

I-D.tiesel-taps-socketintents-01

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Automated Transport Option Selection

- Choosing paths, endpoints and protocol stack as part of a TAPS system
- Socket Intents provide input on application needs
 - Optimize for bandwidth, latency, or cost
 - Traffic characteristics
 - Tolerance towards packet/data/connection loss
 - Cost preferences

Socket Intents 101

Socket Intents are pieces of information that allow an *application* to express *what it know* about the application's communication.

Socket Intents are applications' **hints** for Transport Option Selection

- Intuitive
 - Generic
 - Protocol Independent
 - **Best Effort**
- **Standardized but extendable set of hints that could be used by transport option selection**

Socket Intents Integration

- BSD Sockets: Socket Options (prototype exists)
- Post-Socket: Address Resolution Configuration
- NEAT: Neat Properties

Socket Intents Granularity

Socket Intents can be applied at any granularity

- Message
- Stream
- Association
- Association Set

Socket Intents Representation

- Key-Value Pairs
- Key: Lower case ASCII string (needs IANA registry)
- Value: Fixed type per key
 - Enum
 - Int
 - Float
 - String
 - Sequence

Socket Intents Types

Intent Type	Data Type	Applicable Granularity			
		Message	Stream	Assoc	Assoc.Set
Traffic Category	Enum		✓	✓	✓
Size to be Sent	Int (bytes)	✓	✓	✓	✓
Size to be Received	Int (bytes)	✓	✓	✓	✓
Duration	Int (msec)		✓	✓	✓
Bitrate Sent	Int (bytes/sec)		✓	✓	✓
Bitrate Received	Int (bytes/sec)		✓	✓	✓
Burstiness	Enum		✓	✓	✓
Timeliness	Enum	✓	✓	✓	✓
Disruption Resilience	Enum	✓	✓	✓	✓
Cost Preferences	Enum	✓	✓	✓	✓

Open Questions

- Are Socket Intents easy enough?
- Is the structure of Socket Intent Types sufficient to express all anticipated future non-requirement performance preferences and application knowledge?
- What Socket Intent Types / kinds of information are missing?

Open Questions

- Does the current abstract definition of Socket Intents fit the way the IETF specifies abstract APIs?

Interactions Socket Intents vs. QoS

Socket Intents are not QoS labels – they are orthogonal.

- Socket Intents SHALL be purely advisory.
- Socket Intents MUST NOT be used to derive IntServ / RSVP style guarantees.
- Socket Intents SHOULD be taken into account on a best-effort basis and MAY be used to derive DiffServ Service.