

NBN for Australian Indoor Internet Demand

Student: Shasha Ma

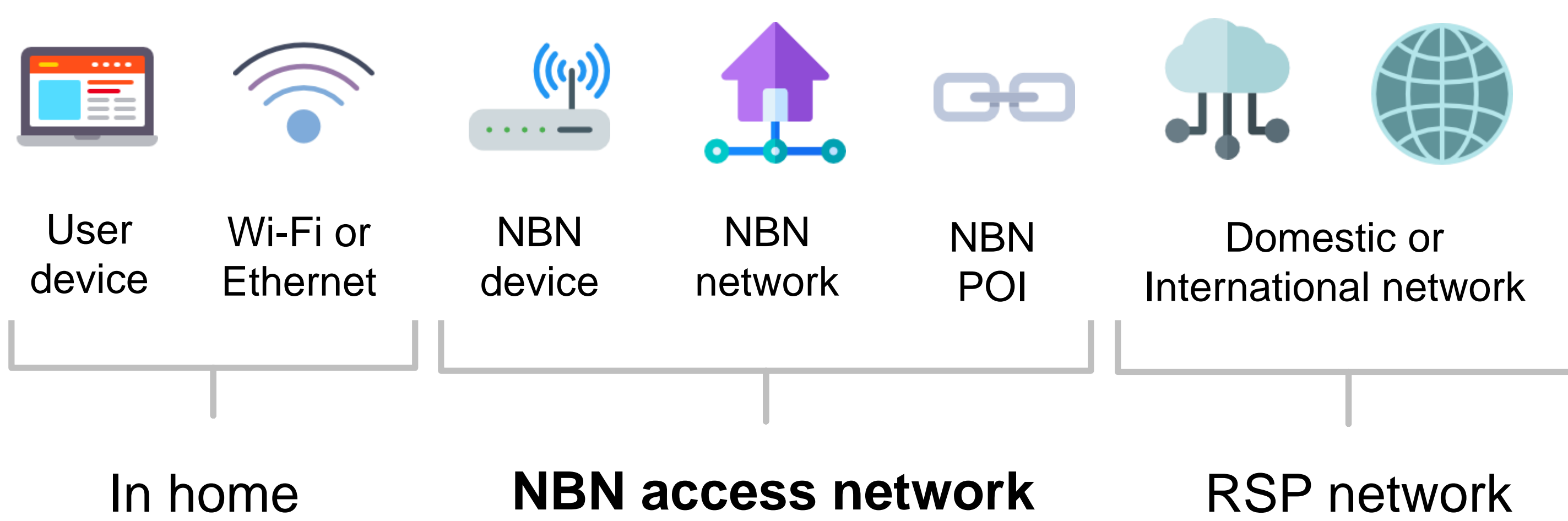
Supervisor: Dr Xiangyun (Sean) Zhou

Scope

The research question is whether National Broadband Network (NBN) fixed line service will satisfy Australia's demand in a ten-year time span.

The motivations behind the project are

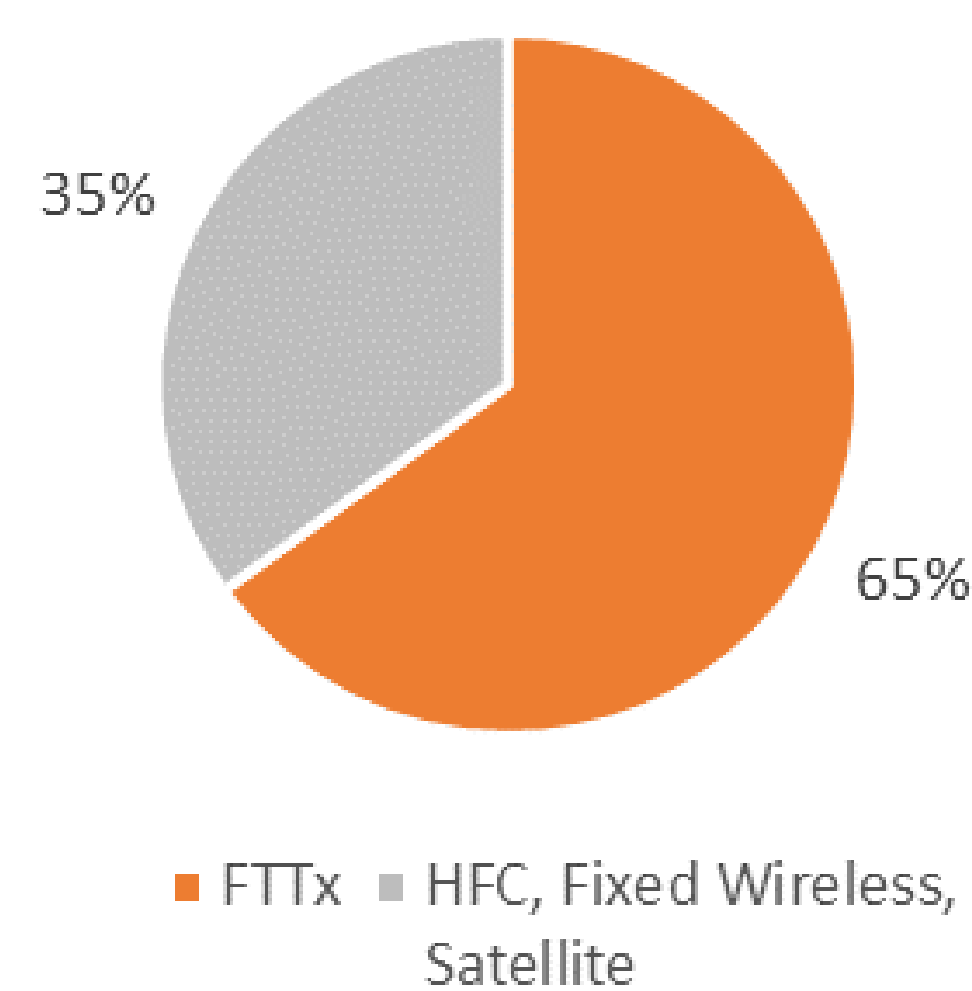
- The increasing proliferation of high bandwidth applications
- The increasing number of internet connected devices being used by households and businesses
- The dissatisfaction of customer experience on broadband



Context

NBN's fixed line service consist of

- Fibre-To-The-Premises (FTTP): Fibre
- Fibre-To-The-Nodes (FTTN): Fibre + Copper



2016 average [2]	NBN aims 2021	Demand 2026
11-20 Mbps	25-50 Mbps	?
95 GB	Unlimited	?

Methodology

Demand

- Quantity of data (GB/Month): Higher volume of data download and upload
- Quality of data (Mbps): Faster connection speed and reliability

Objectives

- Demand-Supply analysis
- Alternative option
- Future proof

Technology [3]

- Fibre: GPON → NG-PON2
- Copper: VDSL2 → G.fast
- Cellular Network: 4G LTE → 5G

Sources

- ITU Standards
- NBN Co Corporation Plan
- NBN Design Rules
- ABS Annual Statistics
- Internet Test Reports

Results

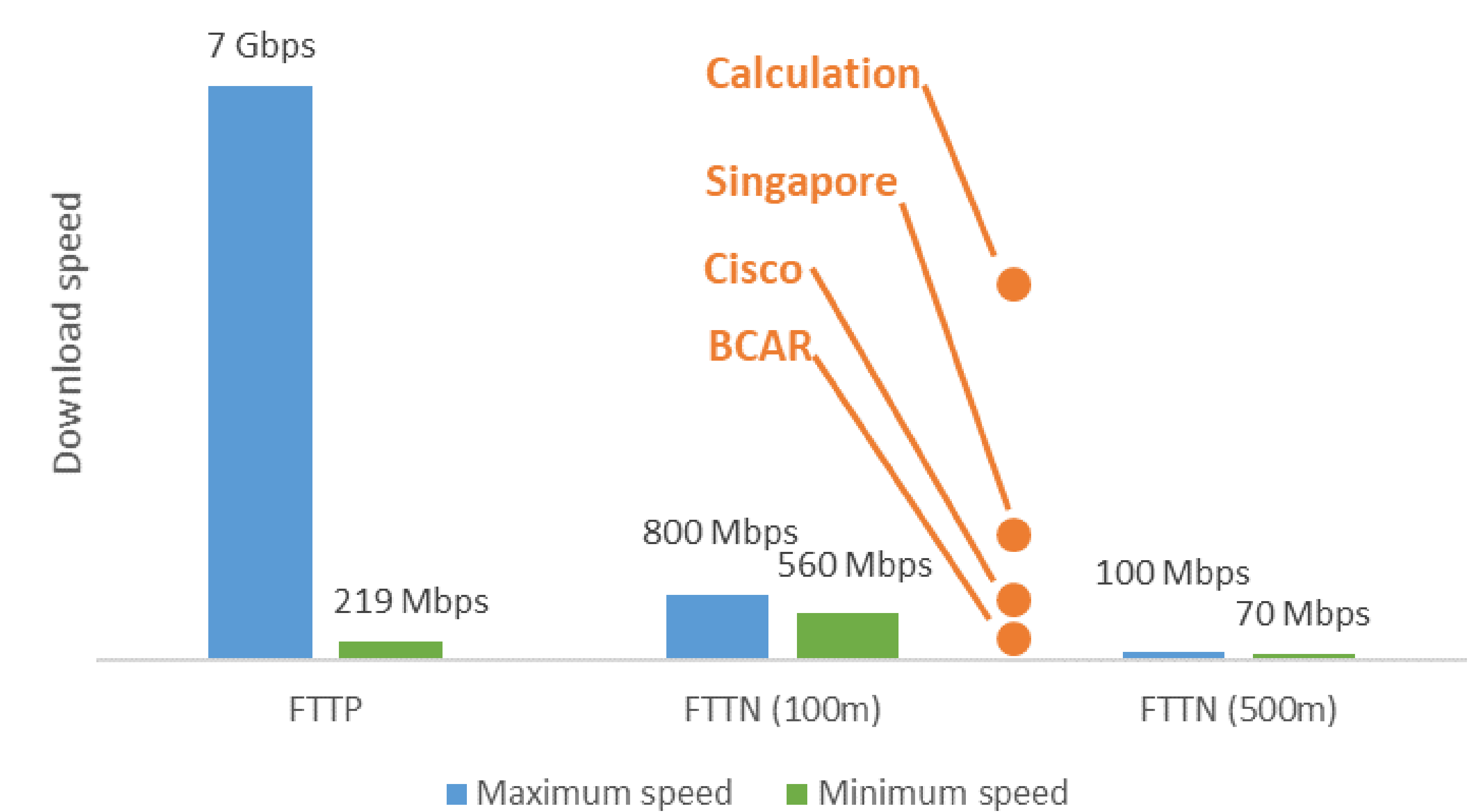
Bandwidth Demand

Calculation	3.8 ~ 37.0 Gbps
BCAR	49 Mbps
Cisco	101.1 Mbps
Singapore	787.6 Mbps

Data Demand

Calculation	232 GB
BCAR	420 GB
Cisco	821 GB

Prediction for NBN Fixed Line in 2026



Cellular Network in 2026

Bandwidth	Data	Risks
~ 1 Gbps Max	~ 200 GB Max	Not enough data
~ 0.5 Gbps Min	~ 80 GB Min	Congestion

Future Work

In addition to the speed and data analysis, other qualities for both the fixed line and cellular networks should be looked into:

- Latency/Connection speed
- Compatibility
- Security
- Deployment cost
- Technology maturity
- Regulations

Conclusion

From perspectives of bandwidth and data demand, NBN's FTTx solutions and 5G technologies both demonstrated strengths and limitations in each category. A comprehensive prediction should consider both the technical availability and practical feasibility.

References

- [1] Icons in Scope are from Flaticon.com
 [2] Bureau of Communications and Arts Research (2018) *Demand for fixed-line broadband in Australia*.
 [3] NBN Co. 2017. *NBN Design Rules 2017*.