Changing Missions/Changing IT

Steve Wallo

Chief Solutions Architect – Brocade Federal

@BRCDFedSolution
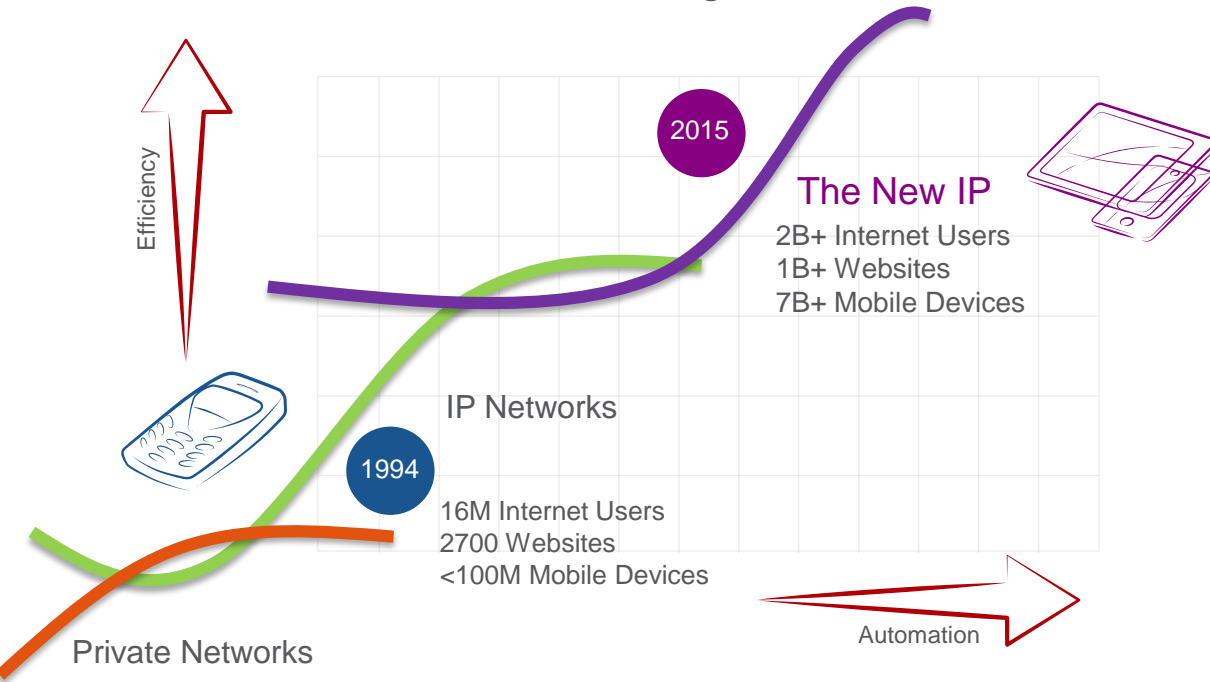
The Task at Hand

- As networks consolidate, how to centralize and scale configurations, situational awareness, policy enforcement and control?

- How can networks respond rapidly to changing conditions such as cyber attacks, geo political events, etc.?

- How do networks become flexible and dynamic enough to accommodate mobility, machine-to-machine communications, virtualized apps, and continually changing traffic patterns?

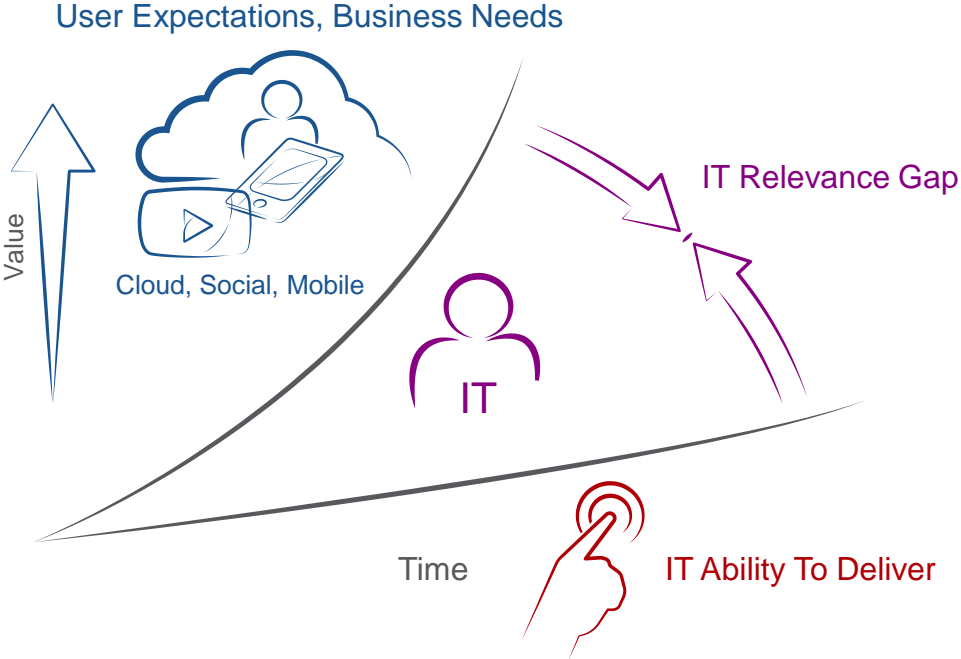- How can the CapEx and OpEx costs of running networks be lowered?

The Current Dilema
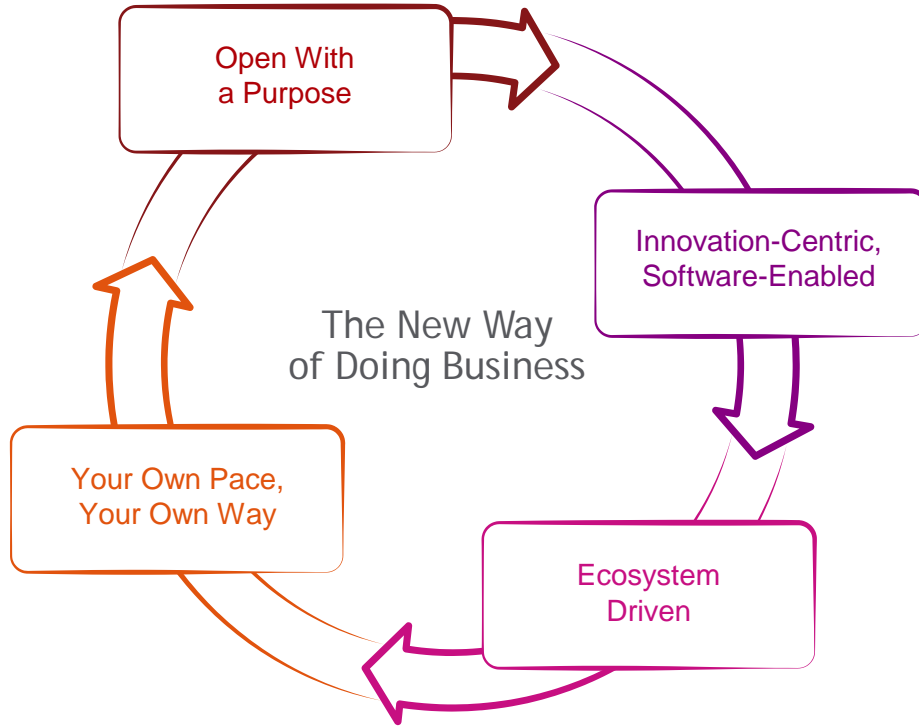## The Foundation for the Digital Business

Efficiency

2015

The New IP
2B+ Internet Users
1B+ Websites
7B+ Mobile Devices

IP Networks

1994

16M Internet Users
2700 Websites
<100M Mobile Devices

Private Networks

Automation

1/3rd of the world's population is connected to the internet

*Can your Old IP handle a New IP world?*

The Result…..The IT Relevance Gap

User Expectations, Business Needs

Value

Cloud, Social, Mobile

IT Relevance Gap

IT

Time

IT Ability To Deliver

The New IP is Transforming IT

Open With a Purpose

Innovation-Centric, Software-Enabled

The New Way of Doing Business

Your Own Pace, Your Own Way

Ecosystem Driven

- Open keeps pace with the rate of innovation, reduces vendor lock-in, and reduces cost and complexity

- Software-Enabled Innovation improves time to value and customer experience

- The Ecosystem provides a pool resources to accelerate innovation

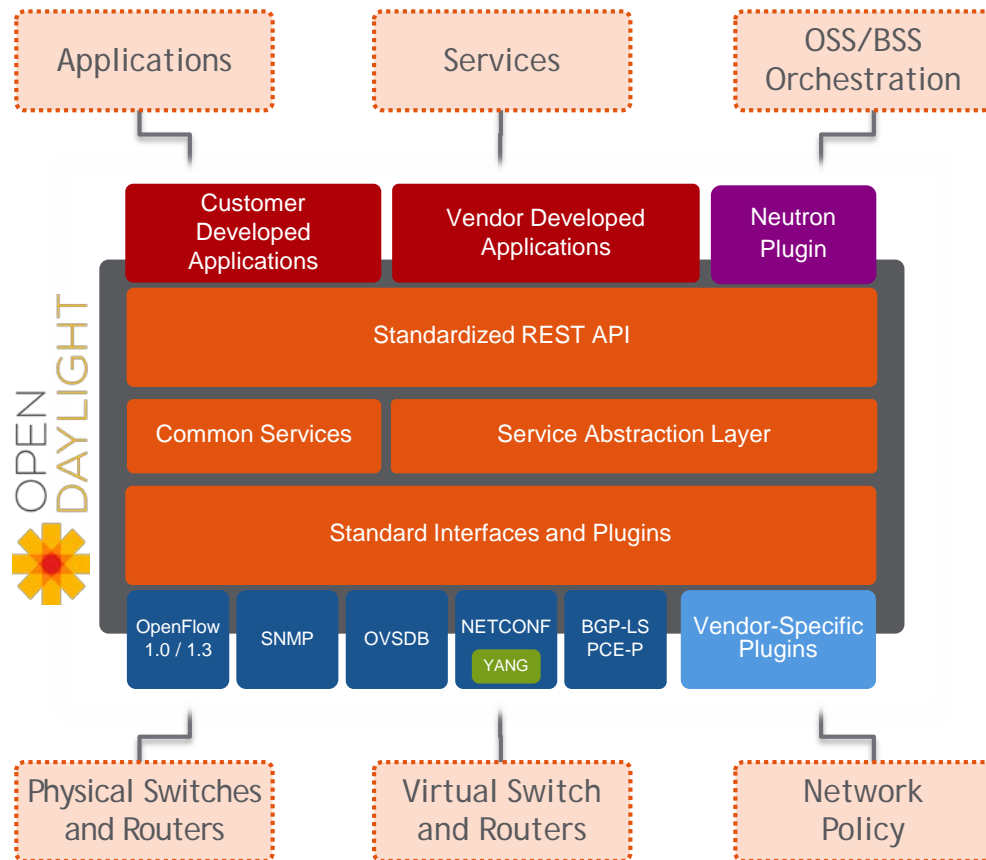- Transform your business on your own time, on your own terms

Foundation for the Internet of Things

Control

Analytics

Connectivity
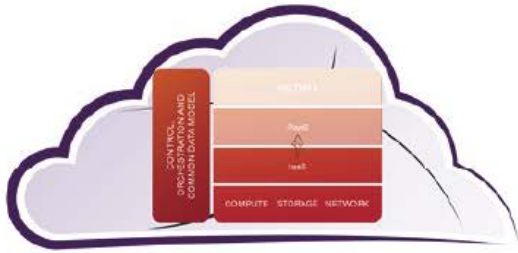
Applications + Big Data + Virtual

Connected + Smart + Physical

The OpenDaylight Project

- Linux Foundation initiative
- The leading open-source SDN controller
  - More than 200 developers from 41 member companies AND individuals from user organizations
  - 1.7+ million lines of code
- Open industry forum: most networking providers, many SDN ecosystem firms
- Addresses service provider and enterprise needs
- Platform-independent "narrow waist"— standardization point that allows for optimization and innovation above and below
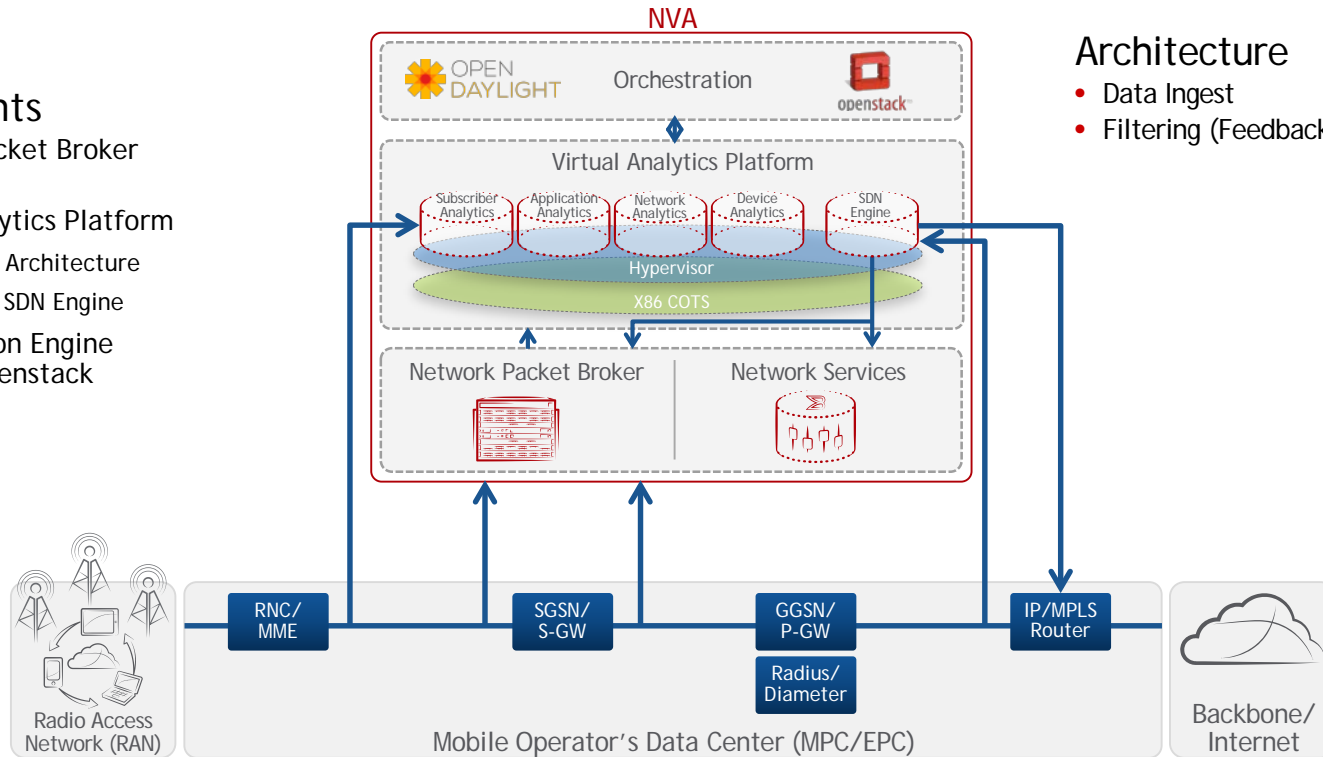
Network Visibility and Analytics (NVA)

Components
- Network Packet Broker

- Virtual Analytics Platform
  - NFV-based Architecture
  - Intelligent SDN Engine

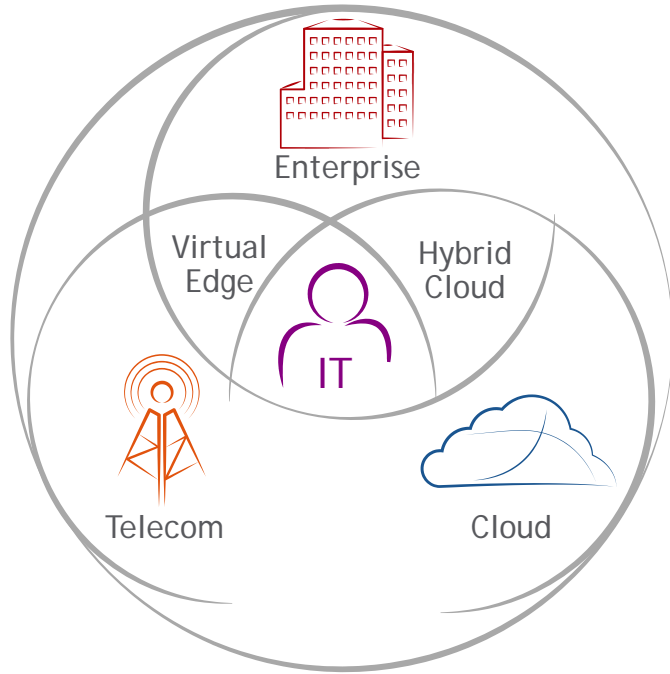- Orchestration Engine ODL and Openstack

Architecture
- Data Ingest
- Filtering (Feedback to adjust)

The ~~Data Center~~ is Everywhere & Anywhere

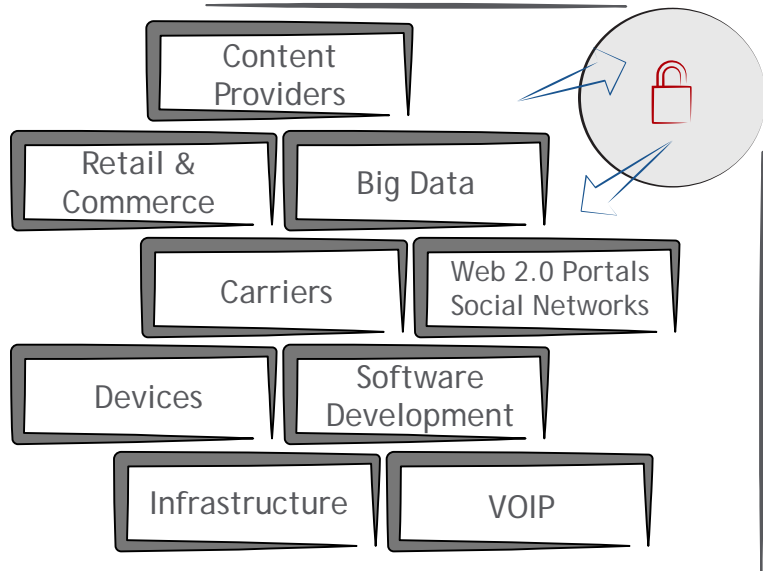Pick where services are hosted based on business rules not vendor limits

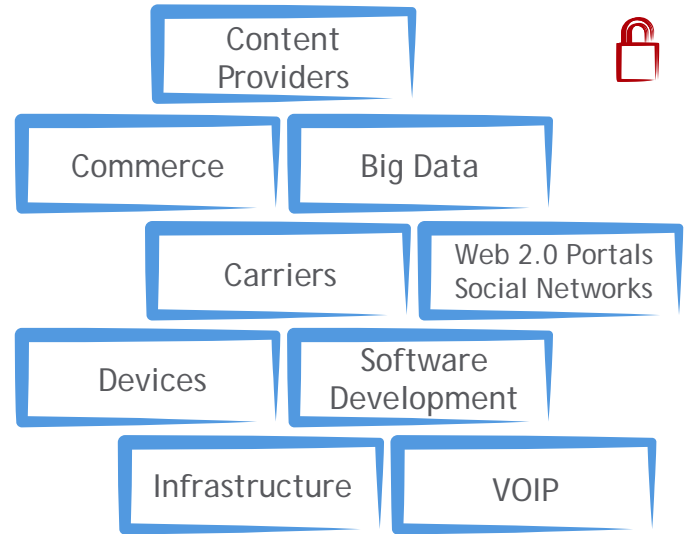The boundaries disappear with the New IP, enabling:

- Management and movement of data across public and private cloud resources

- Anytime, anywhere, any device access to your applications and data

- Consistent policy enforcement across federated environments

- User self-service=immediate time to value

- Centralized security control

- Optimized user experience

Do More with Security

Embed security services where and when you need them

Content Providers

Retail & Commerce

Big Data

Carriers

Web 2.0 Portals Social Networks

Devices

Software Development

Infrastructure

VOIP

The Old IP was identity based, the New IP is behavior based and pervasive

Content Providers

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The new way of doing business requires it to be a fundamental tenant of a heterogeneous architecture.

The New IP open architecture and broad ecosystem allows security from your trusted provider to be built-in and pervasive. Not bolted-on.

# Software Defined Networking Enhances Data Protection

- Leverage software defined networking (SDN) to centrally manage how security policies are defined, managed and deployed.

- Future application development will allow for enhanced end-to-end security initiation, configuration and management.

- SDN brings multiple security disciplines together between various vendors for a truly unified experience with a common API framework that any security appliance can leverage.
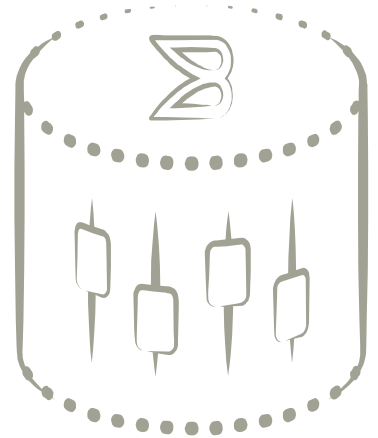
..but ultimately where is the real power?

Application

Monitoring App (Dev Ops)

SDN Controller

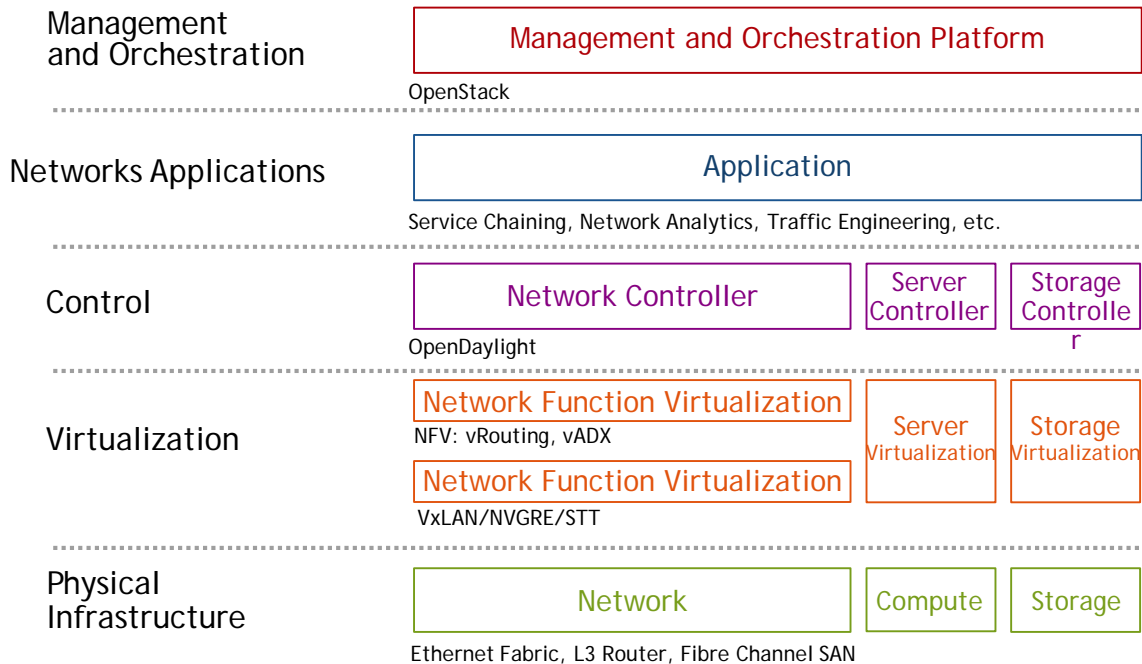Monitoring Feedback
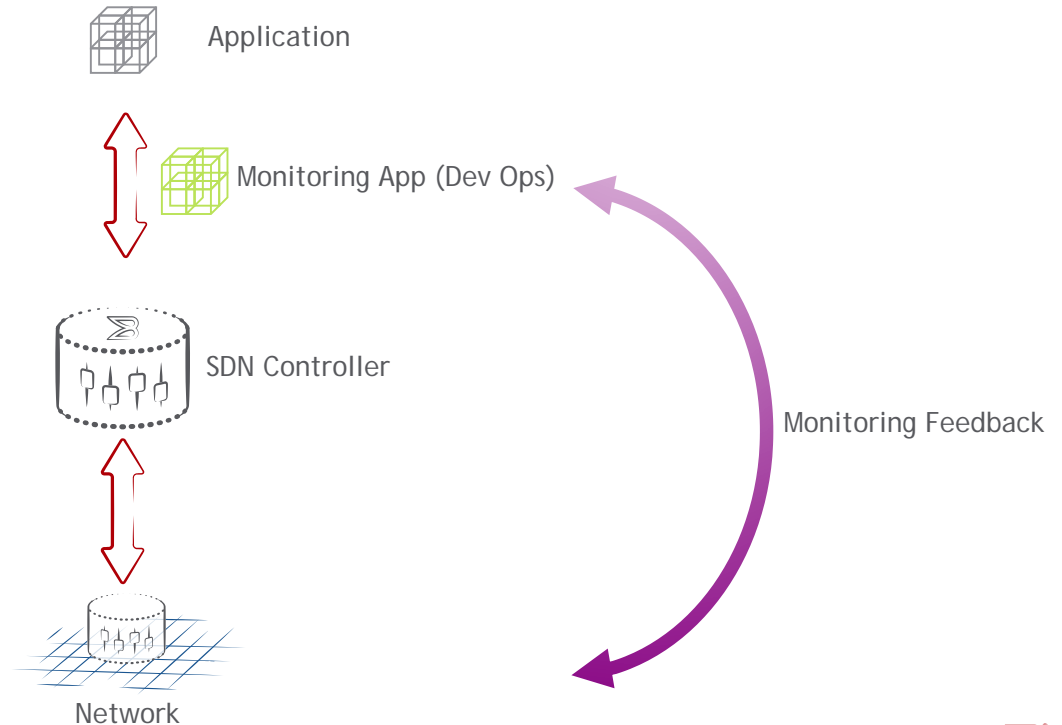
Network

..or this...
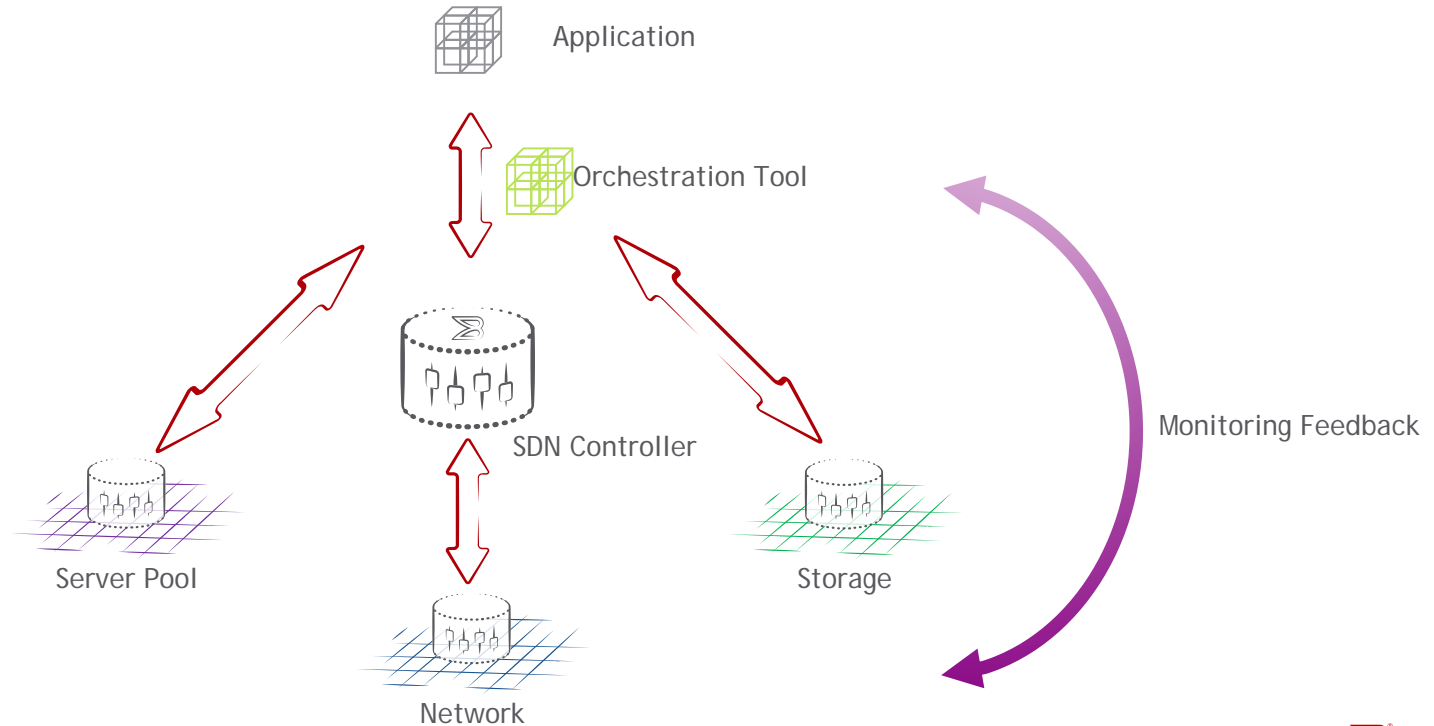
Software Defined Intelligence (SDI)

SDN + Machine Learning

- SDI foundations: Data Science and Machine Learning

- First applications will be in "Network Learning"

  – More generally: "Predictive" Security

  – Predict eminent DDOS rather than reacting to an existing DDOS

    • "The probability you will experience a DDOS is 0.05"

  – Detecting spam prefixes in the Internet routing table based on various data sources

- Larger goal: Uncover new relationships and structure in network data

- Trivial example: "Better Data Centers Through Machine Learning"

  – Google PUE example

Requirements for the Future

Management and Orchestration	Management and Orchestration Platform		
	OpenStack		
Networks Applications	Application		
	Service Chaining, Network Analytics, Traffic Engineering, etc.		
Control	Network Controller	Server Controller	Storage Controller
	OpenDaylight		
Virtualization	Network Function Virtualization — NFV: vRouting, vADX / Network Function Virtualization — VxLAN/NVGRE/STT	Server Virtualization	Storage Virtualization
Physical Infrastructure	Network	Compute	Storage
	Ethernet Fabric, L3 Router, Fibre Channel SAN		

New IP for C4I

Maximizing Effectiveness

- NFV - Reduced SWaP
  - Software Centric / Hardware "Listening"

- SDN - Simplified Provisioning / Control
  - But only with open, standardized interfaces/APIs

- Greater Cyber Situational Awareness
  - Apply Services as needed / anywhere
  - Centralize Policy

- Agile, Intelligent Traffic Optimization

BROCADE
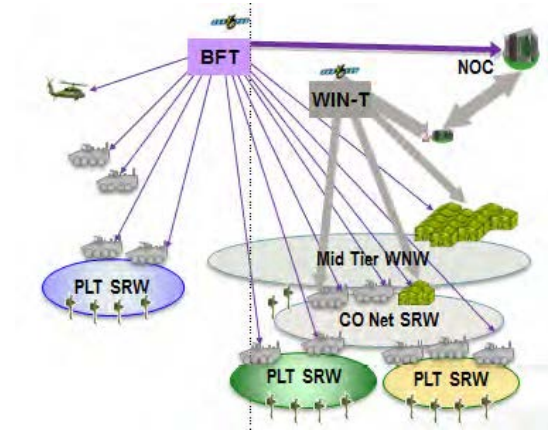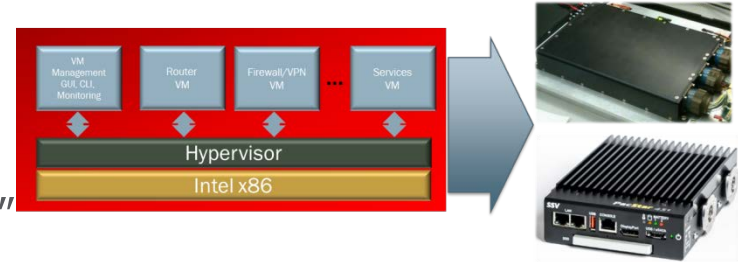
BREAK THE STATUS QUO:
THINK BIG.
START NOW.

@BRCDFedSolution