CONEX BoF

Welcome to CONEX!

- Chairs:
  - Leslie Daigle
  - Philip Eardley
- Scribe: John Leslie, and…??
- Note well
- More info: http://trac.tools.ietf.org/area/tsv/trac/wiki/re-ECN

Note Well

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What's been happening? (1)

- Bar BoF in Stockholm
  - http://trac.tools.ietf.org/area/tsv/trac/wiki/0907re-ECNBarBoFMinutes
- GIIC workshop
  - http://www.giic.org/pdf/GIICFairInternetSharingWSAgenda-Final.pdf
- BoF in Hiroshima
  - http://www.ietf.org/proceedings/76/conex.html

What's been happening? (2)

- BoF in Hiroshima
  - Is "congestion exposure" a problem for the IETF to solve?
    - Yes
  - Should a WG be formed with this charter (+ some word-smithing)
    - Yes

What's been happening? (3)

- Developed draft Charter on mailing list
  - http://www.ietf.org/mail-archive/web/re-ecn/current/msg00497.html
  - IESG made some comments
    - http://www.ietf.org/mail-archive/web/re-ecn/current/msg00531.html
    - http://www.ietf.org/mail-archive/web/re-ecn/current/msg00532.html
  - Hence this BoF

Our purpose today

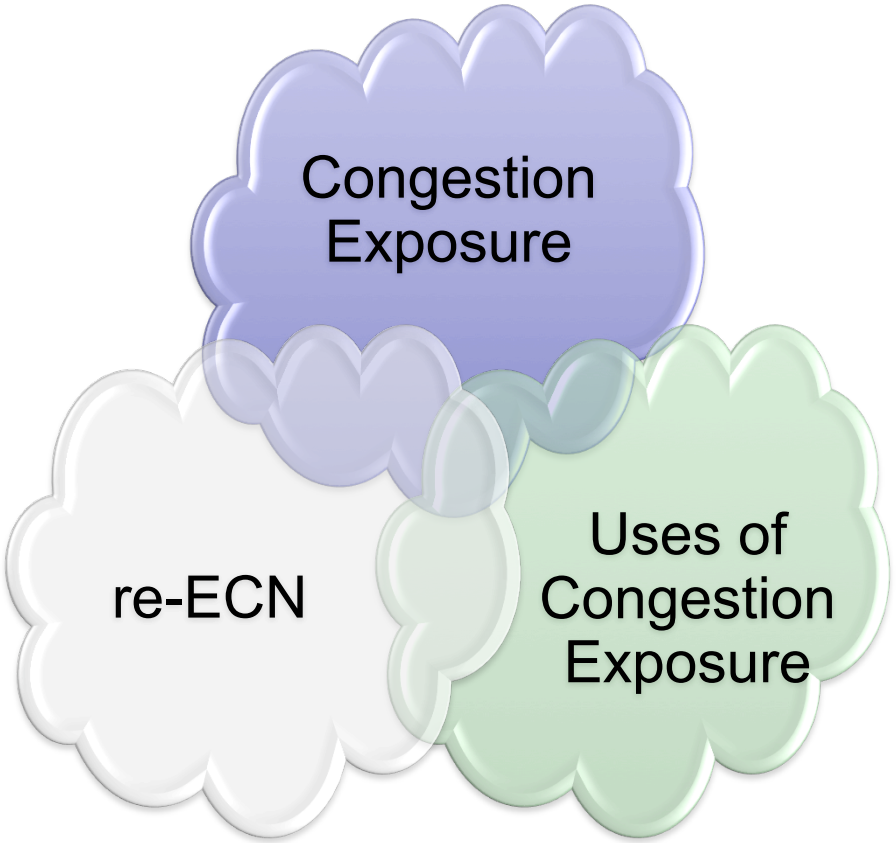
- Intended:
  - Focus on addressing the larger question of "why congestion exposure" – that this is an important, tractable, engineering problem
  - Further clarification for any response to IESG comments
- Not intended:
  - Deep dive on any specific proposals
    - Please see related materials for specific details

Agenda

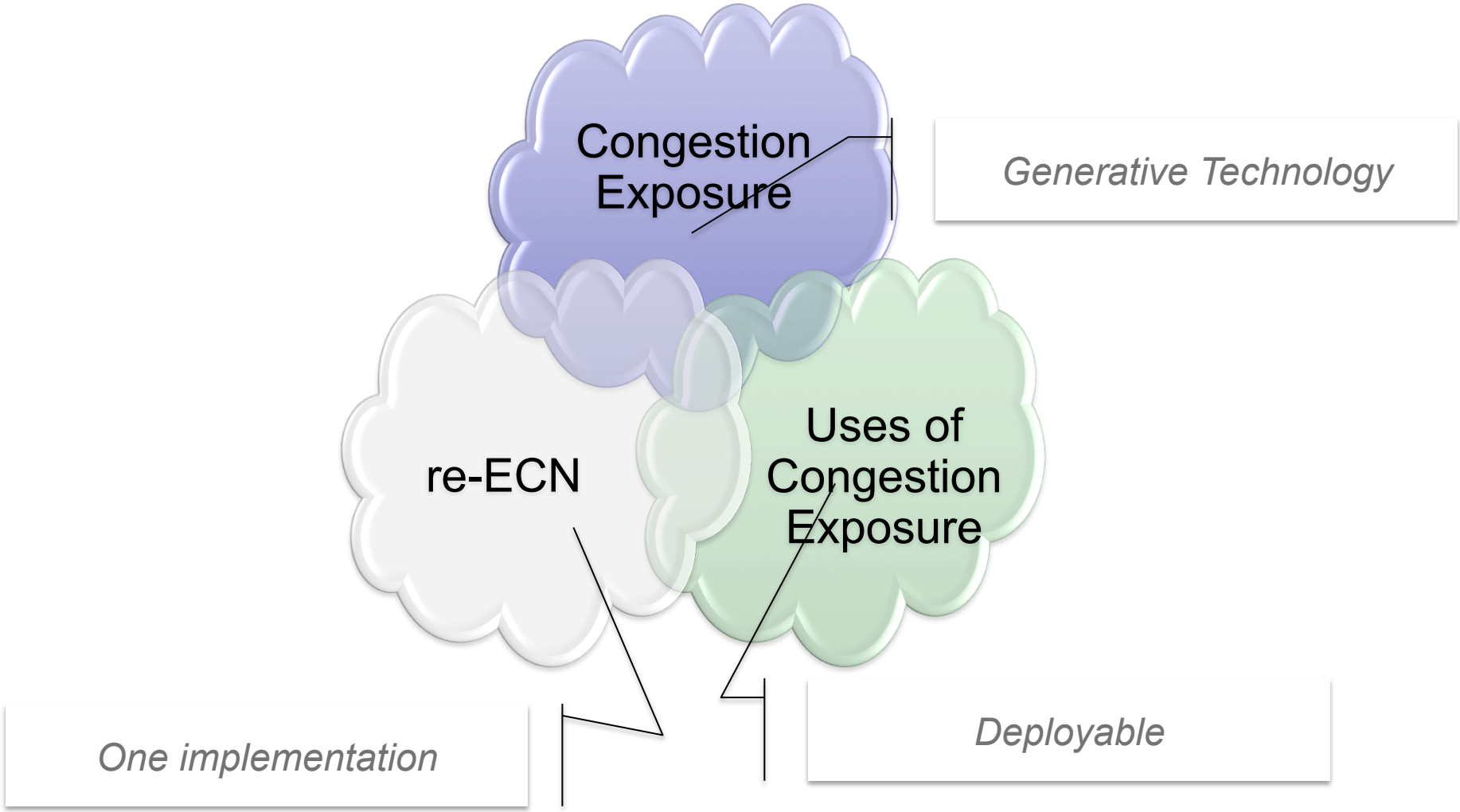
Session 1 (Wed, 15.10 – 16.10)

- Administrivia [5 mins]
- Introduction by chairs [5 mins]
  - The problem
- Traffic management problems: Mat Ford
- Current solutions: Rich Woundy
- Traffic management approaches: Alissa Cooper
- Proposed charter (outline)
- Discussion

The Discussion Space

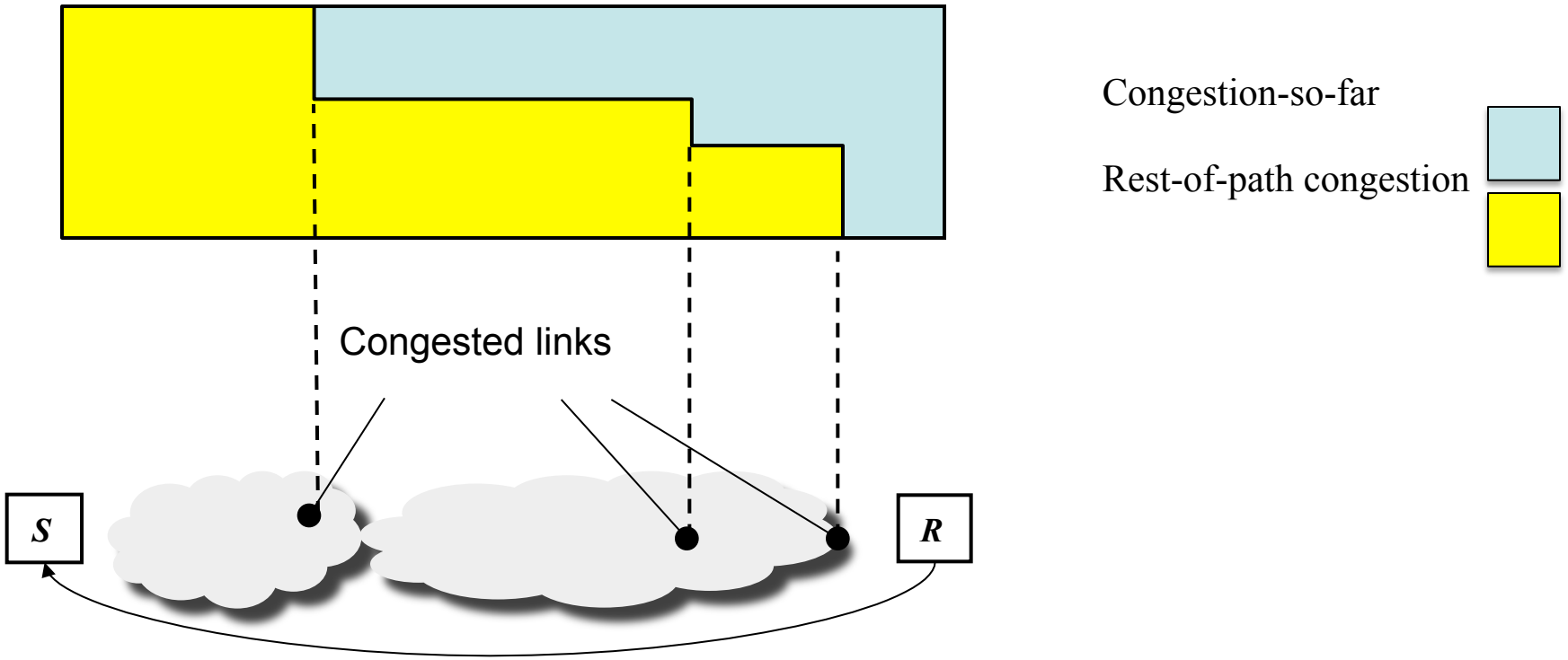


The Discussion Space



The Problem: Congestion Exposure

A mechanism by which IP datagrams can signal the total rest-of-path congestion that they are expecting along the entire path they are traversing



Rest of today's meeting

- Traffic management problems: Mat Ford
  - Overview of data and experience of congestion in the broad network sense
- Current solutions: Rich Woundy
  - ISP perspective
- Traffic management approaches: Alissa Cooper
  - Other approaches, as compared to congestion exposures

Charter

Discussion

CONEX: the generative technology

"The purpose of the CONEX working group is to develop a mechanism to allow senders to inform the network of the level of congestion they expect their packets to encounter. This information is currently only visible at the transport layer in the end systems. With the output of CONEX, it will be possible to provide sufficient information in each IP datagram so that any node in the network can see the expected rest-of-path congestion."

The major work items of Charter focus on delivering this:

- Specification of IP (v4 and v6) packet structure to encapsulate CONEX information (header bits, interpretation)
- Specification (in TCP) of how to carry congestion information from receiver to sender

CONEX: some potential uses of the generative technology

"Once any node can see the impact it causes (and suffers) by sending or forwarding packets, it will be possible to hold senders and whole networks accountable for the congestion they cause downstream. Tools that exploit the CONEX output could be used for mitigating distributed denial of service (DDoS); simplifying differentiation of quality of service (QoS); policing compliance to congestion control; and so on."

Work item of Charter to deliver this:

- Use cases -- possible uses of the CONEX information to reduce congestion and/or increase accountability for it -- for illustration purposes only

Output of the CONEX WG

- Specification of IP (v4 and v6) packet structure to encapsulate congestion exposure information (header bits, interpretation)
- Specification for the timely transport of congestion information from destination to the sender (using TCP)
- Use cases -- possible uses of the CONEX information to reduce congestion and/or increase accountability for it -- for illustration purposes only
- *Future work may include specifications to implement one or more use cases, but that is out of scope initially.*
- An applicability statement – architectural features, limitations and assumptions, and deployment considerations
- Analysis of security threats from falsifying or suppressing CONEX information
- One mechanism for ensuring the trustworthiness of the CONEX information (to mitigate threats)