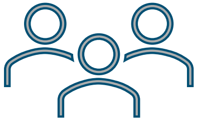
Cyber adAPT MASER

Commsday Summit

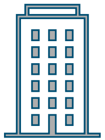
30 April 2024

Status of Cyber Threats & Attacks in Australia (2022 – 2023)

- 94,000 cybercrime reports (up 23%)
  - Report every 6 minutes
- Average cost of cybercrime per report $46,000 - $71,600
- Australian Competition and Consumer Commission's Targeting Scams report revealed Australians lost over $3 billion to scams in 2022
  - Up 80% from 2021
- Top 3 cybercrimes:



- identity fraud
- online banking fraud
- online shopping fraud



- email compromise
- business email compromise (BEC) fraud
- online banking fraud

Cybercrime is real, a major threat and must be addressed for both individuals and businesses

Source: Annual Cyber Threat Report 2022–23 developed by the Australian Signals Directorate (ASD)

Cyber adAPT

Typical Elements of Cyber Security

End Point Protection

- Protects a specific end point from certain cyber threats
- Requires client to be installed and maintained
- Cannot be deployed on many types of end points

Firewalls

- Peripheral defense against certain inbound cyber threats
- Often remain in default configuration with non-dynamic features
- Smarter capabilities are cost prohibitive

Network Based Protection

- Analysis of inbound, outbound and internal network traffic for cyber threats
- End point independent
- Deep packet Inspection (DPI) looks at 100% of traffic
- Cost prohibitive for SMB and consumers?

Network Based Cyber Security Typically Uses DPI

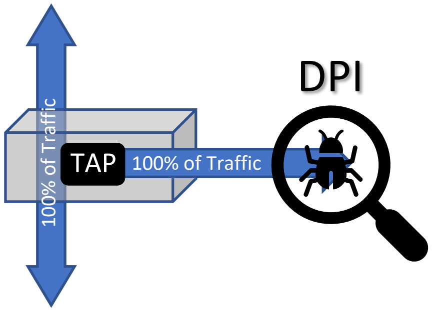
- There are many advantages to DPI:
  - Analyzes all traffic regardless of origination/destination
  - Identifies threats that other cyber security elements cannot
  - Provides an extensive view of the health of the network over time
  - Does not require any end point client to be deployed so traffic from all devices is protected
  - Can interwork with other cyber security elements significantly improving cyber security posture

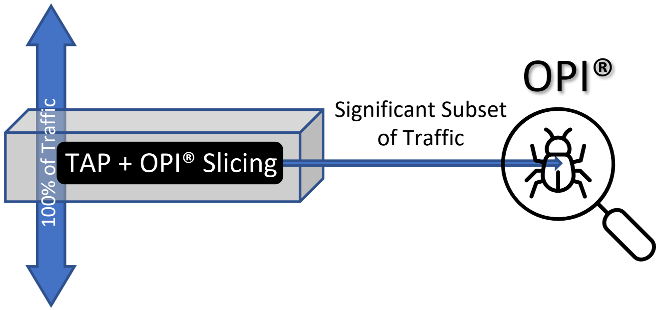
- But:
  - Very resource intensive in high bandwidth networks
  - It is extremely cost prohibitive for SMBs
  - Impossible to deploy economically in consumer environments

- How can network based detection be deployed more ubiquitously to provide better cyber security for all network environments?

A DPI Alternative – Optimized Packet Inspection

- OPI® Threat Detection gives us the ability to intelligently determine what traffic to examine based on internal and external factors.



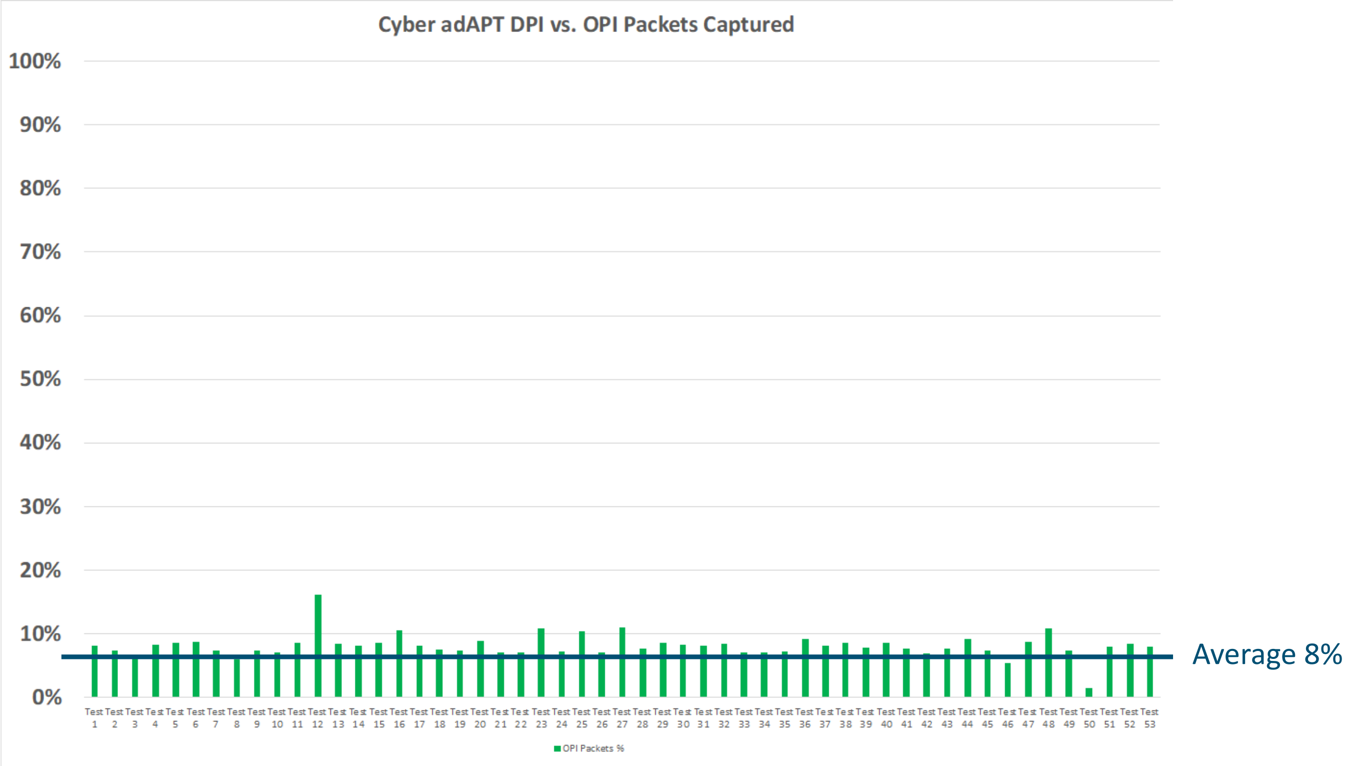


- 100% of traffic is duplicated and processed by a DPI detection engine
- x Gb/s of traffic requires x Gb/s of detection processing

- Only a subset of traffic is duplicated and processed by the OPI® detection engine
- x Gb/s of traffic requires << x Gb/s of detection processing

~ 85% - 90% fidelity when using OPI® threat detection vs. full DPI

Resource Optimization with OPI®



OPI® required on average only 8% of the traffic analysis vs. full DPI

Summary

- OPI® allows network based cyber threat detection to be expanded to networks where full DPI is cost prohibitive
- Can be deployed in distributed or centralized fashion
- Capable of supporting SMB, fixed residential broadband and mobile environments
- Can significantly improve the overall cyber security posture in Australia and beyond

- We would enjoy talking more about this exciting technology and its applicability, come visit us at the Maser coffee cart in the hallway outside.

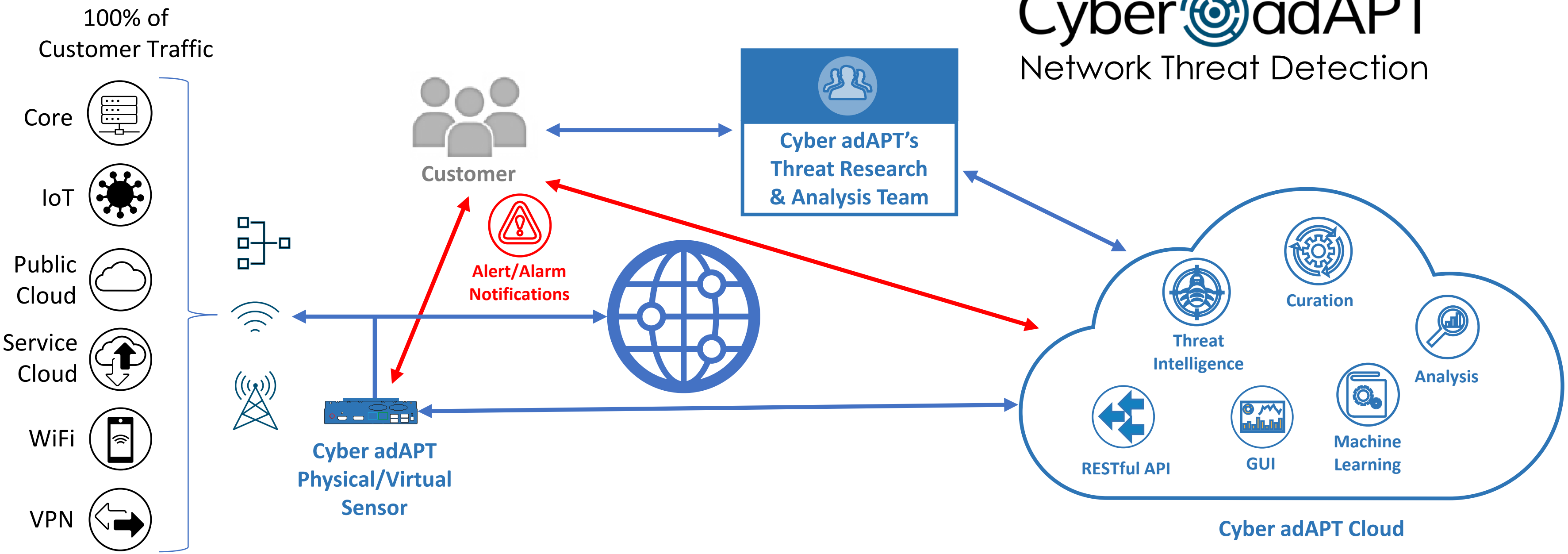
Thank You

Cyber adAPT Core Value Proposition

- Cyber adAPT (CA) residential network threat detection provides network-based cybersecurity protection to both fixed and mobile residential broadband users
- Proprietary, purpose built to address cyber threats targeting residential users
- Capable of being deployed in a variety of configurations including centrally
  - **Centralized deployment Ideal for large enterprises and ISP/RSPs and large telco's**
- Integrated with various Network Packet Brokers and Engines.
  - Can also be integrated with IPU/GPU based Smart NICs
- Built on 3 Core areas:

1. Unique Threat Intelligence
2. Proprietary Detection Engine
3. Proprietary, patent pending Optimized Packet Inspection (OPI®) Technology

Cyber adAPT
Network Threat Detection



Cyber adAPT Next Generation NTD Enhances Cybersecurity Posture

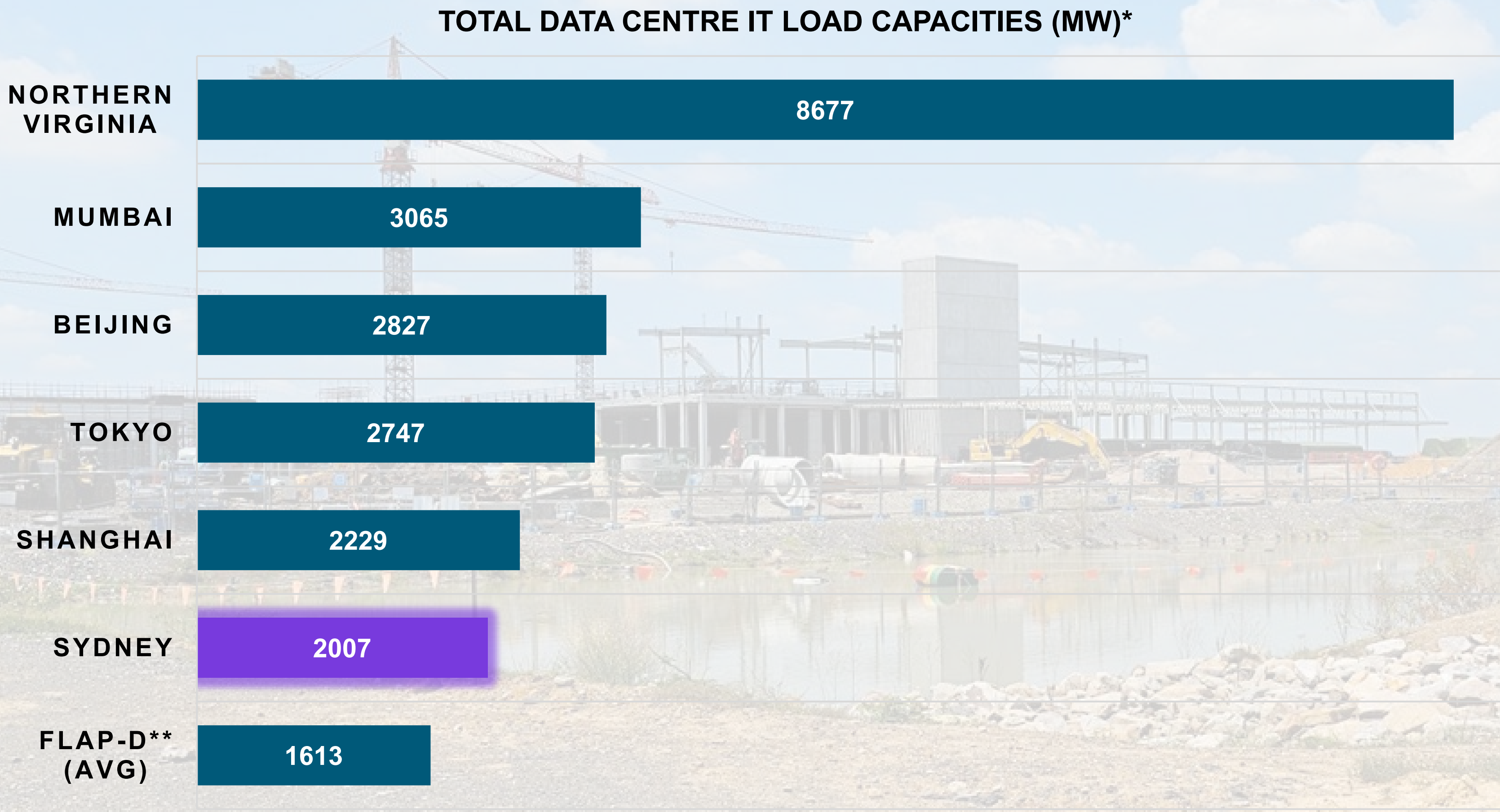
Untapped Potential: Monetising Connectivity in the Age of AI

Pradap Rajagopal

Global Solutions Leader, Ciena

30 April 2024

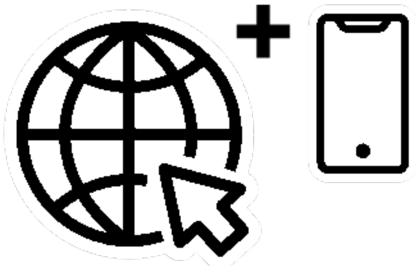
Key Global Data Centre regions



Australia’s DC growth enables new network opportunities

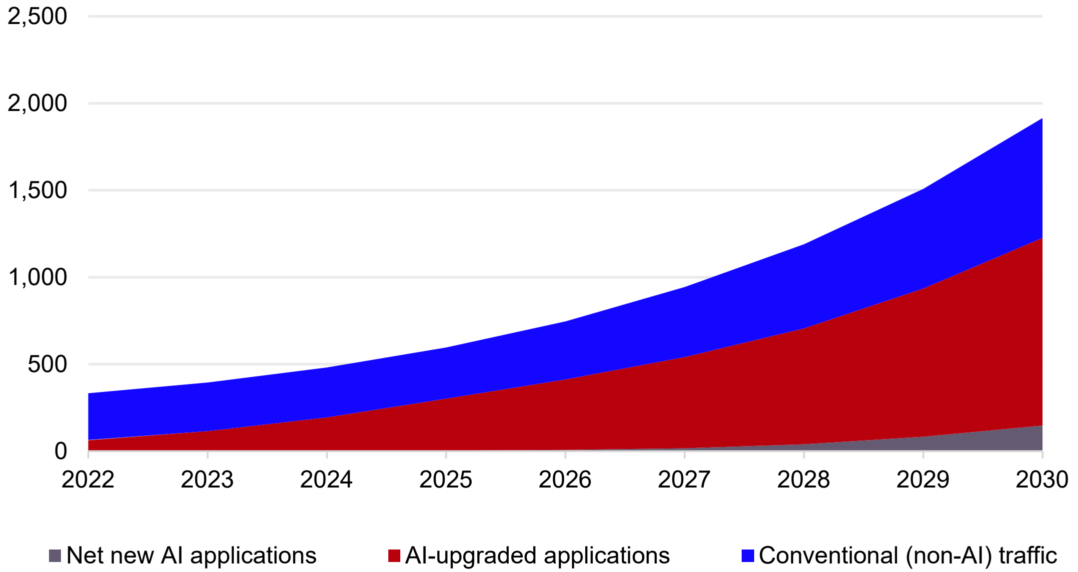
* Operational, under construction, planned and land banked
**Average of Frankfurt, London, Amsterdam, Paris, Dublin
Source: Cushman Wakefield, Asia Pacific Data Center Advisory: H2 2023, Feb 2024

Why do we build networks?



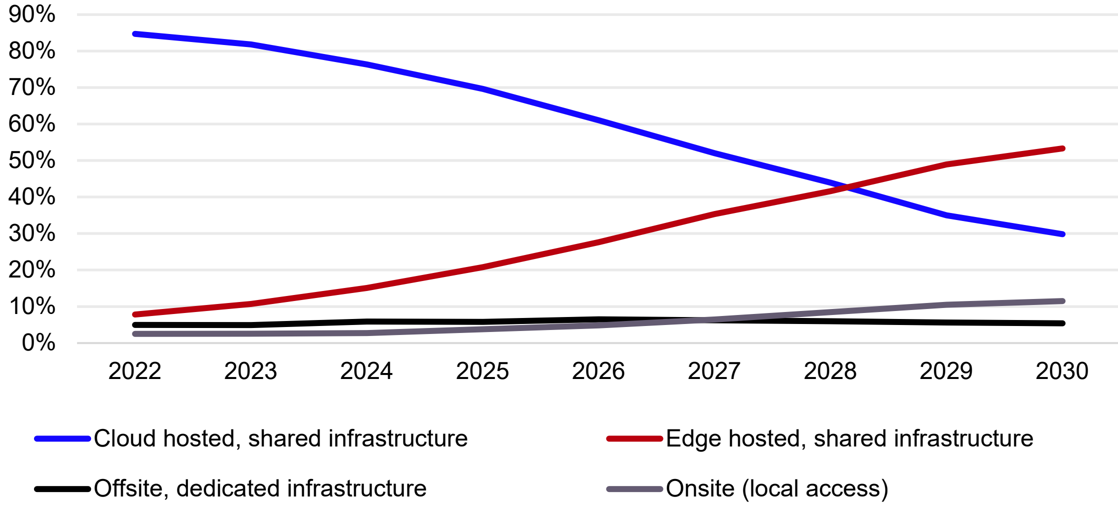
Impact of AI on Network Traffic

Projected global network traffic growth, 2022–30 (Exabytes / Month)



Source: Omdia

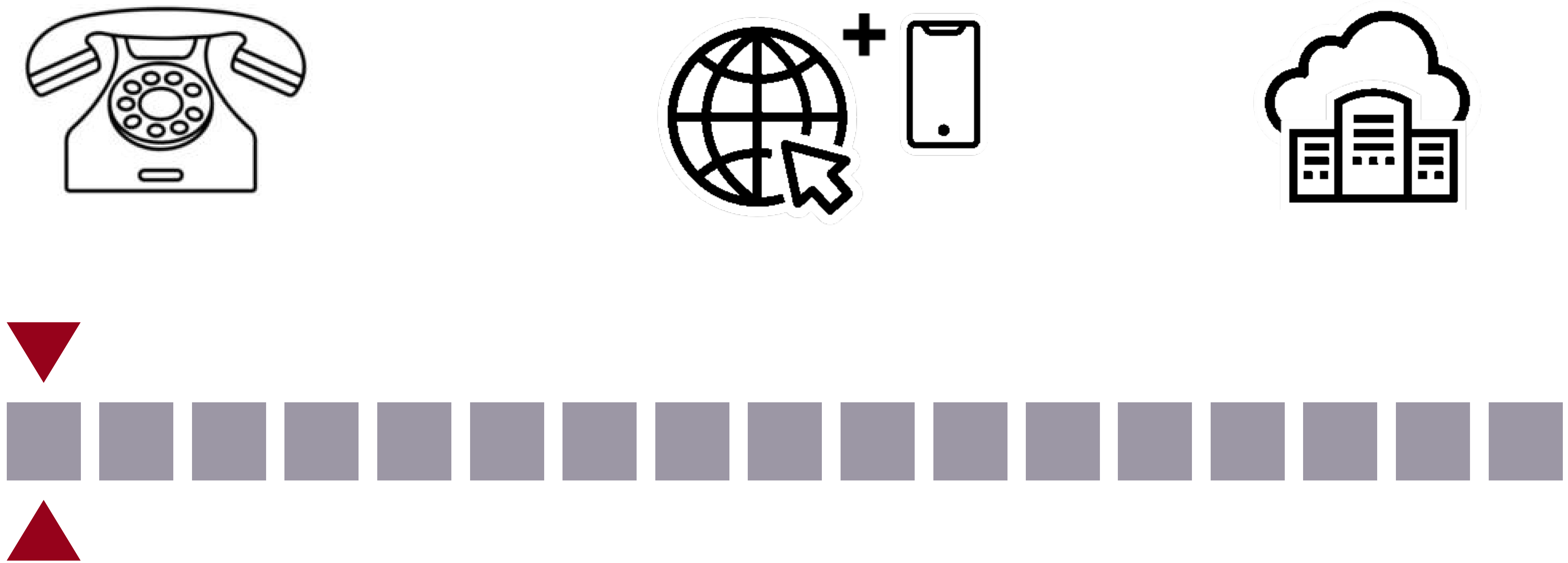
Projected net new AI traffic by destination, 2022–30 percent distribution



Source: Omdia

Source: Omdia, AI Network Traffic Forecast 2022-30, Nov 2023

Where are networks today?*



Network modernisation required to monetise cloud and AI demand

*Not scientific

Considerations for network architecture impact of AI

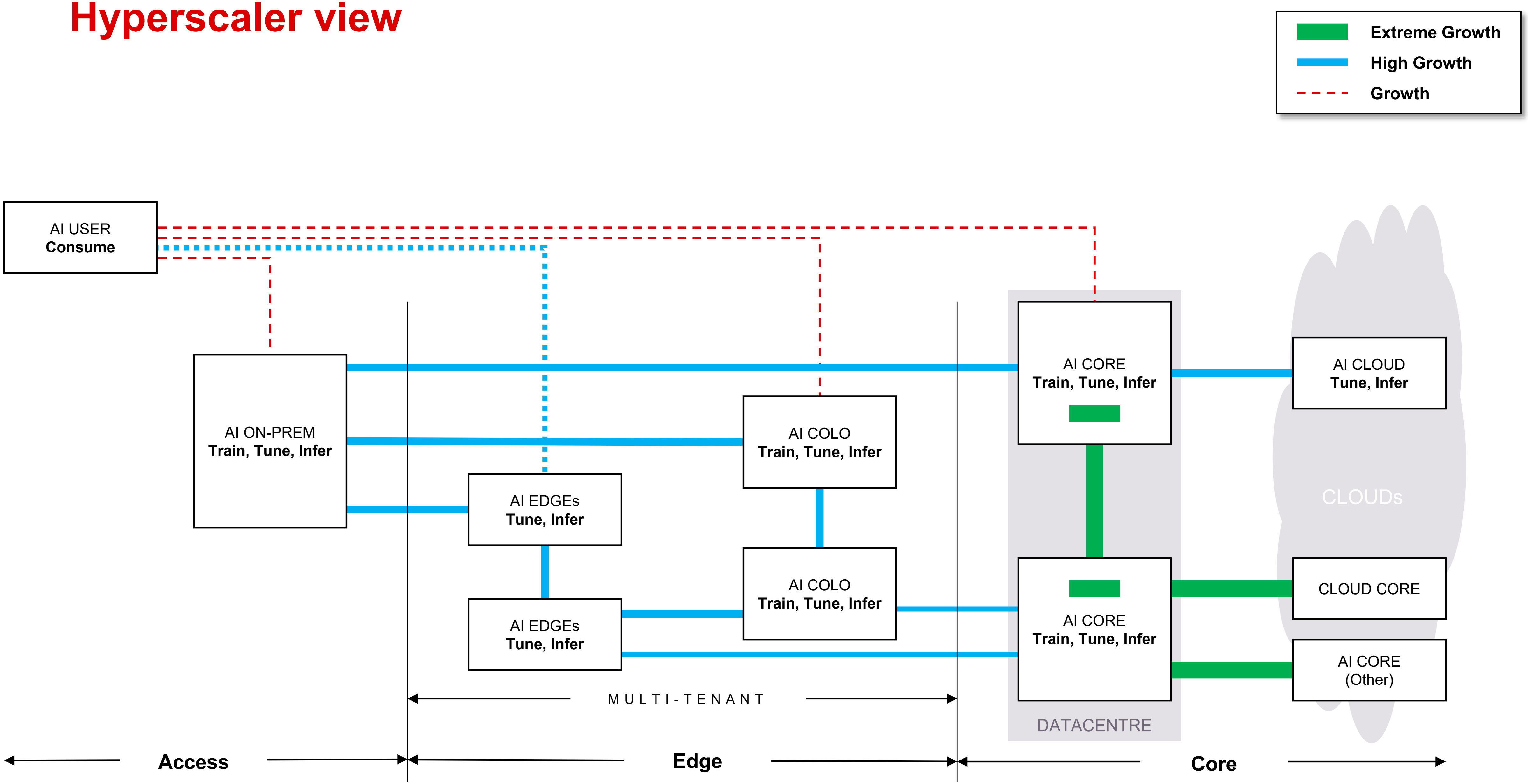
Bandwidth

Latency

Power (and space) – location?

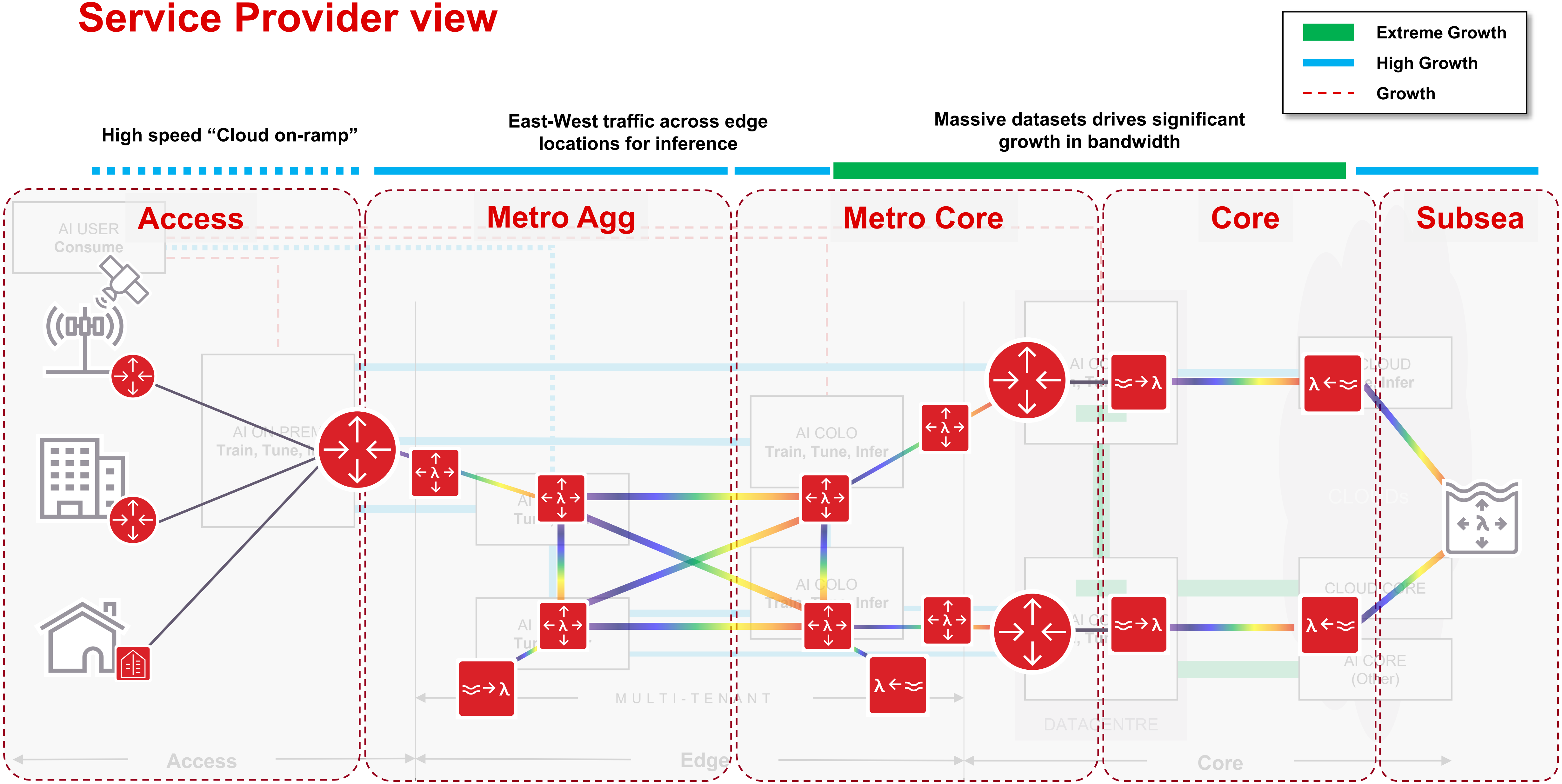
Shifting traffic patterns

genAI journey through the network and impact
Hyperscaler view



genAI journey through the network and impact

Service Provider view



Call to Action

- Australia in a unique position to capitalise on data centre investment and boom in demand of AI

- **Challenge** – Compute AND network architectures require significant transformation due to evolution of deep learning and inference

- **Opportunity** – for Service Providers to leverage assets:
  - Higher capacity
  - New geographies
  - Flexible inter-site connectivity

- Modern, cloud-first networks required to capitalise on AI growth

Network connectivity is critical in the era of AI powered transformation; monetise your assets!

Thank You

Infinera

Breaking the Bandwidth Barrier:

How to Get 25%+ More Capacity Out of Your Optical Fibre

Walid Wakim , Chief Technology Officer

May 2, 2024

COMMSDAY SUMMIT SYDNEY 2024

End-User Drivers: A Minute on the Internet in 2023

THIS OR NEXT

INTERNET IN A MINUTE

328 Exabytes
Of New Data Created Every Day
(82 Billion HD Movies)

>500 Million
HD Movies Streamed Every Day

*Source: Finances Online

CLOUD COMPUTING

85%

ENTERPRISE WORKLOADS IN THE CLOUD

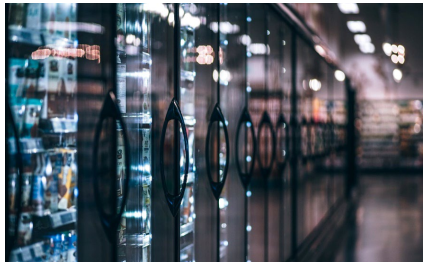
>11K DATACENTERS WORLDWIDE

>700 HYPERSCALE DATACENTERS

$600B 2023 CLOUD SPENDING (18% YoY Growth)

*Synergy Research Group, Statitica, Gartner Research

Trends in Telecommunications



RELENTLESS CAPACITY GROWTH

28EB → **93EB**

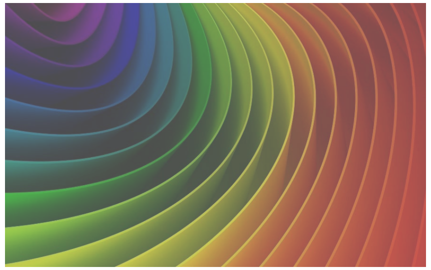
2023 2027

TOTAL OPTICAL BANDWIDTH

20% **>50%**

PROVIDER CONTENT

BANDWIDTH CAGR



RISE OF COHERENT OPTICAL ENGINES

10%

GROWTH IN COHERENT MARKET

80%

OF MARKET BASED ON COHERENT BY ‘27

OPEN ACCELERATION

50%

XPONDERS OVER 3RD PARTY LINE SYSTEMS

$2B

PLUGGABLES OUTSIDE OF OPTICAL BY ‘27

EVOLVING SERVICE MODELS

400G

TRANSPORT SERVICE OFFERING

MOFN

MANAGED OPTICAL FIBER NETWORK

AUTOMATION AI / ML

10x

BANDWIDTH GROWTH ‘23 – ‘27

>35%

GROWTH IN AI PROCESSORS ‘23 - 27

Increase Capacity, What can we do?

Increase Spectral Efficiency?

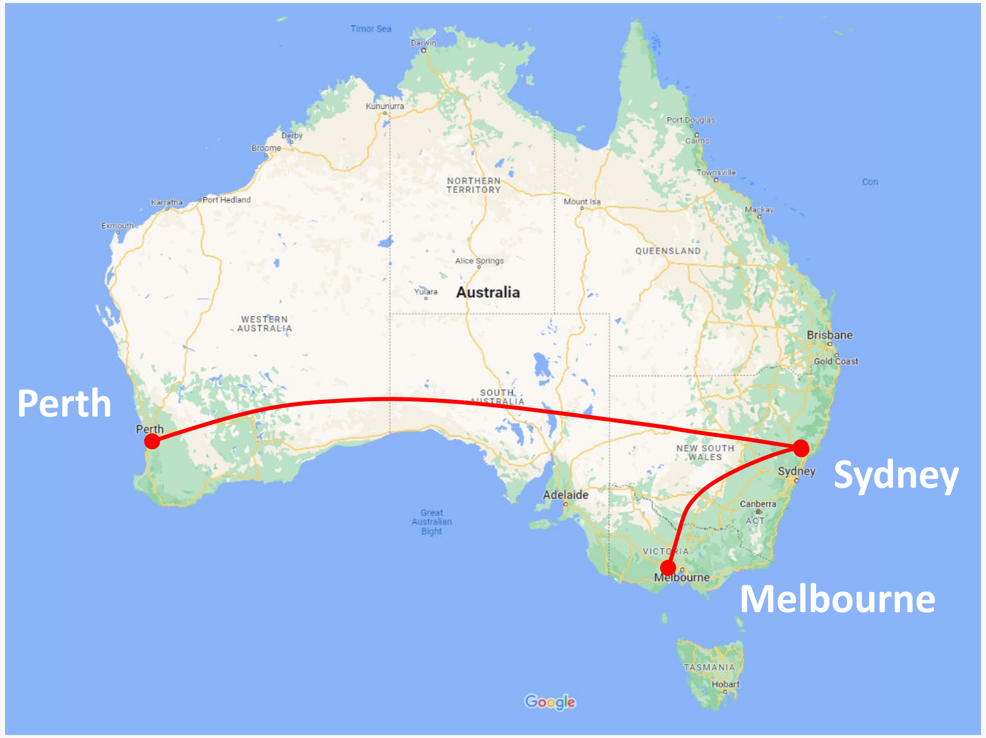
- How much more can we truly gain?

Change network architectures?

- Shorten distances?
- Improve fill rates?
- Improve line systems performance?

Wideband DWDM, New Fibres?

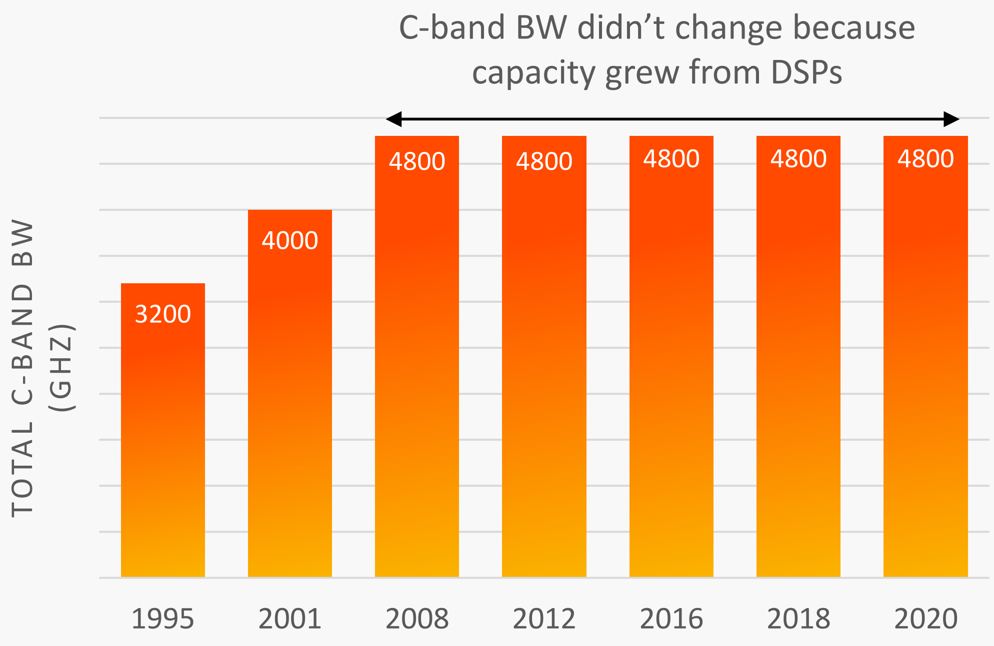
- New bands?
- New fibers?
- Extend existing bands?



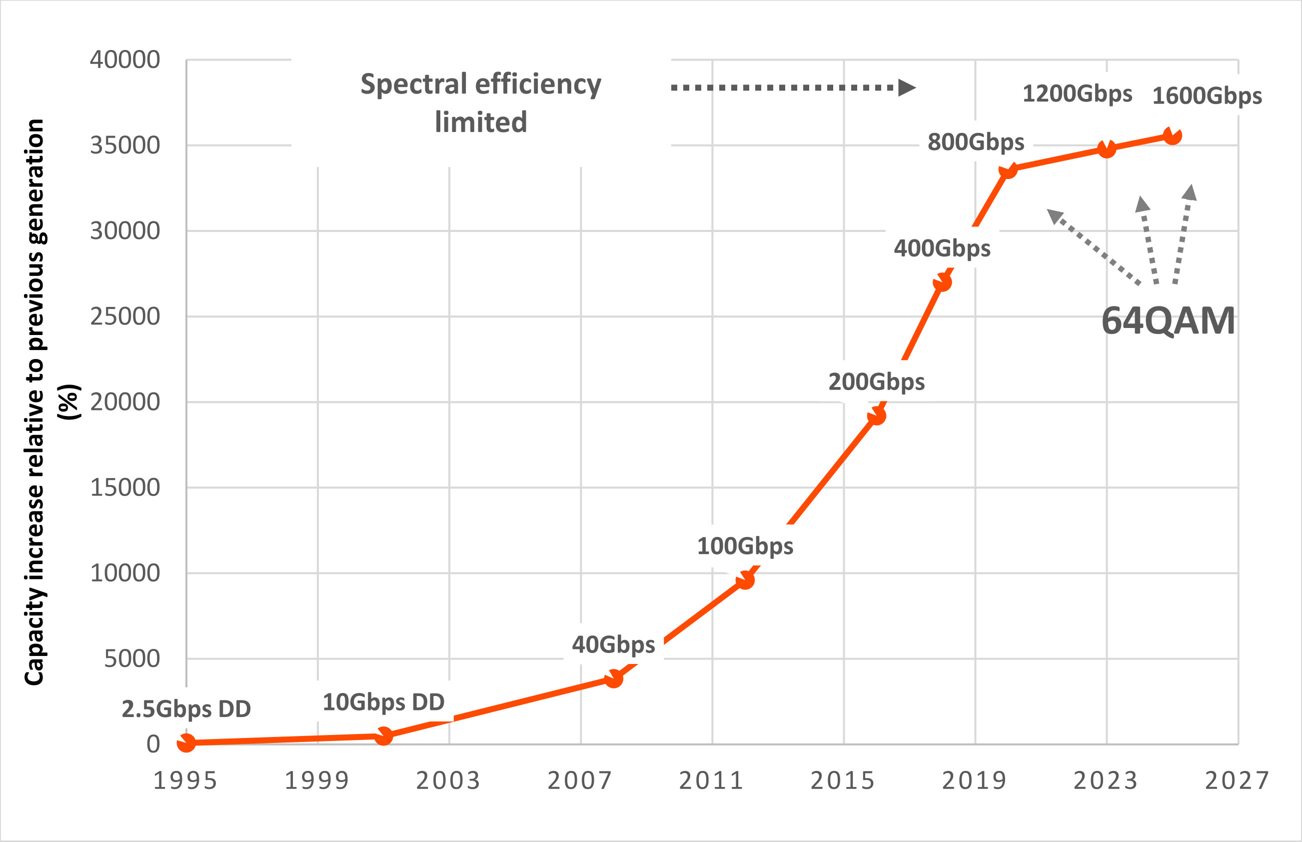
Increase Spectral Efficiency?

Spectrum 'expanded' twice – from 3.2 to 4.8Tz in the 2000s

2008, Coherent Introduction drives Spectral Efficiency, capping C-Band growth



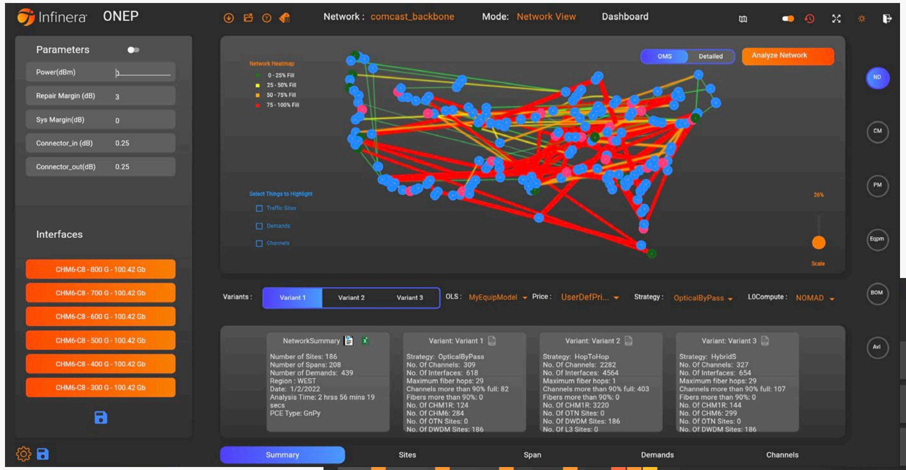
Last 3 Gen of QAM64 spectral efficiency improvements slowed / capped

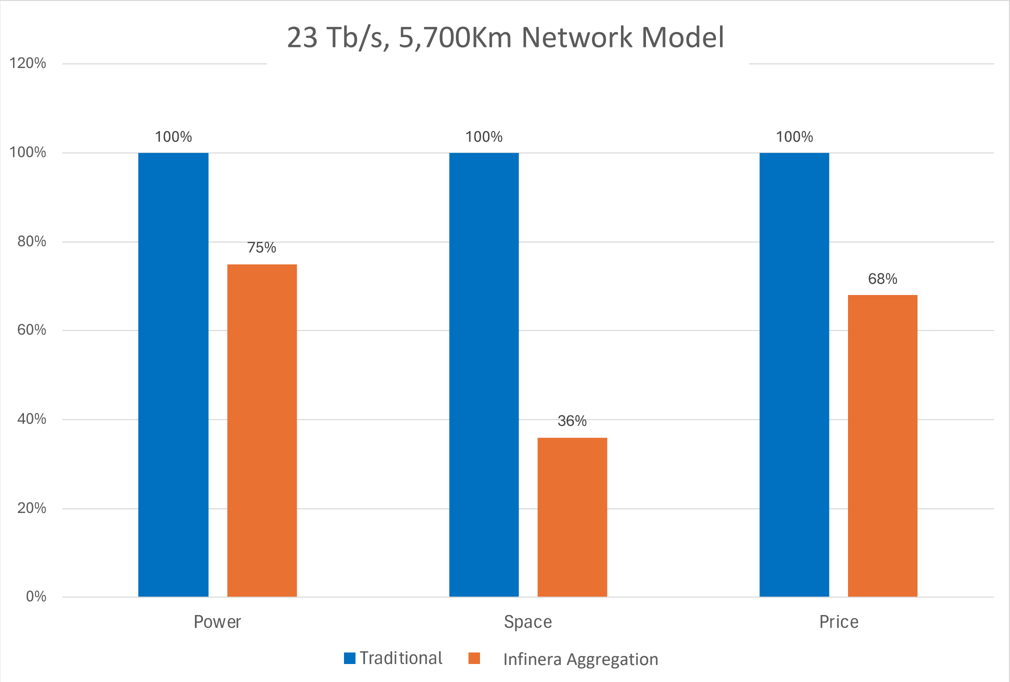


Approaching Shannon's Limit, Minimal Gain

Change Network Architectures

- Shorten Distance Between Sites, Intermediate Routing
- Improve Line System Performance
- More Efficient Aggregation Techniques





25% Power Savings

64% Space Savings

32% Price Savings

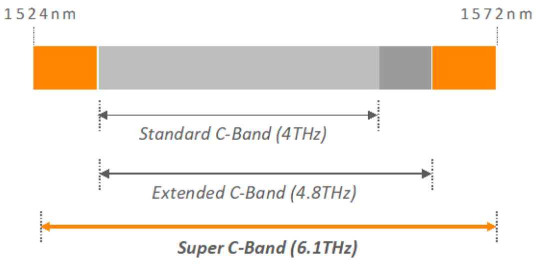
- Advanced Multi Layer Modelling Tools

Infinera

Wide Band DWDM? New Fibres?

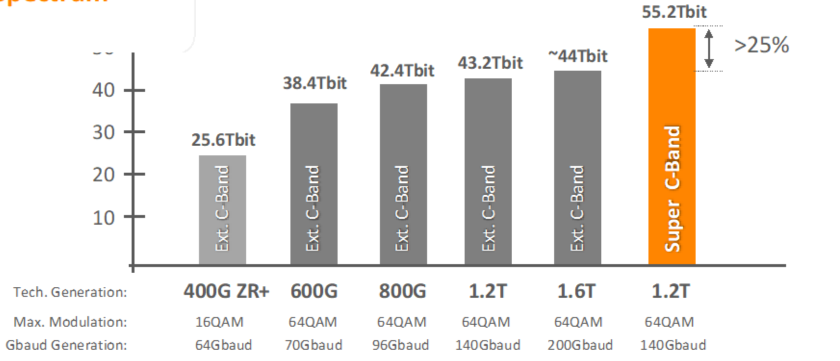
- Super C and Super L → >25% More Capacity
- Technology Available Today → Negligible Cost Delta
- New Fibre Technologies - Hollow-Core? Multi-Core? Wide Band DWDM?
- Time to Adoption Slow → New Technology Introduction

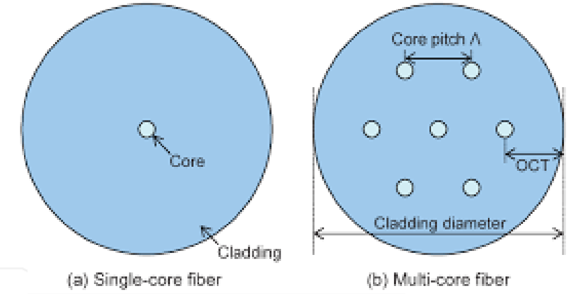
FIBER SPECTRUM (C-BAND)

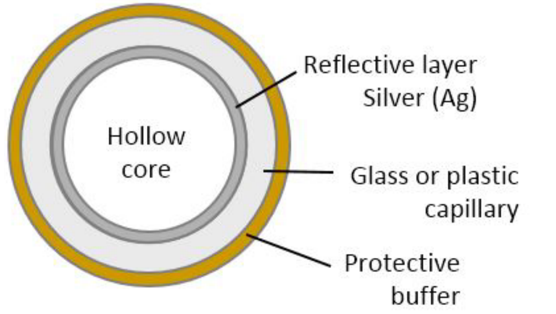


27% Increase in Usable Spectrum

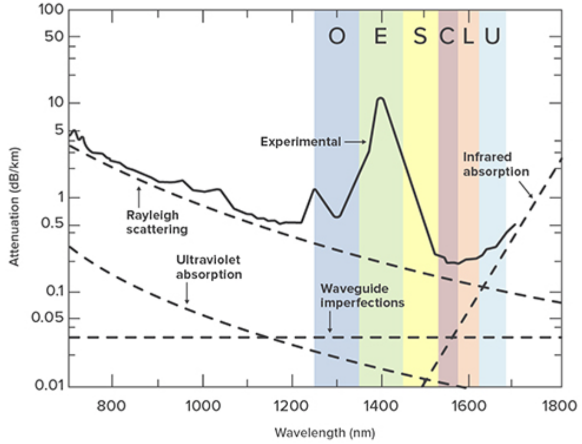
MAX. FIBER CAPACITY







Transmission Bands



Summary

ARCHITECTURE

Shorten Links

Aggregation Efficiency

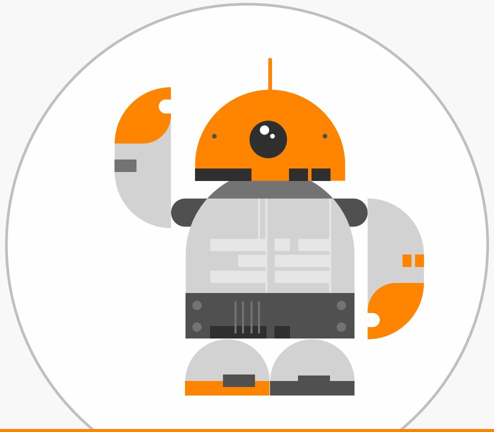
OLS Performance

SCALE

Spectral Efficiency

Expand into Super C+L

More Parallelism



EVOLVE

Hollow Core

Multi-Core

Additional Bands

Infinera

Thank You

Empowering Telco Open Innovation

The Red Hat Odyssey

Andrew McGee
Senior Director
Telco Center of Excellence

9 OUT OF 10

COMPANIES USE OPEN SOURCE


Built on Red Hat


redhat
Linux
REDHAT
PROFESSIONAL
The Linux that is easy to set up and use.
PERSONAL Operating System
PERSONAL
Red Hat Linux 3.03, March '96
Disk 1
Copyright
Red Hat Software
and others,
Durham NC, USA
info@redhat.com
tel: (203) 454-5500
fax: (203) 454-2582
“Official” Red Hat
LiNUX
Made in the USA

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RED HAT Linux
8 CD's & 1 DVD
Linux 7.3
The Linux that is easy to set up and use.
PERSONAL Operating System
PROFESSIONAL
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LiNUX
Made in the USA

Red Hat

1993

Red Hat Software

1999

2019

Red Hat

“At first they ignore you.
Then they laugh at you.
Then they fight you.
And then you win.”

Red Hat

60% of cat memes

Dot Com Crash

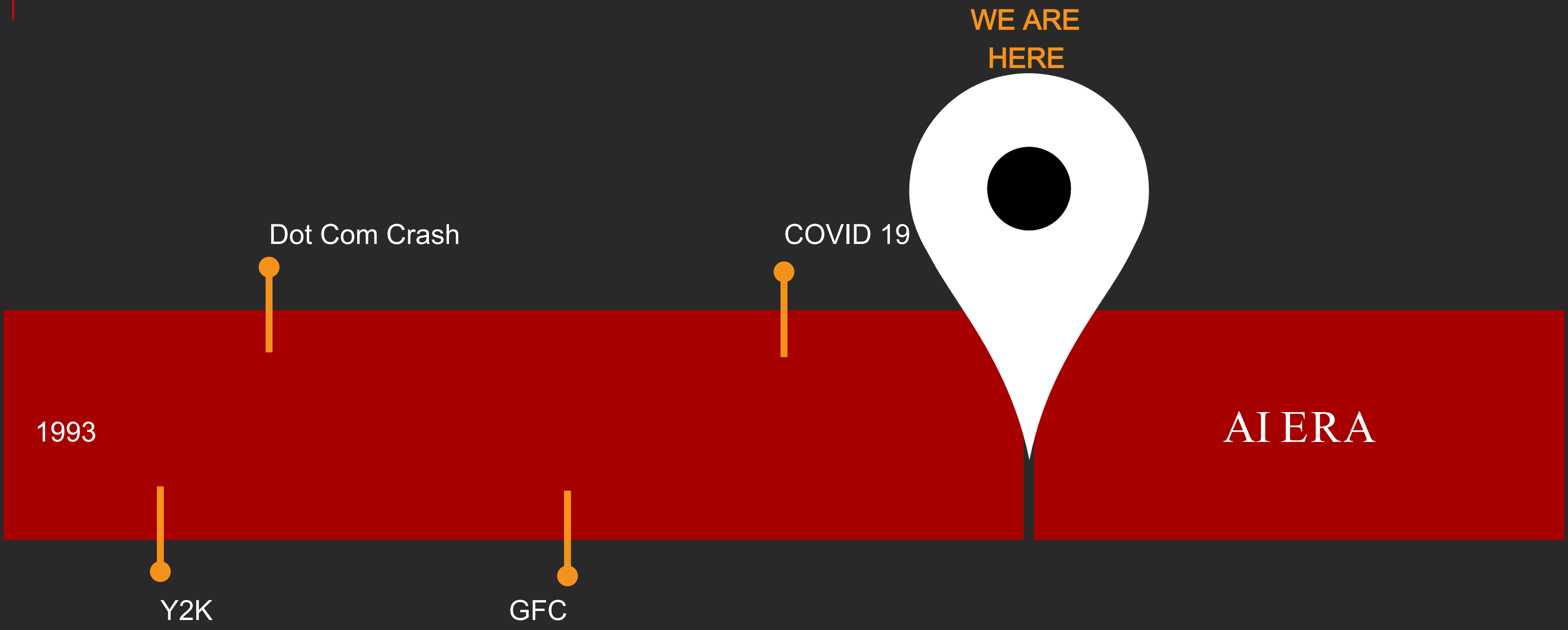
COVID 19

1993

AI ERA

Y2K

GFC


WE ARE
HERE
Dot Com Crash
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1993
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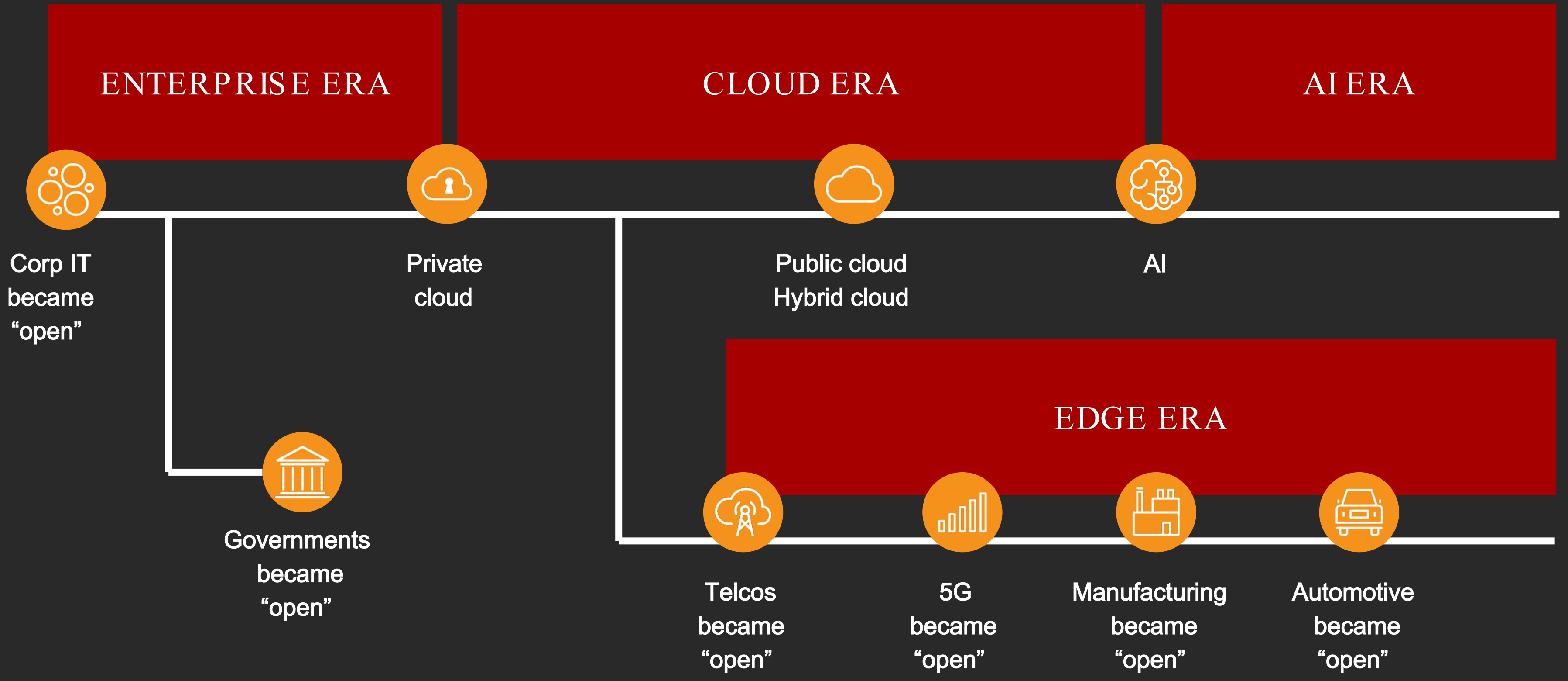
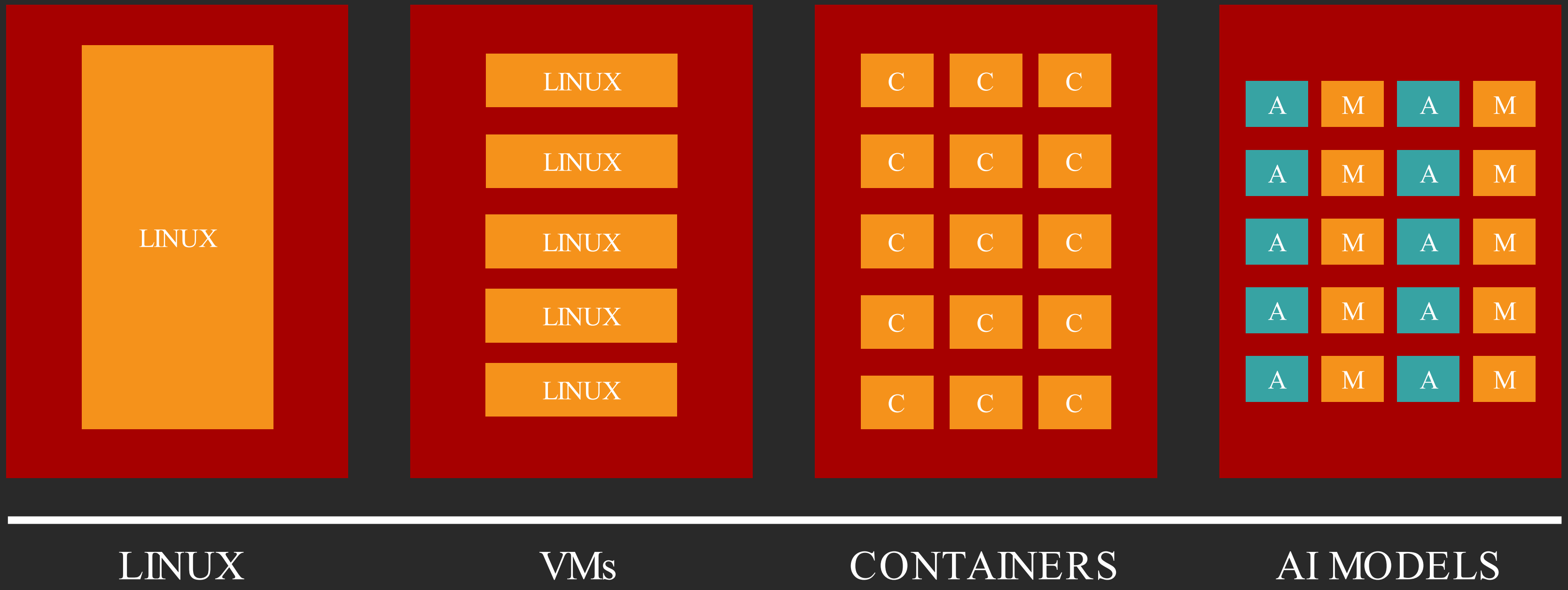
GFC


ENTERPRISE ERA
CLOUD ERA
AI ERA
Corp IT became "open"
Private cloud
Public cloud
Hybrid cloud
AI
Governments became "open"
EDGE ERA
Telcos became "open"
5G became "open"
Manufacturing became "open"
Automotive became "open"

The Future Is Open Platforms



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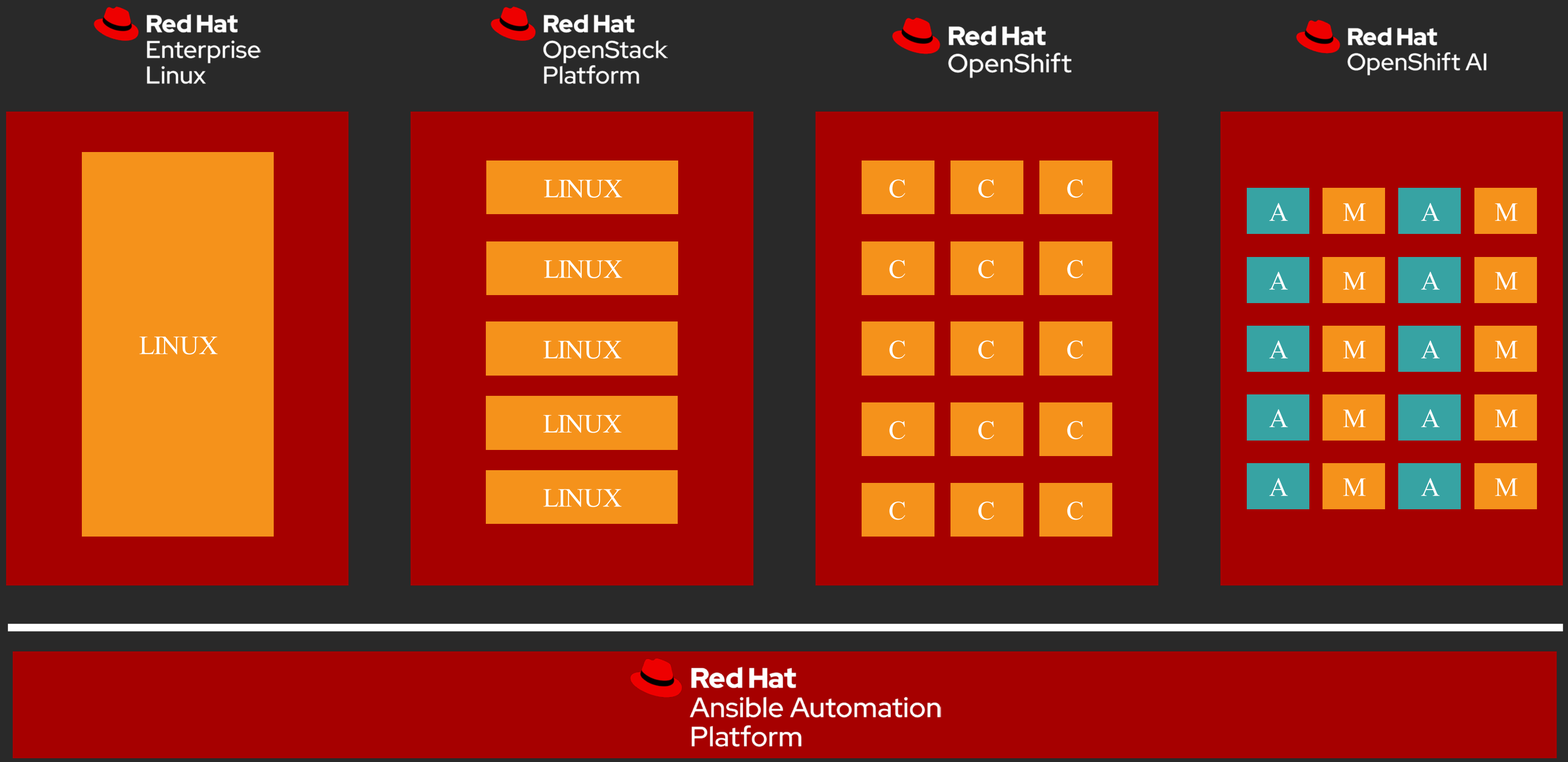
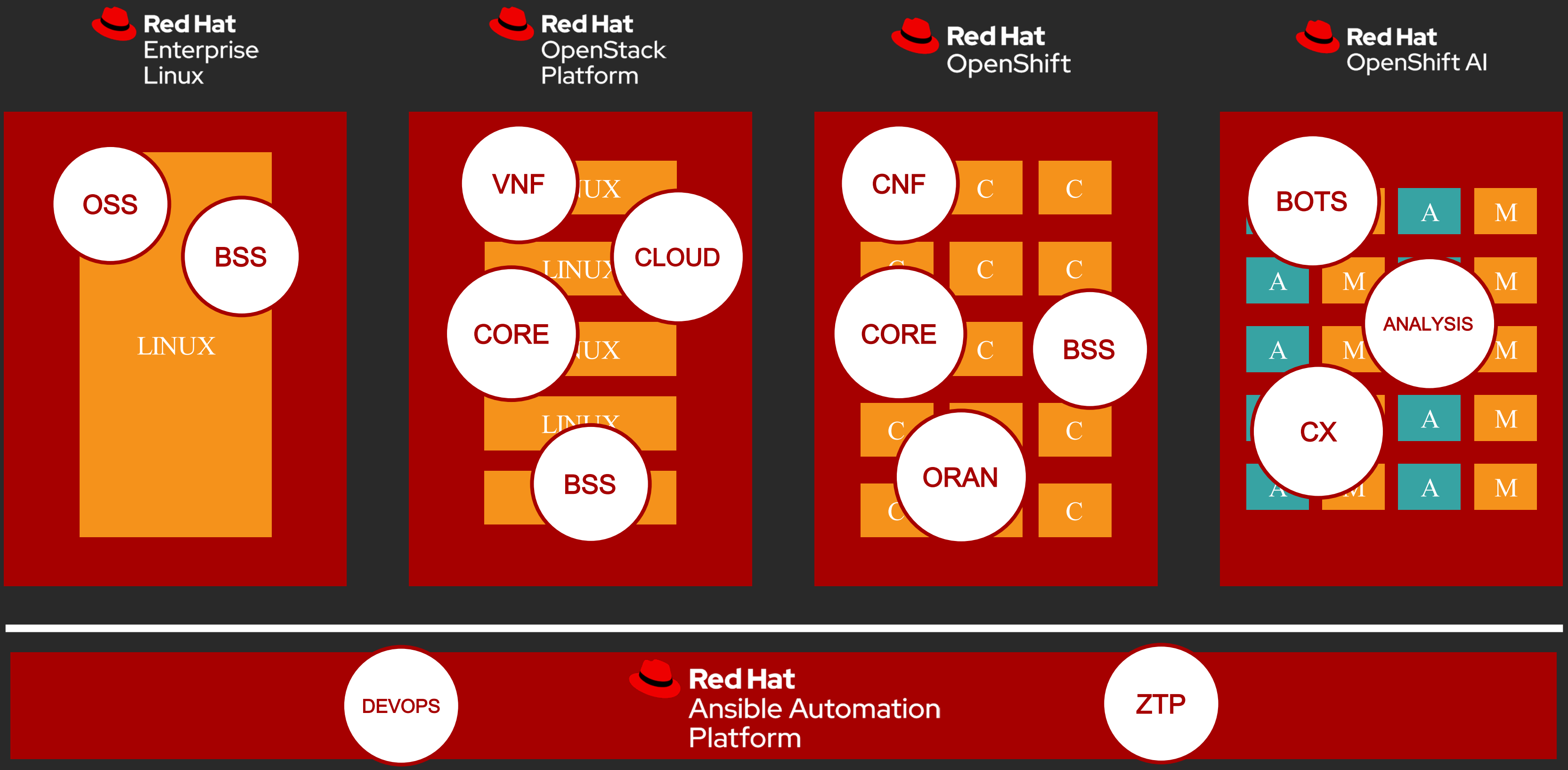
The Future Is Open Platforms



The Future Is Open Platforms



2DEGREES
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AKAMAI
AMERICA MOVIL
AT&T
AXIATA
BSC
BT GROUP
CENTURYLINK
CHARTER
CHINA TELECOM
CHINA MOBILE
CK HUTCHISON
COMCAST
DEUTSCHE TELECOM
DIGICEL
ETISALAT

GLOBE
KDDI
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LG+
NAVER
NTT
ONE NZ
OPTUS
ORANGE
PACIFIC CENTURY
RAI
RAKUTEN
RELIANCE JIO
ROGERS
STC
SINGTEL
SMARTFREN
SOFTBANK

SPARK
STARHUB
SWISSCOM
TELECOM ITALIA
TELEFONICA
TELEKOM
MALAYSIA
TELENOR
TELKOMSEL
TELSTRA
TPG
TRUE
TURKCELL
VERIZON
VIVENDI
VNPT
VOCUS
VODAFONE

THANK YOU

Andrew McGee

Senior Director

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