

# Faster Restart for TCP Friendly Rate Control (TFRC)

[draft-ietf-dccp-tfrc-faster-restart-00.txt](#)

Slides: <http://www.icir.org/floyd/talks/>

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(Faster Restart used to be in:  
[draft-ietf-dccp-tfrc-voip.](#))

## The Goal of Faster Restart:

- **Current response to idle periods conservative:**
  - Cut allowed rate in half every four idle RTTs.
  - Then slow-start.
- **Safe for network, bad for some applications:**
  - Voice traffic with silence suppression.
  - Slow-start glitches every time new person talks?
- **Faster Restart insight: Path already validated.**
  - **More aggressive response than slow start OK after short idle periods.**

# Initial Design:

- Remember sustained rate ( $X_{\text{active\_recv}}$ ) recently supported by path.
- After an idle period, "faster-start" up to  $X_{\text{active\_recv}}$ .
  - Quadruple rate every RTT up to  $X_{\text{active\_recv}}$
  - If slow start took  $n$  RTTs to recover  $X_{\text{active\_recv}}$ , this takes  $n/2$  RTTs
- For long idle periods ( $\geq 30$  minutes), no faster restart;
  - for medium idle periods (10-30 minutes), faster restart to a fraction of  $X_{\text{active\_recv}}$

## Problems (from Sara Landstrom)

- What about **extremely short idle periods**?
- What about **application-limited traffic**?  
(Immediately before idle period, was sending slower than application allowed)
- What about **faster-restarting from an application-limited, but non-idle, state**?

## Changes to Faster Restart:

- Remember high sustained rate ( $X_{\text{active\_recv}}$ ) recently supported by path:
  - Move  $X_{\text{active\_recv}}$  up on higher sustained rates.
  - Move  $X_{\text{active\_recv}}$  down on congestion feedback.
  - Reduce effective  $X_{\text{active\_recv}}$  as information becomes stale.
- Always allow faster-restart up to  $X_{\text{active\_recv}}$ .

Comments from:  
draft-burness-dccp-interactive-apps-00.txt:

- “In [6] fast restart is allowed inside 10 minutes at the prior rate, reducing to the normal 4 packets minimum by 30 minutes. **We consider this time is too long** for two reasons.”
  - Mobility.
  - Video, or audio on low capacity links.
- “**We propose a similar solution, but with a different timescale.**”