



ntt  *mit*
Project Overview



- Developing models, analysis methods for distributed systems, focusing on cooperative group activities in networks.
- Agent communication, group communication
- Dynamic:
 - Participants come and go, change location.
 - Network topology changes, components fail and recover.
- Implementations complex; hard to build/understand/analyze
- Use formal modeling/analysis methods:
 - I/O automata, pi calculus, knowledge-based methods
 - Extend, combine methods
- Case studies: CSCW, e-commerce, distributed databases



Progress Through June 2000

- Group Communication
 - Scalable group membership for WANs
 - Group communication for WANs
 - Inheritance-based modeling and verification
 - Totally-ordered multicast with QoS guarantees
 - Availability study for dynamic voting algorithms
- Dynamic Systems
 - DIOA model
- NTT Visit by Attie, Lynch: DIOA and agent-based -- computing; NePi2 semantics using IOA



Research Plan for the Next Six Months

- Group Communication
 - Performance evaluation of GC services, algorithms
 - New GC services, algorithms with QoS guarantees
- Dynamic Systems
 - DIOA tech report
 - Add structure: Agents, objects
 - DIOA + liveness + timing