Monads: Adaptation Agents for Nomadic Users

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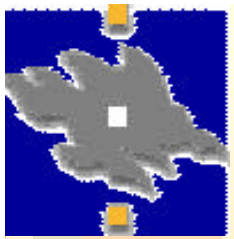
Kimmo Raatikainen

University of Helsinki, Finland

Lassi Hippeläinen, Nokia Networks
Heimo Laamanen, Sonera
Matti Turunen, Nokia Mobile Phones



Presentation Outline

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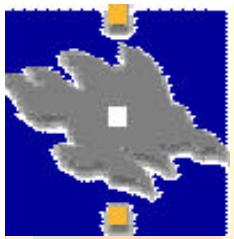
- Monads project and research areas
- Adaptation model
- Monads Architecture
- Optimizing Agent Communications
- Short-term predictions of available resources
- Conclusions



Monads

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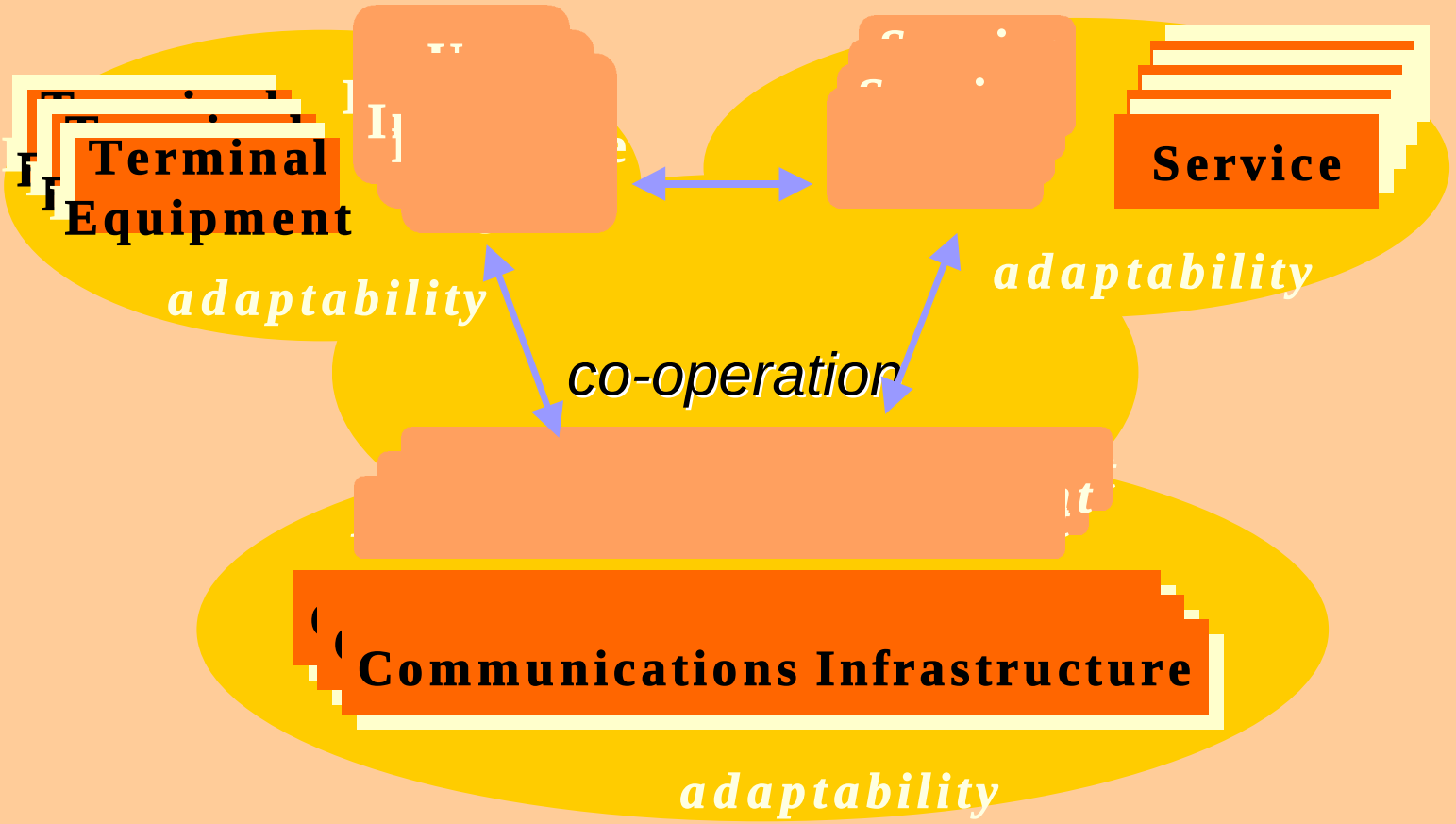
- Research project
- Experimental software
- Agents for mobile computing and communications
- agent communication in wireless environments
- adaptability to available resources
- short-term predictions of available resources

Monads Adaptation Model



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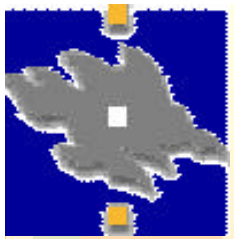

Monads Layered Architecture

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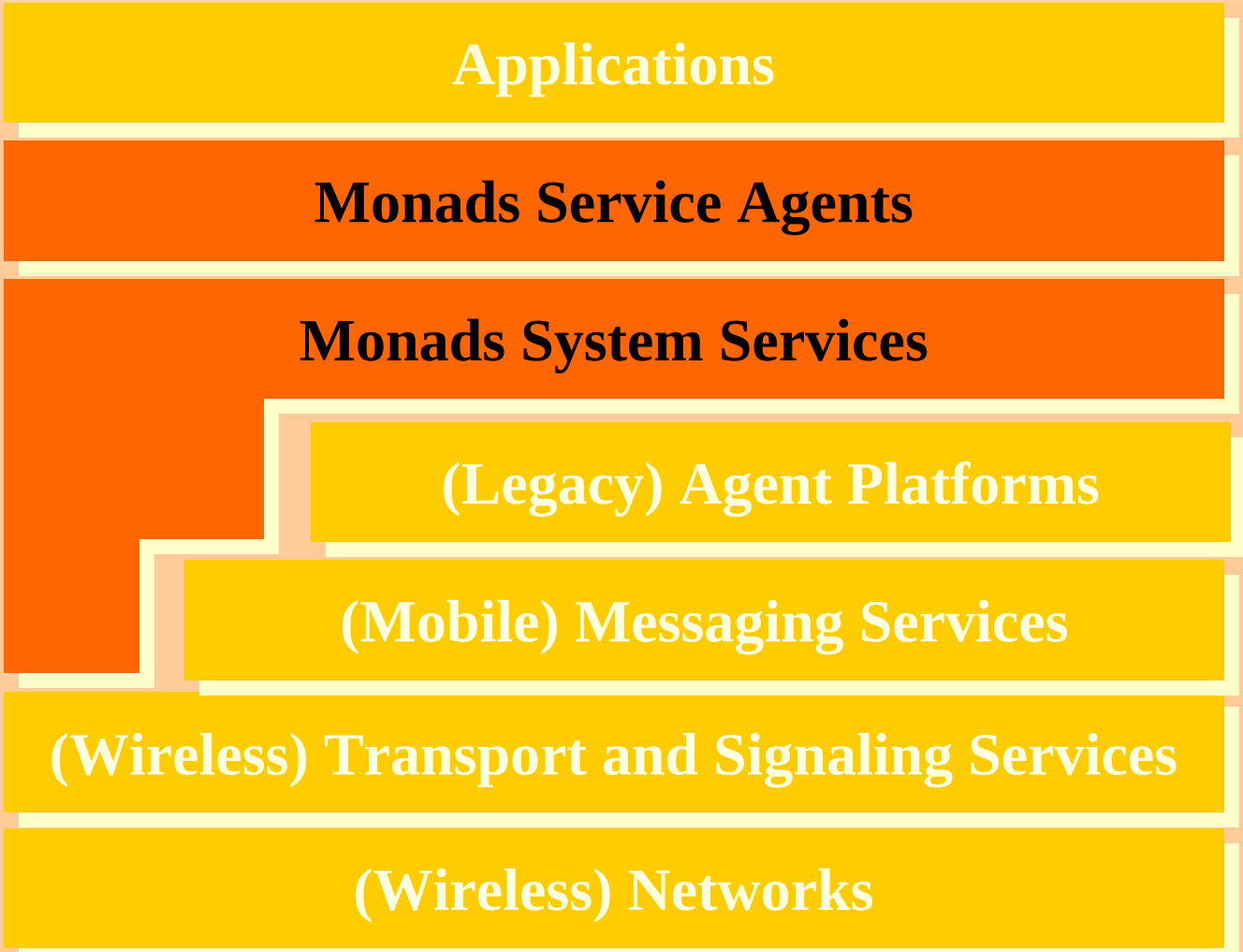

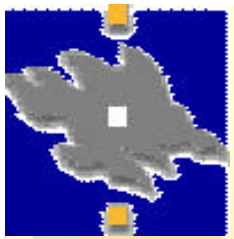

Optimizing Agent Communications

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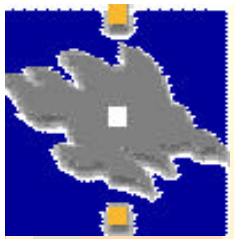
- Interaction protocols
  - ⇨ negotiations, communication patterns
- Communication languages
  - ⇨ FIPA ACL, KQML
- Message transport
  - ⇨ HTTP, Java RMI, GIOP, WAP
- Transport and signaling
  - ⇨ TCP/IP, WAP, SMS, MDCP



Predicting QoS - 1/2

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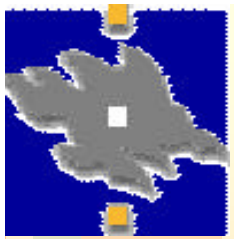
- Usage:
  - scheduling
  - data prefetching
  - connectivity management
- Factors:
  - time-of-day
  - day-of-week
  - recent QoS
  - terminal location



Predicting QoS - 2/2

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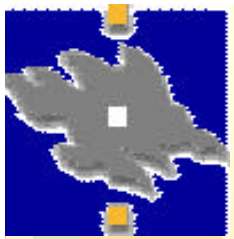
- Tasks:
  - predicting terminal and user movements
  - predicting QoS at a given location and time
- Enablers:
  - Log Service
  - Perception History
  - Learning Service
  - Knowledge Sharing Service
  - Modeler Agents, Model Combiner Agents



Conclusions

- Agents have potential
- Agents must co-operate
- Agents need standards
- Systematic experimental results still few
- Communication over wireless needs attention and standards
- We still believe that reasonable predictions are not impossible

http://www.cs.helsinki.fi/research/monads/

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