The Future of Networking

Pradeep Sindhu

Founder, Chief Technology Officer and Vice Chairman

October 30, 2014 (40^0 45’ 17.1” N 73^0 58’ 38.9” W)

Introduction

- The networking industry is unstable
- Because people are confused

- My purpose today
  - Undo the confusion
  - Convince you about Juniper’s vision and execution

Contents

Our Market

- Packet based IP routing, switching and security
- $40Bn, growing at a CAGR of ~3%
- Four categories
  - LAN
  - WAN “Core”
  - WAN “Edge”
  - Security

- Less than 15% is subject to commoditization
  - (Low end Ethernet switches)

Sources: Traditional TAM View: Infonetics, Dell’Oro

Our Market

- Essentially all network traffic is IP over Ethernet
  - Market is coming towards us
- Essentially all traffic begins and ends at a computer
  - High growth

- Therefore all networks need routers
- And all networks need security

Understanding and solving these network problems is Juniper's core competency

Our Customers

- Telco, Cable, Web2.0, Financial, Government, Strategic Enterprise
- Largest and most demanding subset

- Most common asks are
  - Help us reduce OPEX
  - Help us become AGILE and EFFICIENT
  - Help us reduce CAPEX
- Telco and Cable have one more ask
  - Help us MONETIZE our networks

Our Strategy

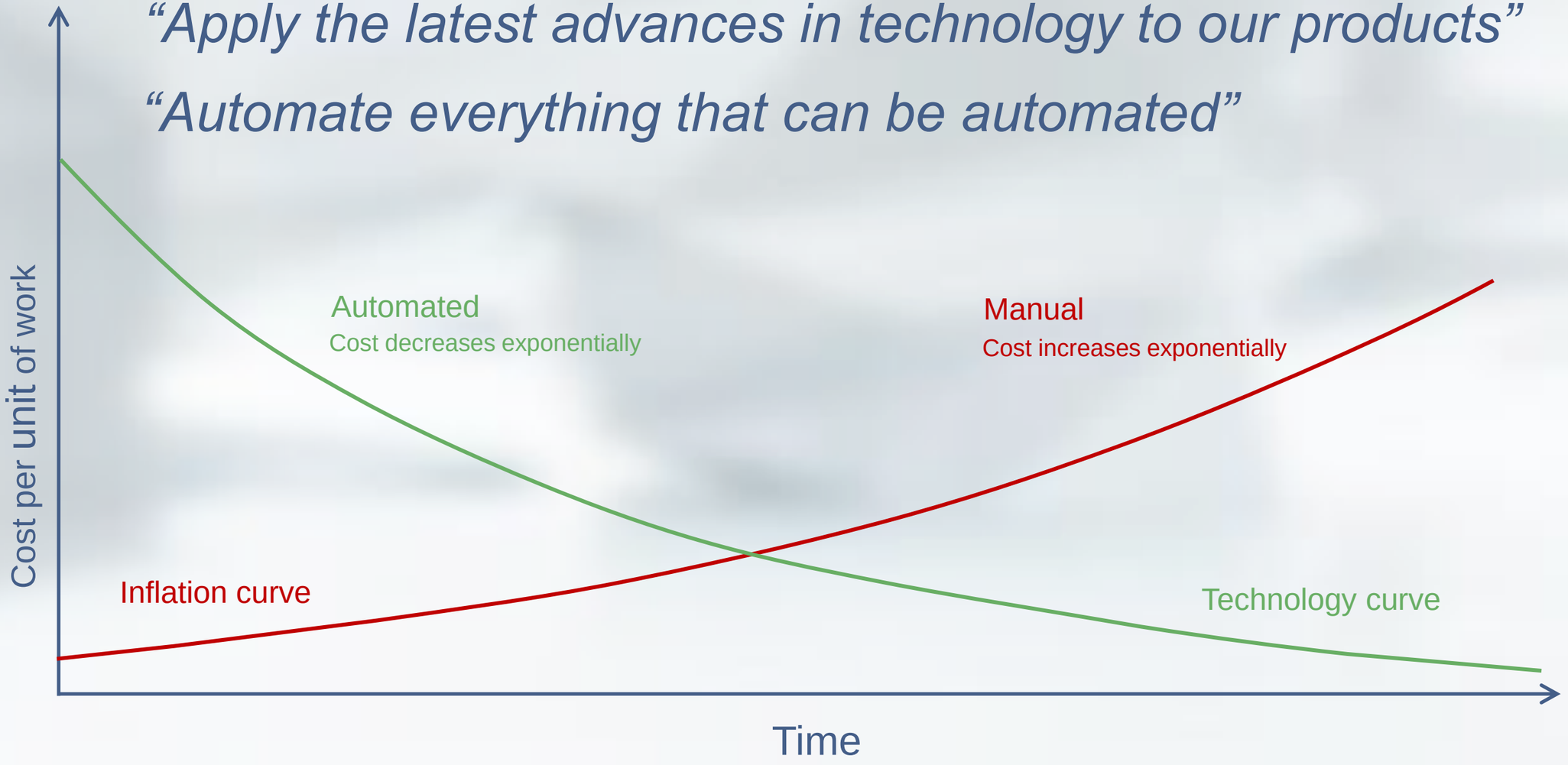
- High-IQ
- Cloud Builder

Is based on Fundamentals

Fundamentals: Economics

“Apply the latest advances in technology to our products”

“Automate everything that can be automated”



Fundamentals: Networking

- Two greatest advances in last 40 years
  - *Packet switching* increased efficiency
  - *Routing* (dynamic topology discovery) automated network operations

- The next advances will be in
  - *SDN – Logically centralized functions*
  - *NFV – Stateful (L4-L7) functions*

These advances will be in *addition to*, not *instead of*
packet switching and routing!

Fundamentals: Networking

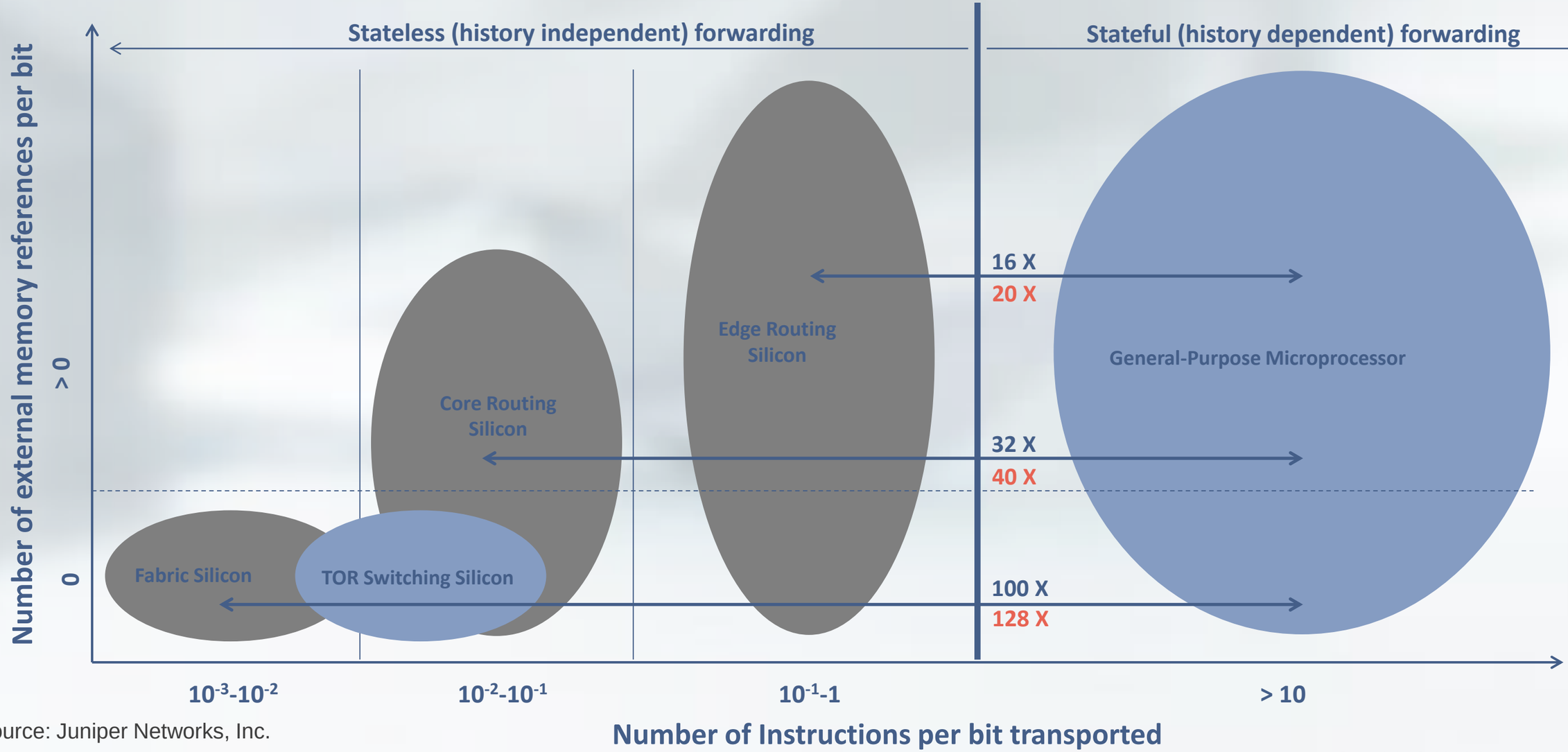
- Scale, capacity, and reliability are extremely valuable
- Routers are the only known way to deliver these capabilities
- Simpler network problems do exist
- Routers can be simplified to solve these problems
  - We are doing this today (PTX, QFX)

Fundamentals: Routing 101

- Routers have five crucial properties
  - *Dynamism*
  - *Stat-mux gain*
  - *Distance*
  - *Network scale*
  - *Sophistication*

- When one or more of these crucial properties can be relaxed, a router can be simplified to deliver lower cost

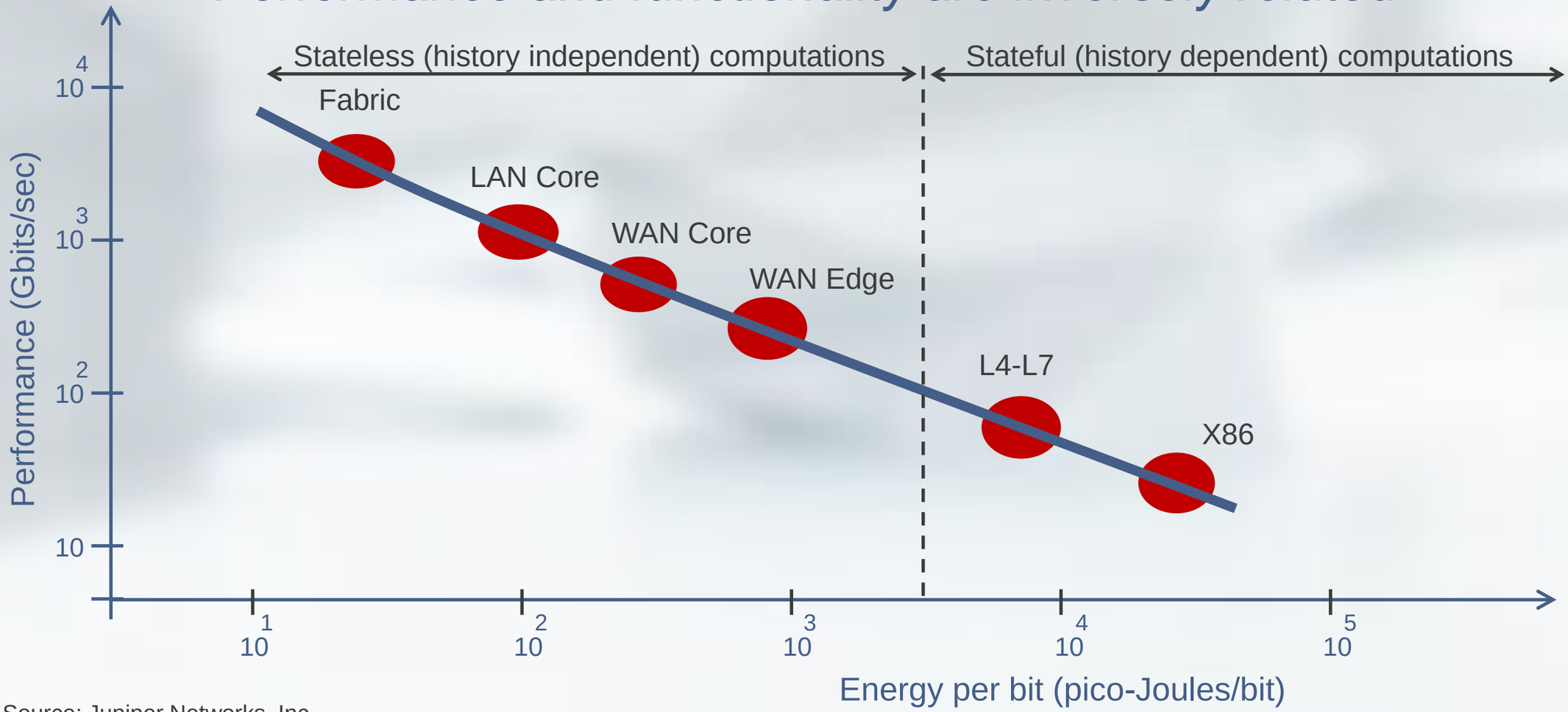
Fundamentals: Packet Forwarding Engines



Source: Juniper Networks, Inc.

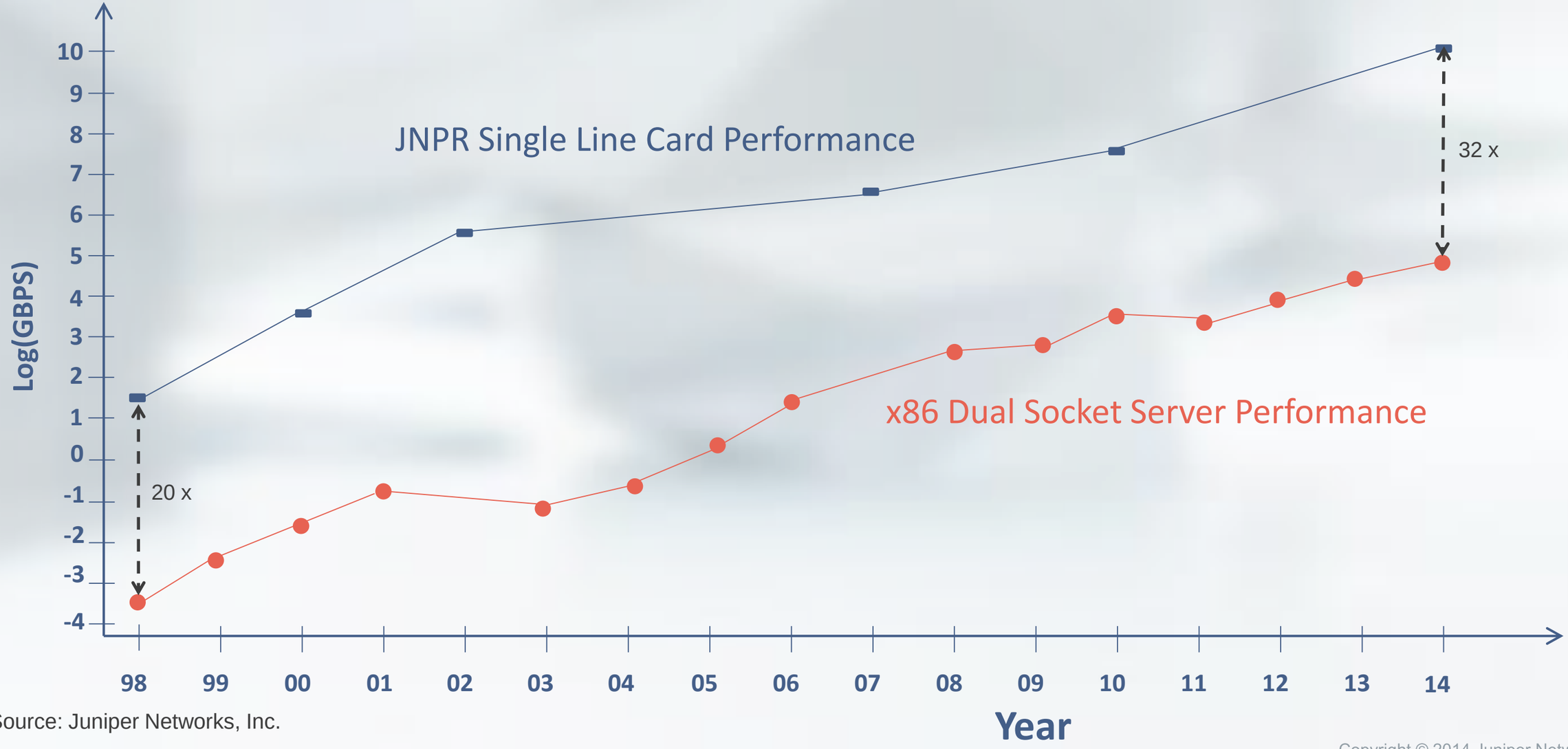
Fundamentals: Packet Forwarding Engines

"Performance and functionality are inversely related"



Source: Juniper Networks, Inc.

Fundamentals: What the numbers tell us



Source: Juniper Networks, Inc.

Execution

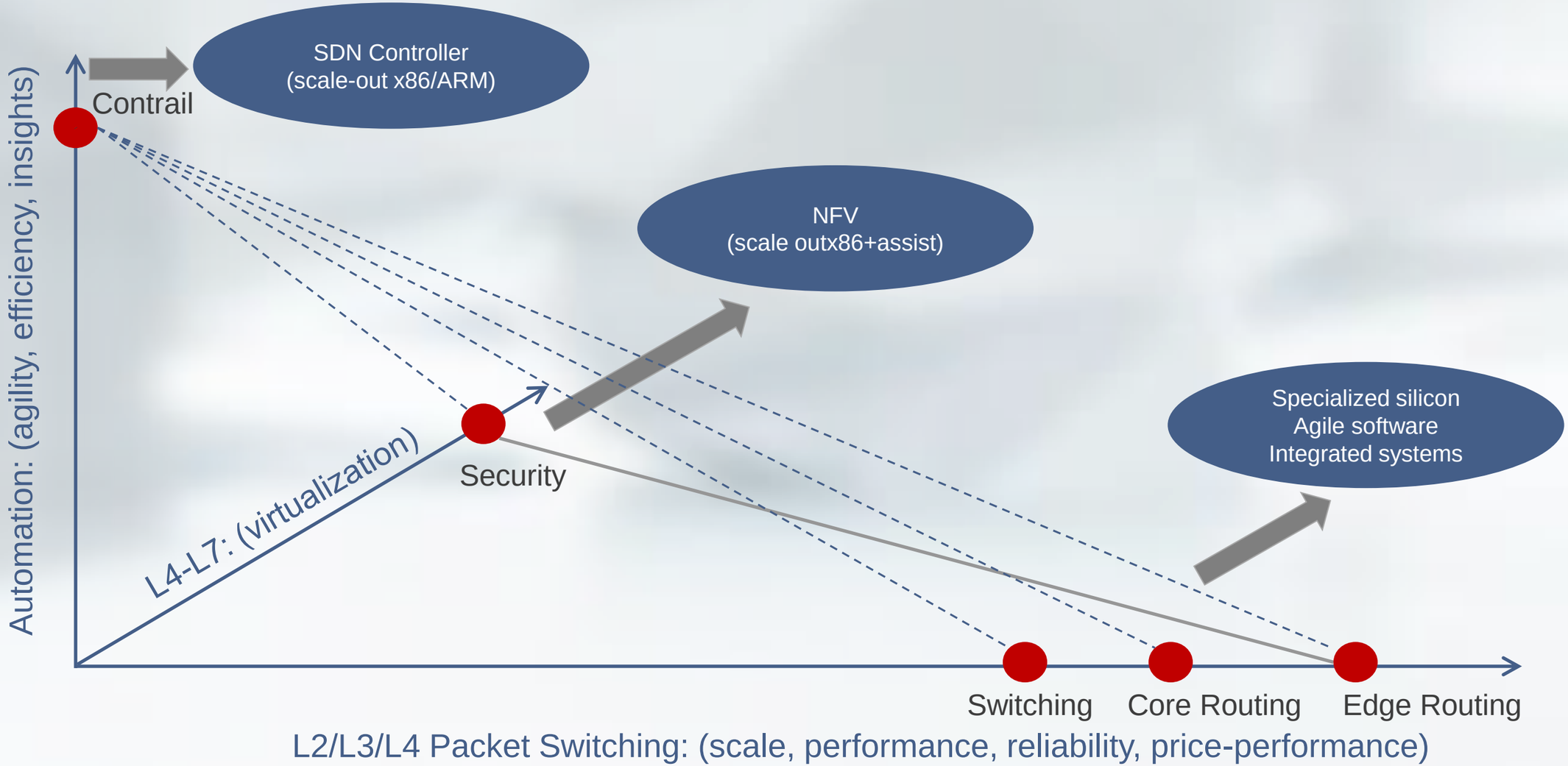
High IQ

Revolutionize the agility, efficiency and monetizability of networks through automation

Cloud Builder

Build the most scalable, reliable, secure, and cost-effective networks in the world

Three dimensions



Summary

- Routers are essential to networking (no routers, no Internet!)
- Routers can be simplified to address less complex applications
- SDN and NFV are not a substitute for routing
- x86 is a poor choice for mid to high-end routers
- The networking industry is hungry for solutions along X, Y, Z
- There is tremendous room for innovation

Juniper’s best days are ahead!

A Personal Note

- Juniper has never lacked vision:
  - Revolutionized routing
  - Improved performance by 500x over 16 years (47% CAGR)
  - Integrated L4-L7 services into routers
  - Right vision for scalable DC fabrics
  - Foresaw collapse of routed and optical layers; delivered PTX
- Executing on a vision is not easy: no one has a 100% success rate
- But it is the only way forward for us
- I believe we have a much more focused strategy
- I know we have a fantastic set of products coming
- I’d like your continued support

Questions