

THE SDN OPPORTUNITY

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IT DRIVERS: AGILITY AND ECONOMICS



Consolidation



Clouds



Big Data

Driving IT Transformation



Virtualization

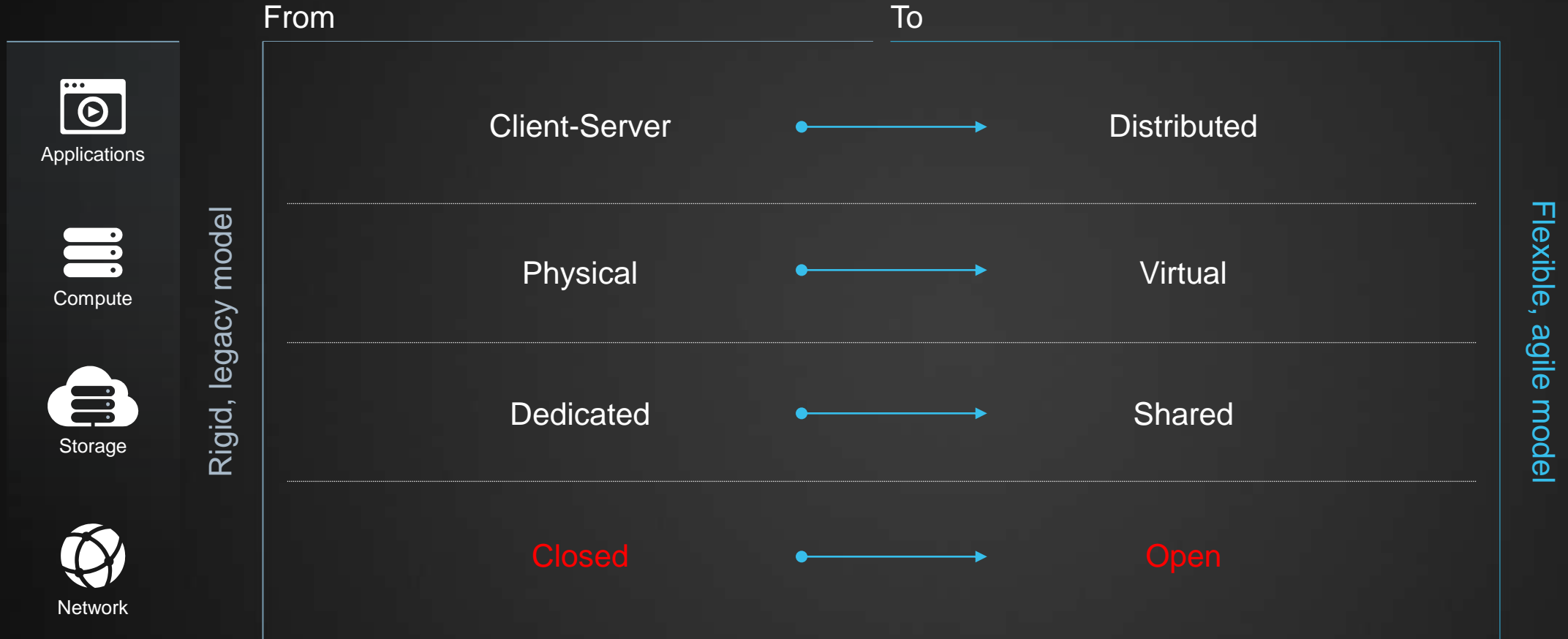


Fabric Technologies

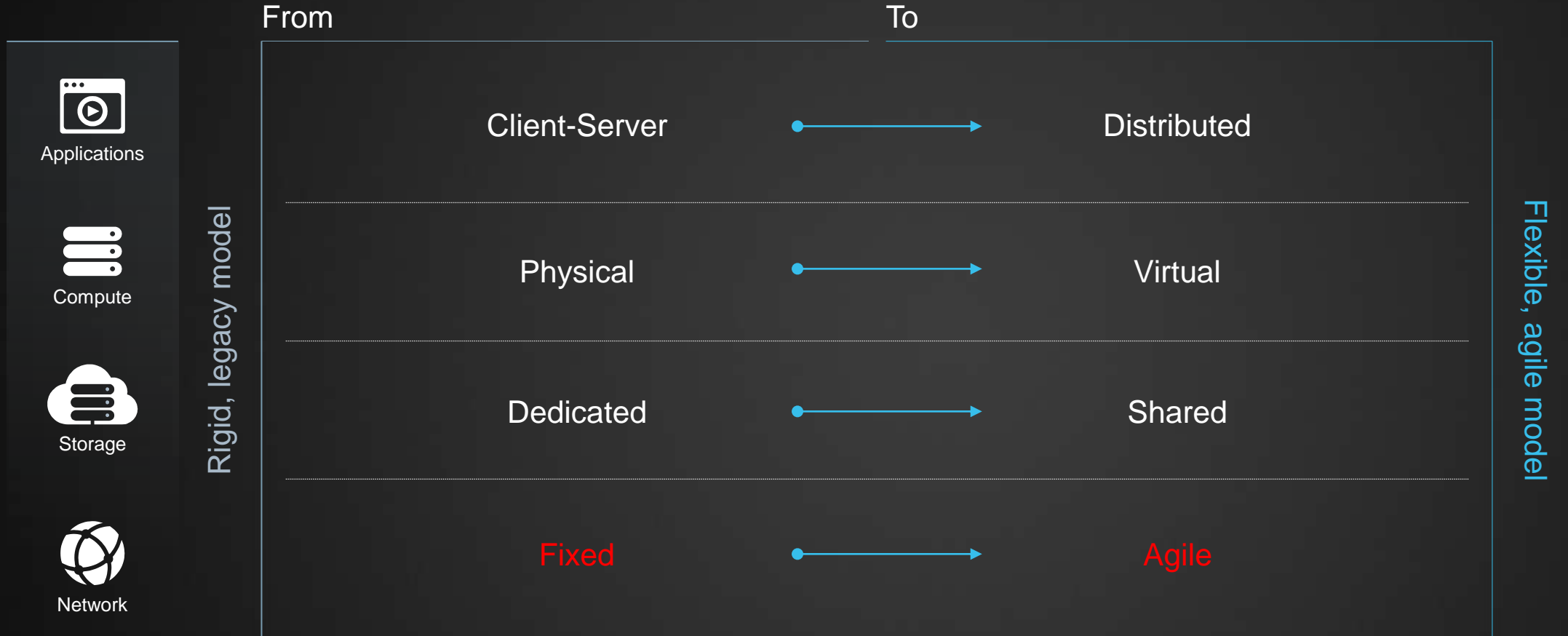


SDN

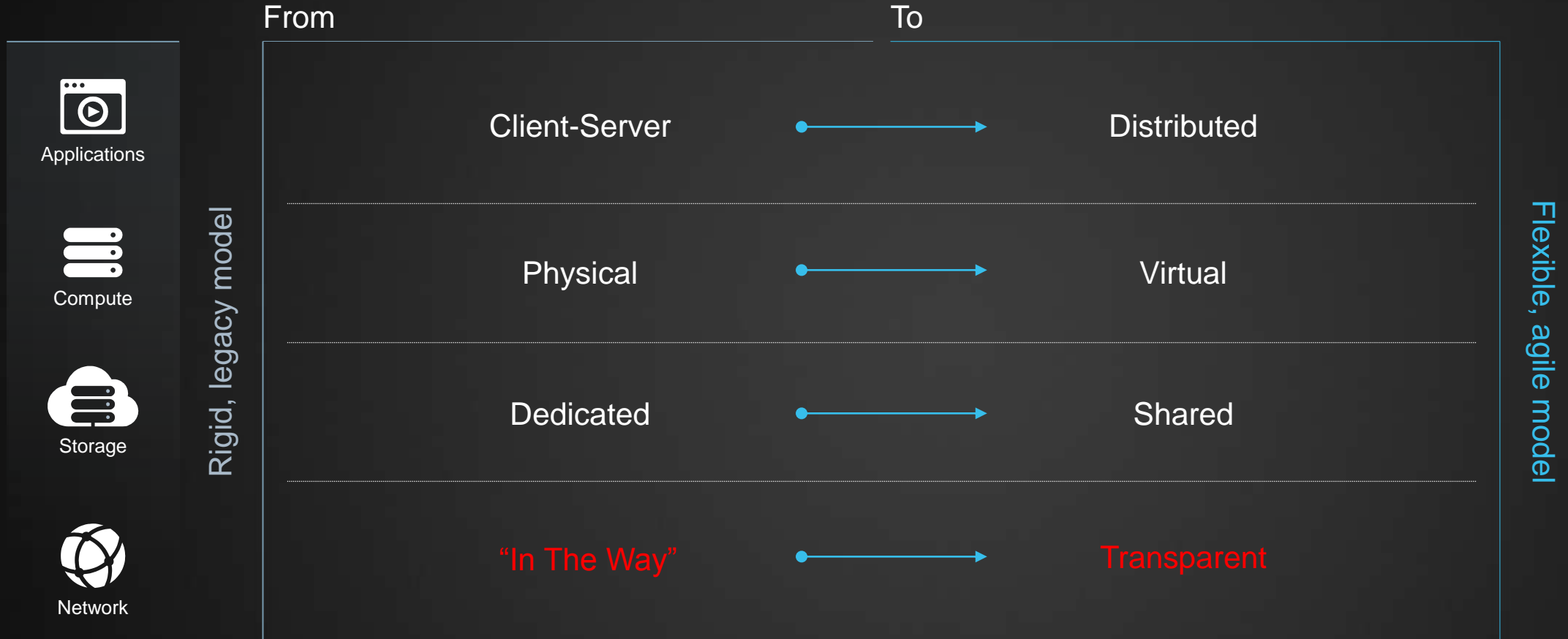
NETWORK NEEDS TO EVOLVE



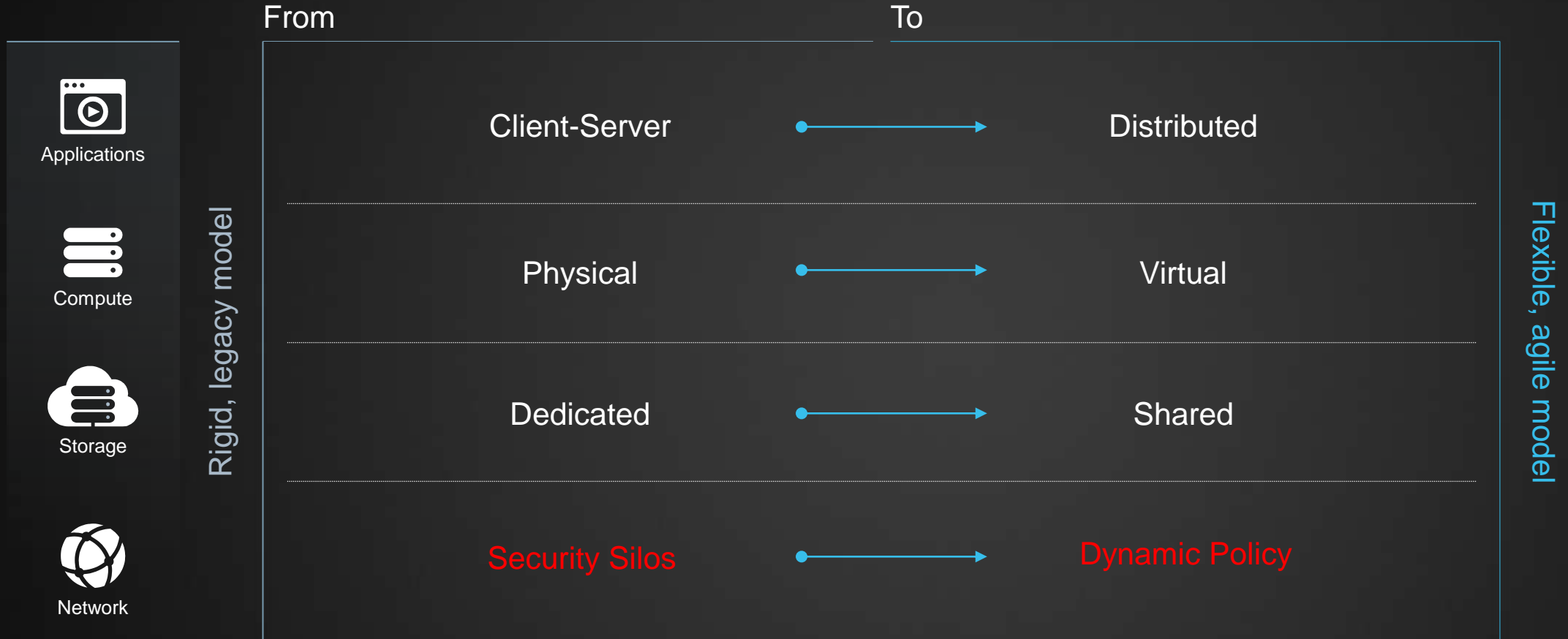
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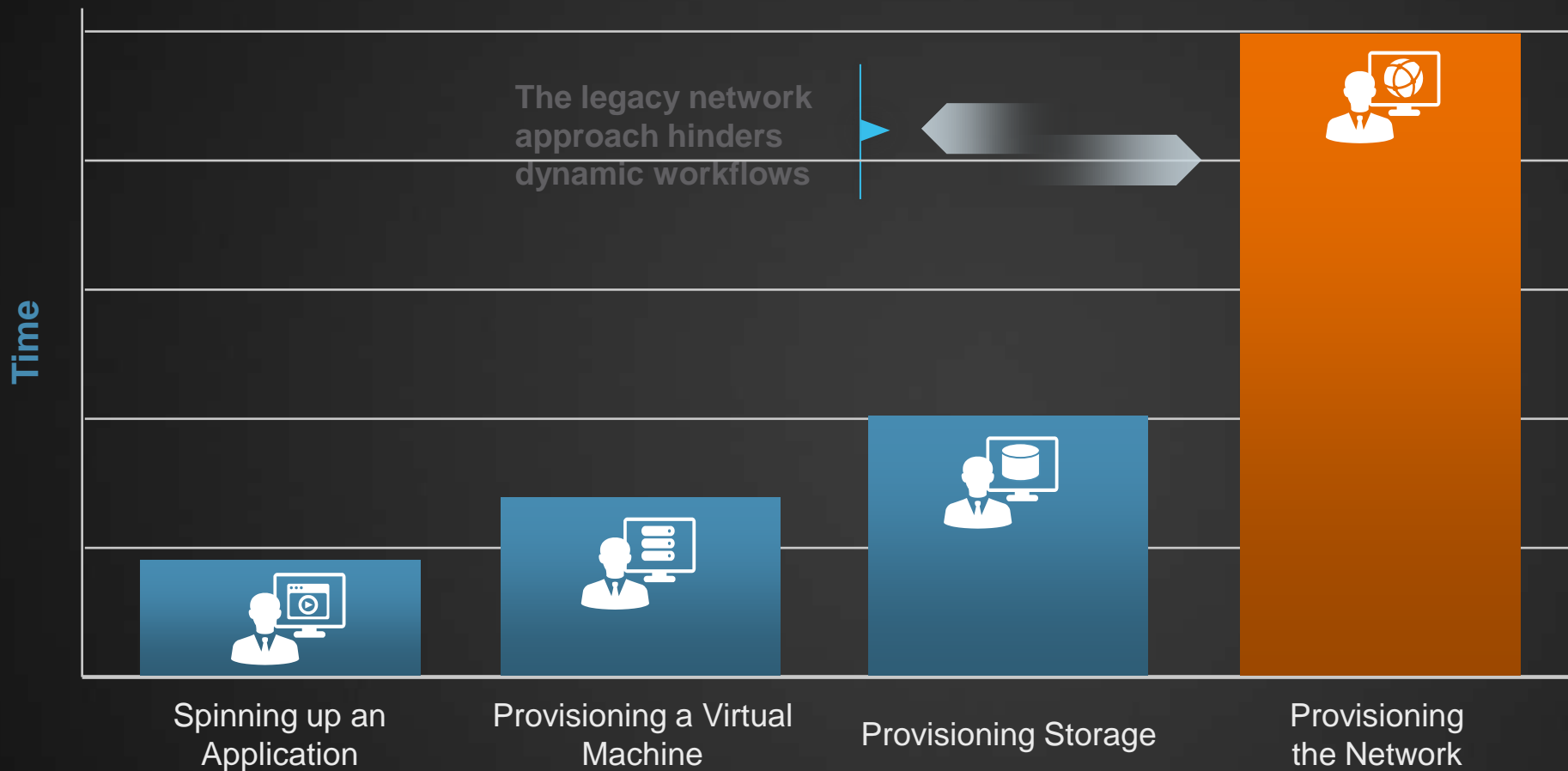
NETWORK NEEDS TO EVOLVE



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PUTTING THE NETWORK CHALLENGES IN REAL TERMS



ADDRESSING COMPLEXITY TOP DOWN & BOTTOM UP

SDN-Ready Platforms



Simplified architectures and broad protocol & orchestration support designed for dynamic workloads

SDN-Optimized Operations



Change from element management to workflows

JUNIPER'S SDN STRATEGY

6 – GENERAL PRINCIPLES



Separate Planes



Centralize what you can



Use cloud techniques



Common Platform



Commitment to Standards



Apply Broadly

4 – JUNIPER STEPS



Centralize Management



Extract Services



Centralize Controller



Optimize the Hardware

1 – NEW LICENSING MODEL

JUNIPER SOFTWARE ADVANTAGE

Full Use/Elastic

Transferable

Software Lifetime Assurance

WHAT WE'RE WORKING ON

SDN Protocols

OpenFlow

PCEP

BGP

VXLAN

Services Virtualization

JunosV App
Engine

Service
Chaining

Controller & Orchestration

Contrail Controller
Technology

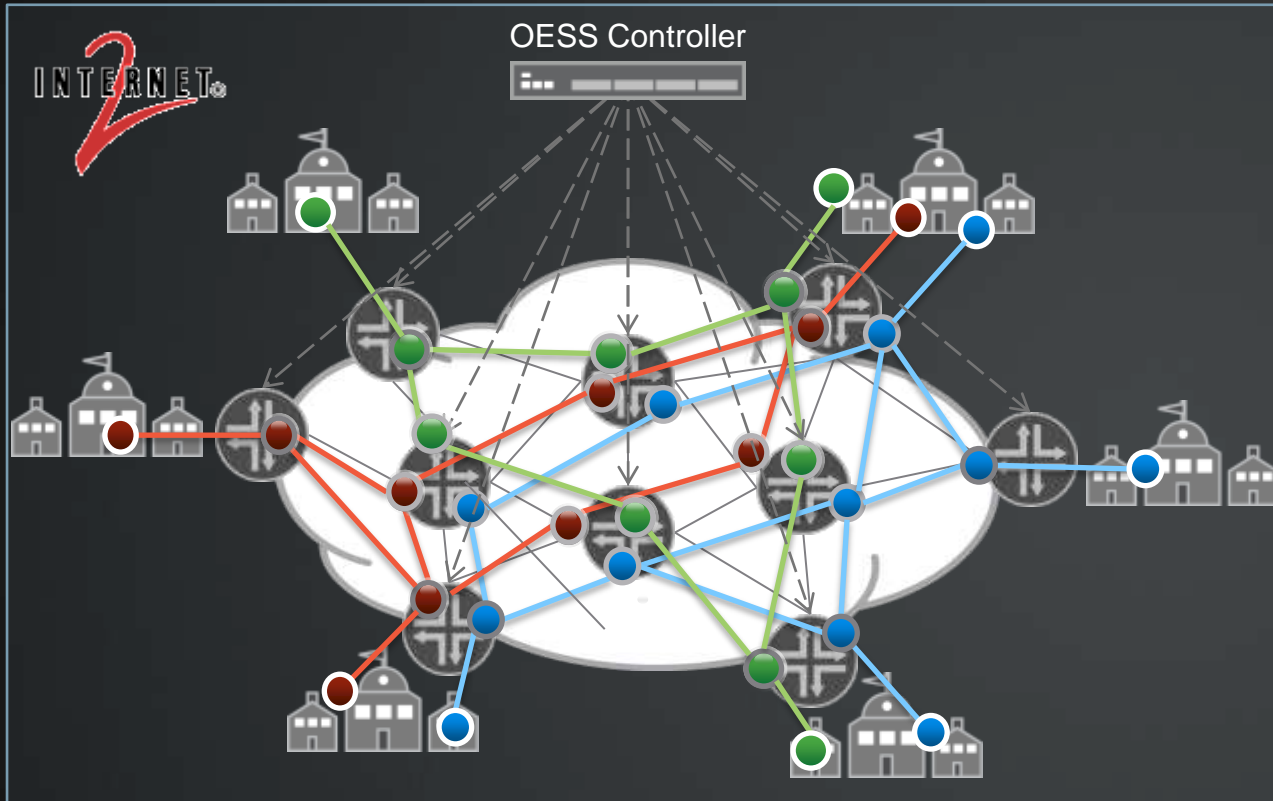
OpenStack

OpenDaylight

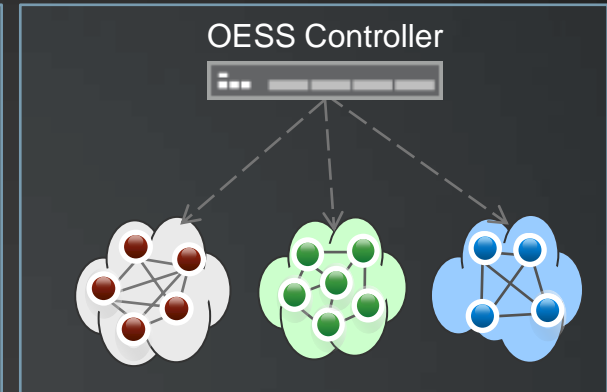
VMware

USE CASE: PROGRAMMING NETWORK FLOWS

Physical View



Logical View



Characteristics

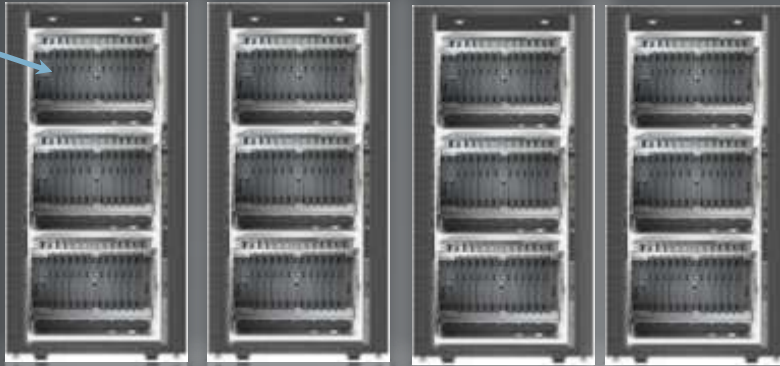
- Programmable, Virtualized Network Resource Pool
- Centralized e2e view
- Dedicated & Isolated Network Resources

End point memberships and virtualized network resources are programmed on MX3D via OpenFlow

USE CASE: RAPID SERVICE DEPLOYMENT

Traditional Mobile Control Gateway

MCG
ATCA chassis



- 10M active users
- 32 ATCA chassis
- 3 zones (11 ATCA per zone)
- 300K subscribers per chassis

Virtual Mobile Control Gateway

JunosV App Engine

MX3D



X86 appliances

- 10M active users
- 54 VSE appliances (27+27 backup)
- 3 zones (1 MX 3D/zone)
- 3.3M users per MX 3D, 400K users per VSE

Financial Benefits

- 54% lower TCO
- 65% lower OpEx
- 53% lower CapEx

Development Time & Cost

- 46% faster initial deployment
- 61% less initial deployment cost
- 87% faster capacity additions
- 92% less capacity addition cost

Operational Benefits

- 73% less environmental cost
- 72% less operator training cost
- 63% OA&M cost

USE CASE: VIRTUALIZED DATA CENTER

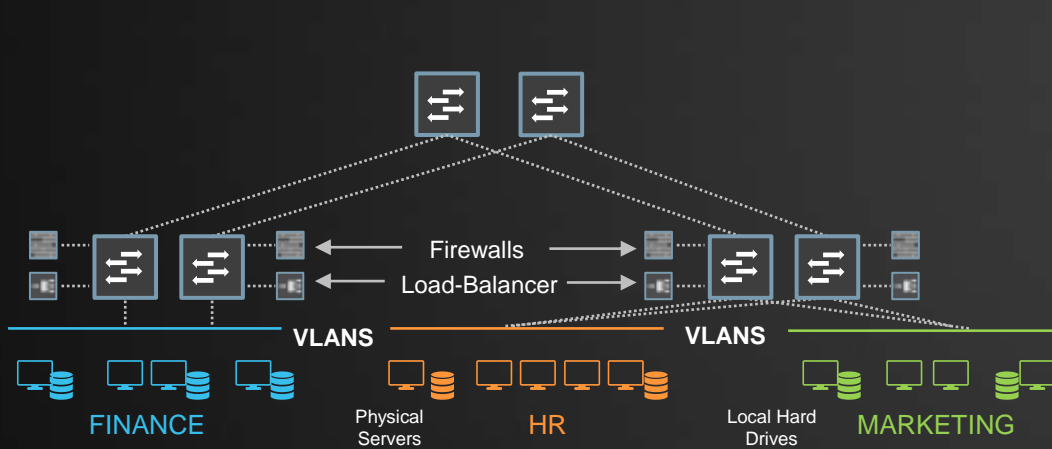
- Silo'ed Resource Allocation
- Manual Configuration
- Static Service Chains

- Dynamic Resource Allocation
- Automatic Configuration
- Dynamic Service Chains

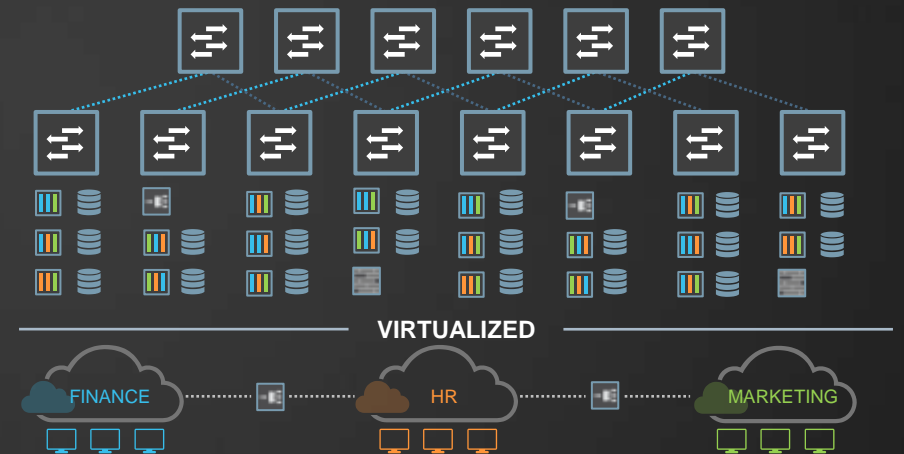
70% TCO Reduction

95% Lower Time-to-Revenue

TRADITIONAL DATACENTERS



VIRTUALIZED DATACENTERS



Virtual-Network based Orchestration (Compute, Storage, Apps)

SUMMARY

Comprehensive Strategy

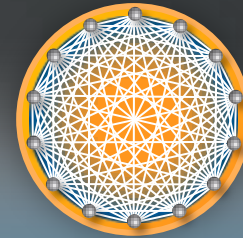
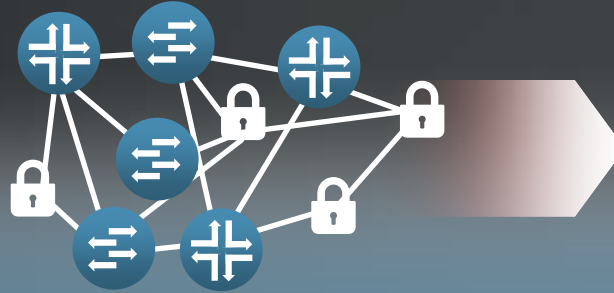


JUNIPER NETWORKS



6-4-1 Strategy

SDN-Ready Platforms



SDN-Optimized Operations



JUNIPER[®]
NETWORKS