Masking Network Heterogeneity with Shims

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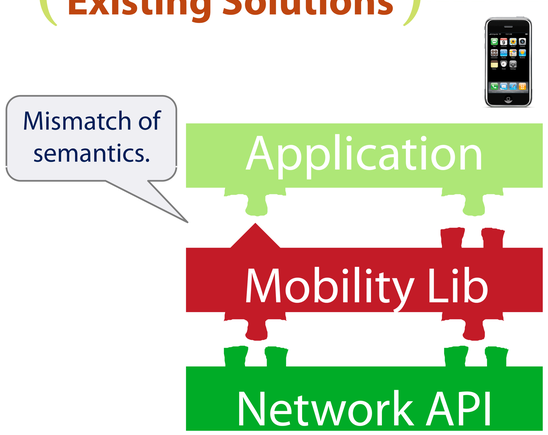
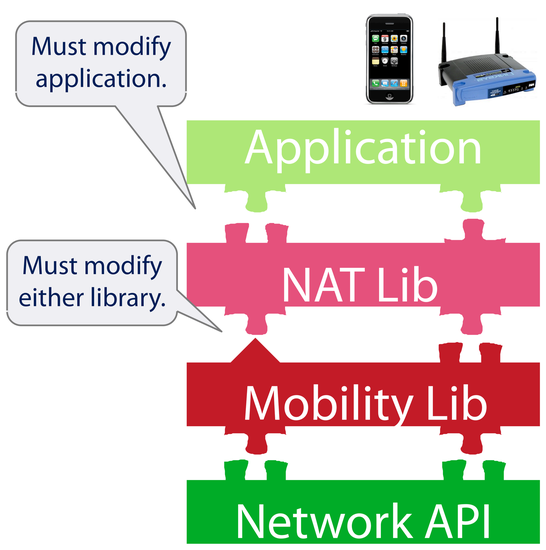
Network Hetereogenity

Simple end-to-end communications are rare

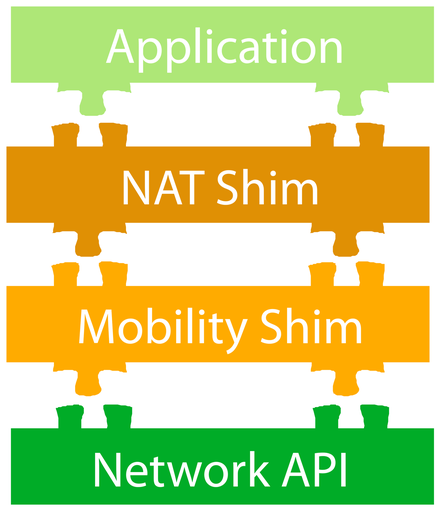
We want to mask network heterogeneity in a modular way without modifying the application.

Existing Solutions





Shims



Preservation of semantics.
Formally verified using model-based testing.

Can be stacked, removed, rearranged based on practical needs.

Transparent to application.
No need to change application.

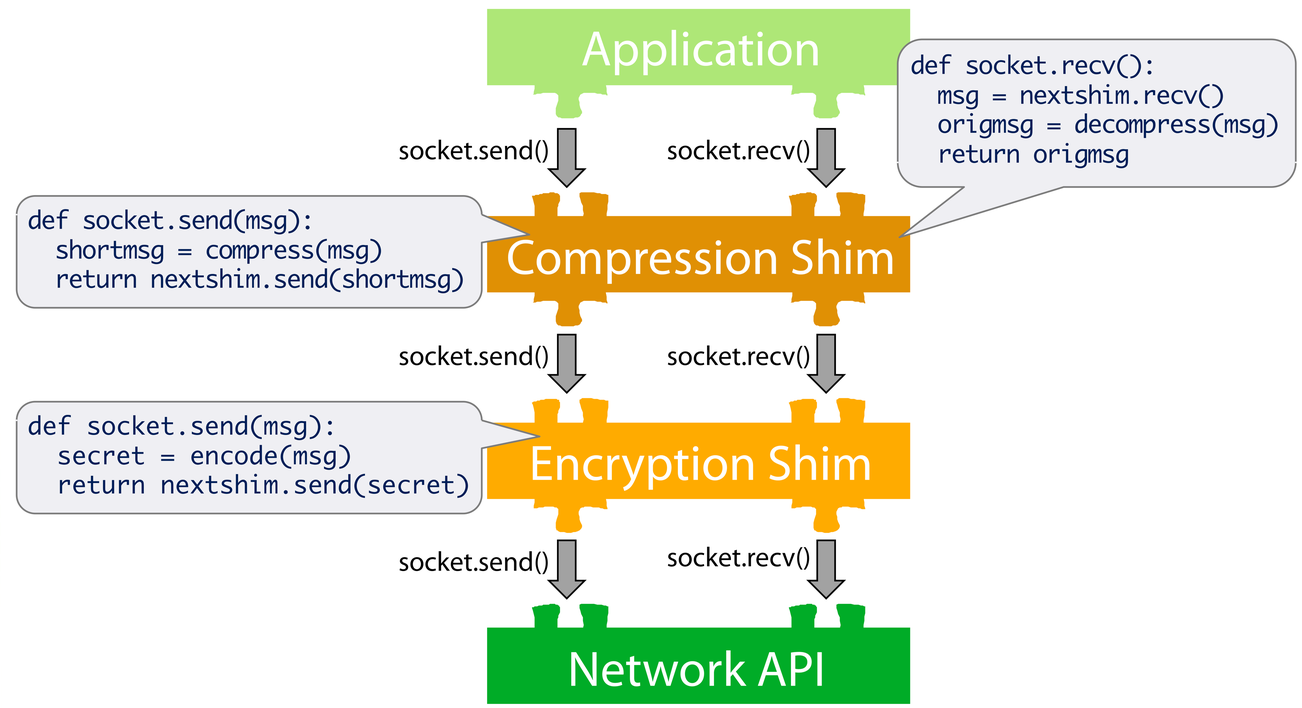
Shims We've Built

- Log Shim
- Encryption Shim
- Compression Shim
- NAT Traversal Shim
- Reverse Connection Shim
- Forward Error Correct Shim

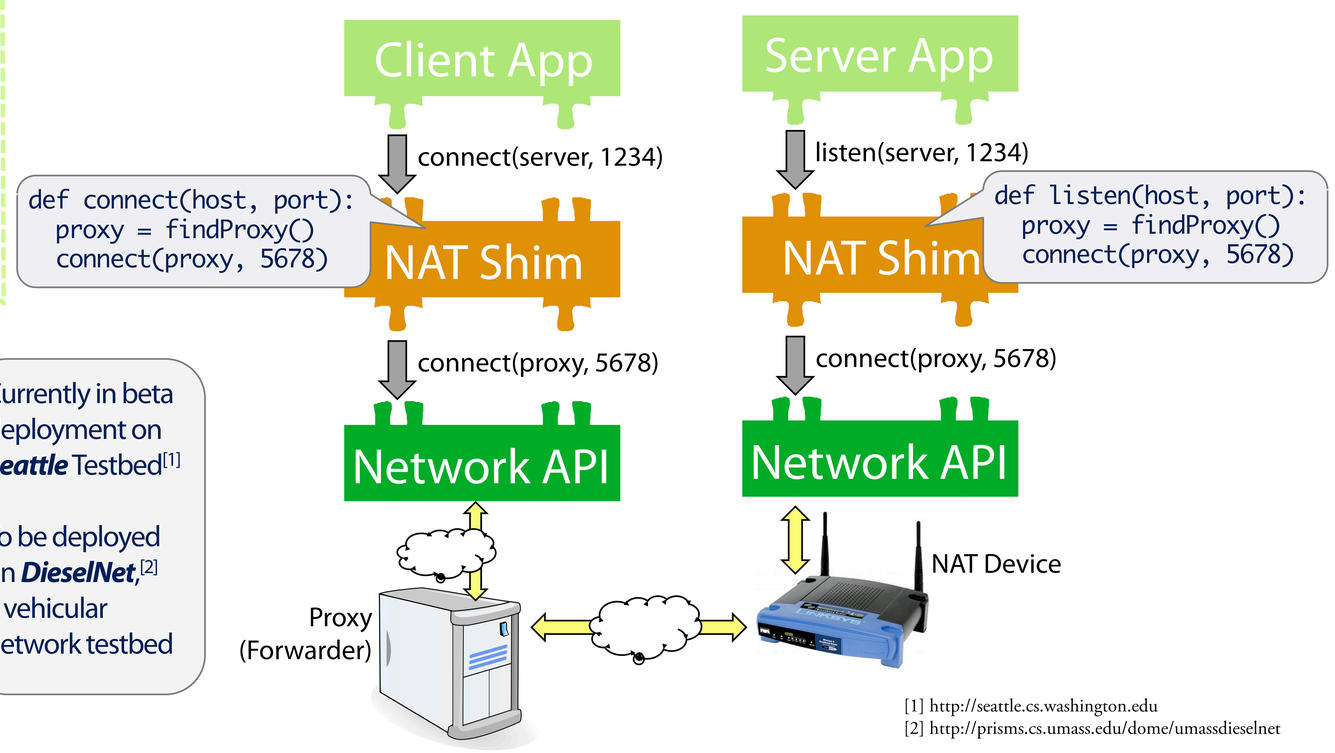
Currently in beta deployment on ***Seattle*** Testbed[1]

To be deployed on ***DieselNet***,[2] a vehicular network testbed

Preservation of Semantics



NAT Traversal Shim



[1] http://seattle.cs.washington.edu
[2] http://prisms.cs.umass.edu/dome/umassdieselnet