An Overview of the Joint Real-time CORBA Submission

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Overview of Key Real-time CORBA Features

- **Features**
  - End-to-end priority propagation
  - Protocol policies
  - Thread pools
  - Explicit binding
  - Mutex IDL

**End-to-End Priority Propagation**

- Priorities can propagate end-to-end
- Supports heterogeneous RTOS priority mappings
- Supports priority inheritance
- Servers can also dictate priority

**Protocol Policies**

```c
interface ProtocolProperties {}
typedef struct {
  IOP::ProfileId protocol_type;
  ProtocolProperties orb_protocol_properties;
  ProtocolProperties transport_protocol_properties;
} Protocol;
typedef sequence <Protocol> ProtocolList;
interface TCPProtocolProperties : ProtocolProperties {
  attribute long send_buffer_size;
  attribute long recv_buffer_size;
  attribute boolean keep_alive;
  attribute boolean dont_route;
  attribute boolean no_delay;
};
```
Thread Pools

- Features
  - Pre-allocate threads and thread attributes
    * Stacksize
    * Static threads
    * Maximum threads
    * Default priority
  - Applicable at both the ORB and POA level

Explicit Binding

- Features
  - Enables pre-establishment of connections
    * Priority-banded connections
    * Private connections
    * Protocol policies

Mutex IDL

- Features
  - A portable Mutex API
    * e.g., lock, unlock, try_lock
  - Necessary to ensure consistency between ORB and application synchronizers
  - Locality constrained