

# Snabb: a simple and fast software networking toolkit

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# What's Snabb?

Snabb is a software toolkit for networking in user space that focused on simplicity and performance.

Write network functions in **Lua**!

Rapid prototyping!

Production performance!

...and you don't have to be a hardcore (C) programmer!

## High level code

```
...  
config.app(c, "nic1", Intel, {pciaddr="01:00.0"})  
config.app(c, "nic2", Intel, {pciaddr="02:00.0"})  
config.app(c, "filter", PcapFilter, {filter="ip6"})  
  
config.link(c, "nic1.rx -> filter.input")  
config.link(c, "filter.output -> nic2.tx")  
...
```

Network functions are modeled as “app” graphs connected by links.

## Low level code

```
function MyApp:push ()
  while not link.empty(self.input.input) do
    local p = link.receive(self.input.input)
    ...
    if auth16_equal(p.data+AUTH_OFFSET, auth_code) then
      link.transmit(p, self.output.output)
    else
      packet.free(p)
    end
  end
end
```

Apps read packets off their input links, and transmit them via their output links (or drop them.)

## Really low level code

```
local function auth16_equal(Dst)
  | mov rax, [arg1]
  | mov rdx, [arg1 + 8]
  | xor rax, [arg2]
  | xor rdx, [arg2 + 8]
  | or rax, rdx
  | ret
end
```

Generating x86 assembly for hot paths is convenient with DynASM.

# Goodies

Lots of batteries included

Strong YANG/NETCONF integration

Tailor-made tooling for performance optimization

Open and helpful community!

# Snabb applications in the wild

- lwAFTR: 4-over-6 transition technology, implementation developed by Igalia
- VPWS (Virtual Private Wire Service): Layer-2 VPN application being developed by Alexander Gall at SWITCH
- Vita: high-performance IPsec gateway developed by me(!)
- ... (more!)

# Talk to us/me

- <https://github.com/snabbco/snabb>



snabb

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- Chat me up in person!