



BT wholesale

How Ethernet is changing the Business World

Paul Beacham
BT Wholesale
Head of Ethernet Product Management



Cloud Services are only as good as the connectivity you use to reach them

“Carrier Ethernet technology will play a key role as operators adapt their networks to support cloud computing business models”

Ron Kline, Principal Analyst, Network Infrastructure Telecoms, Ovum, Oct 2011

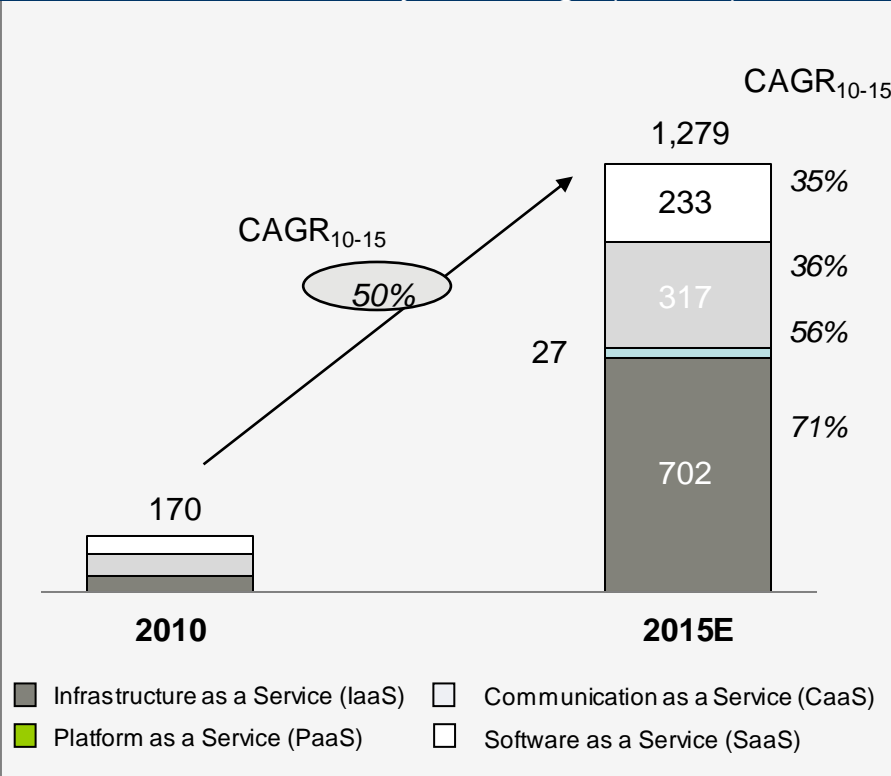
- Geographic coverage
- Bandwidth flexibility
- Access choice
- Resilience & Service guarantees
- Portal flexibility



BT wholesale

BTW is helping our customers tap into growth in SME cloud services market

UK Wholesale Cloud market addressable by Brokerage (in £mn)



With European Wholesale market addressable by CSB expected to grow from £545m in 2010 to £3.5Bn in 2015 at a 45% CAGR

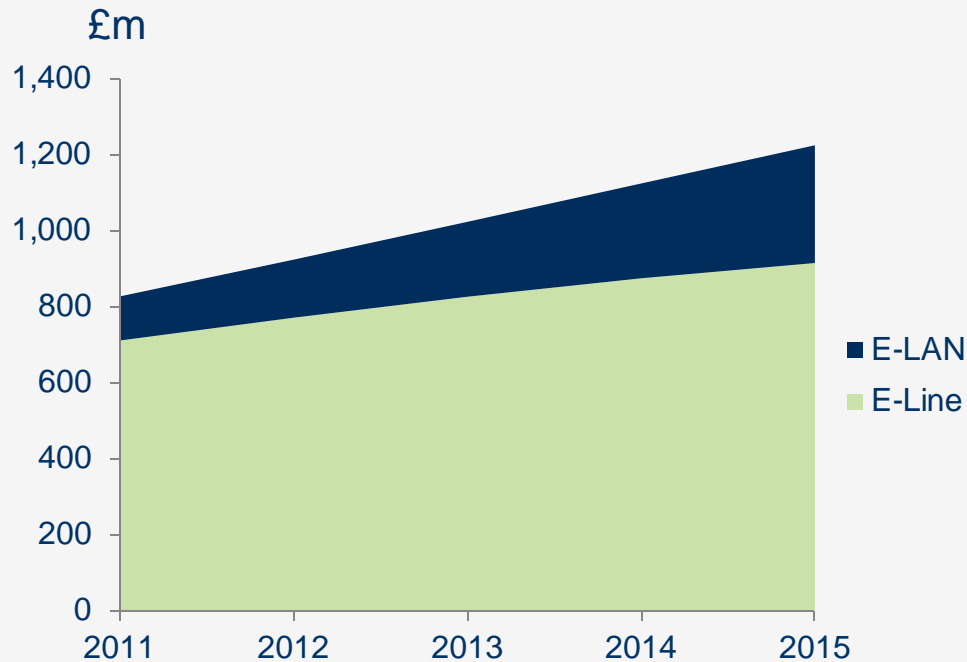
Market trends

- Right now, >50% companies are implementing, planning or evaluating investing in cloud services
- Public cloud market representing biggest part of the market, growing at a 28% CAGR
- SME segment is two thirds of the public cloud market
- **SMEs want:**
 - 1) **Branded Products,**
 - 2) **Access to a one stop shop**
 - 3) **Buy from current trusted reseller**
 - 4) **Connectivity stability to underpin Cloud Services**

Source: Gartner market sizing analysis, Sep 2010, IDC's survey of UK-based SMEs in Oct 2010



THE UK's ETHERNET OPPORTUNITY



- 73% UK market growth predicted between 2010 -14
- >£1billion total Ethernet revenue by 2015
- E-LAN represents around 1/3 of this
- Explosive growth rates across medium / large business customers

IDC July 2011

	2011	2012	2013	2014	2015
E Line Growth	11%	10%	9%	8%	7%
E LAN Growth	38%	34%	30%	26%	23%

BT Wholesale has experienced 300% growth in 2010 /2011



BT wholesale

BENEFITS OF WHOLESALE ETHERNET TO BUSINESS

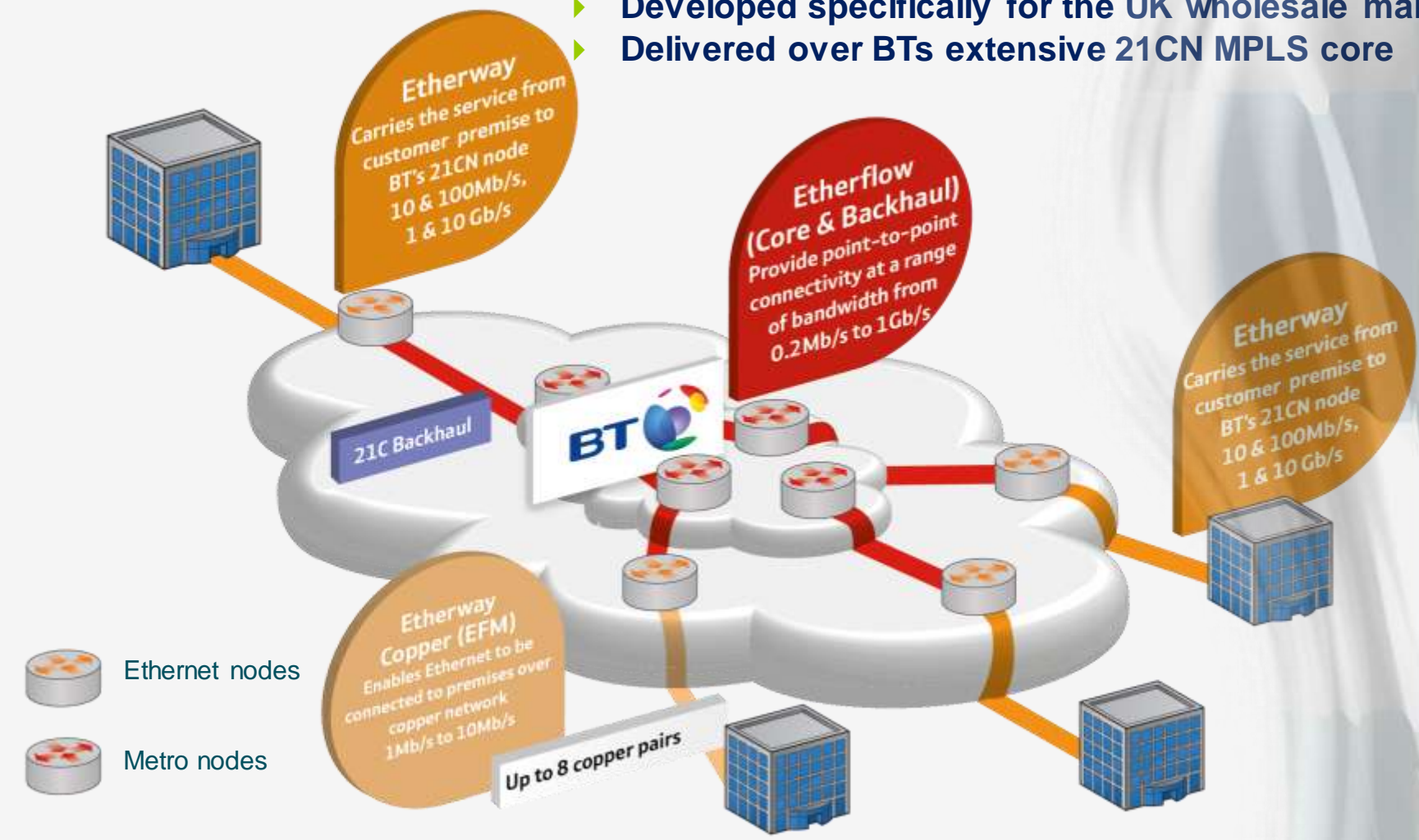
- ▶ Increasingly recognised as a high quality, flexible, versatile & cost efficient product
- ▶ Integrates all IP services
- ▶ One-stop-shop for WAN connectivity supporting point to point, hub and spoke, partial and full connectivity mesh topologies
- ▶ Helps customers fulfil bandwidth demand for hungry apps
- ▶ Delivers all the cost benefits and efficiencies of convergence
- ▶ Builds the foundations of Cloud based services





BT wholesale

WHOLESALE ETHERNET KEY COMPONENTS

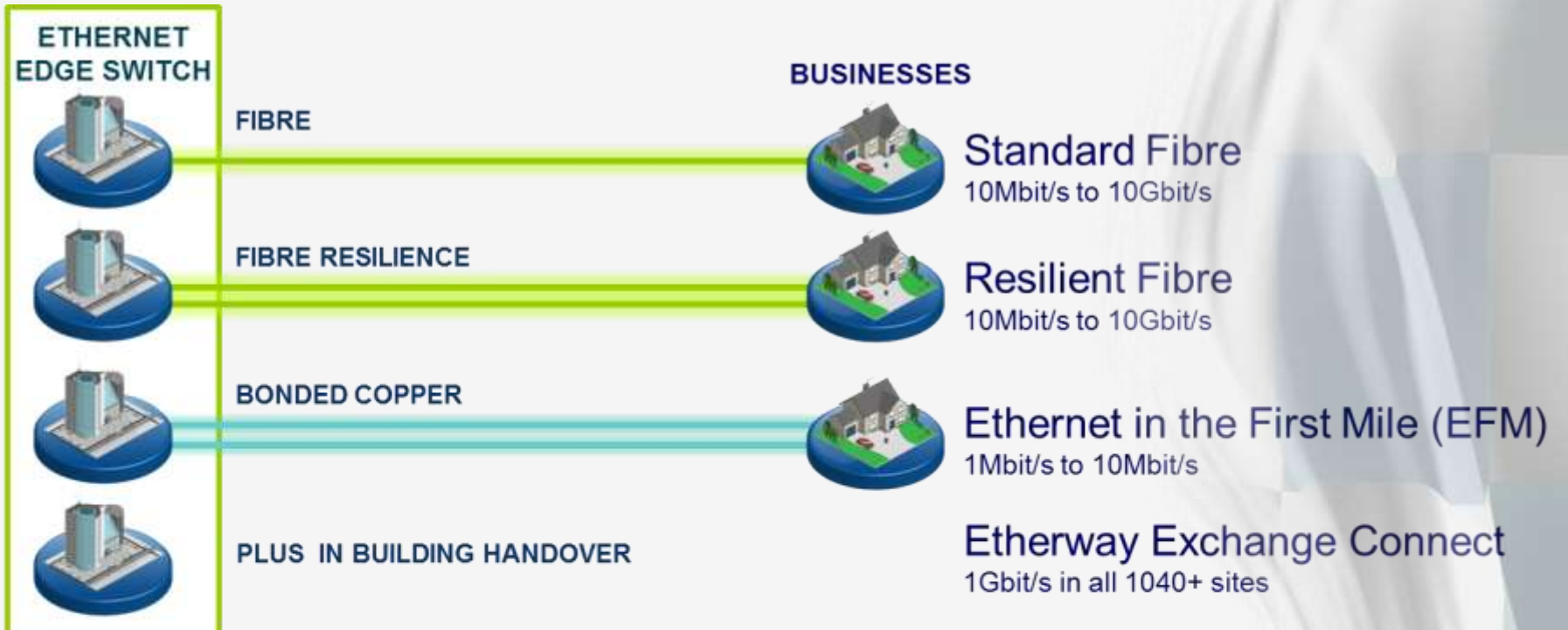
- ▶ A national, layer 2 connectivity product
- ▶ Developed specifically for the UK wholesale market
- ▶ Delivered over BT's extensive 21CN MPLS core



 Ethernet nodes
 Metro nodes



ACCESS CHOICE & FLEXIBILITY



AND COMING SOON...



UK-WIDE REACH

A leading Ethernet fibre and copper network provider in the UK

1,065

Live fibre Ethernet nodes

1,143

Fibre Ethernet nodes already scheduled

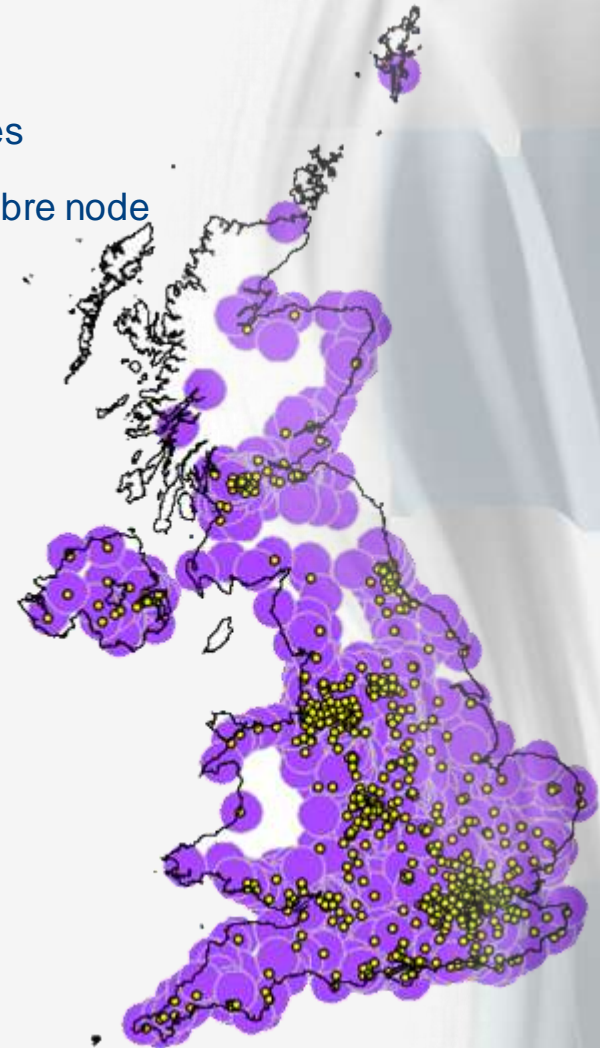
721

Live Ethernet in the First Mile (EFM) nodes

Rollout strategy under review:

- EFM enablement of fibre only nodes
- EFM only PoPs
- New node build prioritisation

- EFM nodes
- Ethernet fibre node



BT wholesale

CUSTOMER EXPERIENCE IS TOP OF OUR AGENDA

High delivery targets within specified timescales, for example:

- ▶ Etherway delivery in 33 working days at new customer sites
- ▶ Ethernet in the First Mile (EFM) provision lead time of 25 working days from all nodes
- ▶ Etherflow circuits within a working day
- ▶ Existing Etherflow bandwidth modifications in 30 minutes

Portal enabling ~real-time service configuration, service modification and fault diagnostics

End-to-end repair Service Level Guarantees

- ▶ Fibre and Copper Access SLGs
- ▶ Service Performance targets focused on quality and stability
- ▶ Range of diagnostic capabilities

Range of resilience options

- ▶ Design against specific customer requirements
- ▶ Physical and logical resilience addressed



BT wholesale

SECURITY STANDARD FOR NEXT GENERATION NETWORKS ACHIEVED

Wholesale Ethernet components fully meet Government's criteria

Certified for public sector communications, for example:

- ▶ For carrying legal documentation
- ▶ For meeting FSA compliances

Certification covers:

- ▶ Fibre, EFM, EEC & radio access
- ▶ 21CN core & backhaul

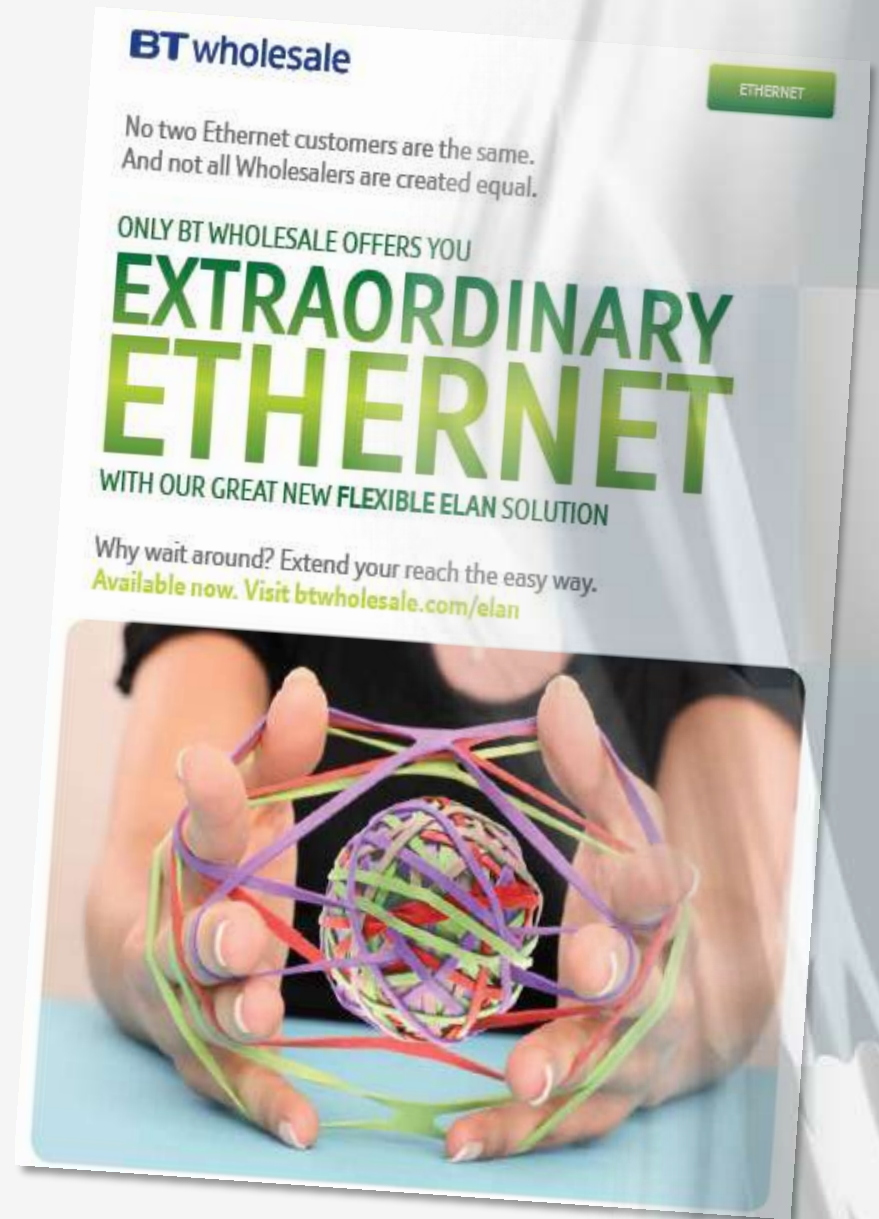
CIL2.2.4 ASSURED



BT wholesale

BT LAUNCHES E-LAN - Cloud Enablement

- ▶ An extension of a customer's private LAN over the WAN
- ▶ Opens up layer 2 any-to-any VPN services
- ▶ Introduces a range of QoS options
- ▶ Supports the growth of dynamic traffic routing requirements and Cloud based services



BT wholesale

ETHERNET


No two Ethernet customers are the same.
And not all Wholesalers are created equal.

ONLY BT WHOLESALERS OFFERS YOU

EXTRAORDINARY ETHERNET

WITH OUR GREAT NEW FLEXIBLE ELAN SOLUTION

Why wait around? Extend your reach the easy way.
Available now. Visit btwholesale.com/elan



BT wholesale

SO WHAT'S E-LAN?

Any-to-any connectivity within a Closed User Group

Introduces multiple classes of service support

- ▶ Offers customer control over traffic prioritisation
- ▶ Default-CoS & Multi-CoS options

BENEFITS:

Simpler & more cost effective way to interconnect a large number of sites

Improves scalability of customers' routers

Any-to-any service independent of customers' L3 services

Ability to support multiple E-LANs per Etherway



BT wholesale

E-LAN SERVICE COMPONENTS

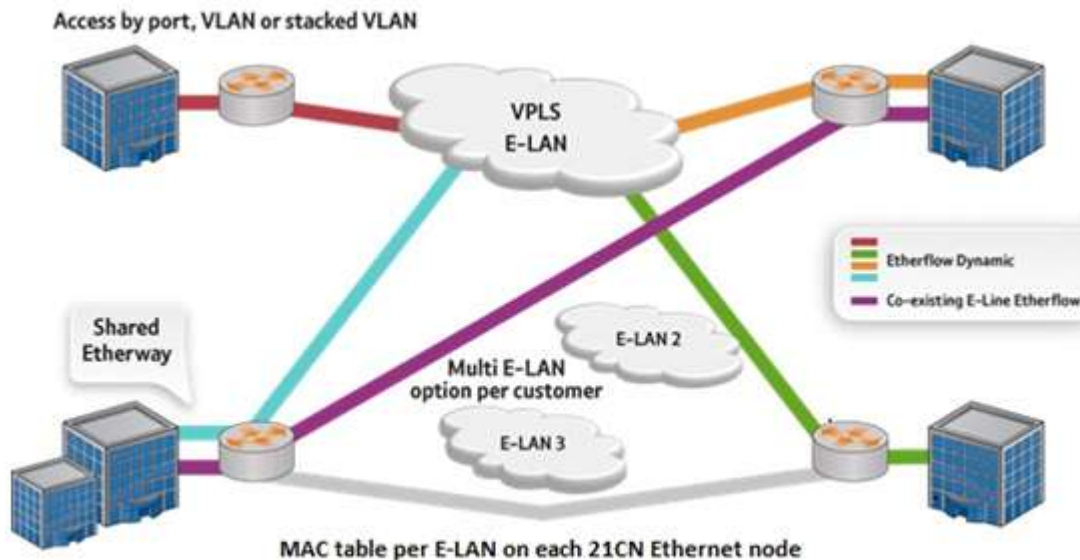
ETHERWAYS (ETHA)
Fibre & copper Etherways can support mix of Standard (point-to-point) Etherflows & E-LAN Etherflows



E-LANS (ETHE)
Not chargeable but needs to be ordered to enable configuration & specified as subsequent sites are added to the E-LAN



ETHERFLOW DYNAMIC (ETHD)
Will provide connectivity from an Etherway to an E-LAN (rather than Etherway to Etherway). Will have attributes of VLAN ID, bandwidth and CoS profile



- ▶ Default-CoS option equivalent to current Standard product with DE capability
- ▶ Multi-CoS option with five Real-Time percentage options



ETHERWAY RADIO ACCESS

– Target launch November 2011

Bandwidth

- ▶ Access Bandwidth 100Mbit/s
- ▶ All Etherflow options up to 100Mbit/s supported

Availability

- ▶ From all Wholesale Ethernet fibre nodes
- ▶ Up to 14km line of sight
- ▶ Single hop only option

Ordering

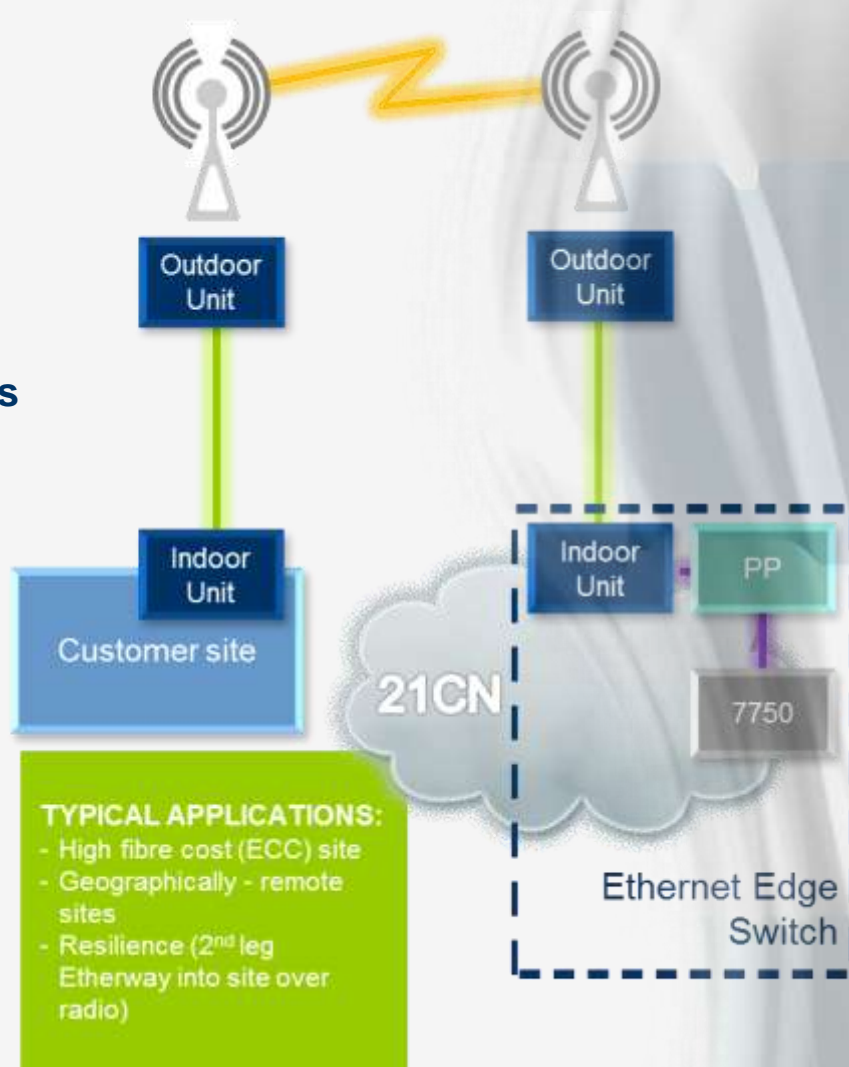
- ▶ Ordering is by CRF
- ▶ Chargeable pre order survey required (target 10 days)
- ▶ 30 day delivery target

Spec

- ▶ VLAN or port based
- ▶ Over booking can be supported (up to 300%)

Pricing

- ▶ To be announced



EFM DEVELOPMENTS

Ability to choose two pair minimum

- ▶ Bandwidth per pair returned allowing customers to choose minimum of 2 pair.

Ultra short line – bandwidth increased from 10Mbit/s - up to 35Mbit/s

- ▶ Higher bandwidth per pair on ultra short lines up to 1.2km
- ▶ Lower cost through reduced number of pairs
- ▶ 10Mbit/s limit removed

Pro-active monitoring

- ▶ Initiated if bandwidth falls below provided level



BT wholesale

Summary

- ▶ **Connectivity underpins Cloud services and beyond**
- ▶ **As more services and applications move into the 'cloud' the access to those services becomes even more critical**
- ▶ **Stability and availability of Cloud services is immaterial unless that is underpinned by robust connectivity solutions**
- ▶ **Ethernet is playing an increasingly important role in both connectivity and wider Cloud portfolios**
- ▶ **Wholesale Ethernet not only underpins our own Cloud based portfolio strategy but is the connectivity building block to help support our CP customers as well**





BT wholesale

Thank You

Paul Beacham
BT Wholesale
Head of Ethernet Product Management

Legal disclaimer: Information is accurate at the time of issue but is subject to change. Applicable BT standard terms and conditions apply. Plans are indicative only and will, where applicable, be subject to the successful outcome of any trial and to any legal and regulatory approvals being given.

