ANZ Highlights from Cisco 2013 Mobile VNI Forecast and 2012 Cisco Global Cloud Index

Dr. Robert Pepper
Vice President
Global Technology Policy

6 March 2013

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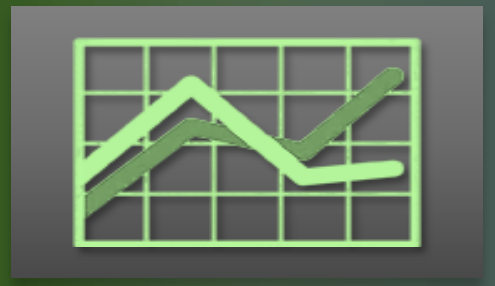
Cisco Visual Networking Index (VNI)
Expanding the Scope of Cisco's IP Thought Leadership

Cisco® VNI Forecast research is an ongoing initiative to predict global traffic growth. This study focuses on consumer and business mobile data traffic and its key drivers.

Global Forecast Data



Global Mobile Speed Data

Source: Cisco VNI Global Mobile Data Traffic Forecast, 2012–2017

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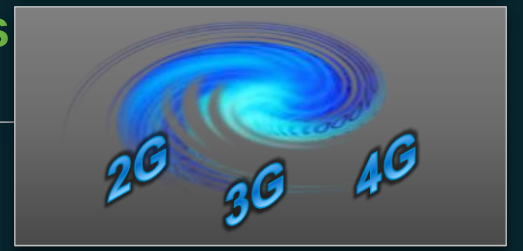
Global Mobile Data Traffic Drivers

By 2017…

More Mobile Users

More Mobile Connections

Faster Mobile Speeds



More Mobile Video

Source: Cisco VNI Global Mobile Data Traffic Forecast, 2012–2017

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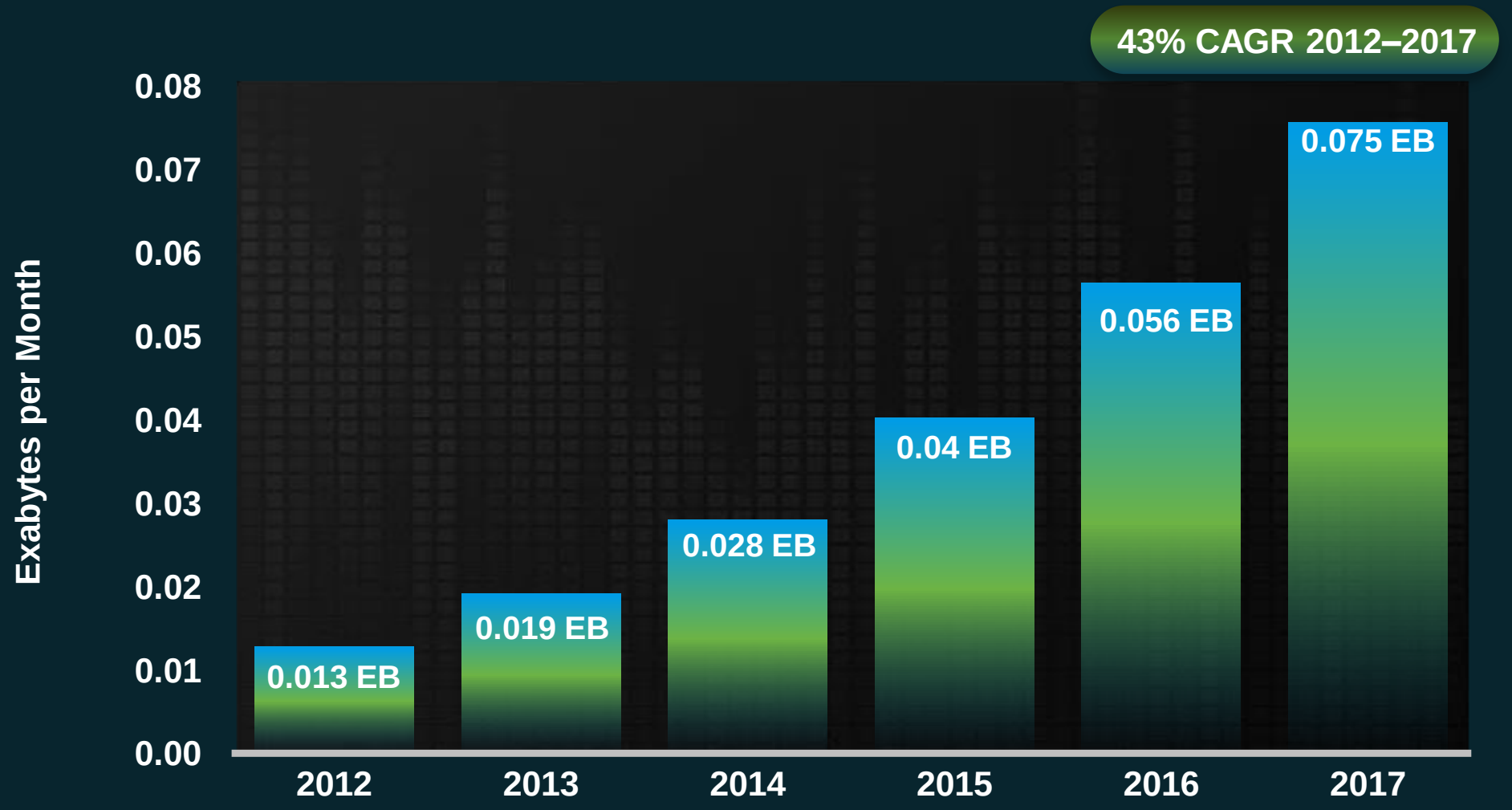
Australia Mobile Data Traffic Growth / Top-Line

Australia Mobile Data Traffic will Increase 6X from 2012 to 2017



Source: Cisco VNI Global Mobile Data Traffic Forecast, 2012–2017

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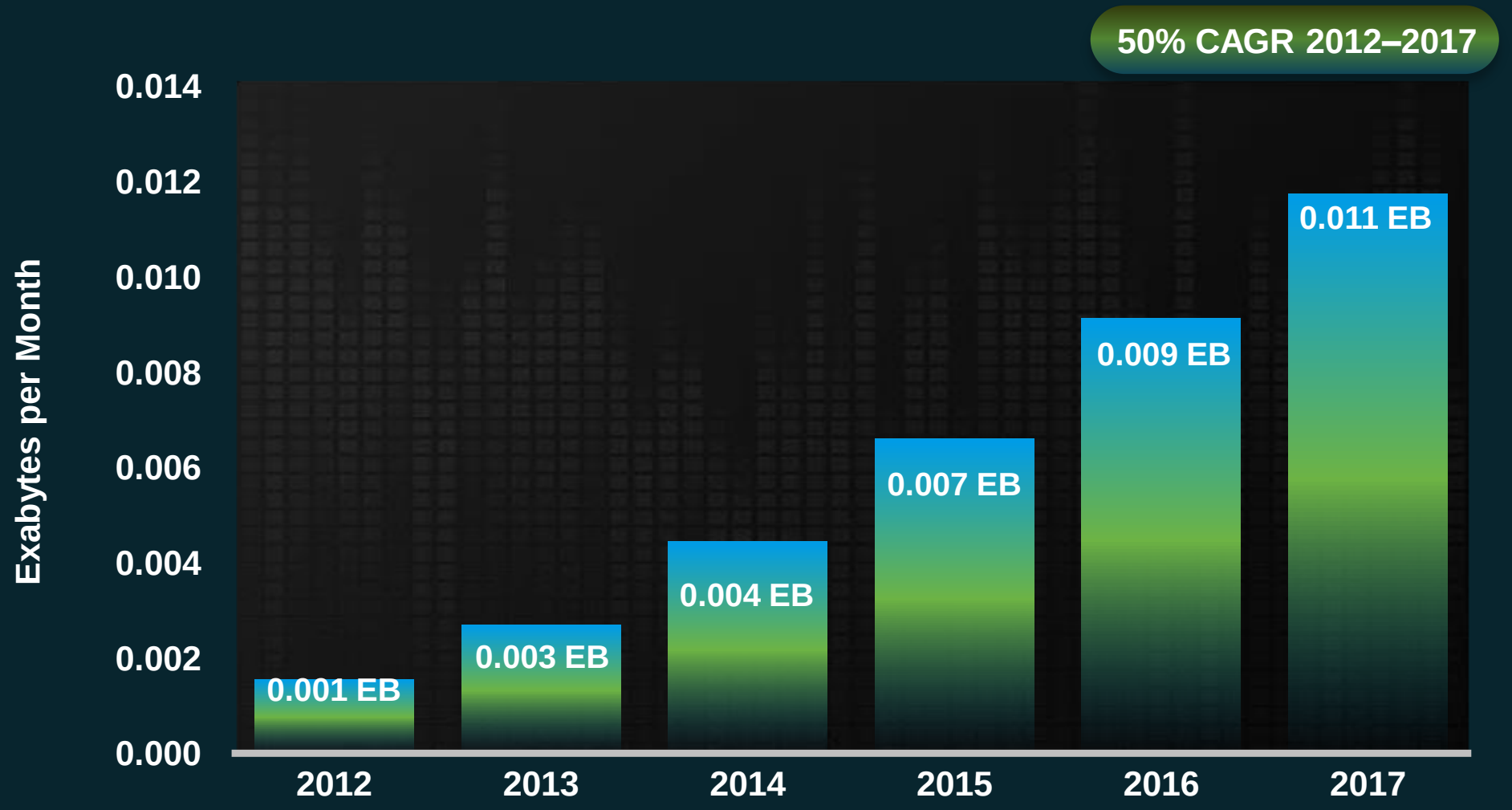
New Zealand Mobile Data Traffic Growth / Top-Line

New Zealand Mobile Data Traffic will Increase 8X from 2012 to 2017



Source: Cisco VNI Global Mobile Data Traffic Forecast, 2012–2017

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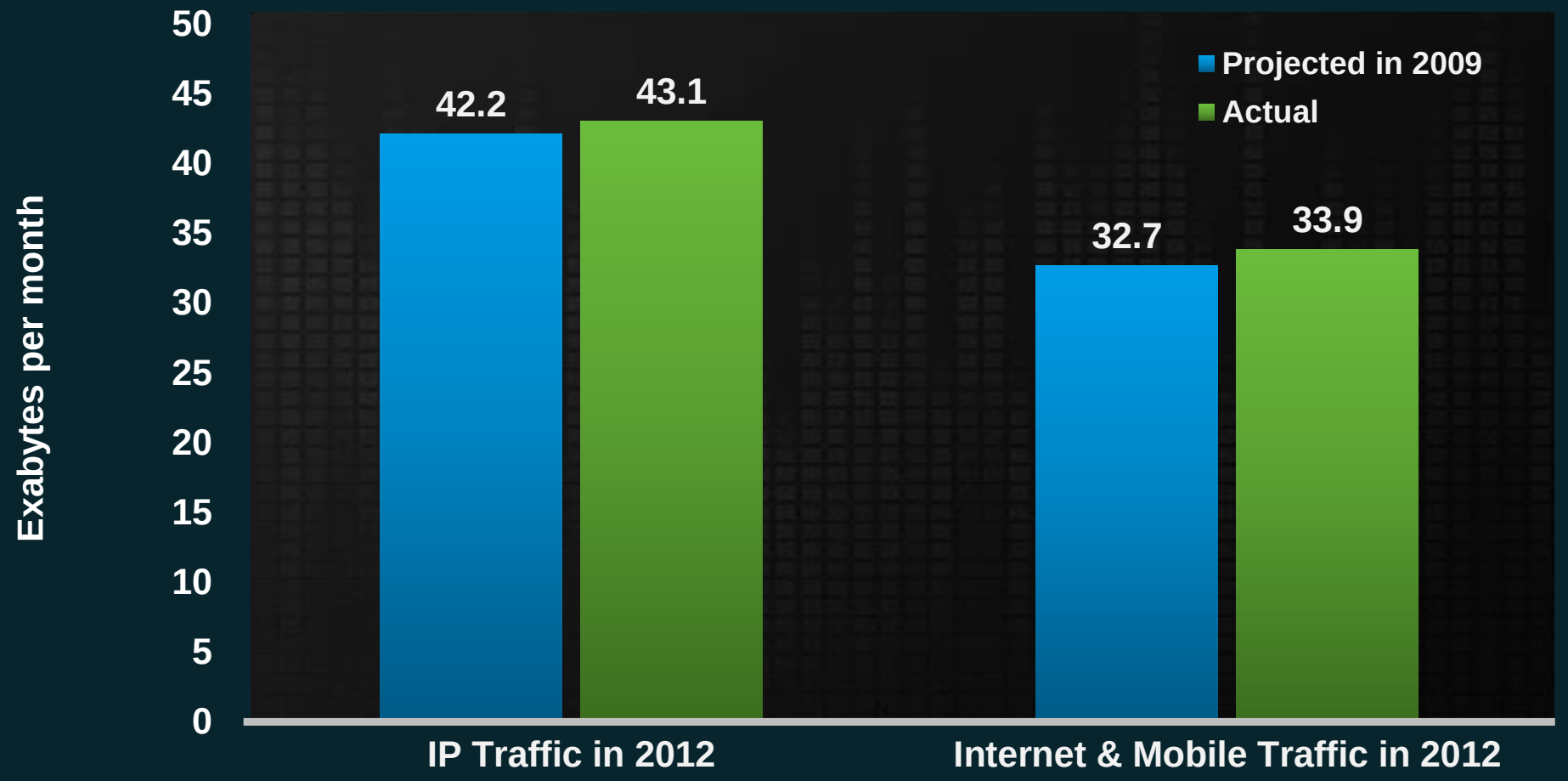
VNI Projections and Actuals (Global)

Actual Growth Has Been Within 10% of Projected Growth



Source: Cisco VNI Global Mobile Data Traffic Forecast, 2012–2017

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Top Trends

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VNI Mobile Forecast Update, 2012–2017

Top 5 Mobile Networking Trends

1. **Device Diversification**
2. Impact of 4G Connections on Traffic
3. Traffic Offload from Mobile Networks to Fixed Networks
4. The (Mobile) Internet of Things
5. Mobile Video and Cloud readiness

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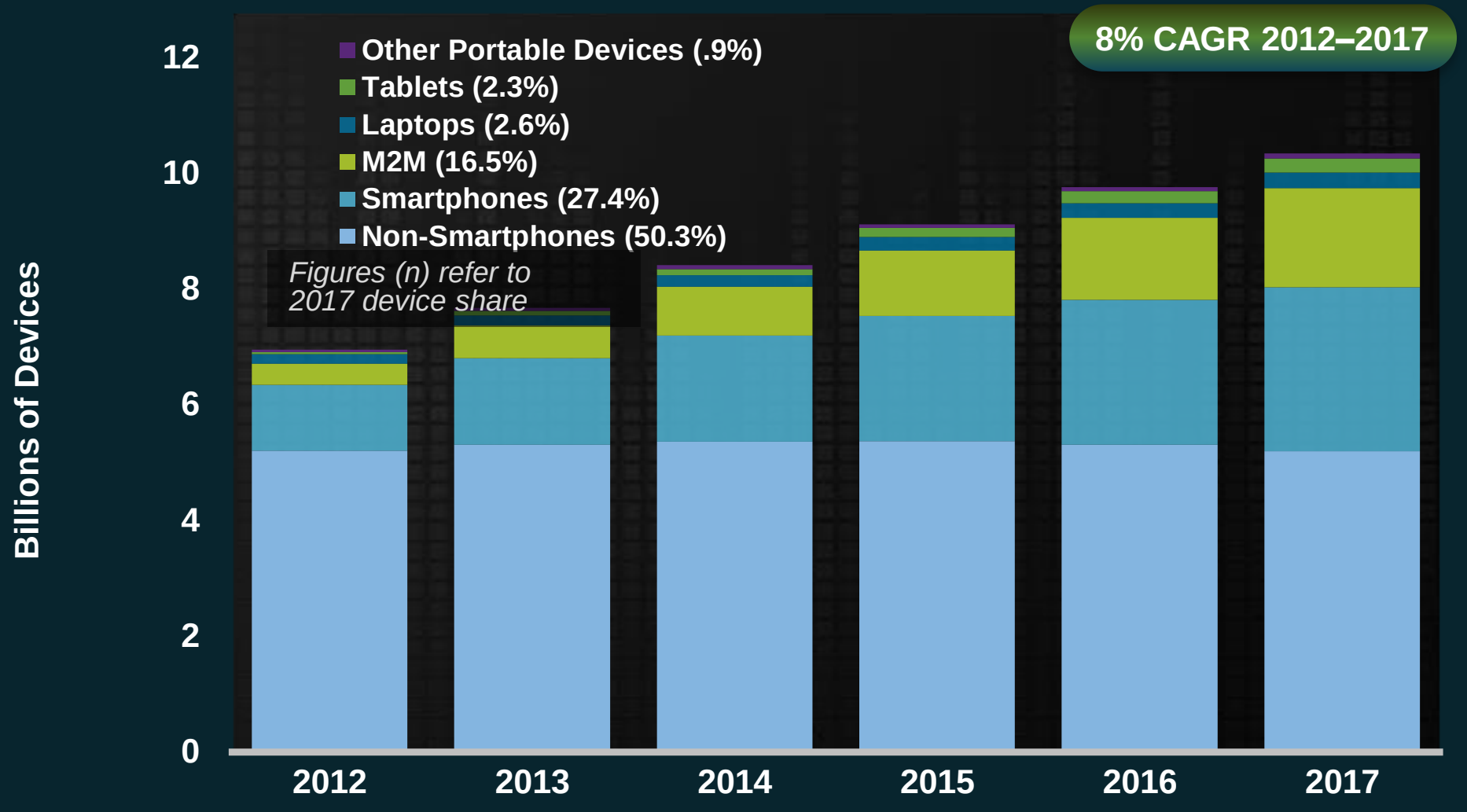
Global Mobile Device Growth by Type

By 2017, Smartphones Will Gain 11 Points to Reach 27% Share



Source: Cisco VNI Global Mobile Data Traffic Forecast, 2012–2017

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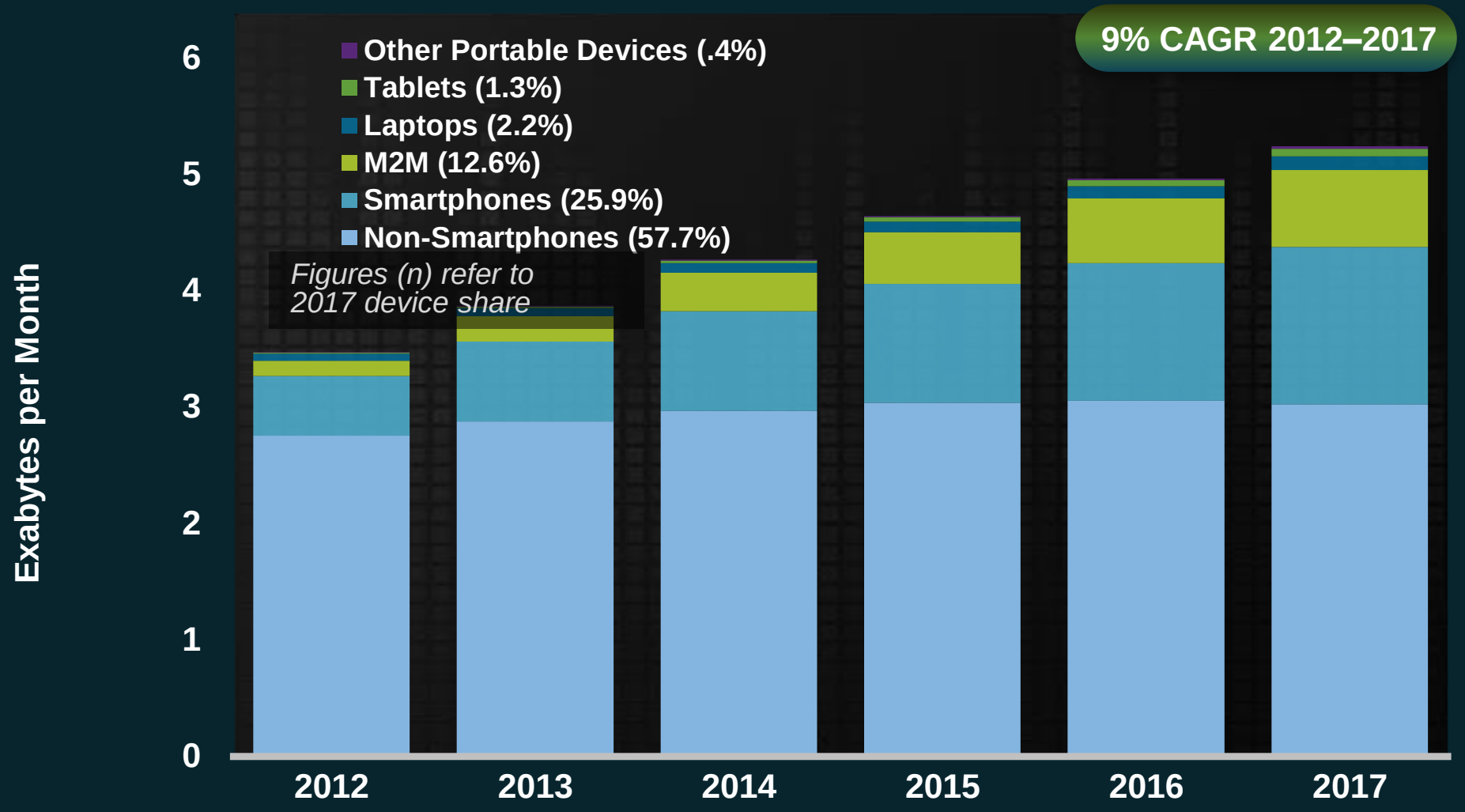
APAC Mobile Device Growth by Type

By 2017, Smartphones Will Reach 26% Share



Source: Cisco VNI Global Mobile Data Traffic Forecast, 2012–2017

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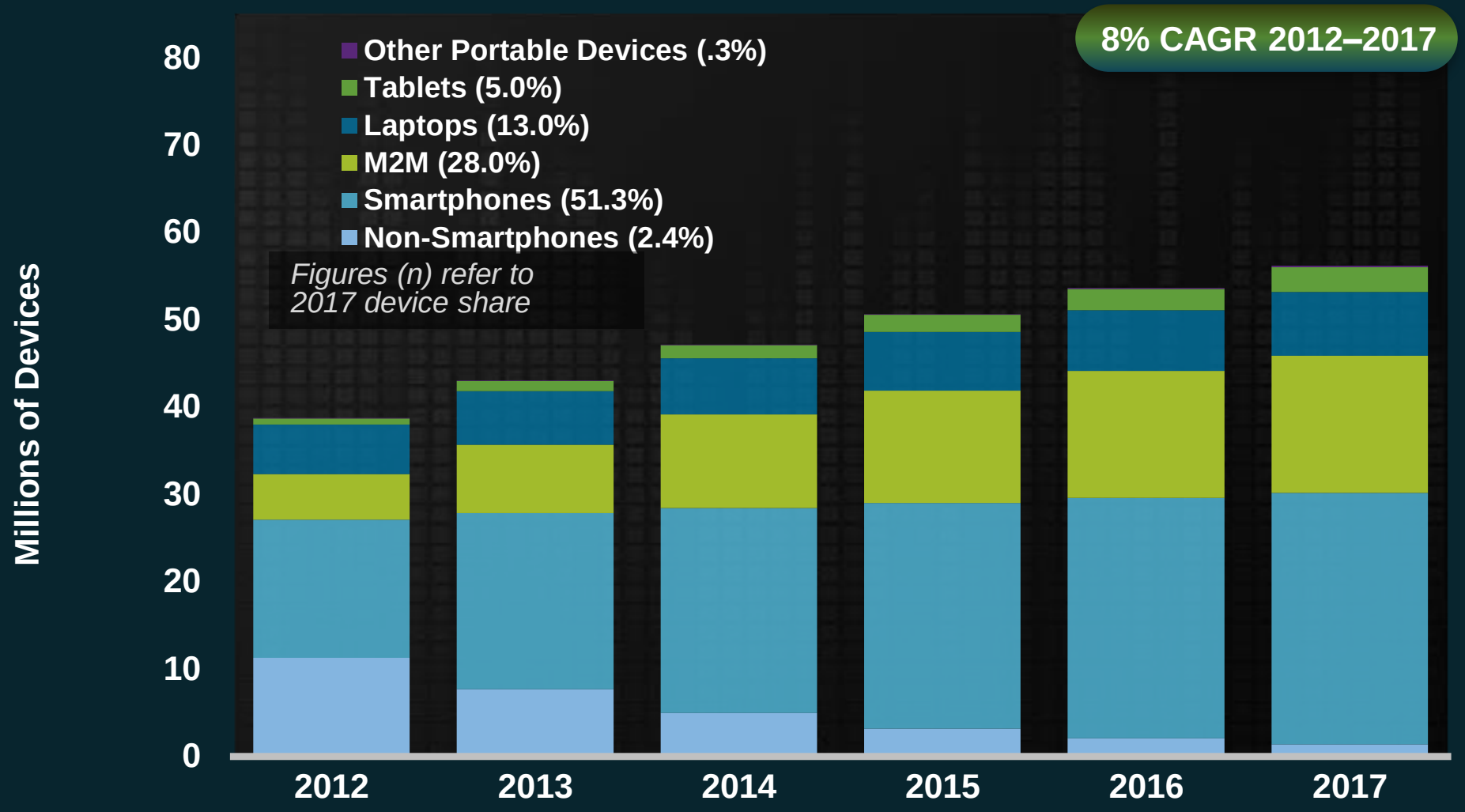
Australia Mobile Device Growth by Type

By 2017, Smartphones Will Reach 51% Share



Source: Cisco VNI Global Mobile Data Traffic Forecast, 2012–2017

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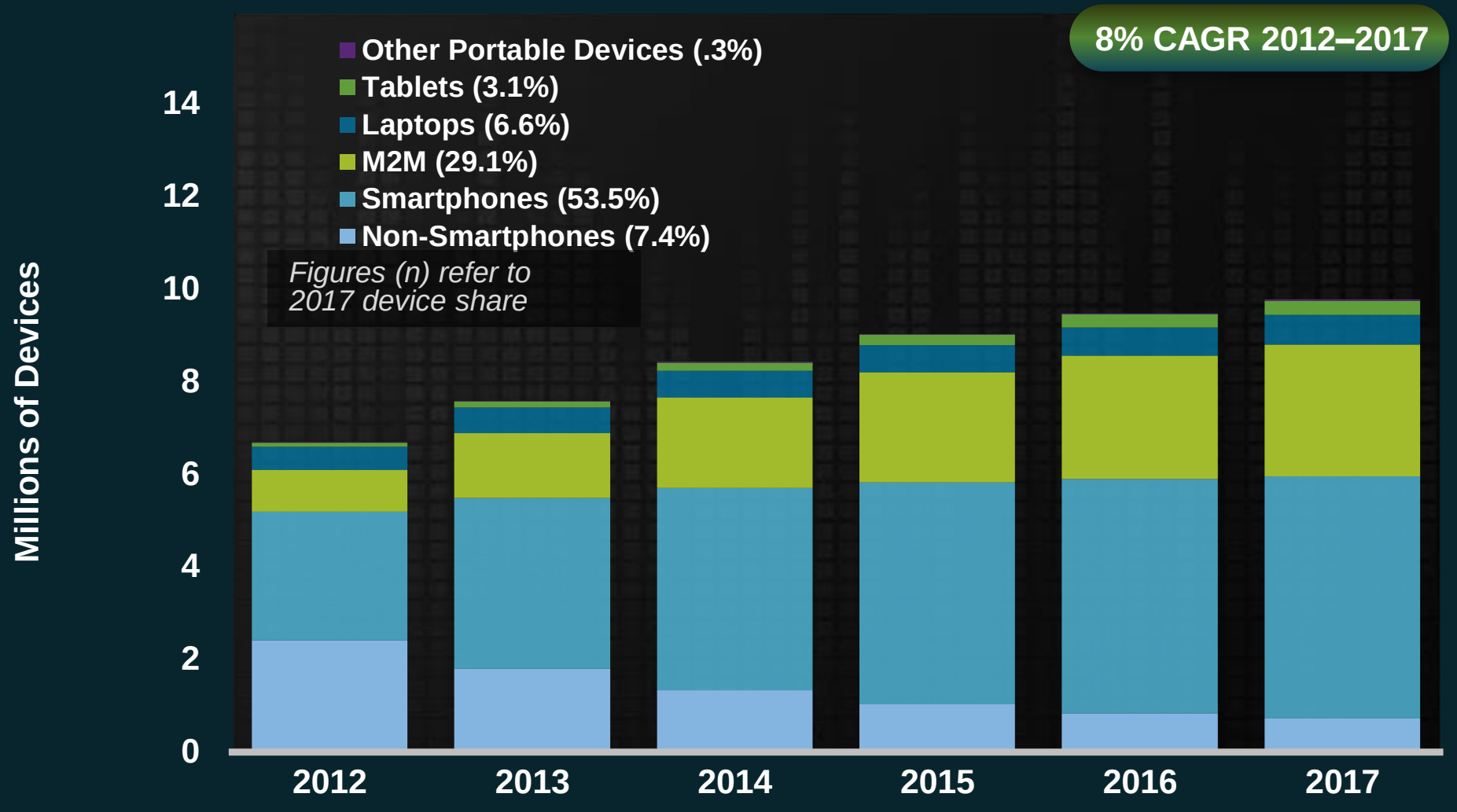
New Zealand Mobile Device Growth by Type

By 2017, Smartphones Will Reach 54% Share



Source: Cisco VNI Global Mobile Data Traffic Forecast, 2012–2017

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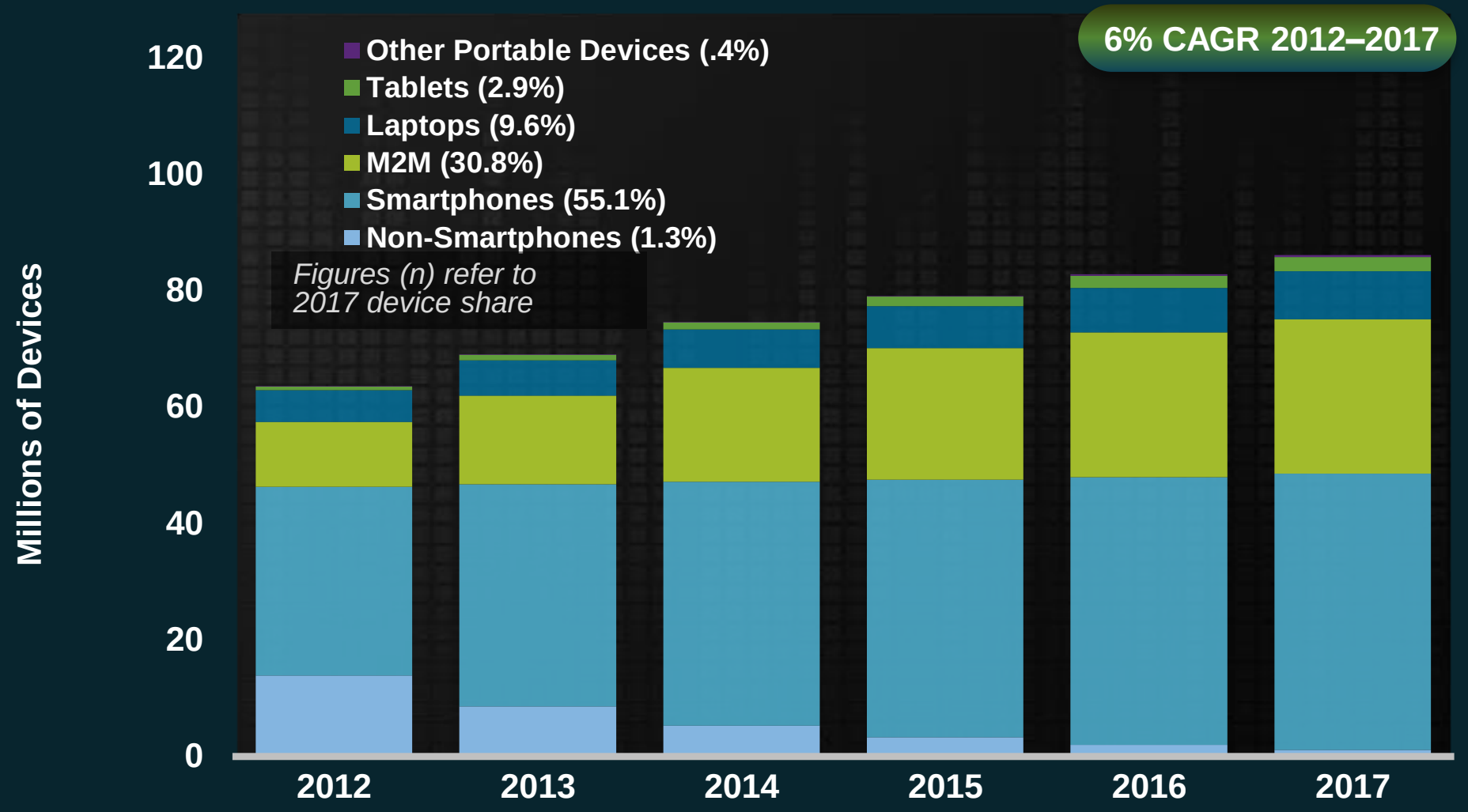
Korea Mobile Device Growth by Type

By 2017, Smartphones Will Reach 55% Share



Source: Cisco VNI Global Mobile Data Traffic Forecast, 2012–2017

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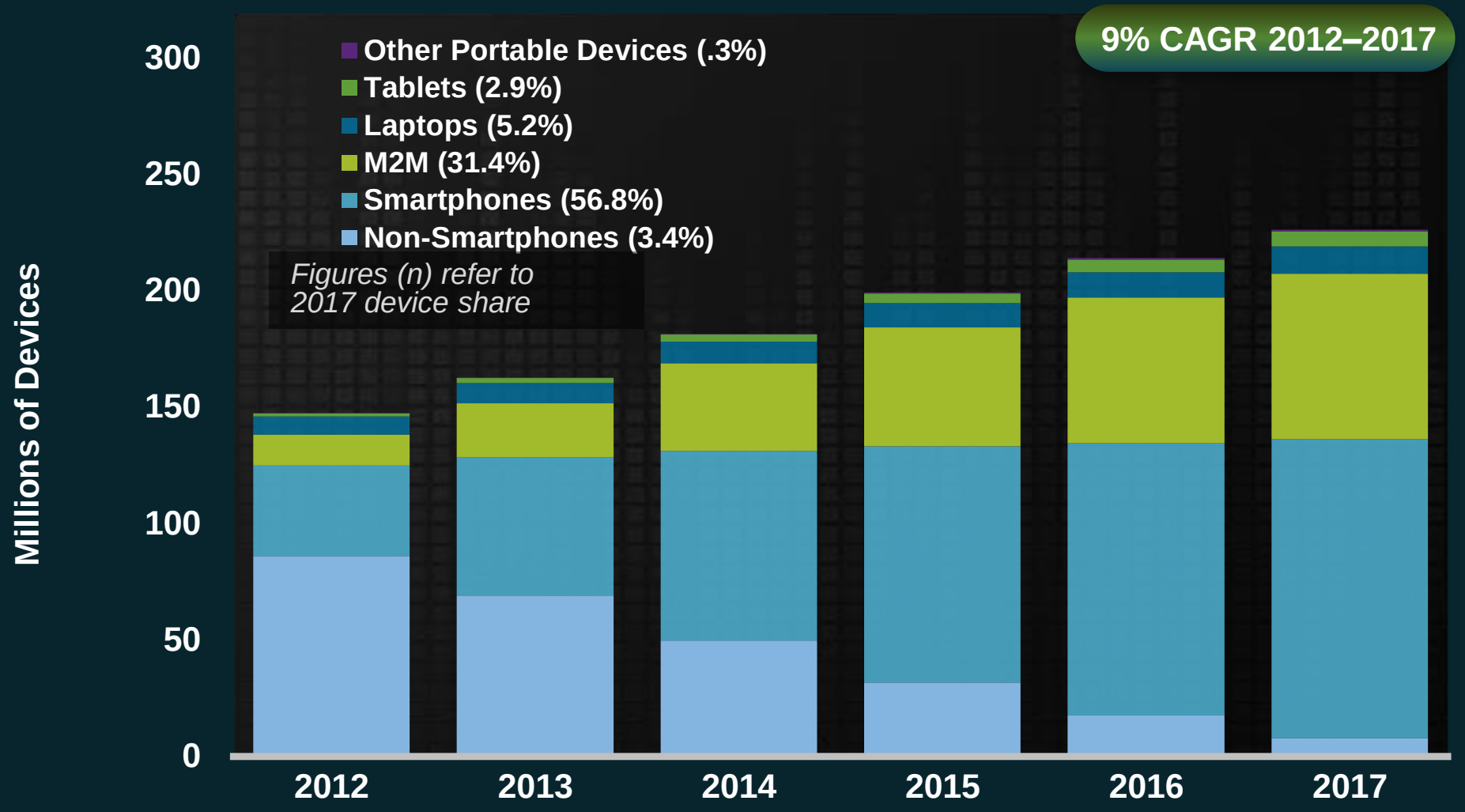
Japan Mobile Device Growth by Type

By 2017, Smartphones Will Reach 57% Share



Source: Cisco VNI Global Mobile Data Traffic Forecast, 2012–2017

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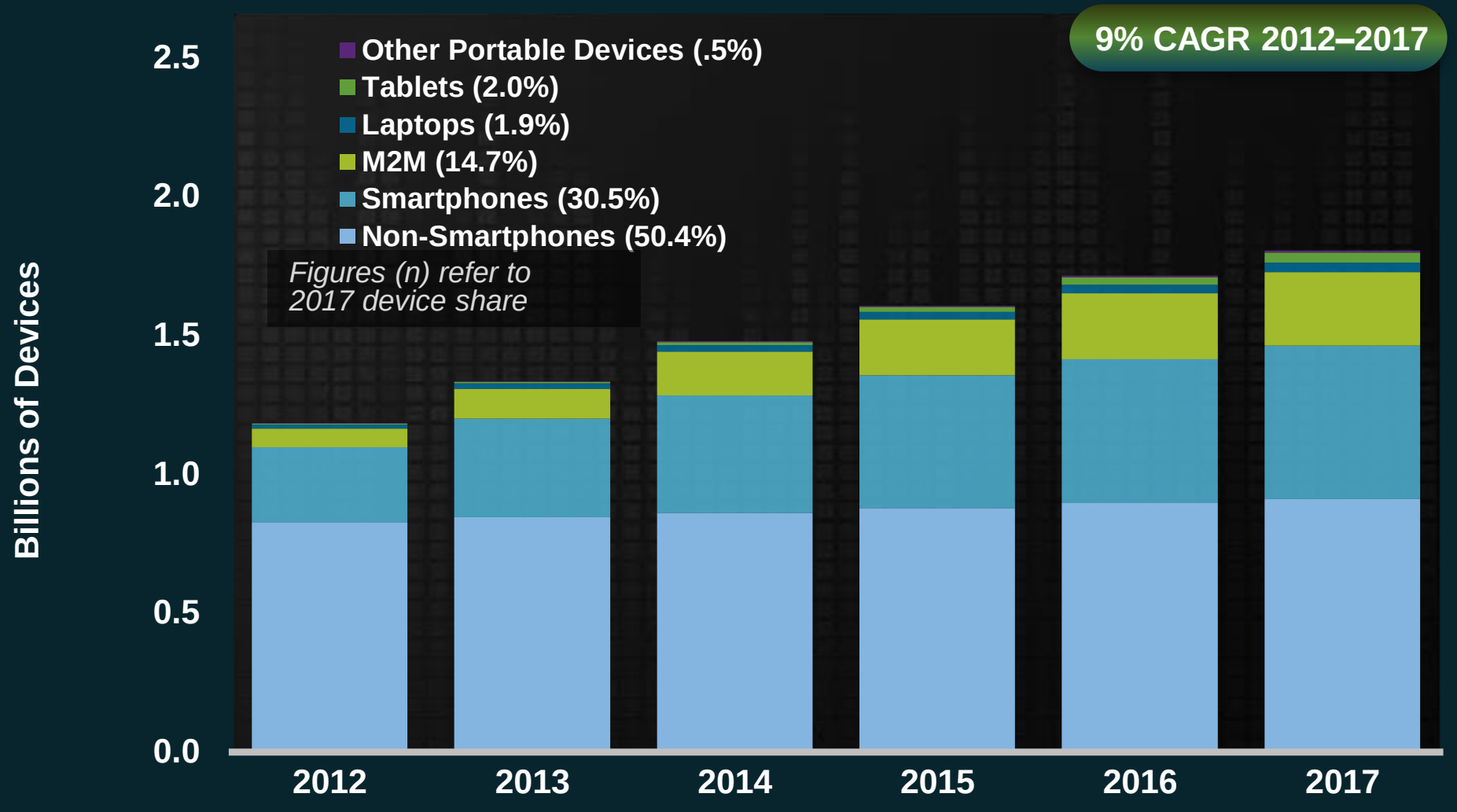
China Mobile Device Growth by Type

By 2017, Smartphones Will Reach 31% Share



Source: Cisco VNI Global Mobile Data Traffic Forecast, 2012–2017

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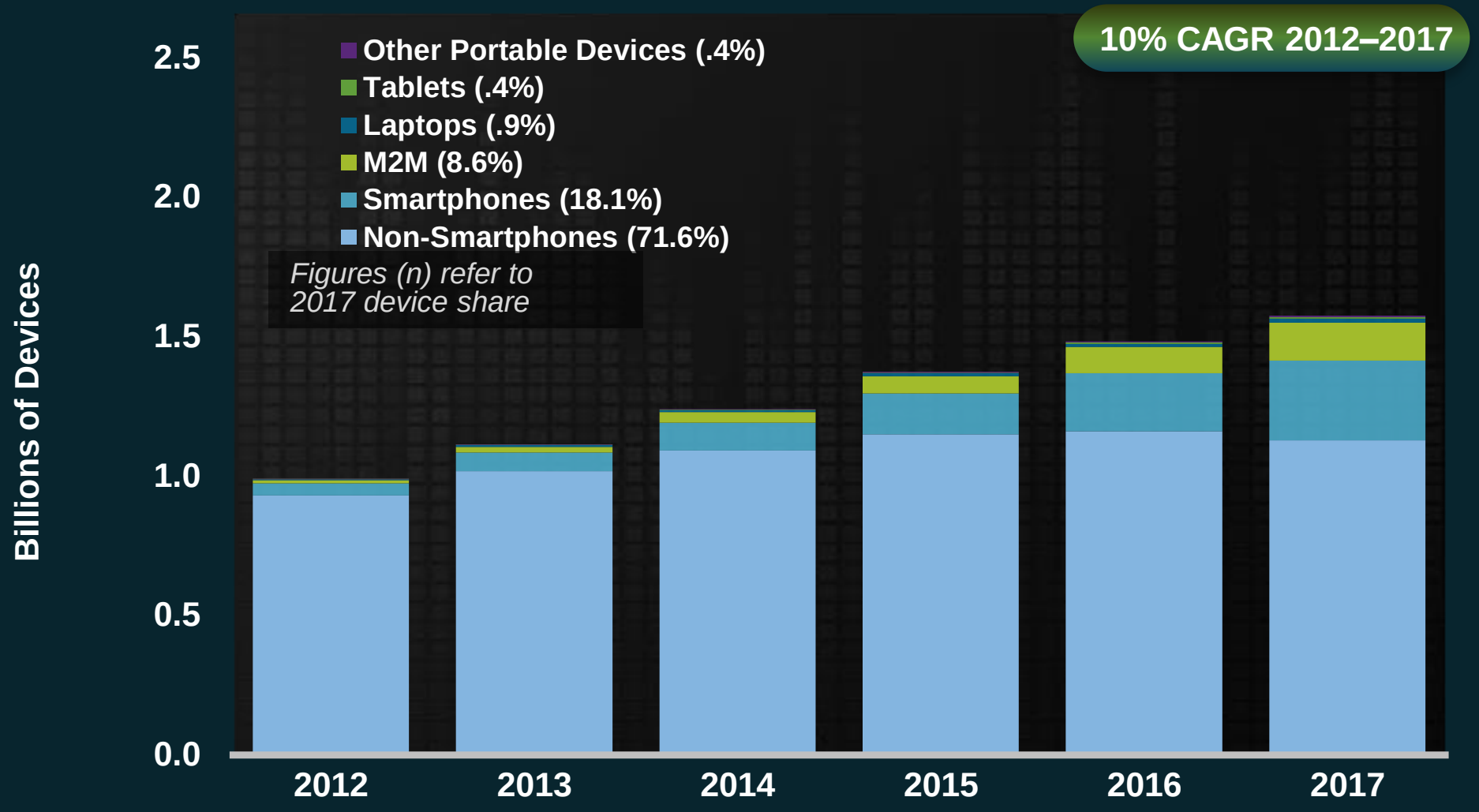
India Mobile Device Growth by Type

By 2017, Smartphones Will Reach 18% Share



Source: Cisco VNI Global Mobile Data Traffic Forecast, 2012–2017

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Average Traffic Per Mobile Device Type

	2012 MBs per Month	2017 MBs per Month
Non-Smartphone	6.8	31
M2M	64	330
Smartphone	342	2,660
4G Smartphone	1,302	5,114
Tablet	820	5,387
Laptop	2,503	5,731

Source: Cisco VNI Global Mobile Data Traffic Forecast, 2012–2017

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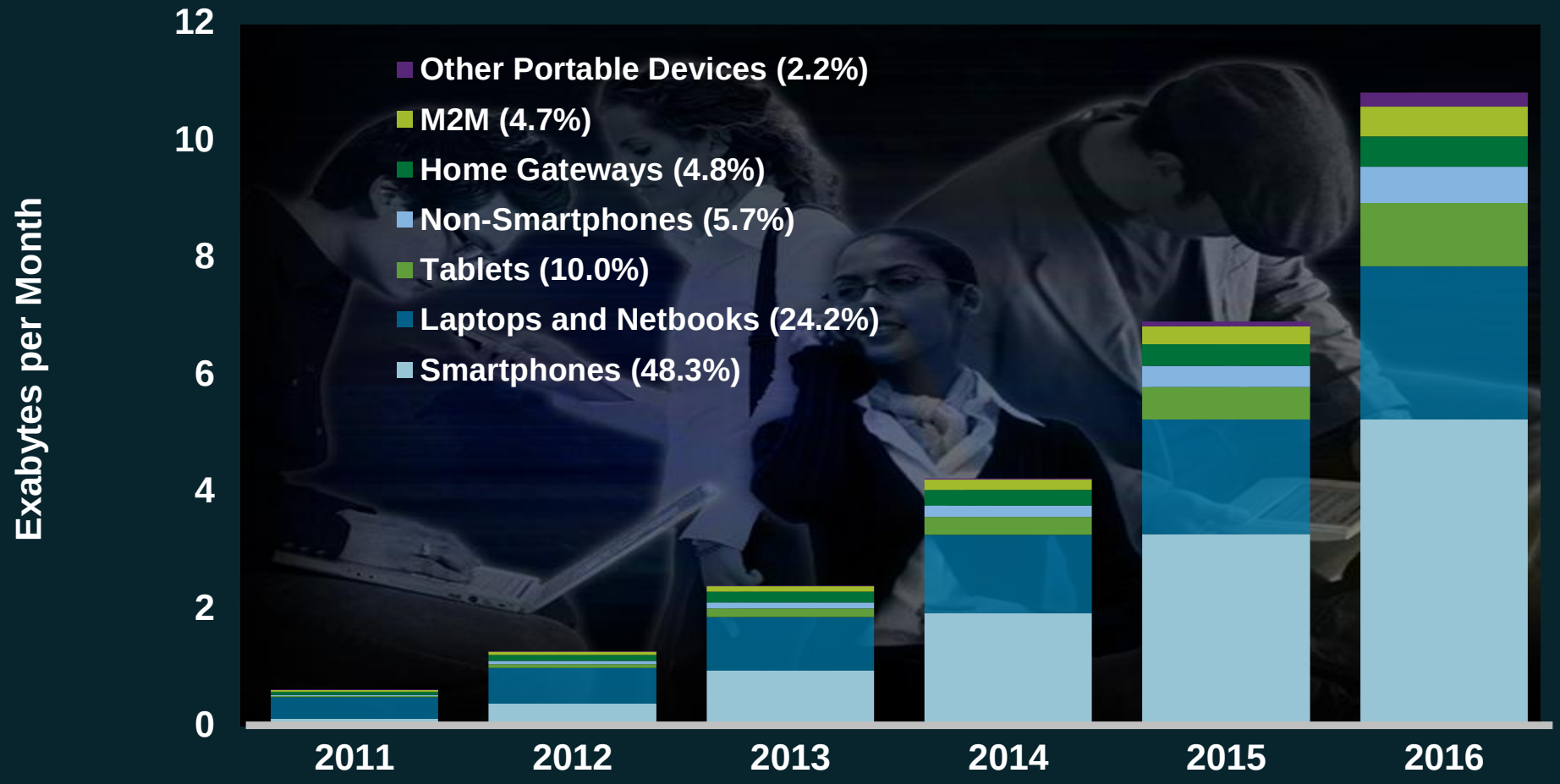
Global Mobile Data Traffic Growth by Device

2012 FORECAST



(Figures in legend refer to traffic share in 2016.)

Source: Cisco Visual Networking Index (VNI) Global Mobile Data Traffic Forecast, 2011–2016

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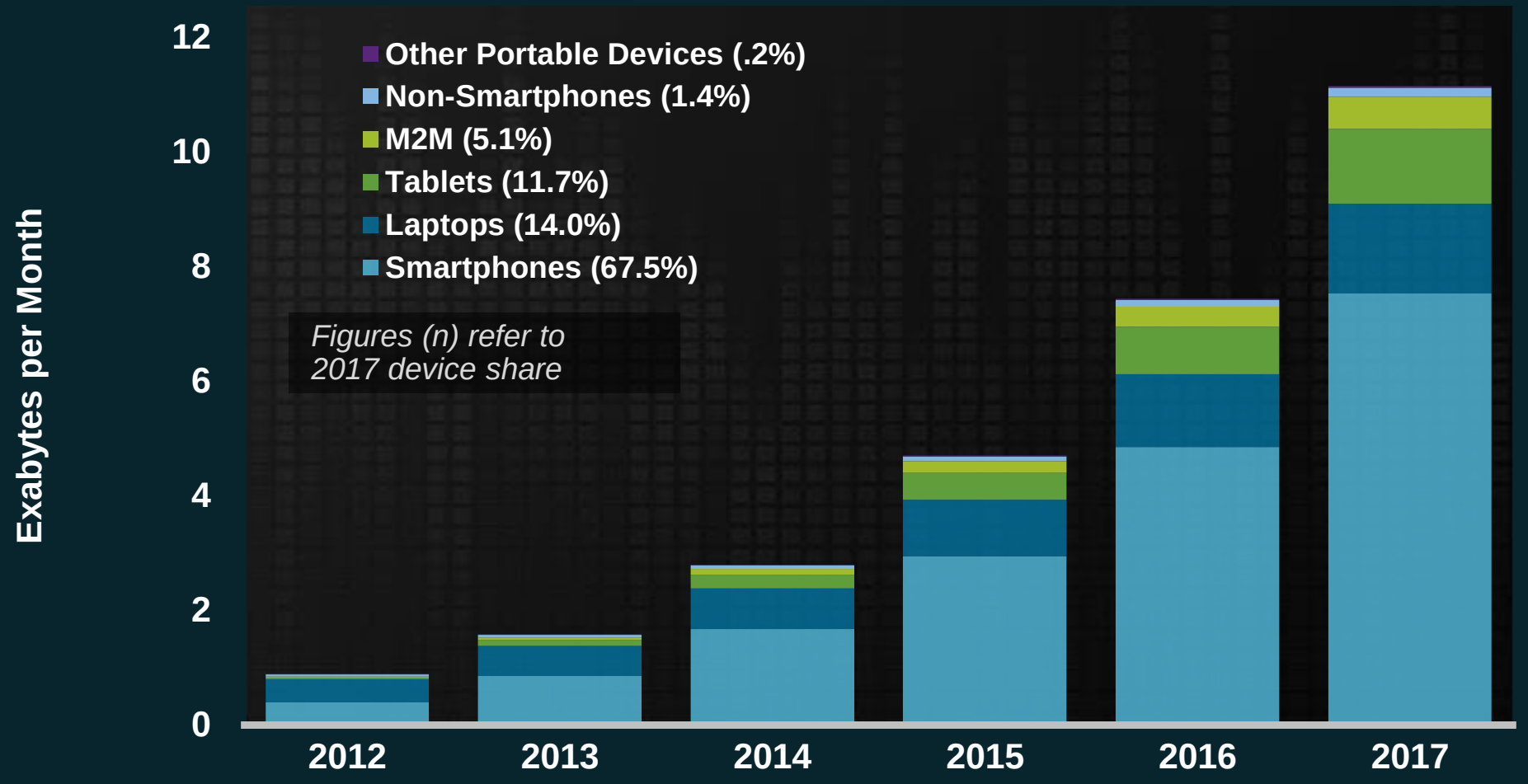
Global Mobile Data Traffic Growth by Device

In 2013, Smartphone Traffic Surpass Mobile Laptop Traffic



Source: Cisco VNI Global Mobile Data Traffic Forecast, 2012–2017

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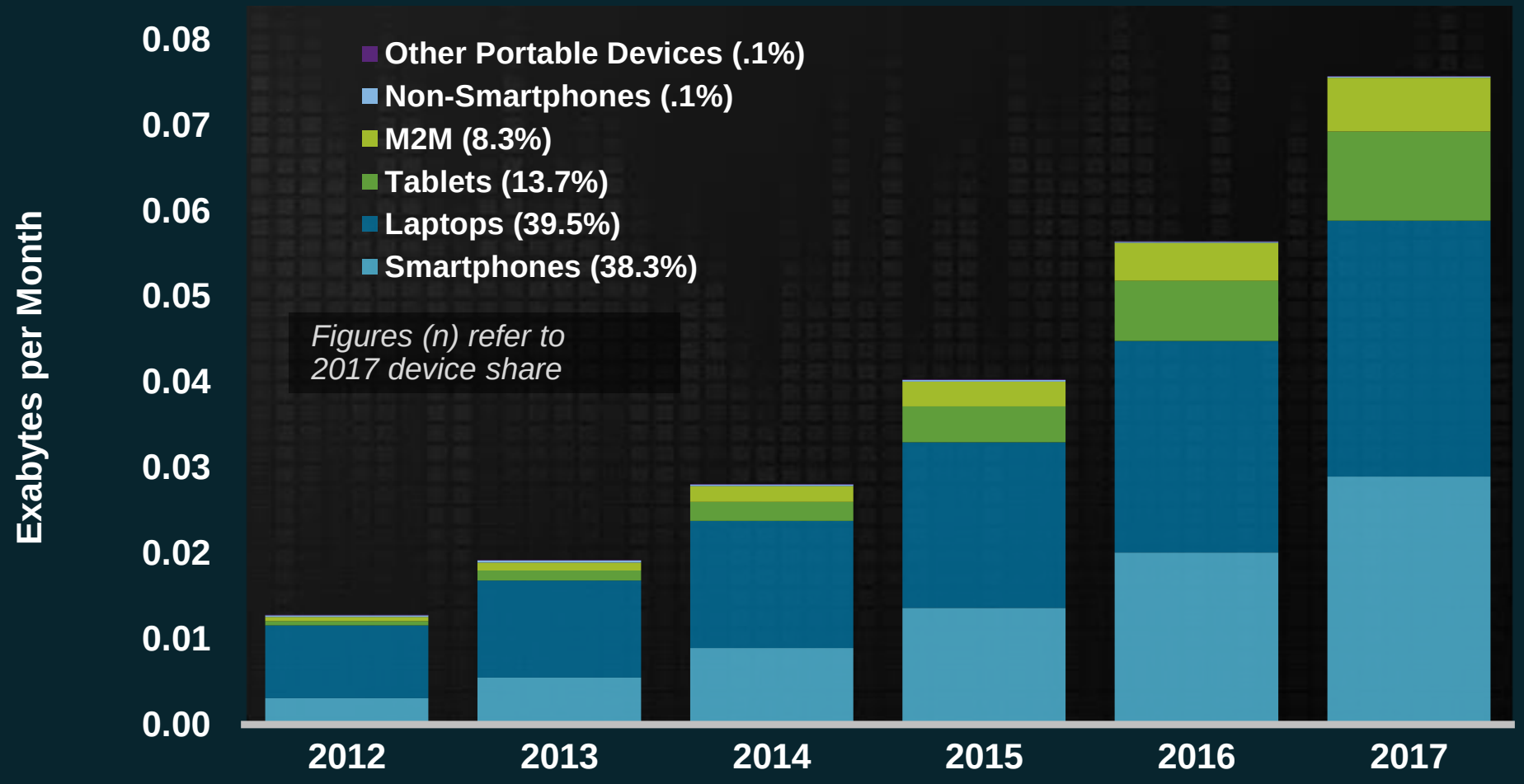
Australia Mobile Data Traffic Growth by Device



Source: Cisco VNI Global Mobile Data Traffic Forecast, 2012–2017

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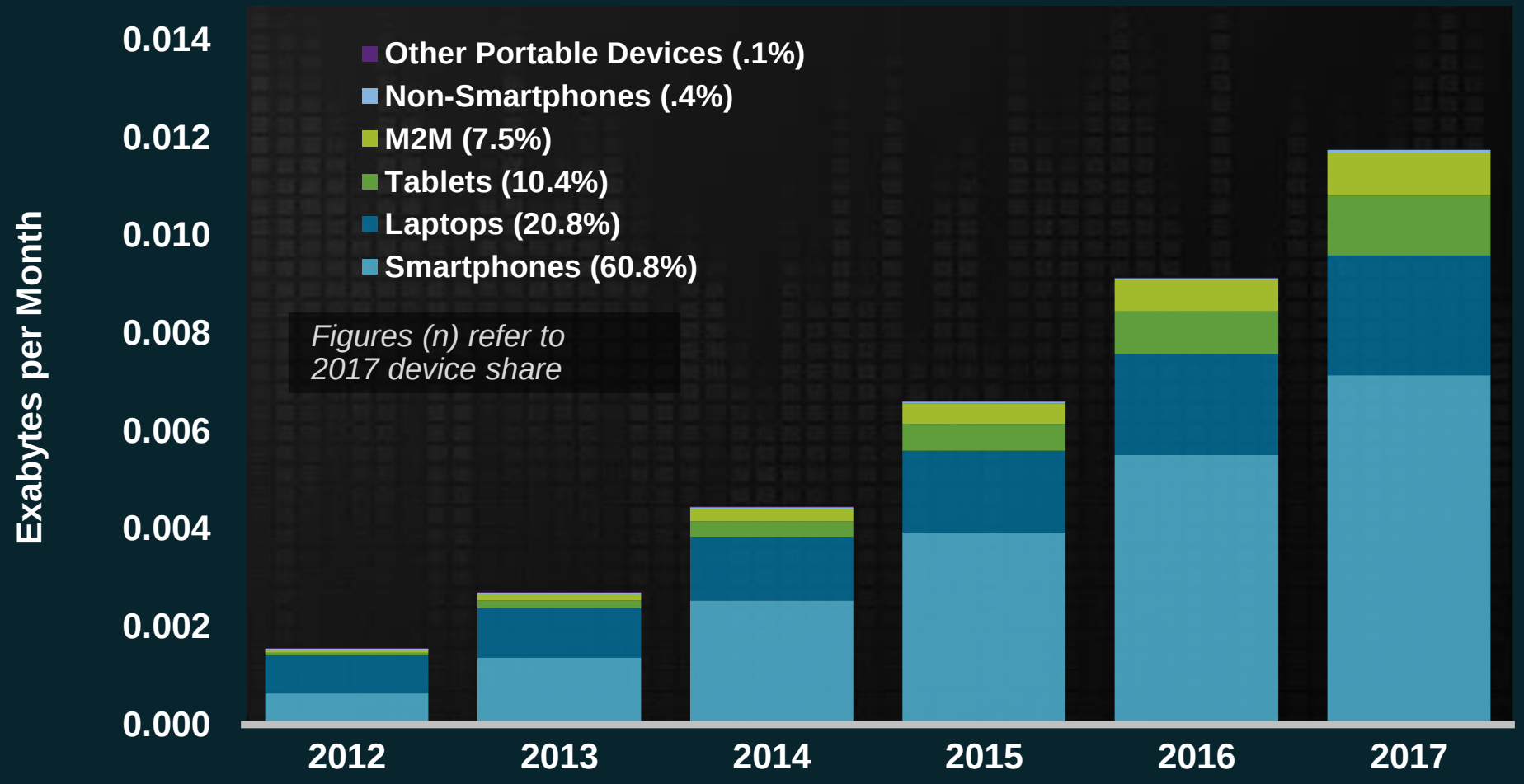
New Zealand Mobile Data Traffic Growth by Device



Source: Cisco VNI Global Mobile Data Traffic Forecast, 2012–2017

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VNI Mobile Forecast Update, 2012–2017

Top 5 Mobile Networking Trends

1. Device Diversification
2. **Impact of 4G Connections on Traffic**
3. Traffic Offload from Mobile Networks to Fixed Networks
4. The (Mobile) Internet of Things
5. Mobile Video and Cloud readiness

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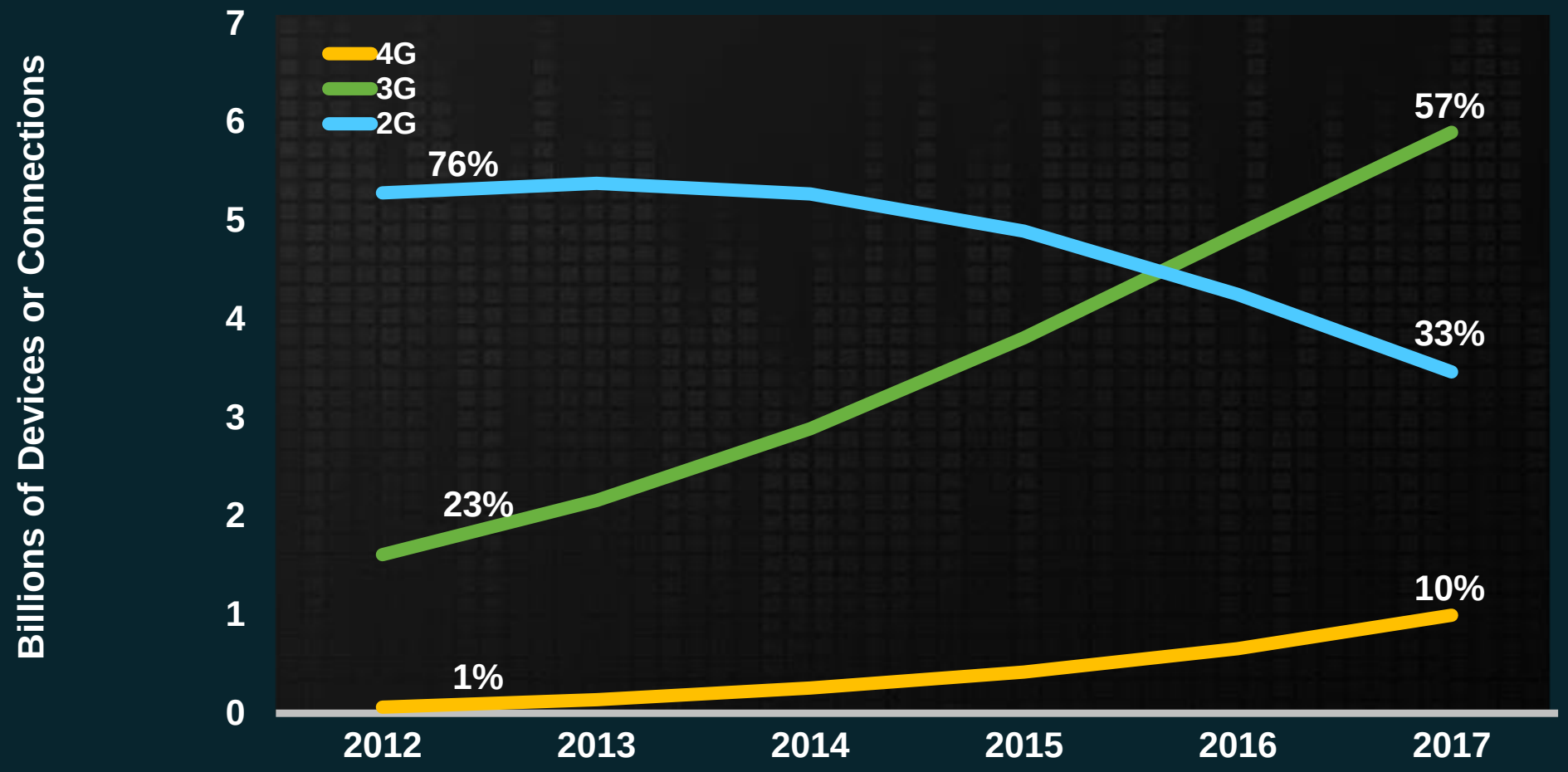
Global Connections by Network Type

2G, 3G, and 4G Technology Connection Share



Source: Cisco VNI Global Mobile Data Traffic Forecast, 2012–2017

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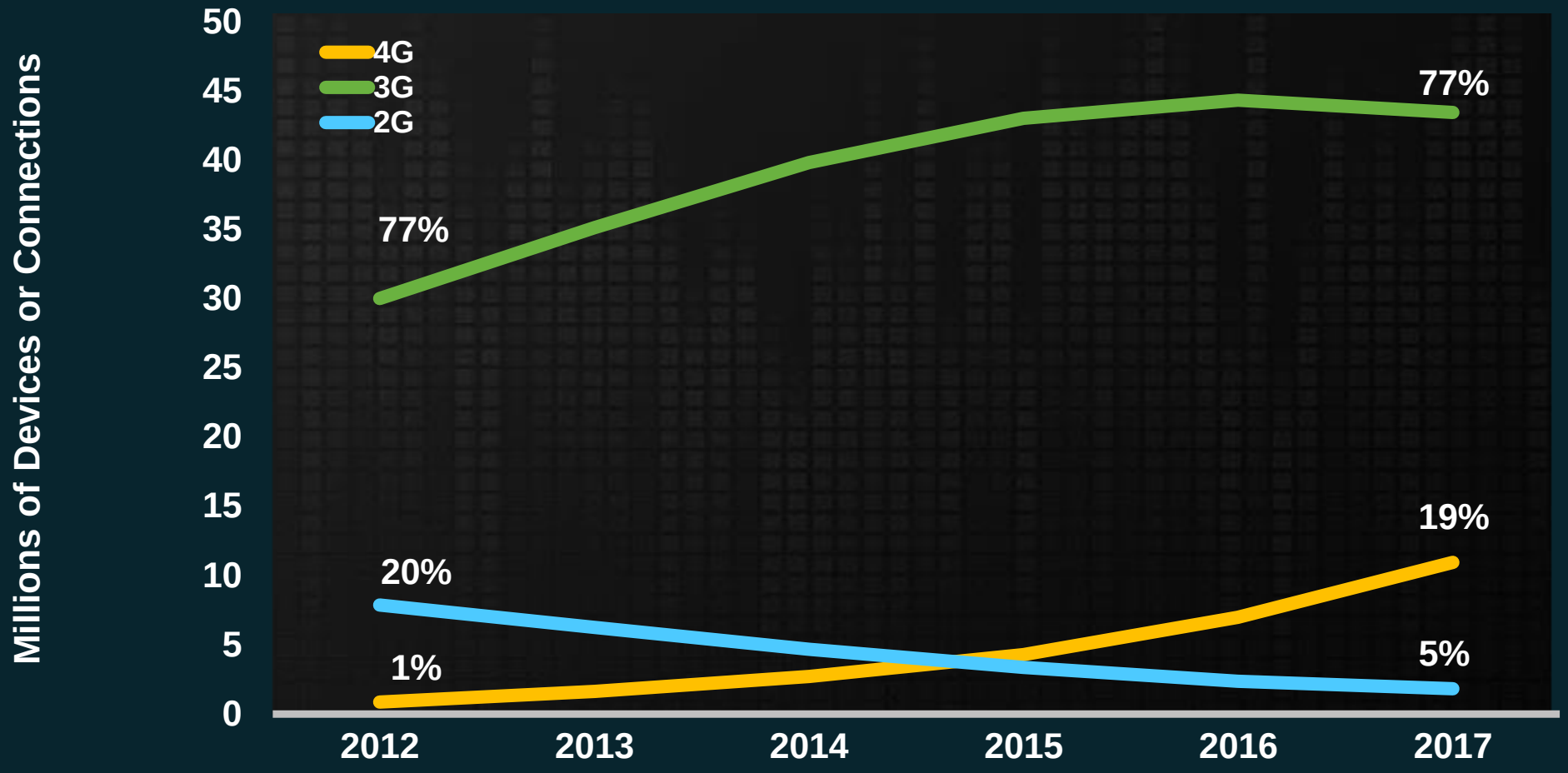
Australia Connections by Network Type

2G, 3G, and 4G Technology Connection Share



Source: Cisco VNI Global Mobile Data Traffic Forecast, 2012–2017

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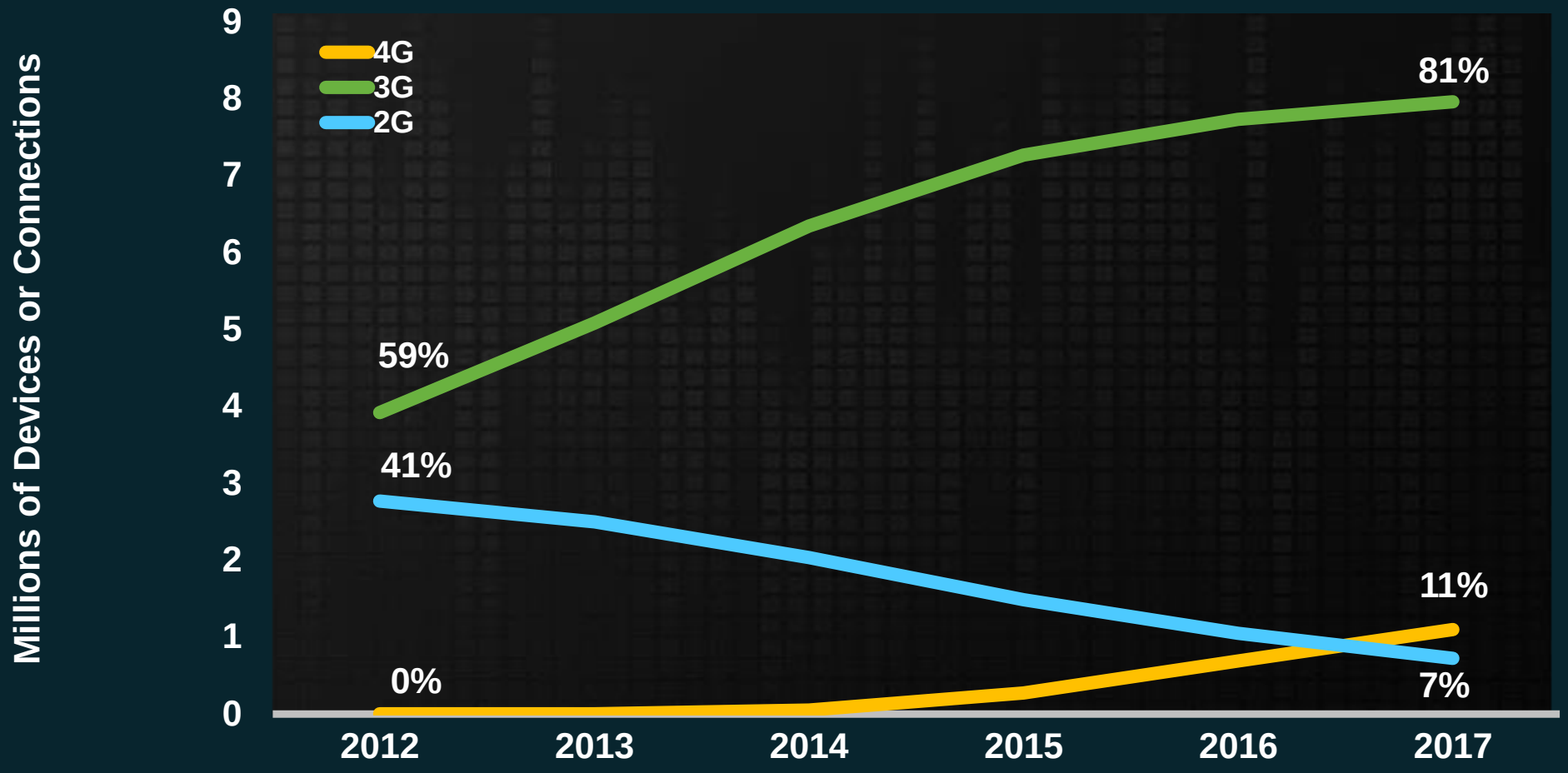
New Zealand Connections by Network Type

2G, 3G, and 4G Technology Connection Share



Source: Cisco VNI Global Mobile Data Traffic Forecast, 2012–2017

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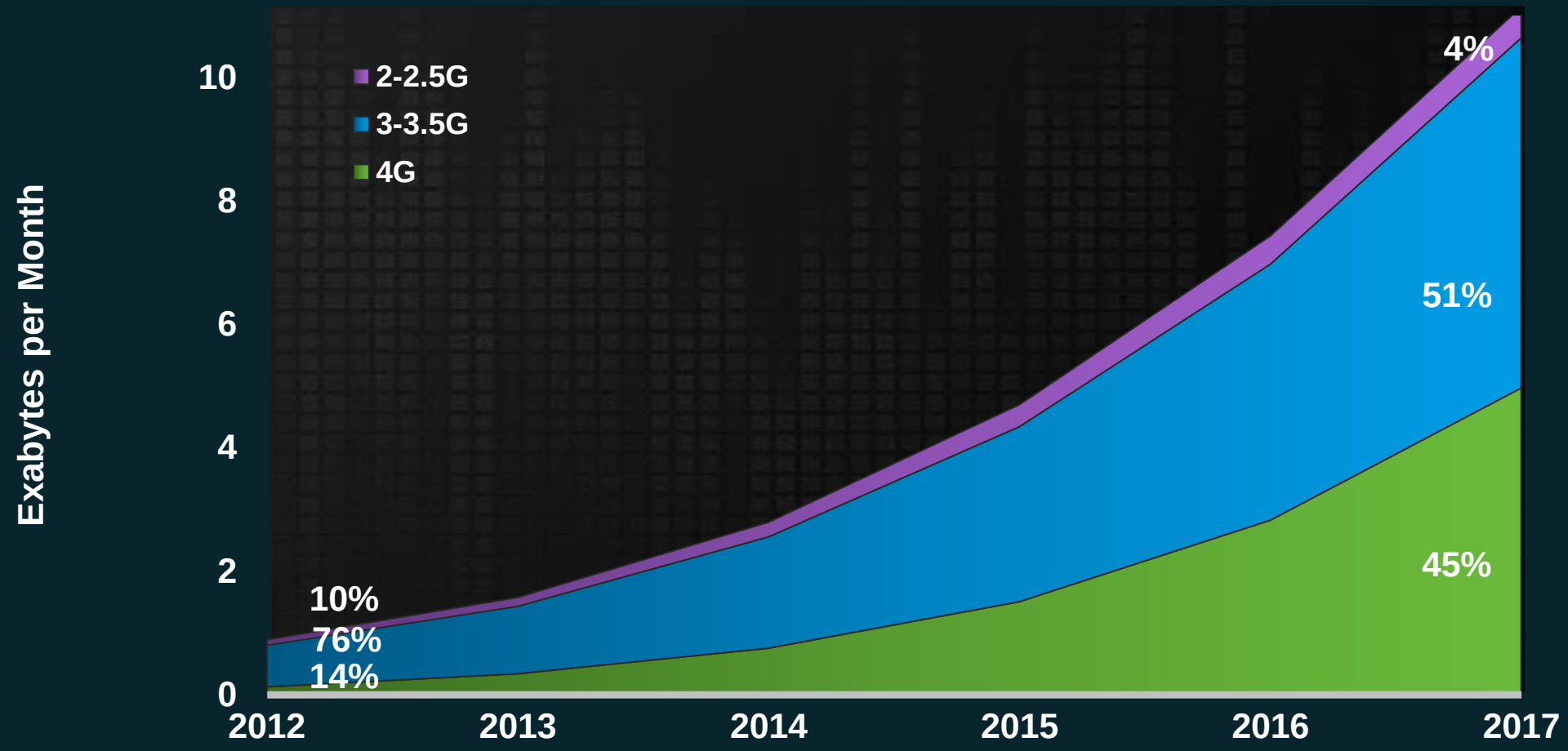
Global Mobile Data Traffic Growth: 4G

4G Will Be 10% of Connections and 45% of Traffic in 2017



Source: Cisco VNI Global Mobile Data Traffic Forecast, 2012–2017

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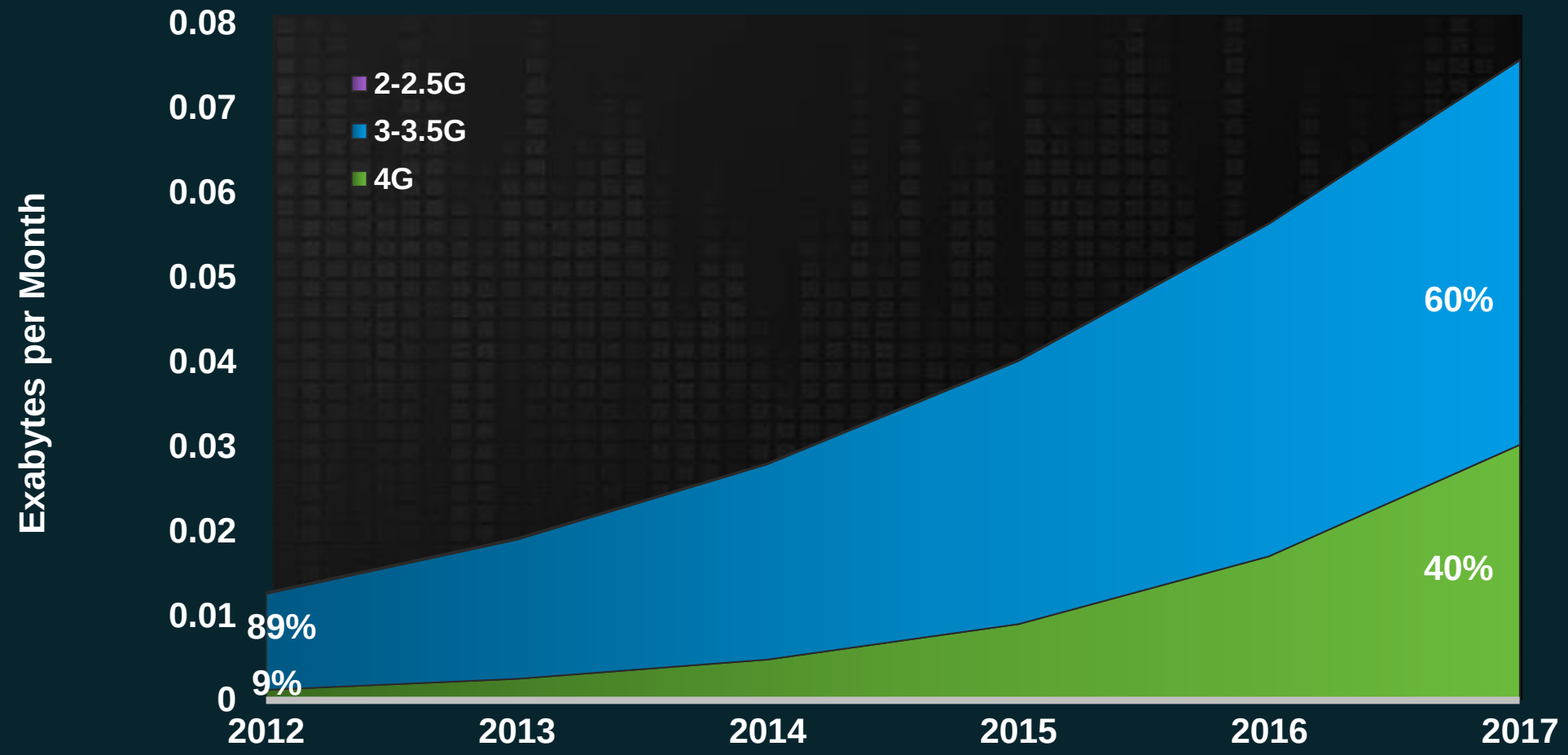
Australia Mobile Data Traffic Growth: 4G

4G Will Be 19% of Connections and 40% of Traffic in 2017



Source: Cisco VNI Global Mobile Data Traffic Forecast, 2012–2017

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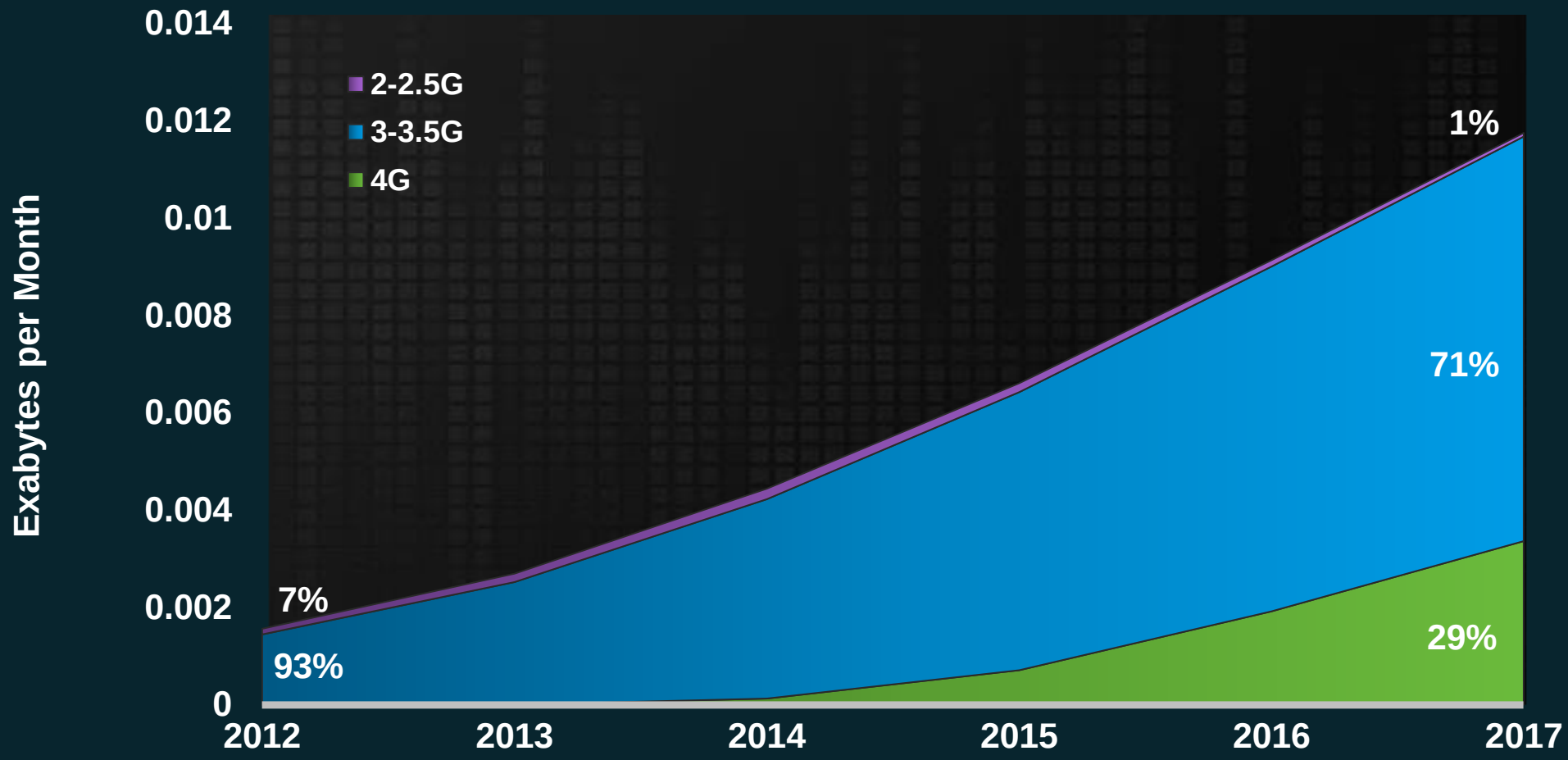
New Zealand Mobile Data Traffic Growth: 4G

4G Will Be 11% of Connections and 29% of Traffic in 2017



Source: Cisco VNI Global Mobile Data Traffic Forecast, 2012–2017

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VNI Mobile Forecast Update, 2012–2017

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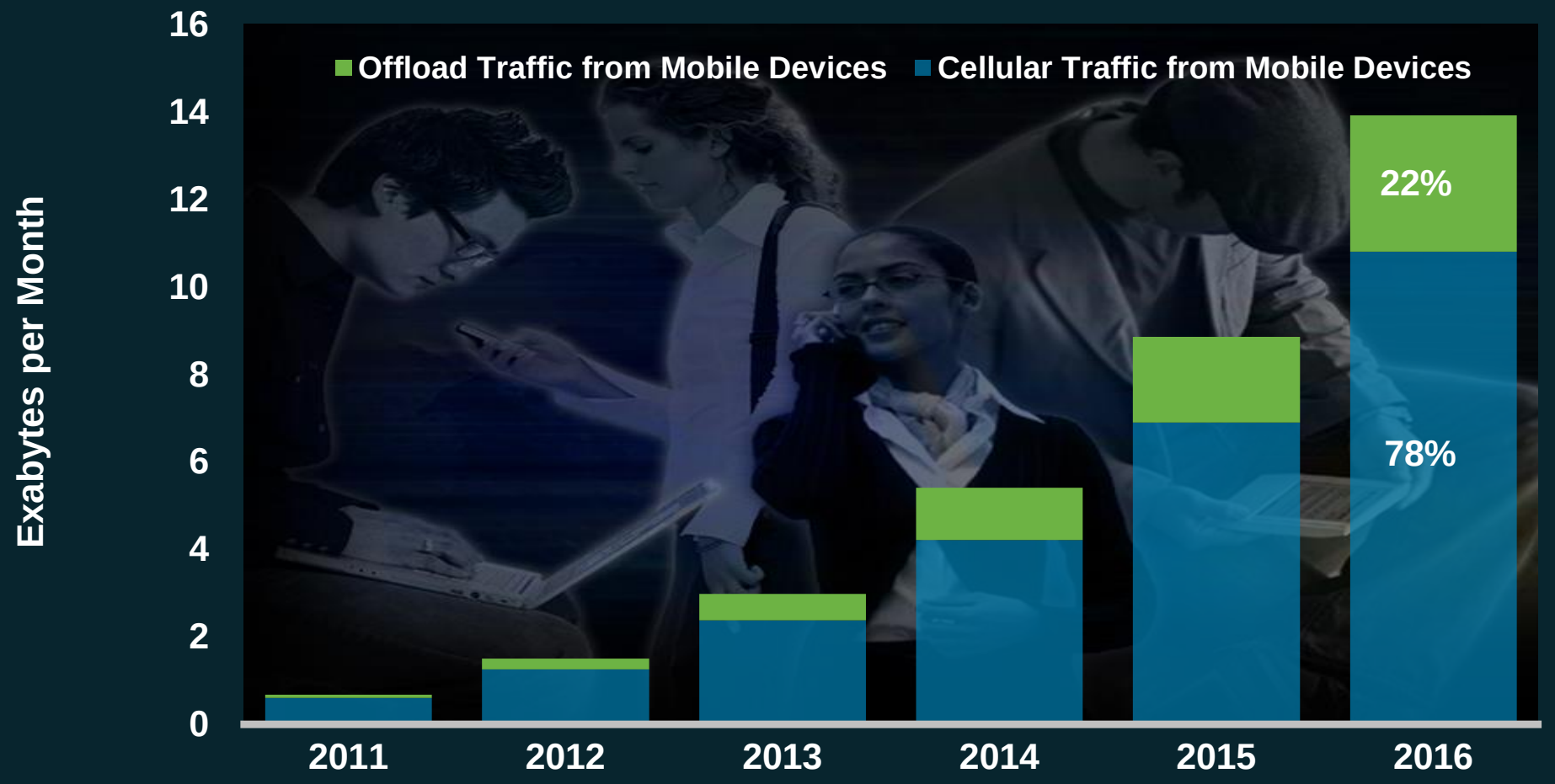
Global Mobile Data Traffic Offload

22% of Mobile Traffic to be Offloaded in 2016
11% of Mobile Traffic Offloaded in 2011

2012 FORECAST



Source: Cisco Visual Networking Index (VNI) Global Mobile Data Traffic Forecast, 2011–2016

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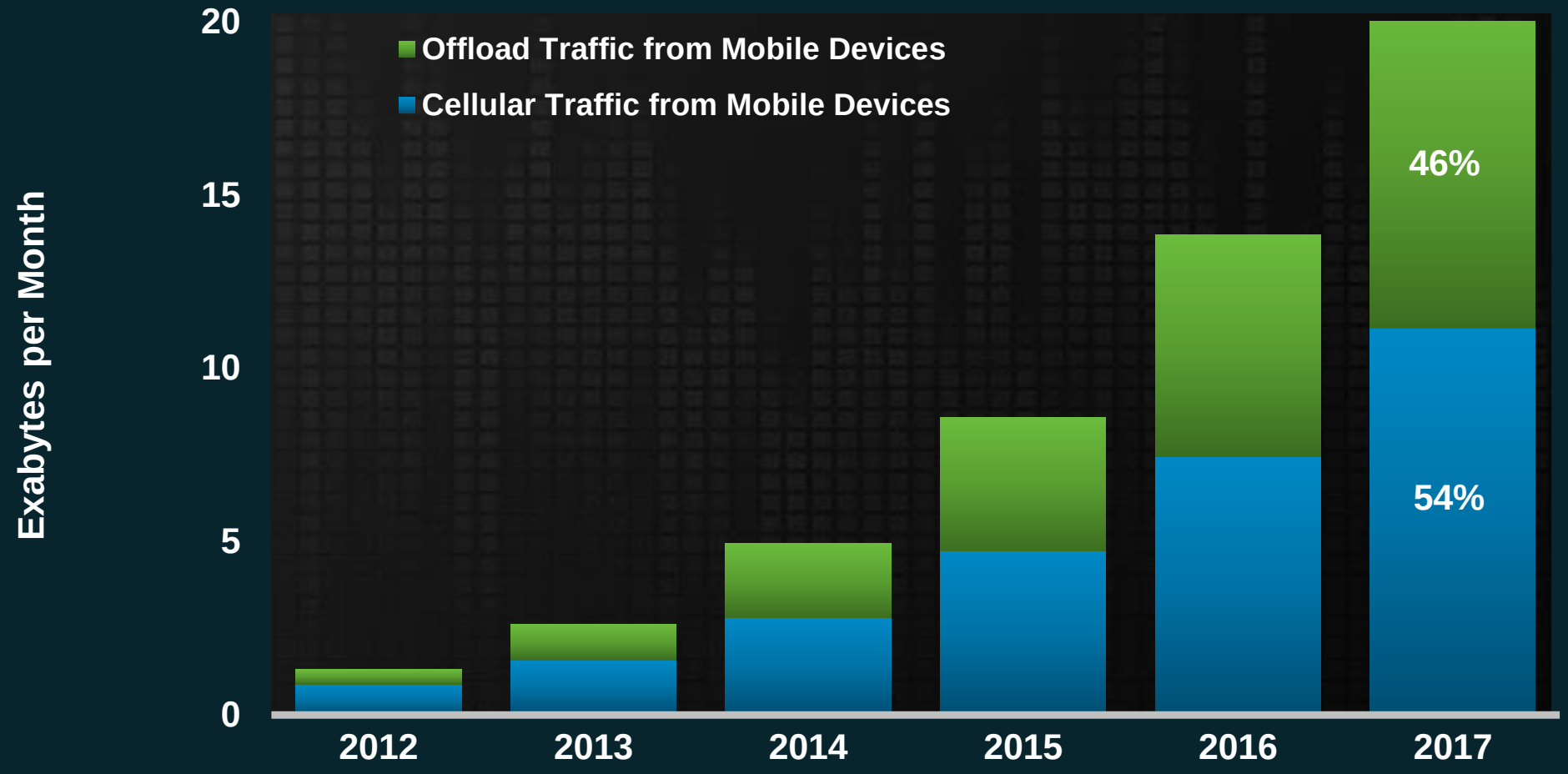
Global Mobile Data Traffic Offload

46% of Mobile Traffic to be Offloaded in 2017
33% of Mobile Traffic Offloaded in 2012



Source: Cisco VNI Global Mobile Data Traffic Forecast, 2012–2017

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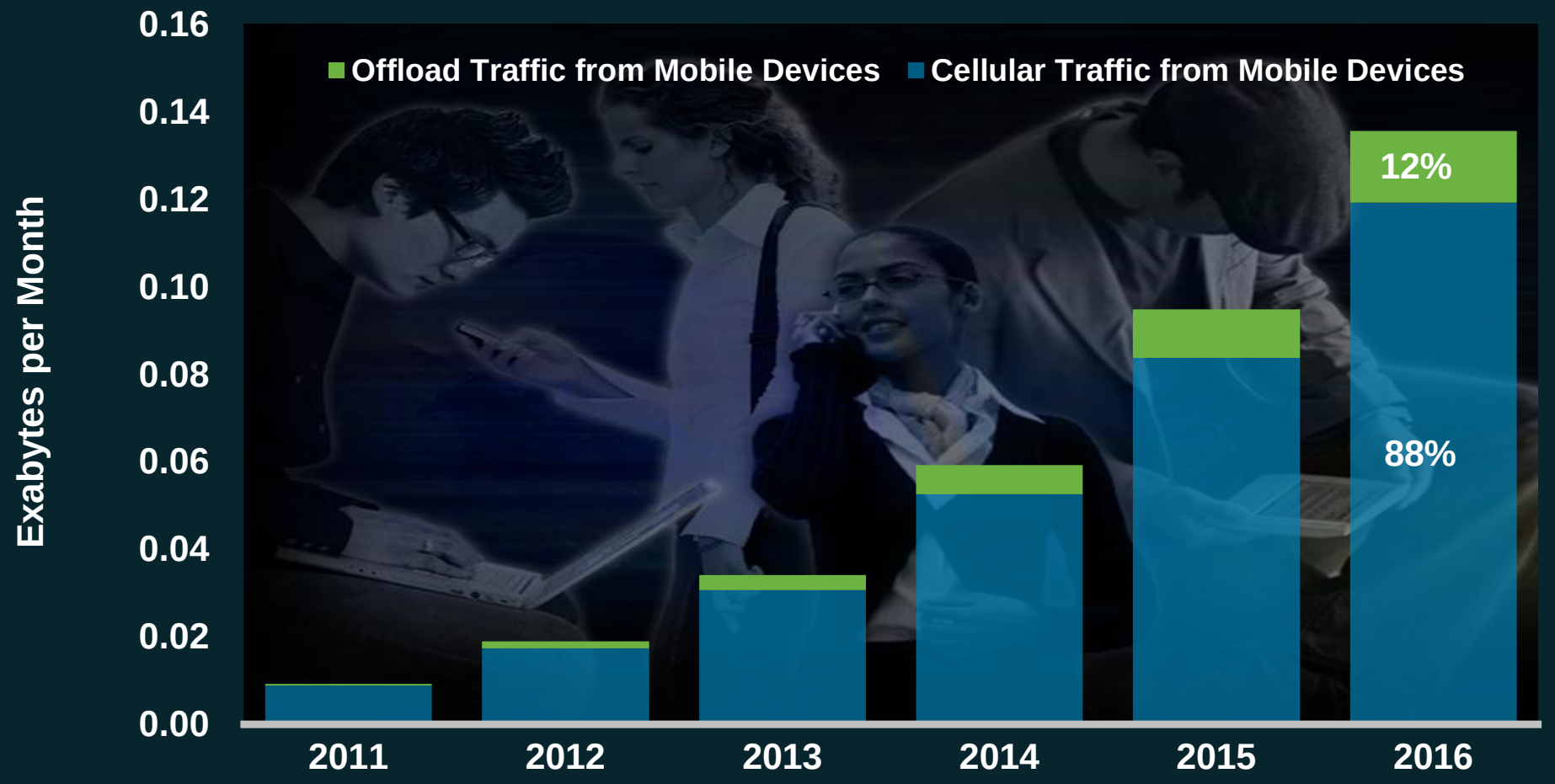
Australia Mobile Data Traffic Offload

12% of Mobile Traffic to be Offloaded in 2016
5% of Mobile Traffic Offloaded in 2011

2012 FORECAST



Source: Cisco Visual Networking Index (VNI) Global Mobile Data Traffic Forecast, 2011–2016

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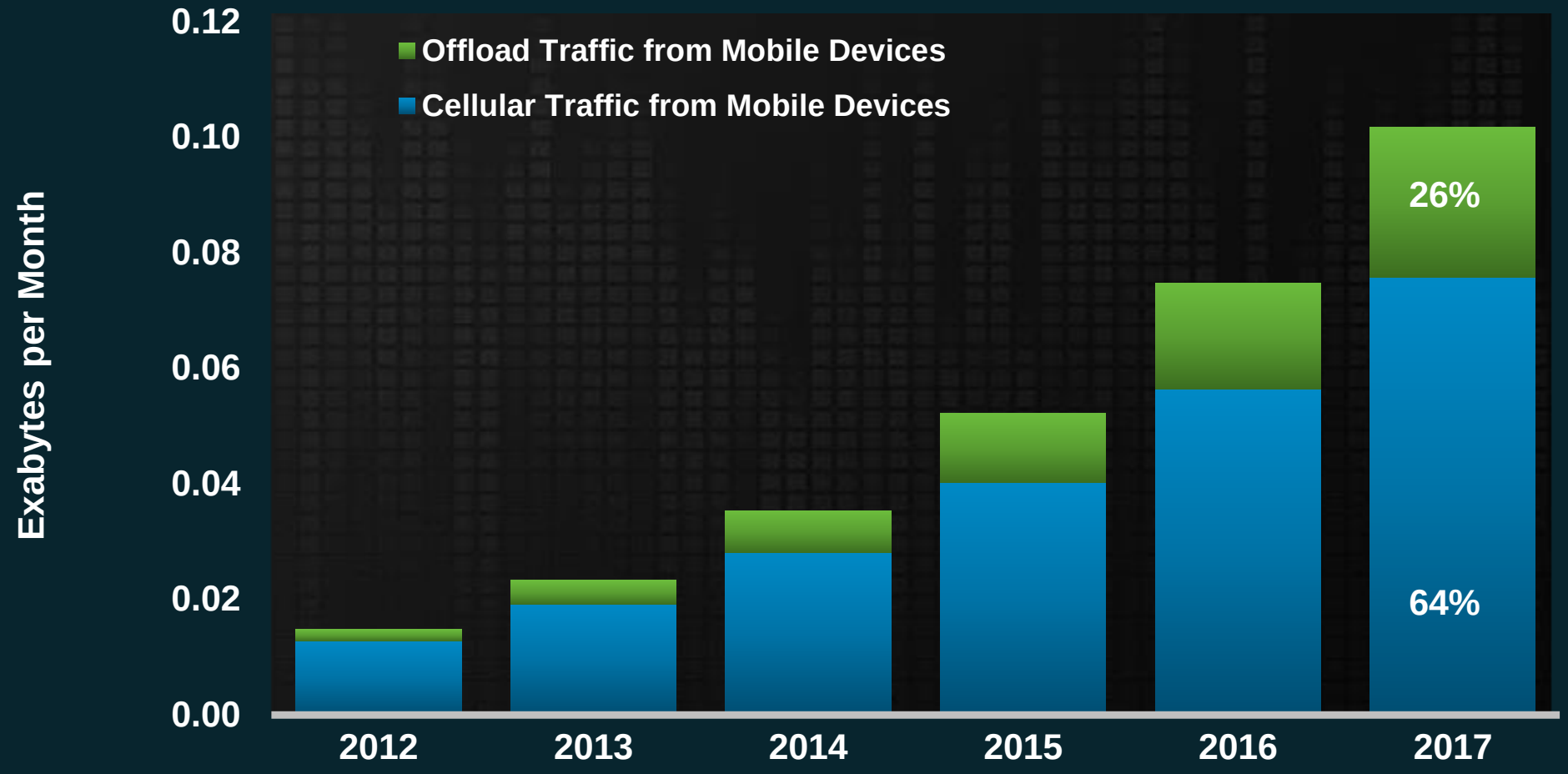
Australia Mobile Data Traffic Offload

26% of Mobile Traffic to be Offloaded in 2017
15% of Mobile Traffic Offloaded in 2012



Source: Cisco VNI Global Mobile Data Traffic Forecast, 2012–2017

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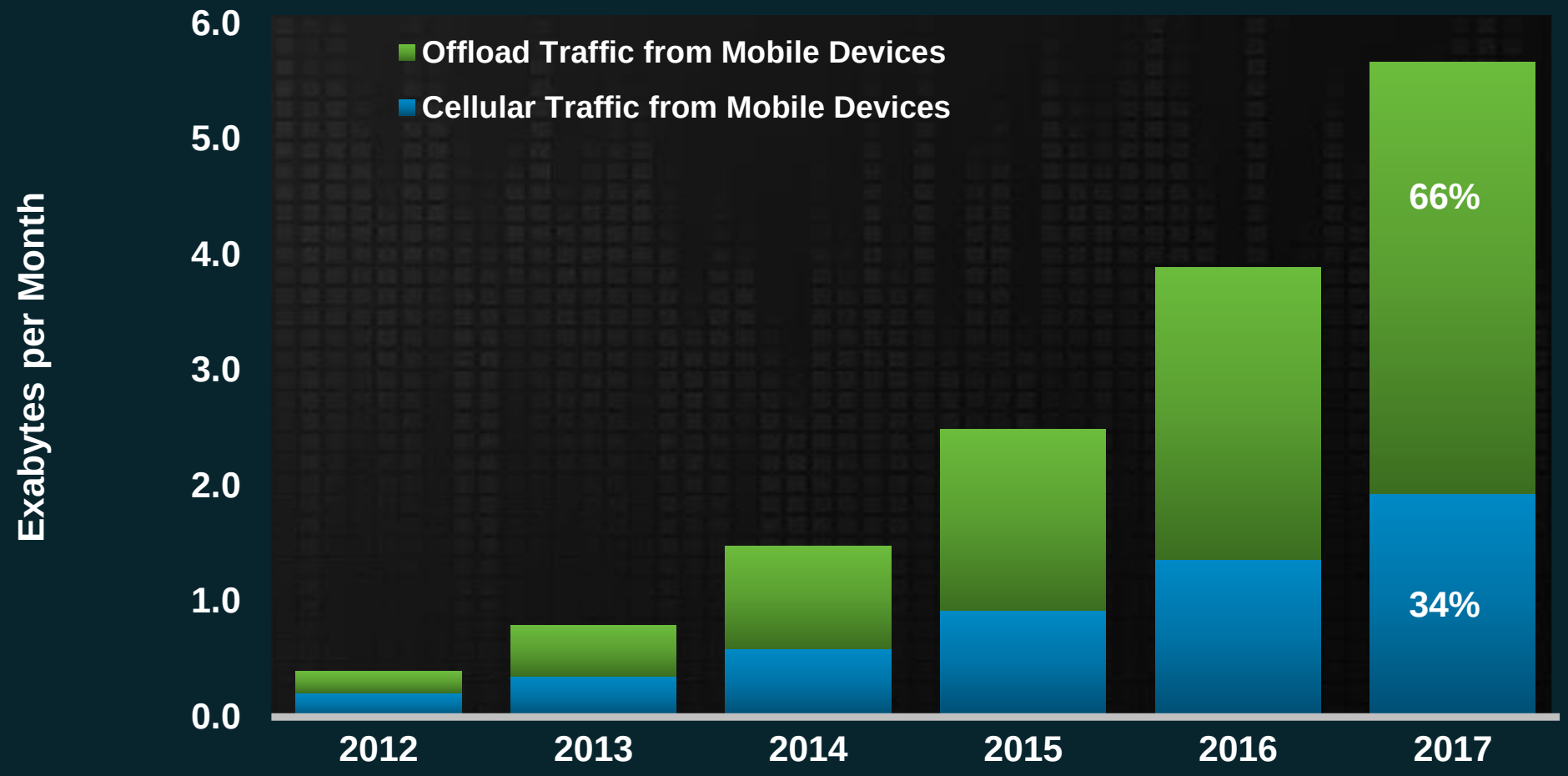
US Mobile Data Traffic Offload

66% of Mobile Traffic to be Offloaded in 2017
47% of Mobile Traffic Offloaded in 2012



Source: Cisco VNI Global Mobile Data Traffic Forecast, 2012–2017

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VNI Mobile Forecast Update, 2012–2017

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4. **The (Mobile) Internet of Things**
5. Mobile Video and Cloud readiness

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By 2017, there will be 1.4 mobile connections (devices and M2M) for every member of the world's population.

North America has the most mobile connections per capita (2.2). The Middle East & Africa has the least (1.1).

Source: Cisco VNI Global Mobile Data Traffic Forecast, 2012–2017

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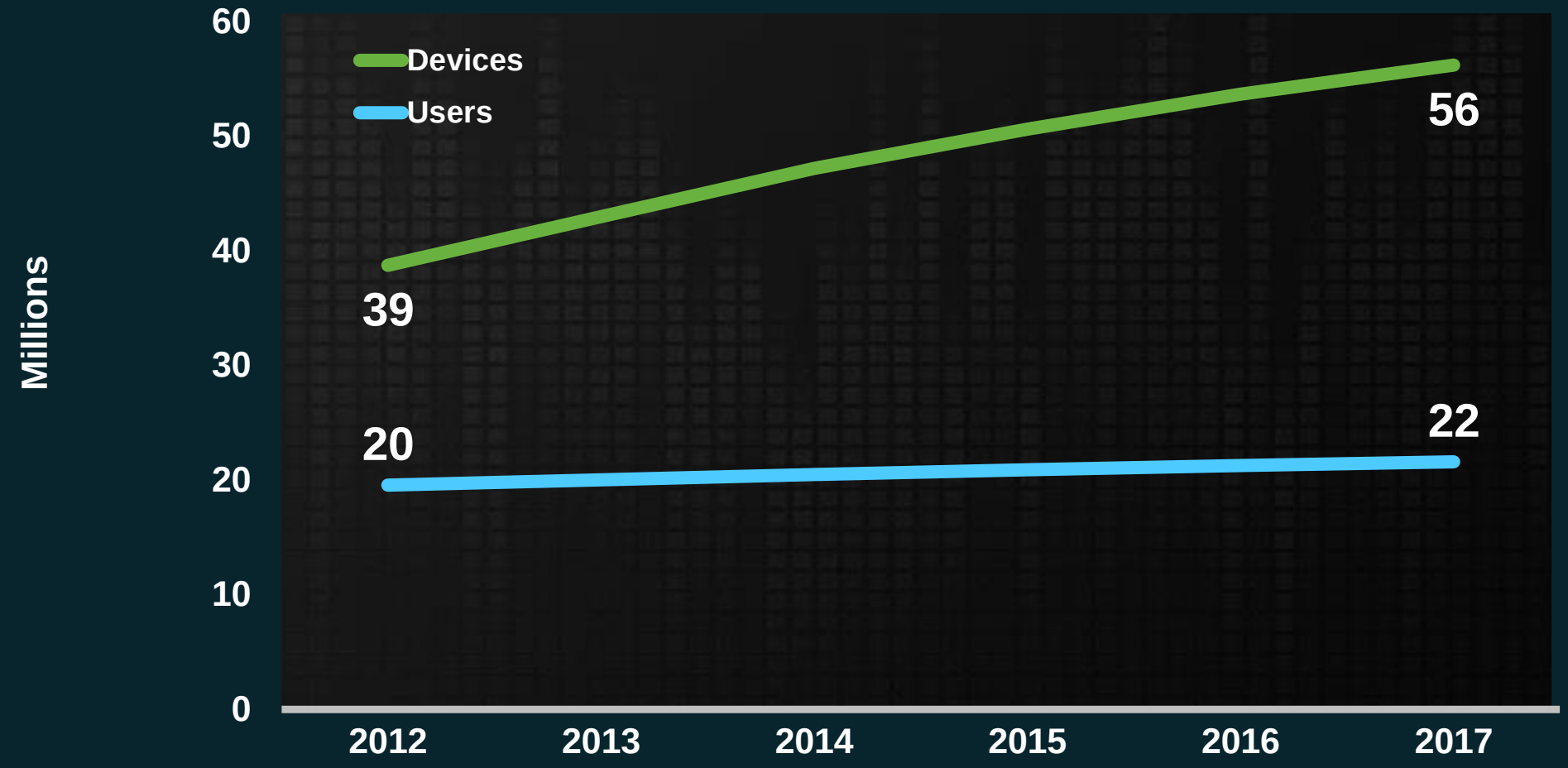
Australia Mobile Users and Devices

Users Grow at 2% CAGR, Devices Grow at 8% CAGR
2.2 mobile connections/person



Source: Cisco VNI Global Mobile Data Traffic Forecast, 2012–2017

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VNI Mobile Forecast Update, 2012–2017

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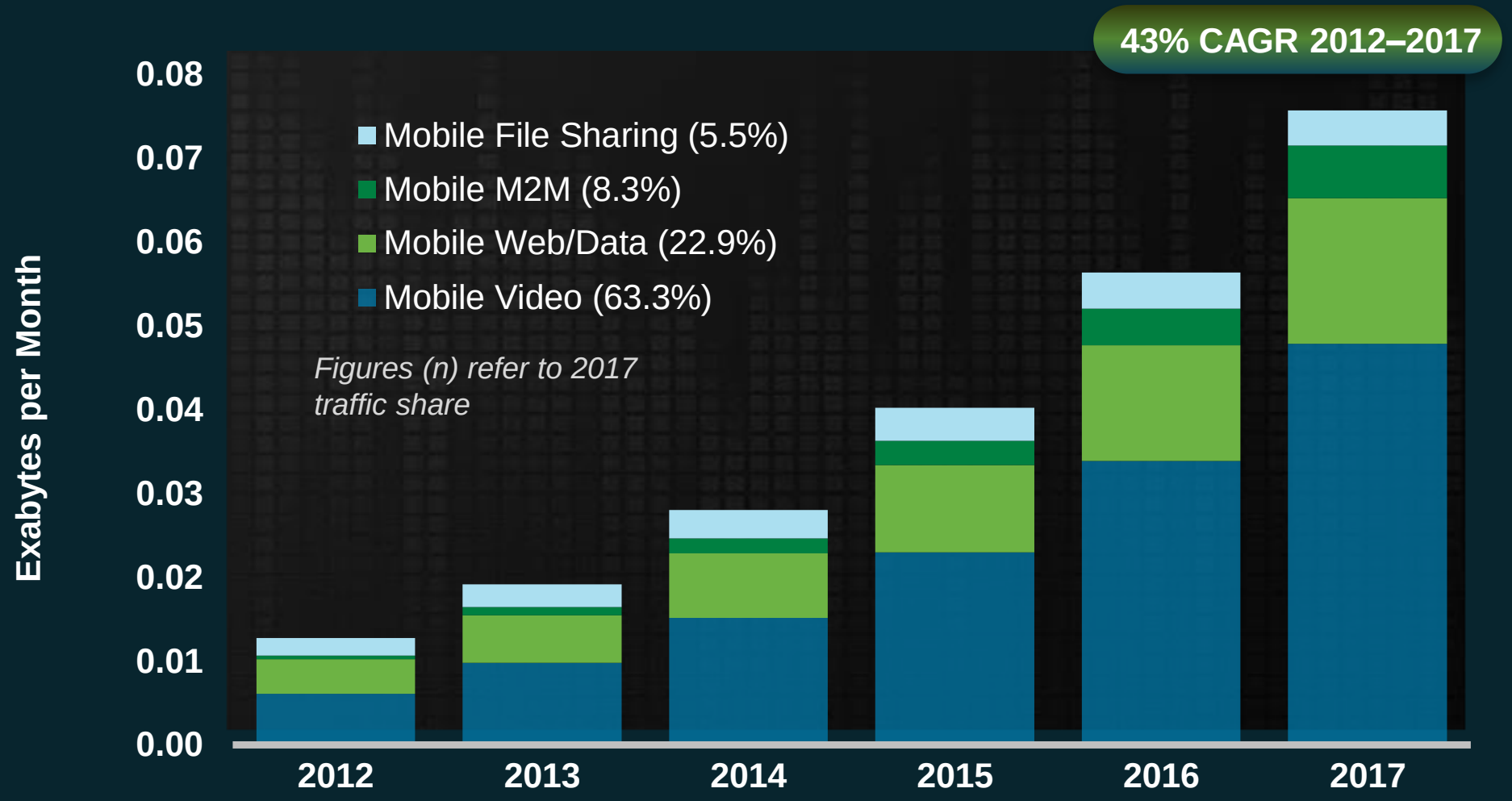
Australia Mobile Data Traffic Growth / Apps

Video to Reach 63 Percent of Mobile Data Traffic by 2017



Source: Cisco VNI Global Mobile Data Traffic Forecast, 2012–2017

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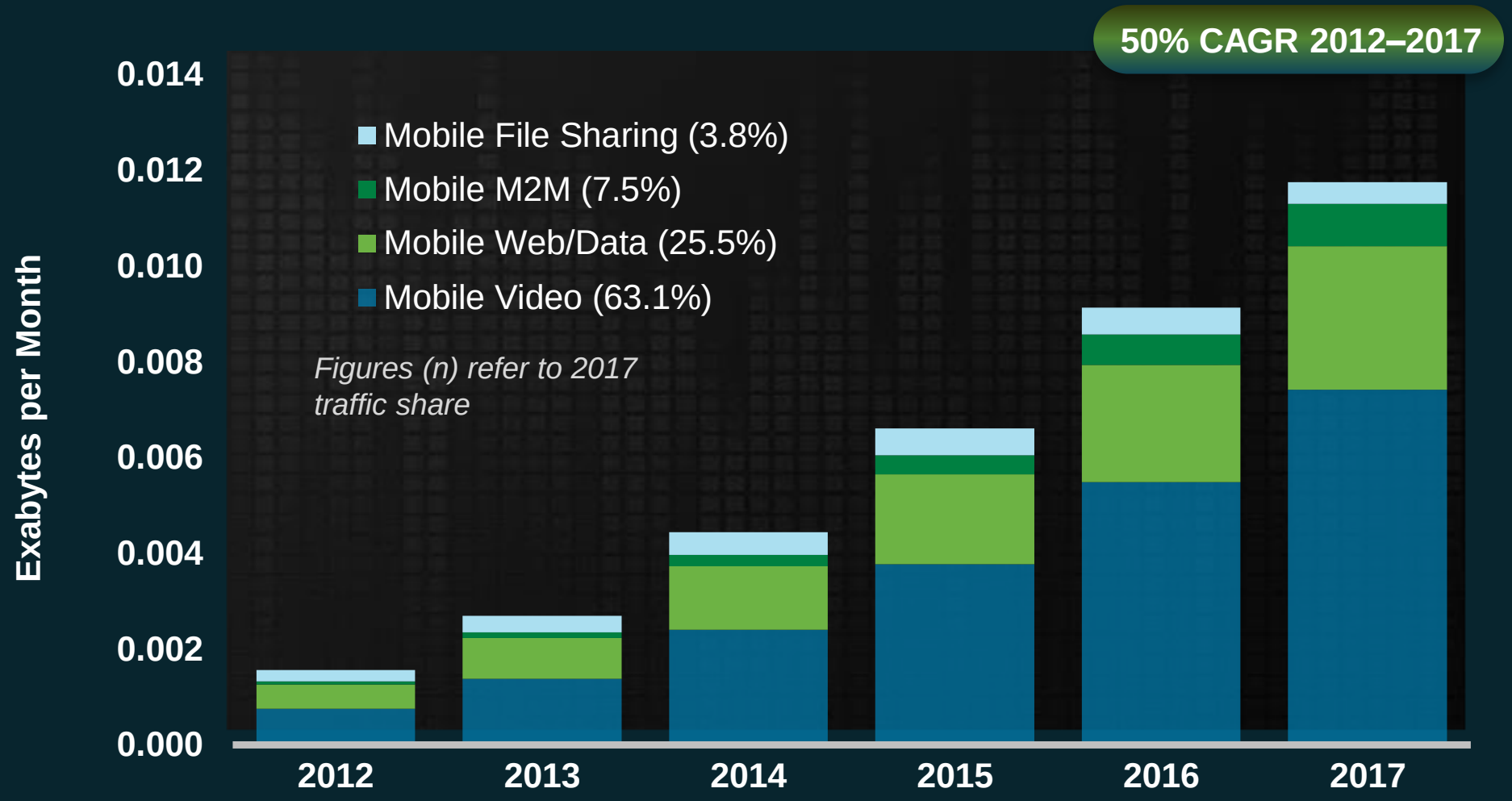
New Zealand Mobile Data Traffic Growth / Apps

Video to Reach 63 Percent of Mobile Data Traffic by 2017



Source: Cisco VNI Global Mobile Data Traffic Forecast, 2012–2017

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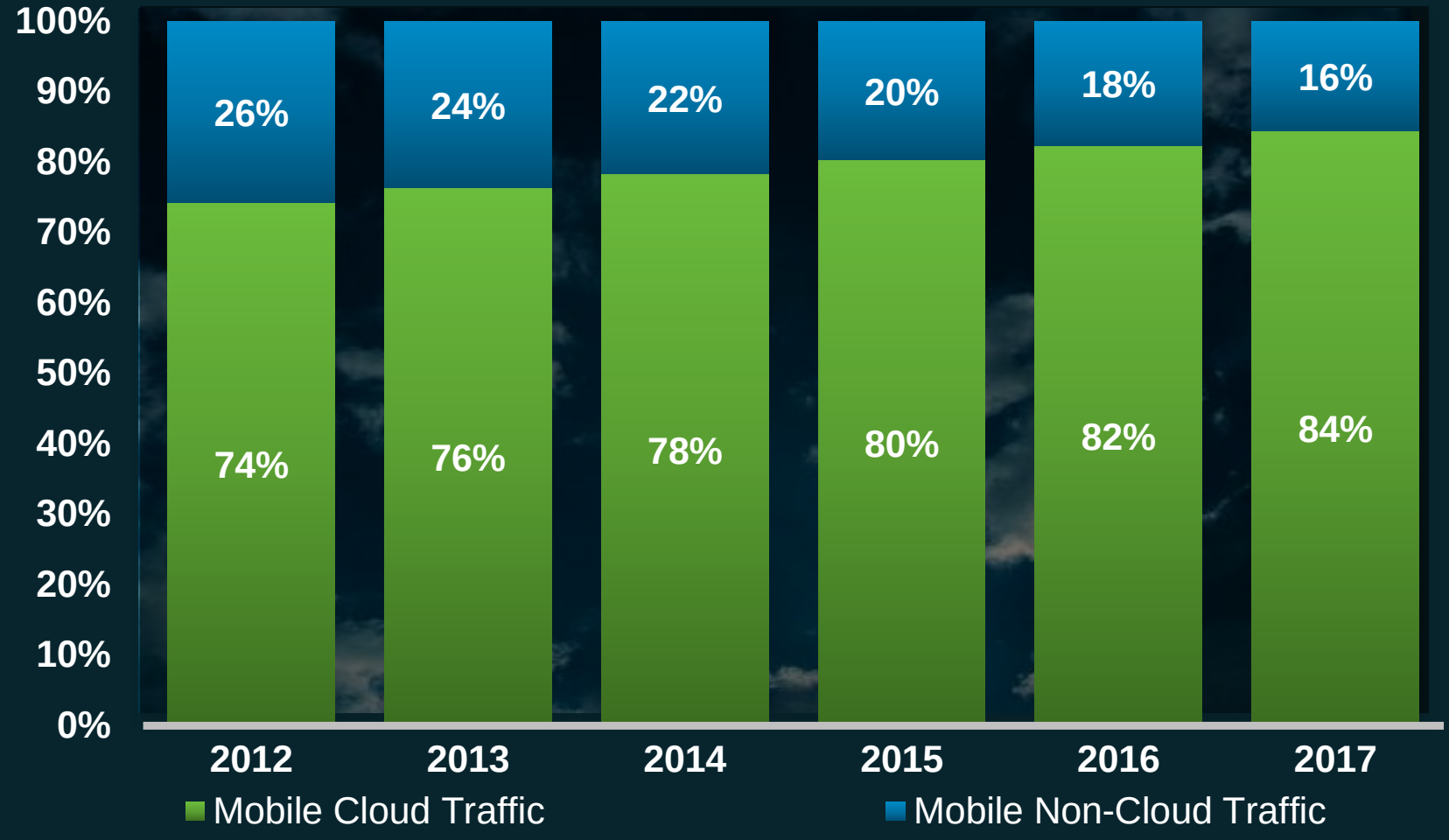
Global Mobile Cloud Traffic

Cloud Accounted for 74% of Mobile Data Traffic in 2012
Cloud Will Account for 84% of Mobile Data Traffic by 2017



Source: Cisco VNI Global Mobile Data Traffic Forecast, 2012–2017

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Global Cloud Readiness

Business & Consumer Network Requirements for **Individual** Apps

Basic Cloud Apps

Network Requirements:

Download Speed:
Up to 750 kbps

Upload Speed:
Up to 250 kbps

Latency: Above 160 ms

- Text communications (email, instant messaging)
- Web browsing
- File sharing (low-res video)
- Web conferencing
- Social networking (basic text only)
- Stream basic video/ music

Intermediate Cloud Apps

Network Requirements:

Download Speed:
751–2,500 kbps

Upload Speed:
251–1,000 kbps

Latency: 159 - 100 ms

- File sharing (high-res video)
- IP Telephony
- ERP / CRM
- Basic gaming (single player)
- Basic video chat (low-res video)
- IP audio conferencing
- Basic video conferencing (low-res video)
- Advanced social networking (multimedia/interactivity)
- HD video streaming

Advanced Cloud Apps

Network Requirements:

Download Speed:
Higher than 2,500 kbps

Upload Speed:
Higher than 1,000 kbps

Latency: Less than 100 ms

- HD Industrial design collaboration
- Advanced gaming (multi player)
- Advanced video chat (high-res video)
- Advanced file sharing (super high-res video)
- HD audio conferencing
- HD video conferencing (high-res video)
- Stream super HD video

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Global Cloud Readiness

Business & Consumer Network Requirements for **Concurrent** Apps

Basic Cloud Apps Concurrency Bucket

Network Requirements:

Download Speed:
~1900 kbps

Upload Speed:
~600 kbps

Latency: Above 160 ms

- Text communications (email, instant messaging)
- Web browsing
- File sharing (low-res video)
- Web conferencing
- Social networking (basic text only)
- Stream basic video/ music

Intermediate Cloud Apps Concurrency Bucket

Network Requirements:

Download Speed:
~7,000 kbps

Upload Speed:
~2,600 kbps

Latency: 159 - 100 ms

- File sharing (high-res video)
- IP Telephony
- ERP / CRM
- Basic gaming (single player)
- Basic video chat (low-res video)
- IP audio conferencing
- Basic video conferencing (low-res video)
- Advanced social networking (multimedia/interactivity)
- HD video streaming

Advanced Cloud Apps Concurrency Bucket

Network Requirements:

Download Speed:
~21,000 kbps

Upload Speed:
~9,000 kbps
Latency: Less than 100 ms

- HD Industrial design collaboration
- Advanced gaming (multi player)
- Advanced video chat (high-res video)
- Advanced file sharing (super high-res video)
- HD audio conferencing
- HD video conferencing (high-res video)
- Stream super HD video

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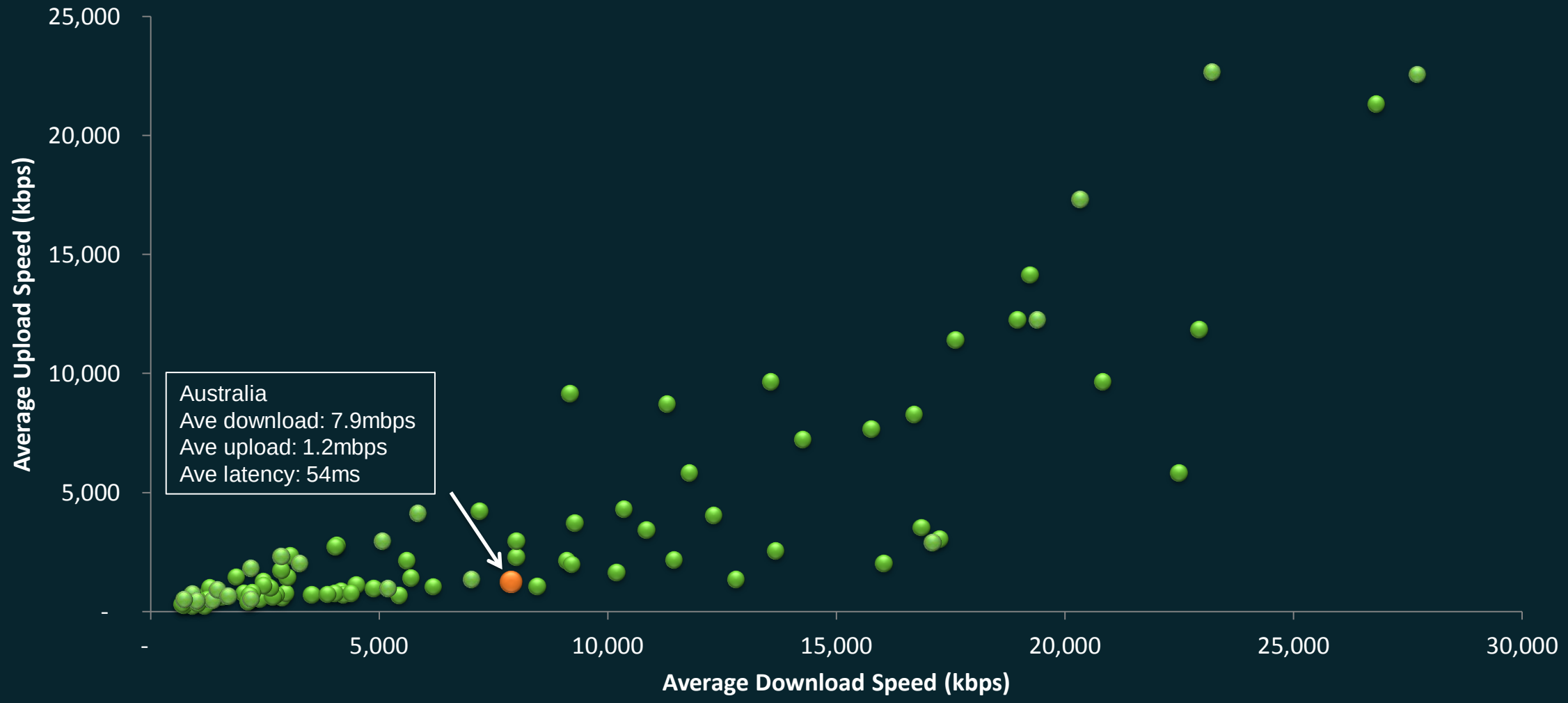
Fixed Speeds + Latency: Australia



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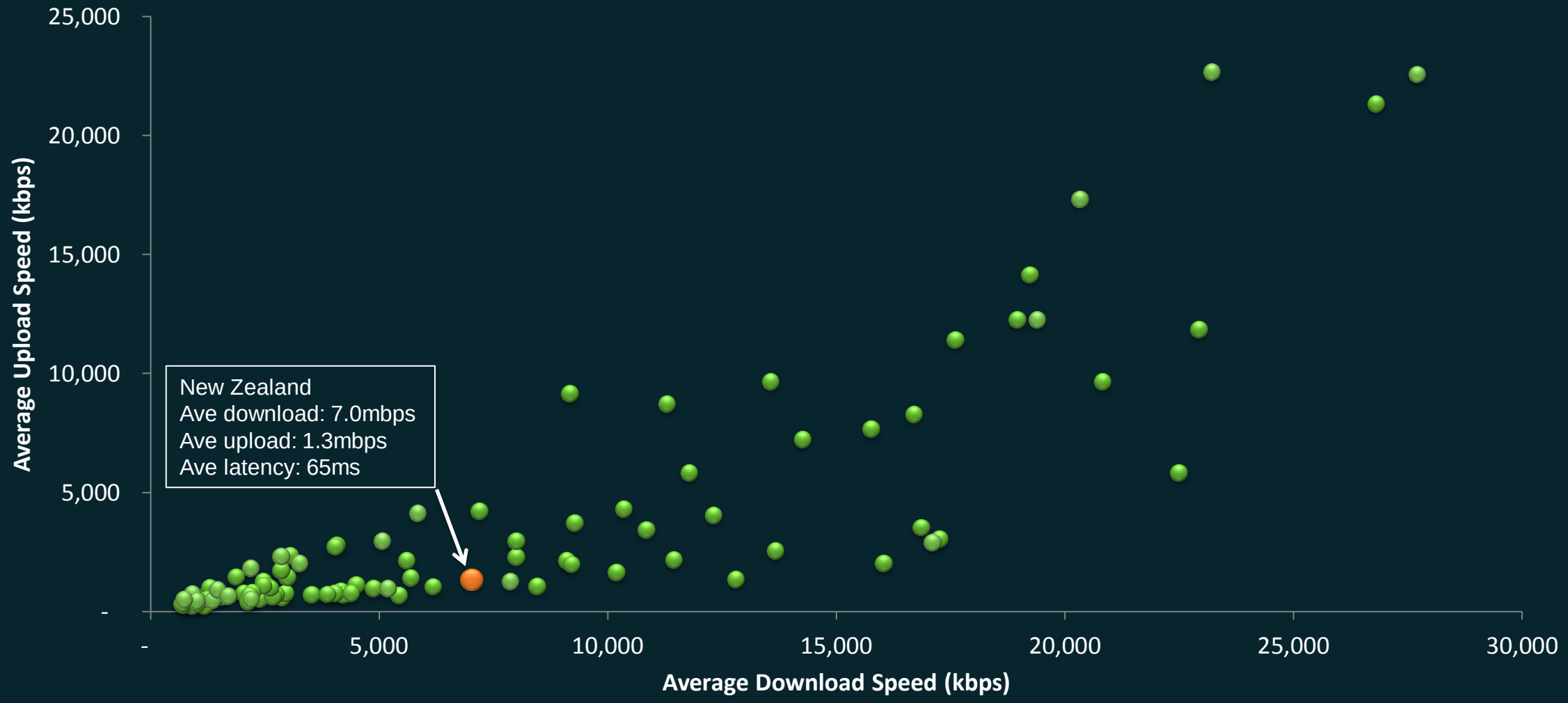
Source: Ookla Speedtest.net Net Index

Fixed Speeds + Latency: New Zealand



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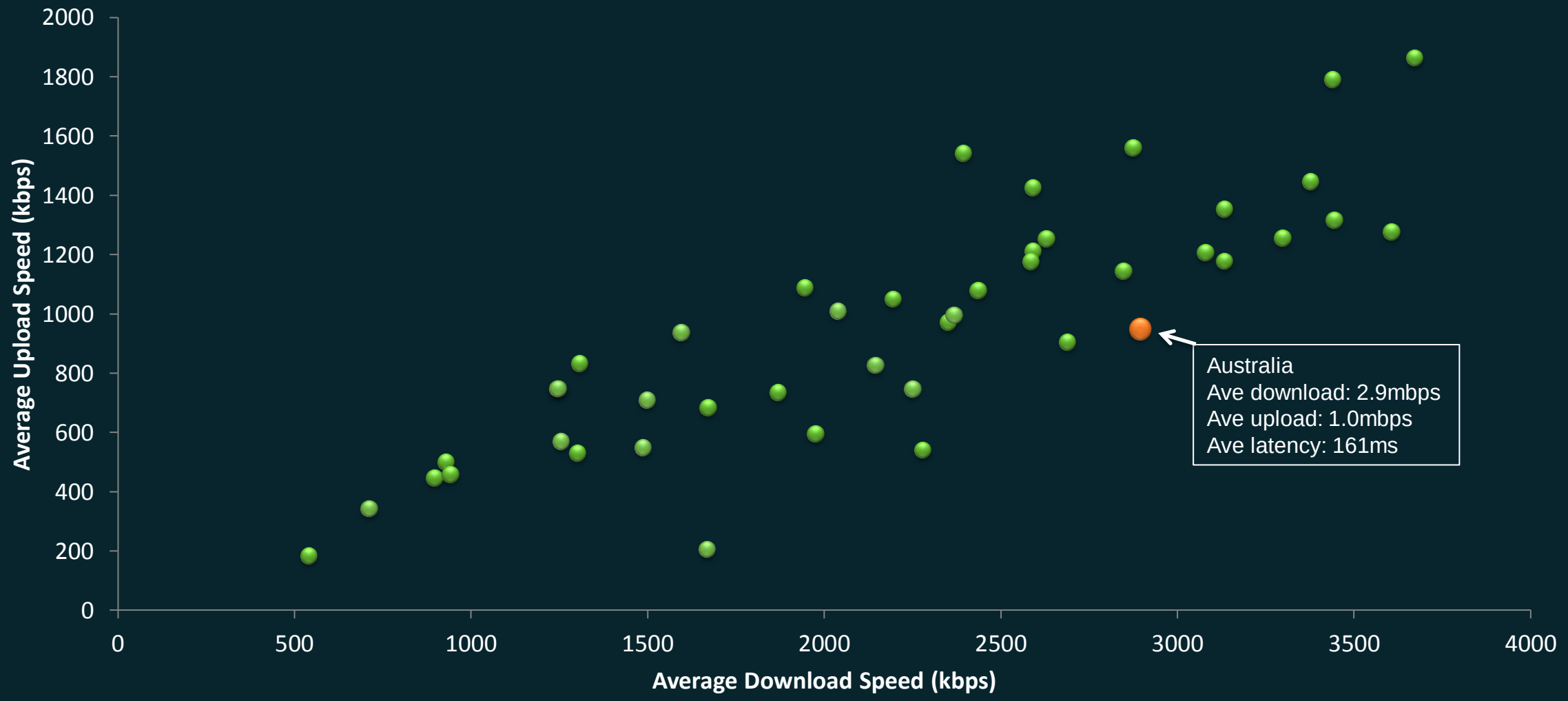
Mobile Speeds + Latency: Australia



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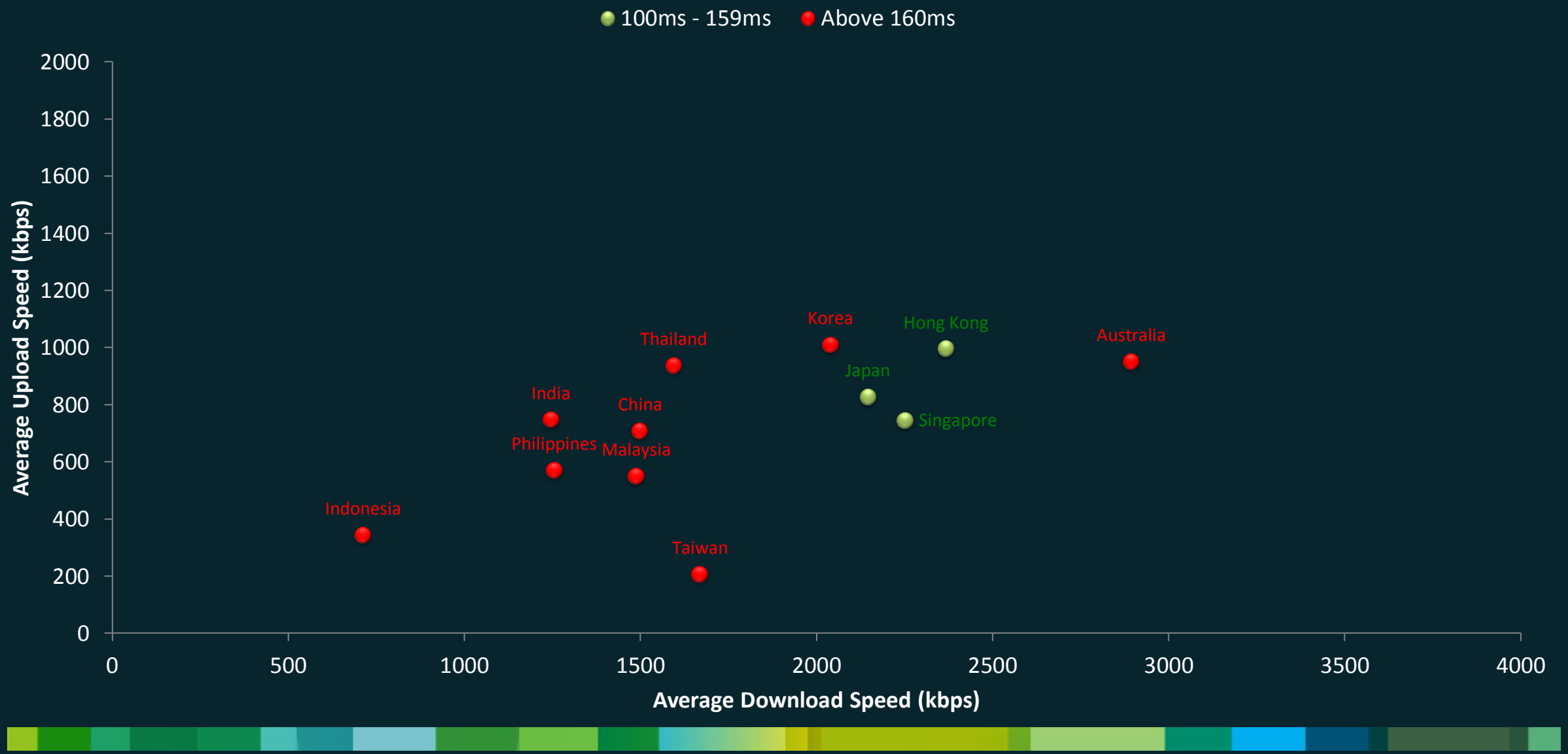
Mobile Speeds + Latency: APAC Countries



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Summary/Implications

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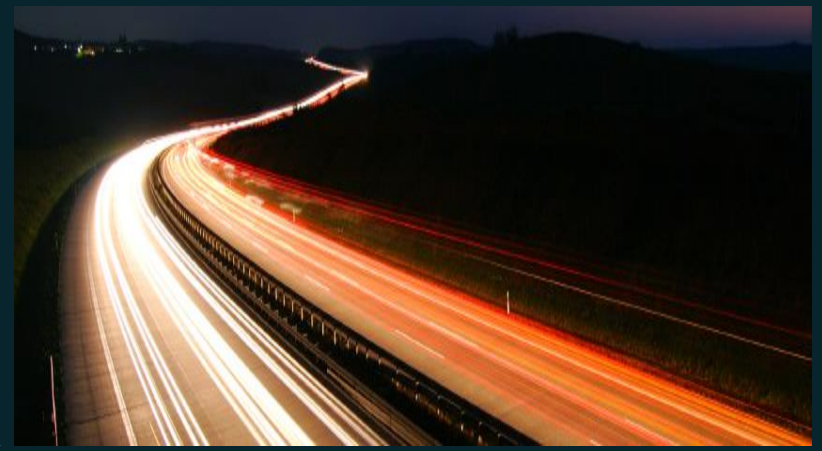
Summary and Implications



- More users, each using more bandwidth
- Each user will have more/more powerful devices
- Accelerated smartphone adoption
- Video and cloud driving demand and consumption
- 4G will dramatically increase data consumption
- Advanced Cloud Apps Required Advanced Networks
- Off-load increasingly important—small cell complement
- Need more Spectrum – Licensed and Unlicensed
- Need fibre for backhaul, middle mile and aggregation in access
- Networks becoming heterogeneous; need to be “fit for purpose”

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Thank you.