REVOLUTION

Transforming the network with Open SDN

big switch
networks

CLOSED & PROPRIETARY NETWORKING EQUIPMENT
Vertically Integrated Systems Have Changed Little Over the Past 15 Years

Feature 1	Feature 2

Provisioning and Management
- Static, manual configuration
- Low feature velocity

Proprietary Network OS

Operating Systems
- Few API's, only CLI (closed OS)
- Not externally programmable

Proprietary System

Hardware Systems
- Lock-in to a particular vendor

Proprietary Silicon

System Silicon
- Slow innovation cycles
- Expensive, no economies of scale

CONTRAST WITH SERVER EQUIPMENT: 2013
Open Architecture – Choice of Vendors - Innovation Velocity – Low TCO

- Network Boot
- Central Configuration
- Automated Patch Mgmt

Provisioning & Management
- Network Boot
- Centralized Configuration & Mgmt

Linux	Windows
VMware	KVM	Xen

Operating System
- Open or closed source
- Virtualized or bare metal
- Many support models

| Dell | HP | Super Micro |

Hardware Systems
- Fierce competition
- Branded or "white box"

| Intel | AMD |

System Silicon
- Competition and rapid innovation

EVOLUTION OF NETWORK PROVISIONING: 1996-2013

1996

```
Router> enable
Router# configure terminal
Router(config)# enable secret cisco
Router(config)# ip route 0.0.0.0 0.0.0.0 20.2.2.3
Router(config)# interface ethernet0
Router(config-if)# ip address 10.1.1.1 255.0.0.0
Router(config-if)# no shutdown
Router(config-if)# exit
Router(config)# interface serial0
Router(config-if)# ip address 20.2.2.2 255.0.0.0
Router(config-if)# no shutdown
Router(config-if)# exit
Router(config)# router rip
Router(config-router)# network 10.0.0.0
Router(config-router)# network 20.0.0.0
Router(config-router)# exit
Router(config)# exit
Router# copy running-config startup-config
Router# disable
Router>
```

Terminal Protocol: **Telnet**

2013

```
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```

Terminal Protocol: **SSH**

EVOLUTION OF SERVER PROVISIONING: 1996-2013

1996

Step 1　　　　Step 2

Step 3

2013

bladelogic.　　JUJU　　puppet labs

Chef

vmware　　openstack

RELATIVE EVOLUTIONARY PATH: COMPUTE VS. NETWORKING

COMPUTE EVOLUTION

NETWORKING EVOLUTION

SSH
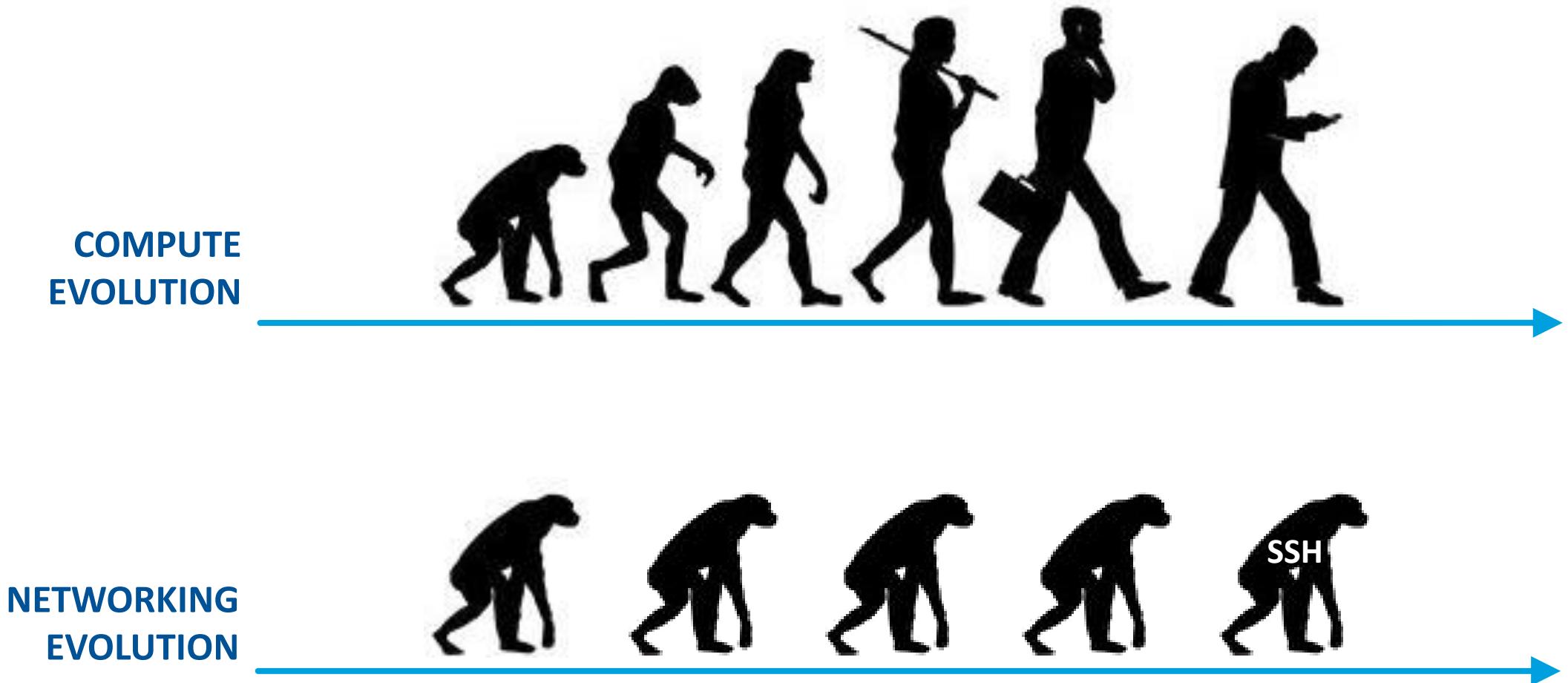
BIG SWITCH NETWORKS: OPEN SDN STACK
Open Source Software and Commercial Products

Application Plane

Big Virtual Switch

Control Plane
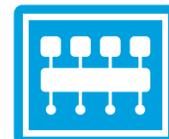
Big Network Controller

Data Plane
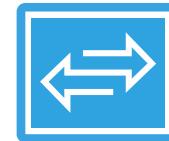
Switch Light for Broadcom   Switch Light for Linux

BROADCOM.

- Dramatically Lower Operational Cost with ZTP

- Choice in Networking Hardware

- Centralized Control of SDN Fabric

DEMONSTRATION ELEMENTS
From Slideware to Reality!

1. **Zero-Touch Provisioning**

2. **Dynamic Multi-Pathing**

1. **Automated Policy Motion**

# NETWORKING EVOLVED: SWITCH LIGHT DEMO
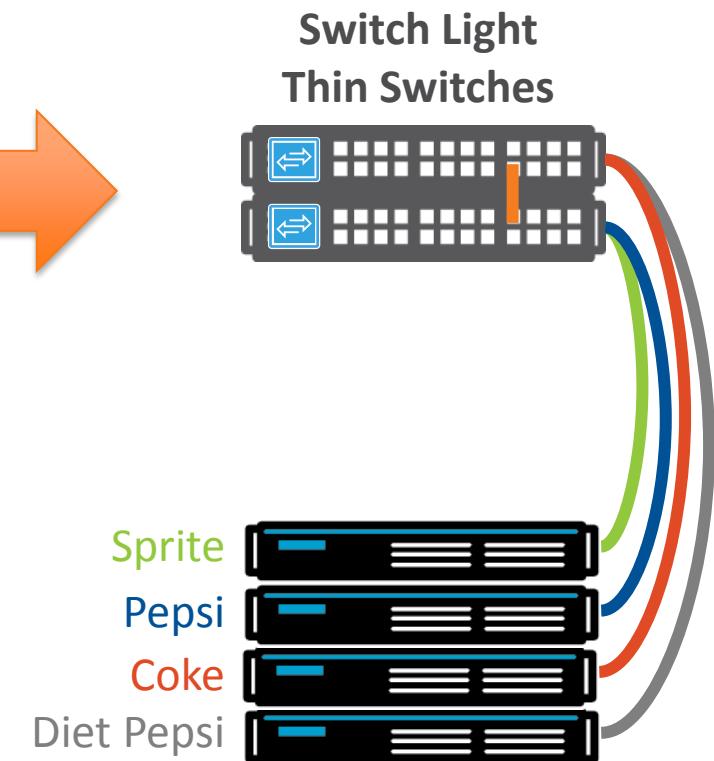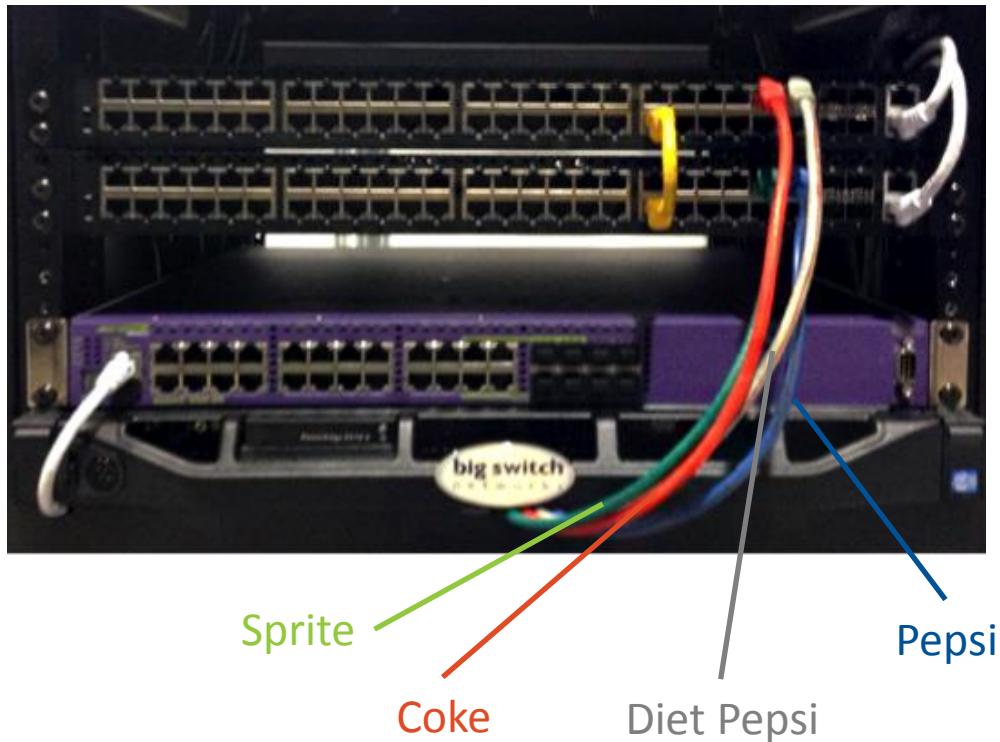
NETWORKING EVOLVED: SWITCH LIGHT
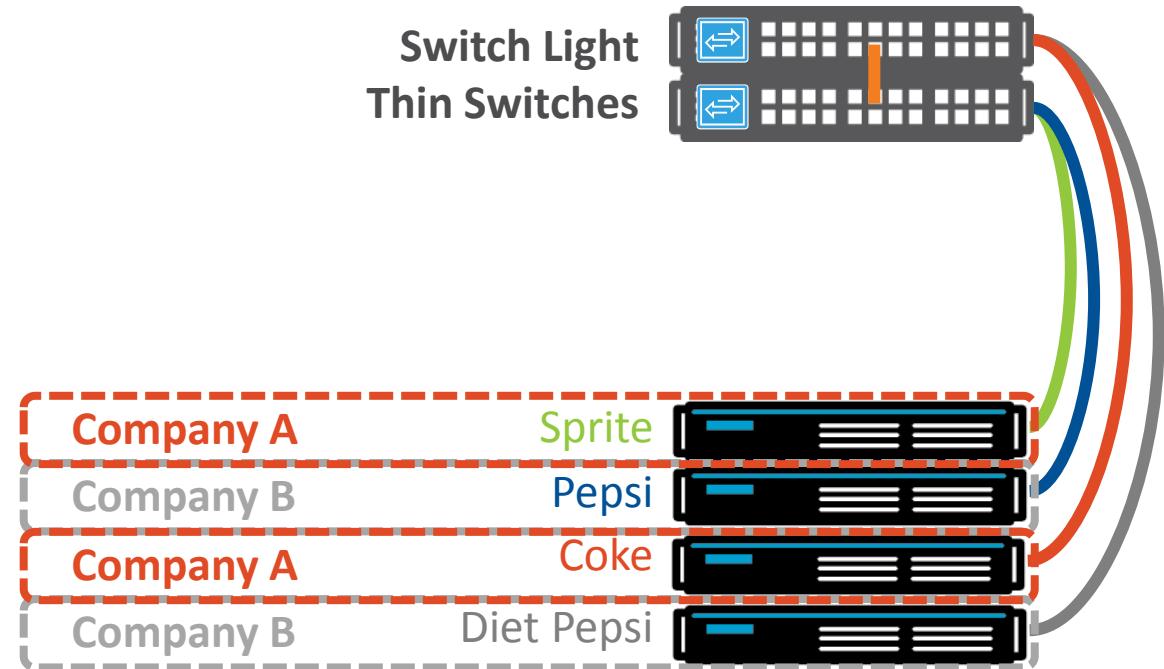
**Switch Light
Thin Switches**

Company A	Sprite
Company B	Pepsi
Company A	Coke
Company B	Diet Pepsi

NETWORKING EVOLVED: SWITCH LIGHT

- **Zero-Touch Configuration**

Switch Light
Thin Switches

Sprite
Pepsi
Coke
Diet Pepsi
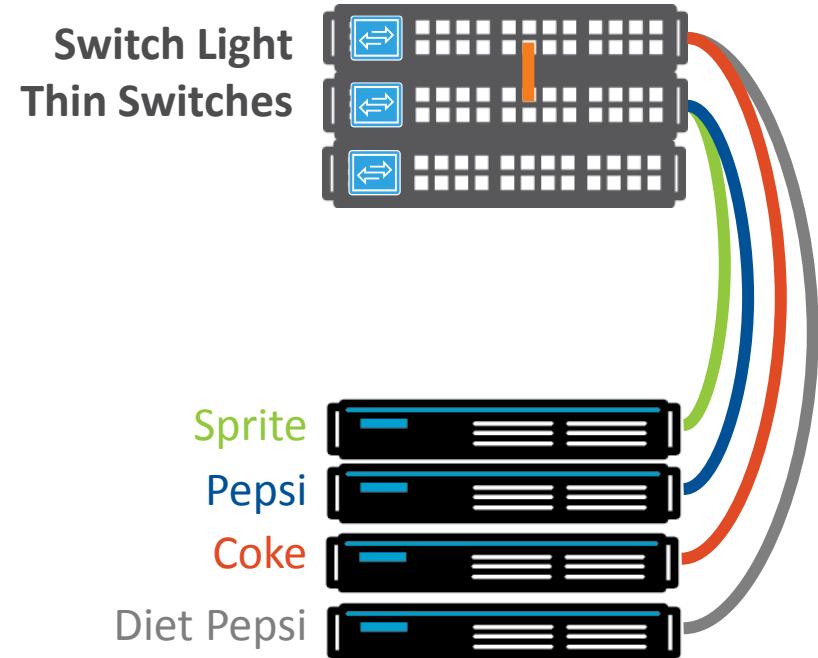
NETWORKING EVOLVED: SWITCH LIGHT

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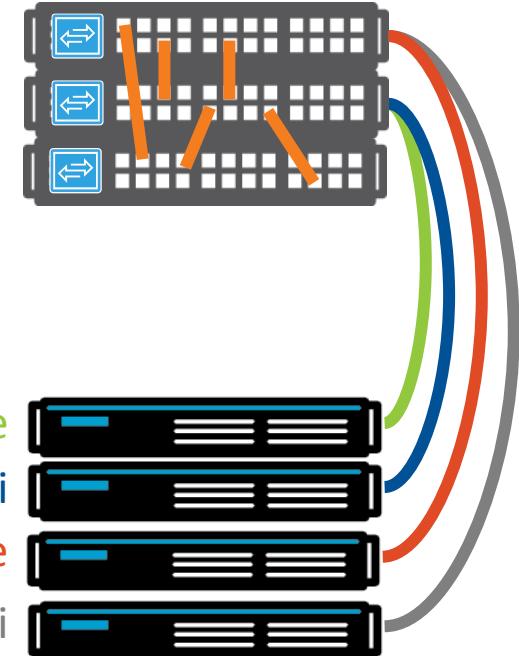
NETWORKING EVOLVED: SWITCH LIGHT

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- **Dynamic Multi-Pathing**

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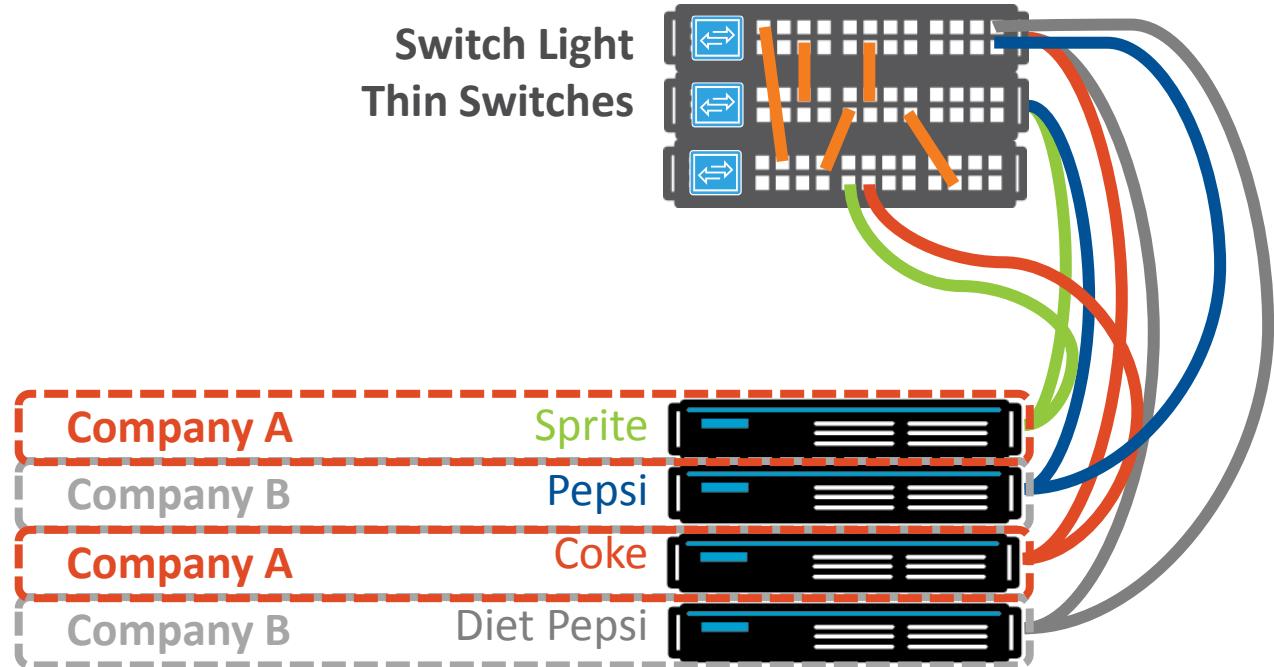
Switch Light
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1. **Zero-Touch Provisioning**

2. **Dynamic Multi-Pathing**

1. **Automated Policy Motion**

SWITCH LIGHT^{TM}
GENERALLY AVAILABLE
IN Q3

JOIN THE
OPEN SDN
REVOLUTION