

# **Multihoming: the SCTP perspective**

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## SCTP: Stream Control Transmission Protocol

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- **Described in RFC 2960 and 3309**
- **Multihomed host: endpoint with more than one IP address allocated to it.**
- **Each IP address represents a path through the network towards that endpoint and has separate congestion control variables**
- **SCTP does NOT know if the paths are completely, partly or not distinct at all from each other.**
- **Ideally: we would like all paths to be completely distinct**
- **Practice: we simply don't know...**
- **Heartbeats for every path: keeps paths variables up-to-date and checks if the path is alive.**

## SCTP: Stream Control Transmission Protocol

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- **Multihoming did open some new horizons for us:**
  - Add/remove IP address: in draft version <draft-ietf-tsvwg-addip-sctp-06.txt>
  - Based on add/remove IP, mobility support by the endpoint/host <draft-riegel-tuexen-mobile-sctp-01.txt>
  - Loadsharing accross the different paths of a multihomed association: still a research issue, but it is certain that the endpoint has a better view of loadsharing than any node wihtin the path ...
  - Proves that things that are done at the endpoint are really simplere and more powerfull than doing it in the network... OK, allright ..The end-to-end principle rules...happy now...
  - In conjuction with partial-relialebility SCTP(PR-SCTP)... better quality video?!?!.. <draft-stewart-tsvwg-prsctp-01.txt>
  - Some multihoming issues are documented in RFC 3257 and in <draft-coene-sctp-multihome-03.txt>
- **..but for some of the above, we actually new that already, based on previous experiences....**

## Transport and Network solutions towards the problem

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- **SCTP has a solution which is from our point of view sufficient for the future: provides multihoming, mobility and reliability**
- **However some of us(SCTP folks) feel that support by the network layer for multihoming would be a plus(even when it required some minor changes to SCTP: ex. Exchange of number of supported paths between the endpoints...)**
- **the basic problem is a namespace problem: endpoint with a “single” name should be reachable via different links/paths, provided the paths are identified so the congestion control algorithms should still work**
- **ref E. Lear Namespace presentation at the plenary in Yokohama:  
<http://www.ietf.org/proceedings/02jul/slides/plenary-14/index.html>**

## towards Network solutions(1)

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- **Warning: I am a SS7 network software designer, not a bellhead, nor a nethead, must worry about the connectivity of 600 million humans(and counting...++ )**
- **I don't give a damm how the identifier looks(text, crypto, URL, phone number ...), as long as there is a choice of identifiers...**
- **implies a variable length "name"/address(folks like me are not at all interested in fixed length address solutions: would force us to build such a things on top of your solutions..)**

## towards Network solutions(2)

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- incoming msg(dest\_name, path\_sel, org\_name)
- Node does
- Dest\_ipvx, { destname” , orgname”..} = f(dest\_name, path\_sel, {org\_ipvx, orgname...})
- Function f can be a mapping, hash function, cryptographic function, both hash and cryptographic, other...
- required: the function executed on the “name” should preserve the end-to-end routing of the msg wow you send msg, return msg must get back to you
- already in use?: Yes, for 10 years already, but not in a IP network

## Conclusion

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- **Personal view from the transport plane:**
  - SCTP :we can get along with the present solutions
  - TCP: requires changes
- **Network solutions: well some mapping, locator separator proposals, mobile-IP clearly go the way in which the network could solve the problem but may not be general enough yet...**
- **a good network solution will need time and lots of effort**
- **heck, ....even a transport solution needs time**
  
- **...and the prize is .....**

**SIEMENS**

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**..being used by the better looking part of the world population**

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