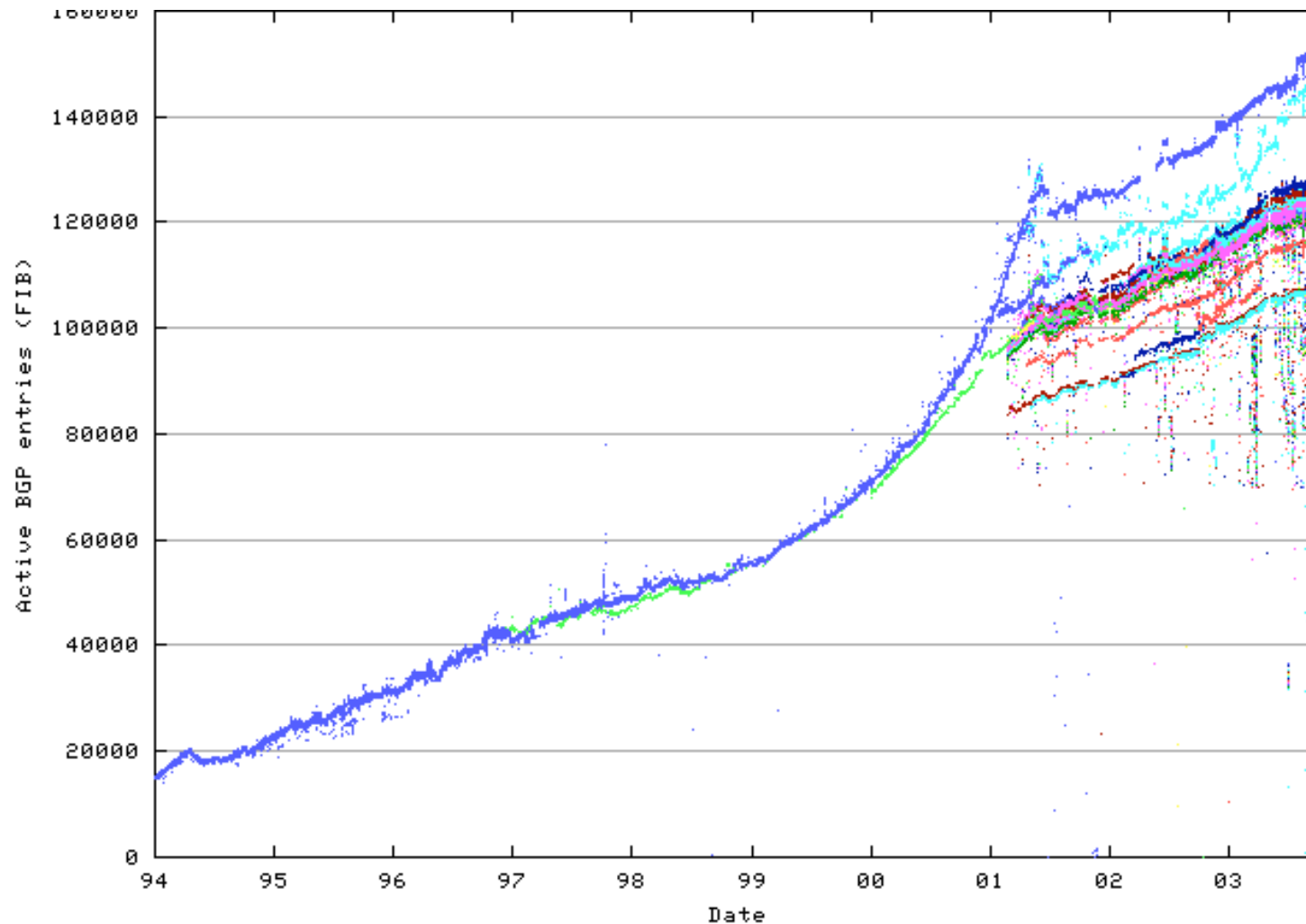


# The future of multihoming and scalable routing

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# Today's routing



# Today's routing

BGP routing table entries examined:	128816
Prefixes after maximum aggregation:	80246
Unique aggregates announced to Internet:	62008

# Today's **IPv6** routing

- End-sites are assigned /48s
- But are not "allowed" to announce these to the rest of the world
- Thinking was to avoid IPv4 situation
- But this also creates new problems

# Today's IPv6 routing

437 network entries and 844 paths  
using 113765 bytes of memory

- Not really a problem so far
- IPv6 also have a higher degree of aggregation already at the allocation layer
- Copying today's model would be an easy start

# Future

- But that won't last
  - 3G
  - Multihomed DSL
  - More mobile, yet demanding applications and users
- Also
  - IPv6 does not have portable addressspace

# Site-locals

- Discussion on the IPv6 list in the IETF
  - RFC1918 like addresses
  - Known to not work
  - Creates more problems than they solve
- But comes from the same requirements as the needs for a solution to multihoming

# Problem statements

- Three (at least) views of the world
- Mobile
  - MIPv6
  - HIP
- Id/Loc split
  - 8+8
  - 16+16
  - n+m
- All of the above



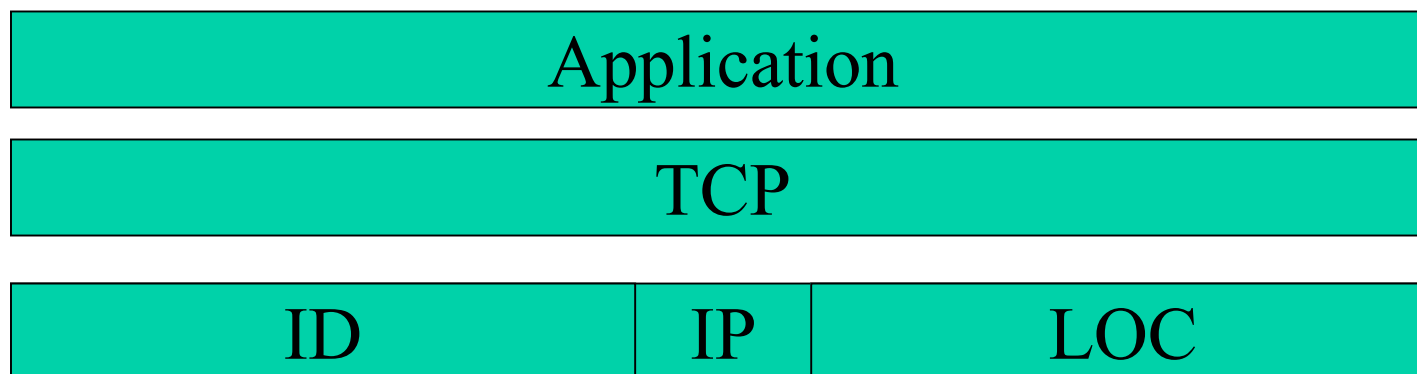
# Id/Loc split

- Today an IP address tells you
  - Who you are talking to
  - Or who I want to talk to
  - Where I am
  - Or where the person I want to talk to is
- Today's combination of the above leads to
  - Non-portable addressspace
  - Almost linear growth of routes

# Id/Loc split

- Old idea
  - Mike O'Dells GSE in 1997
  - 8+8
  - Etc....
- Recent movements
  - Ad-hoc poll on multi6 mailinglist showed rough consensus for id/loc split
- Now we just need to agree on what a locator is...
- And what an identifier is...

# Where?



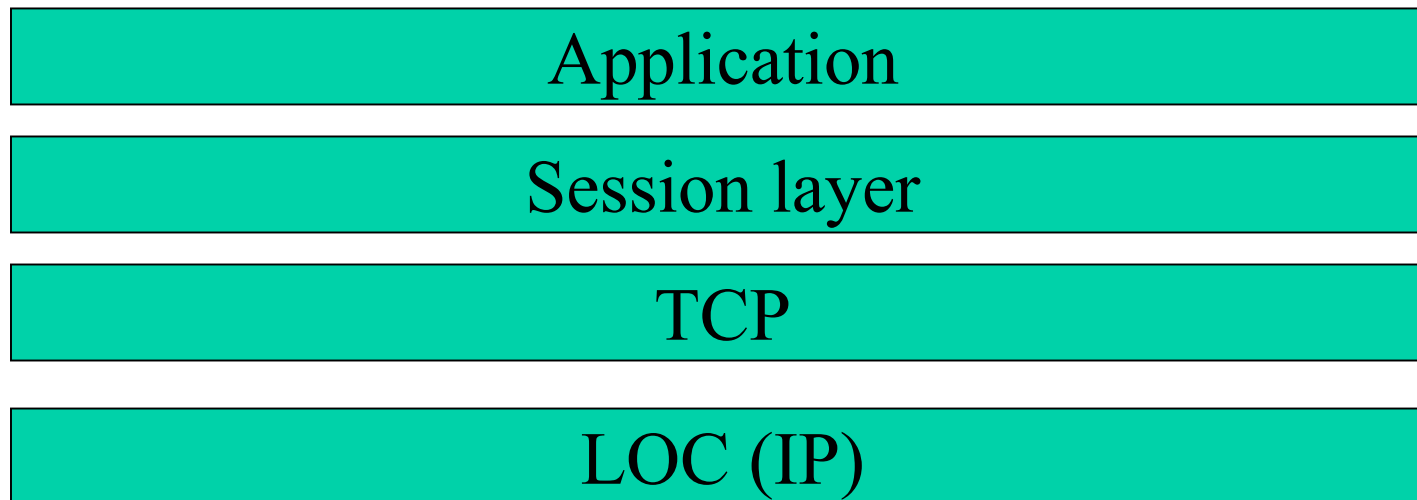
# Where?

Application

TCP + ID

LOC (IP)

# Where?



# Issues

- Bindings of identifier to locator
  - Security
- More security
  - Redirection attacks
  - Identity theft
- Can an identifier also be a locator?
  - Both?

# More issues...

- What do we want to change?
  - IP
  - TCP
  - Applications
  - Combinations?
- Backwards compatibility
  - Networks
  - Protocols
  - Applications

# Future

- We will need to get consensus and solve the problem
- We have come a small way
- If we agreed today we would have at least 10 years
- At least there is no IPv6 installed base...



# No shortage of solutions

- The two DTs
- Session layer
- HIP
- MIPv6
- MHAP
- LIN6
- Longer-prefix

# Future

- Two design teams in multi6
- Will get to present
- Then we need to decide how to match and value criteria
- Then we need to hand over to someone to actually write the protocol...

?

# Contact

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