Application Accelerators

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Agenda

- Why are they used?
- What are they?
- Understanding the eco system (OSI, HTTP, TCP, etc)
- Overview of how they work
- Key technologies at place
- Q & A

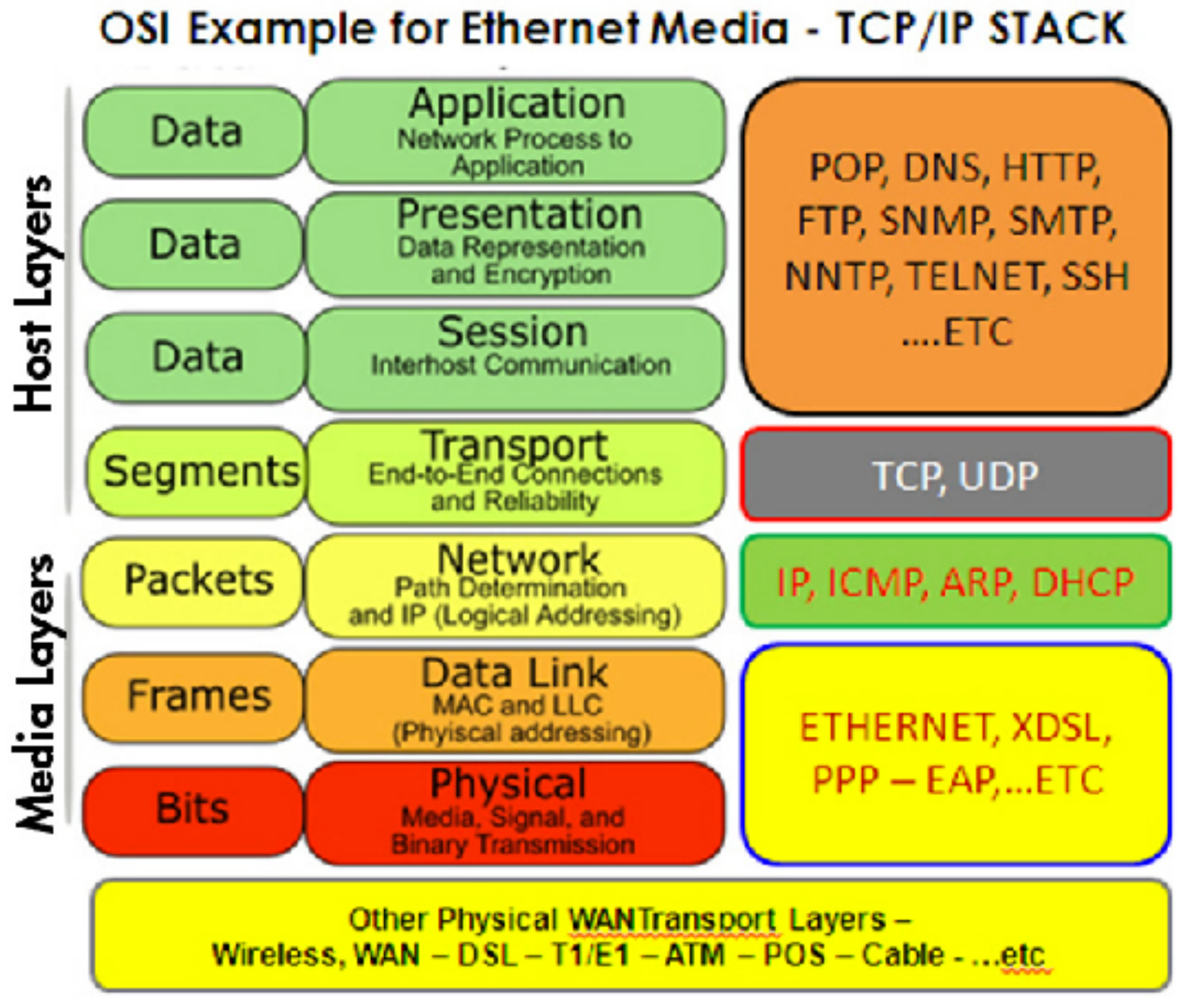
Why?

- Simpler management of traffic flowing in/out of the data centre
- Reduce TCO
- Scale up capacity
- Manage existing resources better, without downtime
- Save money on certificates
- Reduce the risk of DoS attacks

What are they?

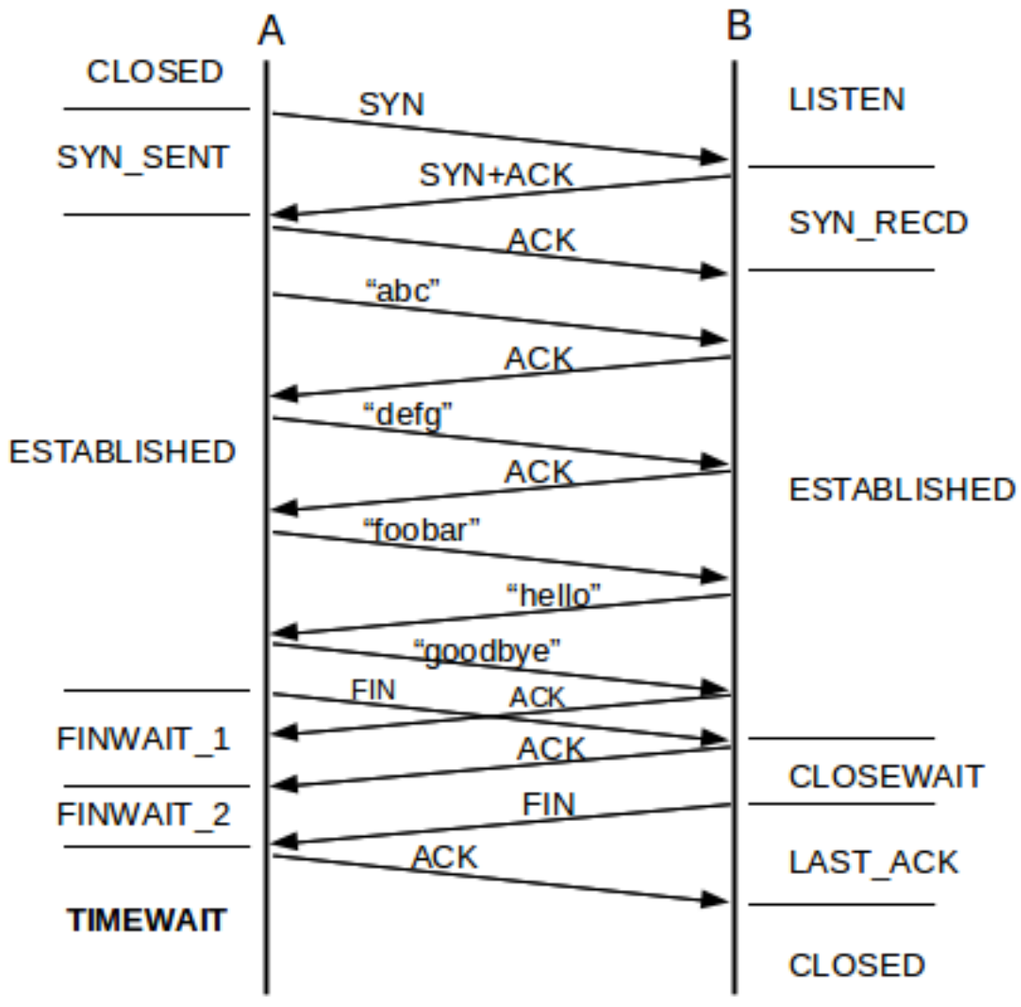
- Usually a 1U - 4U rack mounted piece of hardware
- Sit on the edge of your network, in front of your app servers
- Key players are Citrix, F5, Juniper

The OSI Model

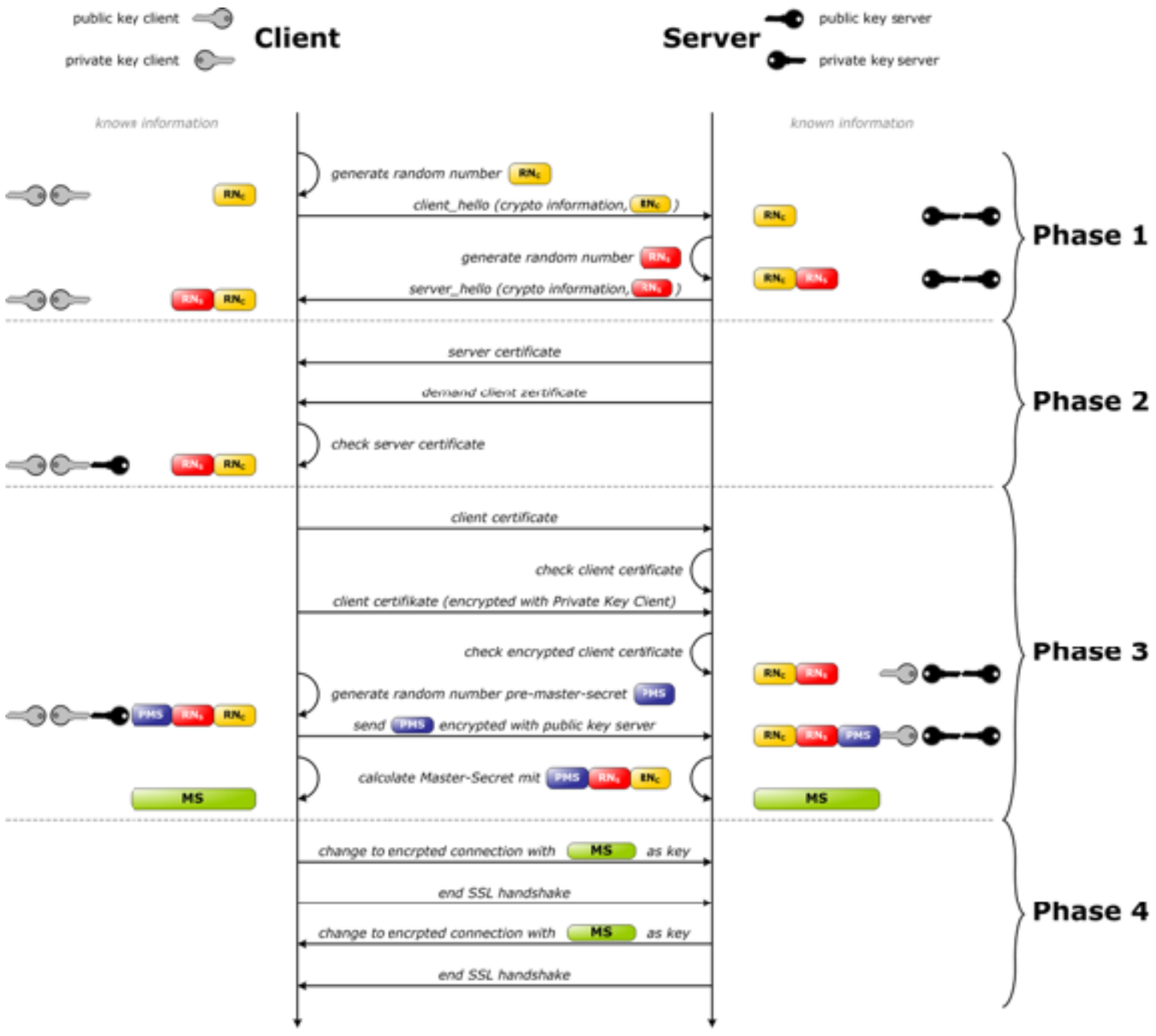


TCP & The Handshake

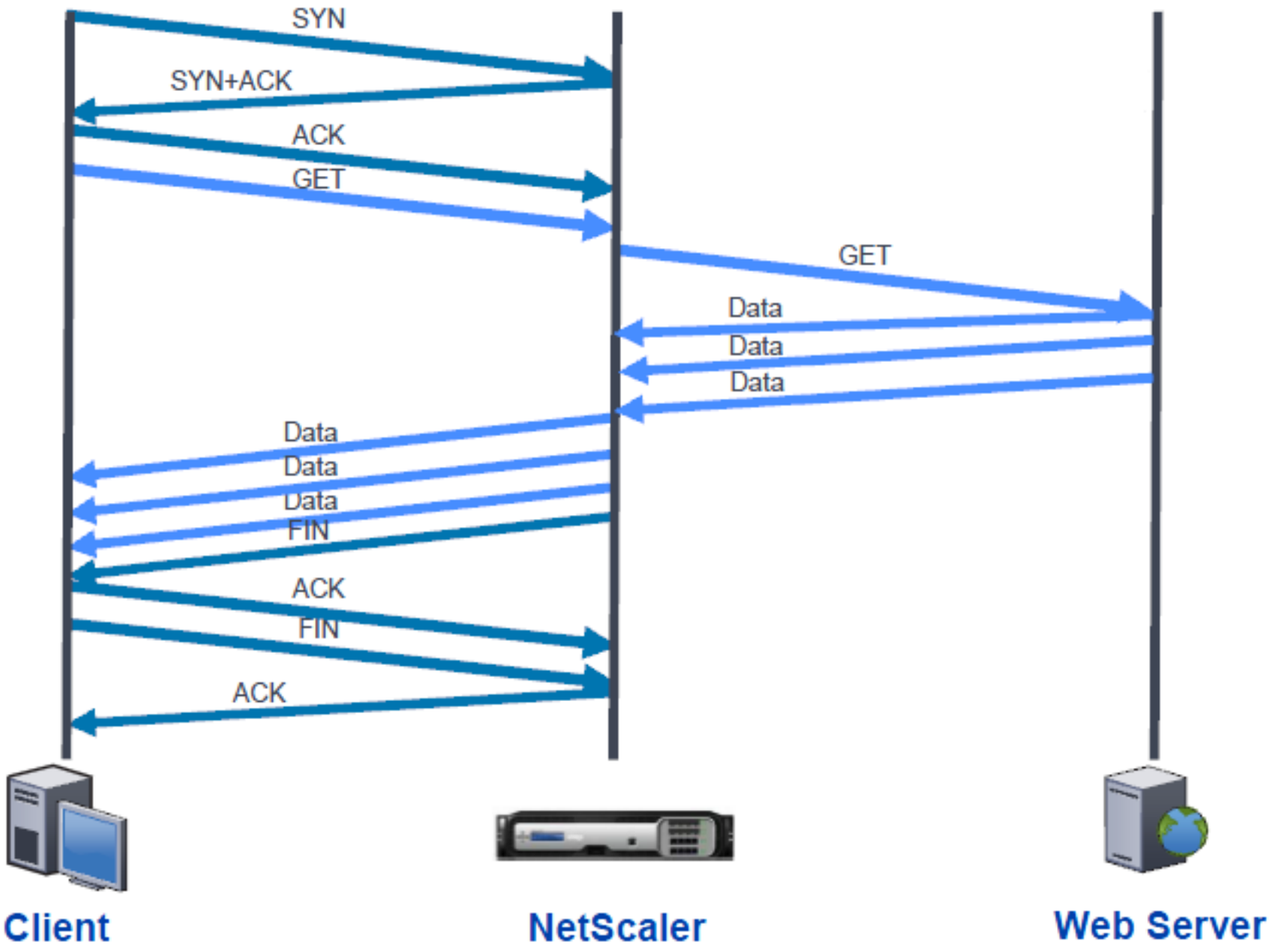
- TCP is Session and Connection based
- Client initiated session comprises of 3 distinct steps.
- Session teardown has 5 distinct steps



The SSL Session



Multiplexing Overview



Features I

- Multiplexing
- TCP Fast Ramp
- TCP Buffering
- HTTPS Offloading
- SSL Certificate creation
- Compression
- IP Based Filtering
- MAC Based Filtering
- Proxy
- Link Load Balancing

Features II

- Load Balancing
  - RoundRobin
  - Least Connections/ Response Time/ Bandwidth/Packets
- Rules based engine
- Highly available
- Content Switching
  - Device, Header, IP, MAC address…
- Global Server Load Balancing
- Scriptable health checks
- EDGE Mode

Features III

- App Caching
- Send page delta's only
- Session Persistence
- SYN Flood protection
- SNMP

Browser improvements

- Some browsers now implement some of the technologies that used to be (and are still in current load balancers)
- Browsers can allow you to keep sessions open via Pipelining
- TCP Fast Open (similar to TCP Fast Ramp) is in OSX (disabled by default) and Chrome.

Some Numbers

- Top end Load Balancers…
  - 256GB+ Memory
  - 100Gbps L7 Traffic
  - 3.5m L7 HTTP Requests/sec
  - 100k HTTPS Requests/sec
  - SSL Throughput 40Gbps
  - 10Gbps Compression Throughput
  - 50,000 VPN Sessions