

# Grand Canal: 1.au CM Unification Proposal

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## .1au Status after Geneva '07: Proposals in Flux

- Four CM proposals, sorted by load sensor (LS)
  - 3 occupancy-based: ECM, QCN, E2CM
  - 1 rate-based: FECN
- Each offers a gamut of options, optimizations, variations. Apparent commonalities:
  - FECN, QCN, E2CM: 'same'\* signalling protocol options
  - ECM, QCN, E2CM: 'same' control laws in RP/Source Response Funct. (SRF)

\* 'same' = reducible to a common core
- To do until July Plenary
  - More datacenter-realistic simulations
    - however, sim results must be supported by cost evaluation
  - Consolidate CM schemes by pruning the option space
    - Simplicity over performance (Geneva Strawpoll outcome)
  - Find the "good enough" sweetspot

## Grand Canal Targets

1. NEW. To build a new scheme based on the **\*tested\*** (in .1au sims) elements from the existing CM proposals:
  1. LS: detection, marking of congesting traffic
  2. Feedback (FB): Signalling (tag, probe, FWD, BWD)
  3. SRF: decrease and increase laws
2. UNIFIED. Converge the *compatible* elements of the current proposals into a 'best-of' selection. Tight associations (e.g. LSx->FBy->SRFz) are a detractor.
3. SIMPLE. And provably good enough, if not optimal, for the datacenter.
  1. Simplicity, stability in DC apps and future improvability should prevail against optimizations, however tempting it may look in '07.
4. OPEN. An **open** CM for Ethernet framework is desirable to a 'closed' scheme.
  1. Rationale: Datacenter architecture and traffic are open research issues.
5. TRIED. No proposal is acceptable w/o min. simulation proof and, ideally, an attempt of cost evaluation. The onus is on the proponent to test the idea, irrespective of time, tool, resource constrains. Results delivered on deadline.

## Temptative Timeline: Building the Grand Canal - Best Case Scenario

- June 21
  - 1<sup>st</sup> cut: decide the load sensor (LS)
- June 28
  - 2<sup>nd</sup> cut: decide SRF
- July 3
  - 3<sup>rd</sup> cut: decide signalling
- July 10
  - assemble Grand Canal
  - review scheme
- July 16
  - begin sim. model, min. 2 teams in parallel
- 802 Plenary: first preliminary results.