A Self-tuning DHT for RELOAD

draft-ietf-p2psip-self-tuning-01

Status Update

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Background

- Previous presentation (draft-maenpaa-p2psip-self-tuning-01) in IETF 76
- Was accepted as a WG item after a hum on the list in December 2009
  - draft-ietf-p2psip-self-tuning-00
- The present version is -01
- The purpose of the presentation is to give a status update

Overview - Self-tuning

- Traditional way to configure a DHT
  - Configure the DHT only once
  - Hope that the operating conditions do not change too much
  - Not possible to achieve both a low stabilization overhead and low failure rate
- Self-tuning DHT
  - Adapt the parameters of the DHT to changing operating conditions

Operation

- Each peer collects statistical data about the network
  - Network size, join rate, and leave rate estimates
- The data is used to dynamically adjust DHT parameters
  - Sizes of finger and neighbor tables
  - Stabilization interval

Changes since the -00 version

- Two main changes
  - Both were proposed on the list
- (1) Sharing of estimates
  - Idea: improve the accuracy of each peer's estimates by allowing peers to share their estimates
  - A peer sends Probe requests to peers in its finger table
  - The request and response contain a new message extension:

```
struct {
    uint32          network_size;
    uint32          join_rate;
    uint32          leave_rate;
} SelfTuningData;
```

  - The estimate to be used is calculated based on the peer's own estimate and the values obtained from other peers

Changes since the -00 version

- (2) Failure detection
  - The leave rate estimation algorithm needs information about the number of observed peer failures
  - Graceful departures are easy
  - Crashes are more difficult
    - Use the lack of STUN keepalives and data packets as an indication of peer failure
    - If no packets are received for 2*Tr seconds, send a Ping request

Status of the draft

- No plans to add new features
- Ready for WGLC as soon as RELOAD base is considered to be stable enough

Questions?