Make Your Network Mobile

The Aware Network
June 2011
Paul Hooper

extreme networks™

CIO's Requirements are Evolving

Closed solutions	**Open**
In-house compute	**Elastic**
Fixed Access	**Mobile**
Static Environment	**Dynamic**
Passive Infrastructure	**Engaged**
Endless kWh power	**Sustainable**
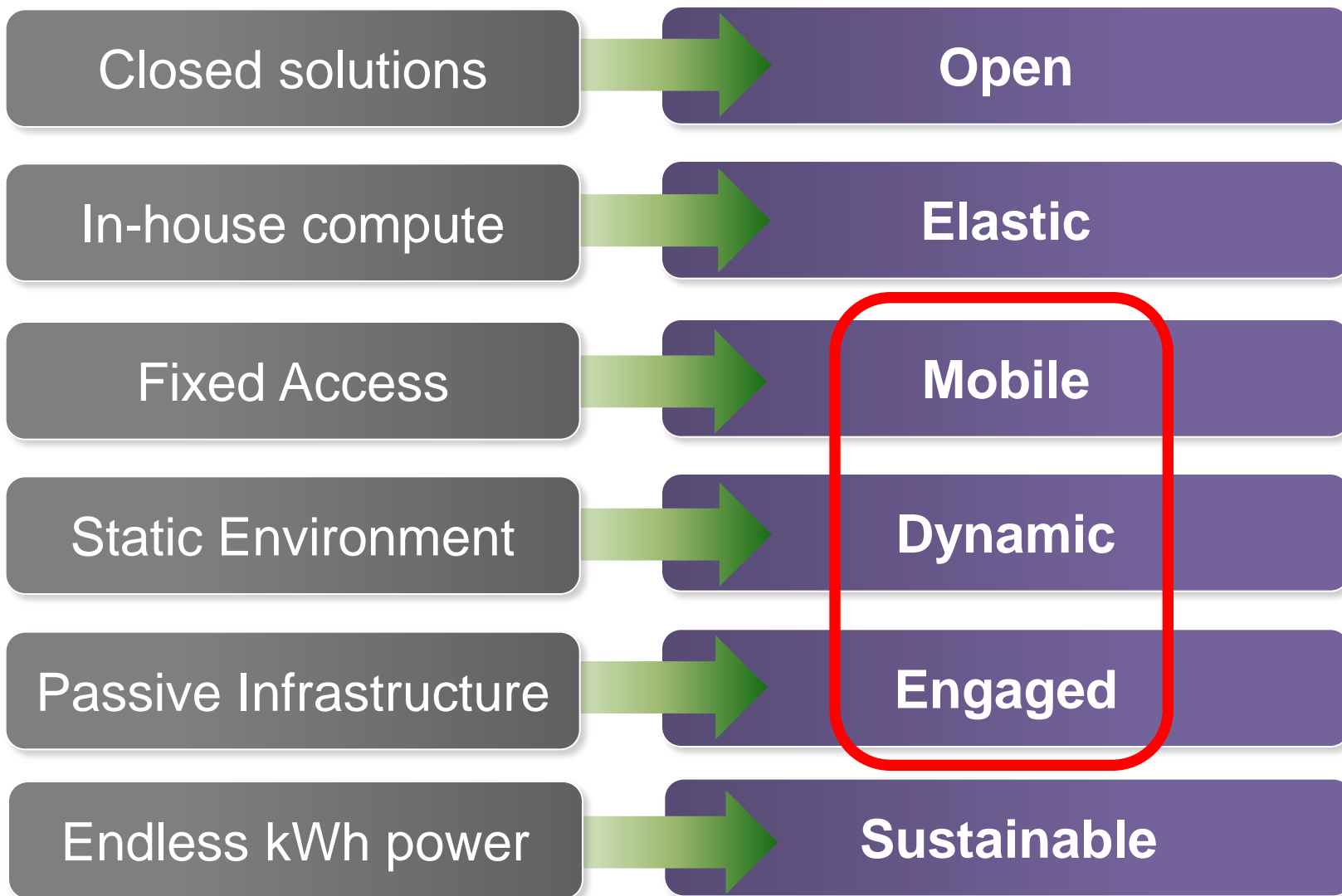
Aware : In the Data Center

Open

Elastic

Mobile

Dynamic

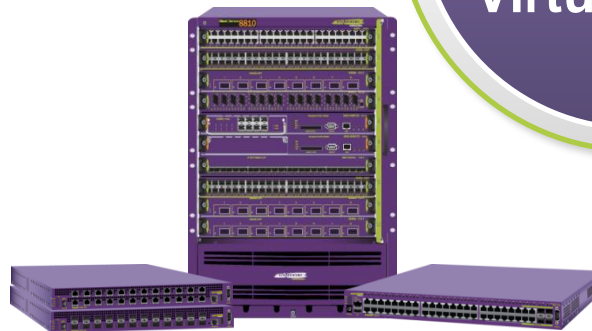**Engaged**

Sustainable

Dynamic Solutions

Networking that has transitioned from static to dynamic

Data Center

Robust Product Portfolio

XNV™ ExtremeXOS® Network Virtualization

Virtual Port Profile Migration

vSwitch

vSwitch

VM Mobility

VM   VM

VM   VM

Virtual Machine Manager

Virtual Machine Manager

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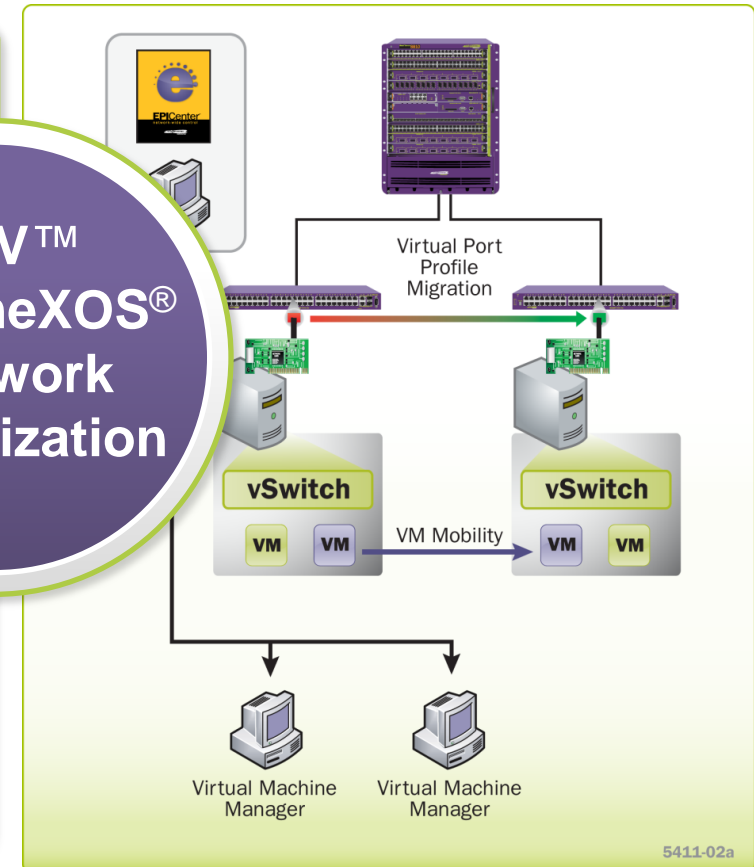
Extreme XNV : Virtualization Aware

VM Mobility Issues Today Network has Zero visibility into VM Lifecycle

Server Admin

Network Admin

Initiate

Virtual Machine Manager
e.g. vmware·
Microsoft·

Switch Port Config
IP: 1.1.
1.2
MAC: 00:0
A
QoS: QP7
ACL:
                 Den
y HTTP

Switch Port Config
None or Disabled

NIC

NIC

VM1
IP: 1.1.1.2
MAC: 00:0A

Hypervisor

Hypervisor
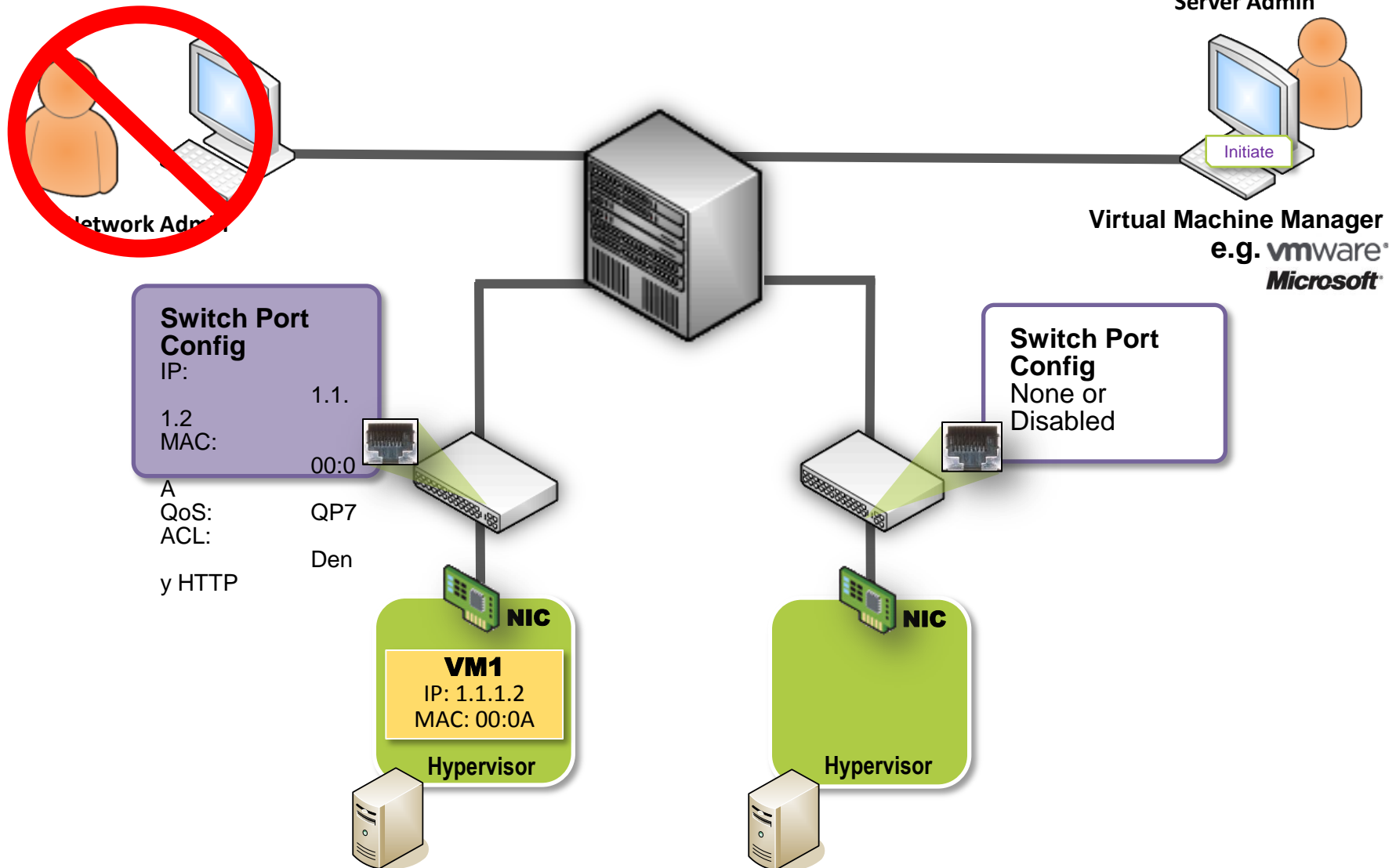
Extreme XNV : Virtualization Aware

extreme networks™

Extreme Networks: XNV Network Visibility into VM Lifecycle

Server Admin

Location-based VM awareness at the network level for efficient vMotion or Live Migration

Query

Initiate

Virtual Machine Manager e.g. vmware

VM info

Microsoft

Table

Power status	Name	Host IP address	Device IP address	Port	vPort profile	Tool st
poweredOff	dsl-2	10.210.14.105	--	--	gold	toolsIn
poweredOff	ubuntu-server-2	10.210.14.101	--	--	--	toolsN
poweredOff	dsl-1	10.210.14.101	--	--	gold	toolsN
poweredOn	system-center	10.210.14.105	10.210.14.20	17	--	toolsO
poweredOn	open-filer	10.210.14.101	10.210.14.20	23	--	toolsN
poweredOff	ubuntu-4	10.210.14.105	--	--	--	toolsO
poweredOff	dsl-5	10.210.14.101	--	--	--	toolsN
poweredOff	ubuntu-3	10.210.14.105	--	--	--	toolsO
poweredOff	dsl-3	10.210.14.101	--	--	gold	toolsN
poweredOff	ubuntu-2	10.210.14.101	--	--	--	toolsN
poweredOff	dsl-4	10.210.14.101	--	--	gold	toolsN
poweredOff	ubuntu-1	10.210.14.101	--	--	--	toolsN
poweredOff	do-not-power-on	10.210.14.101	--	--	--	toolsN
poweredOn	vCenter	10.210.14.101	10.210.14.20	23	--	toolsN
poweredOff	ubuntu-5	10.210.14.101	--	--	--	toolsN
poweredOn	EPICenter W2KR2	10.210.14.101	--	--	--	toolsN
poweredOff	EPICenter	10.210.14.101	--	--	--	toolsN
poweredOn	ubuntu-server-1	10.210.14.101	10.210.14.20	23	--	toolsN
poweredOff	dsl-6	10.210.14.101	--	--	--	toolsN

QoS: QP7
ACL:

y HTTP

Den

XNV™-enabled

XNV-enabled

Switch Port Config
None or Disabled

NIC

NIC

VM1
IP: 1.1.1.2
MAC: 00:0A

Hypervisor

Hypervisor

Aware : At the "User" Edge

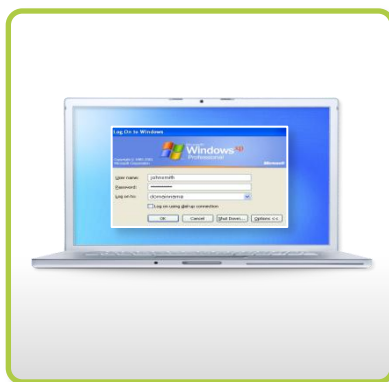| Open |
| Elastic |
| Mobile |
| Dynamic |
| **Engaged** |
| Sustainable |

Engaged Technology

A network that is aware of user, device and application

Role	Internet	Intranet	Mail	CRM/Database	VLAN
Unauthenticated	Yes	No	No	No	Default
Contractor	Yes	Yes	No	No	Default
Employee	Yes	Yes	Yes	Yes	Default

User: John
Role: Employee
Resource Access = Permit All

User: Alice
Role: Contractor
Resource Access = Deny Mail and CRM

User: Bob
Role: Unauthenticated
Resource Access = Internet Only

Active Directory Server
RADIUS Server
LDAP Server

Internet

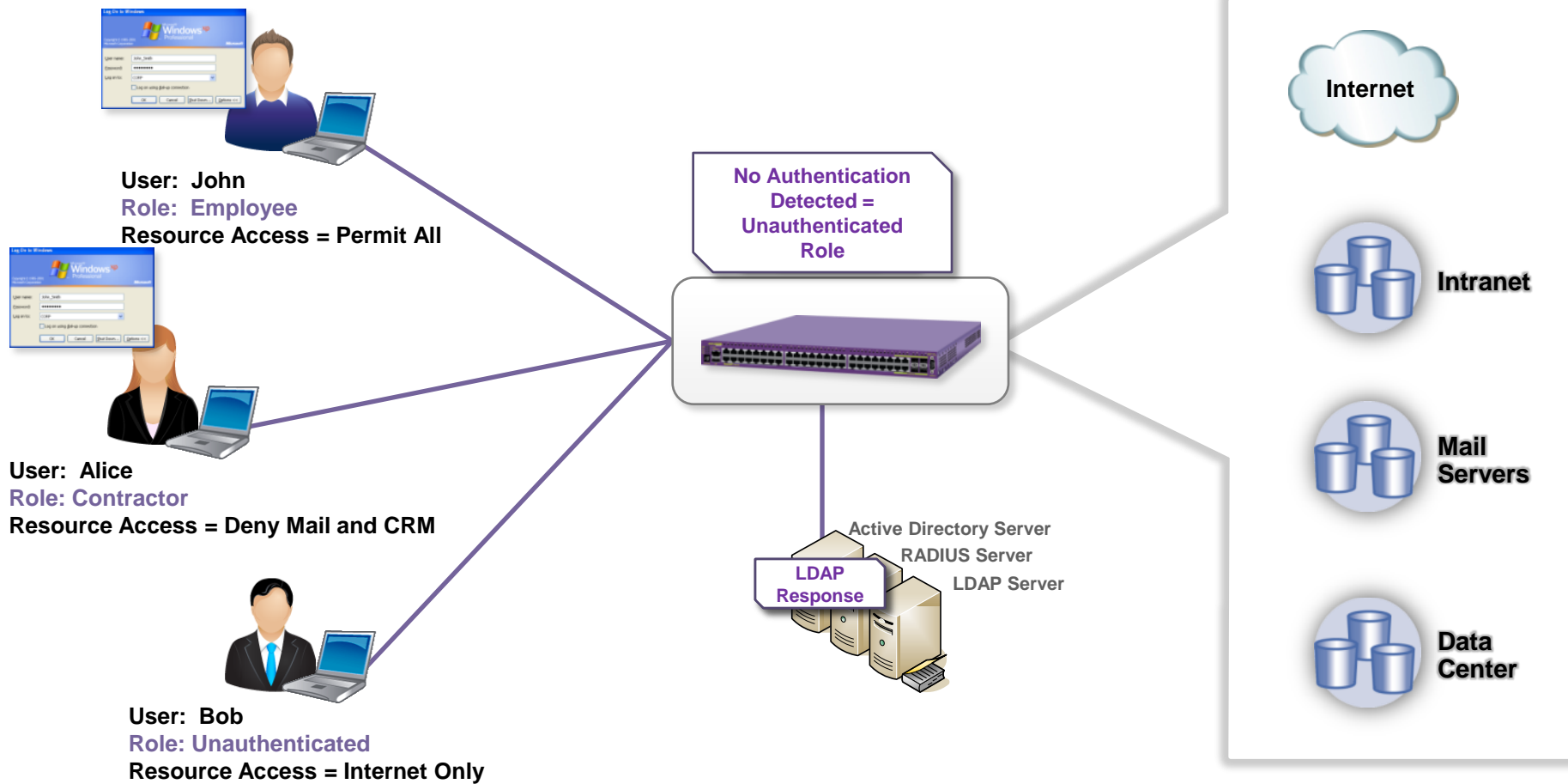ERP Applications & Data

Customer Data

Inventory Applications

5493-01

Extreme IDM : Identity Aware

Role Derivation

- Users are assigned to a "role" based on their attributes (e.g. job function, location, etc…)

- Roles contains dynamic policies that control access to network resources regardless location

Role	Internet	Intranet	Mail	CRM/Database	VLAN
Unauthenticated	**Yes**	**No**	**No**	**No**	**Default**
Contractor	**Yes**	**Yes**	**No**	**No**	**Default**
Employee	**Yes**	**Yes**	**Yes**	**Yes**	**Default**

User: John
Role: Employee
Resource Access = Permit All

User: Alice
Role: Contractor
Resource Access = Deny Mail and CRM

User: Bob
Role: Unauthenticated
Resource Access = Internet Only

No Authentication Detected = Unauthenticated Role

LDAP Response

Active Directory Server
RADIUS Server
LDAP Server

Internet
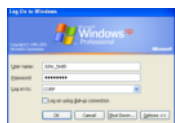
Intranet

Mail Servers

Data Center

Extreme IDM : Identity Aware

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Role	Internet	Intranet	Mail	CRM/Database	VLAN
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Employee	Yes	Yes	Yes	Yes	Default

User: John
Role: Employee
Resource Access = Permit All

Match
Query

Internet

Intranet

Mail Servers

Active Directory Server
RADIUS Server
LDAP Server

Response

Data Center

Identity-based and role-based access regardless of location, wired, or wireless! Not dependent on VLANs!
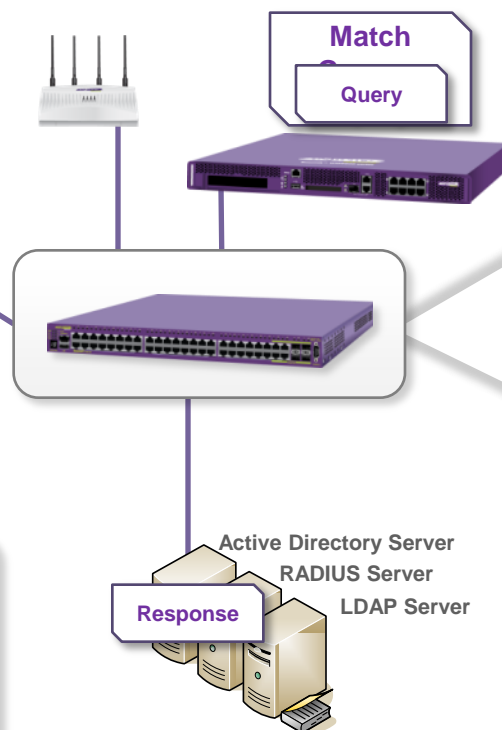
Aware : At the "Device" Edge

Preparation

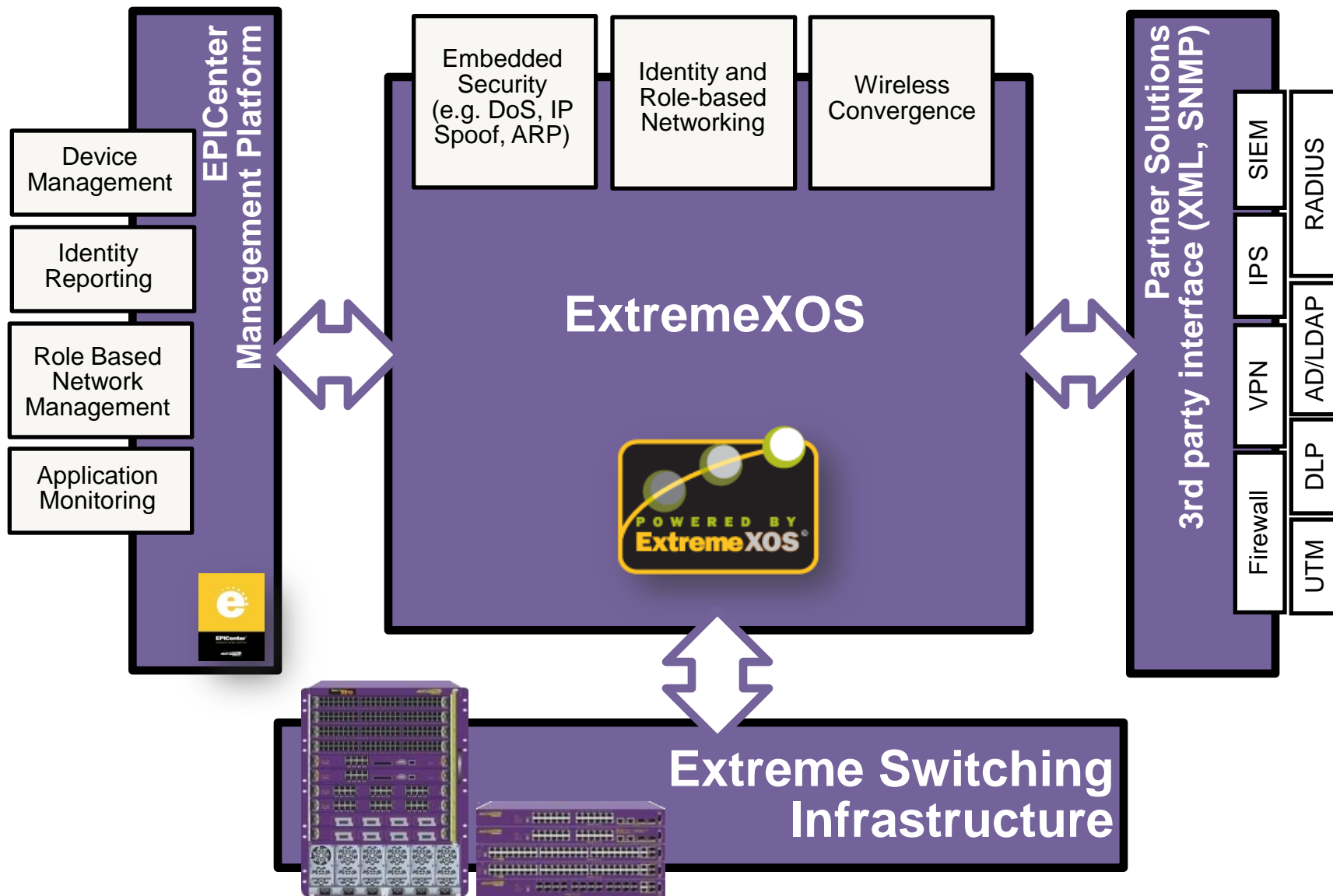## Operation

Create enterprise edge policies **1**

Deploy scripted device-identity detection and response policies to EXOS powered switches **2**

3 **Event:** Connect, disconnect, time of day … any 'log' event

4 **Response:** EXOS trigger to execute scripted policy and enforce change or reaction.

Aware : At the core of the Infrastructure

EPICenter Management Platform

- Device Management
- Identity Reporting
- Role Based Network Management
- Application Monitoring

Embedded Security (e.g. DoS, IP Spoof, ARP)

Identity and Role-based Networking

Wireless Convergence

ExtremeXOS

POWERED BY **ExtremeXOS**®

Partner Solutions
3rd party interface (XML, SNMP)

- SIEM
- RADIUS
- IPS
- VPN
- AD/LDAP
- Firewall
- DLP
- UTM

Extreme Switching Infrastructure

The Pervasive Aware Network

In the Data Center
Virtualization Aware

At the "Device" Edge
Device Aware

At the "User" Edge
Identity Aware

At the Infrastructure Core
Automated and Extensible