

# Sync needs Time & Attention

Mark Gilmour  
Network Strategy, Three UK  
ITSF Conference November 2013



[Three.co.uk](http://Three.co.uk)

**About  
Three.**





**To challenge and change the way you use your mobile forever by creating an experience that is more useful, more entertaining and more valuable than the one you use today**

**Canning Fok,  
HWL Group Managing Director**



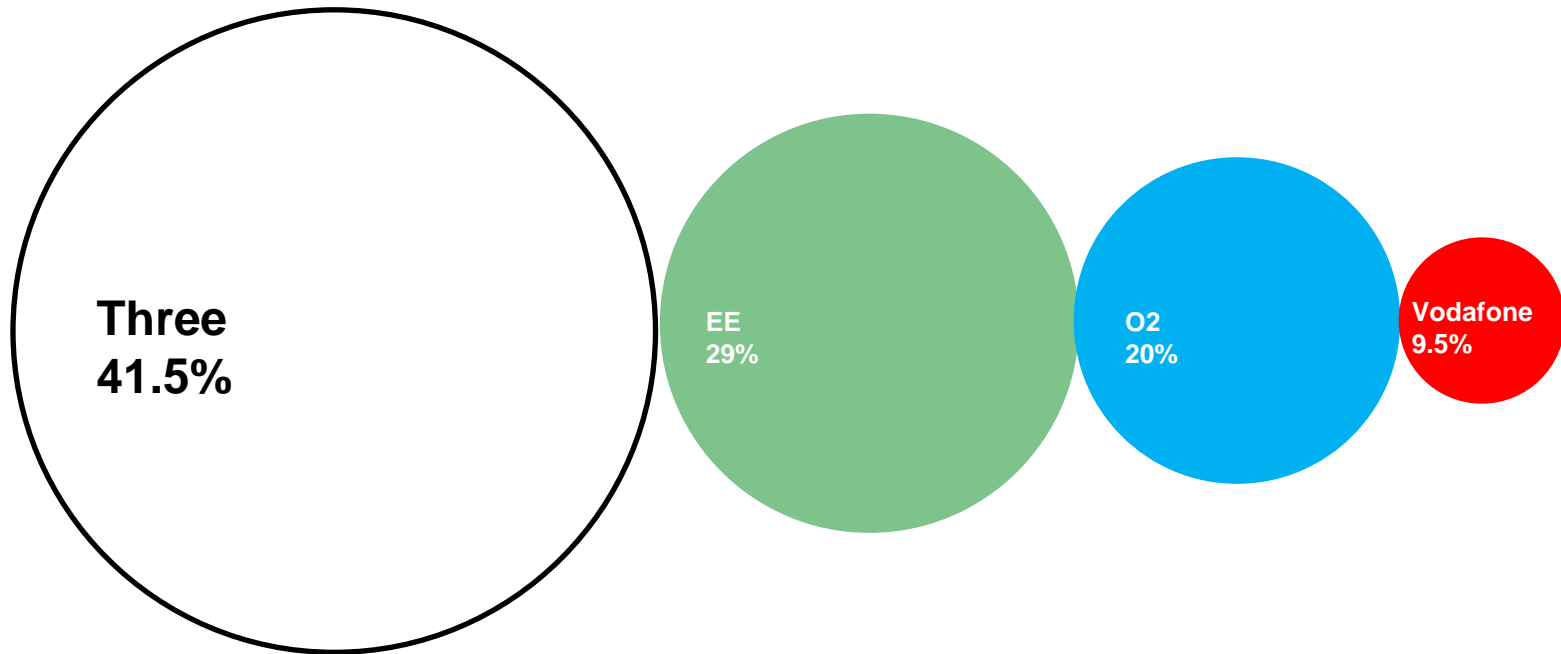
**Three is a communications company focused on bringing the benefits of the internet to mobile.**



Three.co.uk

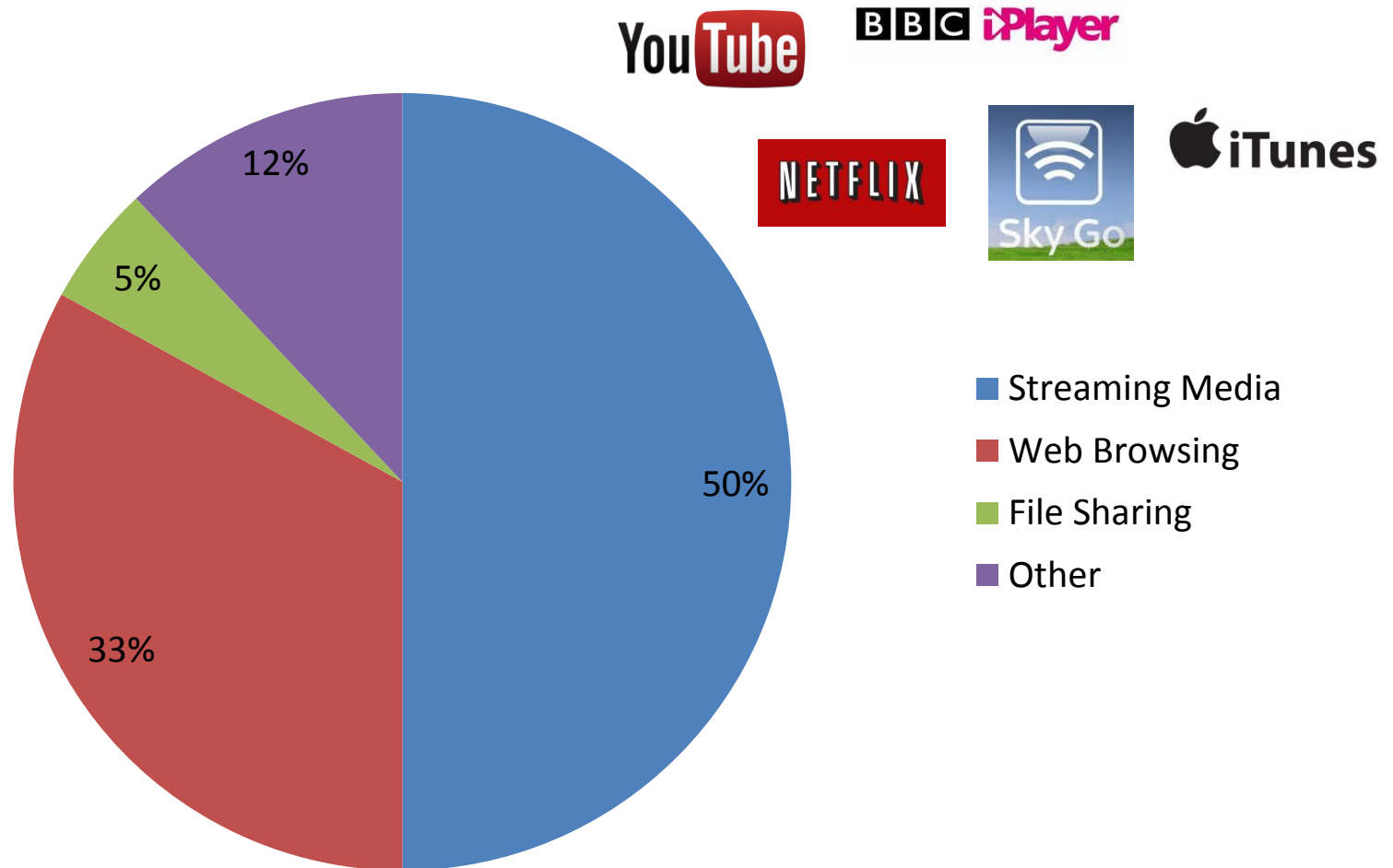
---

# Share of mobile data traffic.



Source: Enders Analysis showing percentage share of UK mobile data traffic carried in the 12 months to June 2013.

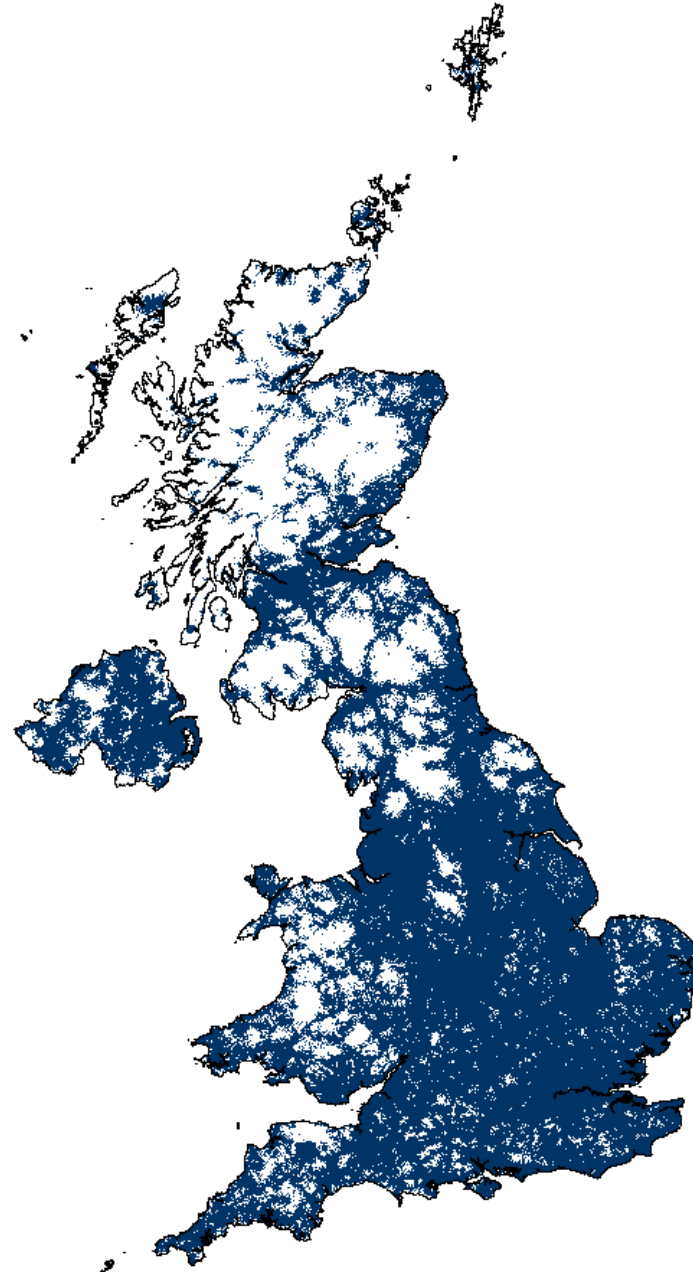
# What our customers are doing.



Customers enjoying streaming media on mobile devices.

# Network - 2013.

- Over 14k sites
- 98% outdoor population coverage
- Over 80% indoor population coverage
- Over 80% of sites connected by Ethernet
- Over 80% of sites DC-HSDPA enabled
- LTE deployment has already started

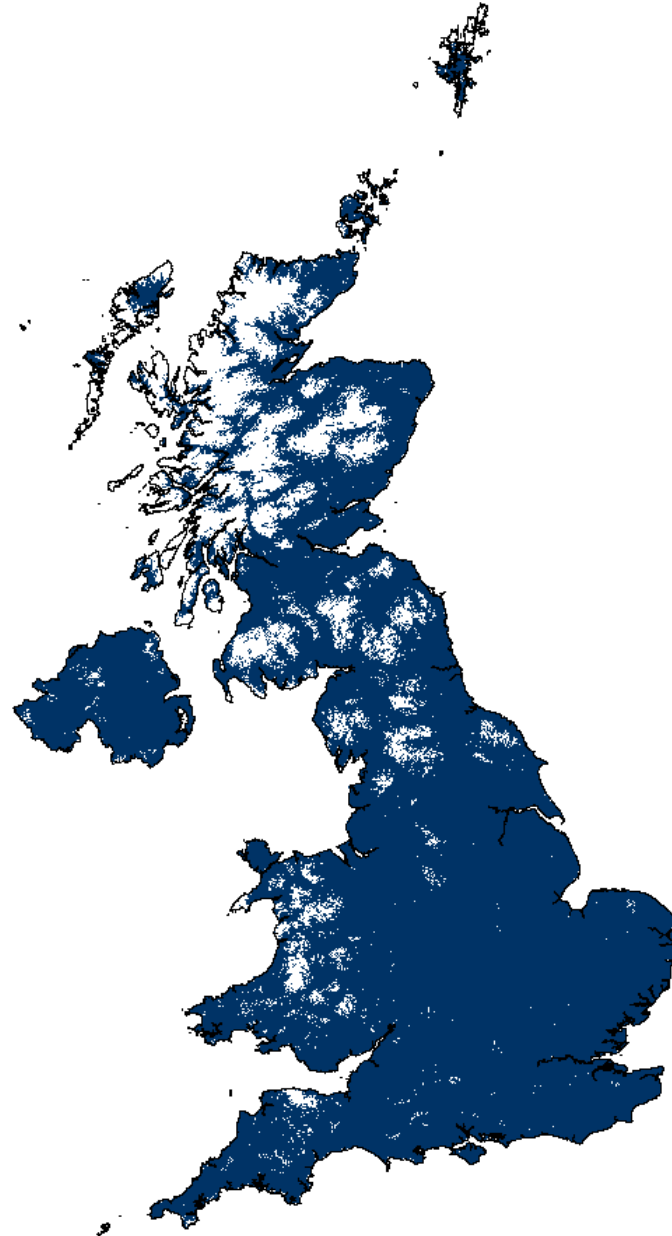


---

# Network – 2015.

## 3G & 4G Coverage 2015

- 99.7% population coverage
- 17,000 sites



# 4G with Three.

- Rollout begins in December, accelerating from January
- Initially in London, Birmingham and Manchester
- 50 cities covered by end of 2014, 98% 4G population coverage by end of 2015
- No price premium, no SIM swap or tariff change
- 1.5 million Three customers ready to enjoy 4G

**4G  
at no  
extra  
cost.**

**Permission  
to extreme  
Air Punch  
granted.**



Get ready for faster Internet,  
without the hefty price-tag.



Keep on  
internetting





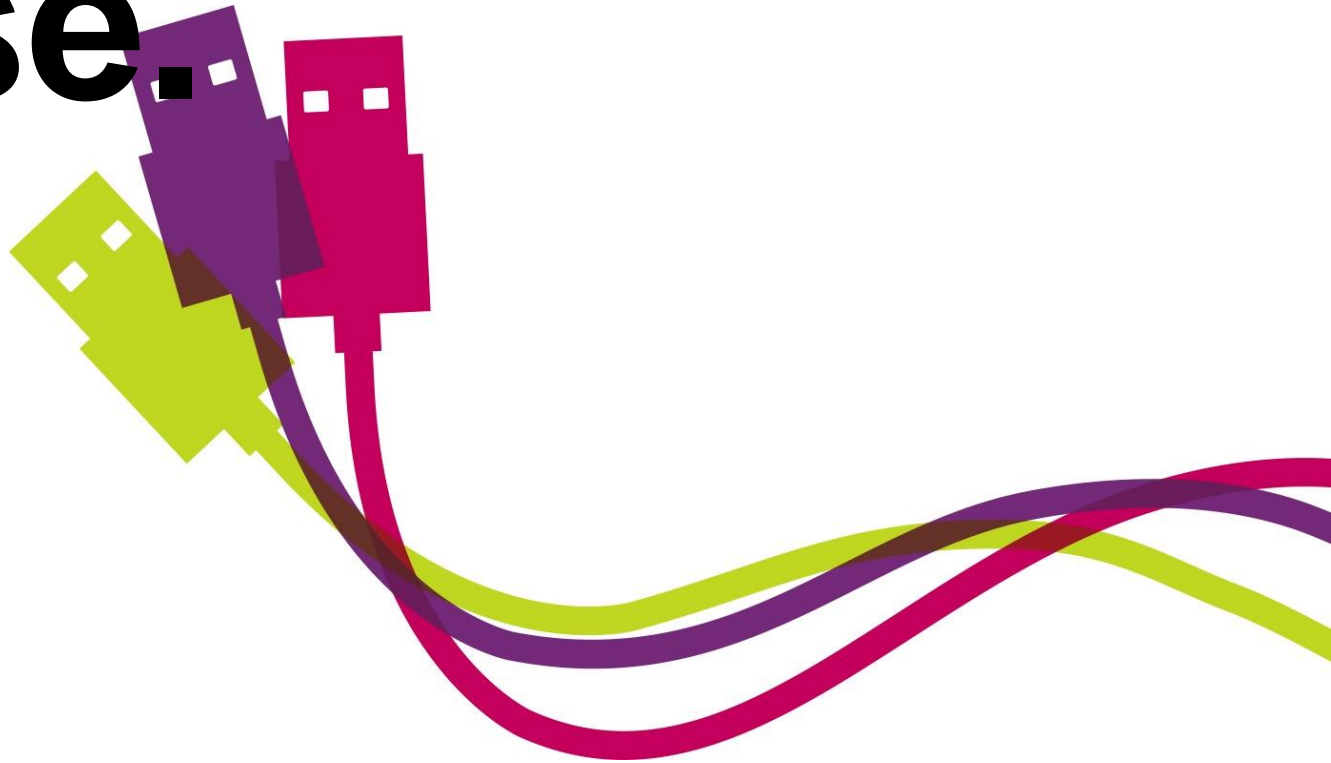
# Sync'ing a MNO.



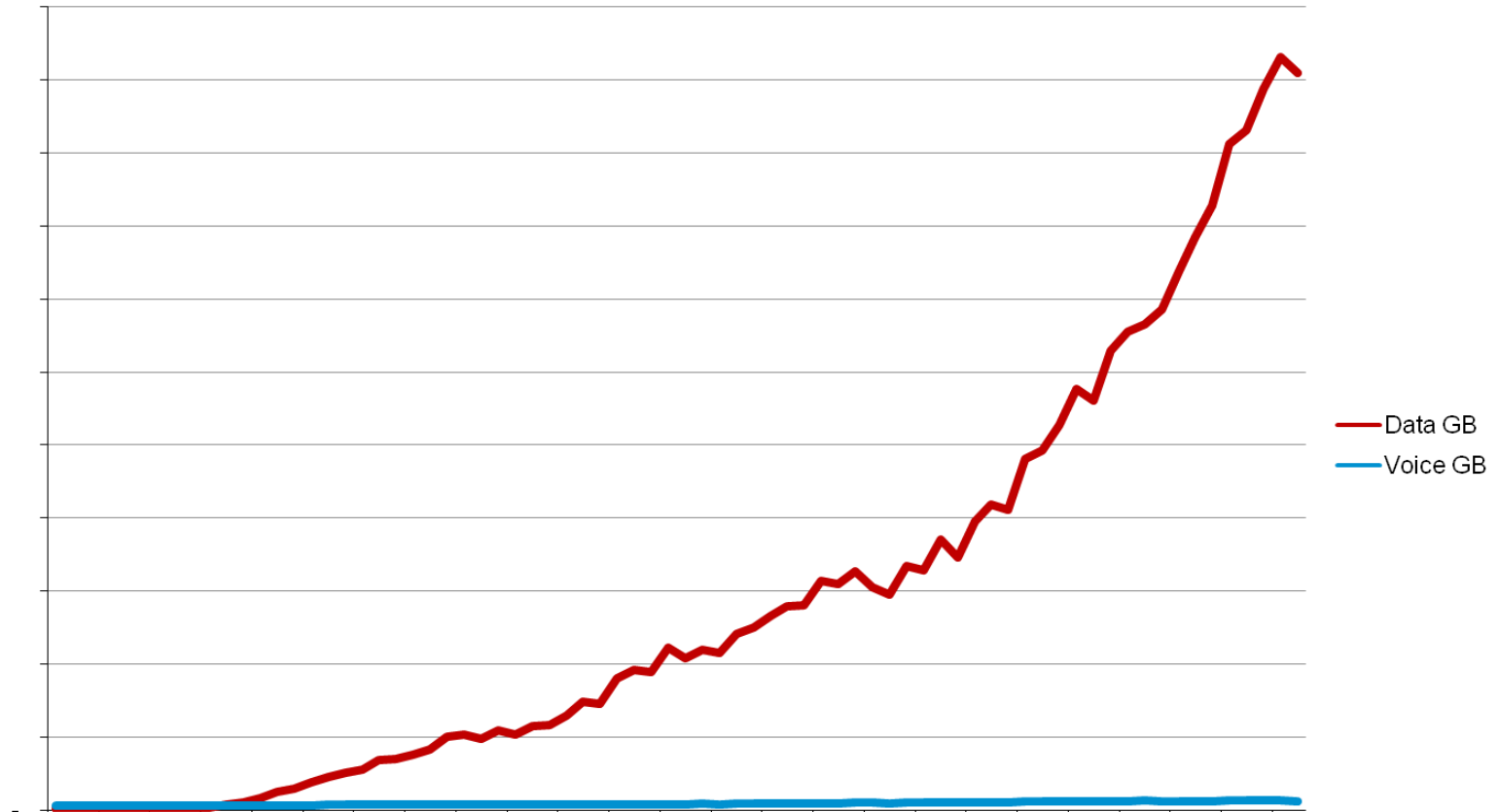


<b>Past</b>	<b>Present</b>	<b>Future</b>
TDM	Hybrid TDM & Ethernet	All IP
Frequency	Frequency / ToD	Phase/Freq/ToD
Proven	(un)proven	unproven
Stable Architecture	Adapted Architectures	Emerging Architectures

# The case for phase.



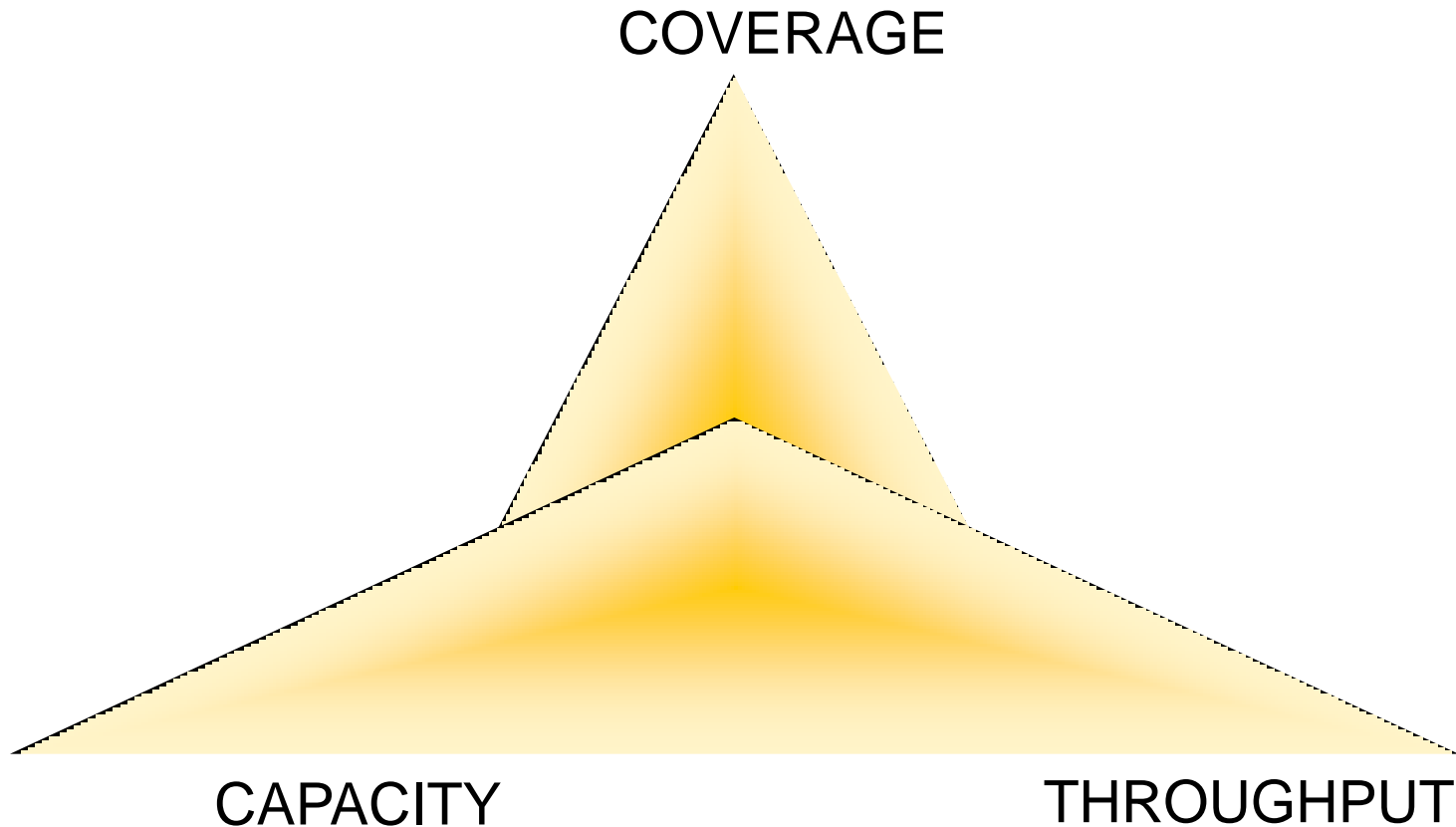
# Data usage on our network.



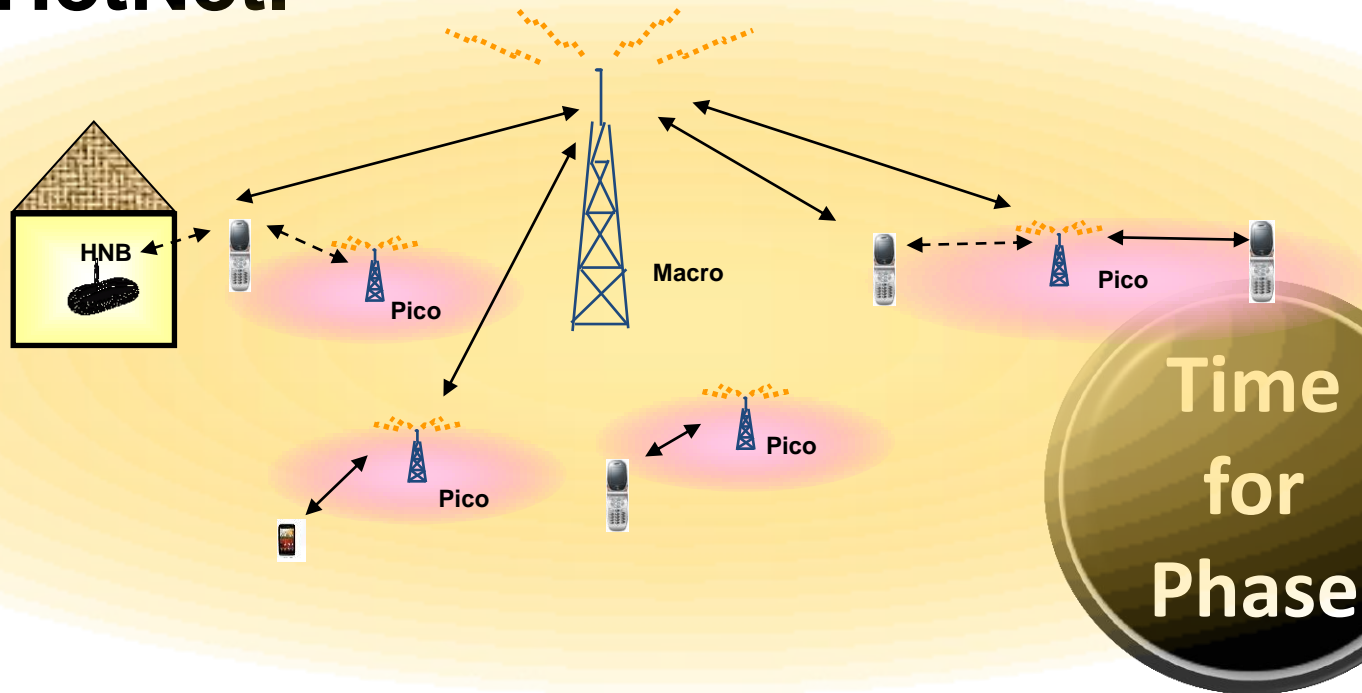
- 100-fold increase in 5 years.
- Average customer usage across entire base is 1.45 GB.

---

# Coverage – Capacity Relationship



# The HetNet.



- **CoMP – Coordinated Multi Point Transmission**
- **eICIC – Interference Coordination**
- **NAICS – Network Assisted Interference Cancellation & Suppression**
- **Centralised Scheduler**

---

# Factors to Consider

accuracy

hardware

performance

resiliency

traceability

security

operations

scaling

expense

---

# When ?





# Thank you.

Mark Gilmour  
Transmission Strategy & Architecture Manager  
[mark.gilmour@three.co.uk](mailto:mark.gilmour@three.co.uk)



**Three.co.uk**