Resource Scheduling for Real-time ORBs

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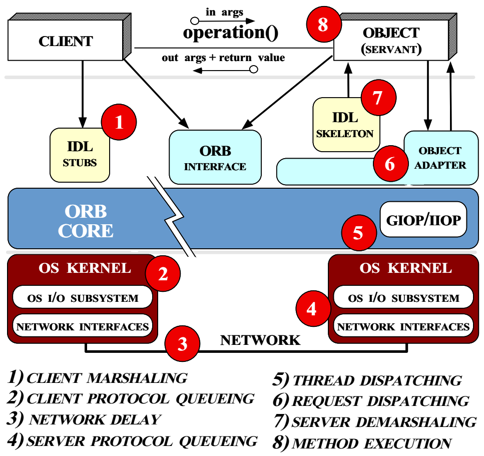
06 October 1998

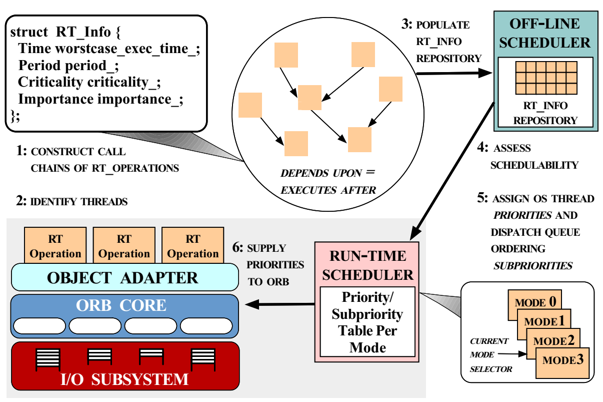
Supported by The Boeing Company, Motorola, and DARPA

Research on Resource Scheduling in Real-Time ORBs



- **What makes an ORB *real-time*?**
  - QoS specification
    - current focus: CPU resource requirements
    - future focus: communication channels, memory, *etc*.
  - Resource scheduling
    - initial focus: static and dynamic, single-CPU
    - current focus: dynamic, distributed

TAO's CPU Scheduling Service

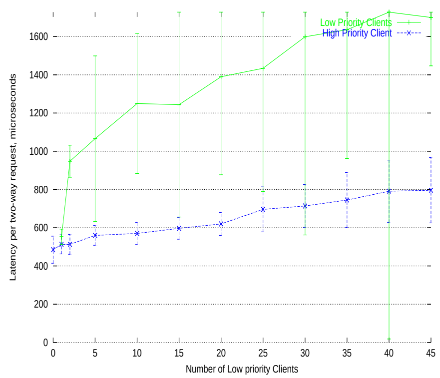


Solution Approach

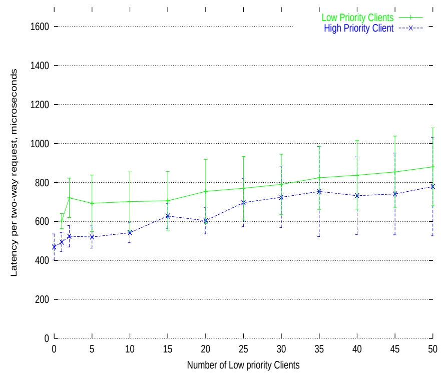
- Integrate RT dispatcher into ORB
- Support multiple request scheduling strategies
  - *e.g.,* MUF, which subsumes RMS, MLF, and EDF

www.cs.wustl.edu/∼schmidt/TAO.ps.gz

TAO Performance on LynxOS 3.0.0



Server and Client on Same CPU



Server and Client on Different CPUs

Future Work

- Investigate performance on other real-time operation systems, notably VxWorks 5.3.1.
- Investigate performance on general purpose operation systems with real-time support, including Solaris 2.6, NT 4.0, and Linux 2.0.x w/KURT.
- Measure TAO overhead.
- Evaluate performance tradeoffs of dynamic scheduling.