Barefoot Technology Intro

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The Barefoot Solution

New Open Source Ecosystem

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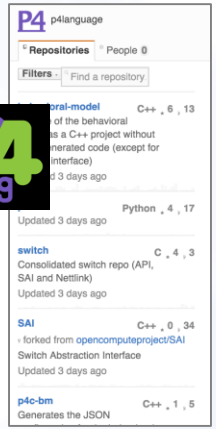
Barefoot Software

+

Barefoot Hardware



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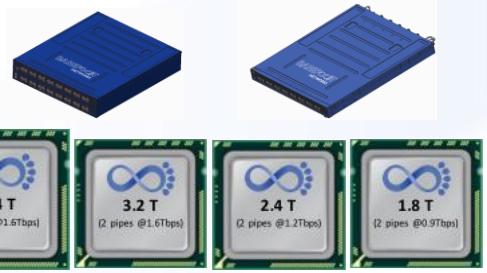
New Network Functions

Differentiation

Network Analytics

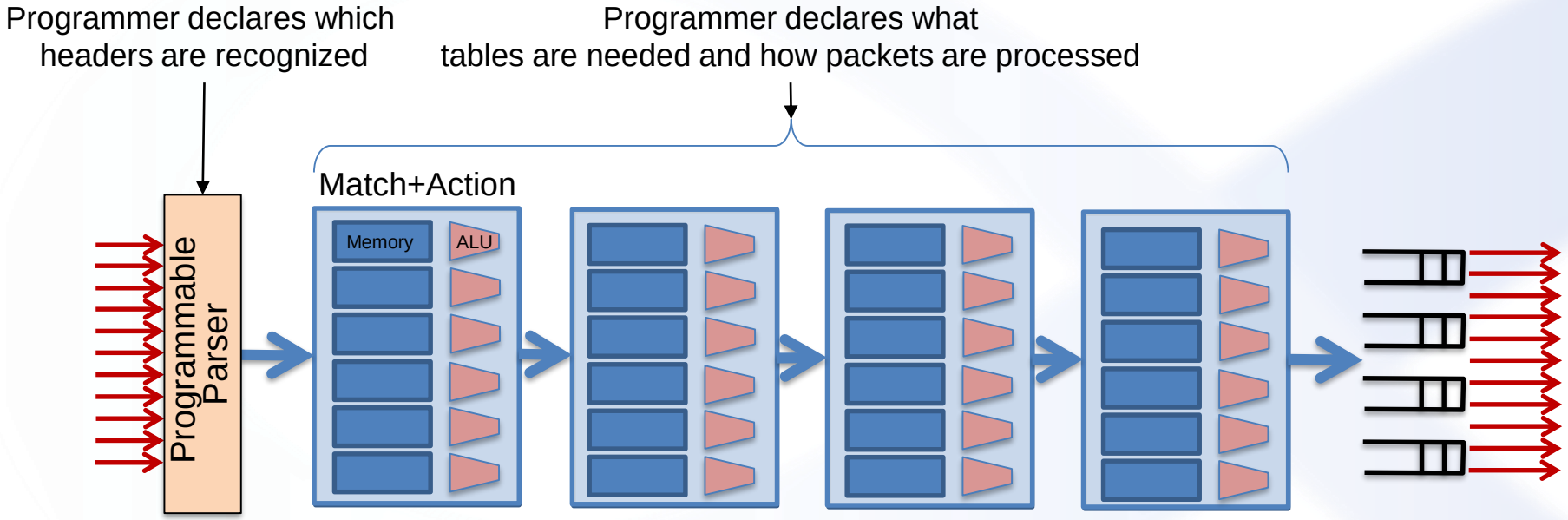
Rapid Innovation



"Programmability without Compromise"

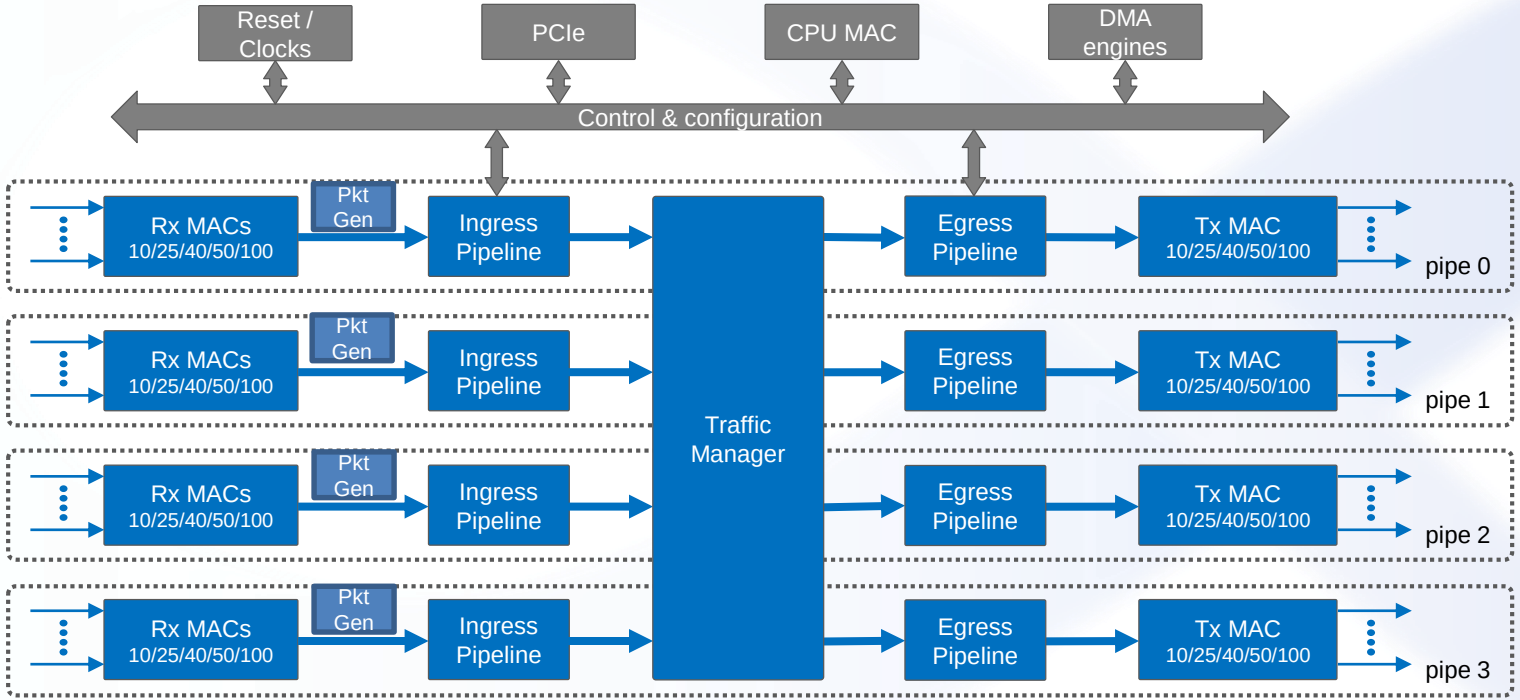
BAREFOOT NETWORKS

PISA: Protocol Independent Switch Architecture



All stages are identical – makes PISA a good “compiler target”

Barefoot Tofino™ - 6.5T Tofino Block Diagram



Each pipe has 16x100G MACs
Packet Generator, CPU

Barefoot Tofino™ family

6.5Tb/s

260 x 25G SerDes
example port configurations:
- 65 x 100GE/40GE
- 130 x 50GE/(40GE via gearbox)
- 260 x 25GE/10GE

3.3Tb/s

132 x 25G SerDes
example port configurations:
- 33 x 100GE/40GE
- 66 x 50GE (40GE via gearbox)
- 132 x 25GE/10GE

2.5Tb/s

100 x 25G SerDes
example port configuration:
- 48 x 25GE / 10GE + 13 x 100GE / 40GE

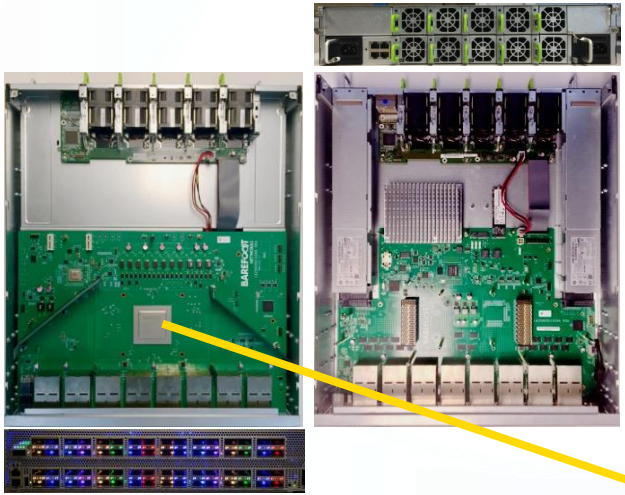
1.9Tb/s

96 x 10G SerDes + 36 x 25G SerDes or 76 x 25G SerDes
example port configurations:
- 96 x 10GE/24 x 40GE + 9 x 100GE / 40GE
- 48 x 25GE / 10GE + 7 x 100GE / 40GE

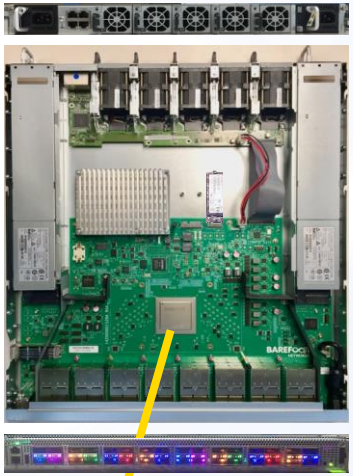
BAREFOOT NETWORKS

Programmability without compromises

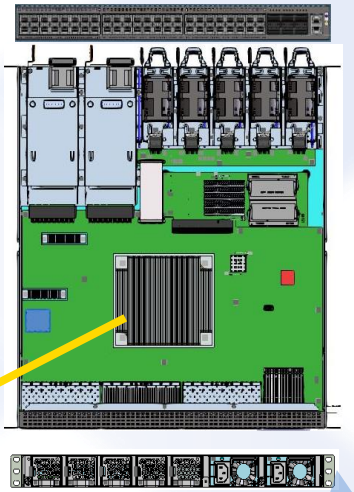
Wedge100BF-65X (AS7616-65X)



Wedge100BF-32X (AS7616-32X)



OSW 1800



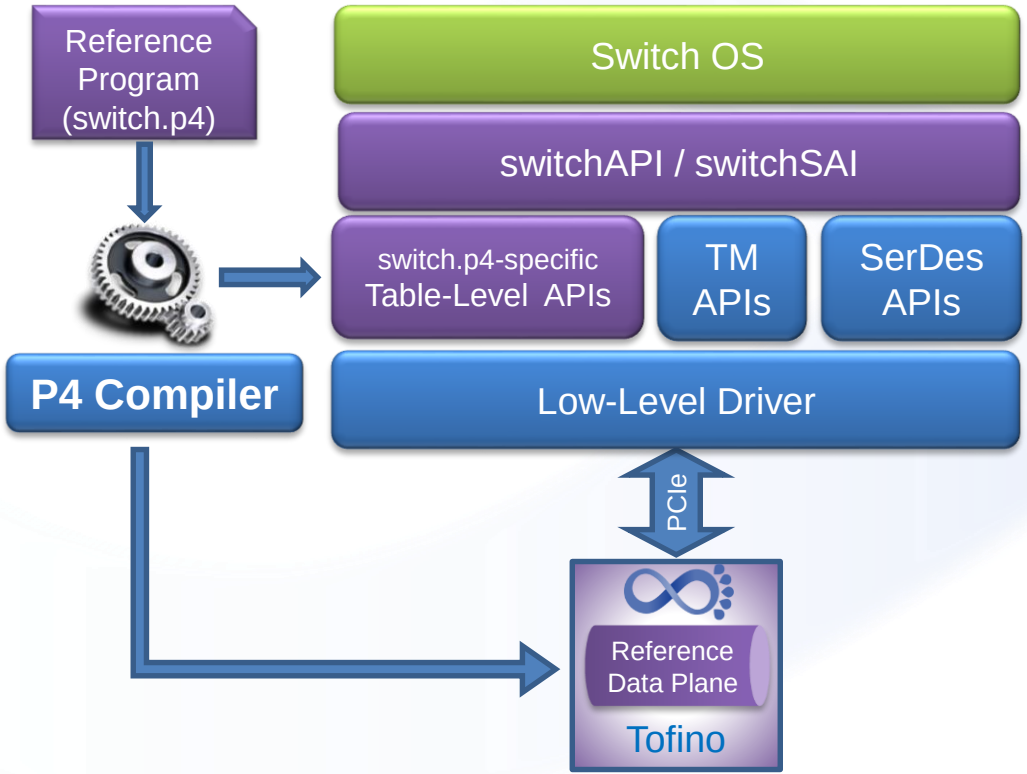
Tofino™ ASIC

same power, same cost, same or better performance of a fixed-function switch chip

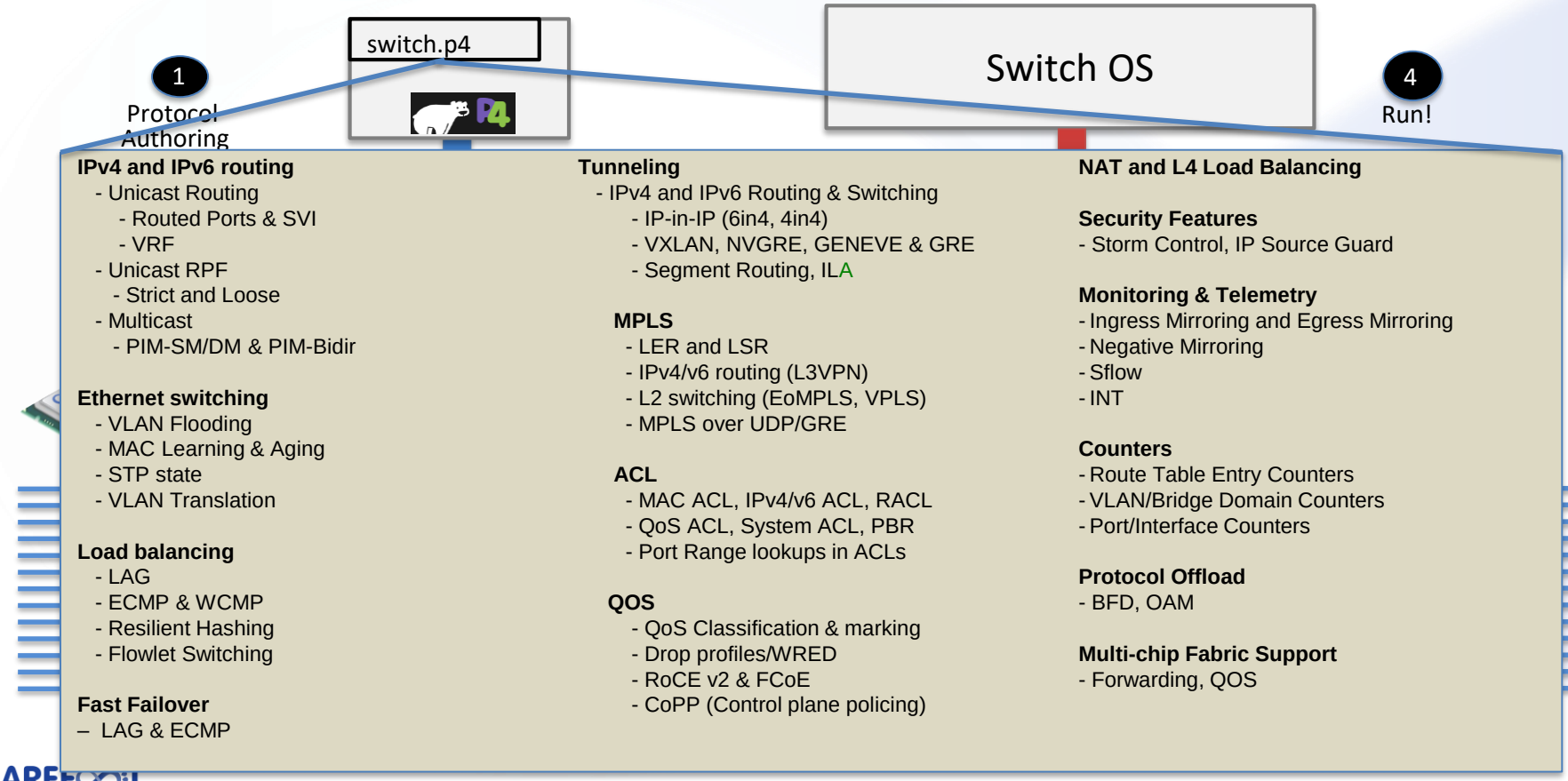
more **P4 Tofino** platforms to come in **2017**

BAREFOOT NETWORKS

Barefoot and Switch OS Integration Model



switch.p4 & switchAPI Features



IPv4 and IPv6 routing
- Unicast Routing
  - Routed Ports & SVI
  - VRF
- Unicast RPF
  - Strict and Loose
- Multicast
  - PIM-SM/DM & PIM-Bidir

Ethernet switching
- VLAN Flooding
- MAC Learning & Aging
- STP state
- VLAN Translation

Load balancing
- LAG
- ECMP & WCMP
- Resilient Hashing
- Flowlet Switching

Fast Failover
– LAG & ECMP

Tunneling
- IPv4 and IPv6 Routing & Switching
  - IP-in-IP (6in4, 4in4)
  - VXLAN, NVGRE, GENEVE & GRE
  - Segment Routing, ILA

MPLS
- LER and LSR
- IPv4/v6 routing (L3VPN)
- L2 switching (EoMPLS, VPLS)
- MPLS over UDP/GRE

ACL
- MAC ACL, IPv4/v6 ACL, RACL
- QoS ACL, System ACL, PBR
- Port Range lookups in ACLs

QOS
- QoS Classification & marking
- Drop profiles/WRED
- RoCE v2 & FCoE
- CoPP (Control plane policing)

NAT and L4 Load Balancing

Security Features
- Storm Control, IP Source Guard

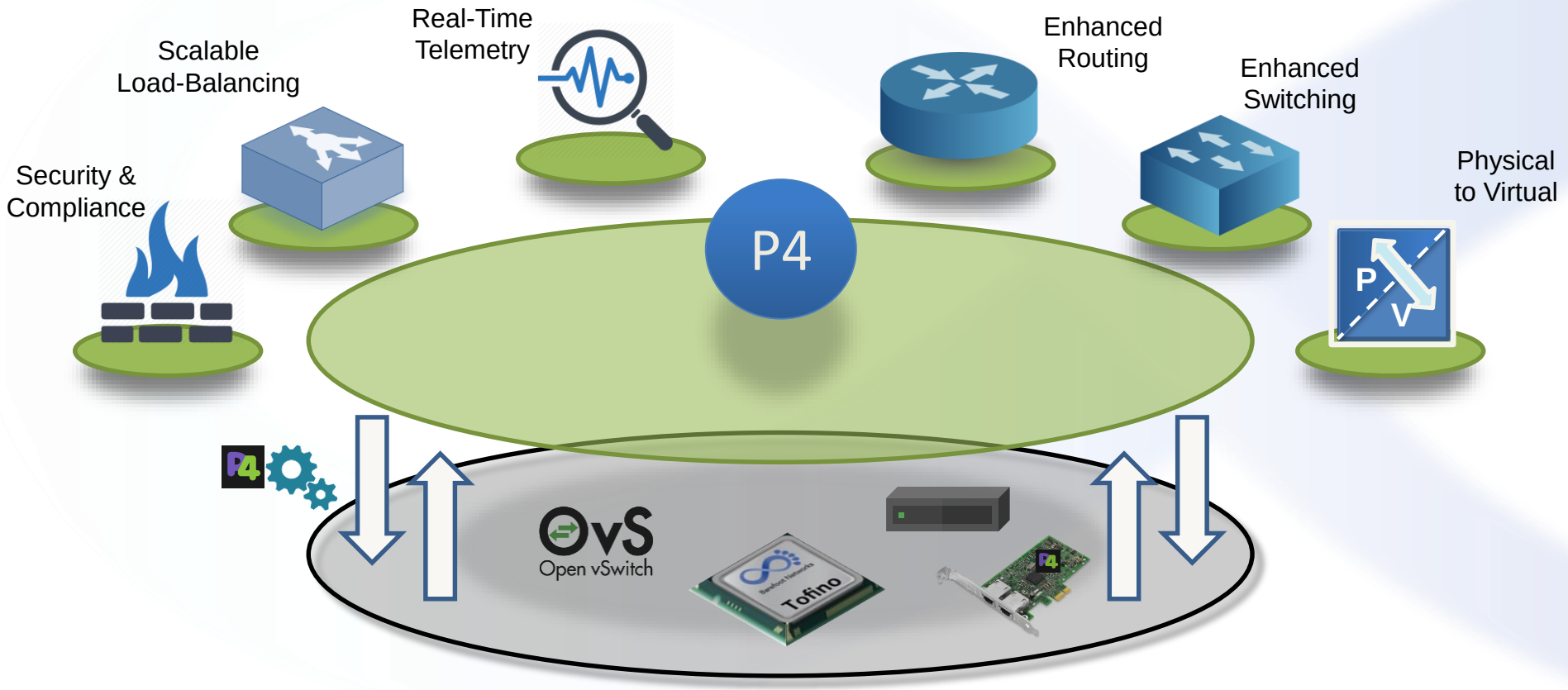
Monitoring & Telemetry
- Ingress Mirroring and Egress Mirroring
- Negative Mirroring
- Sflow
- INT

Counters
- Route Table Entry Counters
- VLAN/Bridge Domain Counters
- Port/Interface Counters

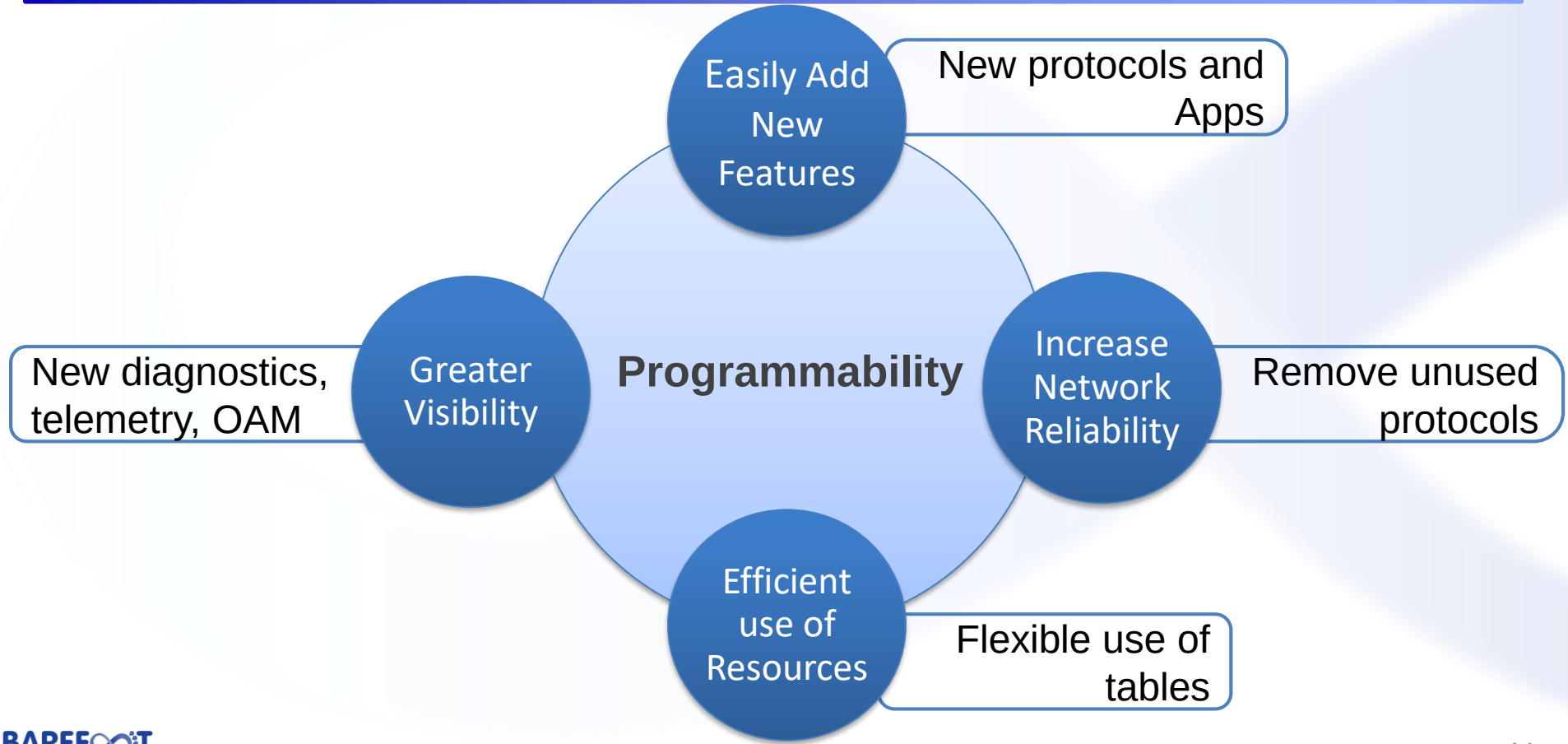
Protocol Offload
- BFD, OAM

Multi-chip Fabric Support
- Forwarding, QOS

Programmability with P4 Advanced Apps



Benefits of a Programmable Forwarding Plane



Thank you