Distributed OpenNetVM

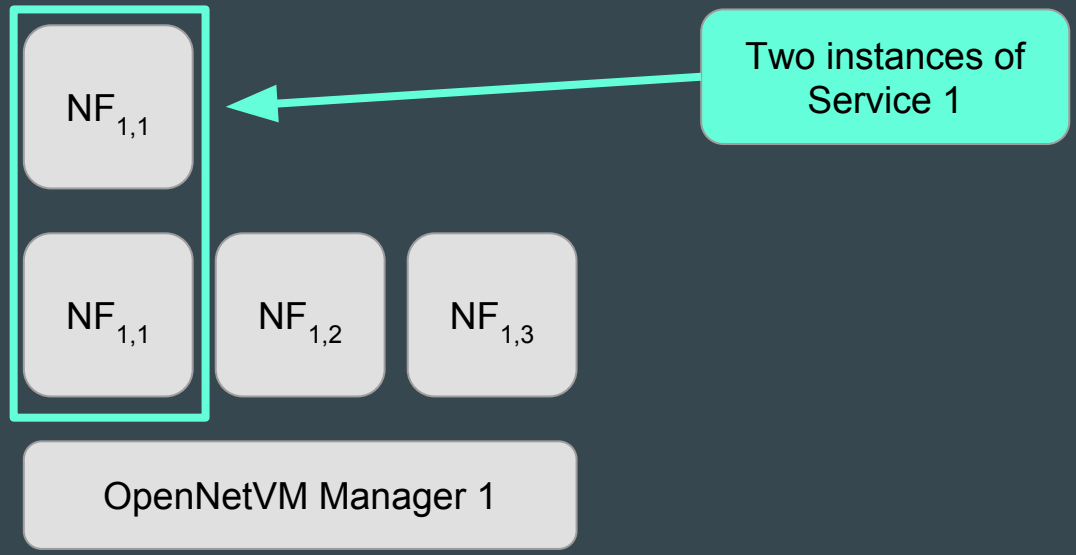
Architecture Overview

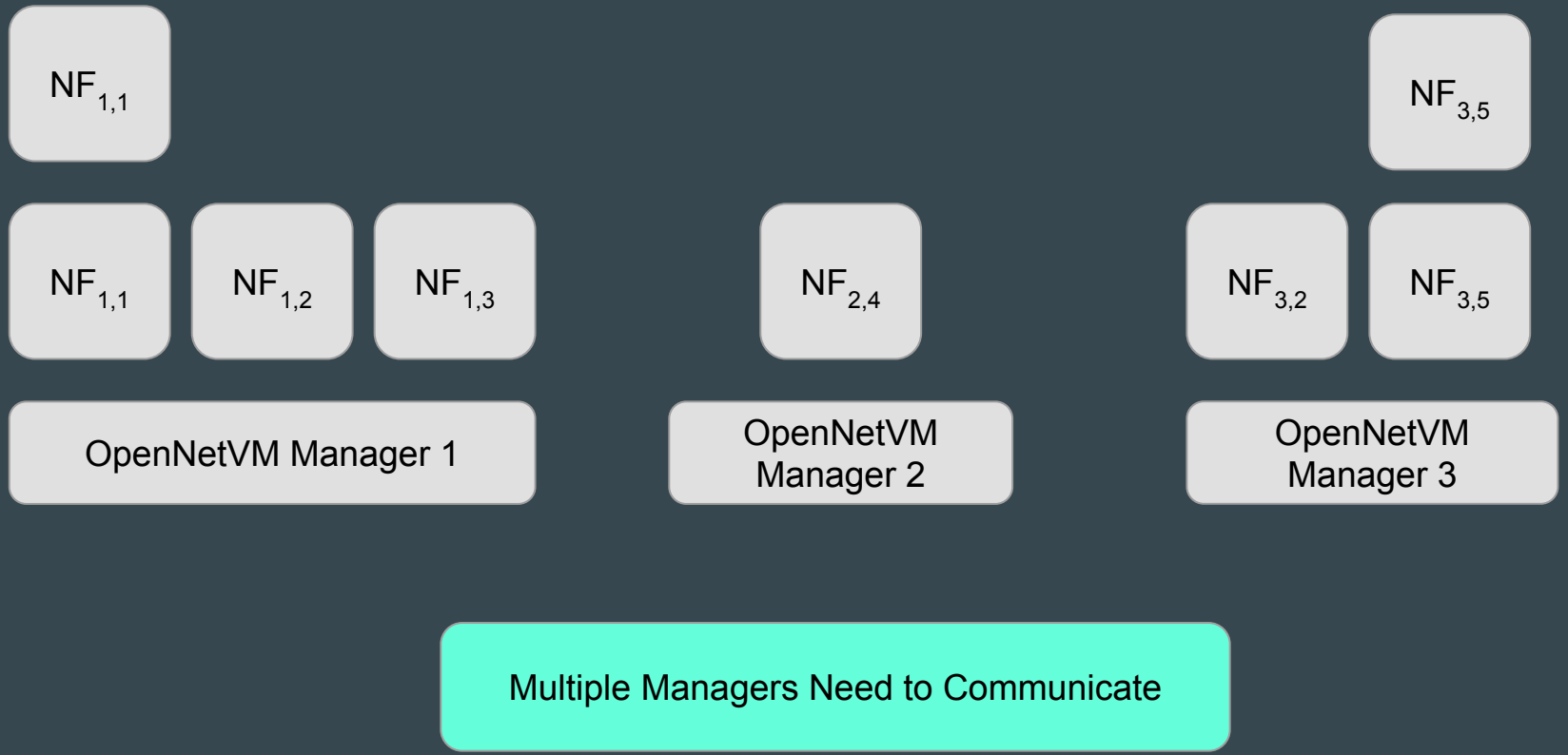
Extend & Improve OpenNetVM Platform

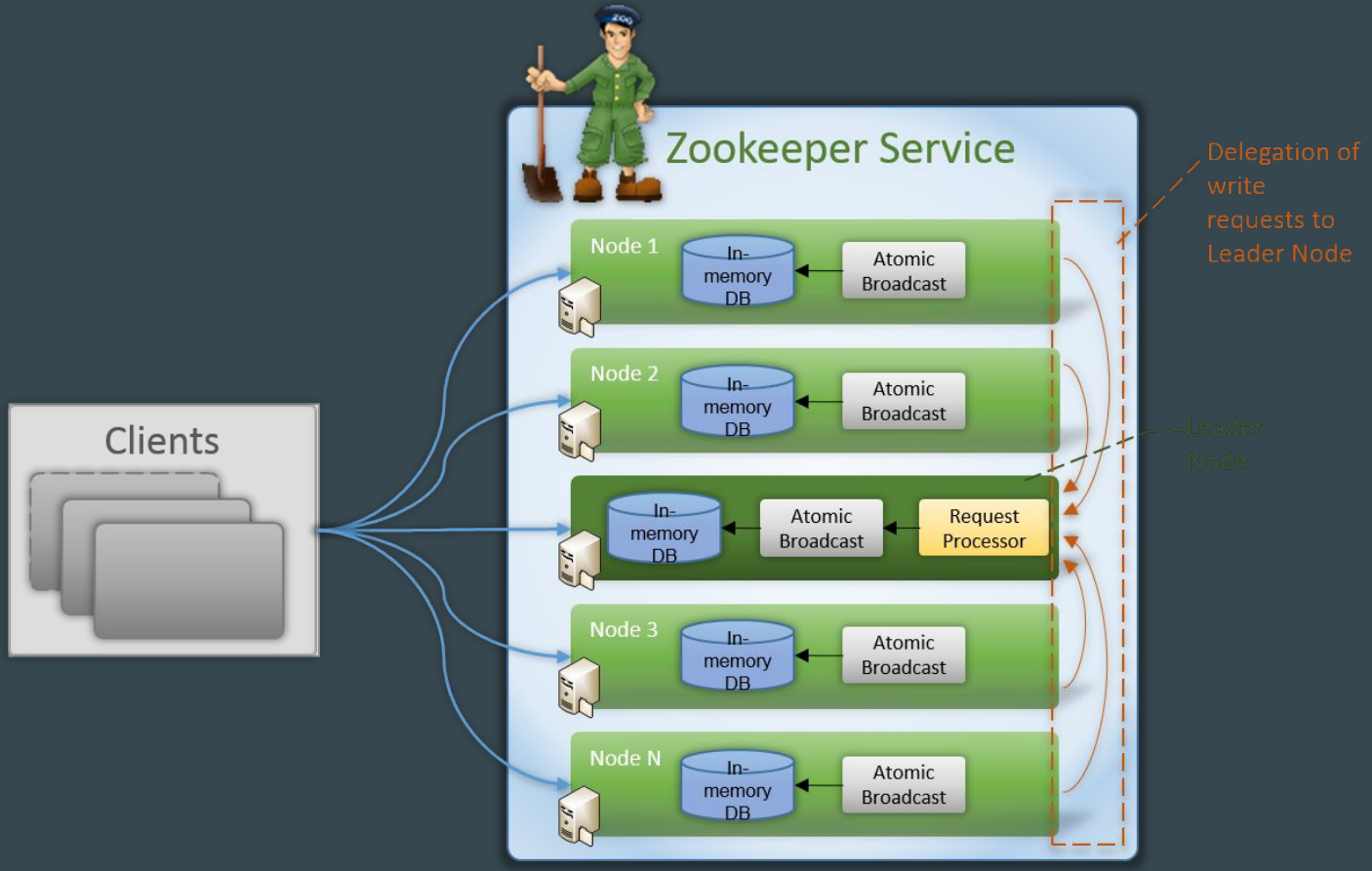
- Already have high-speed NFV platform - now, make it scale

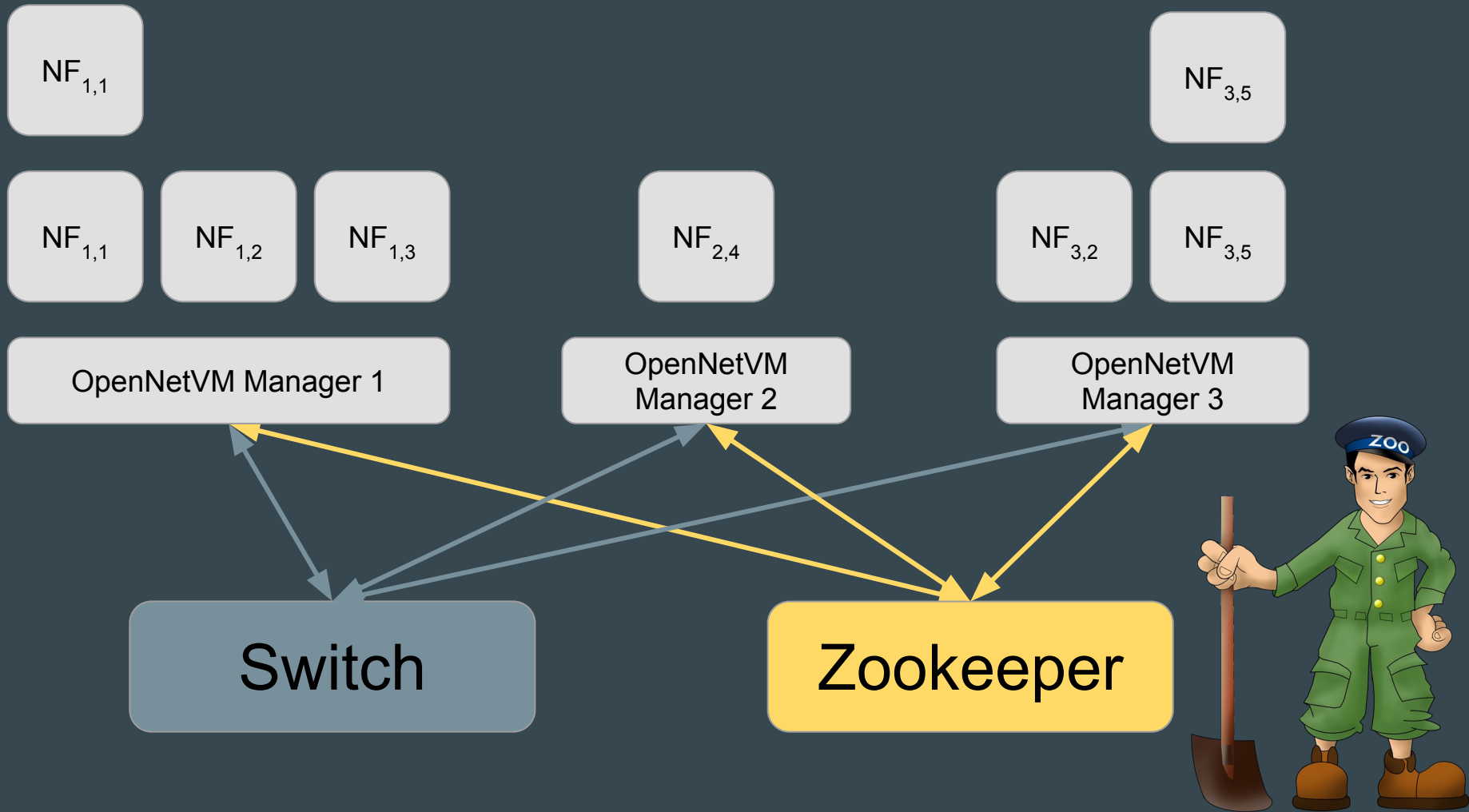
- Allow OpenNetVM to be clustered and scale out
  - Intelligent packet routing between instances
  - Dynamic load balancing across physical machines

- Automatically scale up/down NFs according to current load

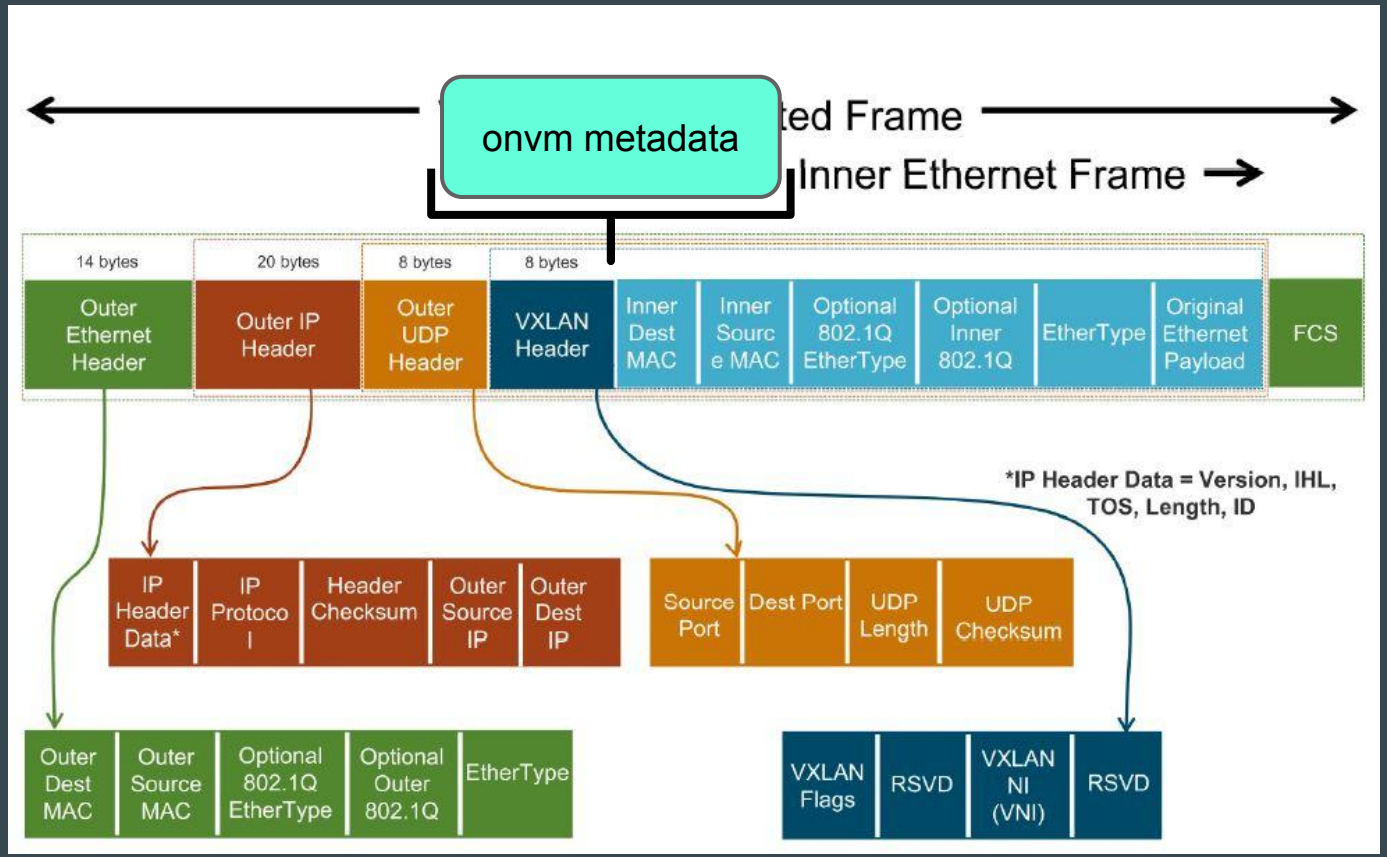

NF1,1
Two instances of Service 1
NF1,1
NF1,2
NF1,3
OpenNetVM Manager 1

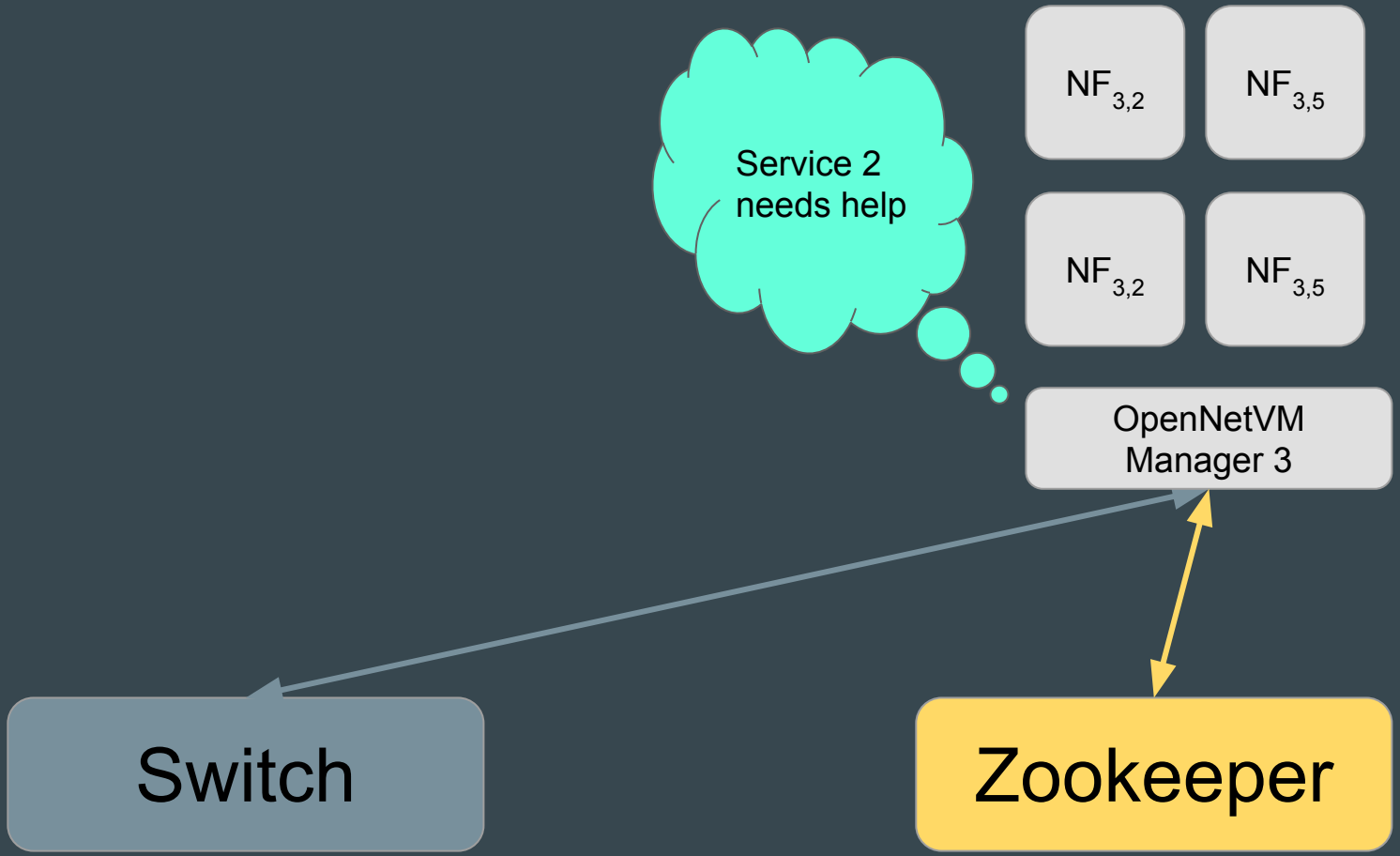

NF1,1
NF1,1
NF1,2
NF1,3
NF2,4
NF3,5
NF3,2
NF3,5
OpenNetVM Manager 1
OpenNetVM Manager 2
OpenNetVM Manager 3
Multiple Managers Need to Communicate

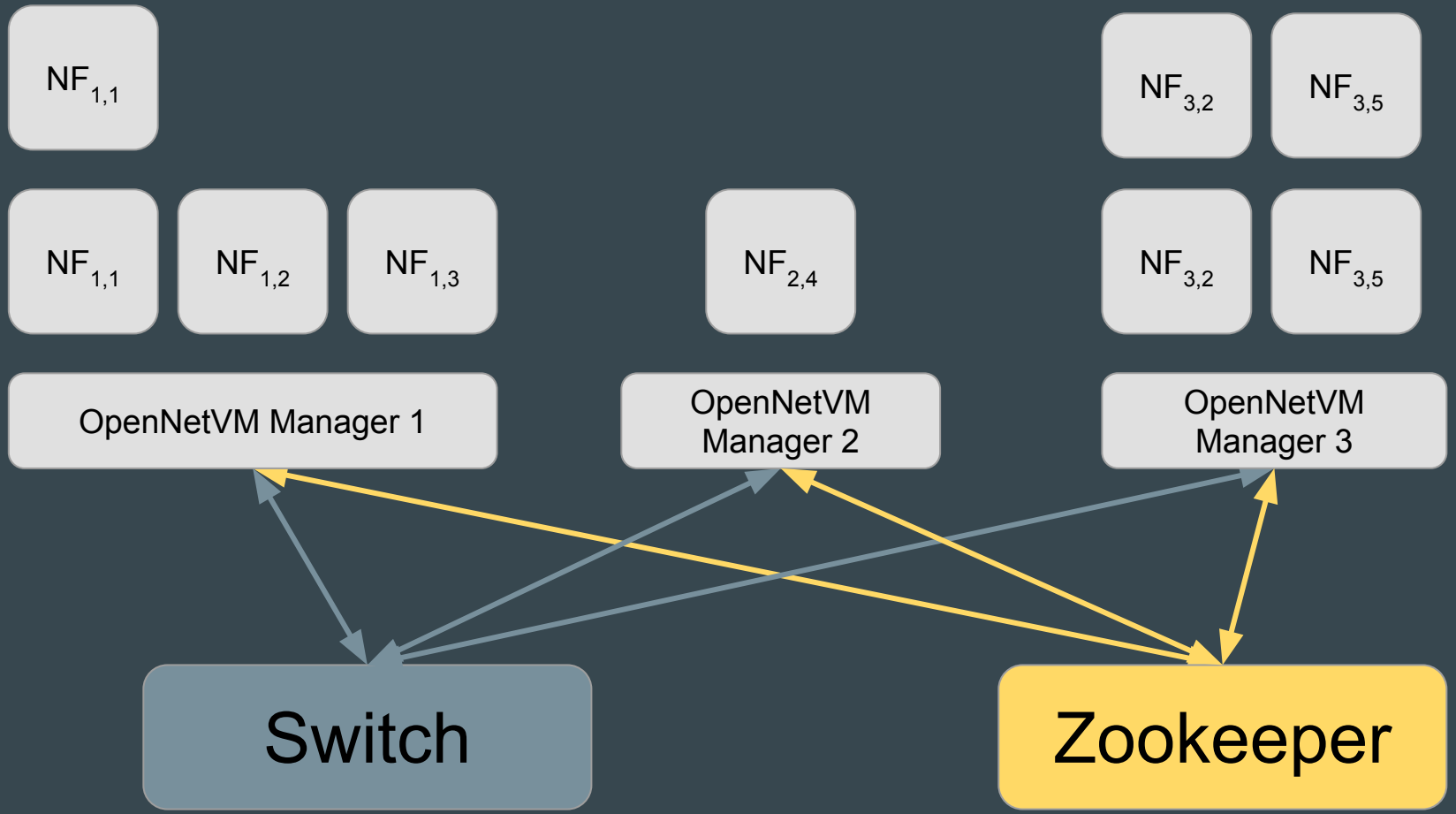

Zookeeper Service
Delegation of write requests to Leader Node
Clients
Node 1
In-memory DB
Atomic Broadcast
Node 2
In-memory DB
Atomic Broadcast
Leader Node
In-memory DB
Atomic Broadcast
Request Processor
Node 3
In-memory DB
Atomic Broadcast
Node N
In-memory DB
Atomic Broadcast


NF1,1
NF3,5
NF1,1
NF1,2
NF1,3
NF2,4
NF3,2
NF3,5
OpenNetVM Manager 1
OpenNetVM Manager 2
OpenNetVM Manager 3
Switch
Zookeeper
ZOO

VXLAN Packet Encapsulation




Service 2
needs help
NF3,2
NF3,5
NF3,2
NF3,5
OpenNetVM
Manager 3
Switch
Zookeeper


NF1,1
NF3,2
NF3,5
NF1,1
NF1,2
NF1,3
NF2,4
NF3,2
NF3,5
OpenNetVM Manager 1
OpenNetVM Manager 2
OpenNetVM Manager 3
Switch
Zookeeper