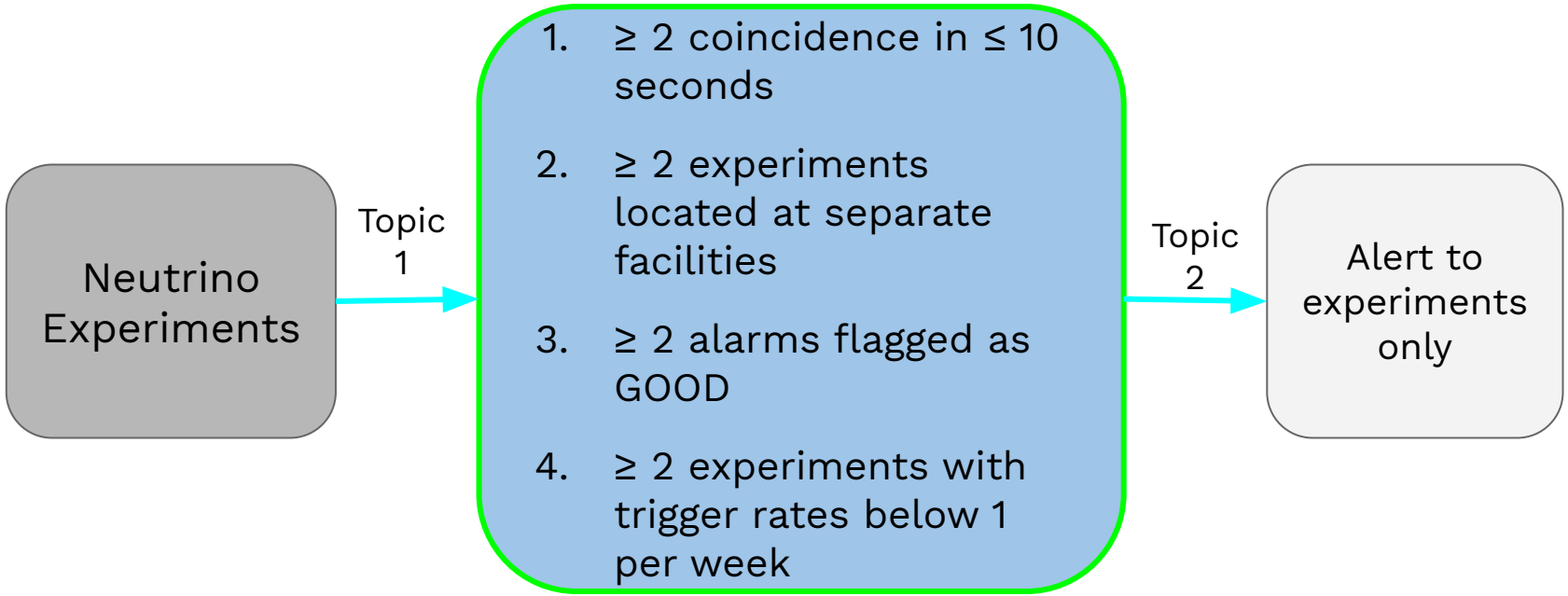
Hackathon: Goals

1. Connect all experiments into SNEWS 2.0 with SNEWS 1.0 functionality.

   - ☐ Publish messages to “Topic 1”
   - ☐ Subscribe to messages from “Topic 2”

2. Add SNEWS 2.0 functionality.

SNEWS 1.0 Functionality



Messages

Observation Message

- sent by a detector to SNEWS 2.0 server upon observation of possible supernova neutrinos

Heartbeat Message

- sent by a detector regularly to SNEWS 2.0 server to tell they are online & “we saw nothing”

Alert Message

- Sent by SNEWS 2.0 server to all detectors when coincidence requirement is met

SNEWS 2.0 Functionality

Hackathon: What to expect

Daily Check-ins!

- Quick status updates to discuss progress and issues. By doing the same tasks we can hopefully help each other out and share what we learn.

Lecture Series!

- Physics lectures to expand the knowledge of supernova and neutrino physics. Great for non-snews members → Bring a friend!
- Software lectures will allow participants to learn the different aspects of SNEWS 2.0 beyond hopskotch.

Backup Slides

SNEWS 2.0 prototype: *snews* app

- ***storage***: store messages in MongoDB server for a variable length of time
  - Provides portable client-side message caching
- ***decider***: instantiates *storage*, adds messages to cache, and applies deciding logic to determine possibility of a supernova event
  - Deciding logic involves checking time-coincidence and detector status
- ***model***: instantiates a *decider* and connects it to message streams
  - *decider* parses/stores messages; *model* listens to the *decider* and sends an alert message if *decider* determines a supernova event
- Uses SCiMMA's hop-app stream API to connect with Hopskotch servers

Internal Experiment Data Sharing