Self Healing Networks

LinkedIn's Journey to SONiC and Beyond

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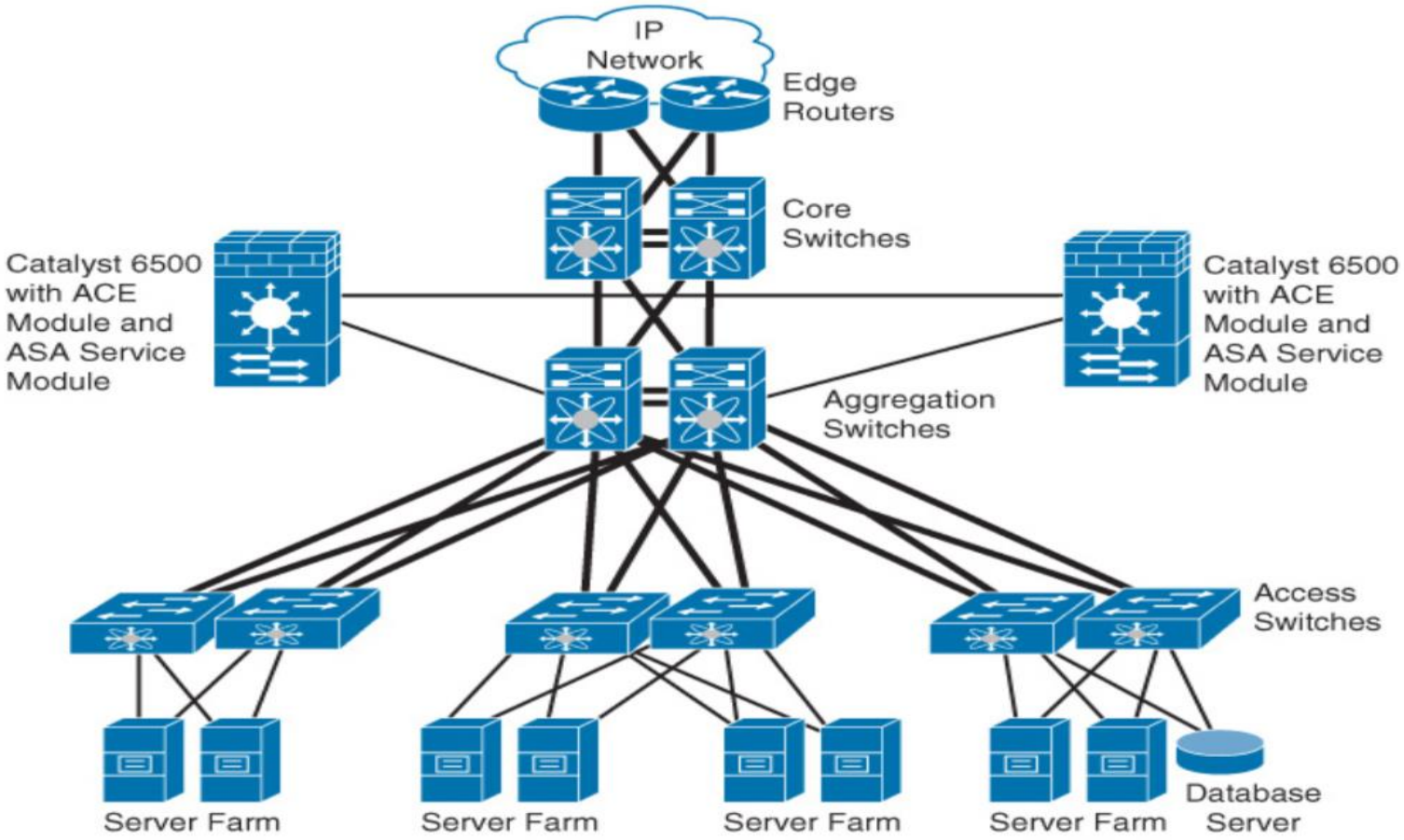
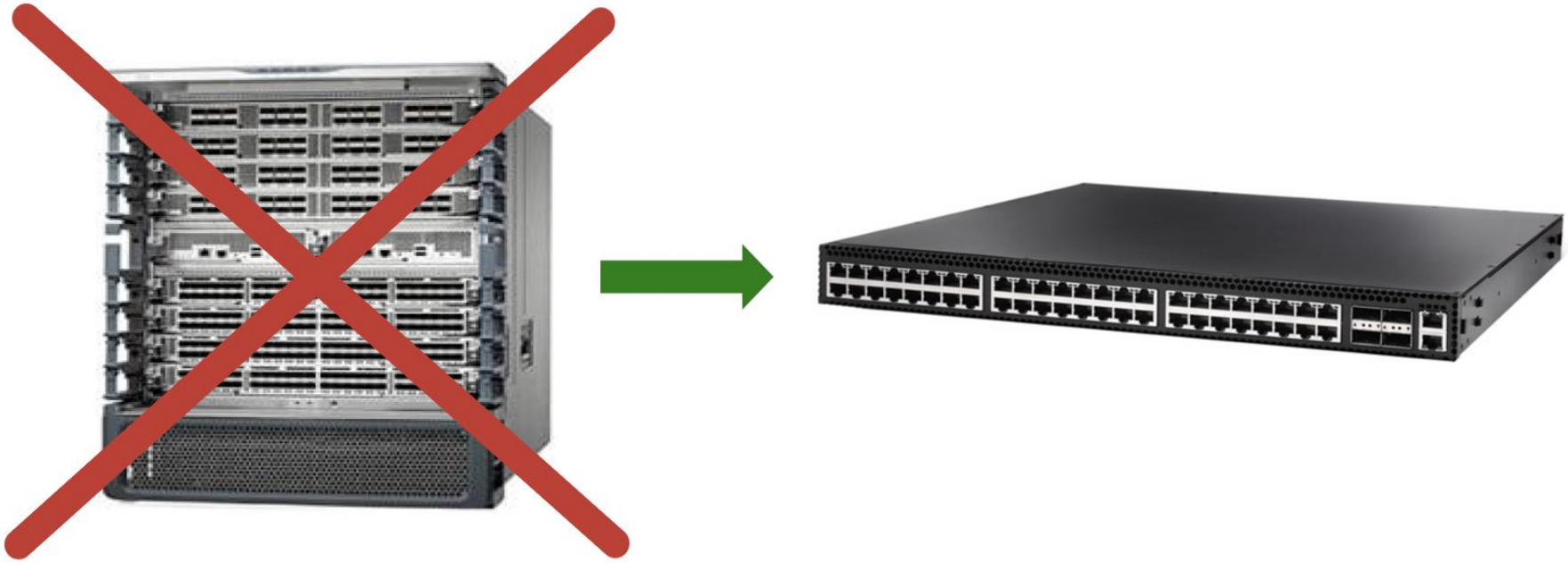
LinkedIn

LinkedIn Platform

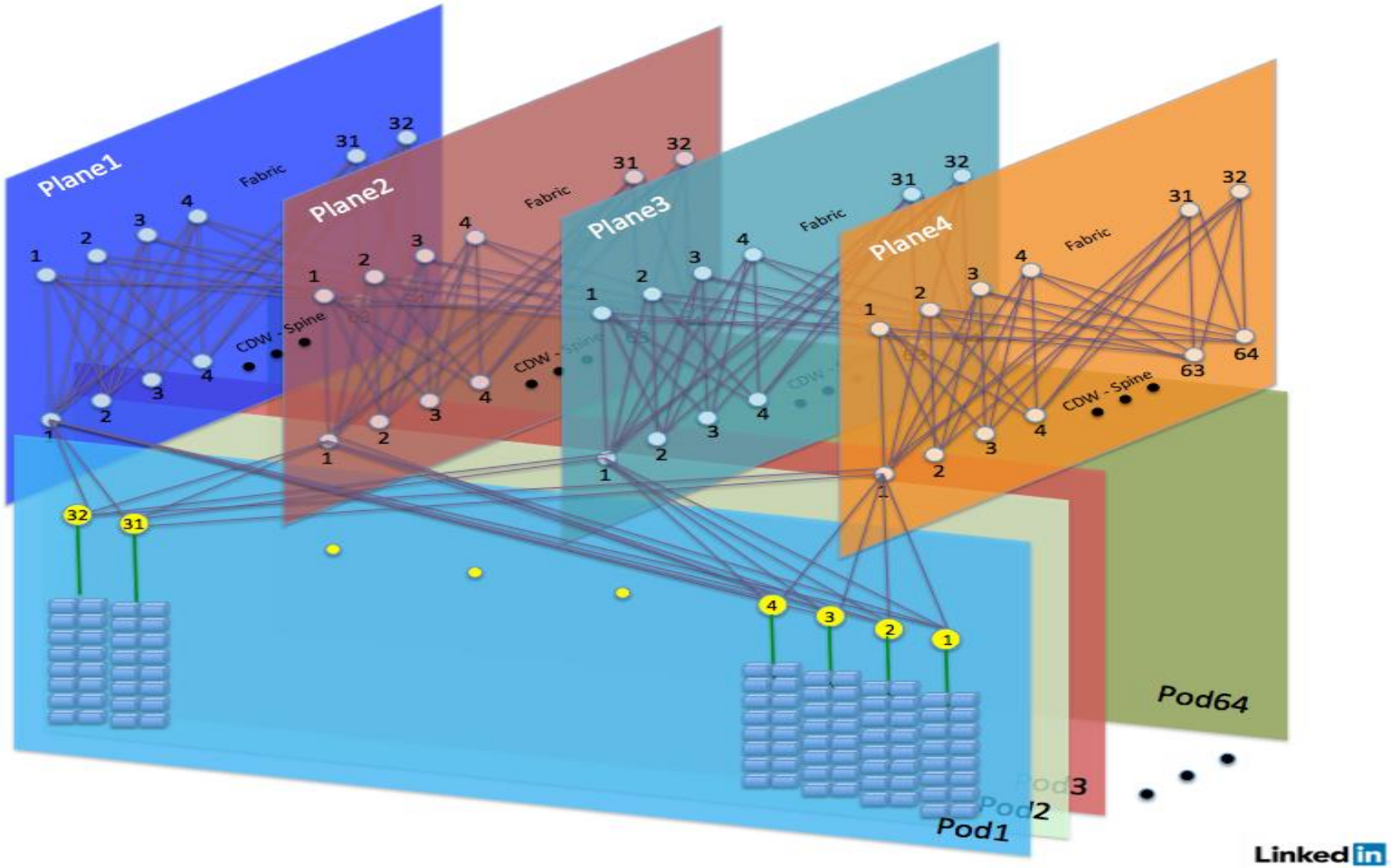
Old network


IP
Network
Edge
Routers
Core
Switches
Catalyst 6500
with ACE
Module and
ASA Service
Module
Catalyst 6500
with ACE
Module and
ASA Service
Module
Aggregation
Switches
Access
Switches
Server Farm
Server Farm
Server Farm
Server Farm
Database
Server

First step moving to Hyperscale Networks



Single “SKU” CLOS Design

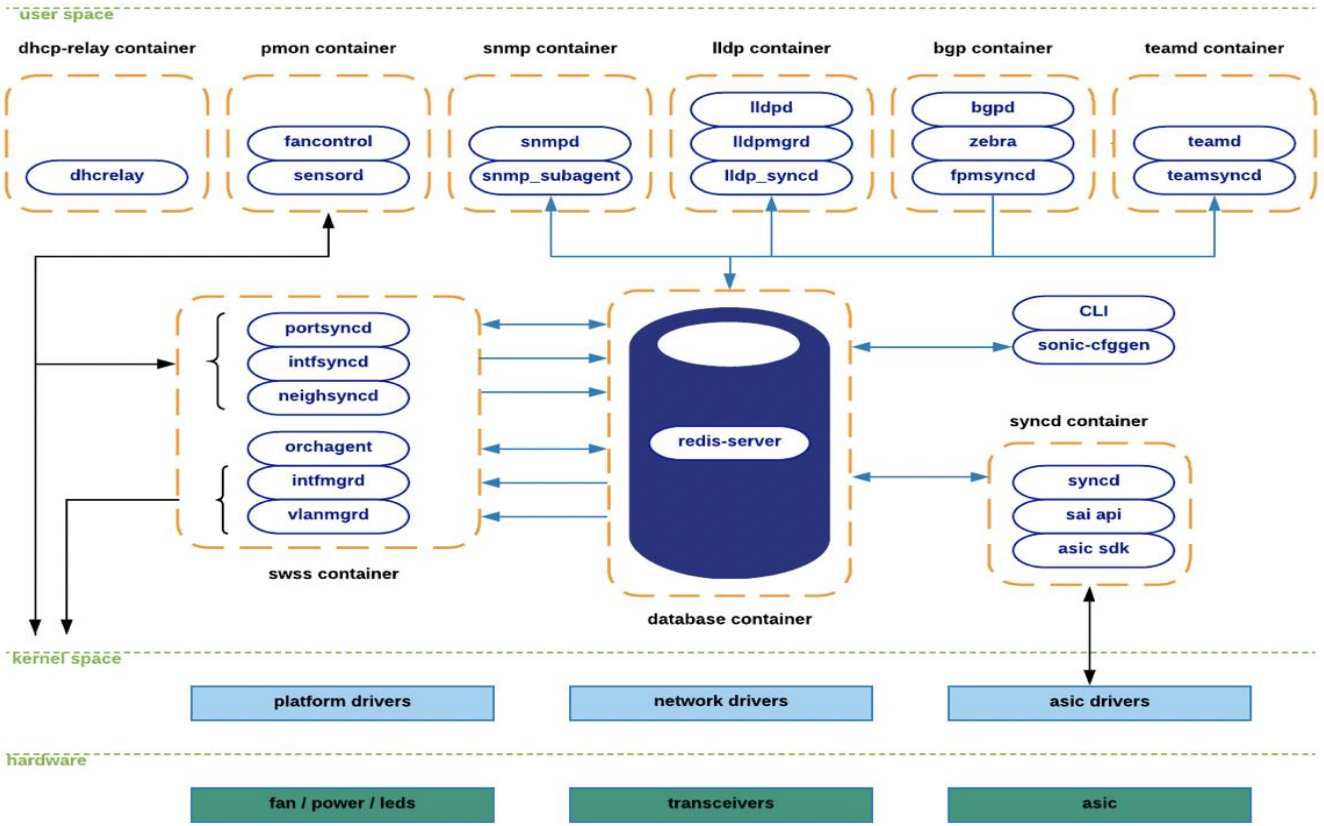


Network Disaggregation

- De-couple software from hardware
- Enable multiple chipsets
- Build or leverage modern Network Operating System (NOS)
- Build a focused control plane

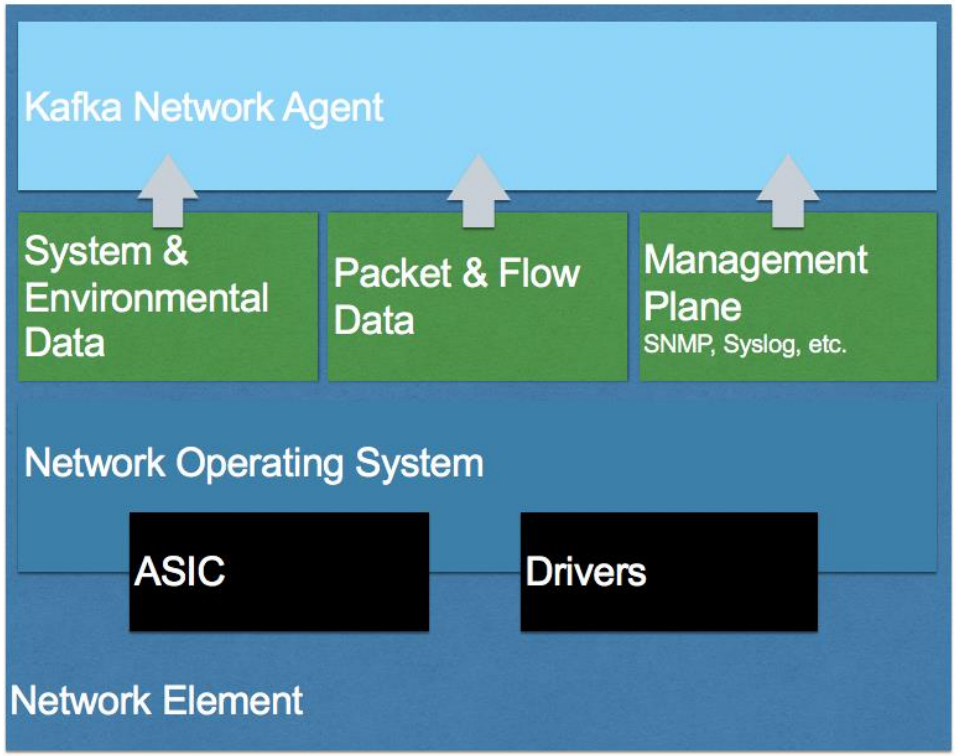
Rethinking the network stack

Leveraging a scalable NOS - SONiC



- Containerized architecture
- Scalable centralized Message-System infrastructure
- Platform agnostic
- ASIC-SDK and SAI

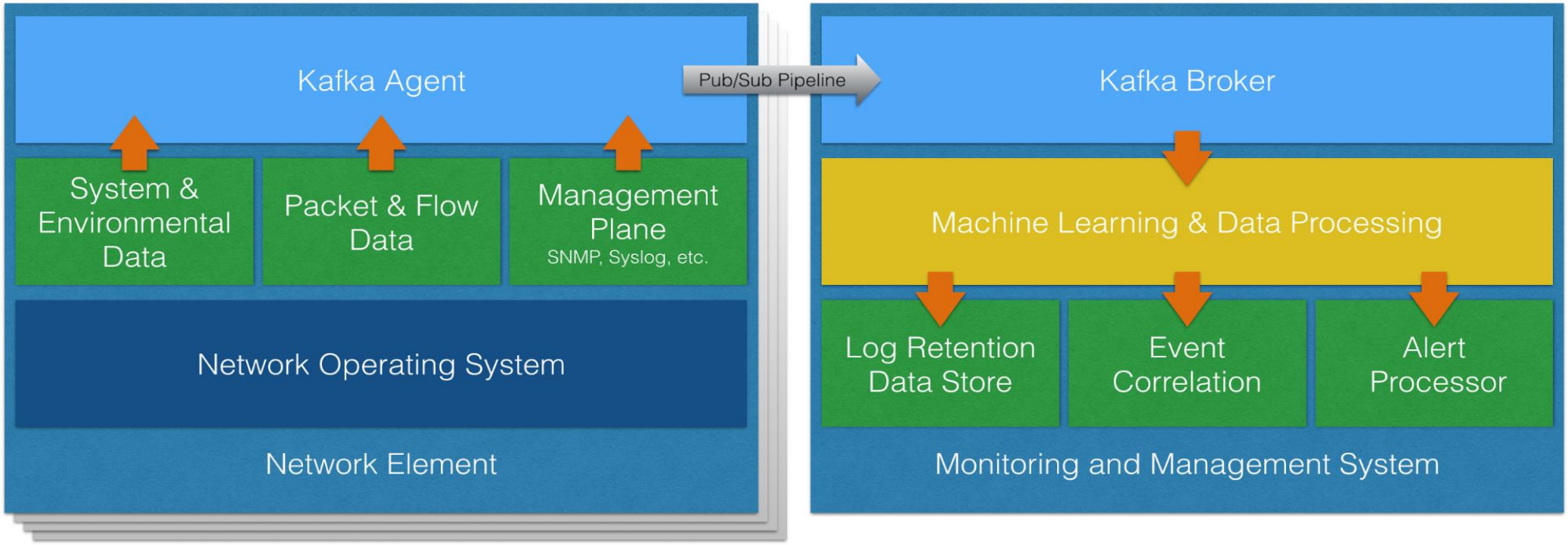
Reducing Protocols: Management Plane



Kafka

~~SYSLOG~~
~~SNMP~~
~~SFLOW~~

Towards a Programmable Data Center



Self-Healing Use Case

- > 10,000 links per datacenter
- Predicting the next fiber uplink failure

SFP Detail Diagnostics Information (internal calibration)

	Current Measurement	Alarms High	Alarms Low	Warnings High	Warnings Low
Temperature	49.62 C	75.00 C	-5.00 C	70.00 C	0.00 C
Voltage	3.23 V	3.63 V	2.97 V	3.46 V	3.09 V
Current	49.34 mA	125.30 mA	10.50 mA	120.00 mA	14.00 mA
Tx Power	-1.37 dBm	5.05 dBm	-12.44 dBm	4.62 dBm	-11.93 dBm
Rx Power	-1.39 dBm	2.04 dBm	-18.86 dBm	1.90 dBm	-18.23 dBm

Transmit Fault Count = 0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