Wednesday 9/5/2007

Chair: Pat Thaler
Secretary: Manoj Wadekar

Attendees:

Name	Company
Manoj Wadekar	Intel
Abhay Karandikar	IIT Bombay
Bob Grow	Intel
Balaji Prabhakar	Stanford University
Anoop Ghanwani	Brocade
David Peterson	Brocade
Joseph Pelissier	Cisco
Guenter Roeck	Teak Technologies
Romain Insler	France Telecom
Linda Dunbar	Huawei / Futurewei
Mike Ko	IBM
Rao Cherukuri	Juniper Networks
Bruce Kwan	Broadcom Corp
Davide Bergamasco	Cisco
Menuchehry Menu	Marvell
Diego Crupnicoff	Mellanox
Cyriel Minkenberg	IBM
Craig Carlson	Qlogic
Mukund Chavan	Emulex
Ravi Shenoy	Emulex
Pat Thaler	Broadcom
Mitch Gusat	IBM
Asif Hazarika	Fujitsu

Meeting Minutes:

1. Chair read IEEE patent policies to the room: 9.10am-9.45am - 35mins
    a. Cisco informed that one more patent has been filed and LOA is on the way
    b. Intel informed that it is transmitting LOA as well
    c. No LOA was offered in the meeting
    d. Detailed discussion on policy
2. Review of Objectives postponed to later time (after presentations)
3. Davide Bergamasco: QCN Issues and Solutions: 9.45am-11.20am - 95mins
    a. http://www.ieee802.org/1/files/public/docs2007/au-bergamasco-qcn-problems-solutions-proposal-070905.pdf
    b. Reviews challenges in QCN and proposes converged solution
    c. Innocent flows can get significantly impacted and don't recover for long time (demonstrated for large topology)
    d. One solution is to add positive feedback to QCN to improved AI: QCN+
    e. And add over-sampling: QCN+O
    f. QCN+O is hybrid proposal: QECM

   g. QECM CP Details: suggestion that Fb does not have to be capped symmetrically
   h. Fb>0 to be triggered for packets with RL bit set (DE bit to be set by RP for RL flows)
      i. False positives can be reduced by running a timer at the switch: generate +ve only if -ve was generated at that switch
   i. RP-CP association is still maintained at RP - but is not carried through the network as tag
4. Guenter Roeck: CM Protocol Characteristics in Complex Simulation Scenarios: 12.50pm - 2.40pm: 110 mins
   a. http://www.ieee802.org/1/files/public/docs2007/au-sim-roeck-complex-situations-0907.pdf
   b. QCN seems to generate more CM messages and also causing more RLs getting created (and removed subsequently).
   c. QCN seems to be triggering CM mechanism even for 10% line loading as compared to 60% for ECM-variants
   d. In scenario for recurring OG hotspot - QCN does not do very well.
   e. ECM and QCN - have challenge in large latency network (500uS-1mS) with default param
      i. QCN improves with HAI disabled
      ii. QCN needs W tuning- discussion how W could (or should) be tuned at switch by observing Fb changes..
   f. Direct probing seems to work best overall - with no visible negative effects of CPID thrashing.
   g. Marginal improvement with sub-path probing over direct probing.
5. Prof. Balaji Prabhakar: Transients and Scalability of QCN: 2.40-3.00pm, 4.30pm - 5.30pm : 70mins
   a. http://www.ieee802.org/1/files/public/docs2007/au-prabhakar-stockholm-improving-transience.pdf
   b. FB-hat provides better rate recovery
   c. Enhancements are possible - but right complexity-performance tradeoff should be achieved
   d. Difference between RTT=400uS and Guenter's presentation for 500uS: is there any param that is related to 500uS that shows significant degradation at 500 uS?
      i. Not sure. Drift timer was suggested to 500uS. But Guenter is using 1mS drift timer.
      ii. Will simulate 500uS and compare results

Thursday, 9/6/2006

6. Mitch Gusat: QCN Stability: 9.10am-10.45am: 95 mins
   a. http://www.ieee802.org/1/files/public/docs2007/au-ZRL-triple-case-for-RTT-probing-r1.01.pdf
   b. Foil 5: Comment - this does not have adaptive probability - should update foil : Response - that is discussed later - focus is not width of the pulse.
   c. Foil 8: QCN is not stabilizing in Fat tree with larger HS duration as well
      i. Comment: This is due to lack of Adaptive sampling: response - will test with oversampling.
      ii. BCN worked much better for this scenario (results not included): Comment - adaptive sampling is crucial for this to

work, RP's need to get feedback to avoid them from springing back. (BCN works because RP's don't recover till +ve feedback is received).

1. Foil 13 argues that during congestion for large RTT - sampling should be reduced
2. CP does not know RTT, nor "n" to have adaptive Ps
    a. "near RP" benefit directly from an increased Ps
    b. "remote RPs" don't (must filter- decimation: Similar to Guenther's presentation with dropping CM packets for large RTT network)
3. Discussion: Large RTT is observable at switch due to swinging queues

d. General discussion: Disconnect on QCN results - need to use Simulation Ad-hoc to resolve the differences

7. Guenter Roeck: Addressing concerns with Closed Loop CM protocol: 11.00am-12.15pm: 75 mins
    a. http://www.ieee802.org/1/files/public/docs2007/au-roeck-addressing-concerns-closed-loop-0907-v2.pdf
    b. What is difference between Directed Probe and subpath probe? A: Directed probe - only CP responds. In sub-path probe: all the switches in the path towards CP. But Directed-probe can be sent on higher priority. Sub-path probe follows same TC as data path.
    c. Is there any problem in sending protocol packets addressed to CP/Switch - did not receive any confirmation from switch vendors, ASIC implementers
    d. Discussion: CPID thrashing - will it have any impact on protocol behavior/performance? Simulations don't show any. Need to understand realistic scenario where this can create challenge.
        i. "Wrong CM messages" :Comment: This foil shows crux of the objection for using CPID - one could increase rate incorrectly while other CP really wants RP not to increase. Response: For 20 HS in series topology - this number seen was very small (~5 messages in 1s simulation). ECM had largest number (relatively). Performance impact of this was not visible.
        ii. Each protocol changes CP association - even if not explicitly defined
        iii. CPID thrashing is not seen as problem.
    e. Discussion: Security concerns about CPID:
        i. In "multi-admin-domains" bridges can be overwhelmed by control messages
            1. BUT, there are 1000s other attacks that can be mounted without CM protocol also
            2. There are mechanisms to identify the attacker and shut them down
            3. AND, CM applies only in "single-admin-domain"
        ii. CP anonymity:
            1. Valid source MAC address - it is part of CM message anyway
            2. 802.1AE guarantees that each device uses correct address (authenticated)
    f. Discussion: Impact on other protocols:
        i. Need more information to understand this problem. This is generically applicable to all L2 protocols.

8. Norm Finn: Draft 0.2 Discussion
    a. Draft focuses on 2-point architecture
    b. 3.5:Reaction point definition is actually about Congestion point - need to change
    c. Need to add Reaction Point information
    d. Need to add CN-aware end node
    e. CN may require changes to MSTP - to allow large CN-cloud formation
    f. 802.1ag Clause 22 : provides breakup of Bridge architecture - better understanding of EISS and application of it
9. Manoj Wadekar and Pat Thaler: CM Mechanisms - a NIC perspective: 30 mins
    a. http://www.ieee802.org/1/files/public/docs2007/au-wadekar-cm-nic-perspective%20rev%201.0.pdf
    b. All the mechanisms discussed currently have very large number of parameters
    c. This will be primary challenge for deployment
    d. Number of params should be reduced and simple template should be defined
10. Claudio Desanti: 10 mins
    a. http://www.ieee802.org/1/files/public/docs2007/au-desanti-straw_poll_v4.pdf
    b. Straw Poll:
    Proposal: Adopt a baseline proposal with QCN as a required framework and positive feedback as an optional feature
    e.g. QECM, Probing
    Next Steps: Have a concise and complete specification of QCN+ positive feedback (e.g. QECM)
    Focus the work on validation of the baseline
    Exploring additional simplifications or options
    The positive feedback option could become mandatory

    Yes: 21
    No: 0
11. CN Meeting adjourned.