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ALPHA

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Final presentation - April 23rd, 2009

Adaptive and Lightweight Protocol
for Hop-By-Hop Authentication

Our task

- Implement the *ALPHA* protocol

Initial hints from Tobi

- kernel module vs. tun/tap device

Subgoals

- alphadaemon, alphafilter, evilfilter
- application layer transparency
- no routing magic, no „real VPN“ (private IP addresses, ...)
- good documentation
- stay as portable as possible

Nice-to-have

- alphadaemon on Linux, Nokia and OSX
- alphafilter on OpenWRT

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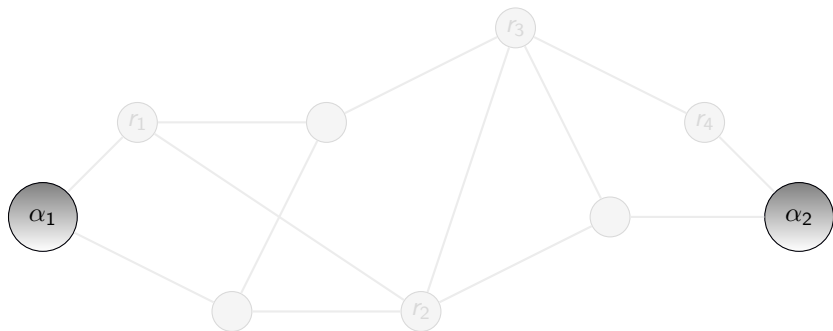
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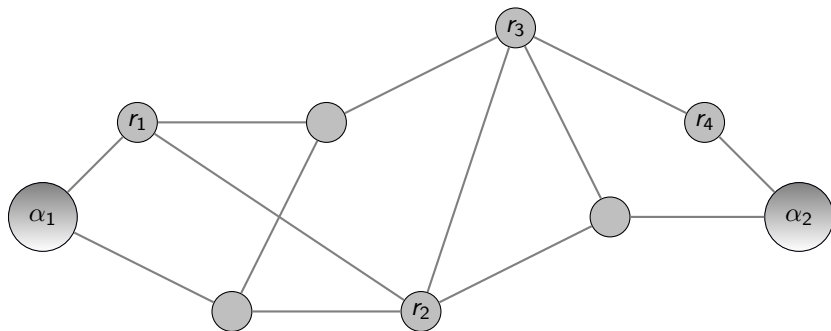
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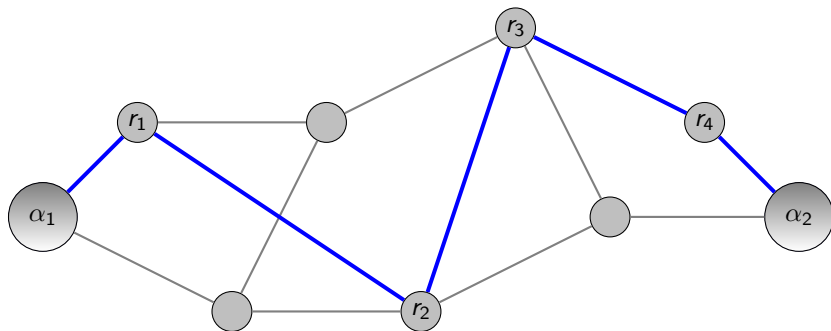
What does Alpha do?



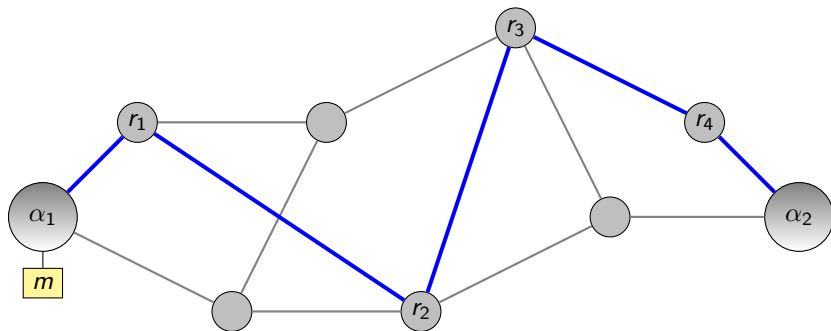
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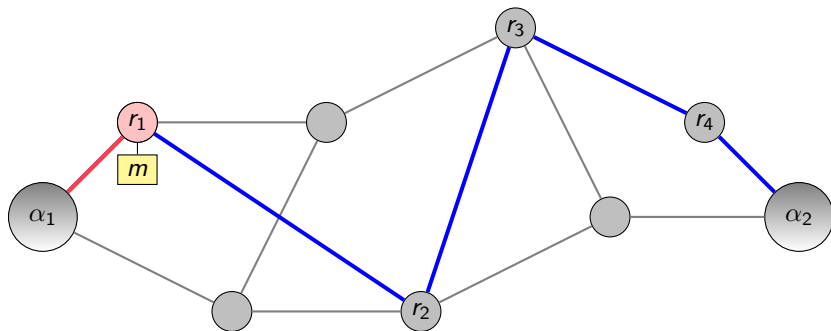
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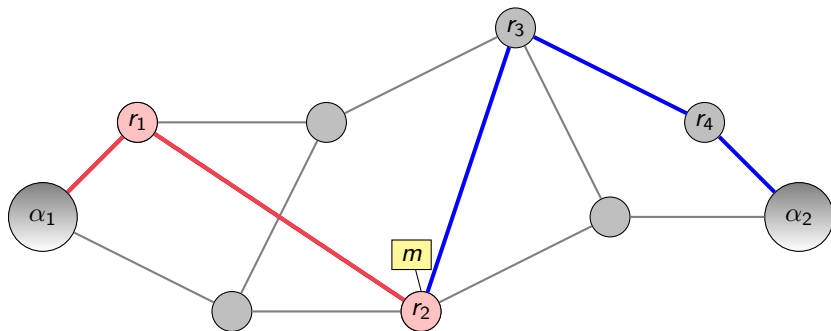
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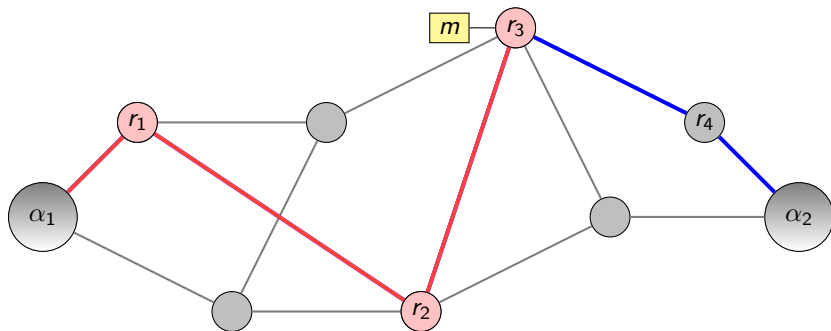
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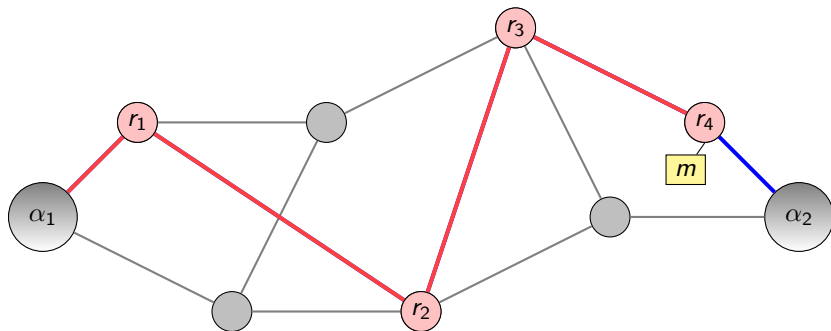
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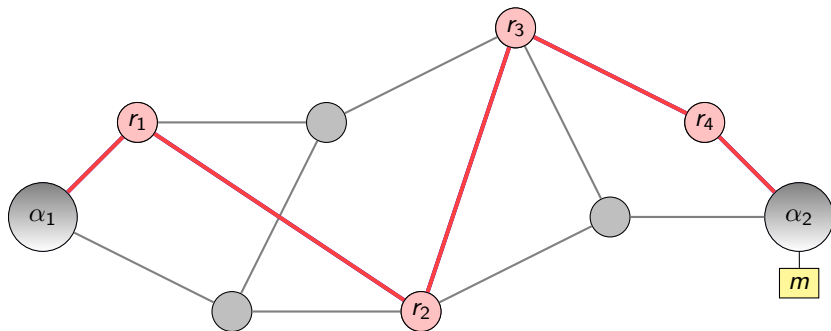
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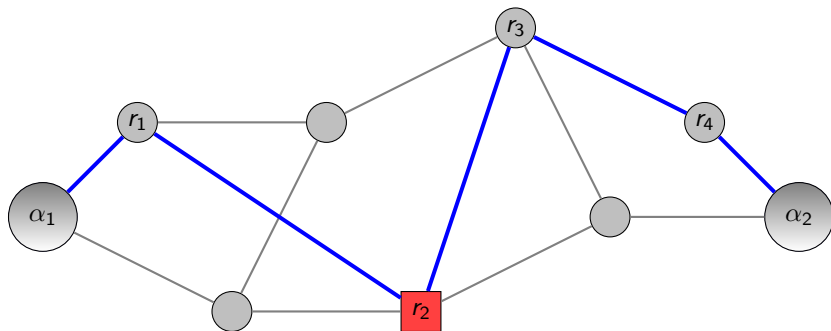
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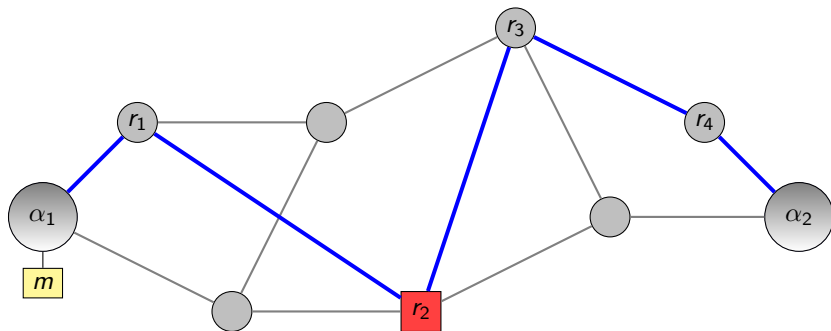
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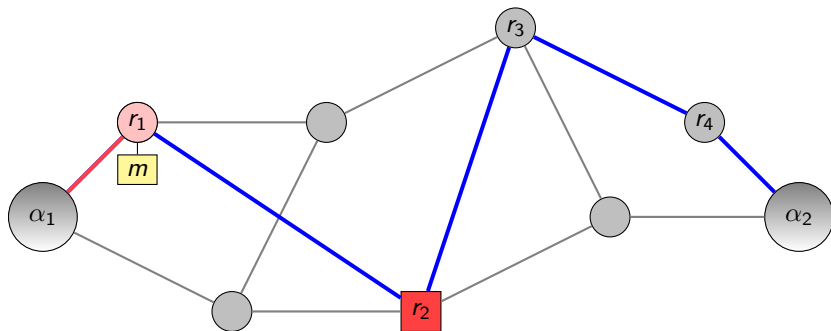
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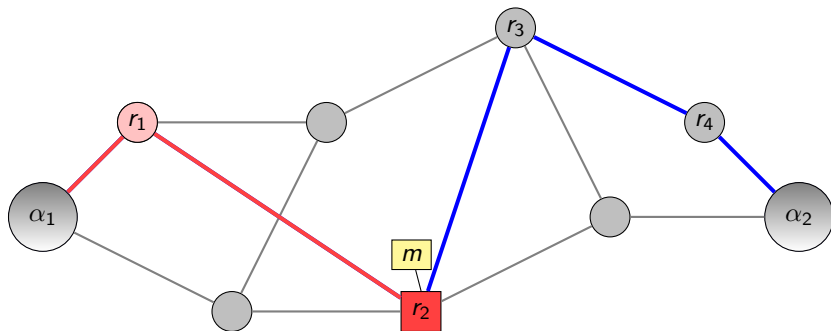
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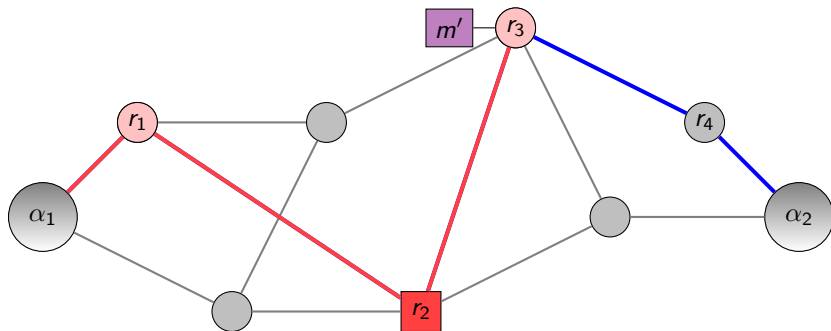
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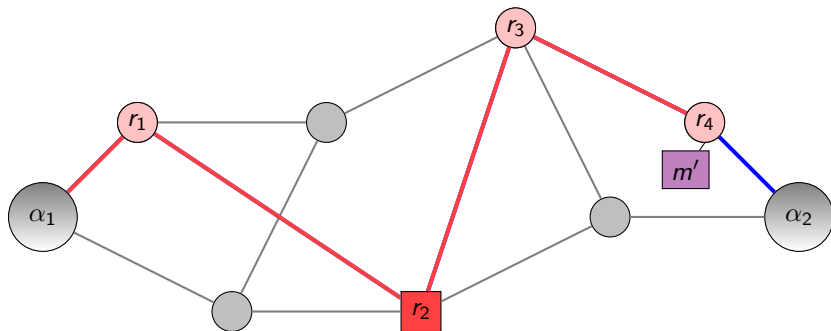
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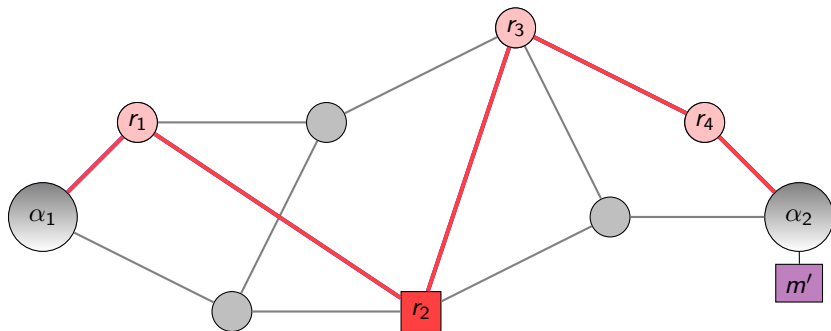
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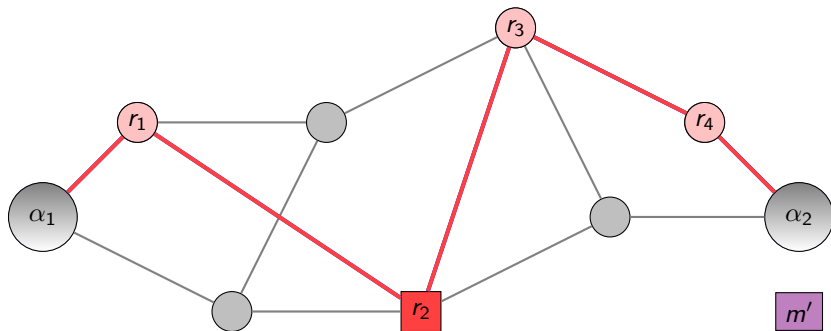
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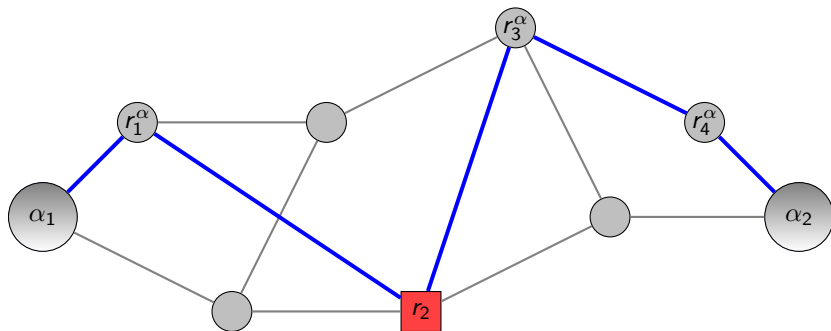
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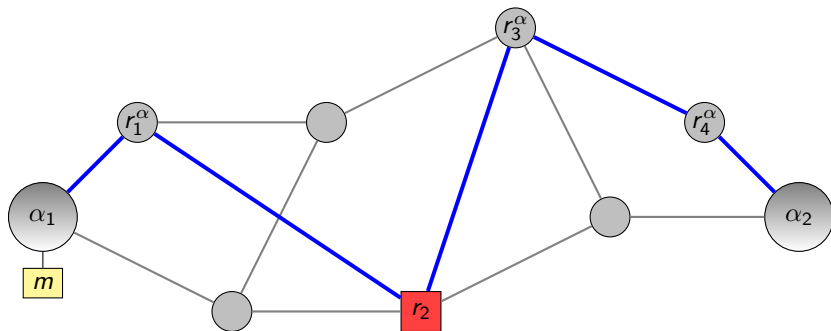
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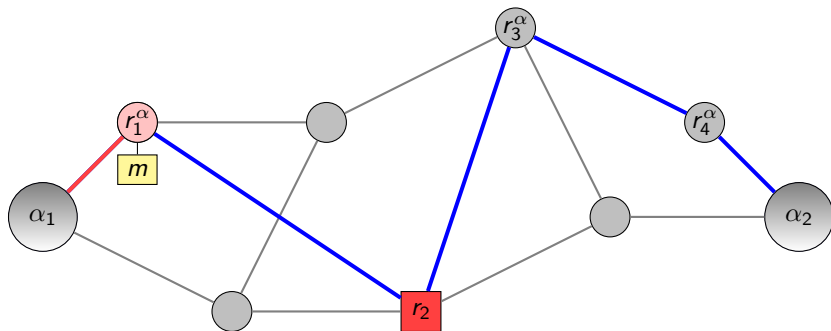
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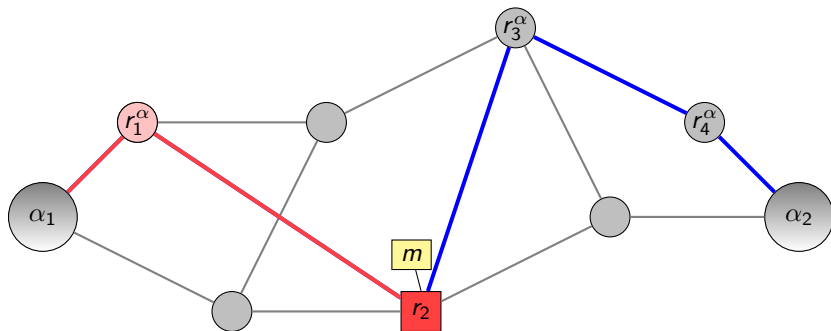
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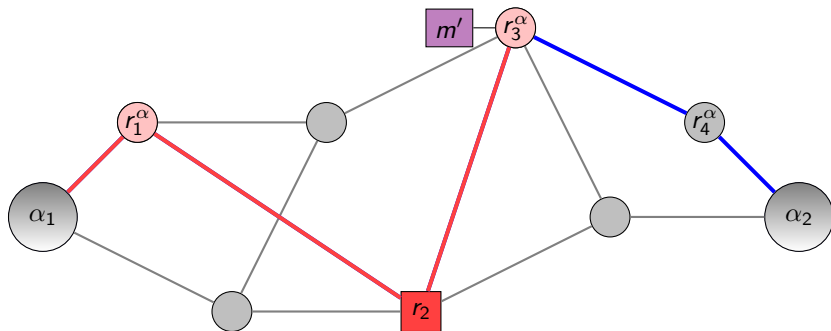
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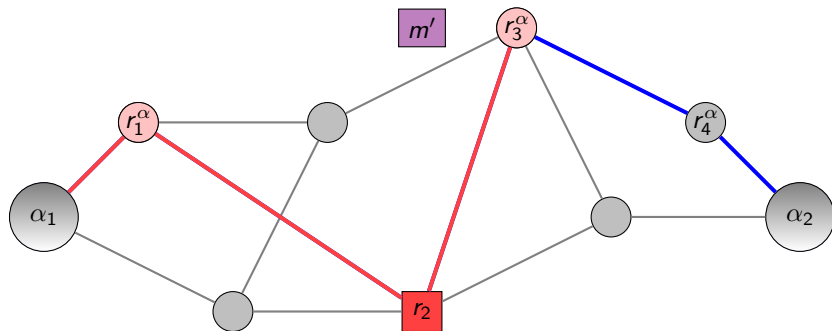
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- Compiles on Mac OS X (but does not work yet; routing issues)
- 2700 lines of documented C code

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- Works on Linux (with ipqueue)
- Unobtrusive, small, fast
- Can handle multiple connections simultaneously
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- how VPN/tunneling is actually implemented
- how to work on a non-trivial codebase with two people
- how to structure bigger C projects
- how to write documentation which other people can use as well
- how to use GDB (and why)
- to never ever use SPLINT again

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Groundwork

- More advanced Alpha modes: Alpha-C, Alpha-M
- alphadaemon for Mac OS X (so Tobi can use it too ;-))
- An easy way to configure Alpha, especially to distribute/authenticate clients

In particular

- How do clients agree on Alpha modes?
- How can we make Alpha perform?
- And a lot of small decisions the paper intentionally makes no assumptions about

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