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An event service for AMUSe

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Outline

- Intro & background
- Requirements & the event bus
- Performance
- Future work...

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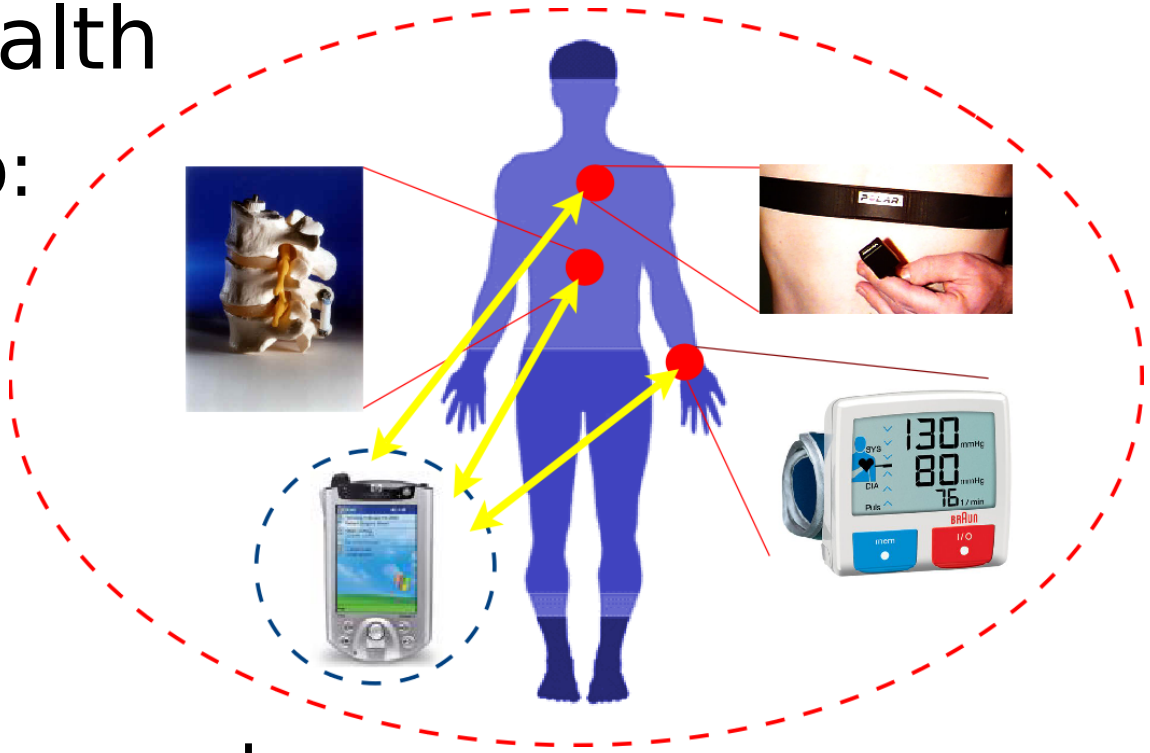
AMUSe?

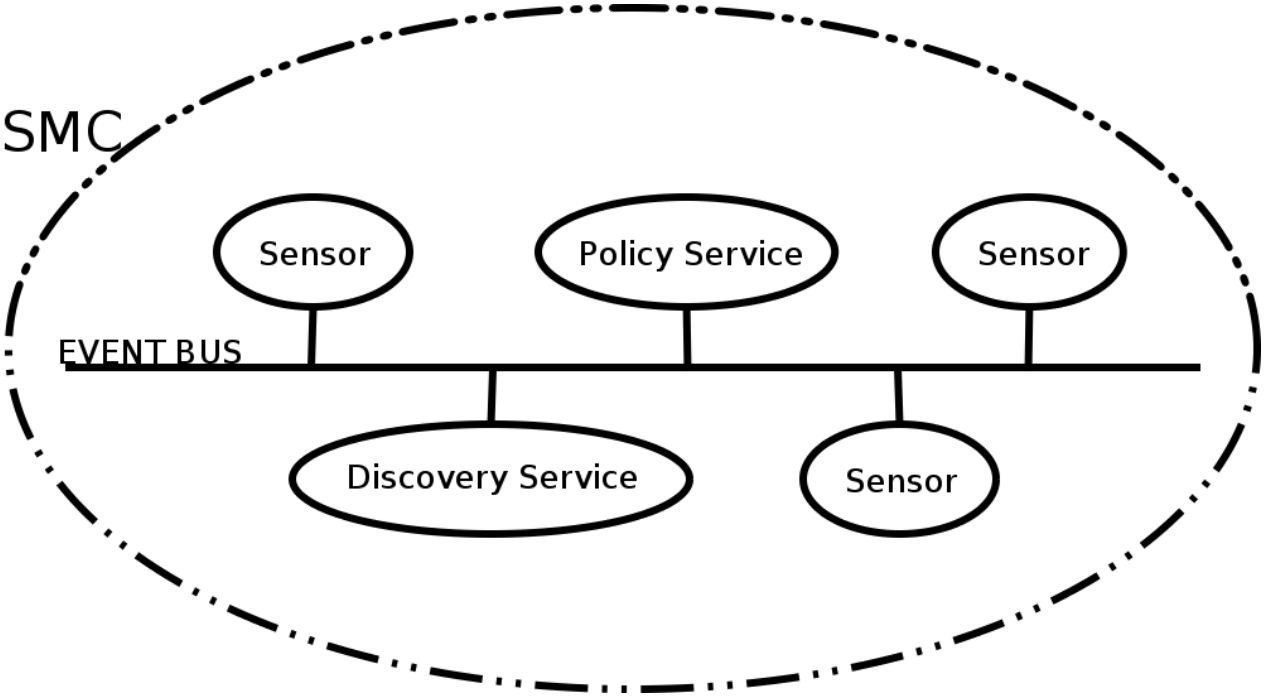
- Autonomic Management of Ubiquitous Systems for e-Health
  - e-Health scenario:



  - Autonomic Management
  - Ubiquitous environment

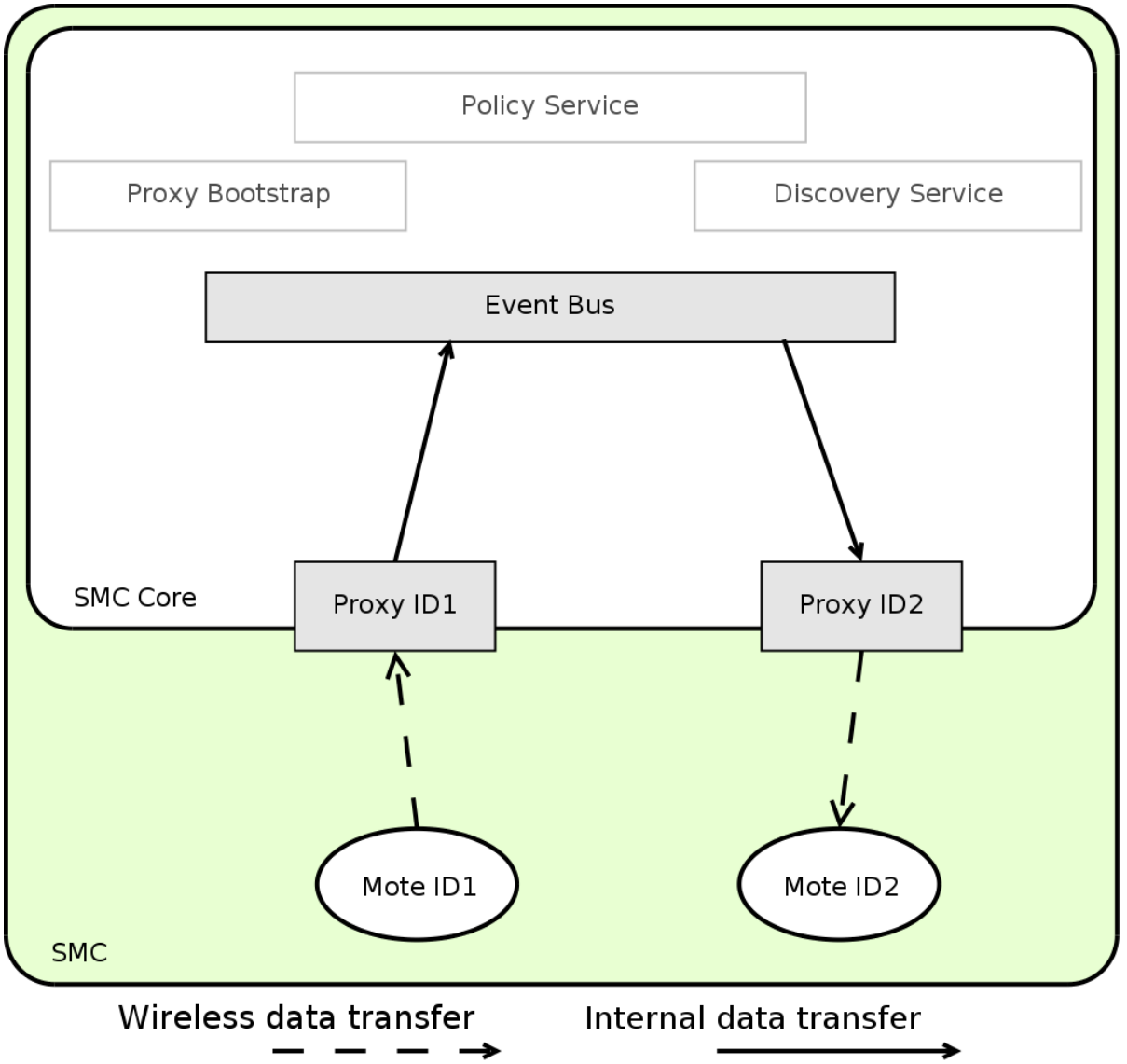
Self-Managed Cell (SMC)

- SMC forms an administrative domain capable of functioning autonomously
- Policy Service (management)
- Discovery service (device location)
- Event bus (event routing)



System Architecture

- Architecture defines:
  - SMC
  - Core services within SMC



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The Event Bus

- Event bus is a content-based publish/subscribe mechanism, and lies at the heart of this architecture
- The SMC places certain requirements on event delivery:
  - At-most-once delivery
  - Guaranteed delivery (while the device is a member of the SMC)
  - Ordering on event delivery maintained

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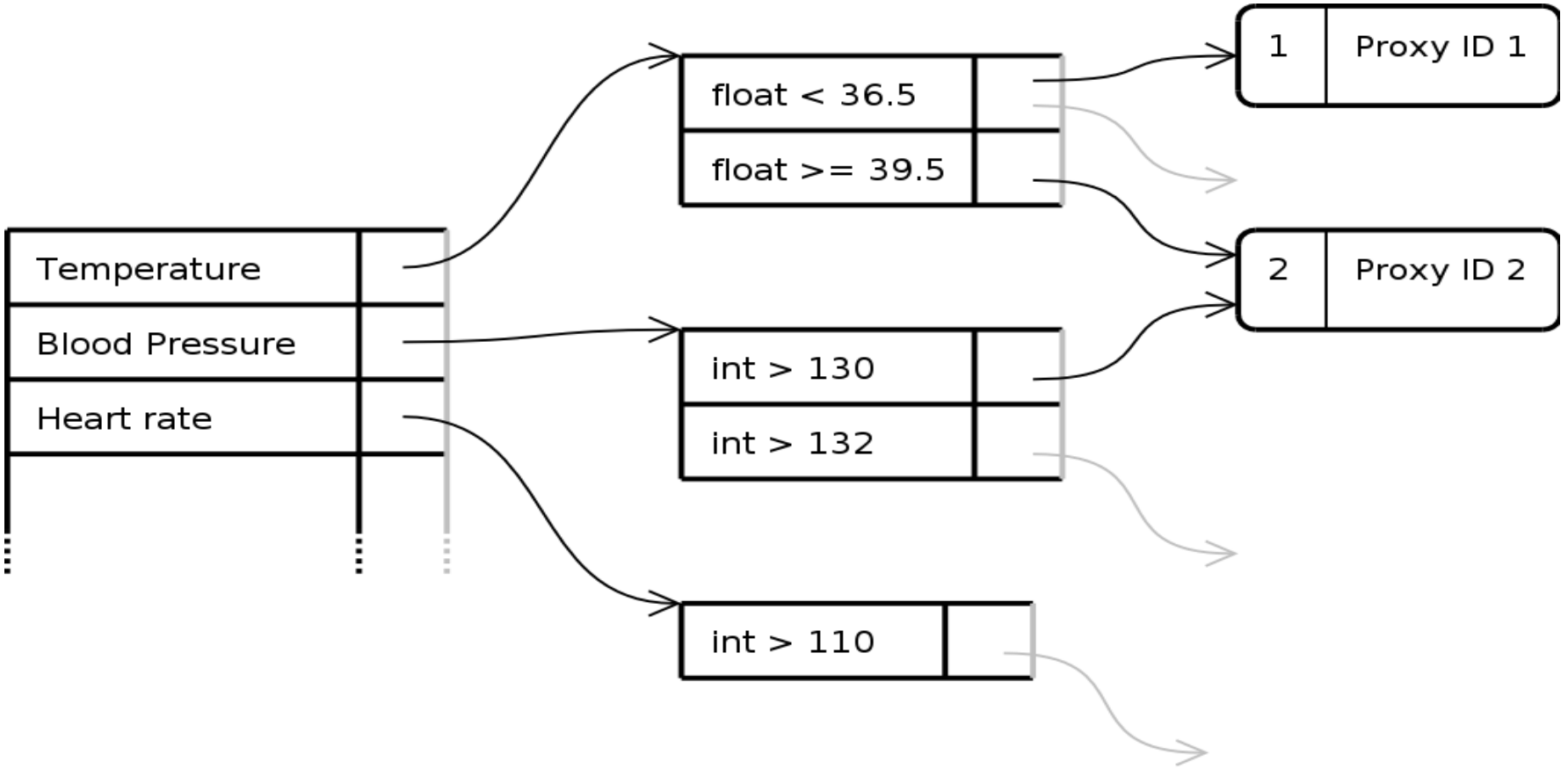
Event Matching

- Event matching based on Siena matching algorithm:



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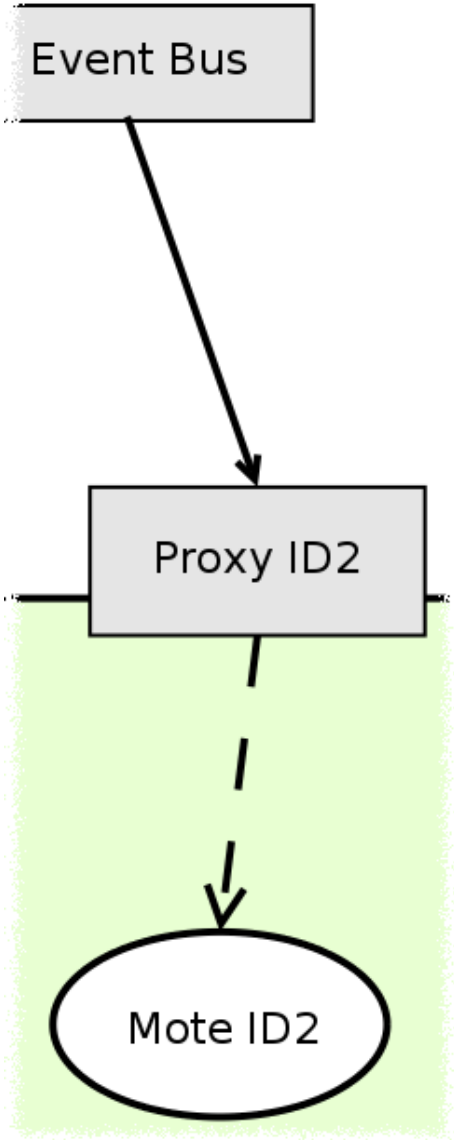
Proxies

- Events delivered to proxy, not to mote
- Proxy then deals with device specifics:
  - Data translation to/from mote language, transmission & retransmission
  - Event queueing and, naturally:
  - Event ordering.
- Proxy created when new member joins SMC, destroyed when member leaves



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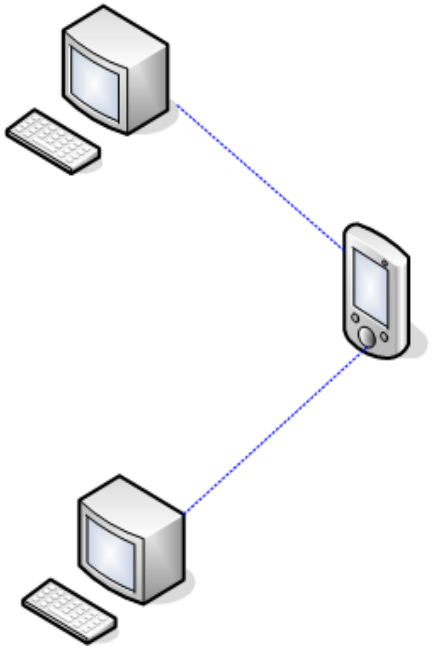
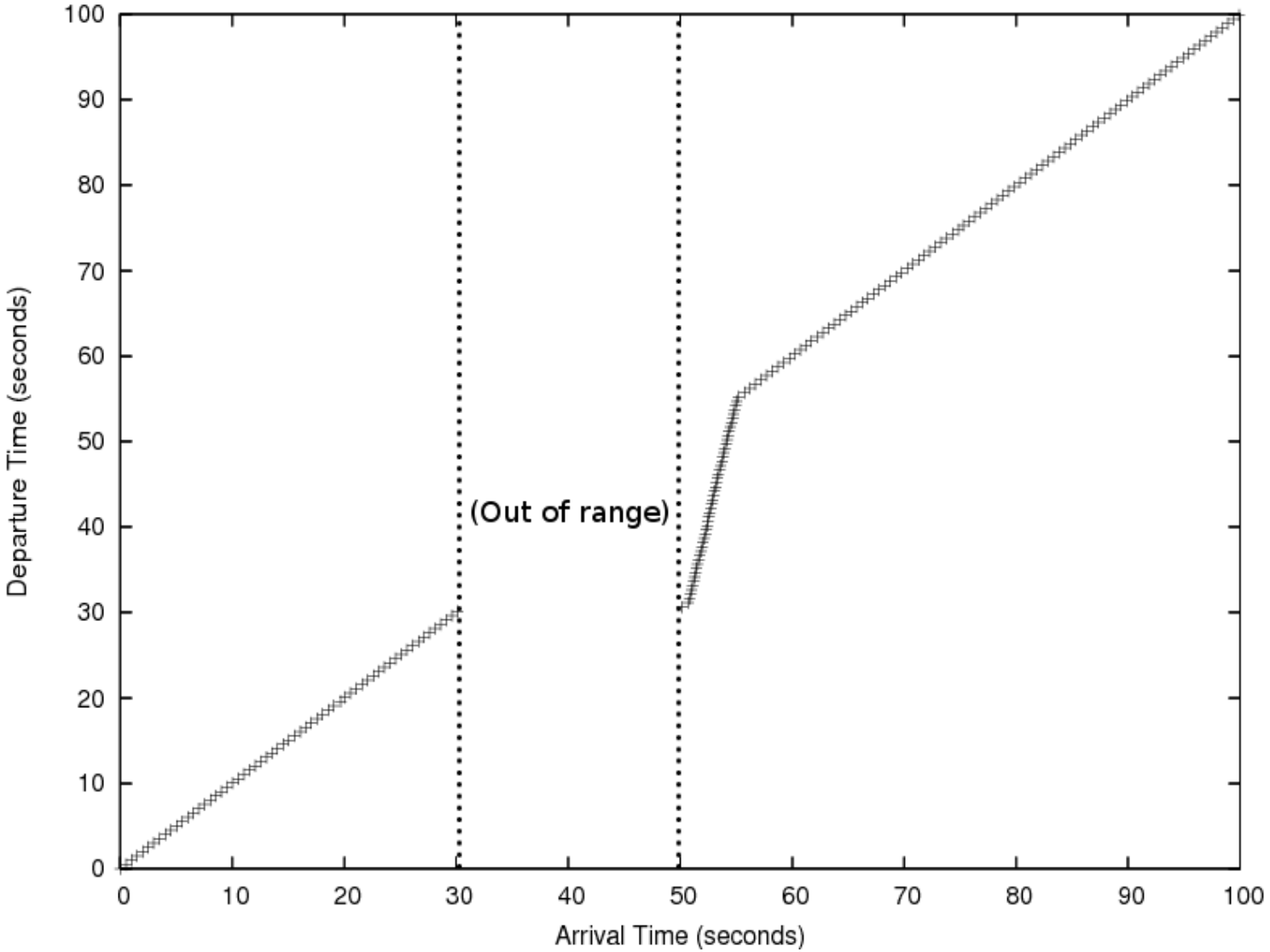
Delivery





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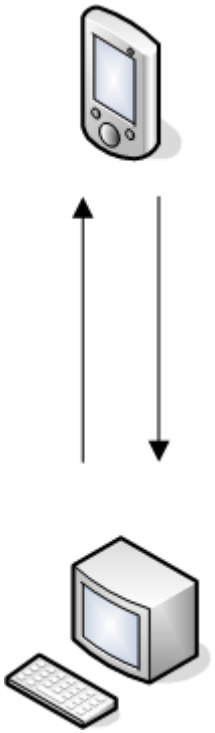
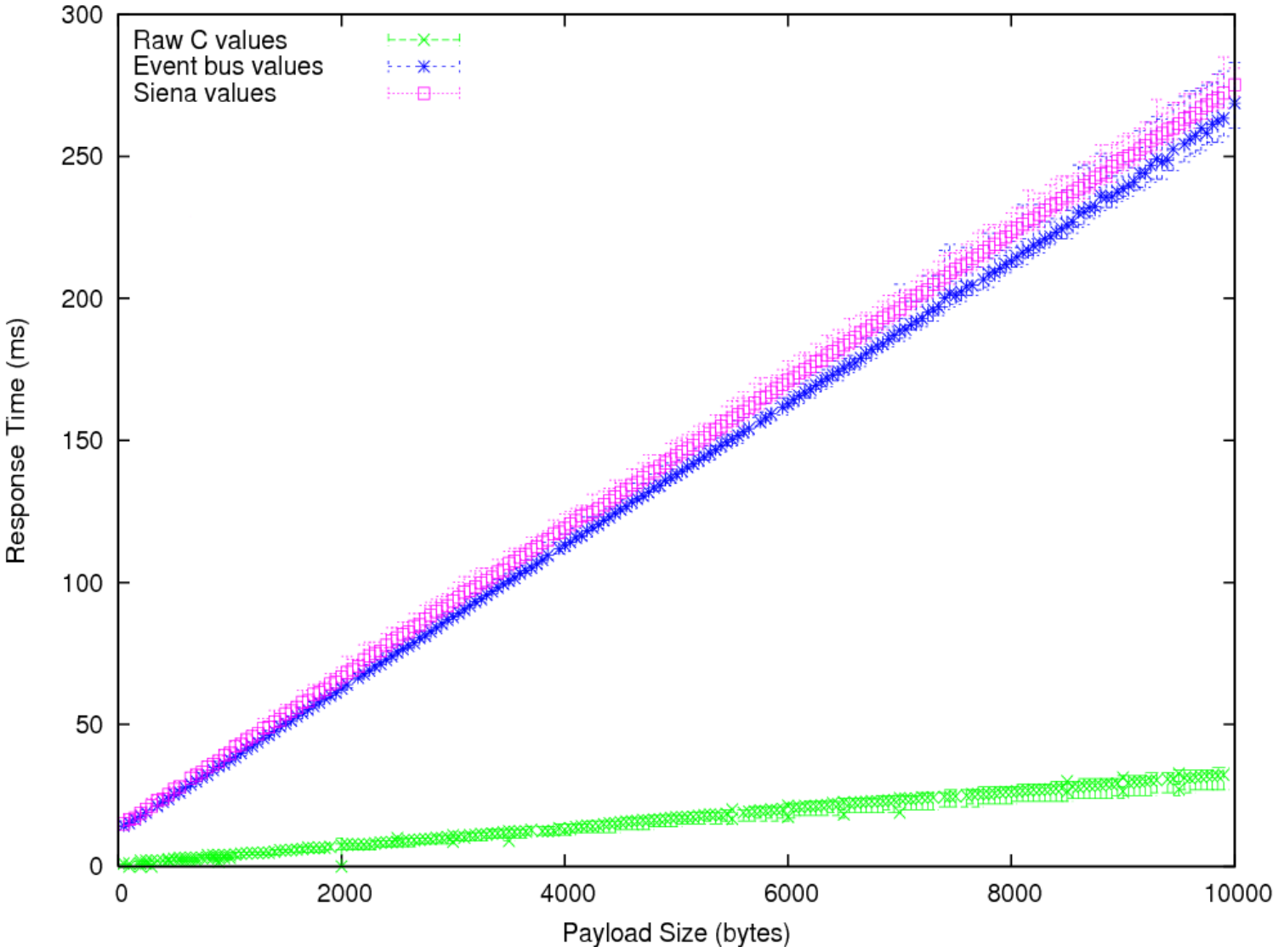
End to end delay





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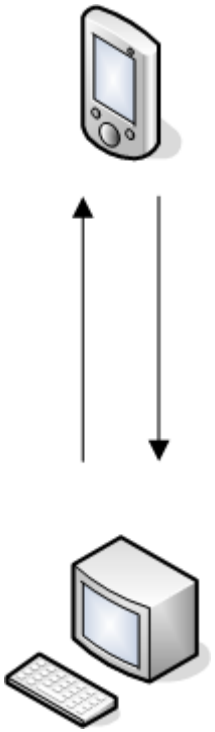
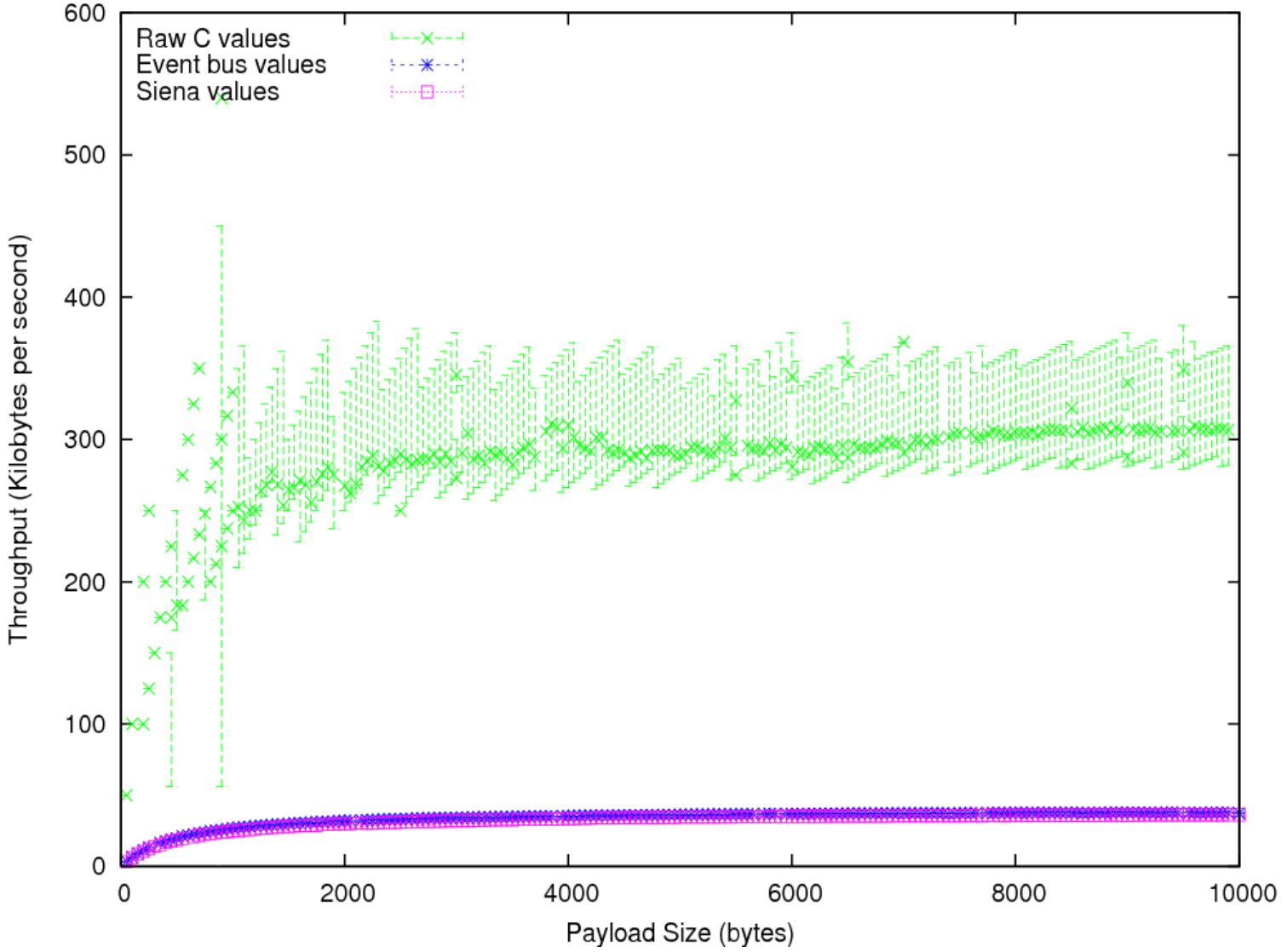
Data throughput





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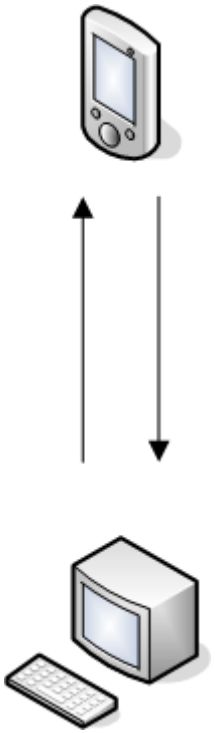
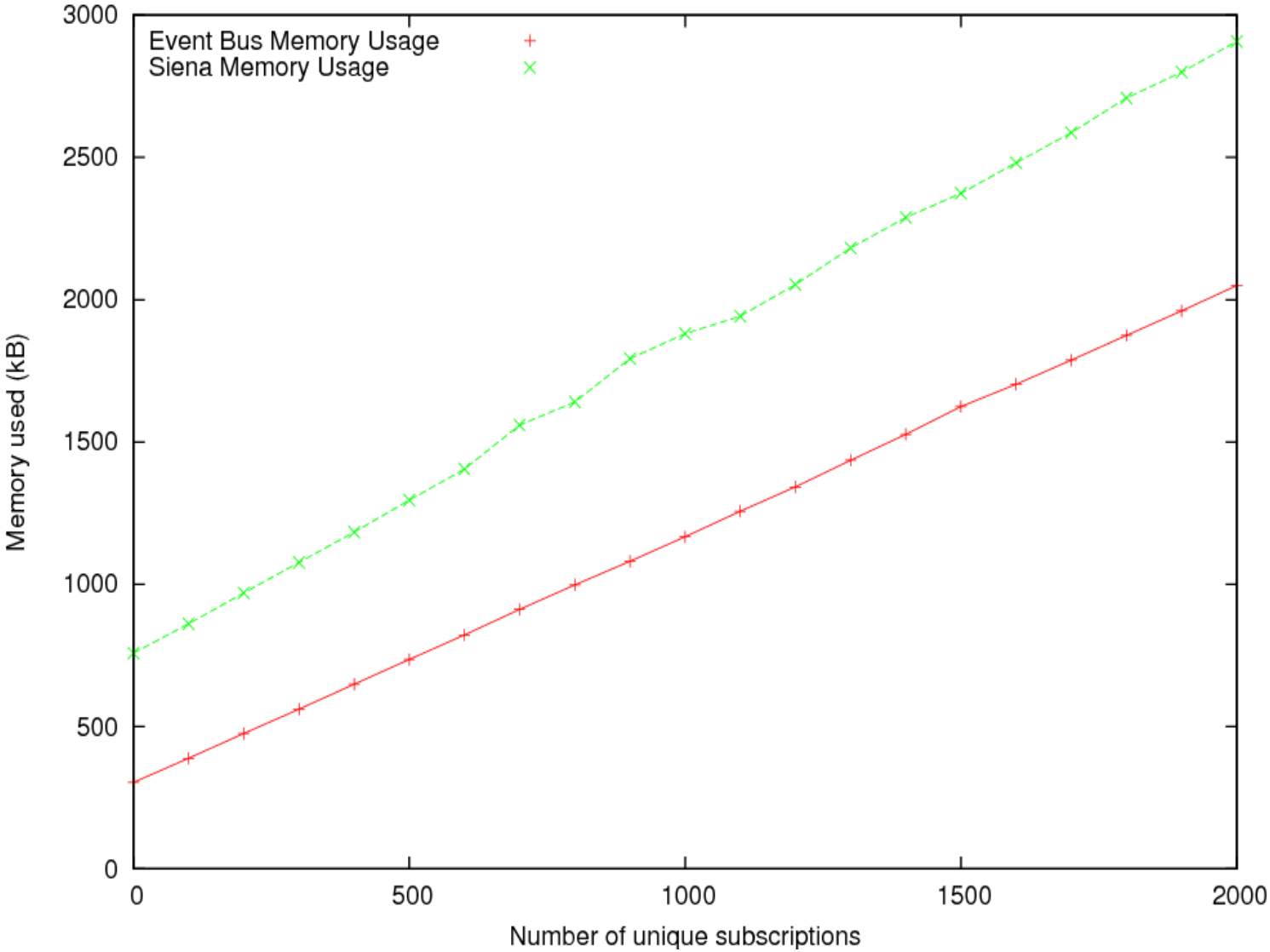
Memory usage





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Future work...

- Continued development, pushing the system to ZigBee devices
- Development of more specific e-health scenarios

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Questions?

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www: http://www.dcs.gla.ac.uk/amuse/

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An alternative future...

- “Human-area network” -- using human skin to carry data.
- Redtacton
  - http://www.redtacton.com/
- Skinplex
  - http://www.skinplex.net/