

Indirect Interaction of Agents in a Smart Space: Operation Efficiency and Fault Tolerance Support

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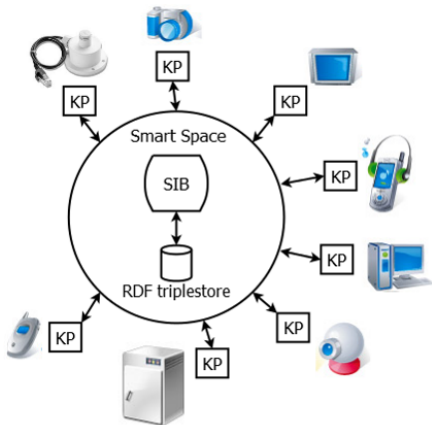
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Smart Spaces: the M3 architecture

- Multidevice, Multidomain, Multivendor
- Infrastructure: Semantic Information Broker (SIB) maintains smart space content in RDF triples
- Application: Knowledge Processors (KPs, agents) run on IoT devices
- Interaction: Blackboard and Pub/Sub
- Smart space: KPs share ad-hoc knowledge and reason over it to construct services



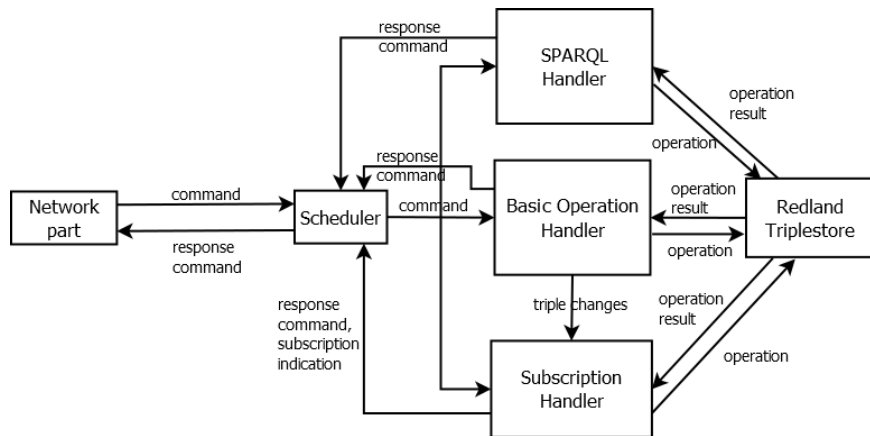
Interaction problems

Results in errors in smart space applications

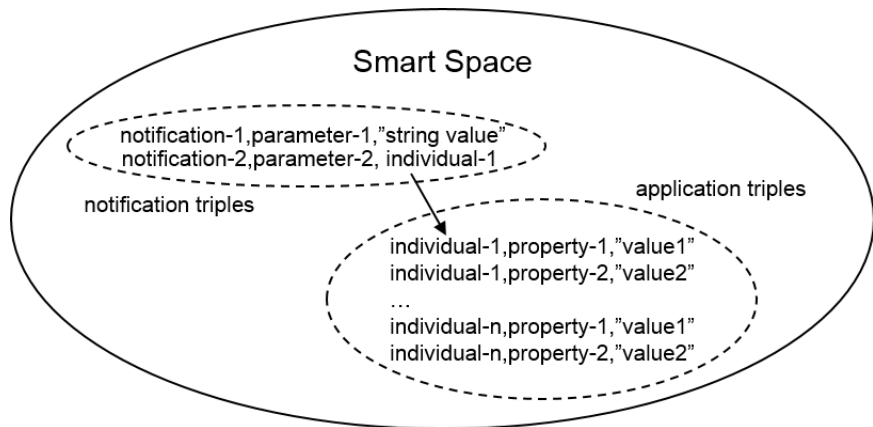
Support dependability of interactions:

- 1 operation processing scheme
- 2 notification model for KPs coordination
- 3 fault tolerance mechanisms

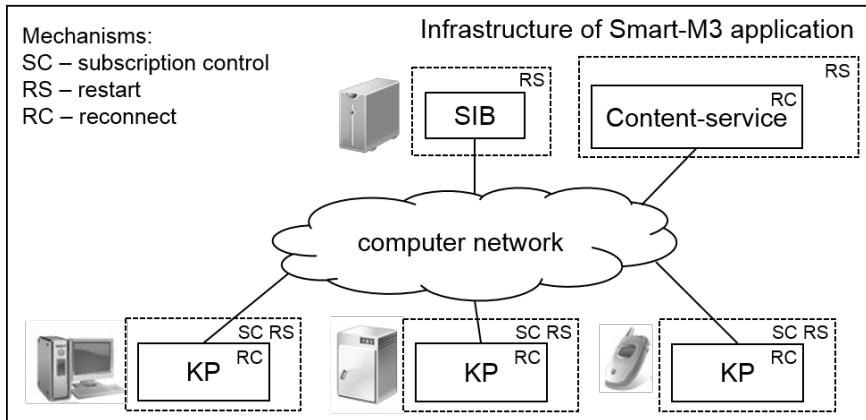
Operation processing scheme



Notification model



Fault tolerance mechanisms



Conclusion

- Operation processing scheme: effective and dependable operation execution during interaction
- Notification model: effective KPs interaction coordination
- Fault tolerance mechanisms: interactions recovery

Thank you for attention

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