

# *Getting more from your Network with SDN*

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# Which problem are you facing ?



“You could have a better experience from unified communication device?”



“You could limit what students are viewing during school hours?”



“You could resolve network issues faster?”

# Legacy networks are holding back the full-potential

“My network is complex and it takes months to deploy applications.”

**Too Complex**

“Network is too static to respond to my applications .”

**Too static**

“ I have to manually configure each and every switch for this new application .”

**Too Manual**

**Agility**

**Alignment**

**SDN: Creating programmable networks that rapidly align to business applications**

**Data center, campus  
& branch automation**

**Open Standards  
ecosystem**

**Reignite  
innovation**

**Easily accessible  
marketplace**

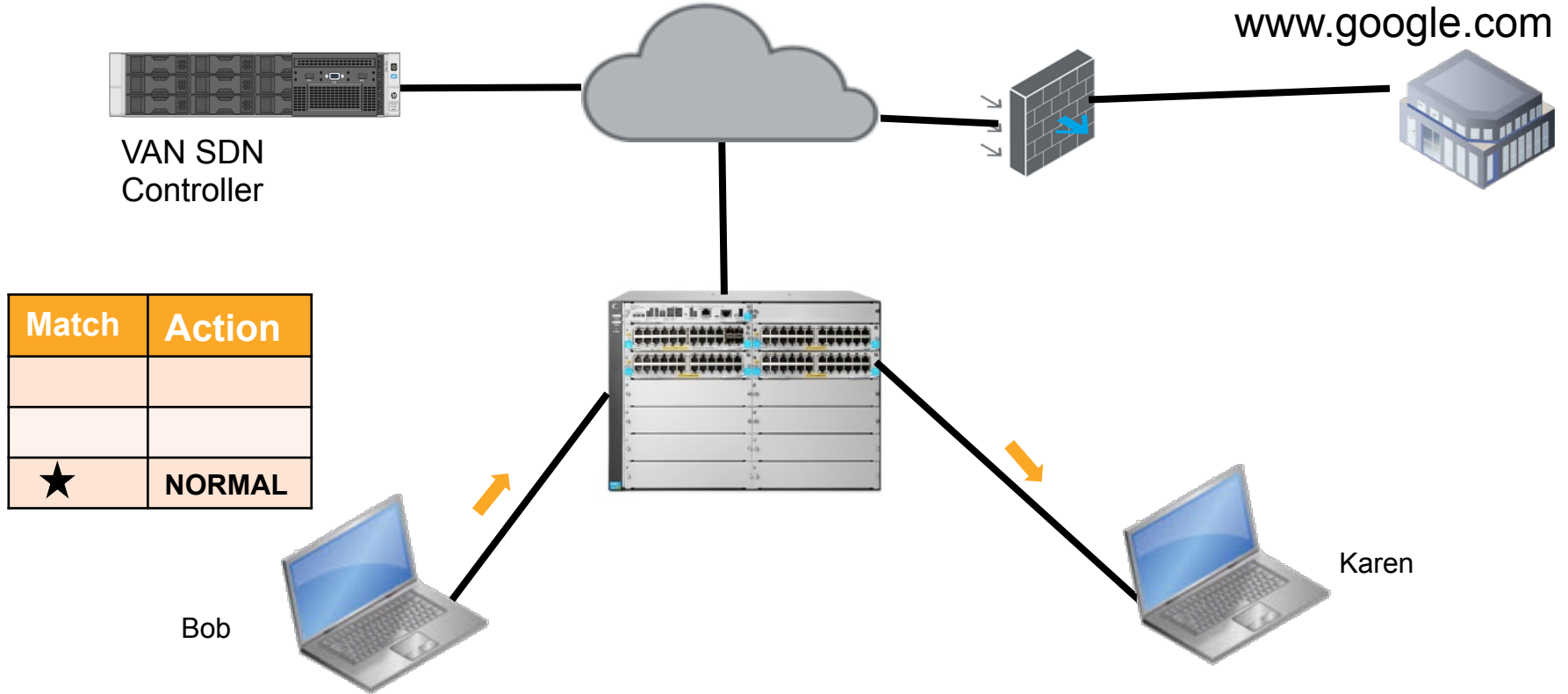
Coexist with brownfield

Platform for innovation

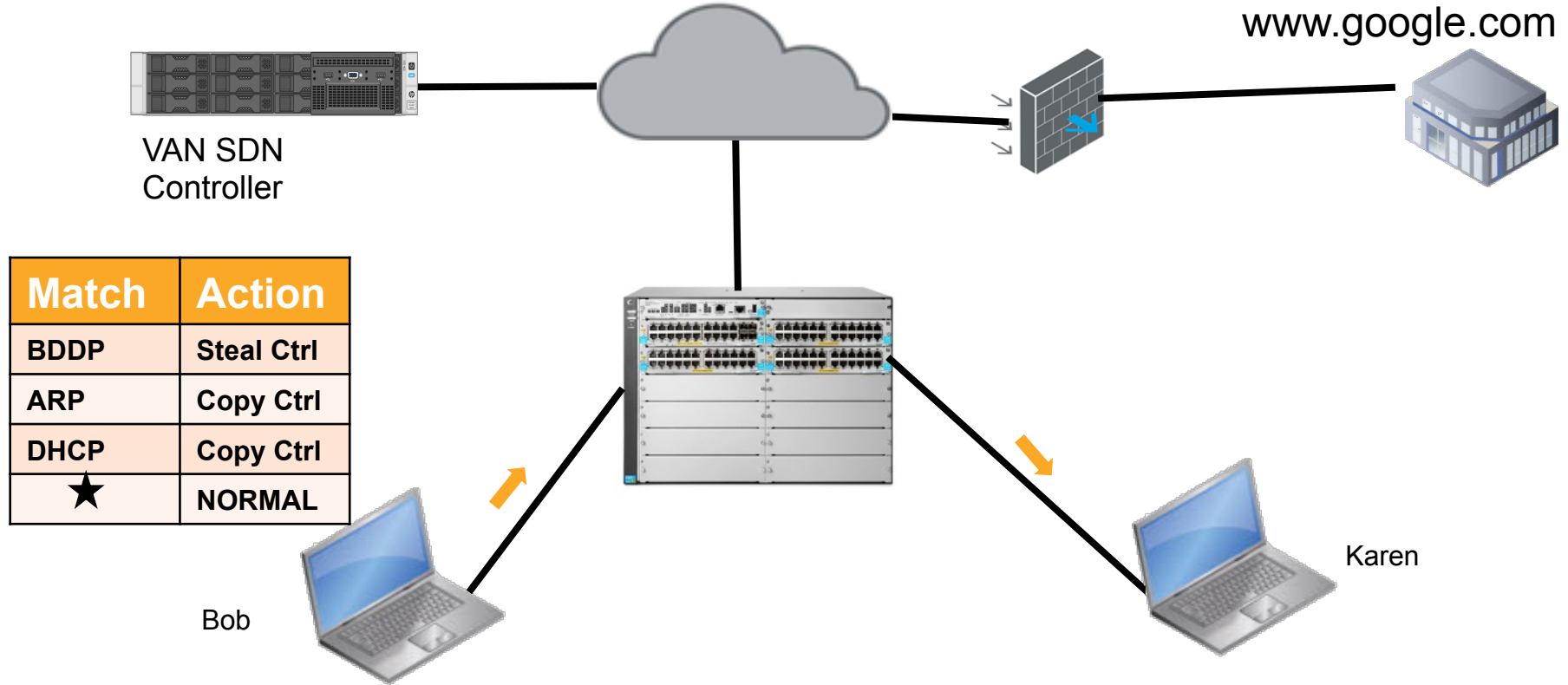
Use-case led

Automation and simplicity

# How does Hybrid Work?

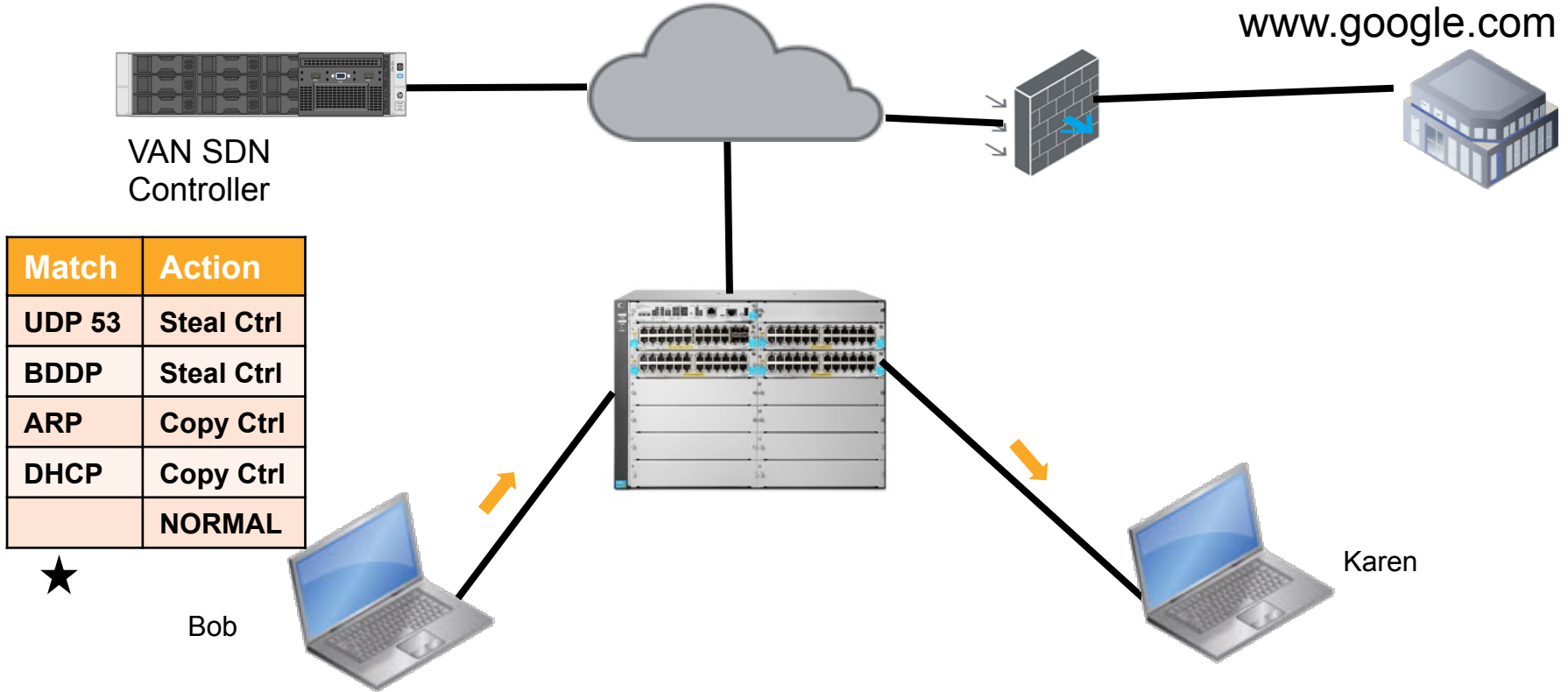


# How does Hybrid Work?





# How does Hybrid Work?



# Open Flow Monitor

HP VAN SDN Controller

21 sdn

General

General/ OpenFlow Monitor

Alerts

Applications

Configurations

Audit Log

Licenses

Team

Support Logs

OpenFlow Monitor

OpenFlow Topology

OpenFlow Trace

OpenFlow Classes

Packet Listeners

Refresh Summary Ports Flows Groups

Data Path ID	Address	Negotiated Version	Manufacturer	H/W Version	S/W Version	Serial #
0f:a7:00:24:a8:56:0c:00	10.3.10.184	1.3.0	HP	Switch 8206zl	K.15.15.0006	SG9274D0C4
0f:a7:00:24:a8:56:0c:00	10.3.10.183	1.3.0	HP	Switch 5406zl	K.15.15.0006	SG930MR3BK

HP VAN SDN Controller

21 sdn

General

Summary for Data Path ID: 0f:a7:00:24:a8:56:0c:00

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Summary Ports Flows Groups

HP VAN SDN Controller

21 sdn

General

Ports for Data Path ID: 0f:a7:00:24:a8:56:0c:00

Summary Ports Flows Groups

Port ID	Port Name	H/W Address	State	Current Features
2	A2	00:24:a8:56:1c:fe	live	rate_1gb_fd, rate_1tb_fd
34	B10	00:24:a8:56:1c:de	link_down	
35	B11	00:24:a8:56:1c:dd	live	rate_1gb_fd, rate_1tb_fd
36	B12	00:24:a8:56:1c:dc	link_down	
37	B13	00:24:a8:56:1c:db	link_down	
38	B14	00:24:a8:56:1c:da	link_down	
LOCAL	local	00:24:a8:56:0c:00		

OpenFlow Monitor

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# Open Flow Monitor Continued



HP VAN SDN Controller

21

sdn

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Flows for Data Path ID: 0f:a7:00:24:a8:56:0c:00

Summary

Ports

Flows

Groups

Table ID	Priority	Packets	Bytes	Match	Actions/Instructions	Flow Class ID
▶ 100	32200	0	0	eth_type: ipv4 ipv4_dst: 15.201.49.154	apply_actions: output: NORMAL	
▶ 100	31500	10	0	eth_type: ipv4 ip_proto: udp udp_src: 67 udp_dst: 68	goto_table: 200	com.hp.sdn.dhcp.copy
▶ 100	31500	36744	0	eth_type: ipv4 ip_proto: udp udp_src: 68 udp_dst: 67	goto_table: 200	com.hp.sdn.dhcp.copy
▶ 100	1	0	0	eth_type: ipv6	apply_actions: output: NORMAL	com.hp.sdn.normal
▶ 100	1	12423	0	eth_type: ipv4	apply_actions: output: NORMAL	com.hp.sdn.normal
▶ 100	50301	0	0	eth_type: ipv4 ip_proto: udp udp_dst: 53	apply_actions: output: CONTROLLER	
▶ 100	50300	0	0	eth_type: ipv4 ip_proto: udp udp_dst: 53	apply_actions: output: CONTROLLER	
▶ 100	0	26929	0		goto_table: 200	com.hp.sdn.normal
▶ 200	31500	10	5940	eth_type: ipv4 ip_proto: udp udp_src: 67	apply_actions: output: CONTROLLER output: NORMAL	com.hp.sdn.dhcp.copy

# Topology

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General / OpenFlow Topology

\* Src \* Dst +/- Shortest Path View ? Search (regex) Reload

```
graph TD; A[10.3.10.184:4007] --- B[10.3.10.183:4007]; B --- C[10.3.10.187:4007];
```

Switch Details

Datapath ID: 0fa70024a8634300 Filter Total Flows: 13 Default Flows: 0

Priority	Bytes	Packets	In ...	Out ...	Src. MAC	Dst. MAC	Src. IP	Dst. IP	Action	Eth. Type	Pro...	Age
32200	0	0	42...					15.201.43.154		0800		
31500	0	10								0800	17	
31500	0	119488								0800	17	
1	0	0	42...							8600		
1	0	31392	42...							0800		
50301	0	0	42...							0800	17	

**ONCE YOU MOVE  
TO BYOD...**

# Real time threat protection across enterprise networks

## HP Network Protector SDN application



- Simple Security for BYOD
- Malware/Botnet/ Spyware protection
- Zero threat protection at the edge with IPS as a service
- Online testing assurance

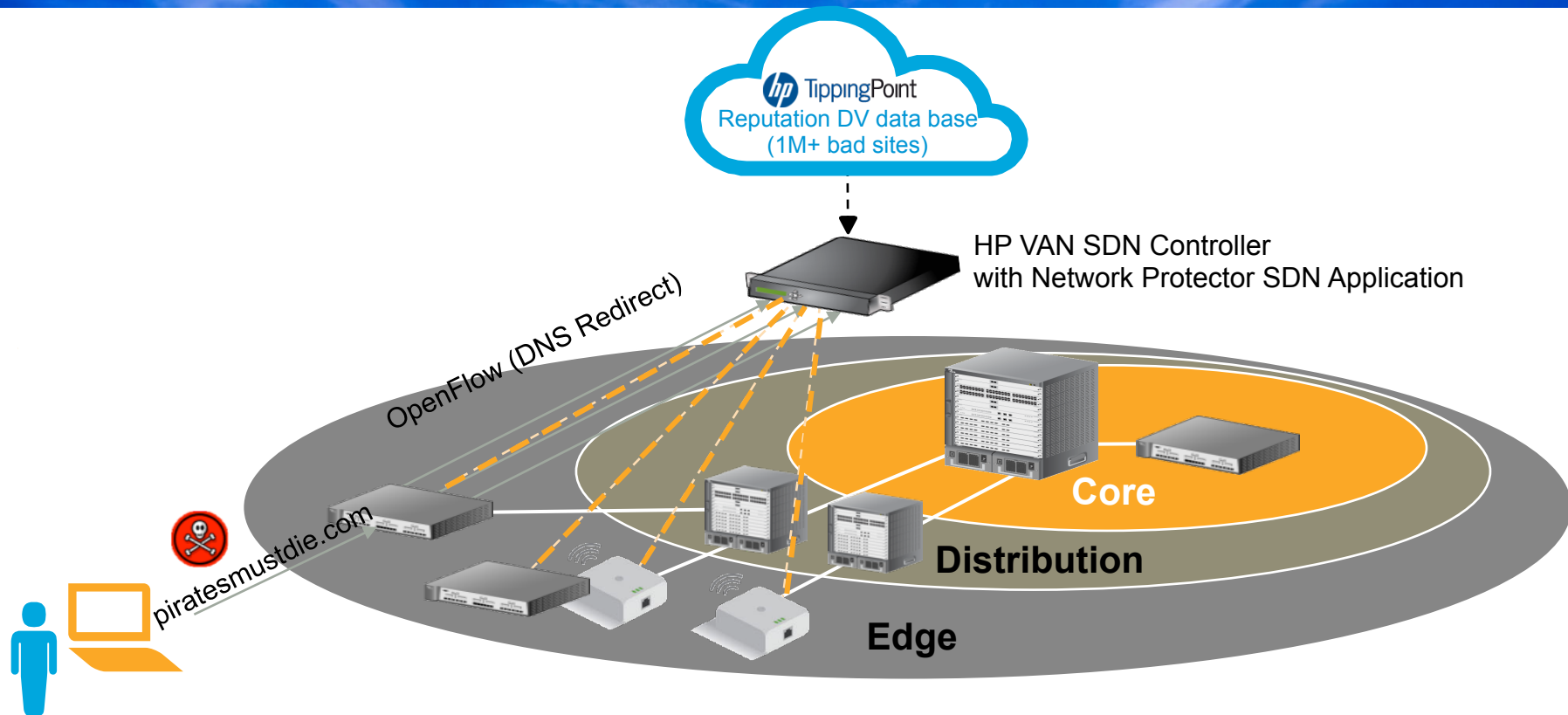
Protection from **1.5M**  
daily threats

Less than **1 hr**  
deployment<sup>1</sup>

**1/4 cost** vs  
hardware security<sup>1</sup>

1. South Washington County schools case study

# HP Network Protector SDN Application



# Under the hood



HP VAN SDN Controller

6 sdn

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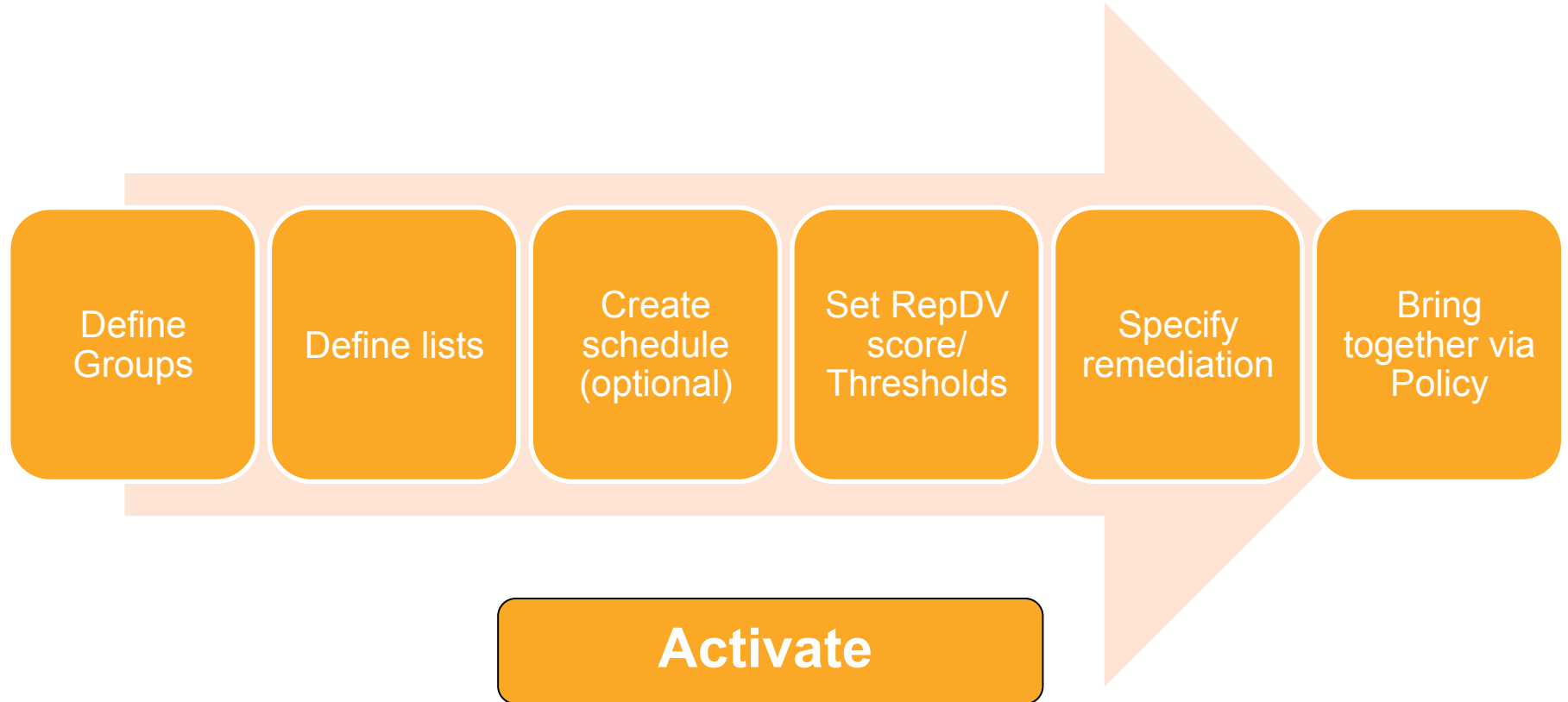
Network Visualizer

## Flows for Data Path ID: 01:90:00:9c:02:d5:c6:c0

				Summary	Ports	Flows	Groups
Table ID	Priority	Packets	Bytes	Match	Actions/Instructions	Flow Class ID	
0	0	0	0		goto_table: 100	com.hp.sdn.ip.normal	
100	60000	4	0	eth_type: bddp	apply_actions: output: CONTROLLER	com.hp.sdn.bddp.steal	
100	31000	4694	0	eth_type: arp	goto_table: 200	com.hp.sdn.arp.copy	
100	31500	0	0	eth_type: ipv4 ip_proto: udp udp_src: 67 udp_dst: 68	goto_table: 200	com.hp.sdn.dhcp.copy	
100	31500	0	0	eth_type: ipv4 ip_proto: udp udp_src: 68 udp_dst: 67	goto_table: 200	com.hp.sdn.dhcp.copy	
100	50300	1551	0	eth_type: ipv4 ip_proto: udp udp_dst: 53	apply_actions: output: 100664155		



# Building Policies





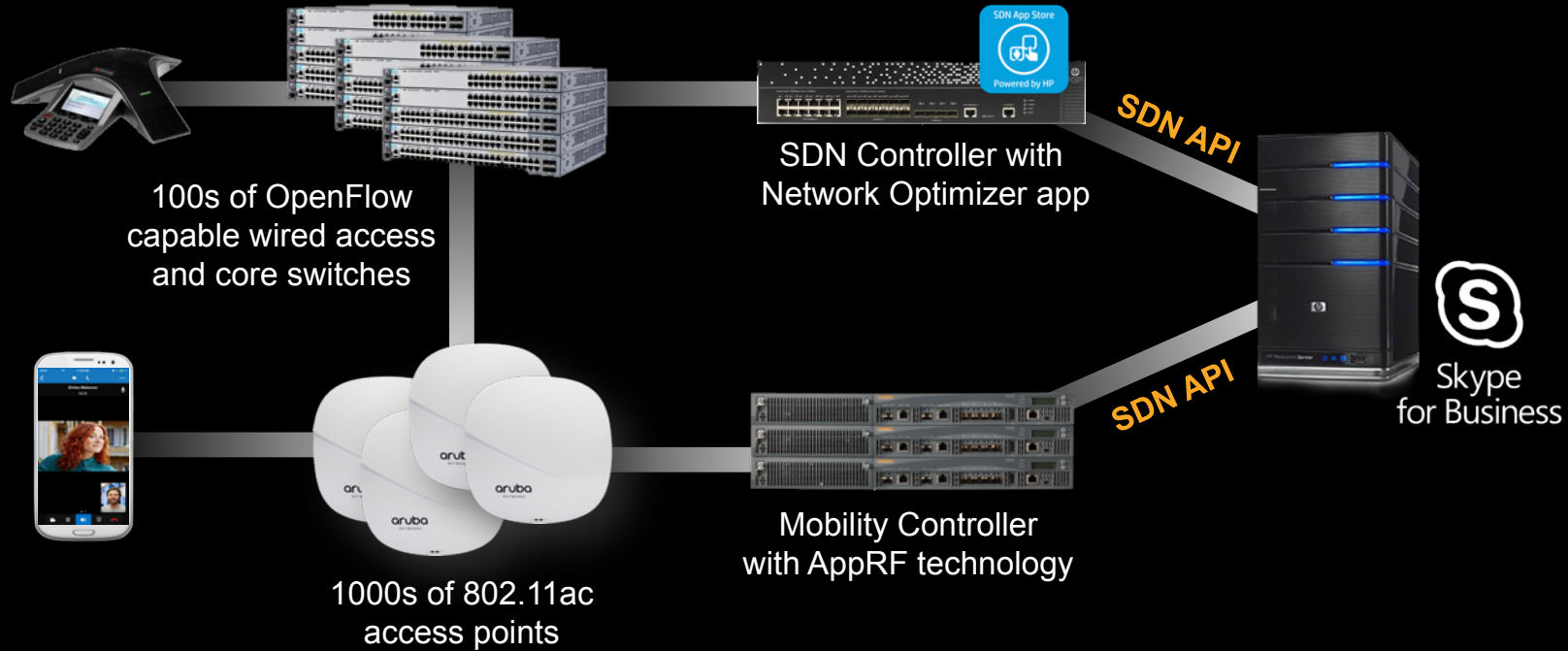


# COLLABORATION IN THE DIGITAL WORKPLACE



# SOFTWARE CONTROLS FOR UNIFIED COMMUNICATIONS

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HOW TOMORROW MOVES



# Automating policy for enterprise networks

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atmosphere2015  
HOW TOMORROW MOVES

## HP Network Optimizer SDN application

Cloud  
innovation  
2014 awards

2014  
Excellence In SDN  
SDNZONE  
SOFTWARE-DEFINED NETWORK

2015  
Excellence In SDN  
SDNZONE  
SOFTWARE-DEFINED NETWORK



- Enhanced user experience
- Simplified policy deployment
- Dynamic traffic prioritization based on user/device
- Application integration ready



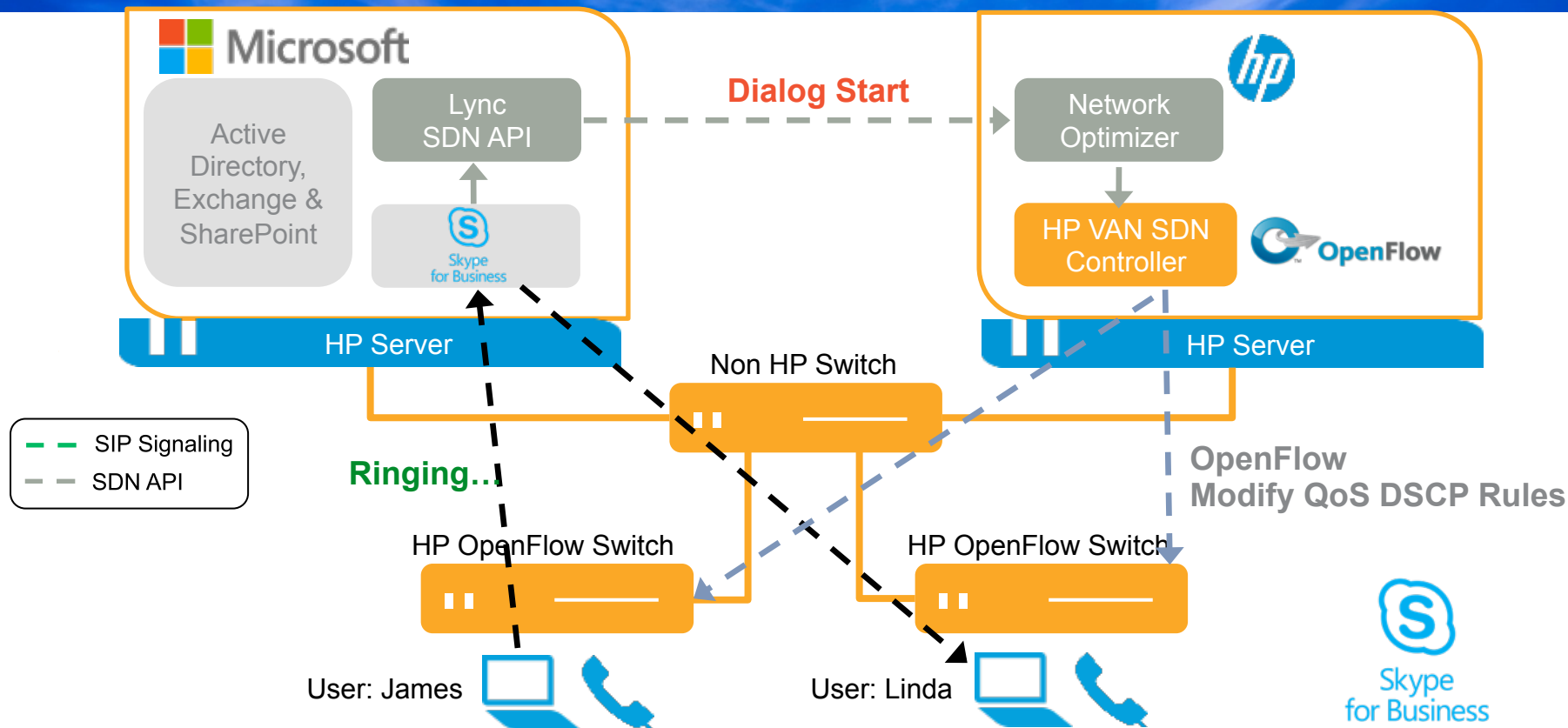
**80%** reduction  
in complexity<sup>1</sup>

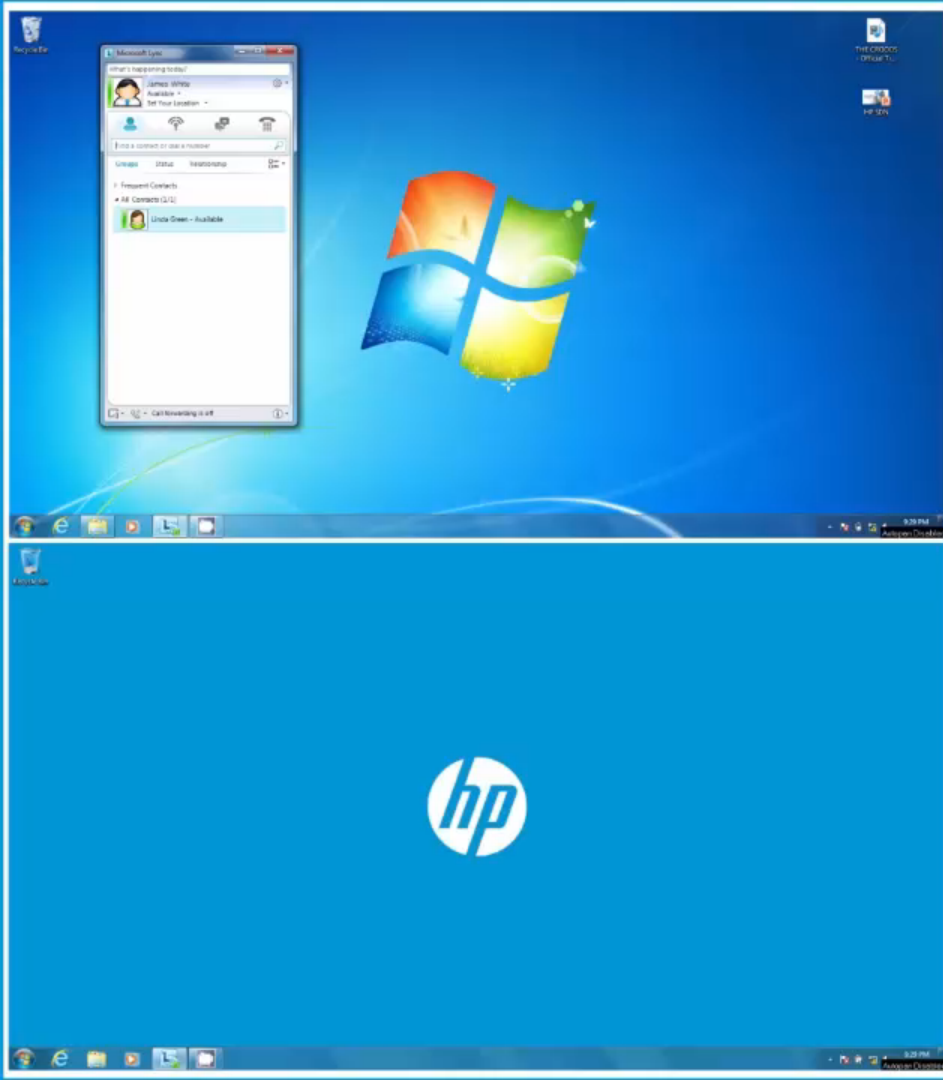
**270%**  
improvement  
in call quality<sup>1</sup>

**40%**  
improvement in  
S4B quality<sup>2</sup>

1. Internal calculations  
2. Deltion college case study

# HP Network Optimizer SDN App– S4B







**INVESTIGATING ISSUES ARE  
DISRUPTIVE, TIME CONSUMING  
AND MANUAL**



## HP Network Visualizer SDN application



- Solve help desk issues in a matter of seconds vs minutes
- Real-time visibility and diagnosis
- Simple & automated troubleshooting requiring low level network detail
- Proactively monitor the network to reduce the number of help desk issues

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**40X** Cost saving for network diagnostics<sup>1</sup>

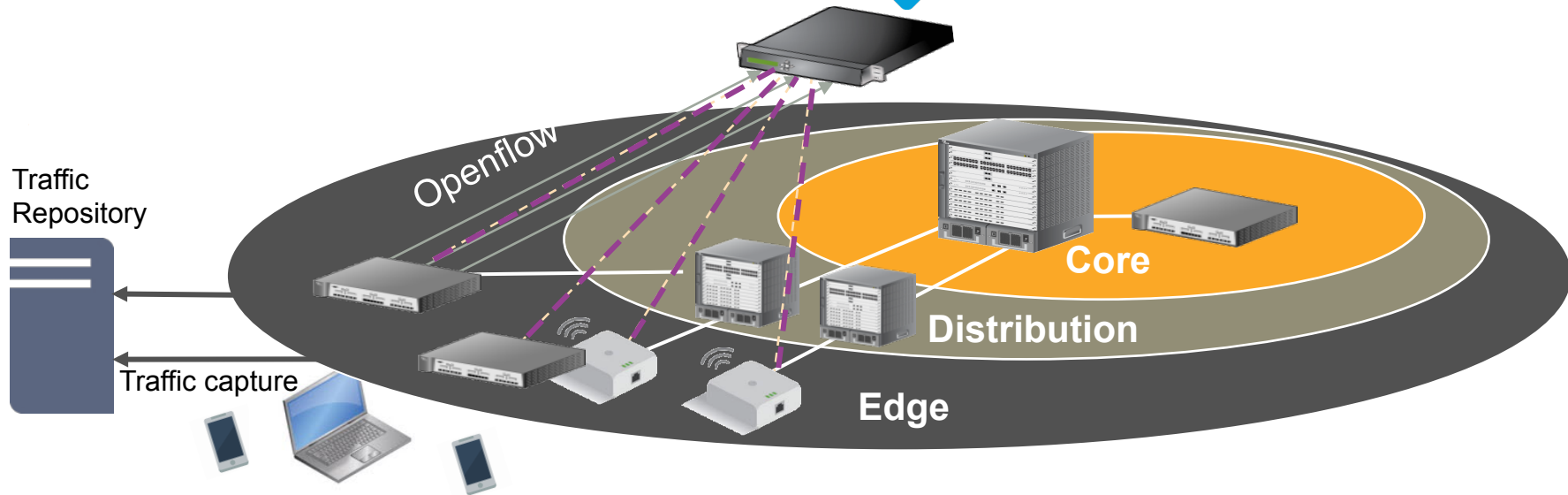
1. Internal calculations

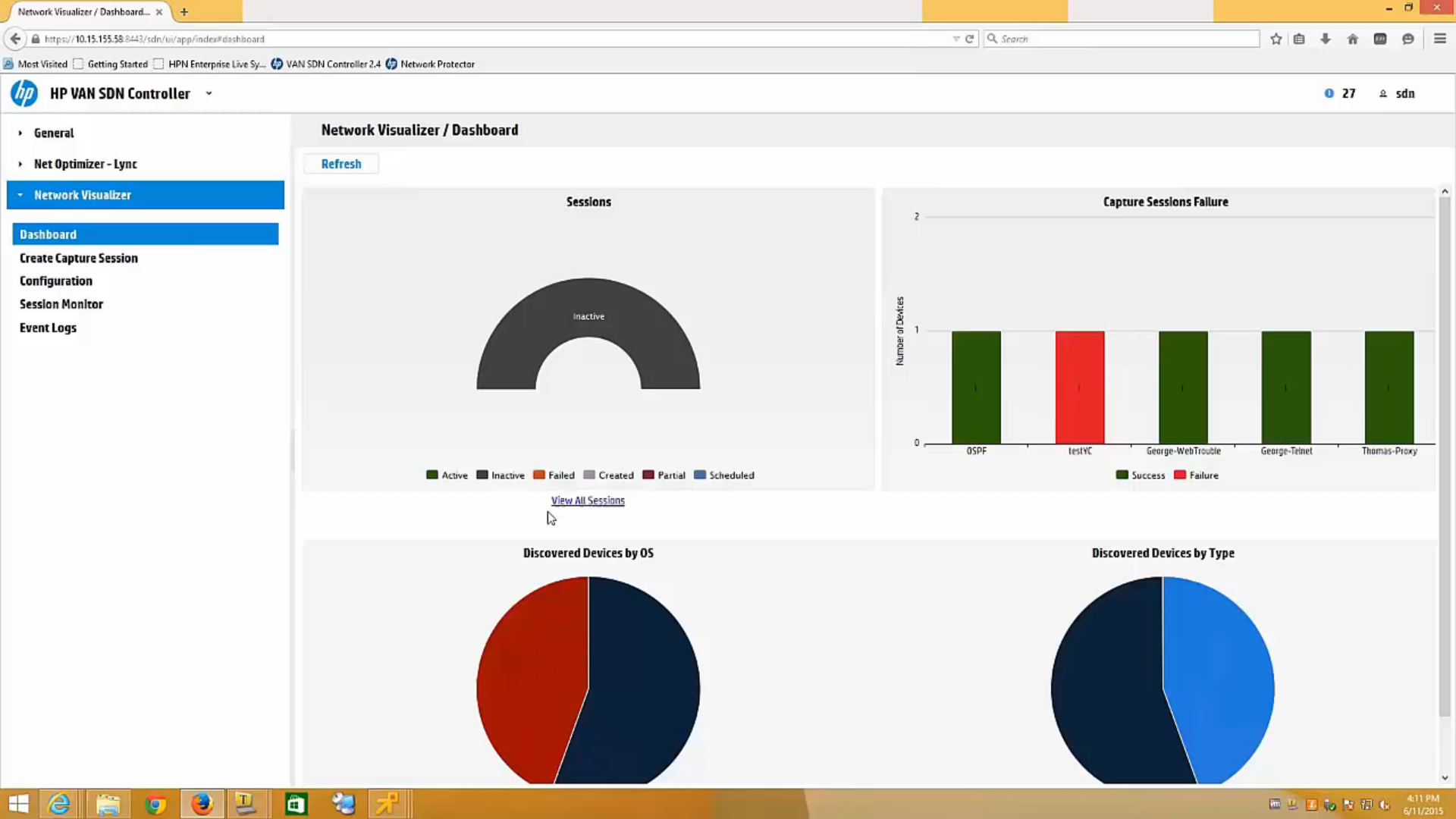
# HP Network Visualizer SDN Application

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atmosphere2015  
HOW TOMORROW MOVES

HP Network Visualizer SDN App  
HP VAN SDN Controller

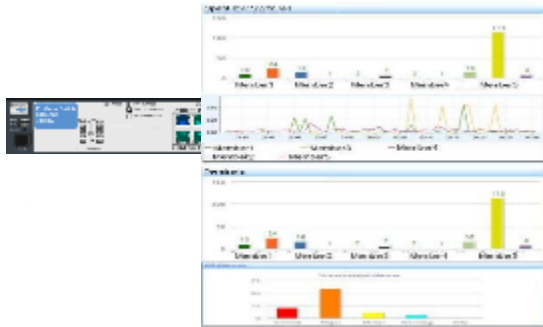
## Dynamic traffic capture





## Visibility into a Software Defined Network at all layers

### Infrastructure



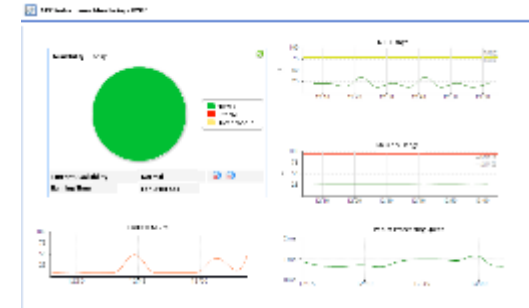
- Deploys, monitors and manages OpenFlow switches
- Visualizes traffic flow and performance monitoring
- Graphical OpenFlow troubleshooting

### Controller



- Unified management of single and teamed controllers
- Detailed monitoring and management functions
- Backup and restore

### Applications



- Installs SDN applications onto appropriate controller(s)
- Enforces application licensing
- Application metrics

# SDN Eco-System



# HP SDN App Store

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**hp** SDN App Store [Sign In](#) [Cart](#) [Search](#)

**Home**

- Apps Circle 1 HP**  
HP developed SDN applications
- Apps Circle 2 Partner**  
Full apps or trials from HP AllianceOne partners
- Apps Circle 3 Community**  
Open access circle for trial, concept, or other apps supported by the developer
- Concept Apps**  
Application concepts that are in development, but not ready for
- Controllers**  
HP VAN SDN Controller
- Monitoring and Troubleshooting**  
Monitoring and Troubleshooting
- Optimization**  
Apps that optimize traffic flows to improve network performance and QoS
- Orchestration**

## Welcome to SDN App Store

SDN is Now, are you ready?

Select from a range of SDN applications that allows you to refine your network using the power of SDN.  
Deploy directly to the enterprise ready HP VAN SDN Controller.

### Featured Apps

#### The Network Protector SDN App

Running on HP Virtual Application Networks (VAN) SDN Controller, enables automated network posture assessment and real-time security across OpenFlow-enabled network devices.

[Learn More](#)

#### The Network Optimizer SDN App

For Microsoft Lync enables automated provisioning of network policy and quality of service to provide an enhanced user service to provide an enhanced user experience.

[Learn More](#)

#### Hyperglance

Real-Status Hyperglance helps you better see and more rapidly control your network and Hybrid Cloud Environment.

[Learn More](#)



**60%<sup>1</sup>**

Lower costs



**90%<sup>1</sup>**

Shorter time to Service



**100%**

Standards-based and open



**50**

Switches SDN-enabled

<sup>1</sup>Based on internal Study

## ... and enterprise ready

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HOW TOMORROW MOVES



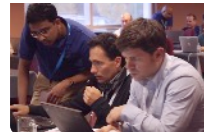
## Customers and development partners

JAVA/ REST/ PYTHON

### 3 HP and 19 Partner



## 5 Developer events globally



#ATM15ANZ | @ArubaANZ



# Accelerate innovation with partners

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## 93 SDN Members



Microsoft



silver peak

vmware



## 21 SDN Apps



# Customer References

# SDN Customer References

ANZ  
atmosphere2015  
HOW TOMORROW MOVES



SDN Customer References Brochure



## Network Protector SDN App

- Maintain 31-site wired and wireless network serving over 30,000 users with **1 staff member**
- Deploy in less than **1 hour**
- **Fraction of the cost**, \$200K vs \$2million of hardware





## Network Optimizer & Blue Cat DNS & Real Status Hyperglance

- Enhanced user experience
- Lower overall IT infrastructure cost
- Enables a real-time, 360-degree view of the entire network through Real Status Hyperglance SDN App and BlueCat DNS Director SDN App





## Network Optimizer & Kemp Load balancing

- 15,000 students and 1,200 staff
- Enhanced user experience by 40%
- Latency issues with added bandwidth demands for video and desktop sharing eliminated
- Enabled to expand its video-based instruction and be responsive to changing business needs



# THANK YOU