

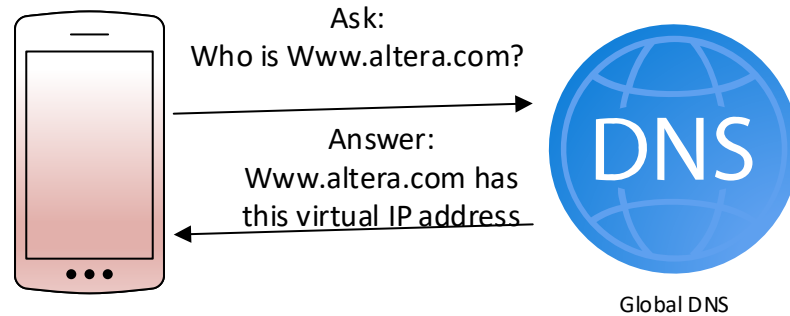


Virtual IP Load Balancer using P4

Mirosław Walukiewicz, PE



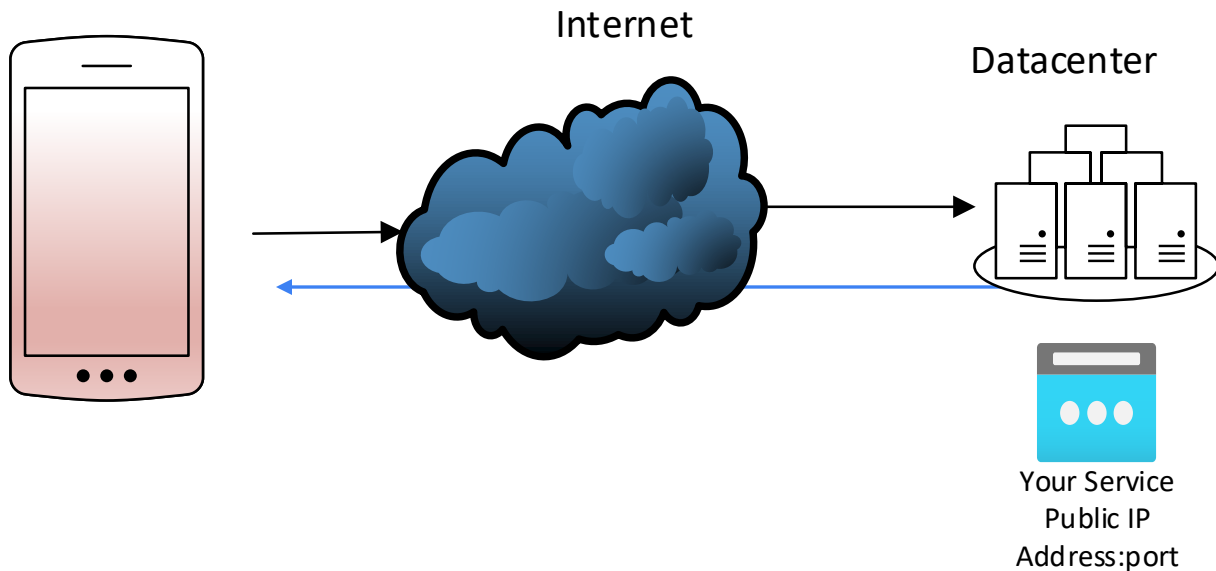
Step1: Scaling starts from Domain Name Service (DNS)



Virtual IP address is:

```
Non-authoritative answer:  
Name:      a1128.b.akamai.net  
Addresses: 92.123.189.123  
           2.16.172.66  
Aliases:   www.altera.com  
           altera.edgesuite.net
```

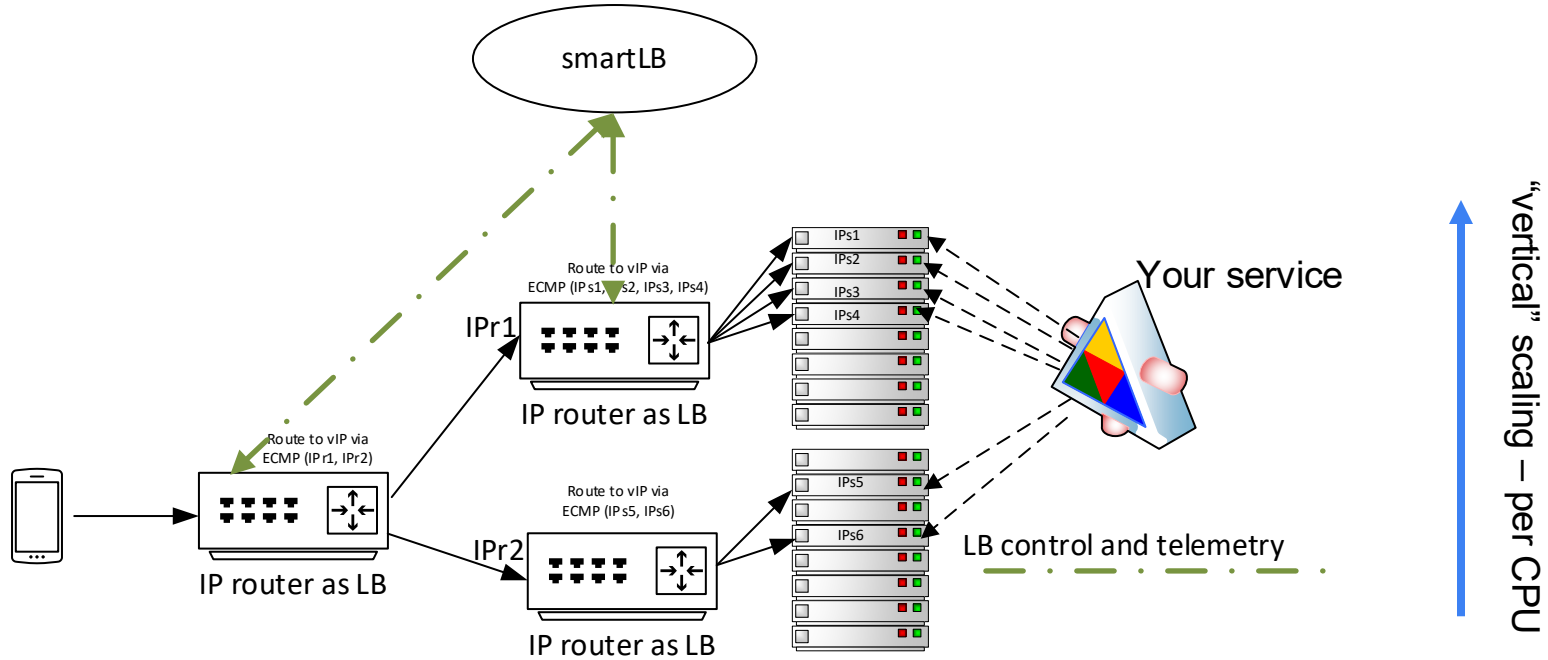
Step2: Find Your Service location



Your service in data center can be addressed as `www.altera.com:port`.

The web page access at default ports 80 or 443 is a service, too.

Step 3: Scale-out per rack, server and CPUs

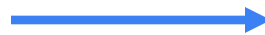


Step 4: Can we match the server capacity?

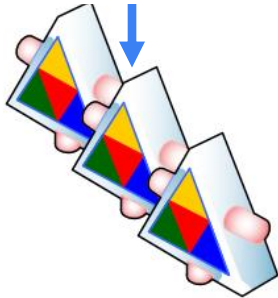
You use service public IP and service DPORT



Encapsulate packet and send to another server.
Use tunnels like IP-in-IP, Vxlan, GENEVE and more



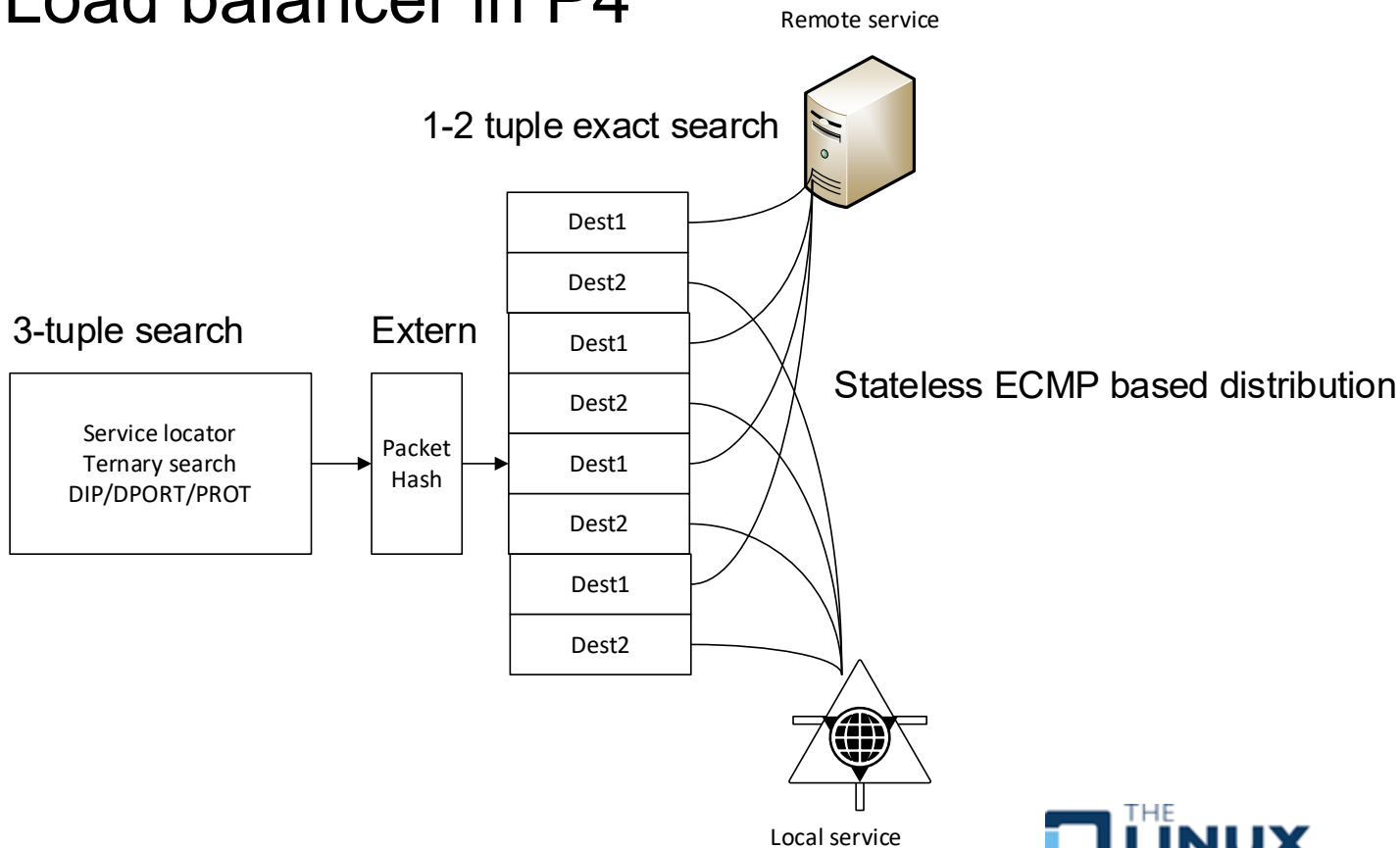
Handle packet locally



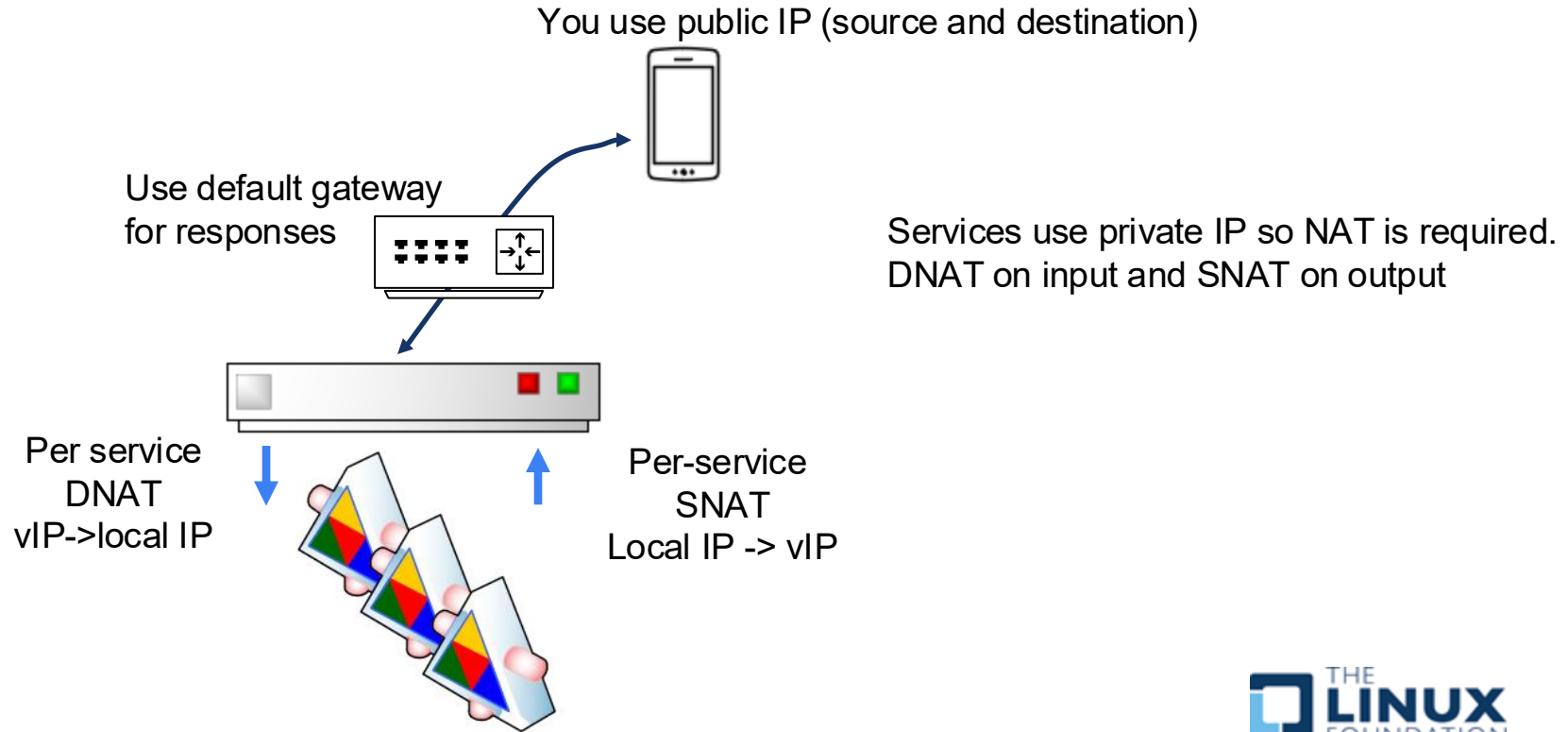
Handle packet locally



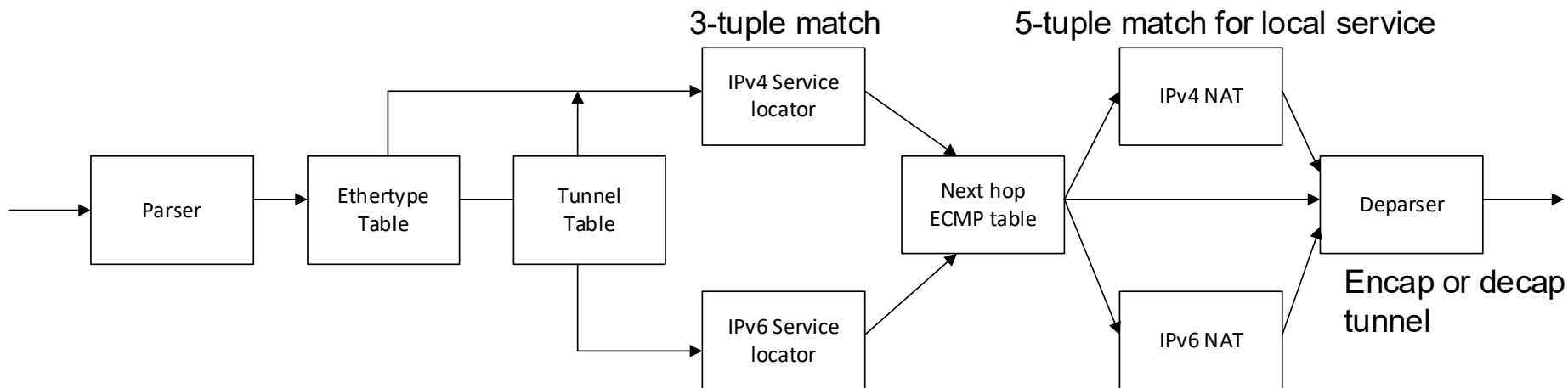
vIP service Load balancer in P4



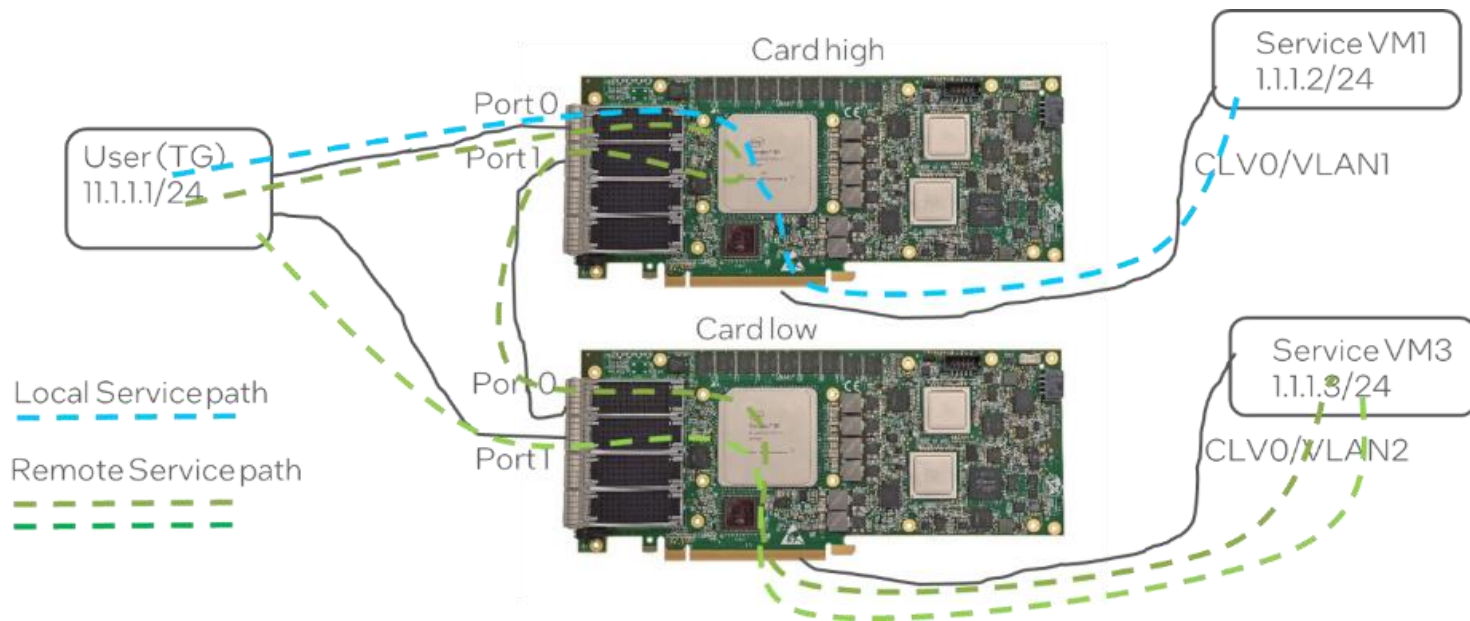
Step 5: Inside server – SNAT and DNAT



Full P4 pipeline with v4-in-v6 tunnel and NAT



Test configuration with two FPGA SmartNIC cards



Altera's FPGA P4 solution for data centers from partners



iWave
Global



www.iwave-global.com



Silicom
Denmark AS
FPGA SOLUTIONS

www.silicom.dk





For more details, please contact our partners or Altera directly

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Thank you!