

The Programmable Network - Software Defined Infrastructure

Paul Horrocks - December 2013

A quick recap on the
why ..

The Business Requirements



TIME to VALUE

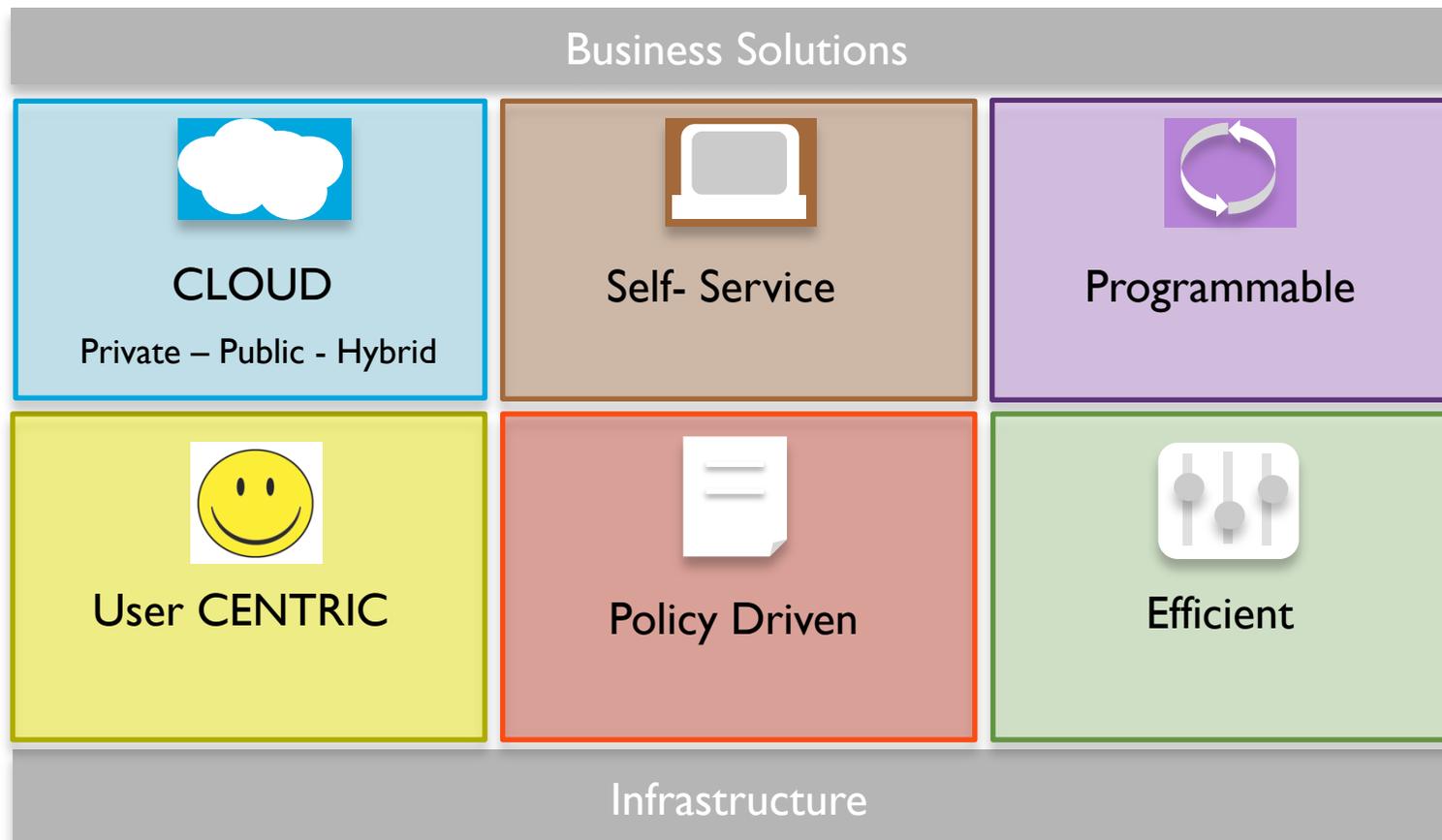


REDUCED COST



CUSTOMER CENTRIC

Less Integration. More Innovation.



Applications are placing
new demands on
Infrastructure ..

Application Delivery: Assumptions and Realities

ONE Admin

INFINITE bandwidth

Homogenous

Reliable

Latency is ZERO

TOPOLOGY does not change

Cost is ZERO

Secure



The Rise of DevOps



DEVELOPMENT

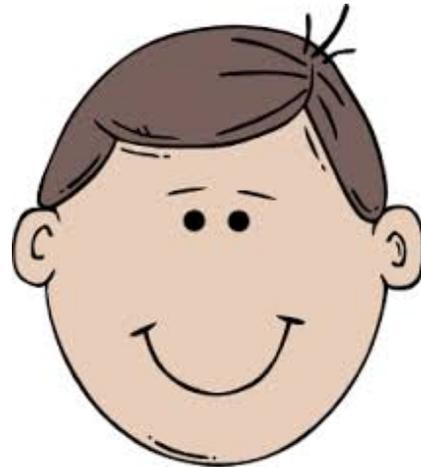


OPERATIONS

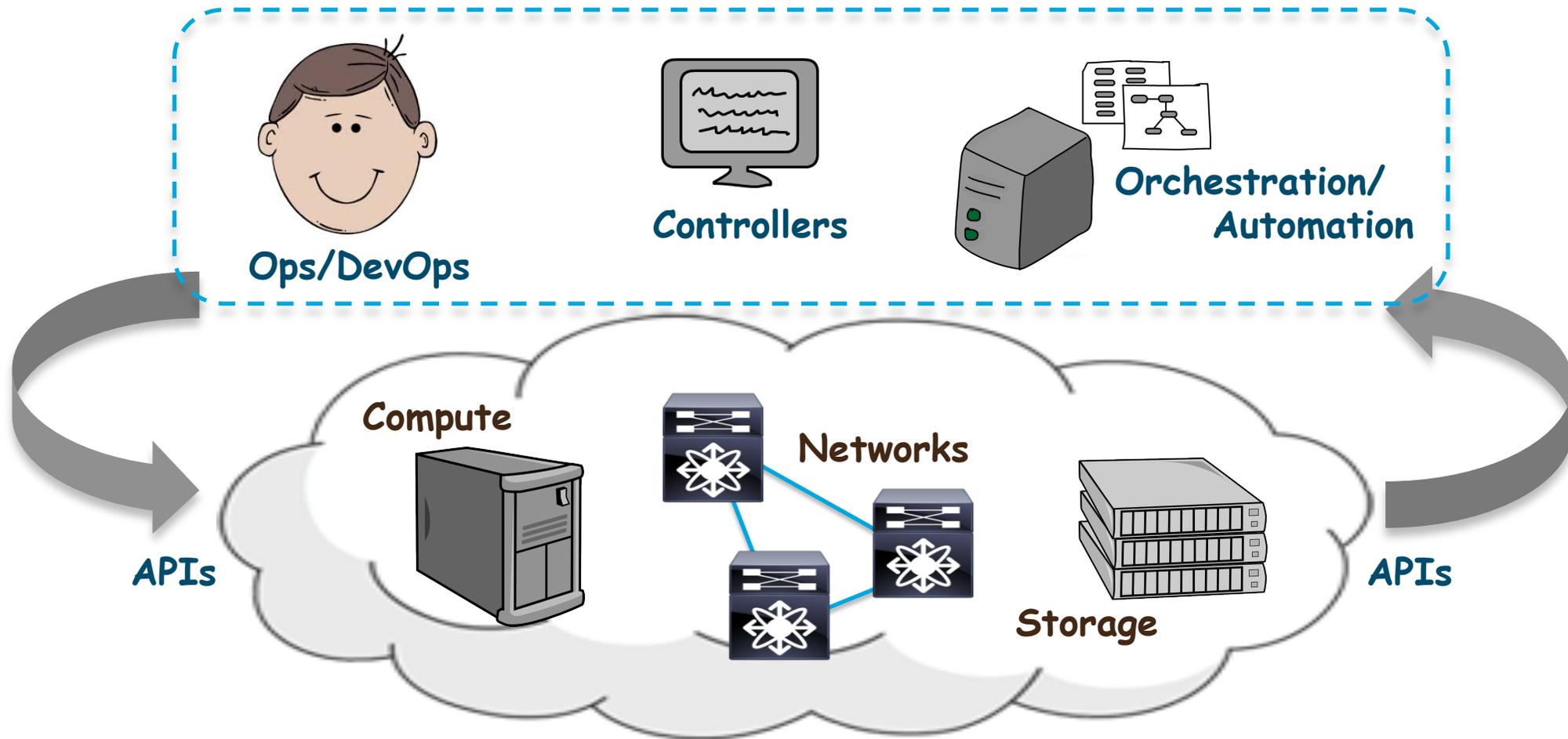


The Rise of DevOps

DevOps



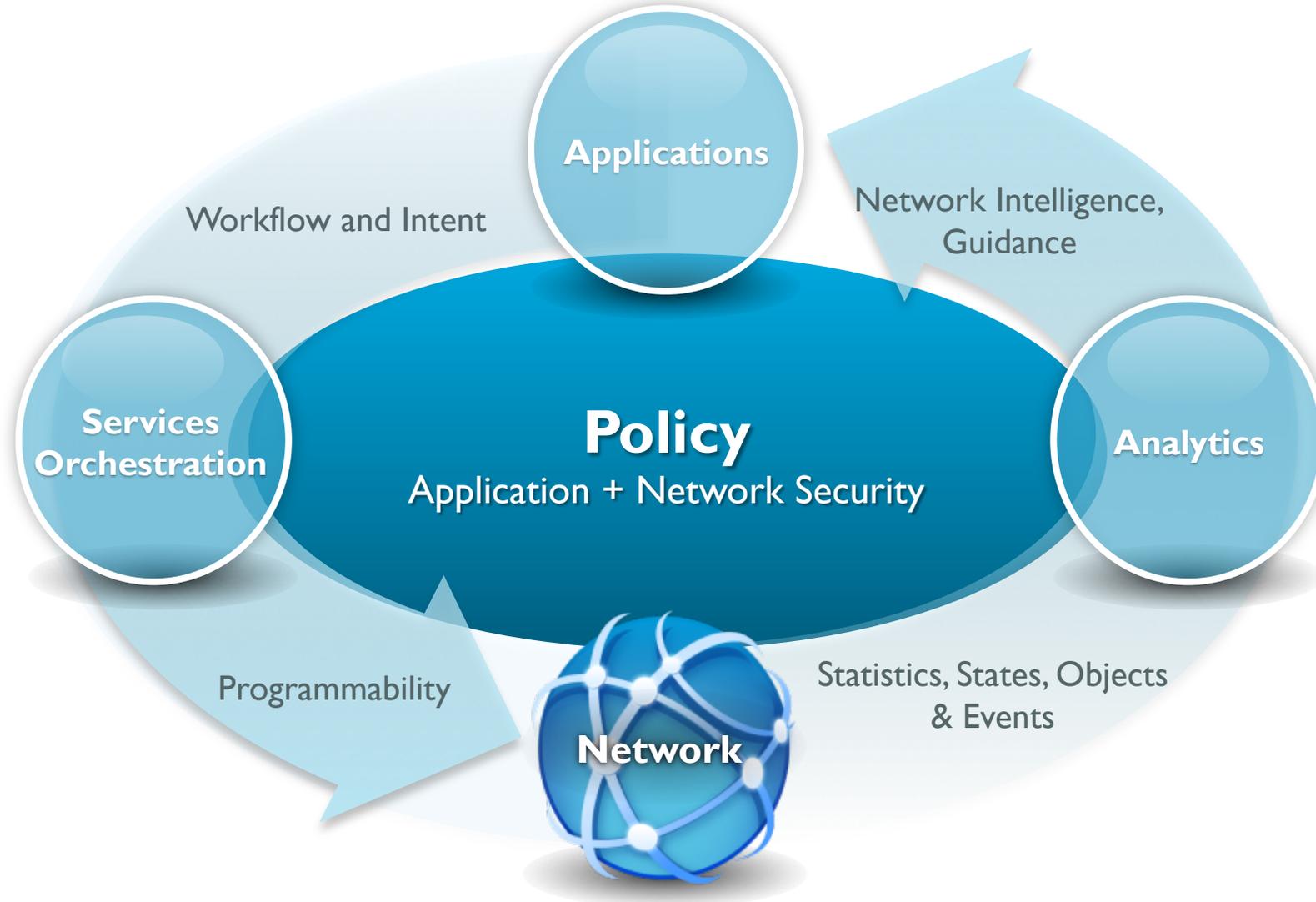
It's all about Programmability



“Compute, storage, memory and I/O components joined through a fabric interconnect, and the software to configure and manage them”

• *Fabric-Based Infrastructure - Gartner*

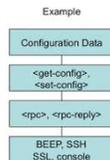
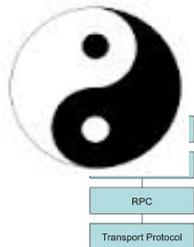
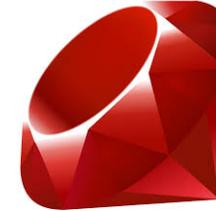
Move to a Programmable Infrastructure



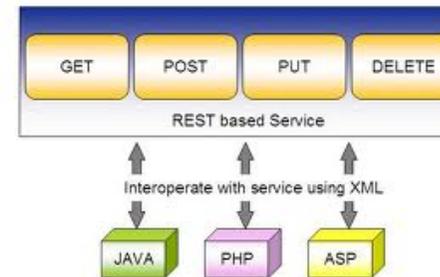
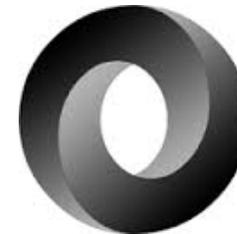
Move to a Programmable Infrastructure

```
<?xml version="1.0"?>
<quiz>
  <question>
    Who was the forty-second
    president of the U.S.A.?
  </question>
  <answer>
    William Jefferson Clinton
  </answer>
  <!-- Note: We need to add
  more questions later.-->
</quiz>
```

XML

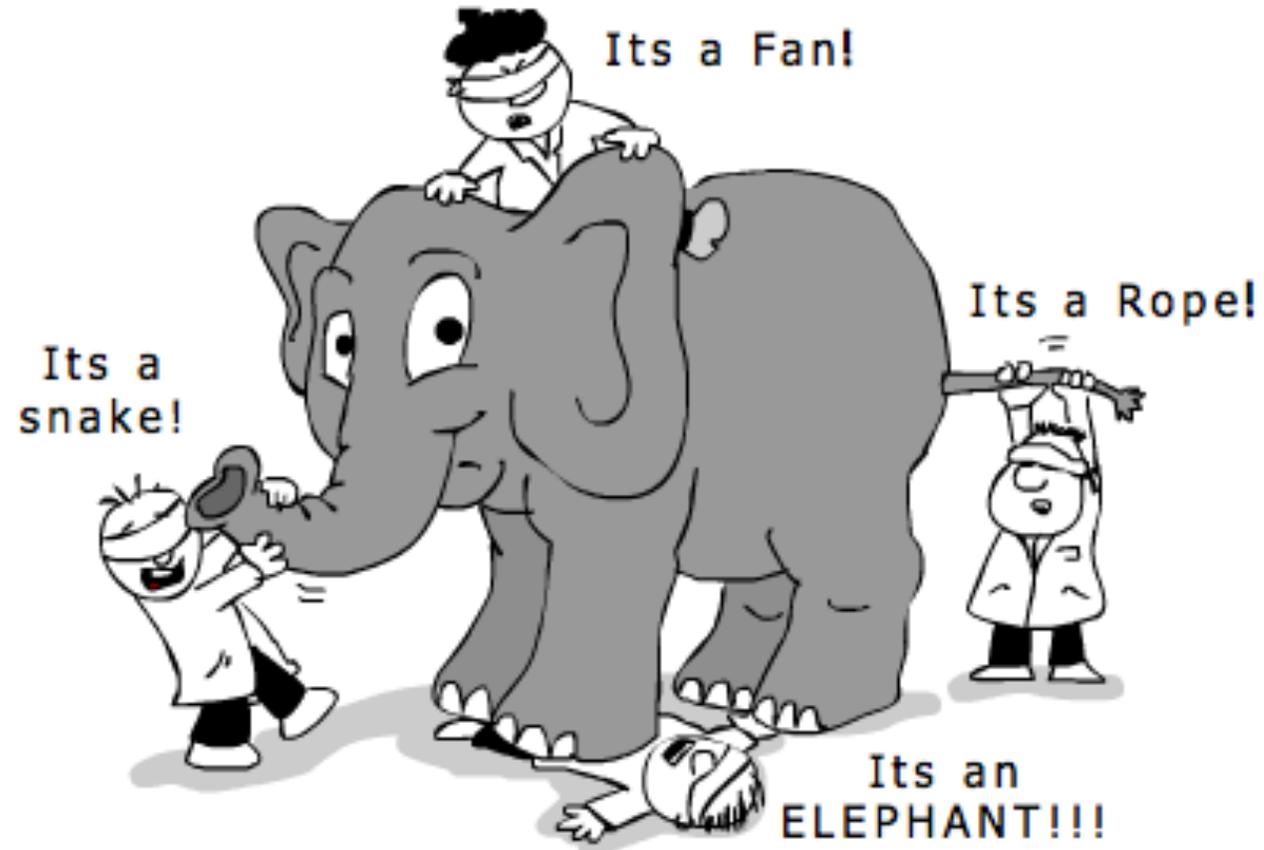


THE
C
PROGRAMMING
LANGUAGE



We're all clear on
SDN .. ??

Software Defined Networking



Software Defined Networking

SDN



Controllers
& Agents

Virtual
Overlays

Programmatic

Cisco Open Network Environment (ONE)

Deep programmatic access to Cisco devices and software

- onePK
- Openstack
- REST
- ACI

Programmatic

Centralize control, configuration & policy monitoring

- Cisco XNC
- Open Daylight
- OpenFlow
- Puppet/Chef
- ACI

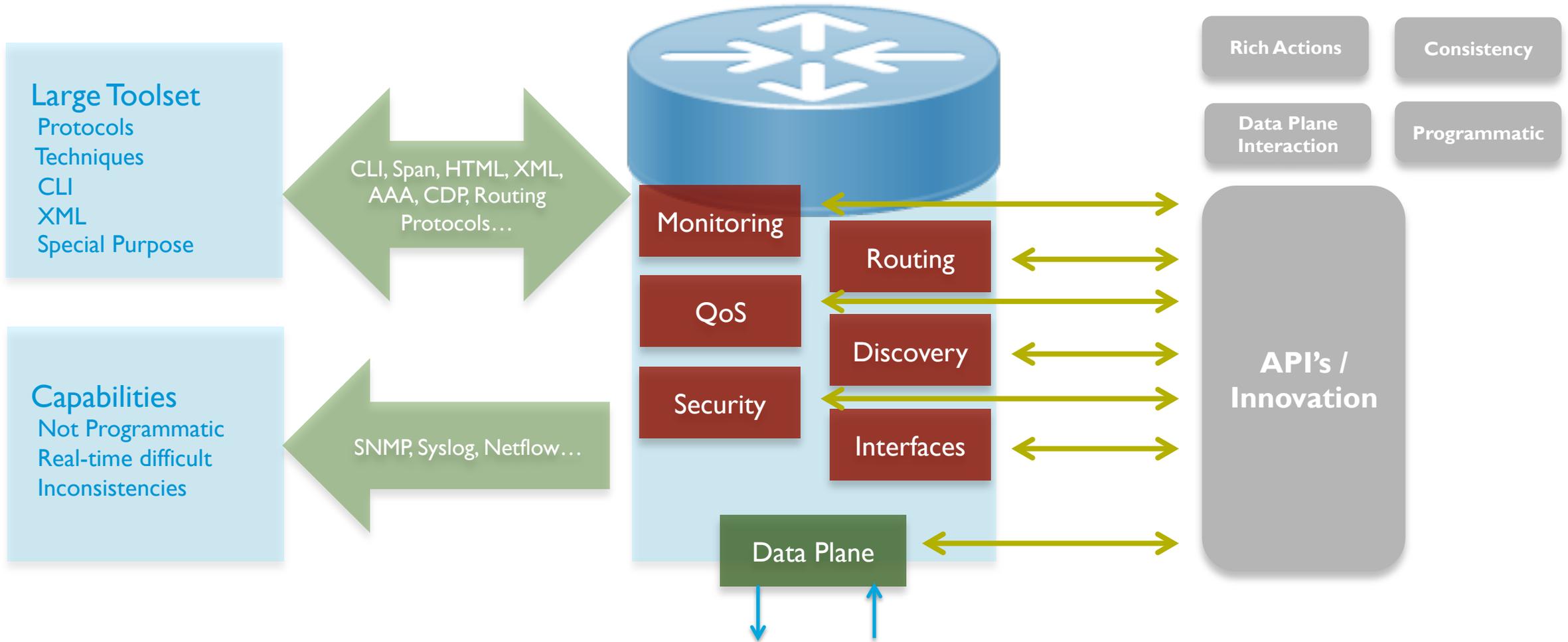
Controllers & Agents

Scalable multi-tenant cloud infrastructures across physical & virtual

- Vxlan
- NVGRE
- ACI

Virtual Overlays

Evolving interaction with the Network

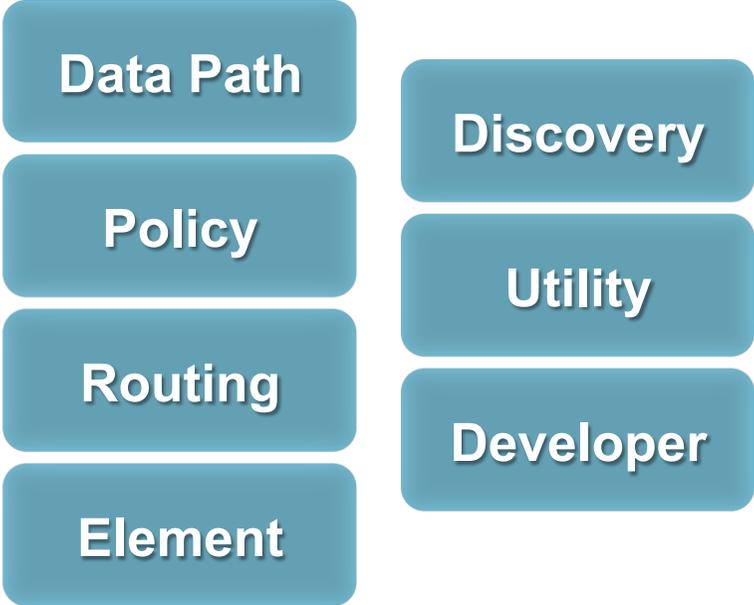


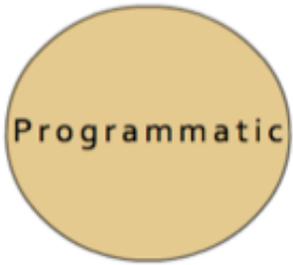
Base Service Sets

Rich set of API's exposed

Significant set of capabilities supported

Across multiple Service Sets

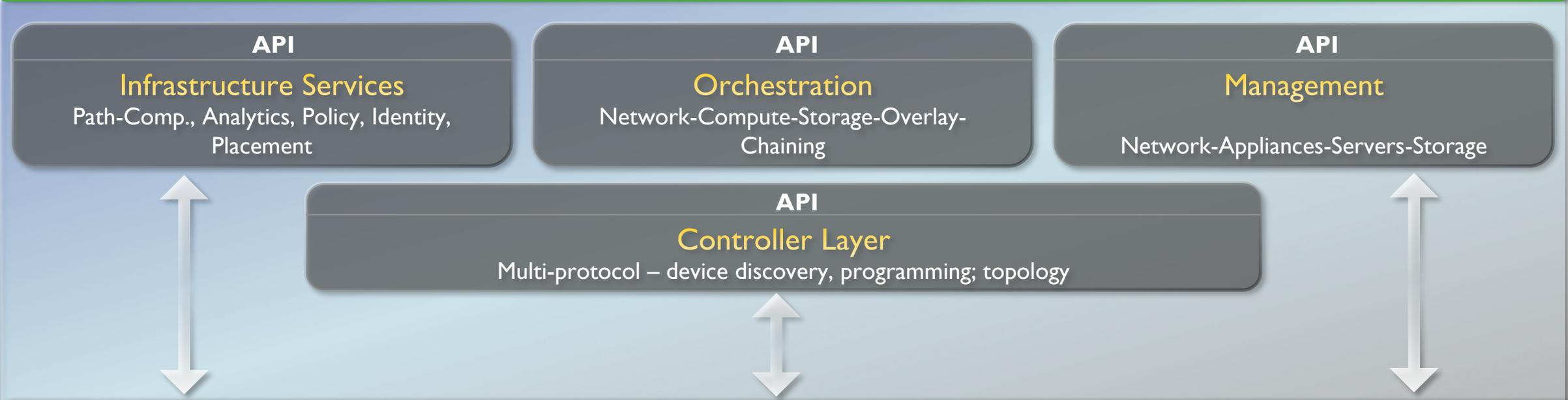




Programmatic Network Access

Applications

Resource Orchestration and Management (Unified Platform APIs)

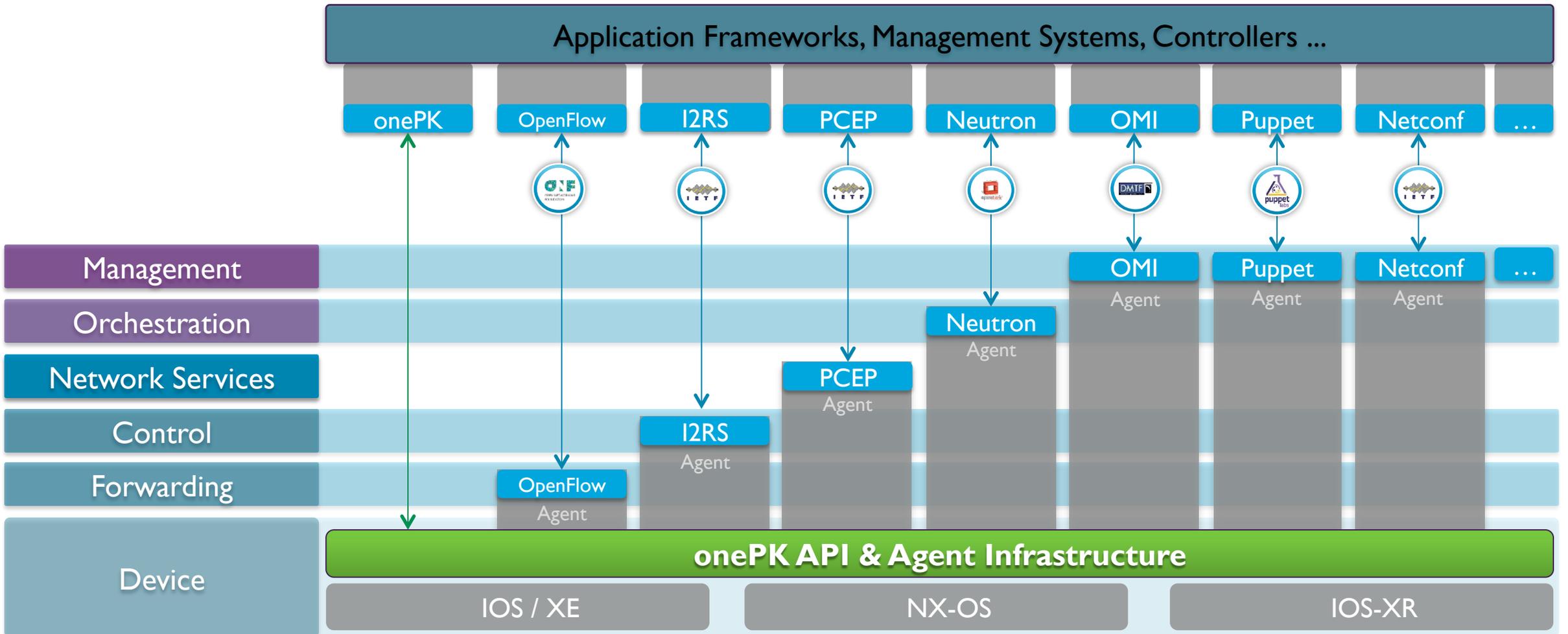


APIs and Protocols

Physical Infrastructure

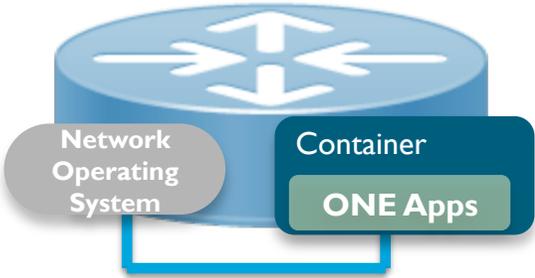
Virtual Infrastructure

Programmatic Network Access

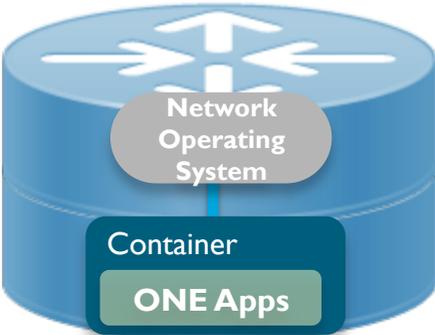


Deployment Models

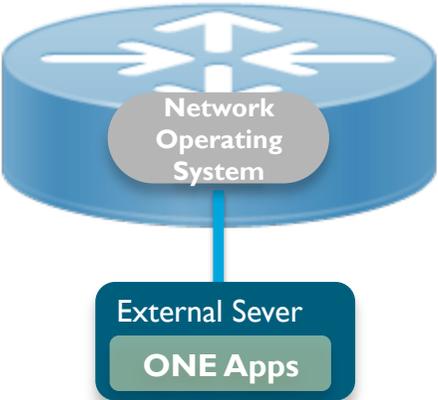
C, JAVA, Python, REST, Programmatic Interfaces



Process Hosting

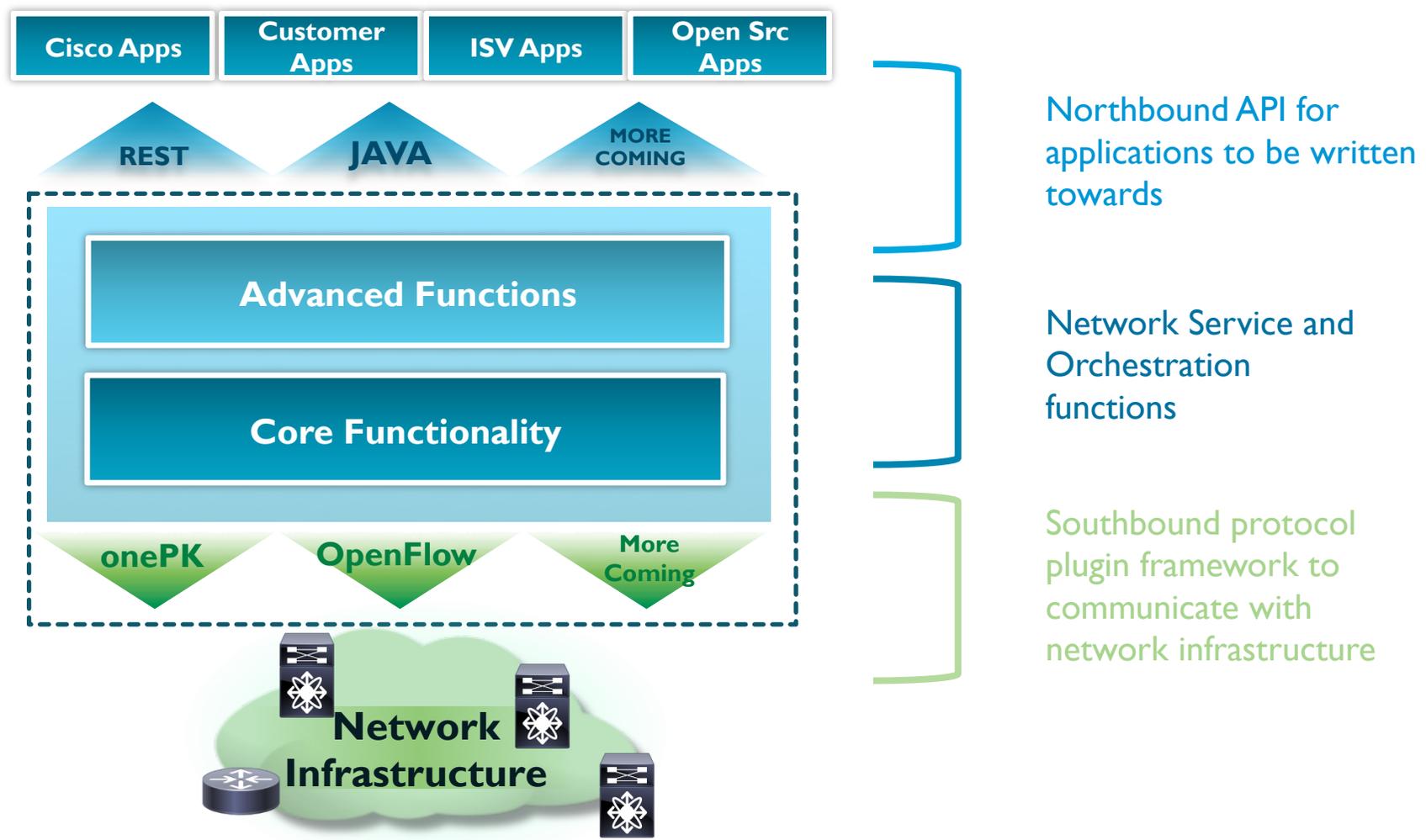


Blade Hosting



End-Point Hosting

Cisco eXtensible Network Controller (XNC)



OPEN DAYLIGHT

Controllers & Agents

Open Daylight is an open source project formed by industry leaders and others under the [Linux Foundation](#) with the mutual goal of furthering the adoption and innovation of Software Defined Networking (SDN) through the creation of a common vendor supported framework.

Platinum	Gold	Silver
 BROCADE		 hp
 ERICSSON		 intel
 JUNIPER NETWORKS		 PLUMgrid
 Microsoft		 DELL
 CISCO	 NEC	 PLEXxi
 IBM	 vmware	 ARISTA
 redhat		 nuagenetworks
		 radware
		 FUJITSU
		 ADVA Optical Networking
		 CYAN
		 VERSA NETWORKS
		 ciena
		 guavus
		 pantheon

Becoming part of the
community ..

Software Development Kit

onePK Developer

onePK

Getting Started

SDK and Docs

Tutorials

Community

FAQs

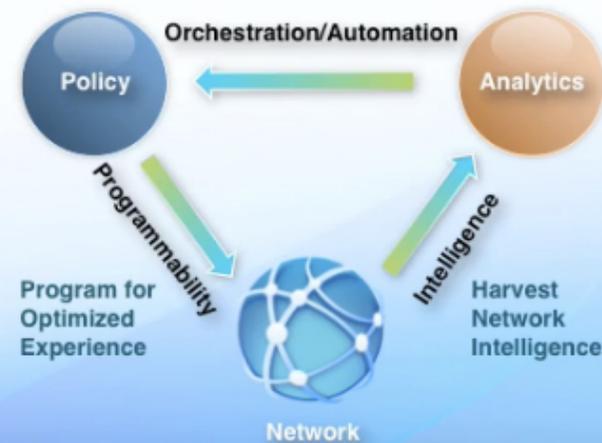
Feedback

A part of the Cisco Developer Network

Cisco onePK Developer Program

onePK is about choice

- The tools you already use: Eclipse, NetBeans, & more
- The language(s) you love
- Run it on any server or right in your network



Welcome to the new-look **onePK Developer** website ... If you were at **Cisco Live!** last week, we hope you enjoyed it!

1. Discover onePK

Find out what onePK is all about.
How and why should you use it?

[Read the Overview >](#)

2. See Examples

See the use cases for onePK

[See the Use Cases >](#)

3. Get Started

Read the Getting Started section

[Now Get Started >](#)

4. Download

Download the SDK and API docs

[Download the SDK & API docs >](#)

Developer Resources

Community

Real Status



Hyperglance, a Visual SDN and cloud management product
(Cambridge UK)

Hyperglance is a creation of IT experts with a leading games graphics
company

Product Vision: End-to-end visual management of the hybrid cloud
and the Software Defined Data Centre

Started 2009, legacy focus; Re-focus on SDN and Cloud Feb 2013

What is Hyperglance

THE WORLD'S
FIRST 3D I.T.
MODELLING
& VISIBILITY
SOLUTION

See, monitor &
manage your
IT architecture
in one view

Faults or
issues within the
entire framework of a
firm's computing
network can be
immediately
pinpointed with this
novel 3D visual
software

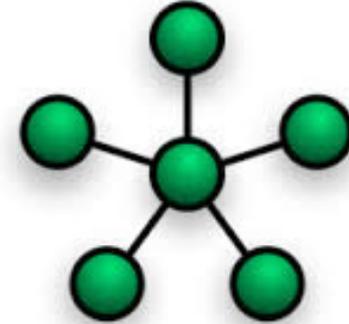
Hyperglance
gives customers a
comprehensive, 3D
view of their entire
network
infrastructure



Hyperglance
cuts through the
complexity of modern
IT systems, simplifying
the entire set-up &
applications of any
computing
software

Possibilities

- Don't just look at the network perspective
- The end to end service



- Visibility into applications and data



- Analytics, audit, telemetry, security, etc

