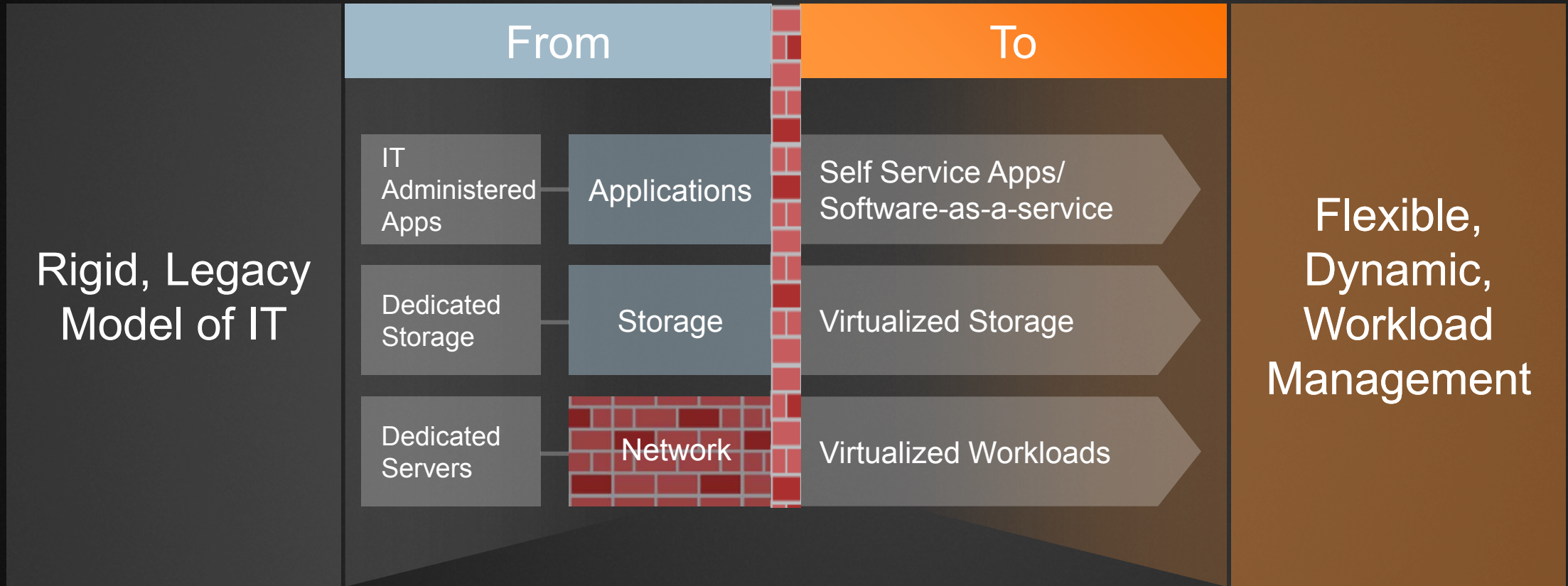# WHAT'S THE PROBLEM?

Legacy network infrastructure is too complex, too brittle, and too closed

INFORMATION TECHNOLOGY HAS EVOLVED

Rigid, Legacy Model of IT	From		To	Flexible, Dynamic, Workload Management
	IT Administered Apps	Applications	Self Service Apps/ Software-as-a-service	
	Dedicated Storage	Storage	Virtualized Storage	
	Dedicated Servers	Network	Virtualized Workloads	

BUT THE LEGACY NETWORK HAS NOT

Rigid, Legacy Model of IT

From

IT Administered Apps — Applications

Dedicated Storage — Storage

Dedicated Servers — Network

To

"Efficiency is at the forefront. Networks must evolve with the IT focus on virtualization, consolidation and standardization."
- Cindy Borovick, Program VP Enterprise and Datacenter Networks IDC

Flexible, Dynamic, Workload Management

JUNIPER CREATED THE NEW NETWORK TO ADDRESS THESE CHALLENGES

The New Network

Increase the Rate of Innovation

OPEX — Improve Opex through Automation

CAPEX — Reduce Capex through Virtualization

OPENFLOW AND SDN TODAY

Applications	5	
		INDUSTRY OBJECTIVE: Increase bi-directional communication between applications and underlying infrastructure
Business Process/Workflow	4	
Network Management Control	3	Orchestration Layer Network Mgmt System OpenFlow
On-device configuration & Trouble-shooting Interfaces	2	
Switching & Routing Infrastructure	1	

SDN Focus
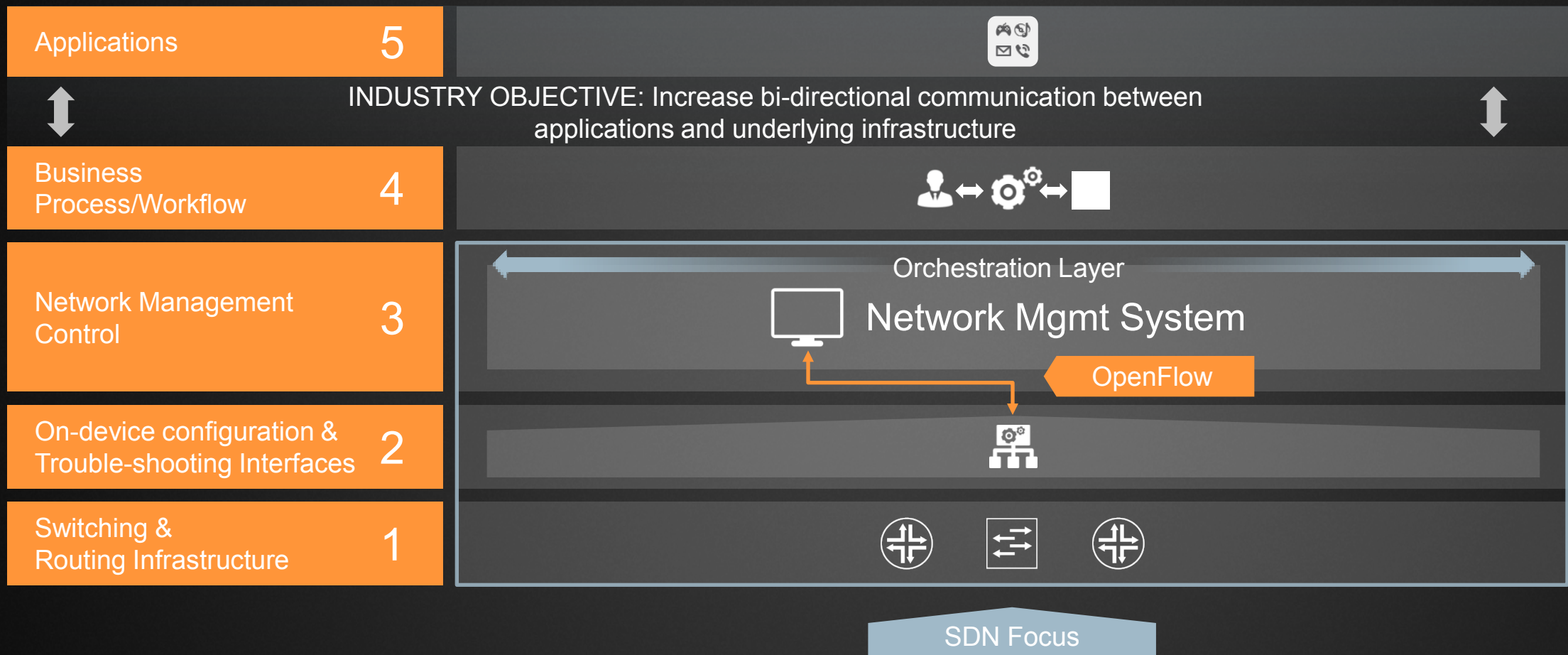
BROADENING THE APPROACH TO APPS AND WORKFLOW

Applications	5	

INDUSTRY OBJECTIVE: Increase bi-directional communication between applications and underlying infrastructure

Business Process/Workflow	4	

Orchestration Layer

Network Mgmt System

Network Management Control	3	

OpenFlow

BGP-TE

PCE

ALTO

On-device configuration & Trouble-shooting Interfaces	2	

Switching & Routing Infrastructure	1	

SDN Focus
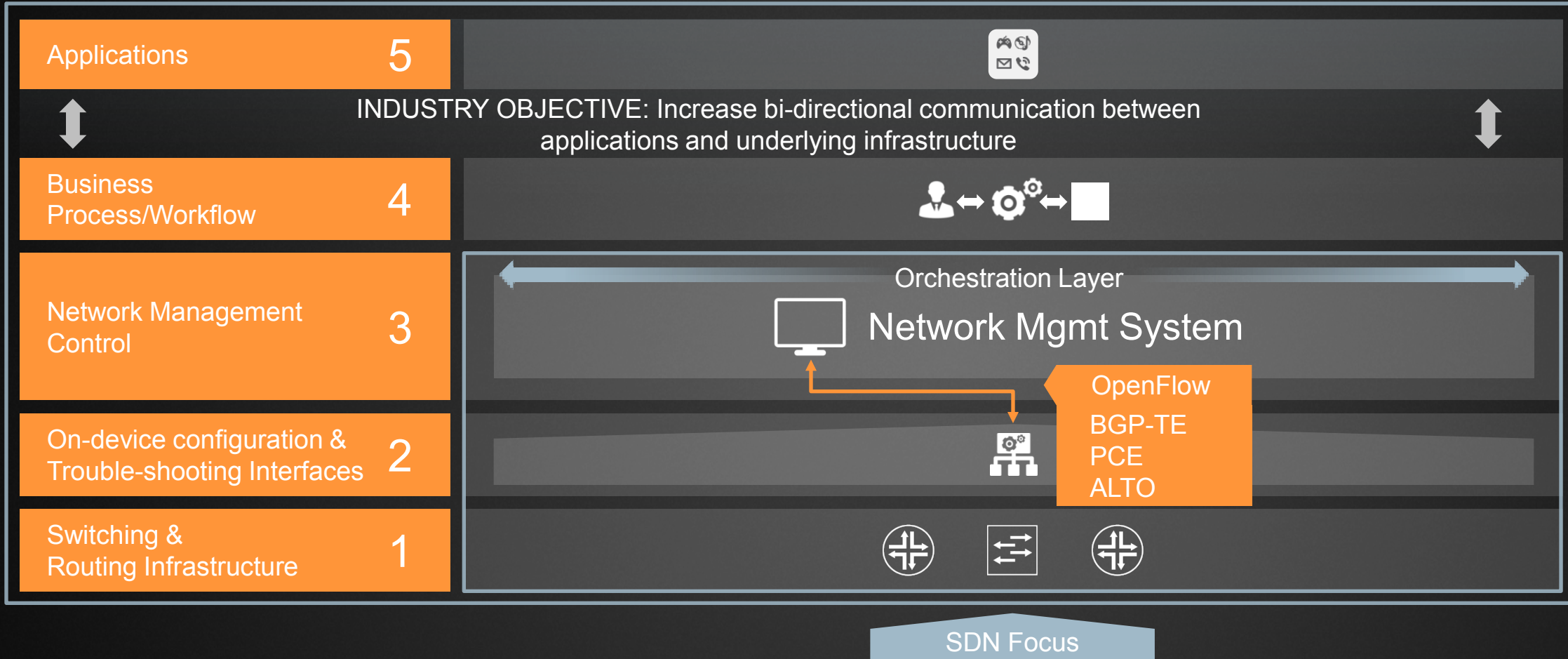
SDN ENHANCES OPERATOR AND APPLICATION EXPERIENCE

Network
Network availability & state
Network attachment details:
- Location access type
- Residential/business
- Fixed/mobile
- Wireless

Application
App characteristics:
- Video (standard/HD)
- Best video sourcing location
- Devices to which video is being sent

SDN Protocols & Architectures

Real-time topology understanding
(ALTO, BGP-TE)

Steering traffic through optimal paths
(PCE)

Selecting specific traffic
(OpenFlow)

Network insertion points
- Gateways
- Billing collectors
- Service appliances
- CDN
- DPI

Current Focus

Reduced Network Control Points

Transparent Operations

Real–time feedback loop

Operational Scale

Capital Efficiency

Service Innovation

SDN-BASED NETWORK APPLICATIONS

Network support of cloud computing

Content / Service Routing

Content pre-positioning to caches

Software Defined Networking

Inter-Data Center workload mobility

Cloudburst

DDoS attack prevention

SDN LEADERSHIP REQUIRES

Network Domain Breadth

ACCESS & AGGREGATION · EDGE · CORE · DATA CENTER · WAN · CAMPUS & BRANCH · CONSUMER & BUSINESS DEVICE

AND

Embracing Disruption

JUNIPER LEADS SDN

Active Member Of Open Networking Foundation	ONF
Founding Member of ONRC	ONRC
Juniper OpenLab	
Standards Leadership	IETF
Board Member of US Ignite	usignite
Juniper Developer Network	JDN JUNIPER DEVELOPER NETWORK

THE JUNIPER ARCHITECTURE
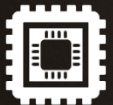
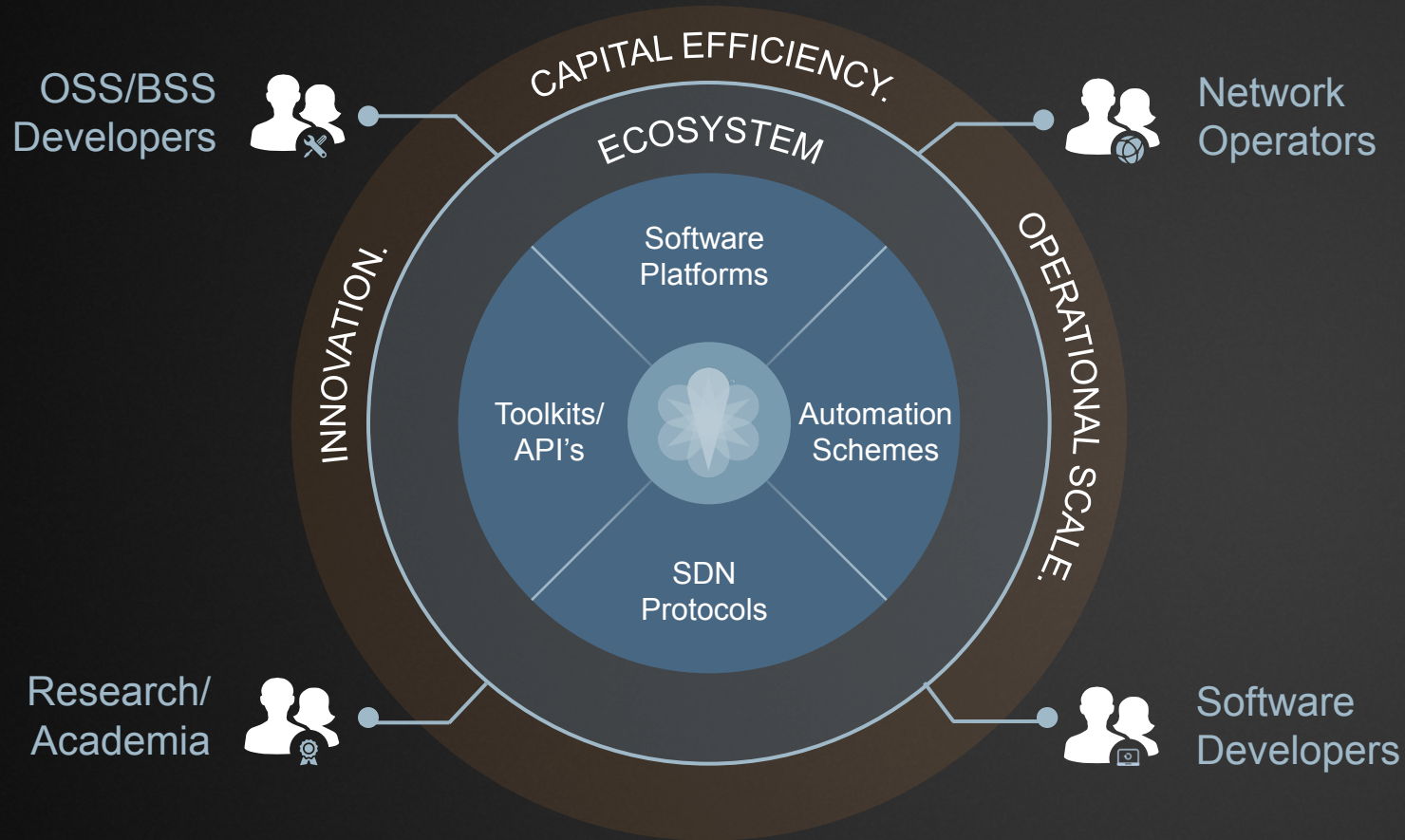|	Core Attributes	SDN Capabilities	Customer Benefits
Software	▪ Visibility/Control ▪ Programmability ▪ Dynamic provisioning	▪ Junos Automation ▪ SRC (externalized controller) ▪ Interoperability with Floodlight, Nox, and Trema controllers	▪ Rate of innovation ▪ Service & application agility ▪ Capital Efficiency ▪ Operational Scale
Systems	▪ Disruptive architecture ▪ Separation of control plane and data plane ▪ SDKs with north/south APIs	▪ OF-client on Junos SDK ▪ OF1.0 on MX/EX today ▪ OF1.3 on MX/EX/QFX(2013) ▪ Production support of PCE & BGP-TE/ALTO (2013)	
Silicon	▪ Flexible instruction set ▪ Performance ▪ Scale ▪ Instrumentation	▪ Flexible overlay network support ▪ High logical state scale	

THE OPPORTUNITY FOR YOU

OSS/BSS Developers

Network Operators

Research/ Academia

Software Developers

CAPITAL EFFICIENCY.

ECOSYSTEM

INNOVATION.

OPERATIONAL SCALE.

Software Platforms

Toolkits/ API's

Automation Schemes

SDN Protocols

- Join industry dialogue

- Help advance protocol standards, use cases and industry best practices

- Get started with SDN on JUNOS TODAY

Contact Your Juniper Sales Rep Today
japan-inq@juniper.net