atmosphere '23

BELGIUM

The Future of
DC Networking & DC Security

Bart Janssens
Sales Director North Western Europe, AMD Pensando
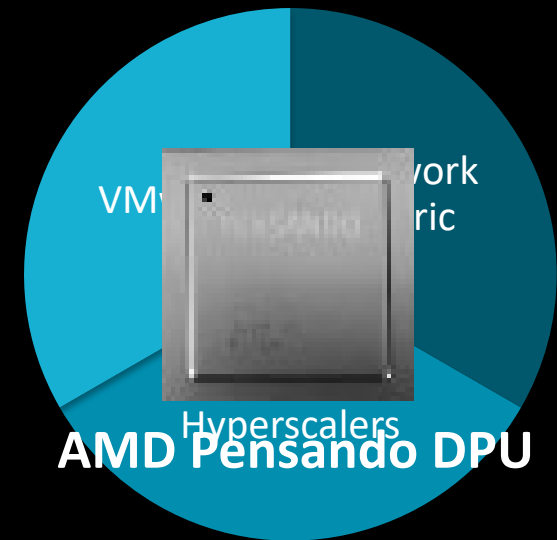
19/10/2023

CURRENT STATE OF DATA CENTER NETWORKING

STATELESS

CENTRALIZED SERVICES

COMPLEX

SERVICE BUILD ON TO THE FABRIC

VERY FEW AUTOMATION

NOT SECURE

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FUTURE STATE OF DATA CENTER NETWORKING

STATEFUL
SERVICES BEING PART OF FABRIC
FLEXIBLE
AUTOMATED
SECURE
DECENTRALIZED SERVICES

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THE SILICON AND SOFTWARE DRIVING THE CLOUD AND DC EVOLUTION

VMw...   ...work
                          ...ric

Hyperscalers

AMD Pensando DPU

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DISTRIBUTED SERVICES AT THE EDGE

AMD | **aruba**
a Hewlett Packard
Enterprise company

"By 2023, one in three network interface cards shipped will be a FAC"

-Andrew Lerner, Gartner, Just the FACs, August 2020

DPU Custom solution for Hyperscalers and large Scale SP's
(90.000 cards over 3 years min)

DPU for VMW Monterey
Sell through HPE and Dell today, Ent, SP, Pub, Commercial, SMB

DC ToR Switch (DSS)

$6Bn TAM

Sell through HPE Aruba, Ent, SP, Pub, Commercial, SMB

More than 200 Customers within 1 year

"We believe this is a new category of switch."
-650 Group

"These performance numbers are outstanding. You're onto something here- SmartSwitch could be a whole new category."

-Dell 'Oro Group

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A NEW SWITCHING CATEGORY

Distributed ServiceDistributed Services Switch: L2/L3/L4

ARUBA CX routing and switching

aruba
a Hewlett Packard
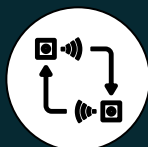Enterprise company

AMD Pensando L4-L7 Stateful Software Services

- Firewall
- DDoS
- Telemetry

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Unified services switching platform
Broadcom T3 and AMD Pensando Elba (7nm)

Aruba AOS-CX and Orchestration (AFC)
Full protocol stack, centrally managed at scale
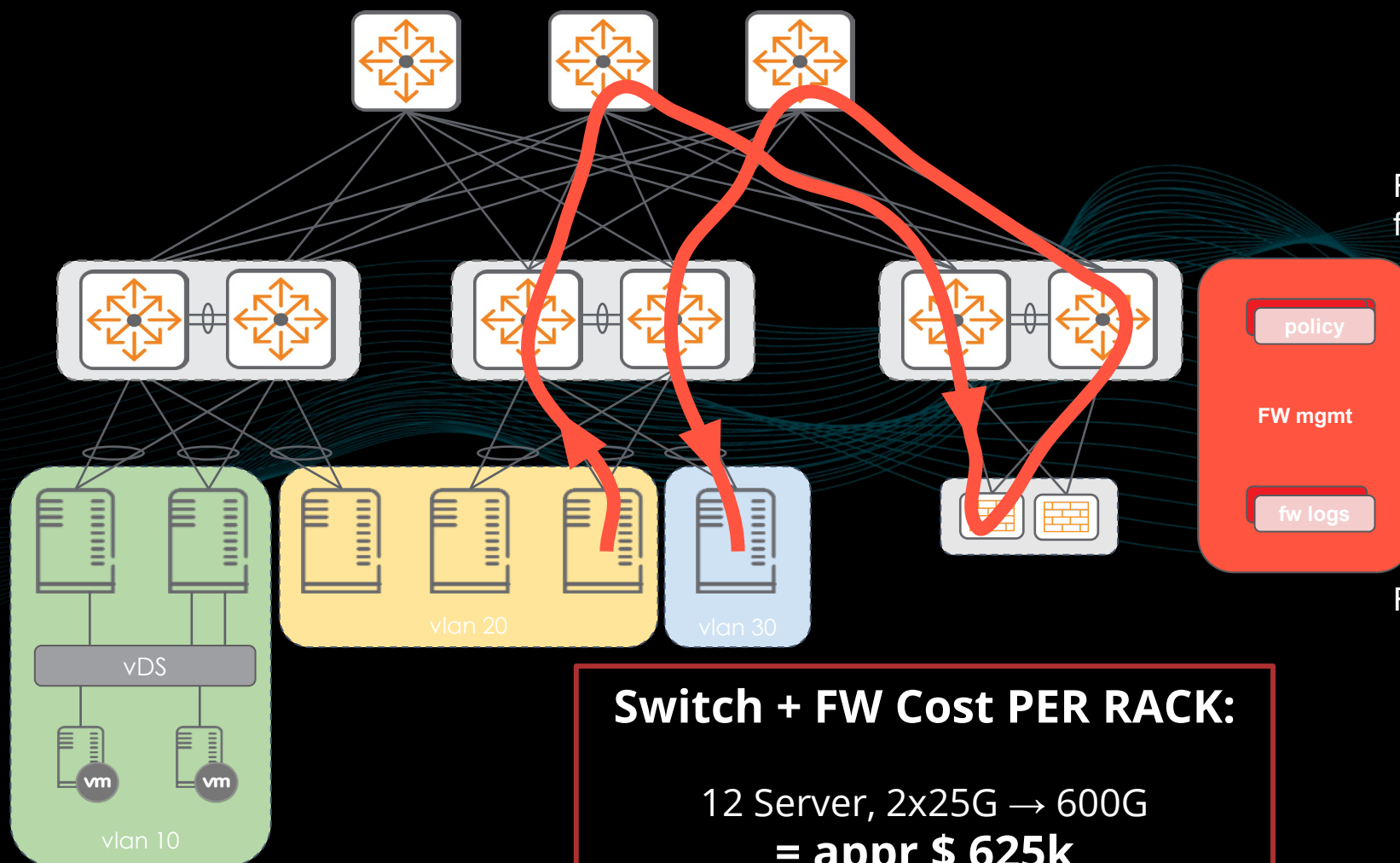
Scale, Services, and Performance
Stateful firewall, DDoS, encryption, NAT, etc.

Orders of magnitude (100x) policy scale
beyond traditional switch platforms

100x Scale, 10x Performance, 30% of TCO

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Centralized Services Architecture

Centralized Stateful Firewall Services

- managed from a **single Management Instance**
- provide seamless failover
- **collects firewall logs**

Requires a Network Design that supports the functionality

- Firewall provide Default Gateway functionality on the Network to **route the traffic through the Firewall**
- **IP Addressing Scheme** needs to reflect the separation for the stateful policy enforcement
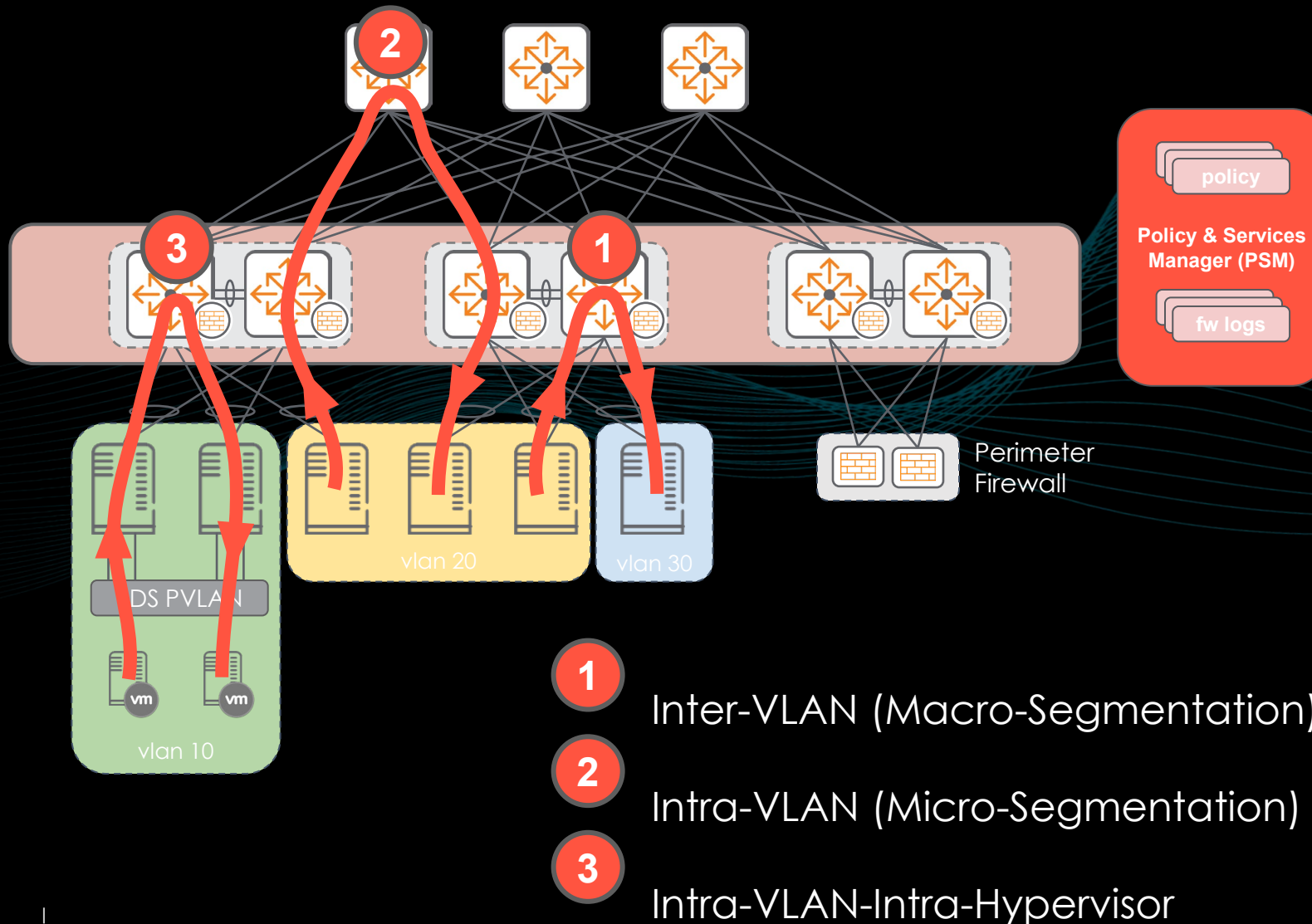- Application Tiers **stretch multiple Firewalling Zones**

Redirect to Firewall

- Increases **Latency**
- Consumes Network **Bandwidth**
- Adds **Complexity**

Switch + FW Cost PER RACK:

12 Server, 2x25G → 600G
= appr $ 625k
(2x $300k FW + 2x $12k ToR)

Distributed Services Architecture

Distributed Stateful Services

are provided in path, **without redirection** to a centralized appliance
Programmable ASICs provide **hardware offloading** capabilities AND flexibility for different Use Cases

The Policy & Services Manager (PSM)

- provides **centralized management** of policies and services
- **distributes the configuration** to all stateful services switches
- **collects fw logs**, alarms, telemetry and statistics
- **integrates in Ecosystems**

1 Inter-VLAN (Macro-Segmentation)

2 Intra-VLAN (Micro-Segmentation)

3 Intra-VLAN-Intra-Hypervisor

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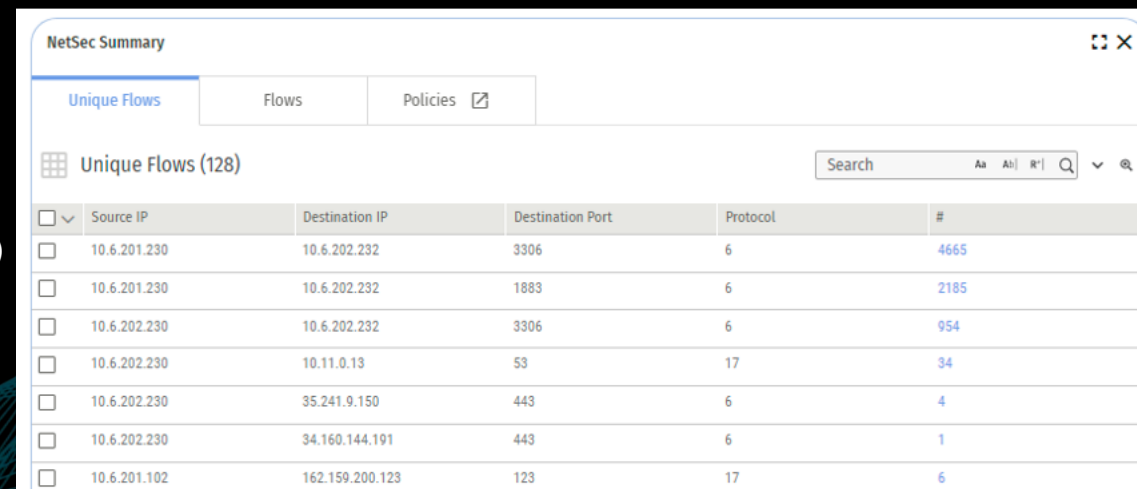
Benefits and use cases

Micro segmentation

Reduces the damage in case of a Cyber Attack
Very easy to implement
All environments (Virtualized, bare metal, storage, backup, …)
Policy based on existing flows

	NetSec Summary				⟦⟧ ✕
Unique Flows	Flows	Policies ↗			

Unique Flows (128)   Search Aa Ab| R*| 🔍 ⌄ 🔍

☐ ⌄	Source IP	Destination IP	Destination Port	Protocol	#
☐	10.6.201.230	10.6.202.232	3306	6	4665
☐	10.6.201.230	10.6.202.232	1883	6	2185
☐	10.6.202.230	10.6.202.232	3306	6	954
☐	10.6.202.230	10.11.0.13	53	17	34
☐	10.6.202.230	35.241.9.150	443	6	4
☐	10.6.202.230	34.160.144.191	443	6	1
☐	10.6.201.102	162.159.200.123	123	17	6

Visibility

Bring insights to help you build policies
Enhances your existing and future security tools (SIEM, XDR, SOAR,...)
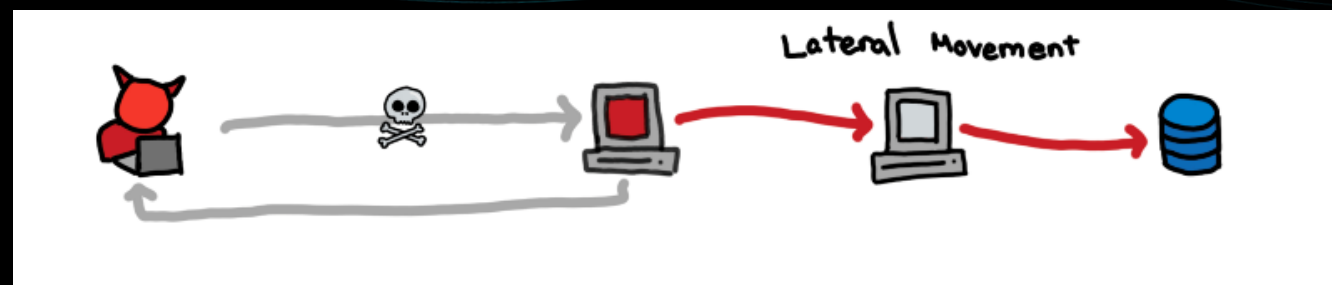**Helps you detect breaches faster**
Troubleshooting becomes easier

Automation
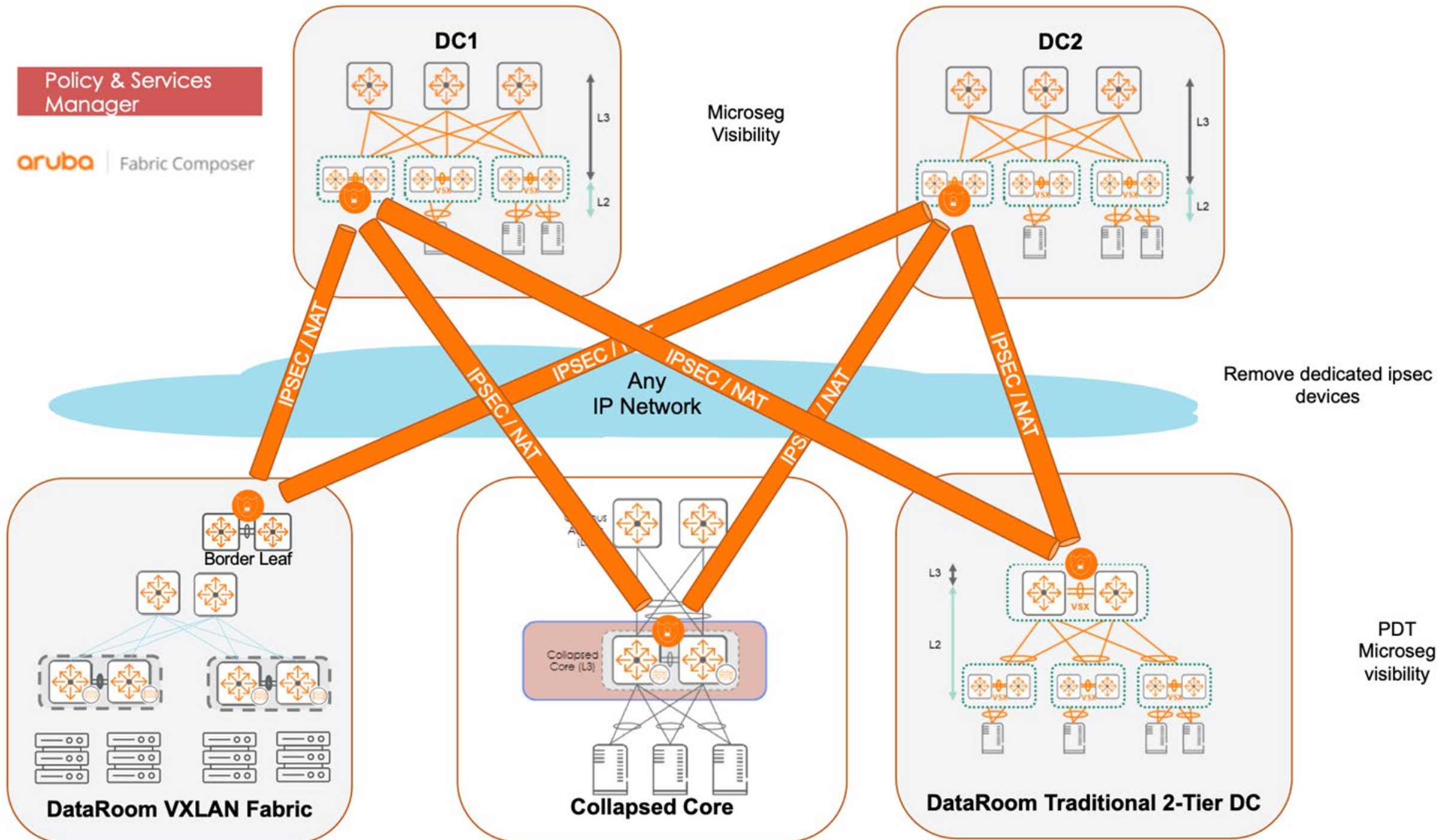
AI and ML needs good data to work properly
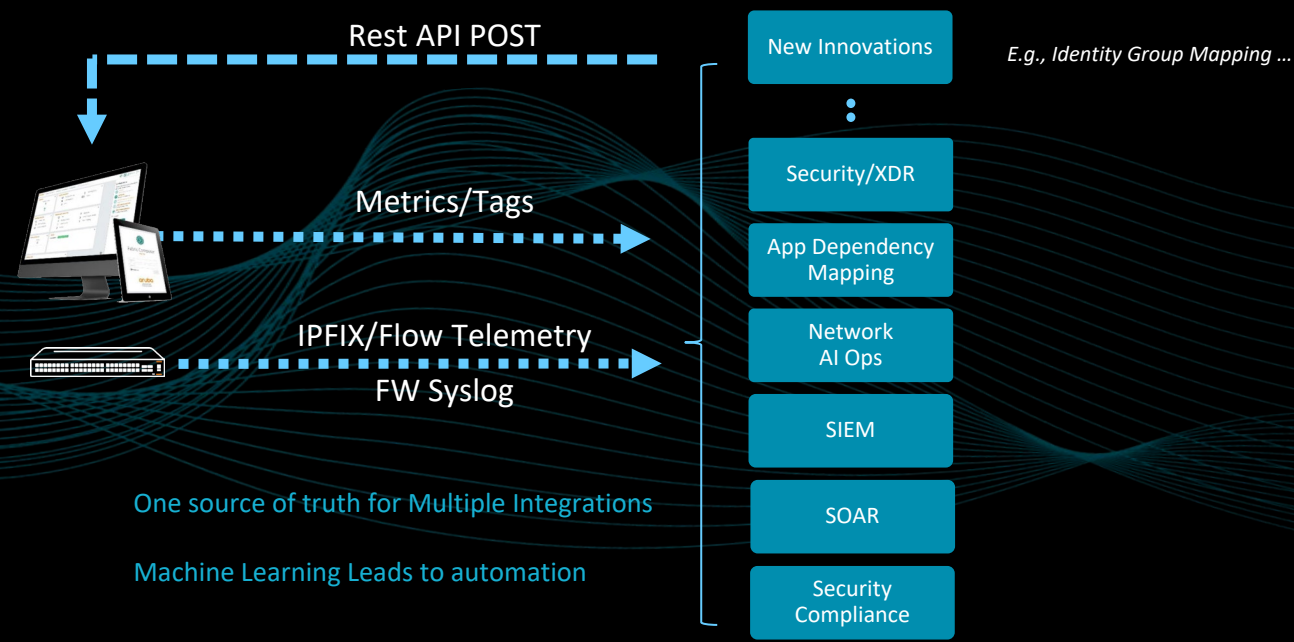**Feedback loop principle**
Open ecosystem

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EcoSystem Integration Model

Rest API POST

Metrics/Tags

IPFIX/Flow Telemetry
FW Syslog

One source of truth for Multiple Integrations

Machine Learning Leads to automation

New Innovations

Security/XDR

App Dependency Mapping

Network AI Ops

SIEM

SOAR

Security Compliance

E.g., Identity Group Mapping …

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TCP Protocol Connections ⓘ

- 443
- 88
- 53
- 7 680
- 445
- 49 691
- 135
- 7 751
- 3 268
- 49 670
- 389
- 80
- 139

135 2%
49 691 3%
445 4%

7 680 7%

53 9%

88 11%

443 61%

UDP Protocol Connections ⓘ

- 53
- 443
- 389
- 3 478
- 123
- 3 480
- 19 302
- 137
- 3 479
- 3 481
- 50 250
- 51 560

389 1%

443 17%

53 81%

IP Connections ⓘ

Source	Destination
10.176.1.15	10.196.0.13
	10.196.0.16
10.176.2.118	10.196.0.2
	10.196.0.21
10.176.8.207	10.196.0.23
	10.196.8.29
	10.196.8.36
10.197.0.3	
	10.196.8.43
172.16.1.23	10.196.8.47
	10.196.8.74
172.16.1.70	10.196.8.89

Search   KQL   📅 ▾   Last 30 days   Show dates   ⟳ Refresh

⊜ — + Add filter

TCP Retransmits [Client-Server]

Client IP ∨	Server IP ∨	TCP Retransmits Total / Client - Server ∨	Flow Sequence Agg ∨
172.30.20.10	172.30.20.53	0	16752
172.30.20.10	172.30.20.11	715610	1506
172.30.20.16	172.30.20.17	4512	4465
172.30.20.53	172.30.20.10	0	1453
172.30.20.13	172.30.20.15	171	160
172.30.20.13	172.30.20.14	149	138
172.30.20.8	172.30.20.7	3485	113
172.30.20.12	172.30.20.6	26	19
172.30.20.12	172.30.20.10	18	17
		Sum: 724280	

TCP Retransmits Granular [Client-Server-Application]

Flow Start ∨	Flow End p ∨	Client IP ∨	Server IP ∨	DPort ∨	Applicatio ∨	↓ TCP Retransmits Total / Flow
2023-09-...	2023-09-...	172.30.20...	172.30.20...	2483	ttc (TCP/2...	108685
2023-09-...	2023-09-...	172.30.20...	172.30.20...	1521	oracle-sqln...	108118
2023-09-...	2023-09-...	172.30.20...	172.30.20...	4739	ipfix (TCP/...	107090
2023-09-...	2023-09-...	172.30.20...	172.30.20...	1645	radius (TC...	101315
2023-09-...	2023-09-...	172.30.20...	172.30.20...	1646	radius-acc...	99291
2023-09-...	2023-09-...	172.30.20...	172.30.20...	3306	mysql (TC...	95230
2023-09-...	2023-09-...	172.30.20...	172.30.20...	1646	radius-acc...	17913
2023-09-...	2023-09-...	172.30.20...	172.30.20...	4739	ipfix (TCP/...	16806
						Sum: 724280

TCP Retransmits [Heatmap]

TCP Retransmits [Bar Diagram]
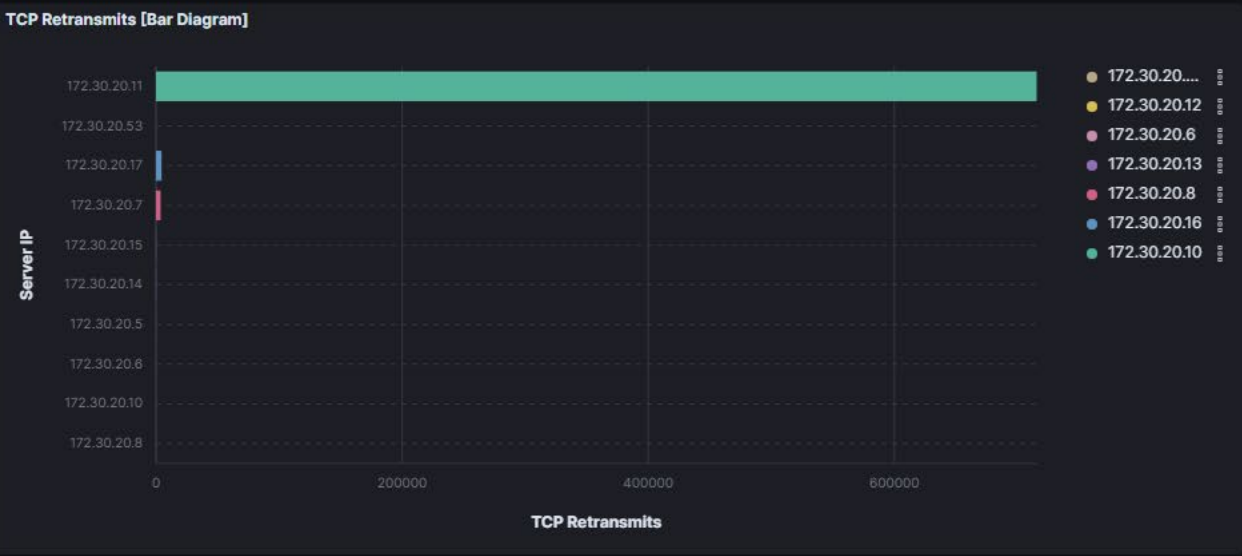
IT/OT Segregation

Outline

- European Manufacturing
- +7K Employees
- + $4B annual revenue
- IT/OT Segregation
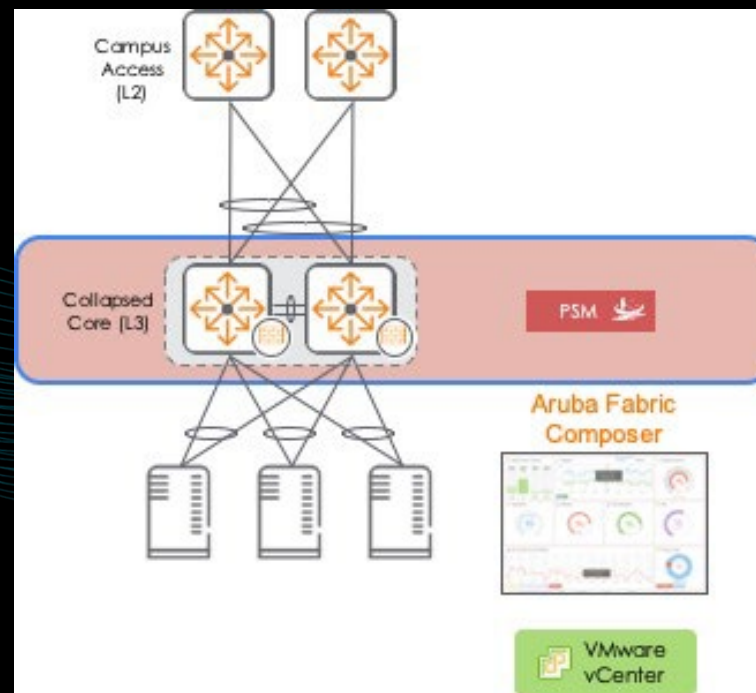
Business Outcome

- Reduced number of Firewalls from 10 to 2
- Reduced number of switches **Cost Reduction $450K over 5 Years**
- **Increase security level**
  - Microsegementation
  - Visibility
- Simplified the architecture

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DXC Secure Network Fabric Co-Developed with Hewlett Packard Enterprise and AMD
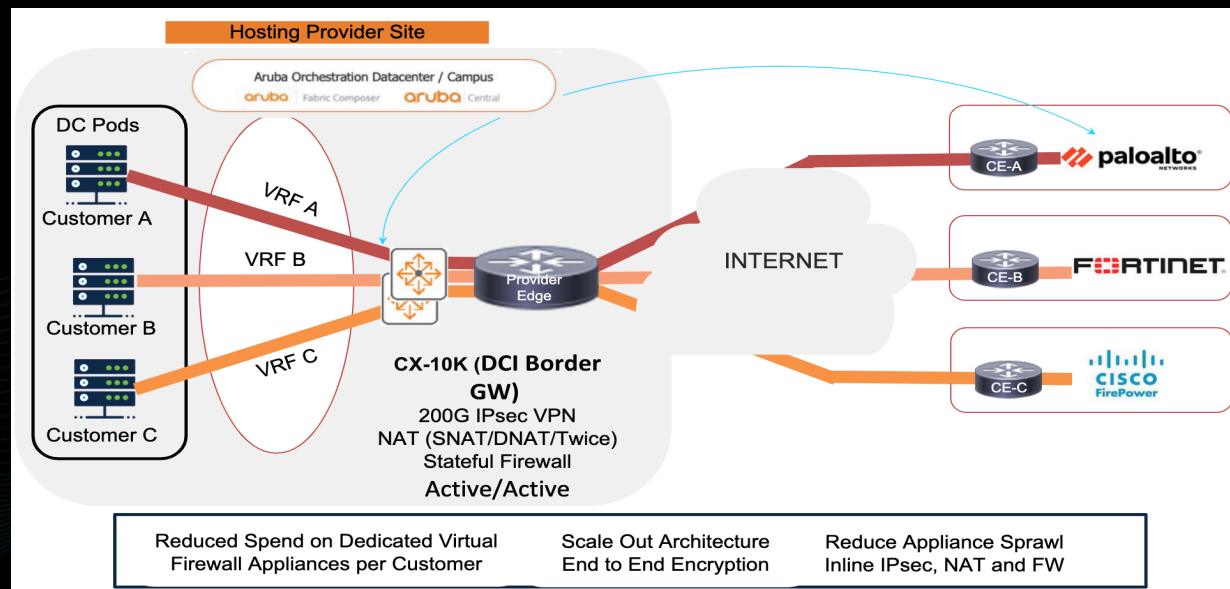
Business Outcome

- Up to 30% reduction in DC Connectivity Cost

- >60% in time reduction in time to onboard/migrate customer workloads

- >70% increase in workload security posture within DC

- Up to 30% increase in telemetry Data visibility with >50% reduced efforts

- Up to 83% reduction in DC Network Security Infrastructure footprint

Hands-on Workshop CX10K in Belgium

- Date: November 24, 2023
- Time: 9:30 – 14:00
- Location: HPE OFFICE, Diegem, Belgium
- Only for end customers
- Max 16 places!

THANK YOU

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