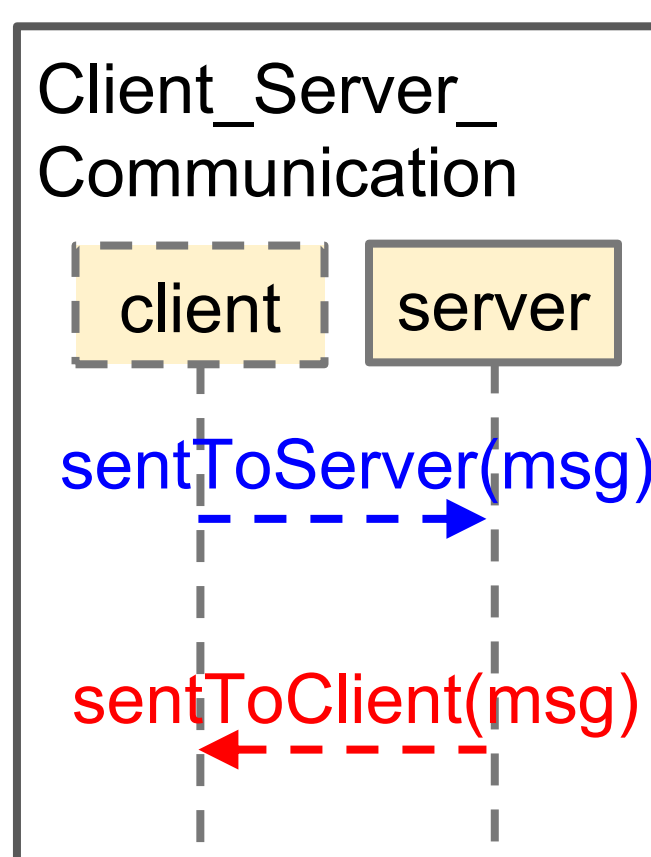


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## Live Sequence Charts (LSC)

- A natural graphical language for scenario based specifications.
- Extends message sequence charts (MSC).
- Executable semantics for multiple concurrent inter-object scenarios.
- Event Modalities: **must** / **may** / **forbid**.



## The Research Questions

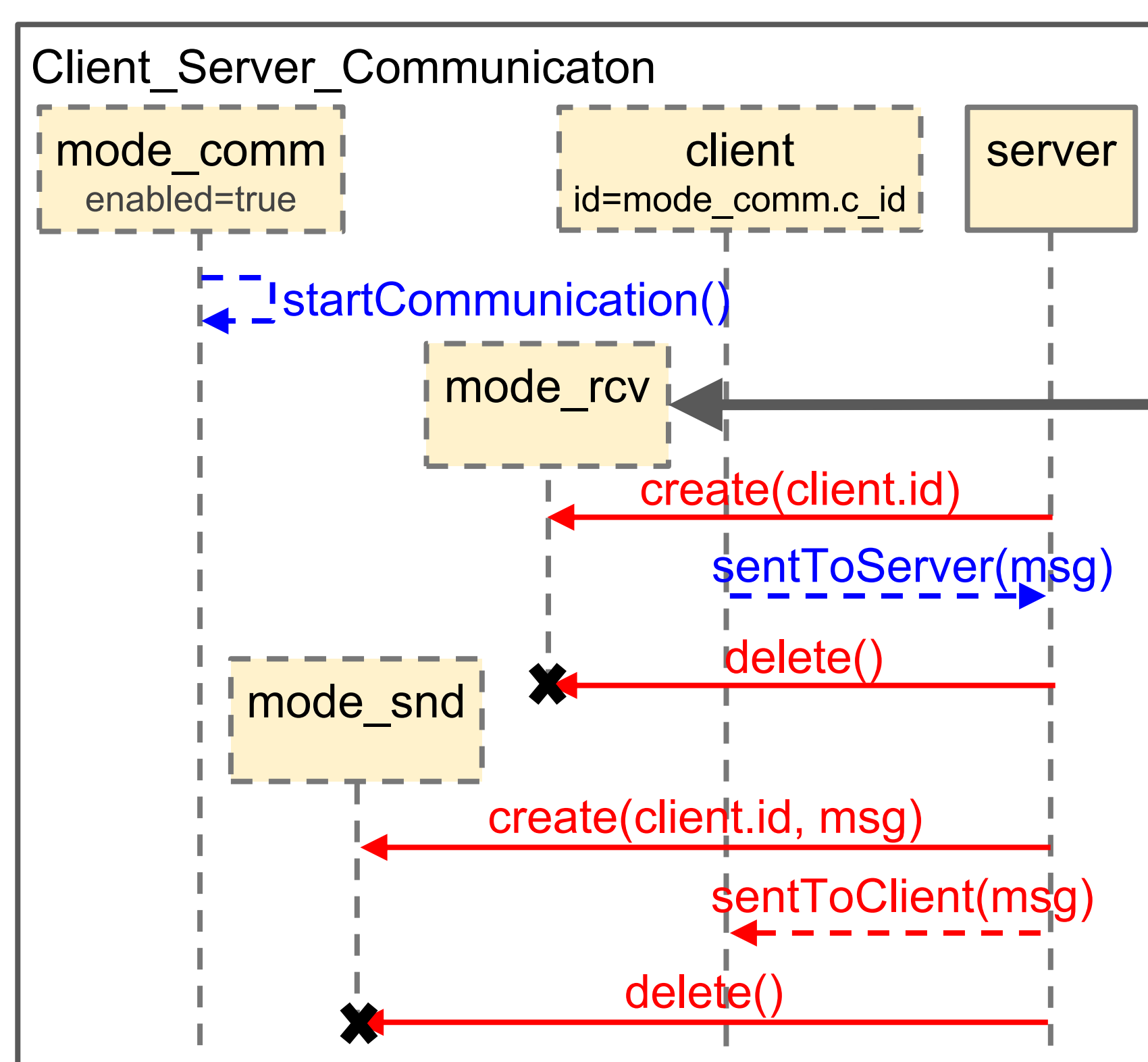
- Can we efficiently model a server that operates differently under diverse contexts such as RECEIVE and SEND?
- Can we incrementally add orthogonal contexts into our design (e.g., maintenance)?

## Solution: Modes

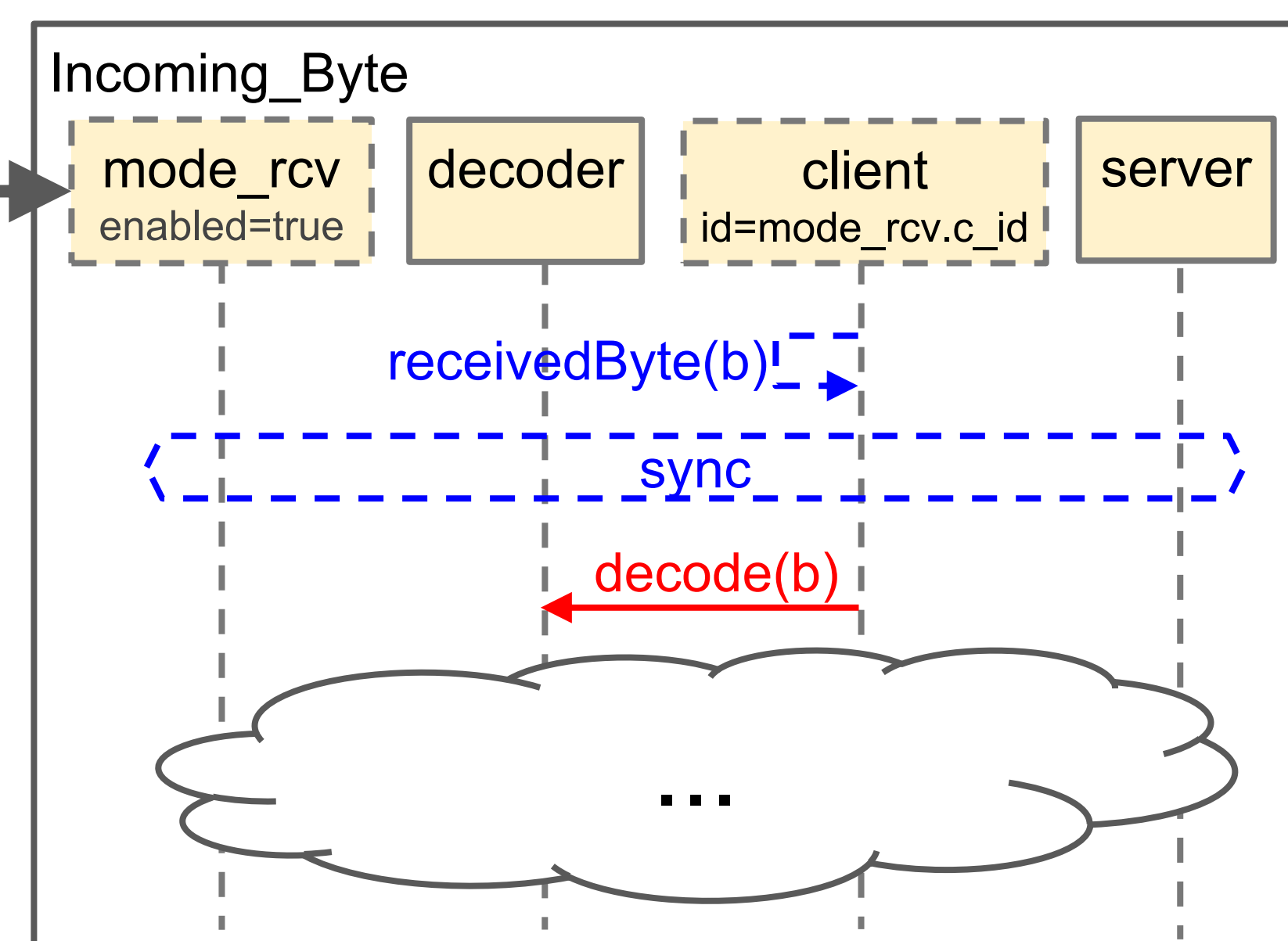
Scenarios are selectively associated with modes:

- Come into play when mode is activated.
- Terminate (gracefully) when mode ends.

## Binding Charts to Context Objects

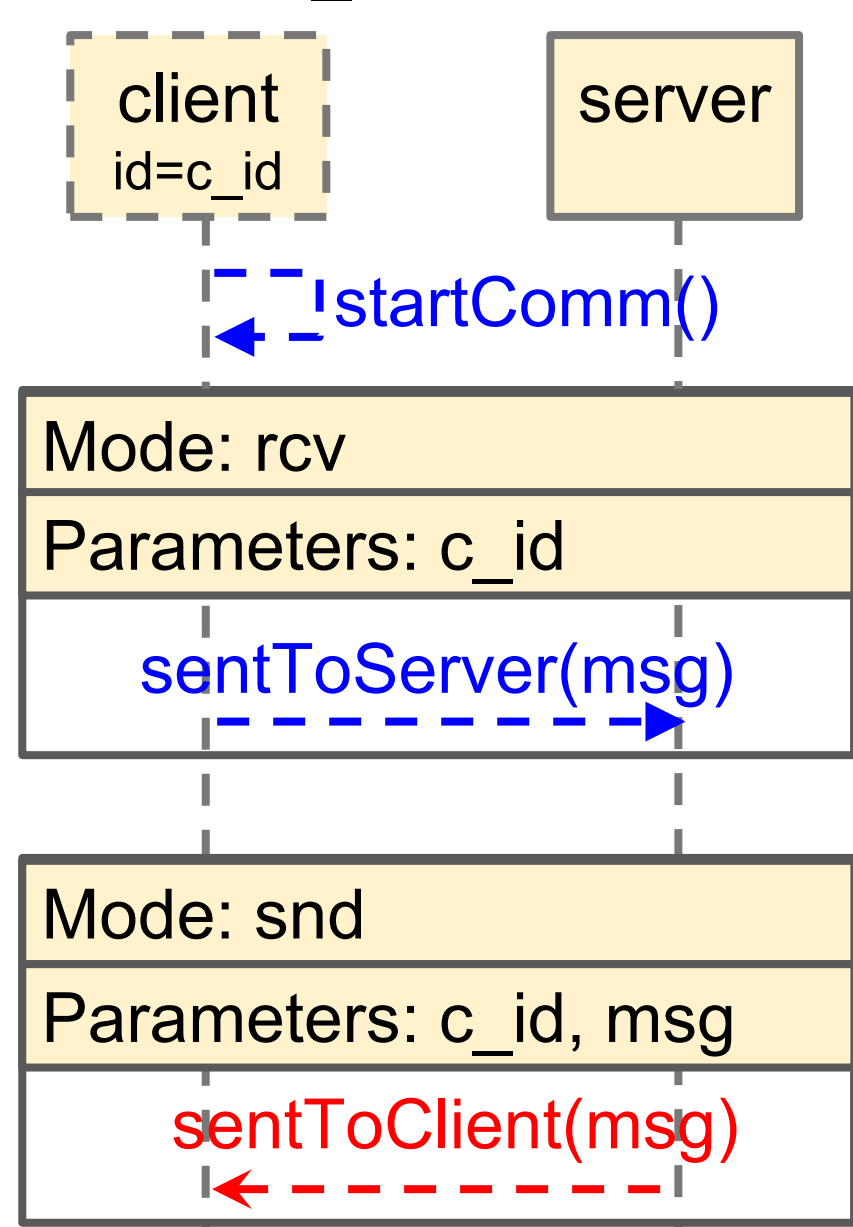


The dynamic creation of a mode\_rcv instance enables context mode\_rcv for this client

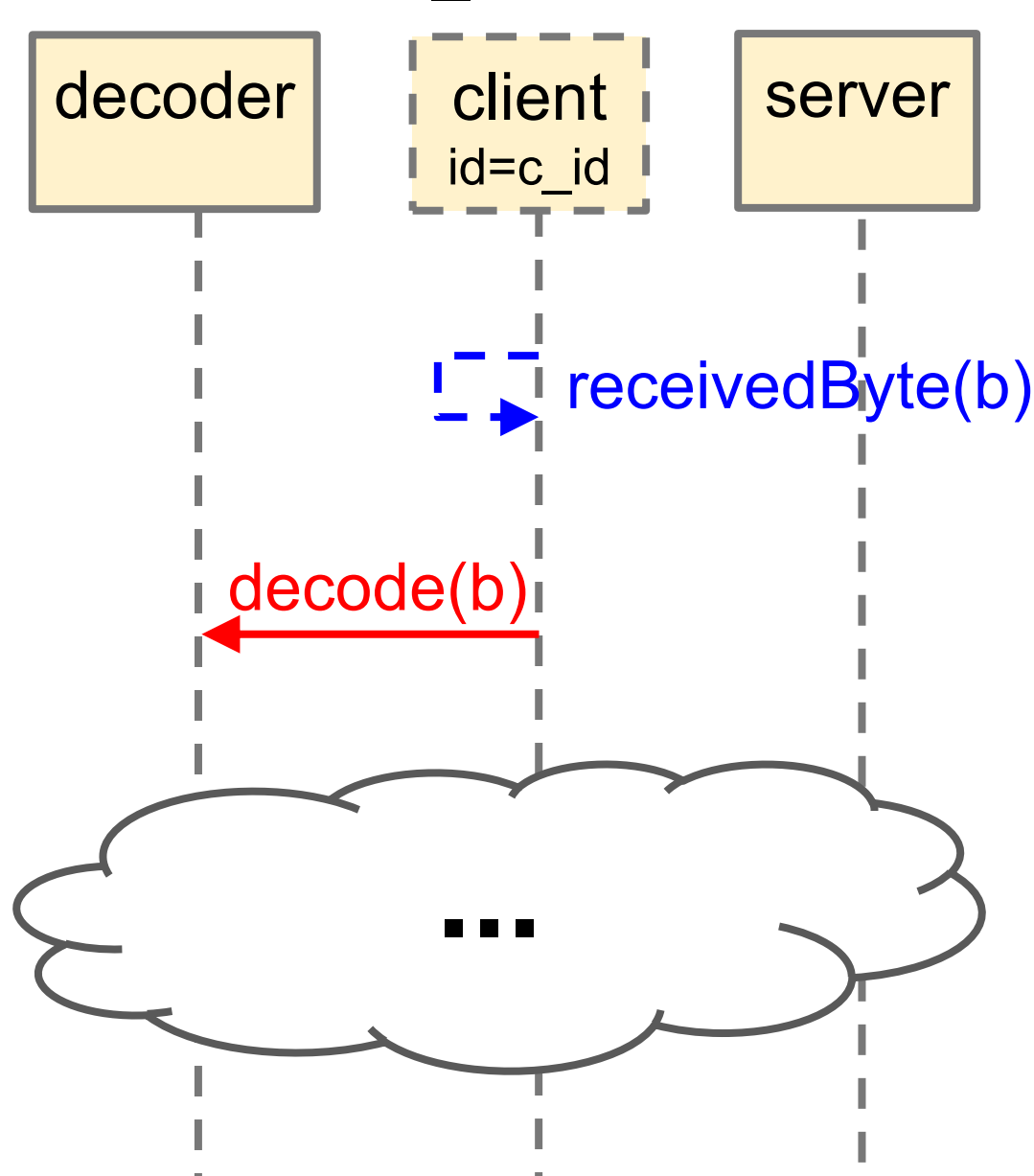


## A Concise Approach to Defining Contexts

**Name:** Client\_Server\_Communication  
**In Modes:** comm  
**Parameters:** c\_id



**Name:** Incoming\_Byte  
**In Modes:** rcv  
**Parameters:** c\_id



## Mode Termination

Ensuring graceful termination of the context-dependent scenarios:

- Stopping them immediately.
- Run to completion.
- Decide on their own.

## Usage Examples and Future Work

Modeling complex reactive systems (e.g., home-assistant robot).



IoT as a group of multiple, orthogonal, contexts.

## Managing LSC Specifications Approach

- Use context-based **feature model** to reflect and manage the layers of abstractions.
- Easier navigation and reuse.
- Charts at all levels, not only at the leaves.