The Carphone Warehouse Networks

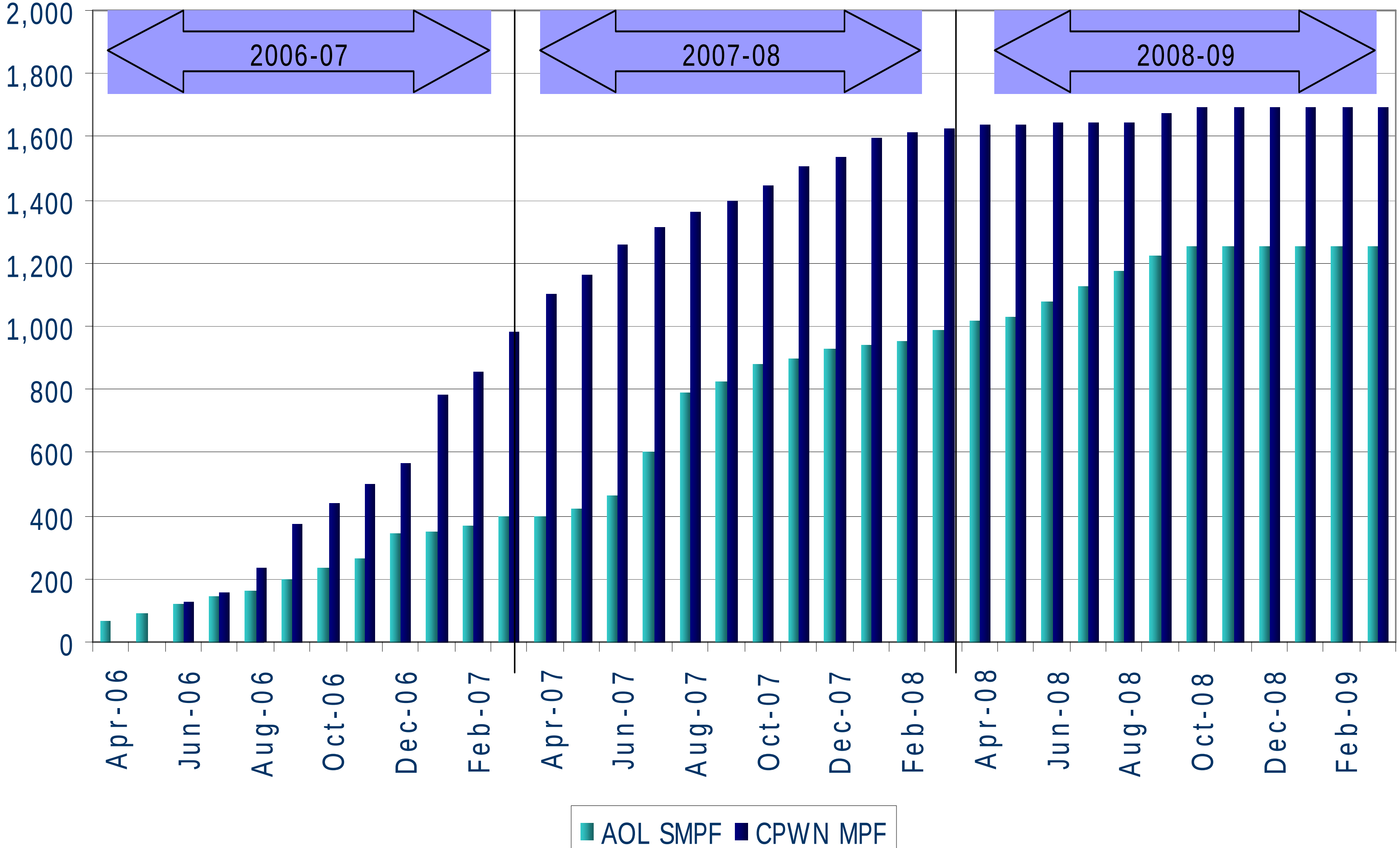
THE Carphone Warehouse

Your phone, your way.

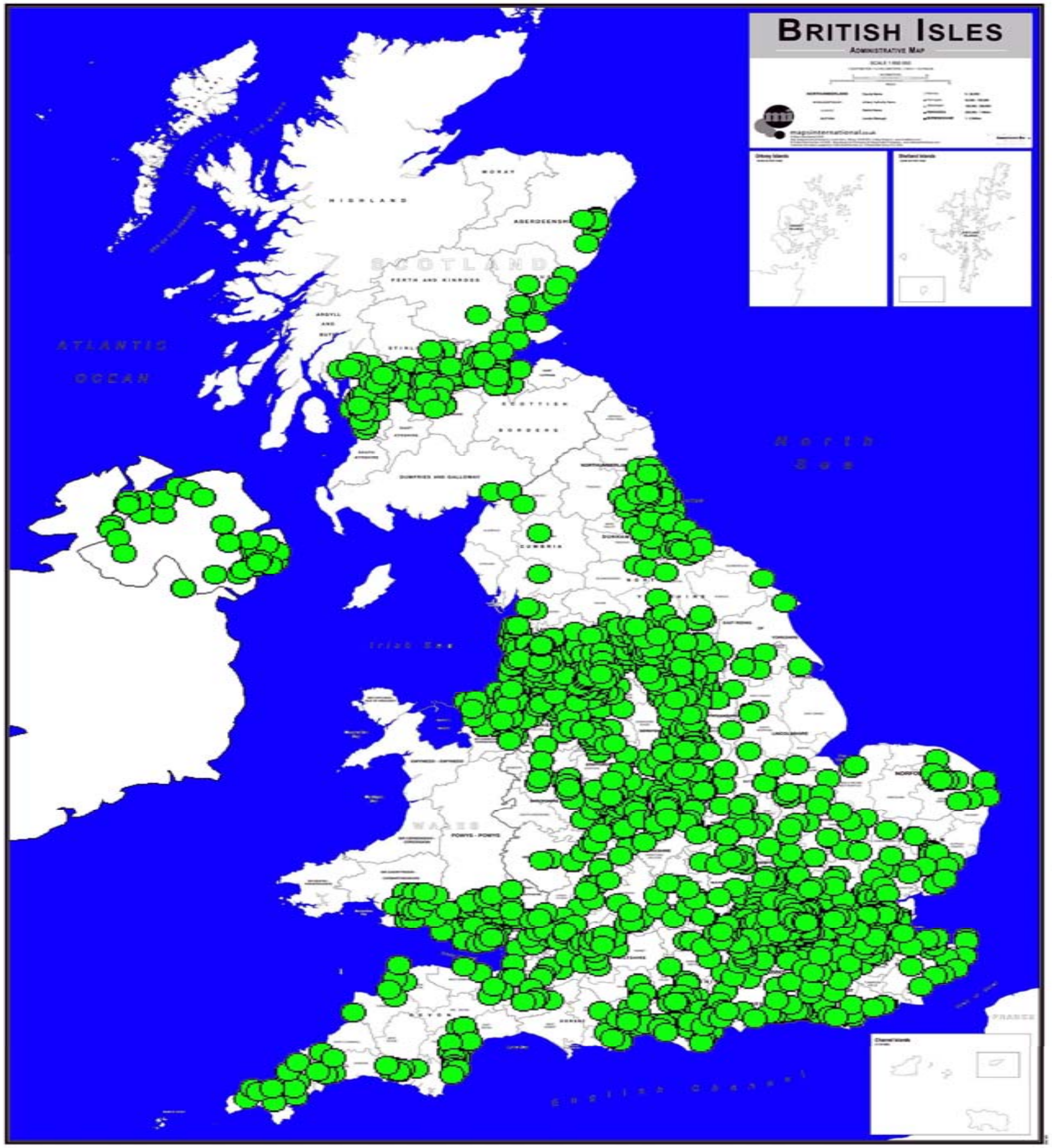
Introduction

- Achievements and challenges
- Scale of our network
- Strategic outlook
  - geographic reach and economics
  - capital expenditure
- Other issues
  - fibre
  - regulation

Exchange roll-out

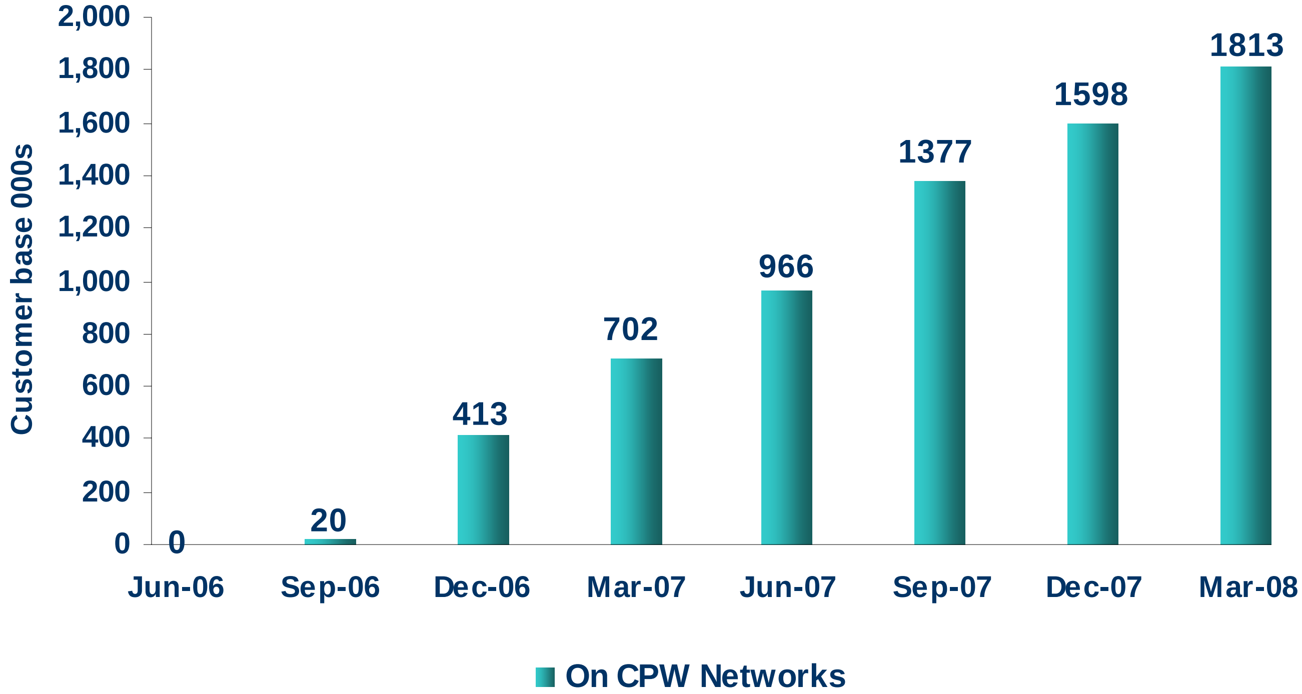


Scale of NGN



April 2008
UK
Coverage
80%+

Subscriber growth



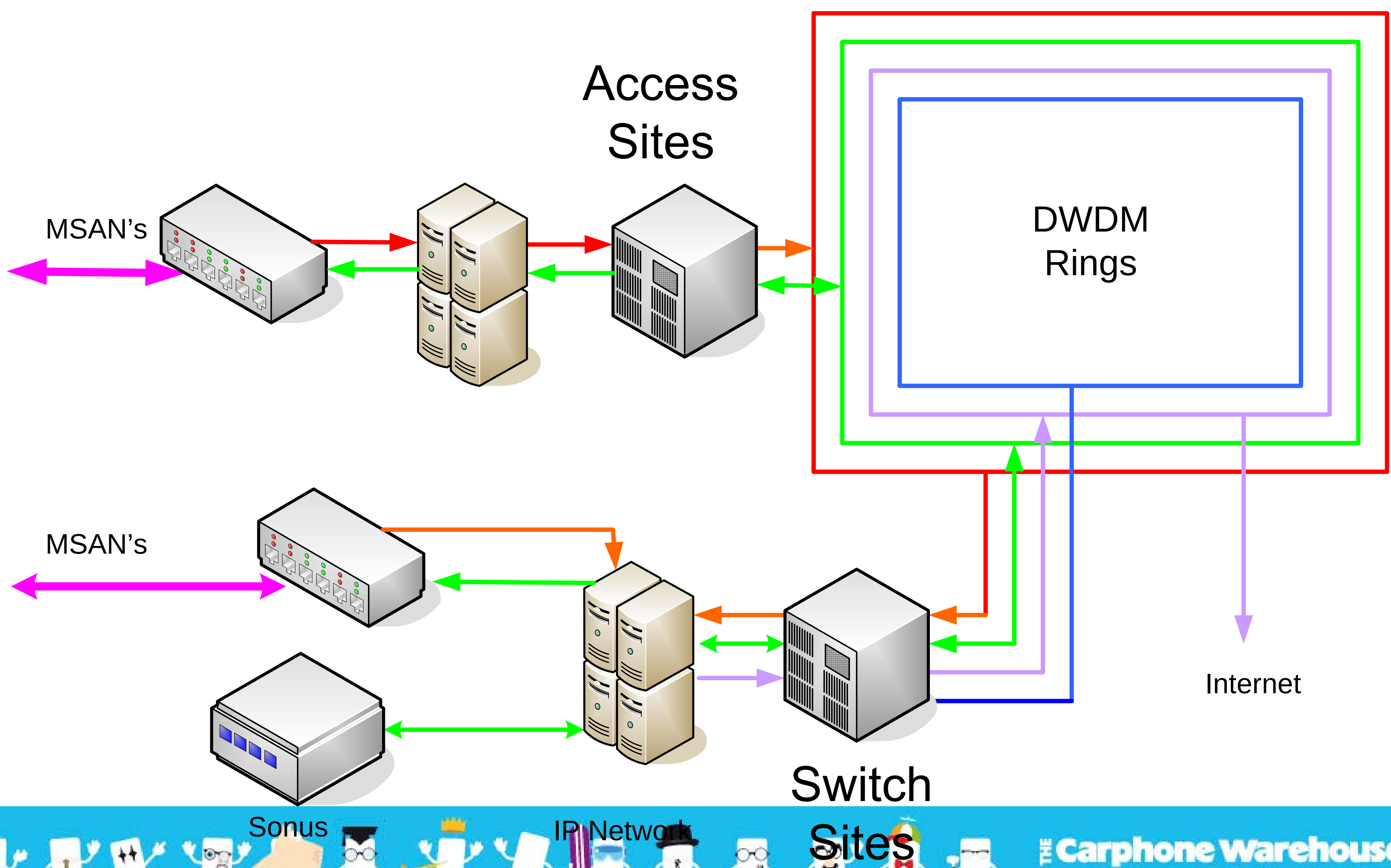
AOL integration

- **Common network operating division CPWN**
  - **1,619 MPF & 1,011 SMPF exchanges operational**
- **Network teams merged**
- **Core and backhaul shared – over 50% of SMPF (AOL) exchanges**
- **Shared space and power**
  - **AOL ,SMPF using CPWN racks. 200 more exchanges**
  - **Future use of AOL racks for exchange equipment i.e. servers**

Network Unification Project

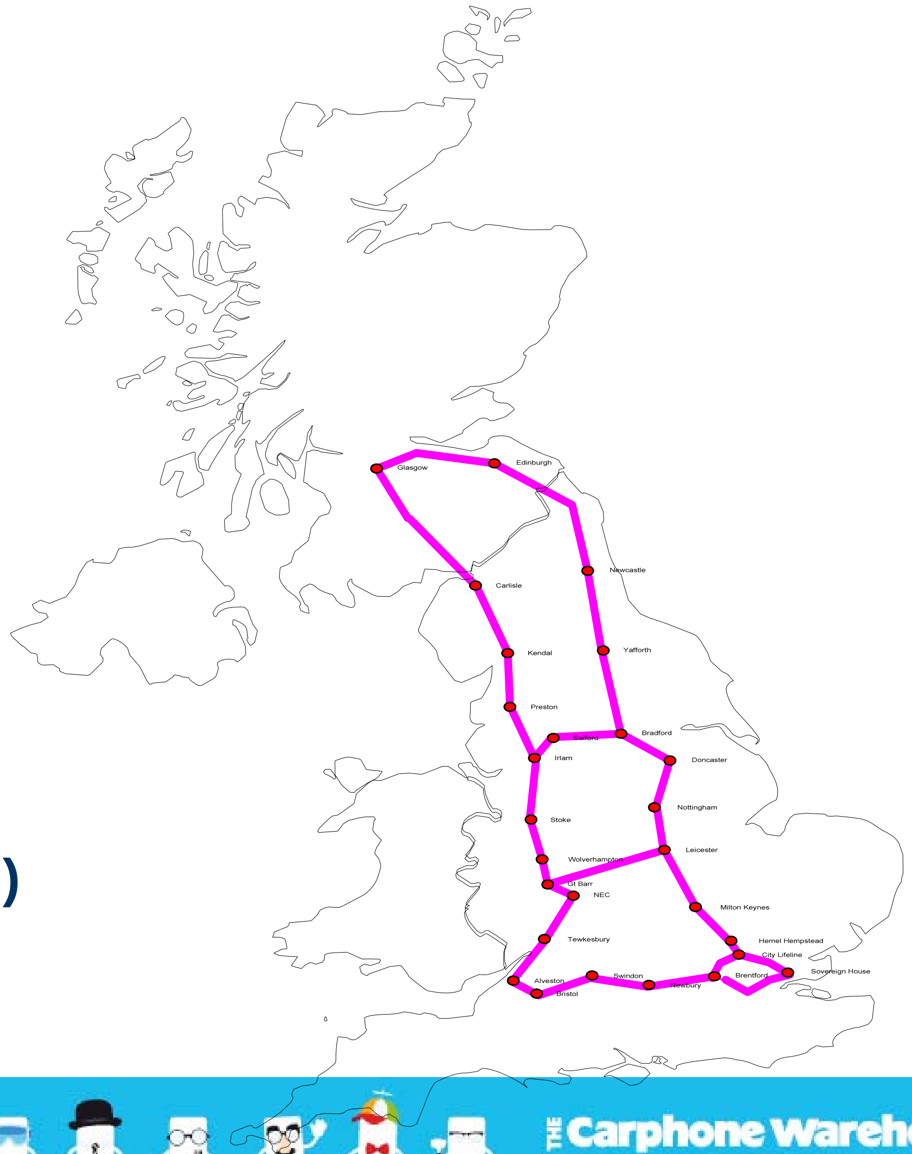
- **A high capacity (400 Gb) optical fibre DWDM network**
- **Key objectives:**
  - **To consolidate all our core and access networks onto one high capacity optical fibre U.K. wide network**
  - **To replace leased assets**
  - **To manage down costs of legacy networks**
  - **To defend ourselves against the rising costs of bandwidth**
  - **To provide Gigabit speeds into exchanges**
  - **To enable our business to be economically scaled**

UK DWDM Network

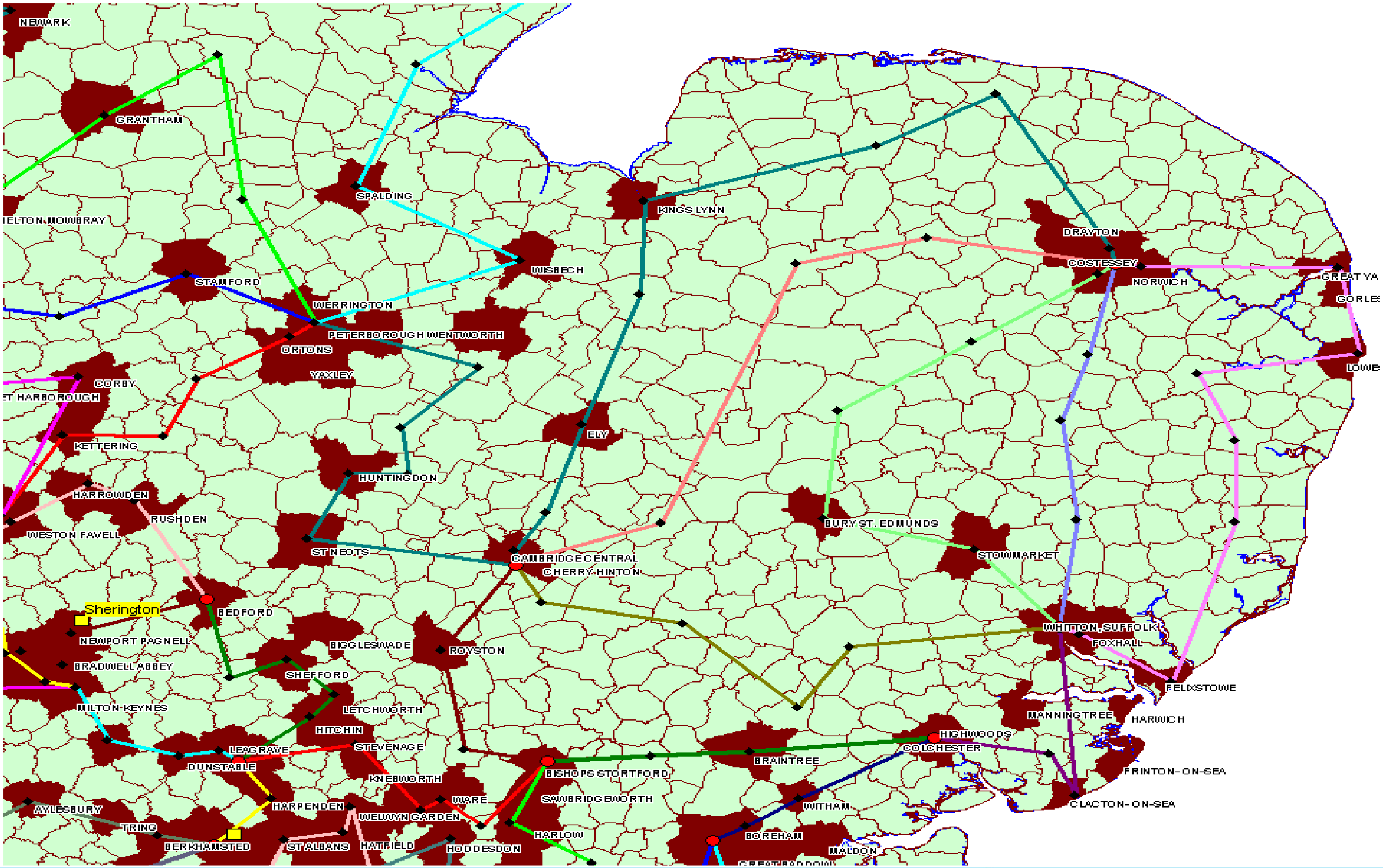


National Fibre Network (NUP) Core

- 32 **Access Nodes**
- **8 Edge Nodes (aggregation)**
- **5 Core Nodes (switching)**
- **4 Super Core Nodes (London)**



Typical regional access network



Network challenges 2007/8

- **Migrations:**
  - **OpenReach migration process still clunky**
  - **Manual migration process errors (DOA MPF 2.8%, SMPF 3.3%)**
  - **OpenReach Repair SLAs 86% MPF, 93% SMPF**
  - **Unavailable exchanges**

- **Networks:**
  - **Roll-out & integration of core and access networks**
  - **Delays to backhaul availability**
  - **Backhaul availability to remote exchanges**
  - **Integration of AOL**
  - **Roll-out of SMPF**

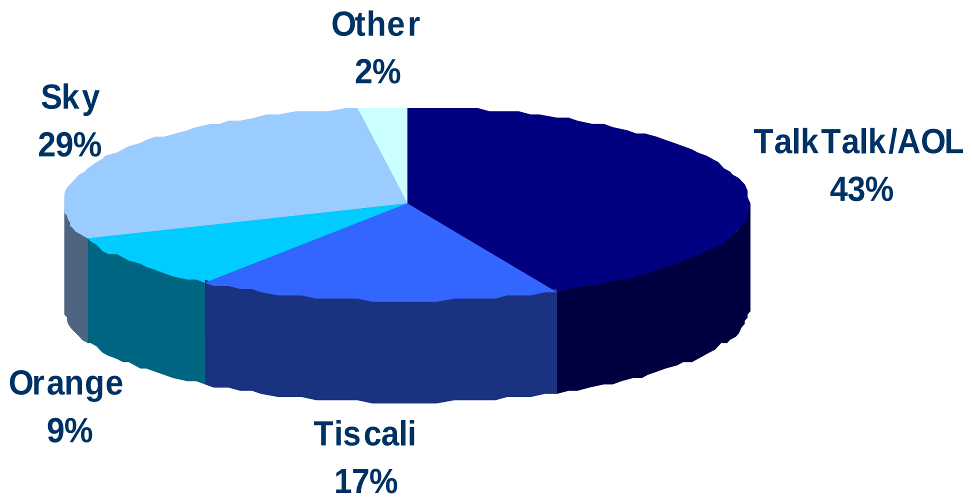
Network challenges 2008/9

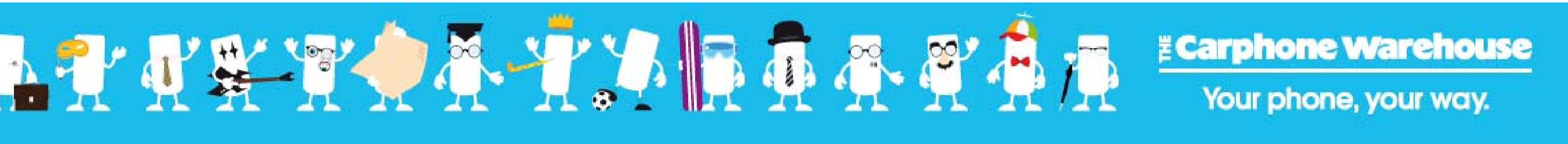
- Expansion of bandwidth to exchanges
- Efficiency of space utilisation in exchanges
- Increased power in exchanges
- Improved stability to layer 2 backhaul services
- Access to unavailable exchanges
- Fully integrate SMPF and MPF backhaul networks
- Single member fault management
- New products and services

Strategic outlook

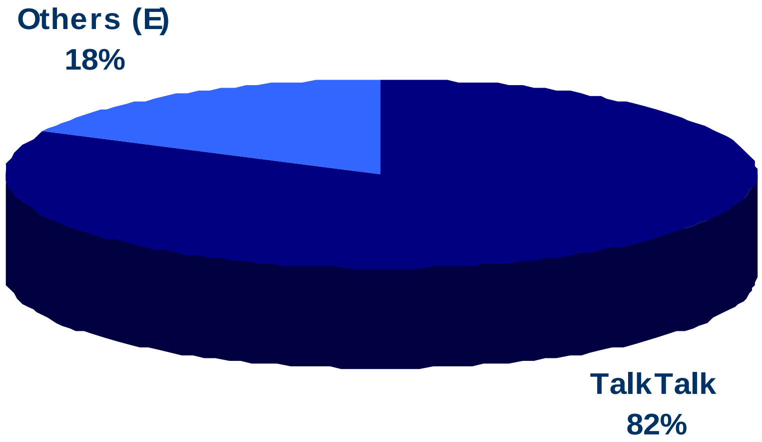
- **Competitive landscape**
- **Increasing usage**
- **Further exchange roll out**
- **New products & services**
- **Capital expenditure**

CPW Networks is the clear market leader in overall LLU…





...and totally dominant in MPF



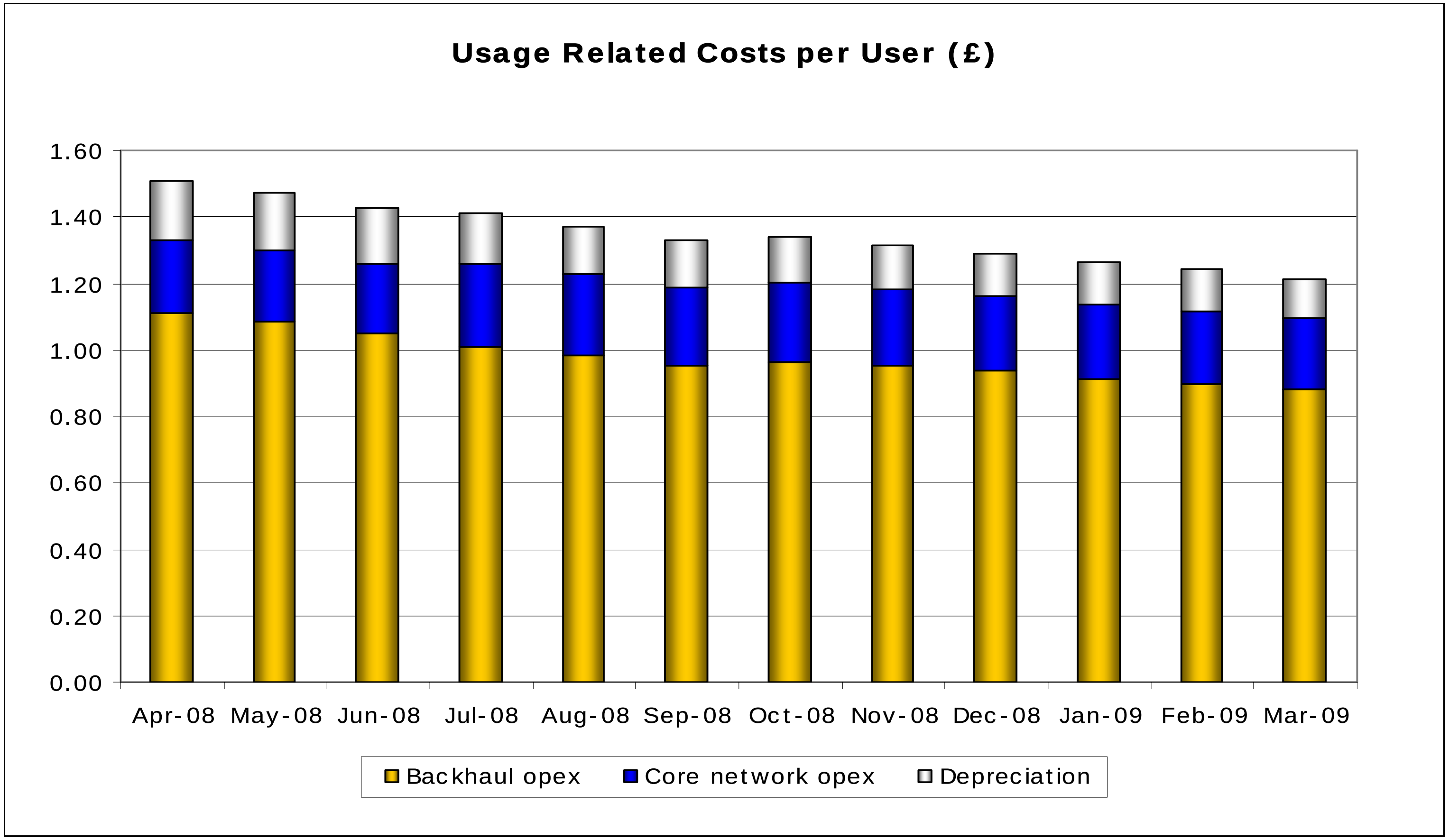
Major competitors reliant on more expensive SMPF/WLR

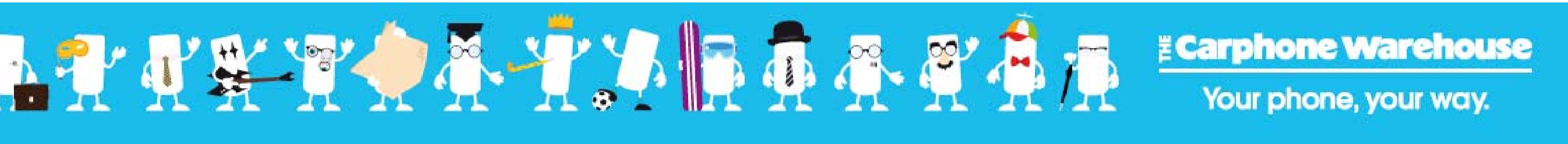
Provider	Platform
TalkTalk	MPF
AOL	SMPF
BT	SMPF + WLR
Virgin	Cable
Tiscali	SMPF with some MPF
Sky	SMPF + WLR
Orange	SMPF

Managing growth in usage

- Growth in use and services such as iPlayer are good for business
- The NUP delivers gigabit speeds to exchanges defending our costs as demand grows
- Deep Packet Inspection already implemented on our network allows us to control usage if we want to
- Growth in usage will allow the introduction of different charging models - i.e. metered use
- Ultimately serious content providers will label their content so we can manage it better

Usage-related costs per customer coming down





Maximising geographic reach

- **Economically we can build to over 2,000 exchanges and access 90% of the population**
- **Current pricing environment allows fair competition in even remote parts of the country**
- **We now have a backhaul solution to build the network deeper**
- **Utilising space between SMPF and MPF improves the economics**
- **Development of small MSANs (POP in a box) reduces costs**
- **Targeted geographic sales**

Capital expenditure 2008/9

	£m
New LLU exchanges and additional capacity	35
Network capacity and NUP	20
Automated fault management	7
Systems development	8
Buildings/facilities	5
Other projects	10
Total	85

New products/services

- **New products/services in development**
  - **24 meg download will benefit 25% of our base**
  - **MPF into AOL**
  - **DLM**
  - **Fault improvement programme**
- **Future opportunities**
  - **Wholesale MPF and SMPF**
  - **B2B broadband**
  - **Enterprise Ethernet**
  - **Extensions to Class 5 (star services)**
  - **Secondary line voice**
  - **SIP**

NGN and last mile fibre

- **You can run an NGN without last mile fibre but not vice versa (and BT's 21CN is barely off the ground)**
- **Would require industry collaboration given fragmented shares**
- **Higher speeds achievable more cheaply and quickly (eg bonded DSL)**
- **The NGN MSANs can equally be used as points of connect for fibre access as well as copper or both**
- **If it comes we will embrace it**

Summary

- **A year of significant growth and development**
- **The only mass market NGN in the UK, with genuine cost and service delivery benefits**
- **Scaling up to handle increased usage requires investment, but in £m tens, not £m hundreds**
- **Material scope for increased operational efficiency**