RTP Media Congestion Avoidance Techniques (rmcat)

Chairs:

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Administrativa

Today's slides

http://datatracker.ietf.org/meeting/93/materials.html#tsv

Remote participation

Audio: http://ietf93streaming.dnsalias.net/ietf/ietf934.m3u

Meetecho: http://www.meetecho.com/ietf93/rmcat

Jabber chat

xmpp:rmcat@jabber.ietf.org?join

Mailing list

http://www.ietf.org/mailman/listinfo/rmcat

Agenda

9:00   WG Status & Agenda Bashing (*Chairs*)

9:20   Coupled congestion control for RTP (*Safiqul Islam*)
    draft-welzl-rmcat-coupled-cc-05

9:45   Update on GCC (*Stefan Holmer)*
    draft-alvestrand-rmcat-congestion-03

10:10 Update on NADA (*Xiaoqing Zhu)*
    draft-ietf-rmcat-nada-00

10:25 WiFi test cases (*Xiaoqing Zhu*)
    draft-fu-rmcat-wifi-test-case-01

10:45 Modeling Video Traffic Sources for RMCAT Evaluations (*Sergio Mena de la Cruz*)
    draft-zhu-rmcat-video-traffic-source-02

11:15 Shared Bottleneck Detection for Coupled CC for RTP Media (*David Hayes*)
    draft-ietf-rmcat-sbd-00

WG Document Status

Requirements and evaluation

draft-ietf-rmcat-cc-requirements-09 **[RFC Ed Queue for 211 days : MISSREF]**

draft-ietf-rmcat-eval-criteria-03

draft-ietf-rmcat-eval-test-01

draft-ietf-rmcat-wireless-tests-00 **[new]**

Algorithm candidates & co

draft-ietf-rmcat-nada-00

draft-ietf-rmcat-scream-cc-01 **[updated]**

draft-ietf-rmcat-sbd-01 **[updated]**

Expired

draft-ietf-rmcat-rtp-cc-feedback-00 **[waiting for input from candidates]**

draft-ietf-rmcat-app-interaction-01 **[will be replaced by other drafts]**

Drafts Status

Evaluation

draft-zhu-rmcat-video-traffic-source-02 **[updated]**

draft-fu-rmcat-wifi-test-case-01 **[new]**

Algorithm candidates & co

draft-welzl-rmcat-coupled-cc-05 **[updated]**

draft-alvestrand-rmcat-congestion-03 **[updated]**

draft-singh-rmcat-adaptive-fec-02

Interactions and signaling

draft-holmer-rmcat-transport-wide-cc-extensions-00

draft-zanaty-rmcat-cc-codec-interactions-00 **[new]**

Milestone Update

Done   Adopt first WG draft on requirements

Done   Adopt first WG draft on evaluation criteria

Done   Adopt first WG draft of RTCP extensions for use with congestion control algorithms and interactions between applications and RTP flows (if needed)

Done   Adopt first congestion control candidate as WG draft

Mar 2015   Adopt first WG draft on identifying and controlling groups of flows

Dec 2015   Submit requirements and evaluation criteria to IESG as Informational

Dec 2015   Submit identifying and controlling groups of flows to IESG for Standards Track publication

Dec 2015   Submit first congestion control candidate to IESG for Experimental publication

Dec 2015   Submit interactions between applications and RTP flows to IESG as Informational

Dec 2015   Submit RTCP extension requirements for use with congestion control algorithms to AVTCORE (if needed)

Feb 2016   Publish first draft of evaluation results

Feb 2016   Publish first draft of Standards Track congestion control algorithm

Feb 2016   Publish first draft of techniques to detect, instrument or diagnose failing to meet RT schedules

Jun 2016   Submit techniques to detect, instrument or diagnose failing to meet RT schedules to IESG as Informational

Oct 2016   Submit congestion control to IESG for Proposed Standard

Moved 3-6 months forward

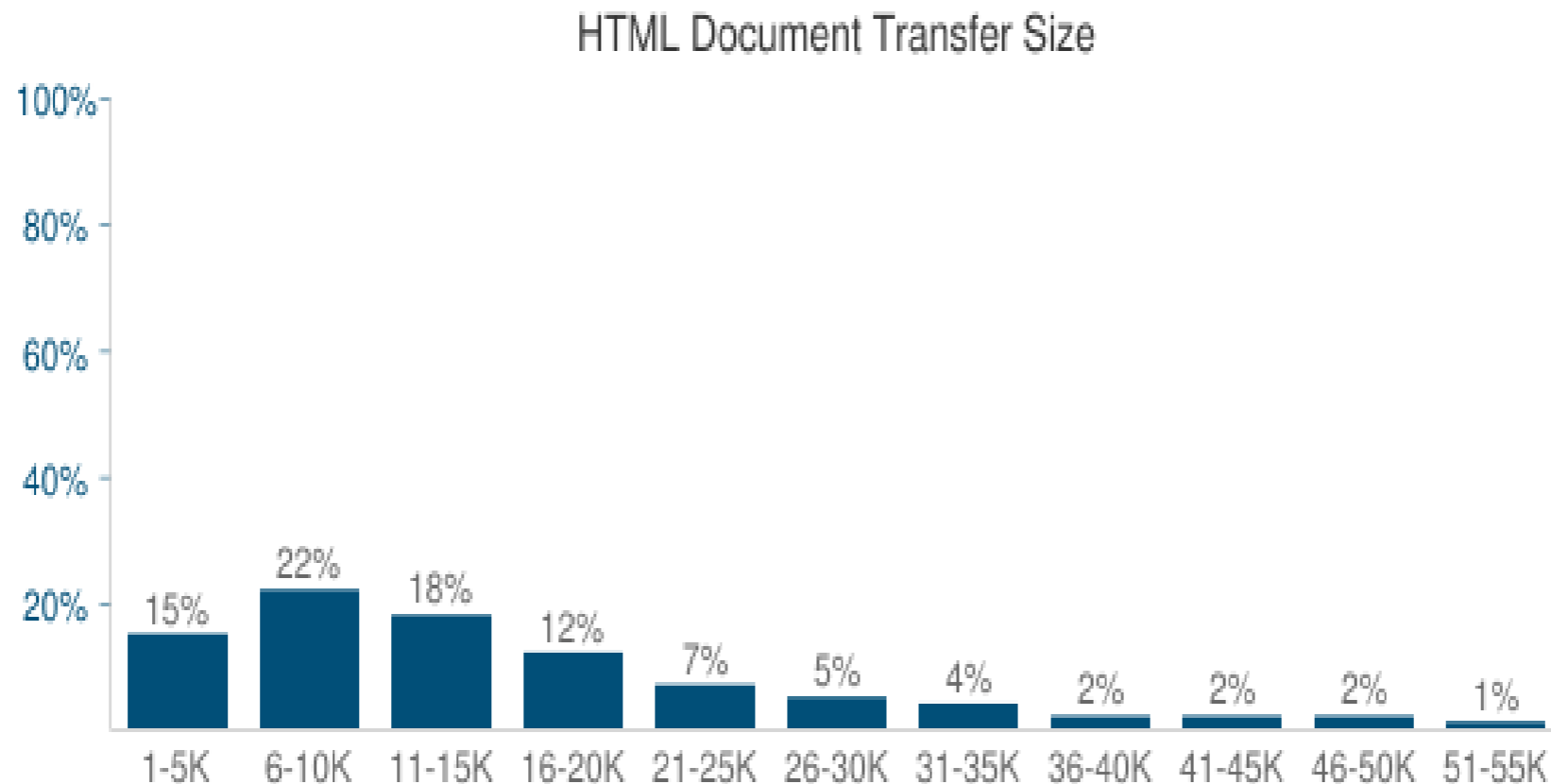# draft-ietf-rmcat-eval-criteria-03 Evaluating Congestion Control for Interactive Real-time Media

- Section 3: Metrics need to be normalized
  - Feedback appreciated from algorithm proponents

- Section 4: Guidelines
  - Move things that are already in the requirements draft

- Section 5:
  - Jitter Model, which one is used in evaluations? Are both used?
  - Jitter Model, Google had a new proposal, add it?

draft-ietf-rmcat-eval-criteria-03
Evaluating Congestion Control for Interactive Real-time Media

- **Traffic Model for Short TCP**, got input from Mozilla
  → use http://httparchive.org/interesting.php

- Average bytes per page: 2135 kB

- Distribution of HTML Document Transfer Size

HTML Document Transfer Size

singh-rmcat-adaptive-fec
Congestion Control Using FEC for Conversational Media

- No new evaluations
- Incorporating adaptive FEC with existing solutions
- Expect updates in Japan.
- Reading material
  - Thesis: Protocol and Algorithms for Adaptive Multimedia Systems
  - http://urn.fi/URN:ISBN:978-952-60-6221-1

draft-ietf-rmcat-eval-test-01

Basic Test Cases for Evaluating RMCAT Proposals

- The document has been used by all RMCAT candidates to evaluate and compare performances with each other
    - It shows the document is quite mature
- In the next update
    - There will be a test case to see the effect of putting explicit losses (eval-criteria draft should provide the value) in the feedback path.
    - There will be more clarification on the path capacity change
        - Redefine the test case 5.1 and 5.2 to introduce changed path capacity relative to initial capacity.
        - Will help in defining additional test cases with higher path capacity

draft-ietf-rmcat-wireless-tests-00
RMCAT Evaluation Test Cases over Wireless Networks

- It now
  - Describes test cases for LTE system
  - Has a place holder for WiFi test cases.
    - Draft-fu-rmcat-wifi-test-case-00 has been submitted (thank you!)
- issues:
  - How to realize the LTE test cases?
    - One can use NS-3 LTE simulator to run simulations
    - There is an effort going on to provide an example implementation of the test case in the NS-3 simulator.

draft-ietf-rmcat-scream-cc-01
Self-Clocked Rate Adaptation for Multimedia

- Changes from -00 version
  - Added implementation status section according to RFC8682
    - An implementation in OpenWebRTC (http://www.openwebrtc.io)
    - An implementation in C++, for quick testing.
- The algorithm is getting matured
  - Previous simulation results shows that (both for basic test cases and wireless test cases)
  - We are running more tests with OpenWebRTC implementation (The results will be available soon)
- Send your comments to improve the draft
  - Thanks to Mirja for your details comment!
  - And to Karen for the follow ups!

draft-zanaty-rmcat-cc-codec-interactions-00
Congestion Control and Codec interactions in RTP Applications

- draft-ietf-rmcat-app-interation split into

  3 separate drafts, per IETF 92 decision
  - CC-application interaction (e.g. W3C API)
  - CC-codec interaction
    - draft-zanaty-rmcat-cc-codec-interactions
  - CC framework of solution candidates
- draft-zanaty-rmcat-cc-codec-interactions
  - Allowed Rate is the primary interaction
  - Should this be described as a formal flow control API?
  - Should other interactions be removed, since most discussion has focused on Allowed Rate?

singh-rmcat-cc-app-interactions

- Work in progress
- New document perhaps after WebRTC Interim in September

Framework Considerations

- CC candidates should use common terminology when applicable

- Exp CC should be stand-alone docs

- Framework doc – two options:

  - Define framework now

  - Wait for the standard track CC solution and decide

- If we have a framework doc all framework descriptions should go into one document

Interim Sunday July 19

- Evaluation Results on Nada (*Xiaoqin Zhu)*

    – Exposes isssues with wifi environment

- Update on GCC and Evaluation Results on GCC and Nada (Stefan Holmer)

    – GCC and Nada provide comparable results for evaluated scenarios

- Update of and results on SBD (David Hayes)

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