

Decentralised Human-Machine Collaboration by Sharing Web Data

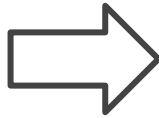
Paolo Pareti

<https://w3id.org/people/paolo/>



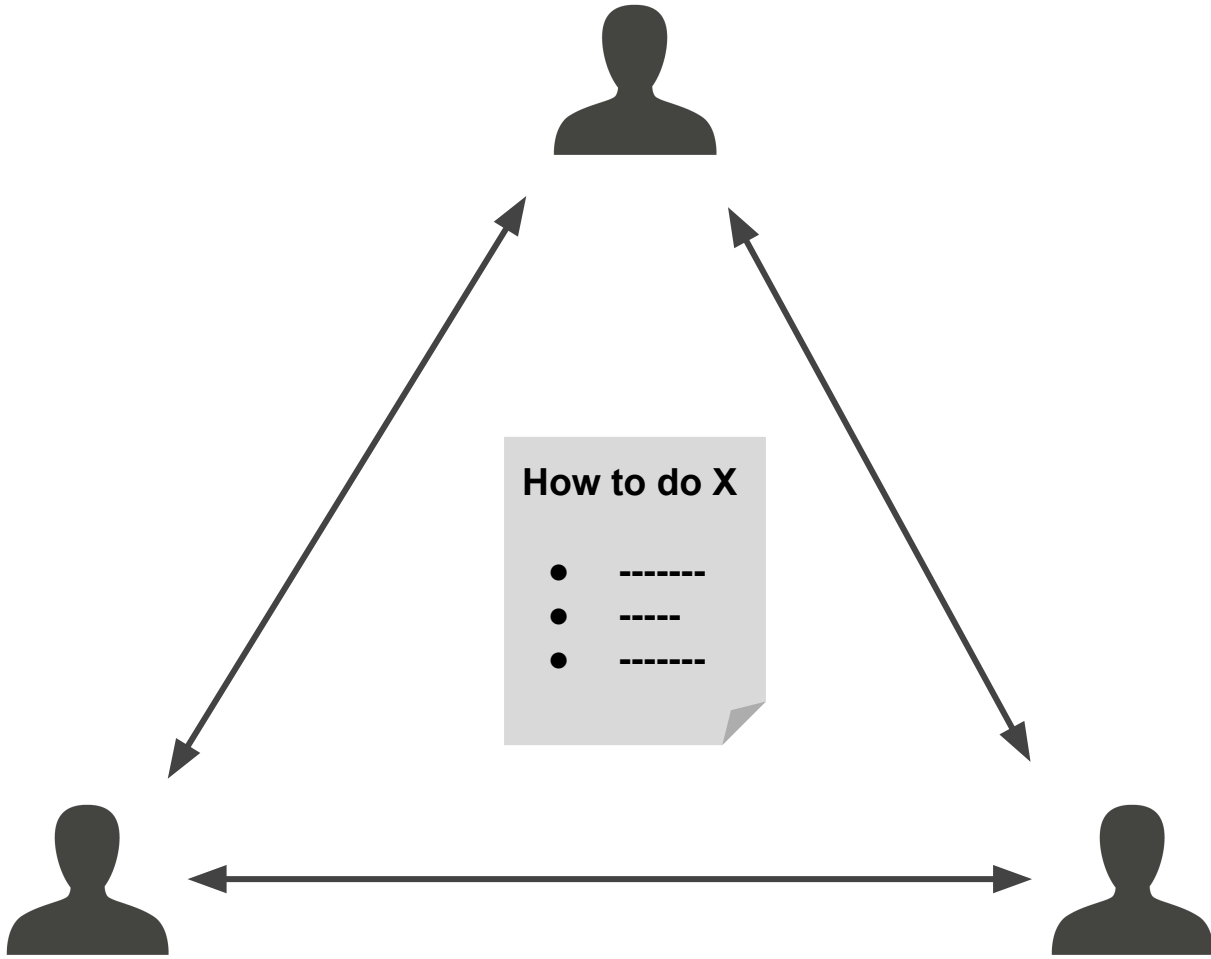
THE UNIVERSITY
of EDINBURGH

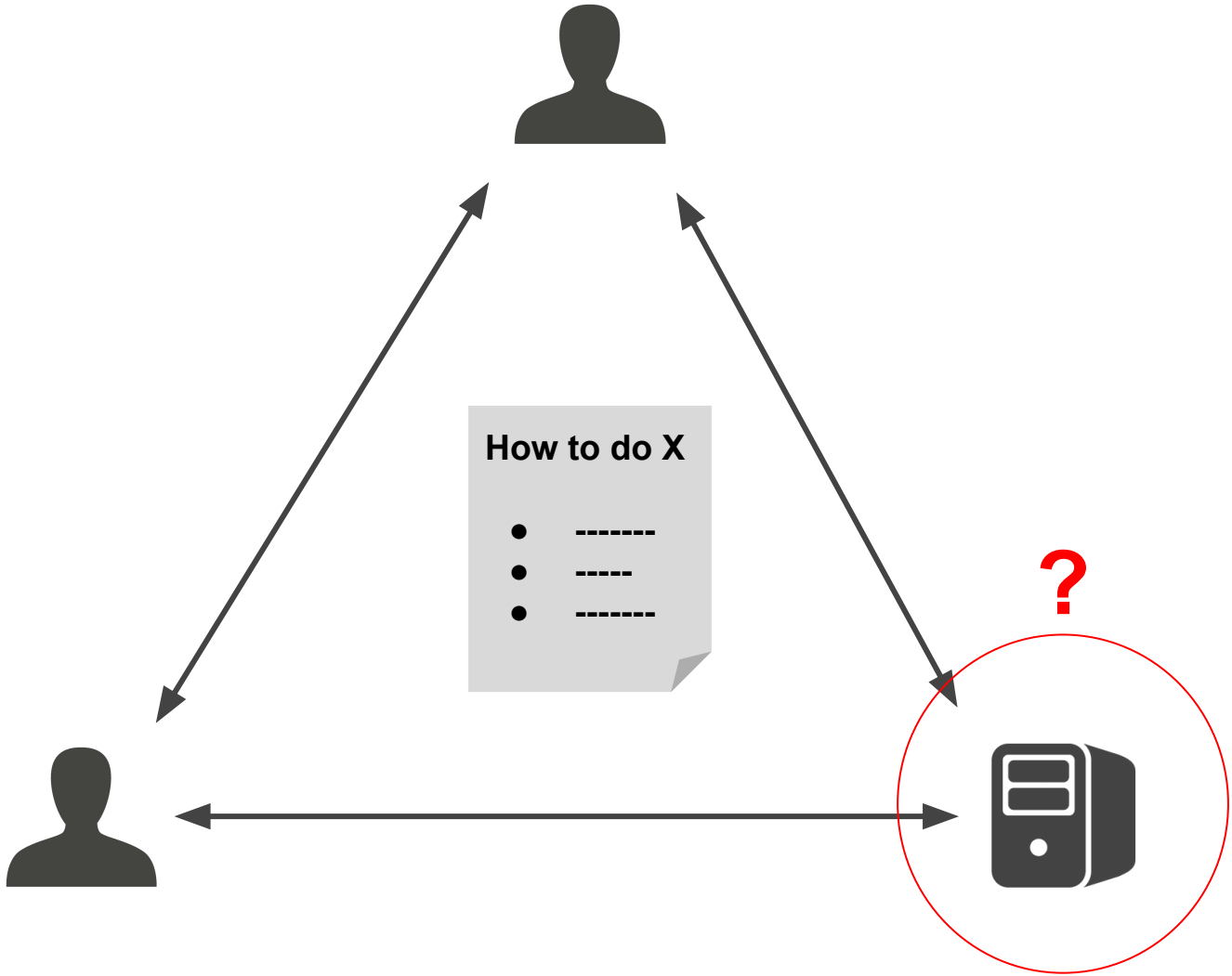
**User-defined collaboration
using instructions.**



How to do X

- -----
- -----
- -----

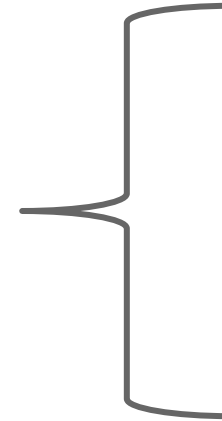
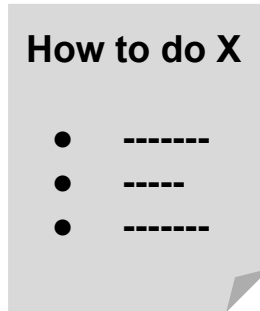




**Problem 1: Can know-how
be understandable by humans and
machines?**



learn know-how
create know-how
correct know-how
share know-how
follow instructions
collaborate
...



?



Solution 1: Automatic formalisation of human instructions.

Informal

Formal

Reasoning

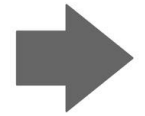
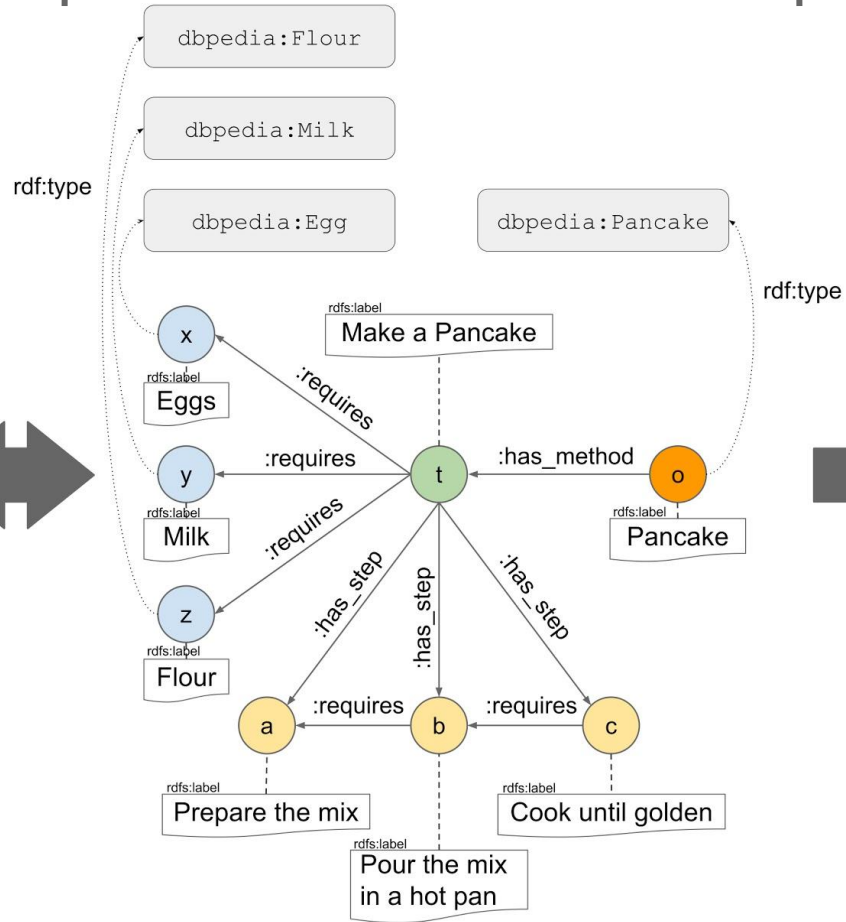
How to Make a Pancake

Steps:

1. Prepare the mix
2. Pour the mix in a hot pan
3. Cook until golden

Requirements:

- Eggs
- Milk
- Flour



FOL Interpretation

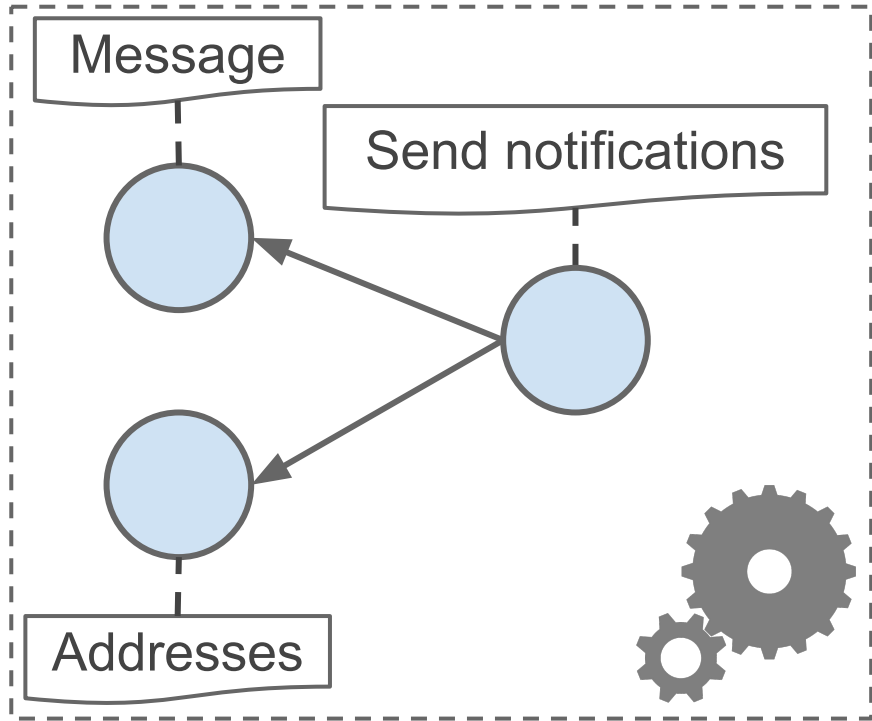
$$\text{finished}(e) \iff \exists g.\text{has_goal}(e,g) \wedge \text{complete}(g,e)$$
$$\text{complete}(y,e) \iff (\exists x.\text{has_step}(y,x)) \wedge (\forall x.\text{has_step}(y,x) \rightarrow \text{complete}(x,e))$$

Experiments

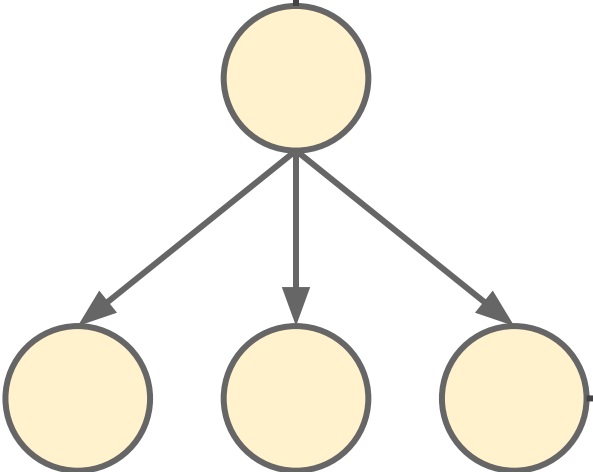


Snapguide

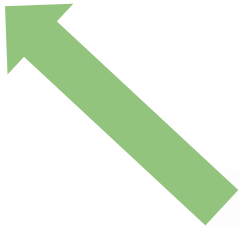
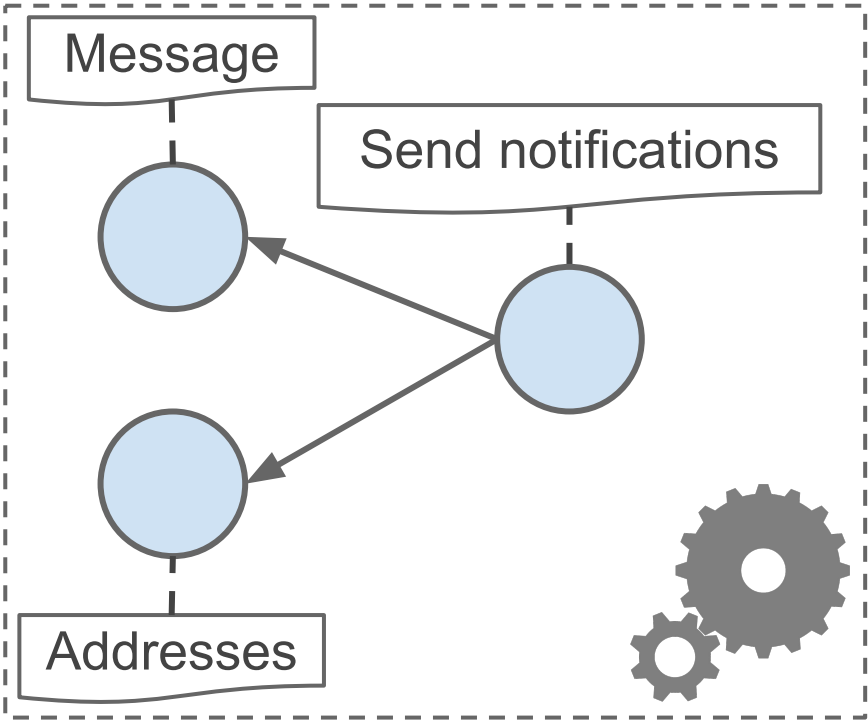
Problem 2: Can generic users define machine executable processes?



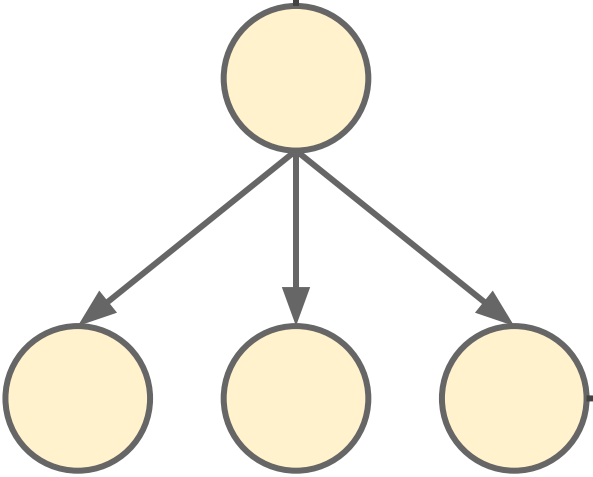
Organise meeting



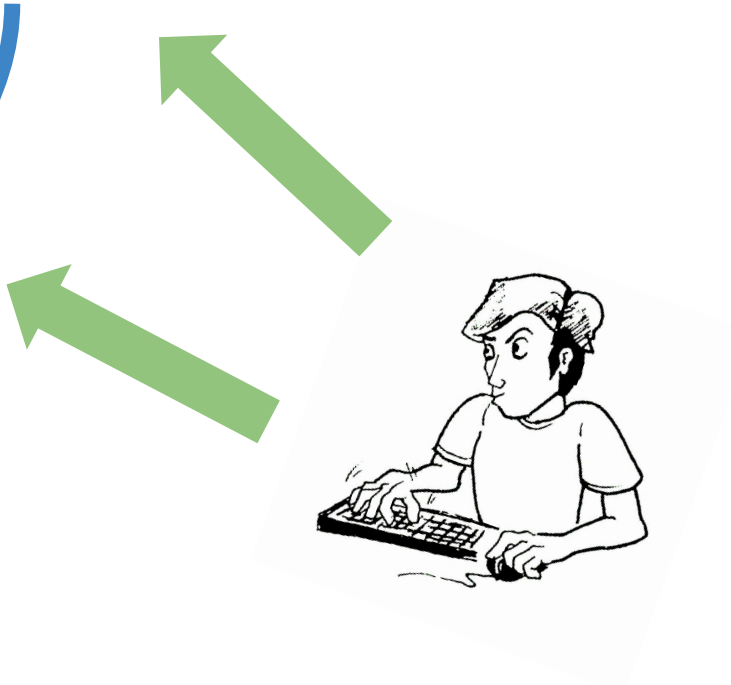
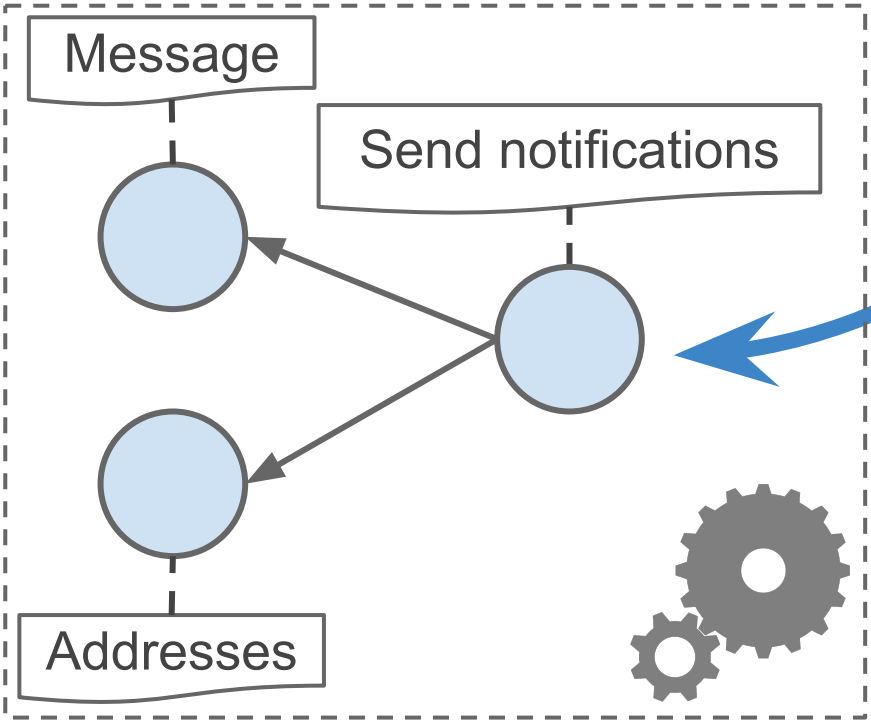
Notify attendees



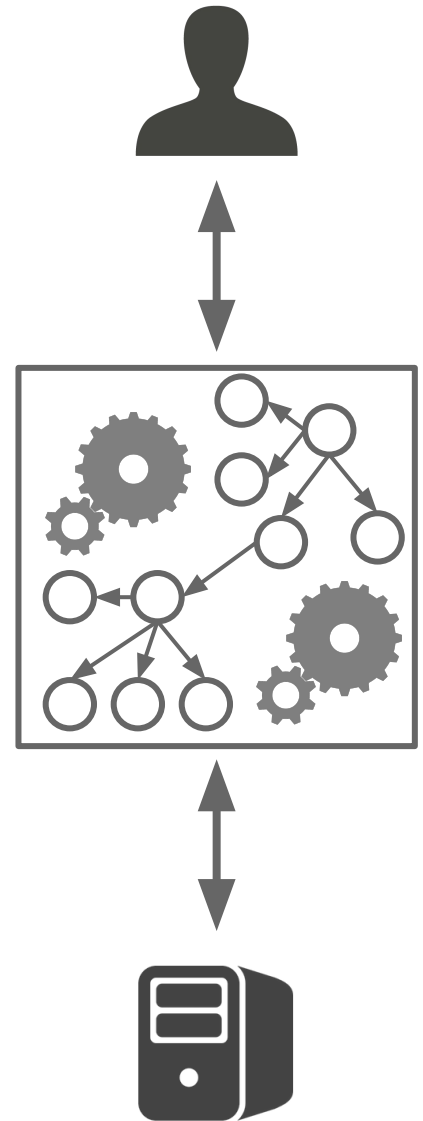
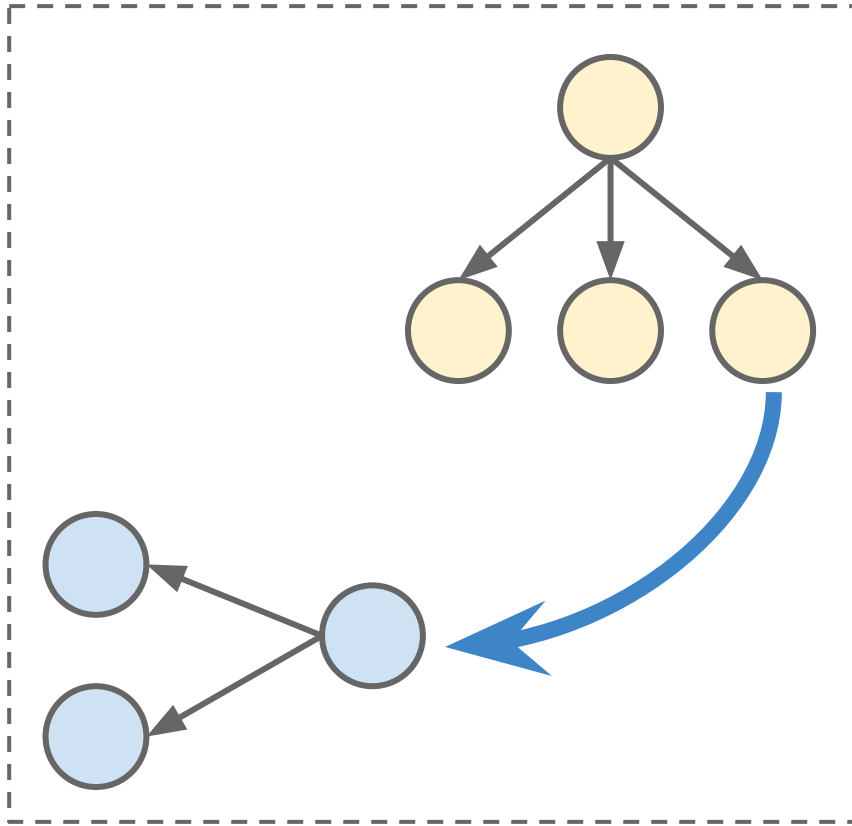
Organise meeting

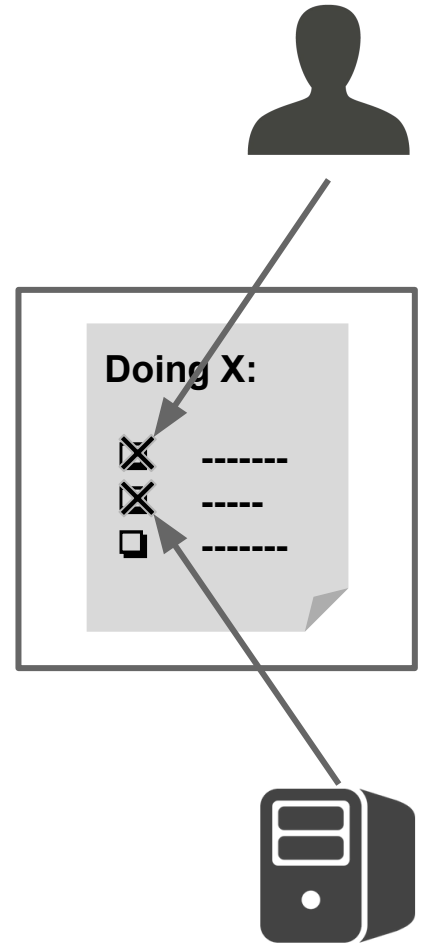
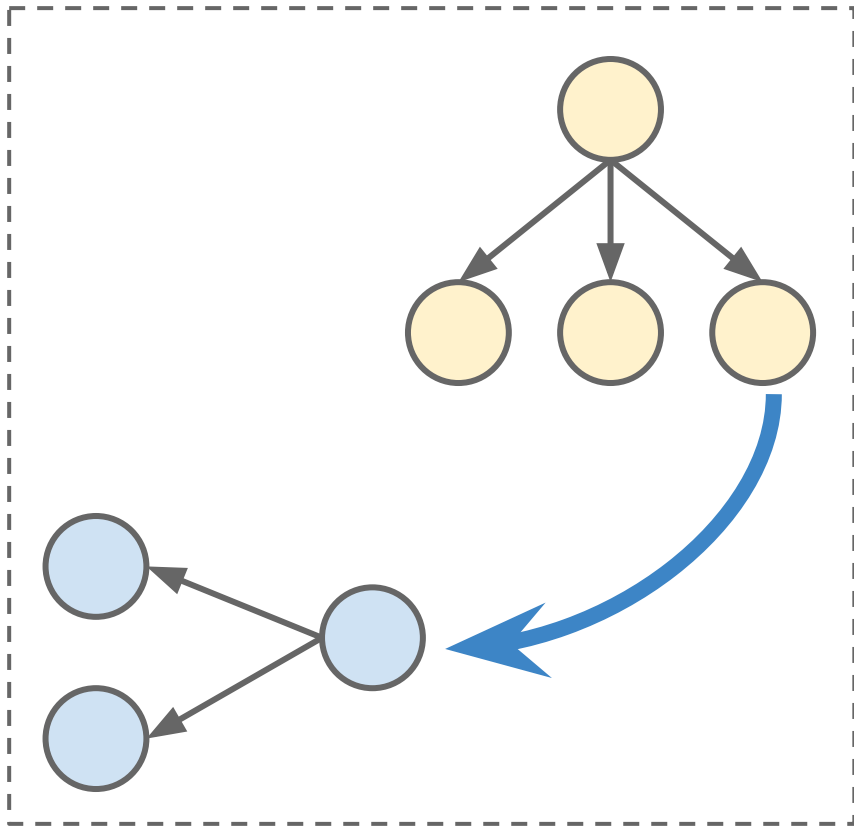


Notify attendees

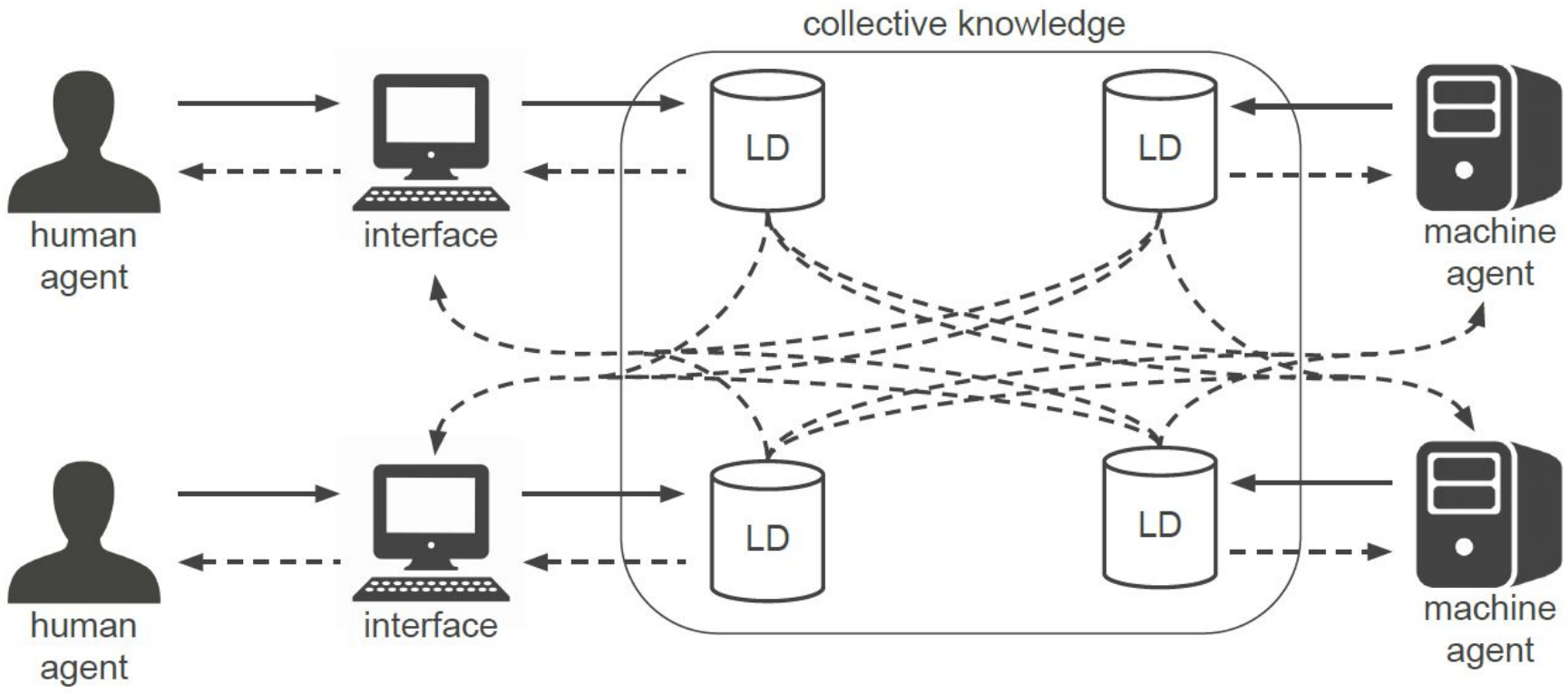


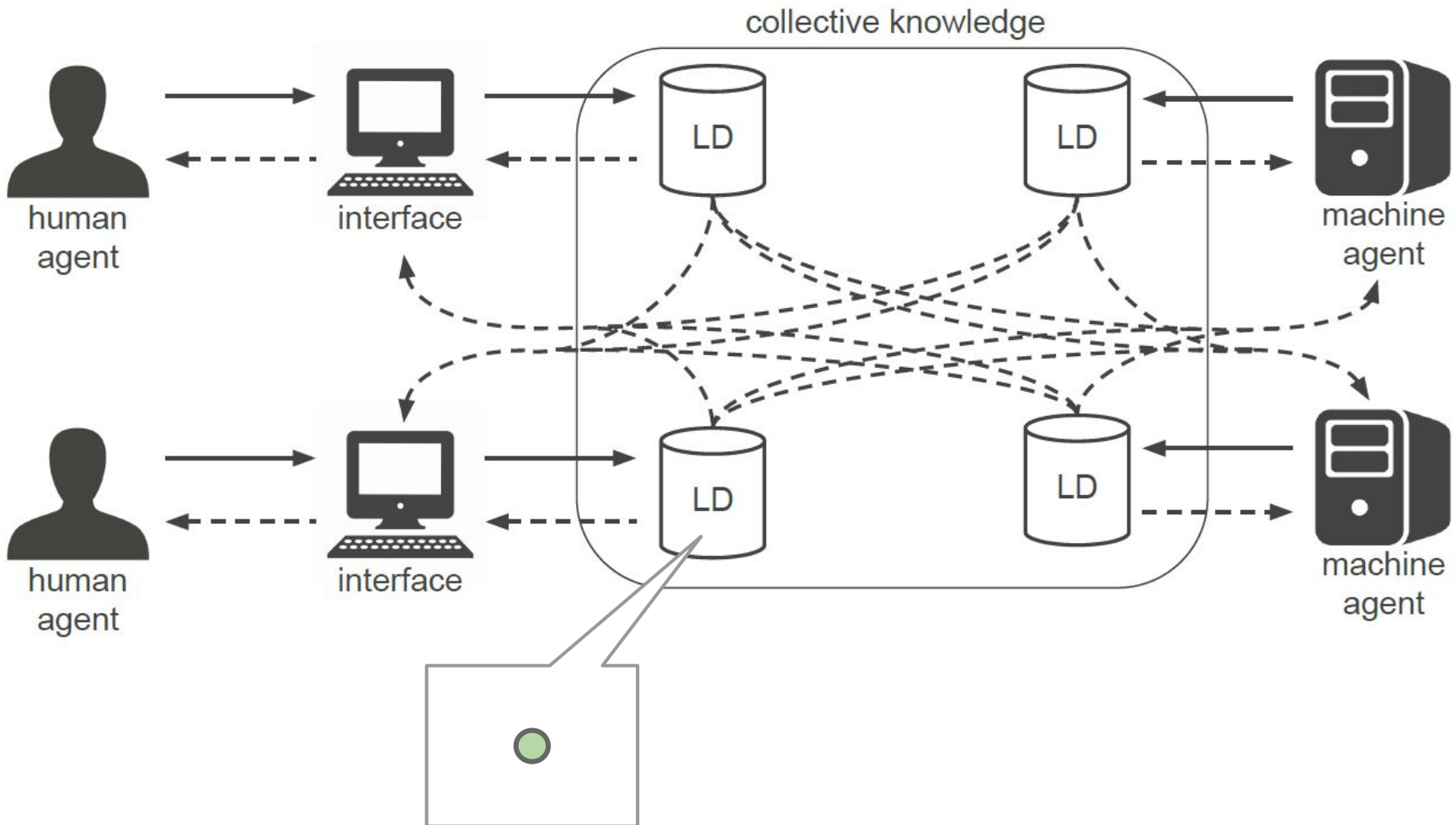
Experiments

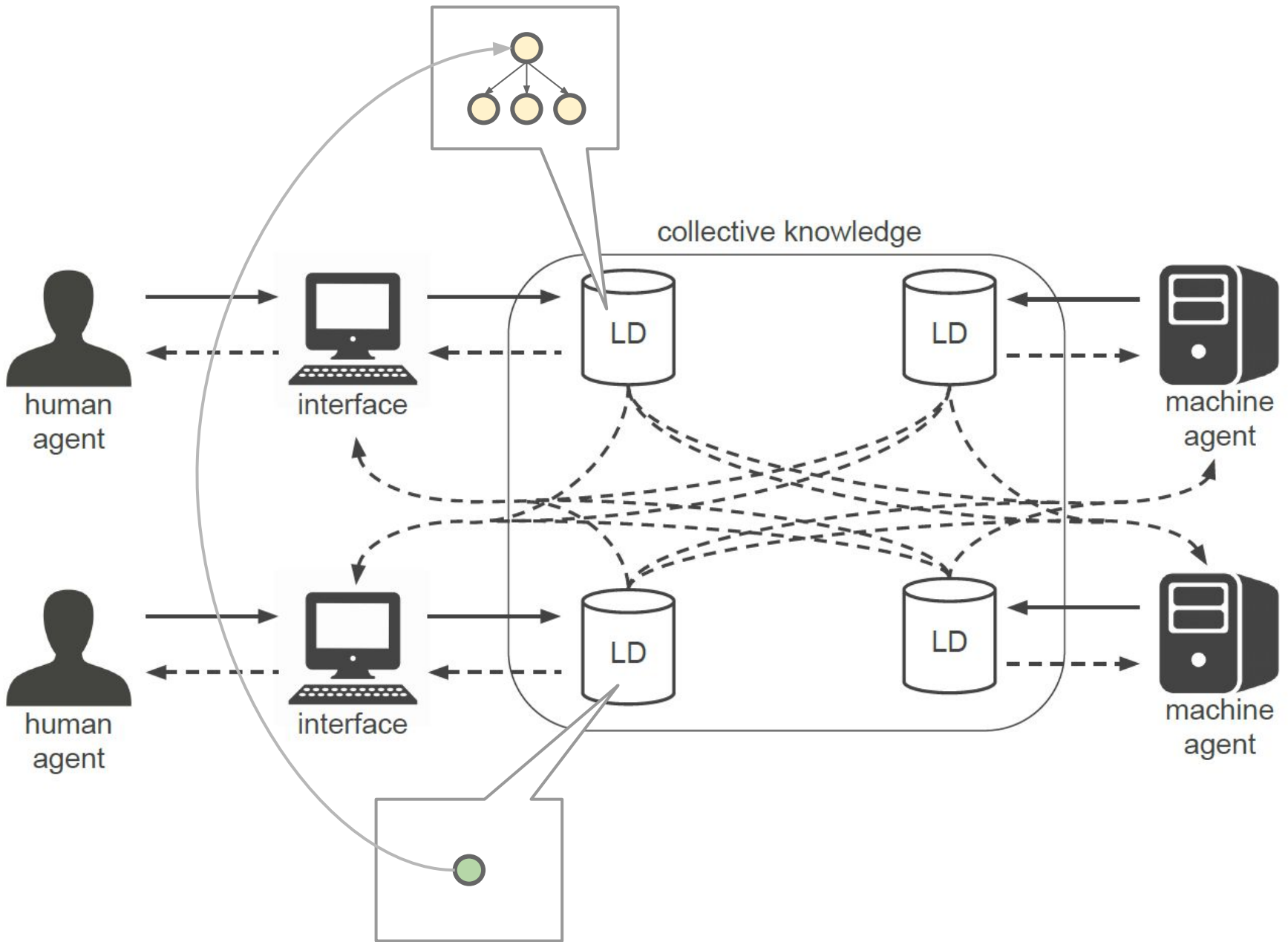


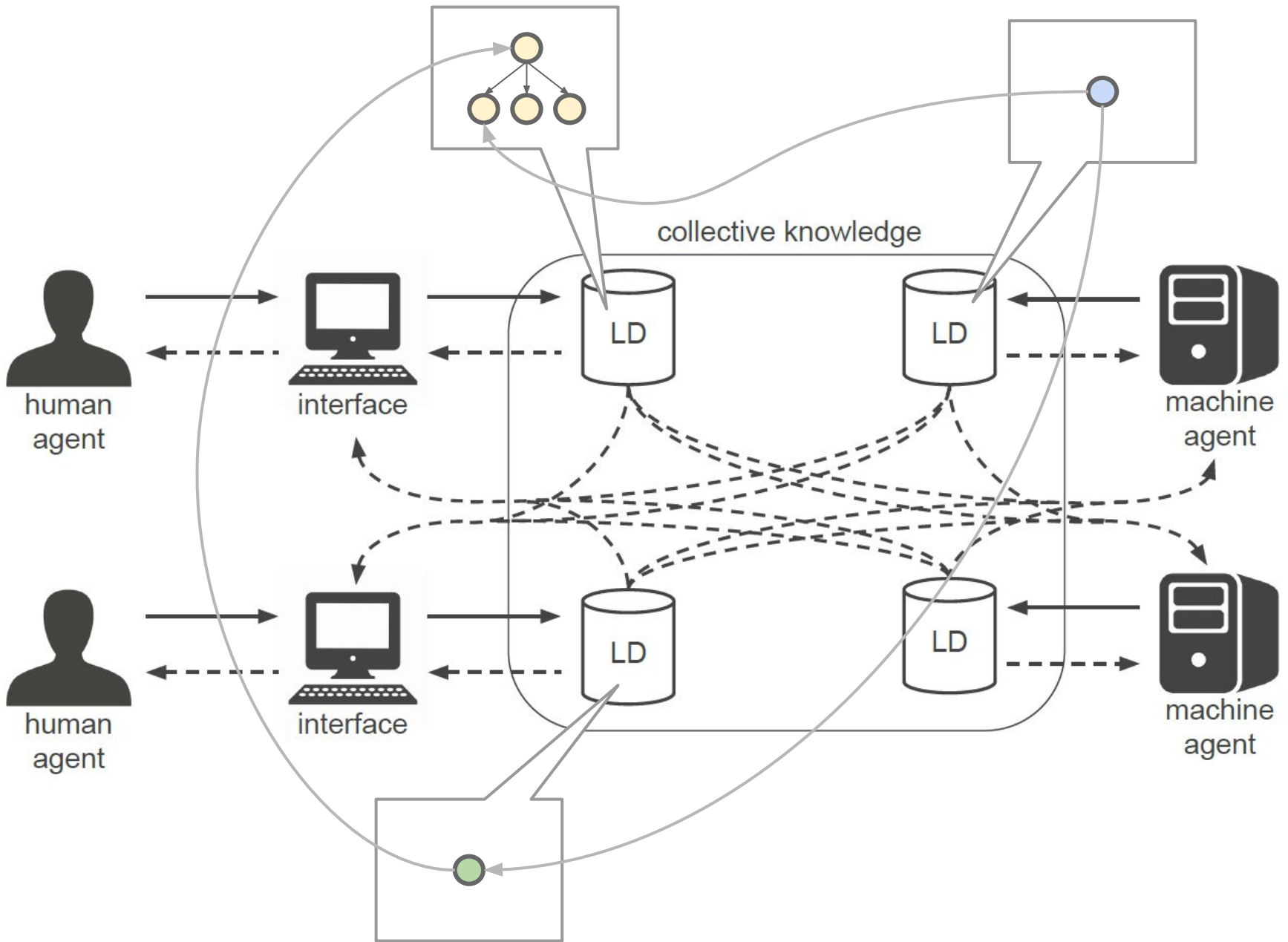


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Thank you!

Any questions?

