

Optimizing a 40G ATCA DPI Probe

How to get more out of your system
without sacrificing COTS and TTM

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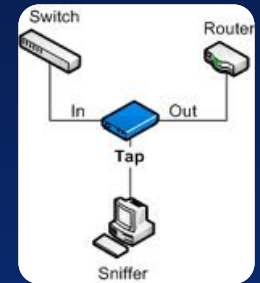
What's DPI ?



- DPI = Deep Packet Inspection
- It's a technology, not an application
 - Basic technology for lawful intercept, network monitoring, optimization, forensics and more intelligence
 - QoS and policy enforcement
 - Application / content aware equipment for smarter networks
- E.g. when sitting in a network, you need to detect which packets are video before you can apply your magic sauce of video processing that helps optimize user experience

What's a DPI Probe / System ?

- DPI Probes “tap” a network
 - A 100G DPI probe has 2 100G ports (or 20 10G ports)
 - Traffic is forwarded to ports A and B and mirrored to another port for inspection
 - Traffic is qualified
 - Only “interesting” flows are analyzed up to L7
- DPI Systems sit in the middle of a network
 - Dedicated ingress/egress or upstream/downstream ports
 - Most of the traffic between ports A and B is analyzed / modified
 - Filtered, blocked, rate limited,
 - A 100G DPI needs to support 200G of traffic

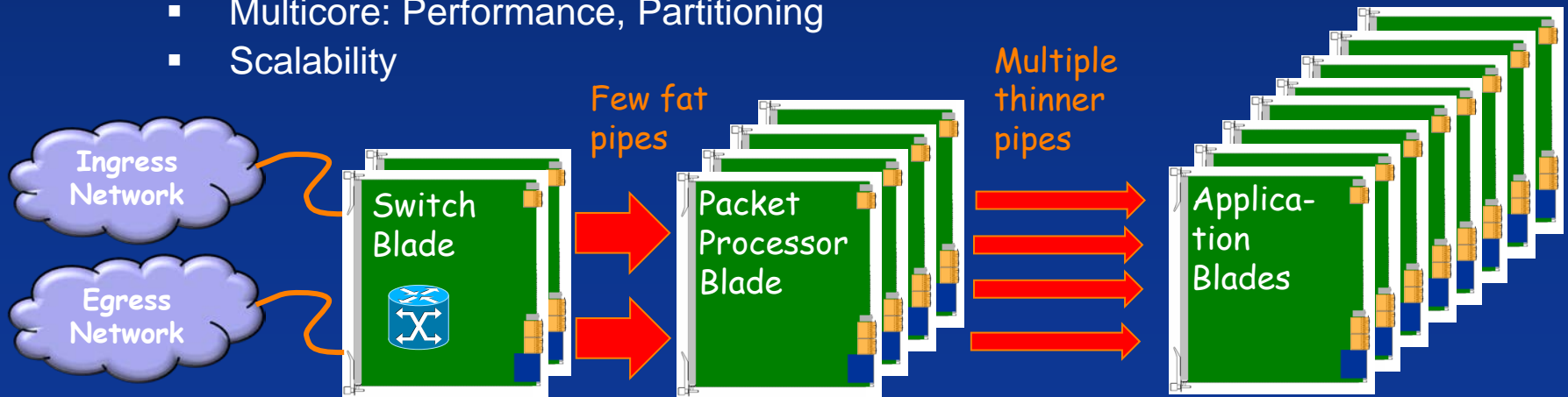
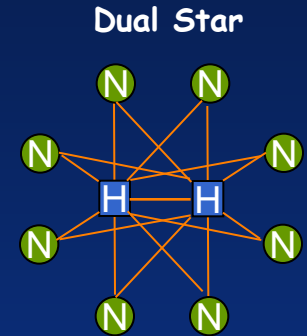


Where's the problem with DPI ?

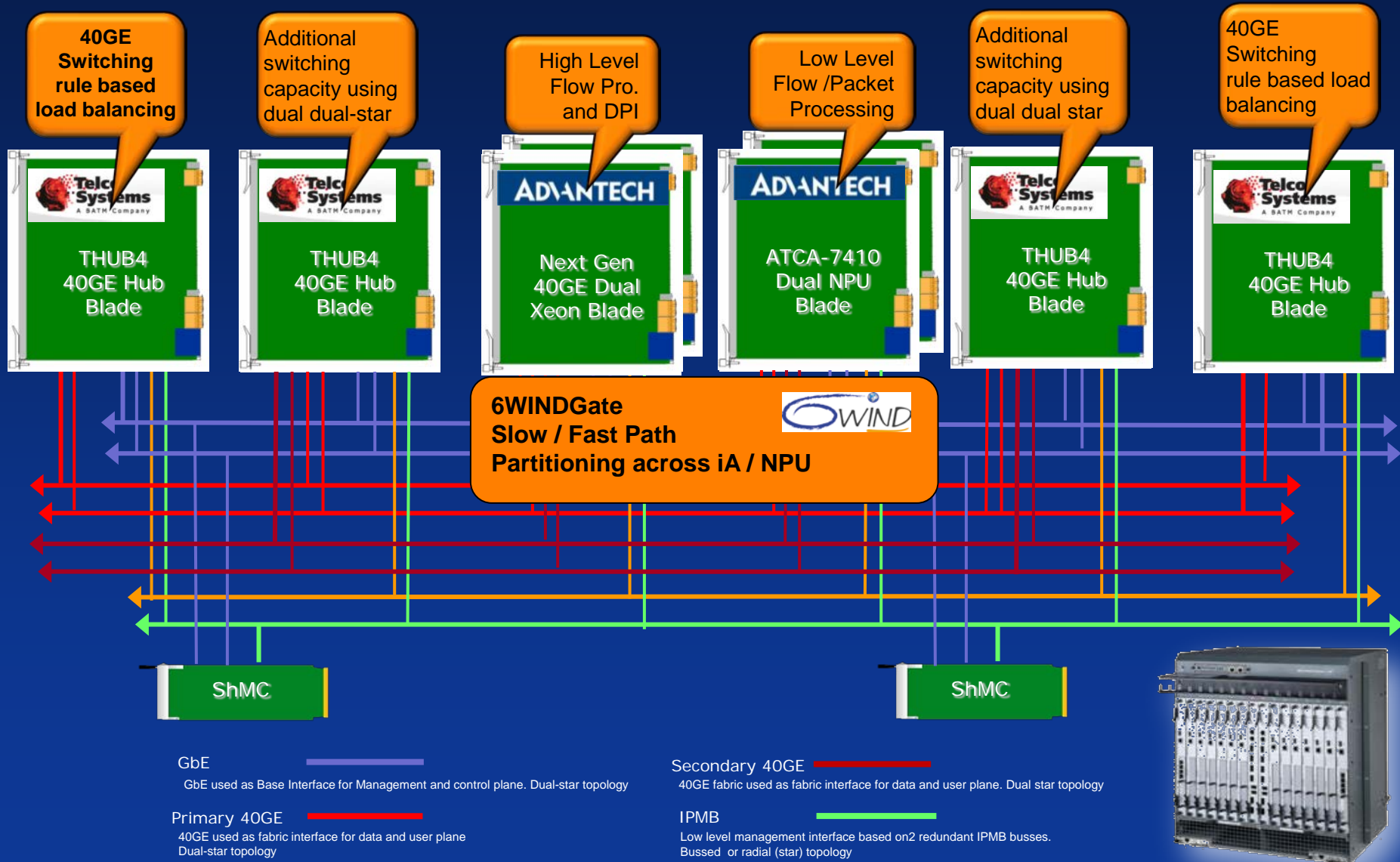
- Traffic is sky rocketing
 - 100G DPI now, 200G tomorrow,

- Switching bandwidth
 - 600...700Gbps per switch silicon
 - Star/Dual-Star topologies
 - How many hops through the switch do you need ?

- Processing power
 - Multicore: Performance, Partitioning
 - Scalability



High-end DPI System Example

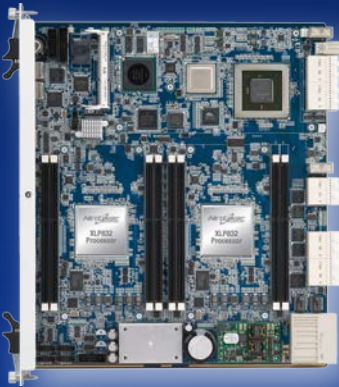


Optimizations for DPI - Blades



Hub blades

- **THUB4 / ATCA-911x 40GE switch blades**
 - 14 slots @ 40GE
 - Low level load balancing
 - Able to handle de-tunneling, encapsulation
 - Use ACLs, rule tables (several 1000 rules)



Packet Processor blades

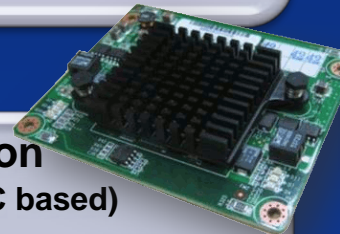
- **ATCA-7310/7410 Dual NPU (XLP/Octeon II)**
 - On blade 40GE switch
 - Dual dual star support
 - 80GE in and out of the NPUs
 - TCAM support



Censored
(NDA)

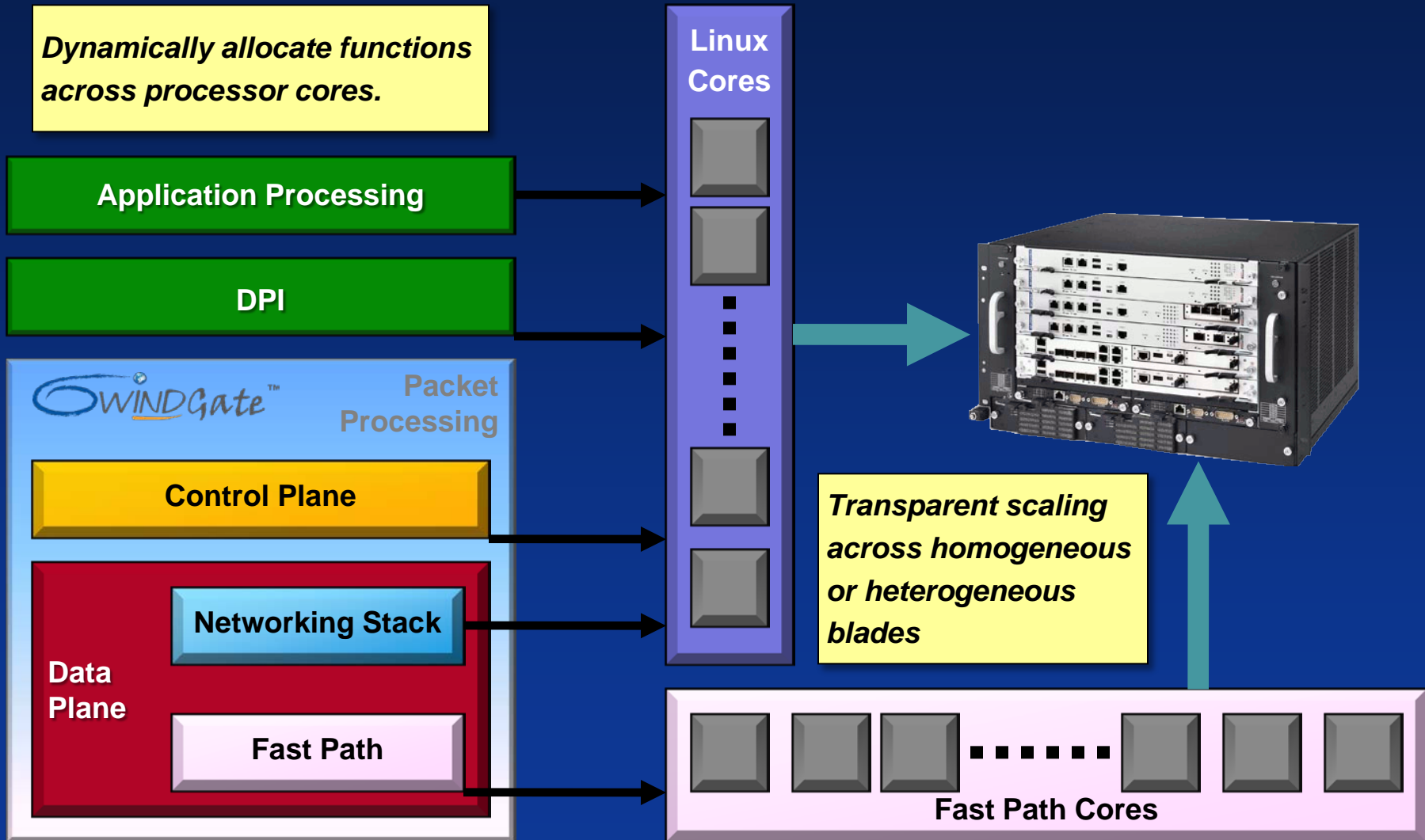
iA blades

- **MIC-5333 Dual Socket next gen Xeon**
 - 2x 40G up to 4x40G backplane interface (MAC based)
 - Support for multiple offload engines
 - Advanced scalability through FMMS
 - Move workloads to iA blades to make more efficient use of backplane BW

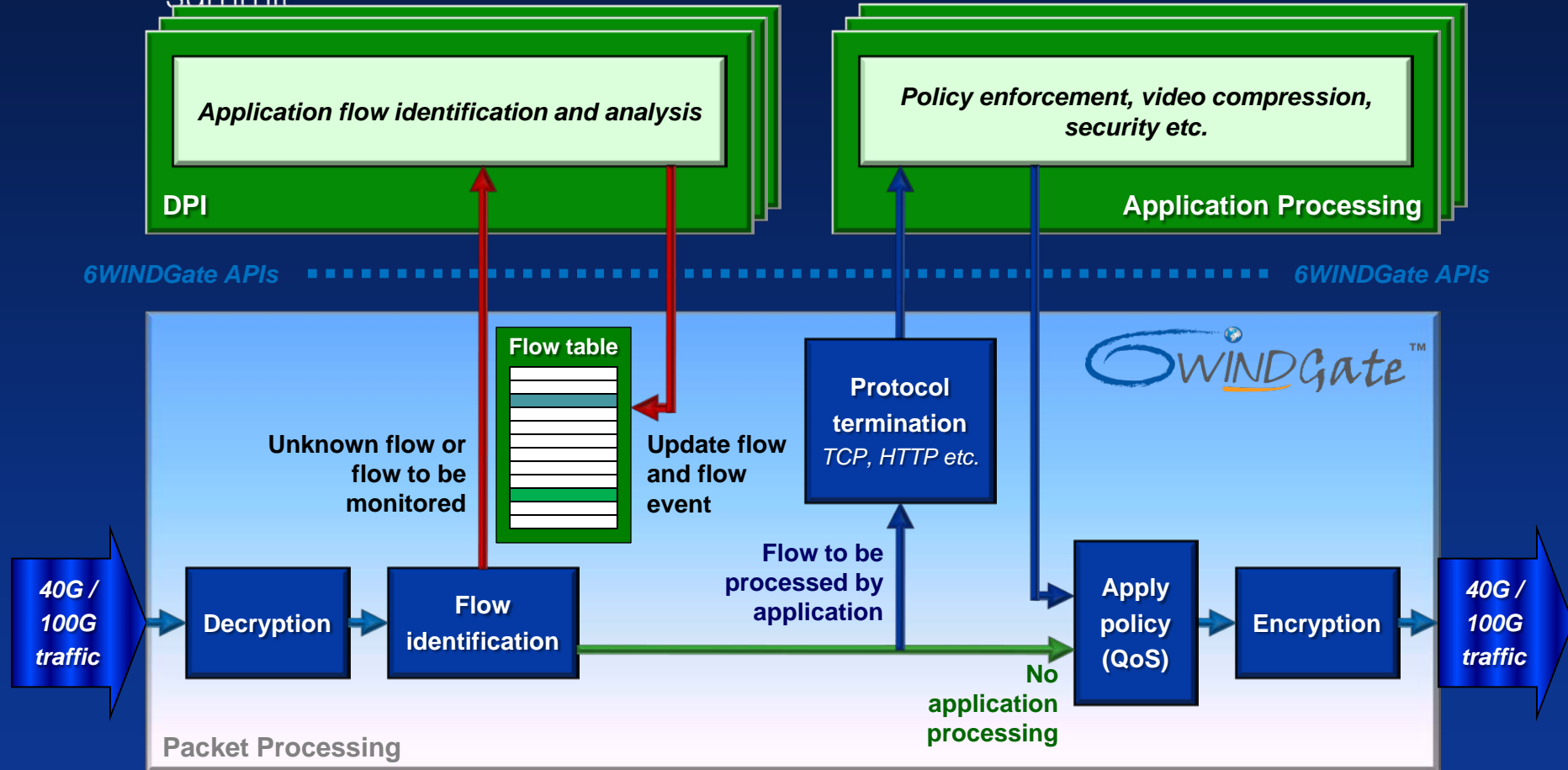


Optimization for DPI: SW

6WINDGate™ Software simplifies Multi-core



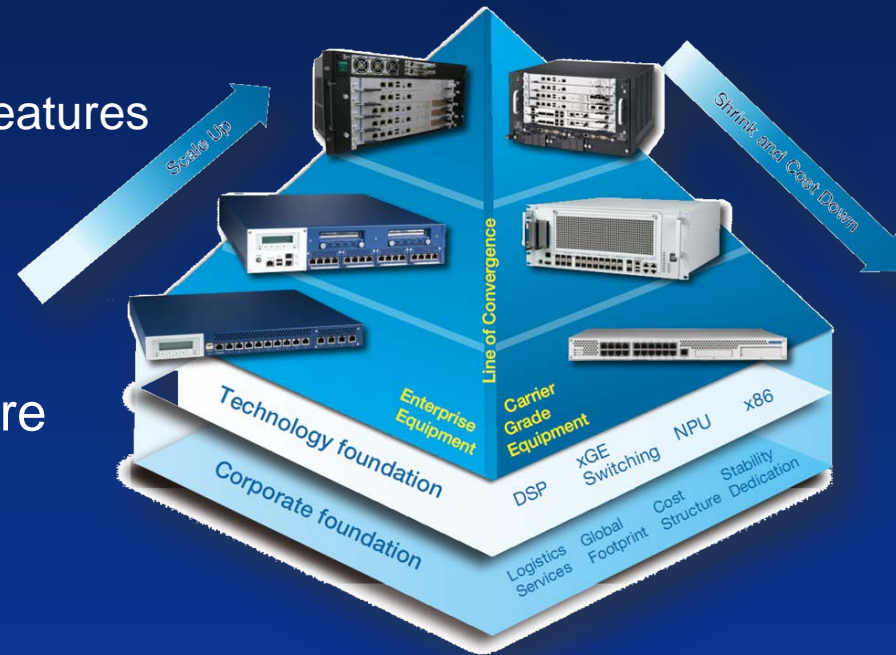
6WINDGate in DPI



- *Architecture optimized for managing very large flow tables (millions of flows)*
- *Efficient APIs maximize system throughput (packet cloning, zero-copy architecture etc.)*
- *Scalable architecture for simultaneous support of multiple application instances.*

Summary

- Pull all the triggers to stay up to speed
- Latest and greatest hardware
 - Make use of Switch, NPU, iA features
- System topology
 - Dual dual star can help
- Best-In-Class Multi-core Software
 - Performance
 - Partitioning
 - Dynamic configuration
- Don't lose scalability across platforms/products



Thank you for listening

Any questions or want more details ?

See you at our booth in the exhibit hall or contact
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Enabling an Intelligent Planet*