

# Traffic Management Benchmarking Framework

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**draft-constantine-bmwg-traffic-management-04**

Barry Constantine

[barry.constantine@jdsu.com](mailto:barry.constantine@jdsu.com)

Tim Copley

[timothy.copley@level3.com](mailto:timothy.copley@level3.com)

Ram Krishnan

[ramk@brocade.com](mailto:ramk@brocade.com)

# Traffic Management Benchmarking Overview

- Extends RFC 2544 benchmarking into traffic management functionality of network elements:
  - Classification / Prioritization
  - Policing
  - Queuing / Scheduling
  - Shaping

# Revisions Incorporated into Draft-04

- Up to draft 3, only Layer 2 / 3 stateless traffic tests (i.e. UDP) were defined to benchmark the traffic management functions
  - The procedures and tools were identified to generate repeatable bursty application traffic tests and these are referenced as “TCP test patterns”
- In draft 4, Appendix B was added to provide traffic flow definitions of common TCP application traffic
  - Appendix B is not meant to be an exhaustive list of application traffic to be used in benchmarks, but to provide concrete templates to represent complex traffic patterns

# Application Test Pattern Examples

## ■ Bulk Transfer

- generate concurrent TCP connections whose aggregate number of in-flight data bytes would equal the Bandwidth Delay Product (BDP)
- Guidelines from RFC 6349 are used to create this TCP traffic pattern

## ■ Micro Burst

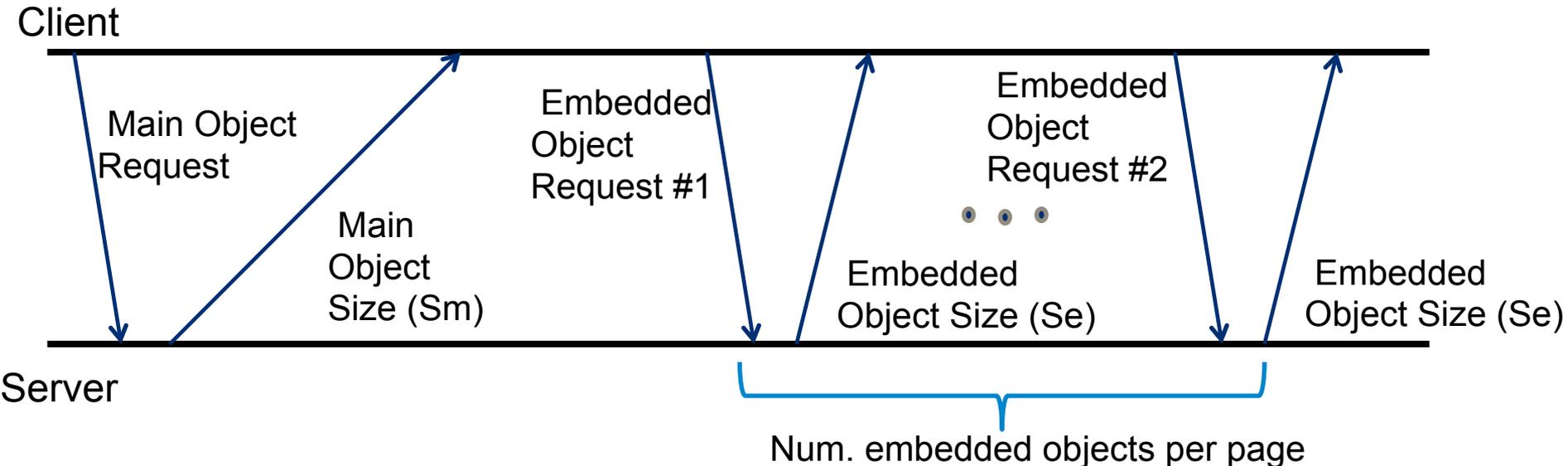
- after TCP establishes equilibrium, burst application bytes with configurable burst time interval

## ■ Web Site Patterns:

- The HTTP traffic model from "3GPP2 C.R1002-0 v1.0" was referenced (Table 4.1.3.2-1) to develop these TCP test patterns
- More details of these test patterns are on the next slide

# Web Site Test Patterns

- The HTTP traffic model from "3GPP2 C.R1002-0 v1.0" consists of the following parameters:
  - Main object size ( $S_m$ )
  - Embedded object size ( $S_e$ )
  - Number of embedded objects per page ( $N_d$ )
  - Client processing time ( $T_{cp}$ )
  - Server processing time ( $T_{sp}$ )



# Appendix B Example Web Site Models

Parameter	Simple Web Site	Complex Web Site
Main object size (Sm)	Ave. = 10KB Min. = 100B Max. = 500KB	Ave. = 300KB Min. = 50KB Max. = 2MB
Embedded object size (Se)	Ave. = 7KB Min. = 50B Max. = 350KB	Ave. = 10KB Min. = 100B Max. = 1MB
Number of embedded objects per page (Nd)	Ave. = 5 Min. = 2 Max. = 10	Ave. = 25 Min. = 10 Max. = 50
Client processing time (T <sub>cp</sub> )*	Ave. = 3s Min. = 1s Max. = 10s	Ave. = 10s Min. = 3s Max. = 30s
Server processing time (T <sub>sp</sub> )*	Ave. = 5s Min. = 1s Max. = 15s	Ave. = 8s Min. = 2s Max. = 30s

# Next Steps for the Traffic Management Draft

- Last year and prior to BMWG re-chartering, sufficient support was expressed to adopt the draft at that time
- Now that the new BMWG charter is approved, we ask again for everyone to take a look (by July 31st) and express support