SPACE : Media over QUIC in Deep Space

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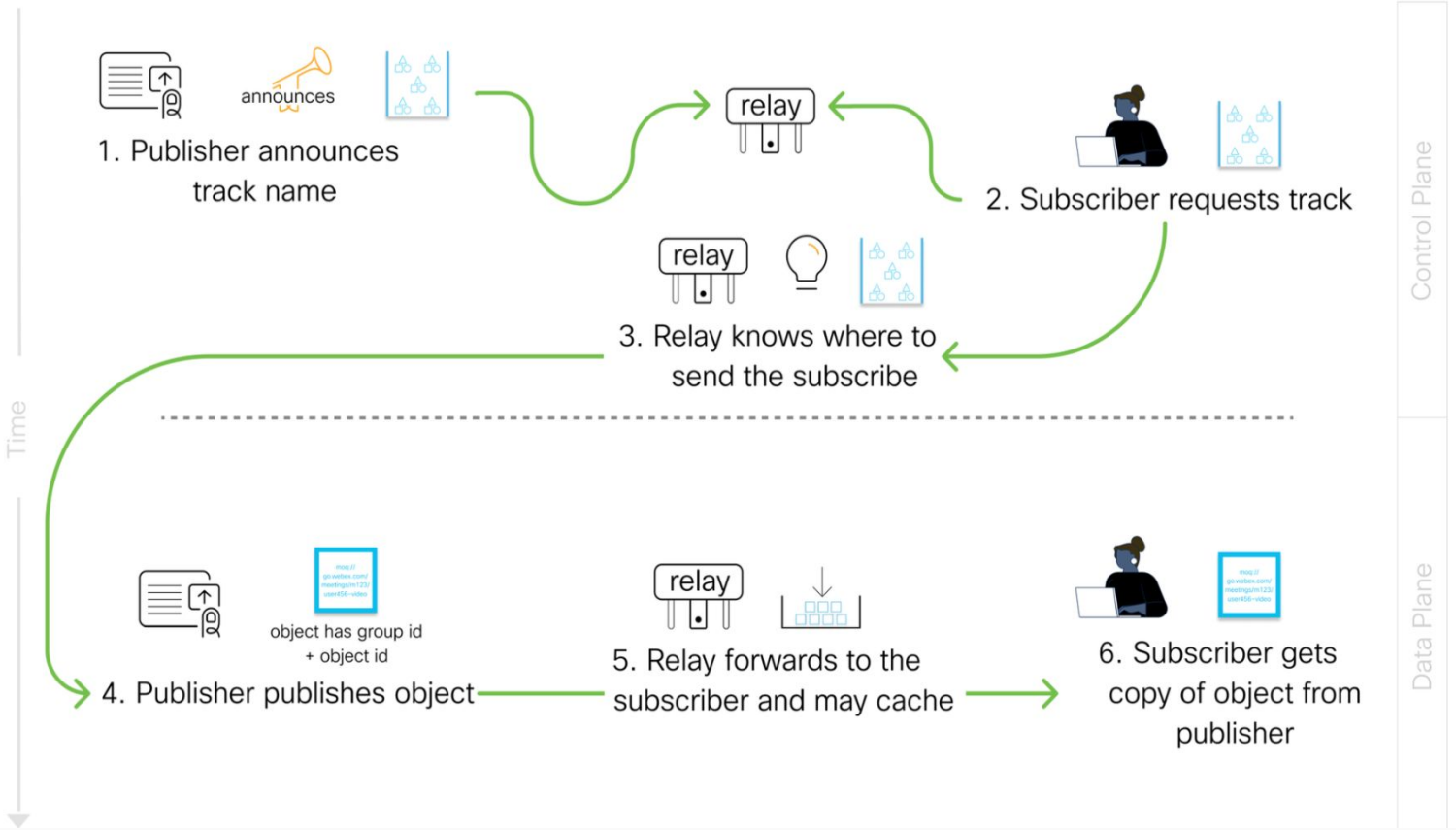
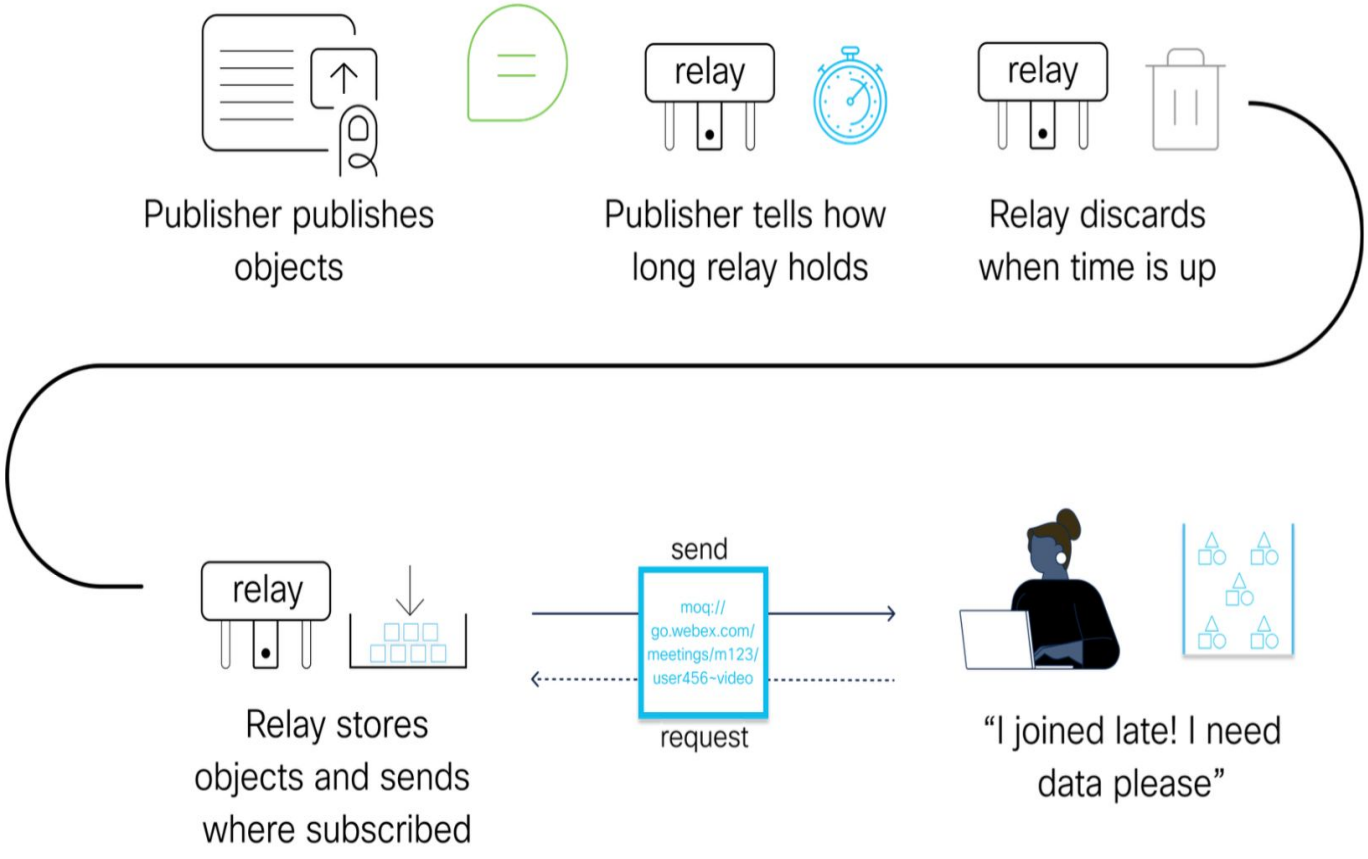
draft-nandakumar-deepspace-moq-00

v1

Control and data planes



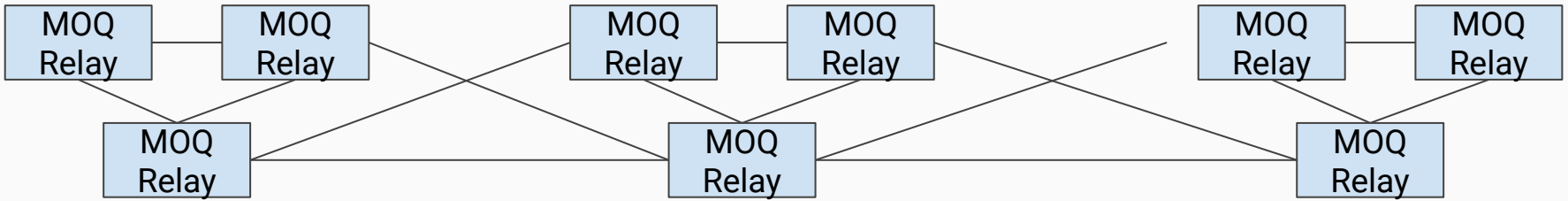
Caching


relay
relay
Publisher publishes objects
Publisher tells how long relay holds
Relay discards when time is up
relay
send
moq://
go.webex.com/
meetings/m123/
user456~video
request
Relay stores objects and sends where subscribed
"I joined late! I need data please"

Earth

LEO Sats

Mars/Moon Surface



One Interplanetary Protocol for many applications

Why MoQ

Intermittent Connections → Store/Forward functionality allows subscribers to come fetch when they come online

Federation across domains → Object naming allows objects to be uniquely identified across relays from different operators.

Long Delays and constantly changing topology → QUIC's Network resiliency coupled with NDN overlay allows relay nodes to come and go with end applications needing reconfiguration.

Scalable Pubsub, Asymmetric and Cached transport for Deep Space communications

Media over QUIC

Pub/Sub of Objects - Asynchronous, Scalable

NDN overlay via Named Objects - Contents doesn't change once published

MOQ

Store/Forward - Objects get cached In the relay network

Multiple Applications - Low latency media, Messaging, Logging and more.

QUIC Benefits - Multistream, Multipath, Connection Migration, User level CC, RTX, ...