

# ITSF 2011

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# What Carriers Are Saying About Packet Backhaul

**“It’s been a huge challenge in operational processes, technology and commercial negotiations, but with nearly 10,000 cell sites now served with 100Mbit/s Ethernet backhaul, I can say ‘we got there.’ ”**

*Rob Thomas, Director of Product Solutions*

***BT Wholesale (U.K.)***

April 2011

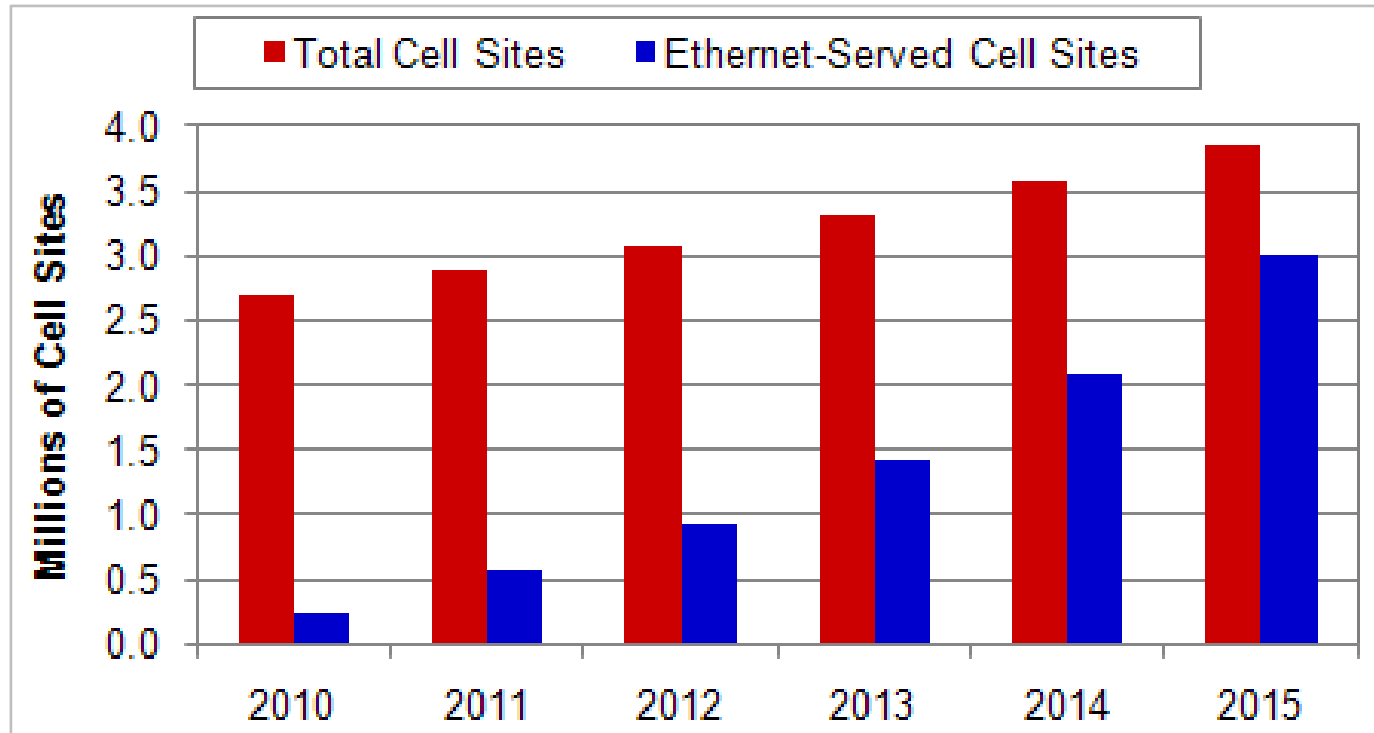
**“Eighteen months ago I was losing sleep over Ethernet backhaul, but I’m not losing sleep anymore.”**

*Nicki Palmer, VP, Network*

***Verizon Wireless (U.S.)***

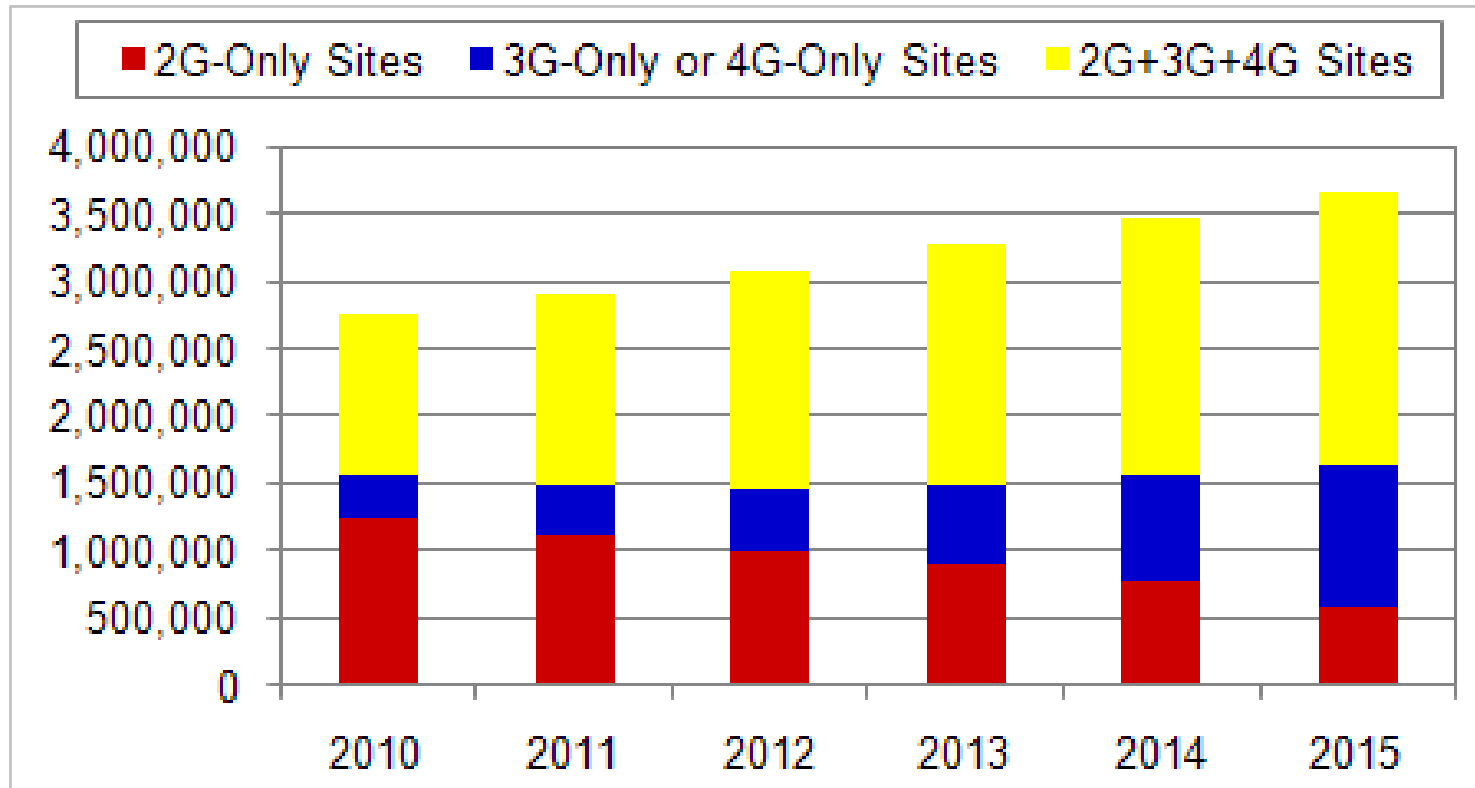
October 2010

# The Global Rate Of Adoption Of Ethernet Backhaul



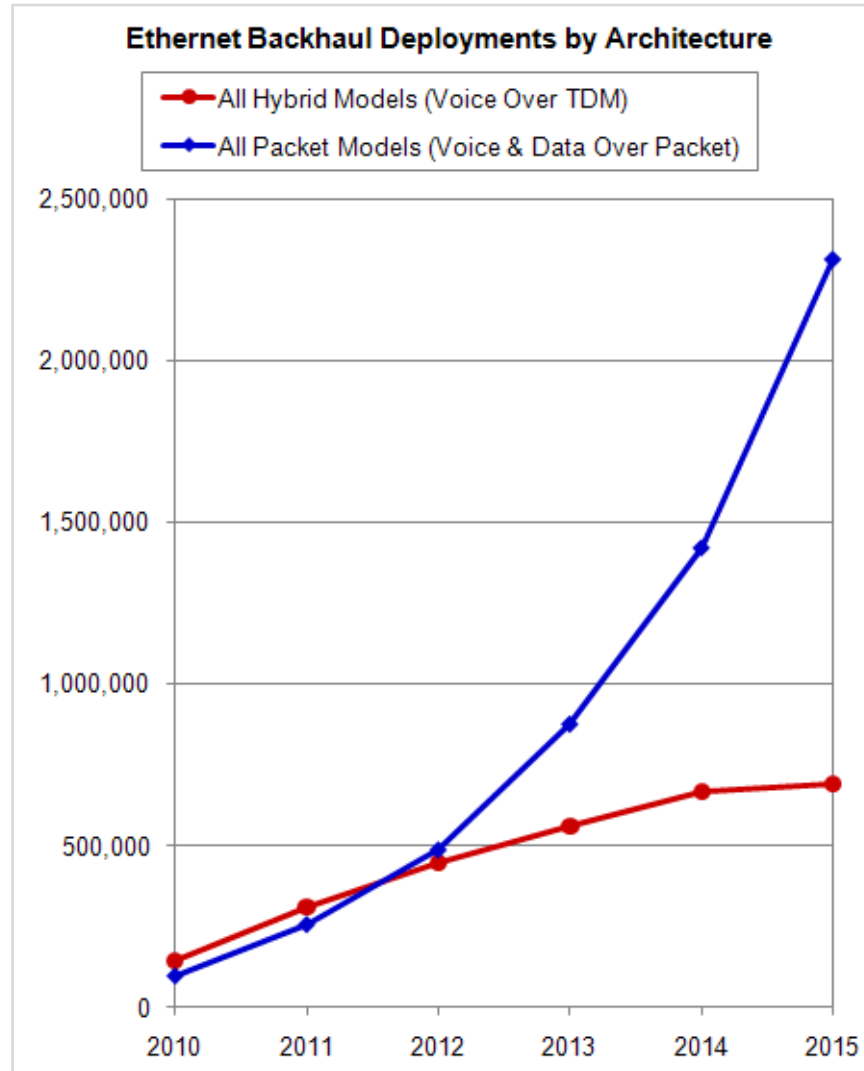
Source: Heavy Reading's Ethernet Backhaul Quarterly Tracker Service , July 2011

# Global Cell Site Forecast



Source: Heavy Reading's Ethernet Backhaul Quarterly Tracker Service , July 2011

# From Hybrid To Pure Packet Backhaul



Source: Heavy Reading's Ethernet Backhaul Quarterly Tracker Service , July 2011

# Operators Gravitate Towards 1588v2 and SynchE

Question 25 asked “On a scale of 1 to 5, where 5 is “highly likely” and 1 is “not likely at all,” please rate the likelihood that your company will adopt the following synchronization solutions as its preferred approaches to provide synchronization of packet backhaul over the next three years”

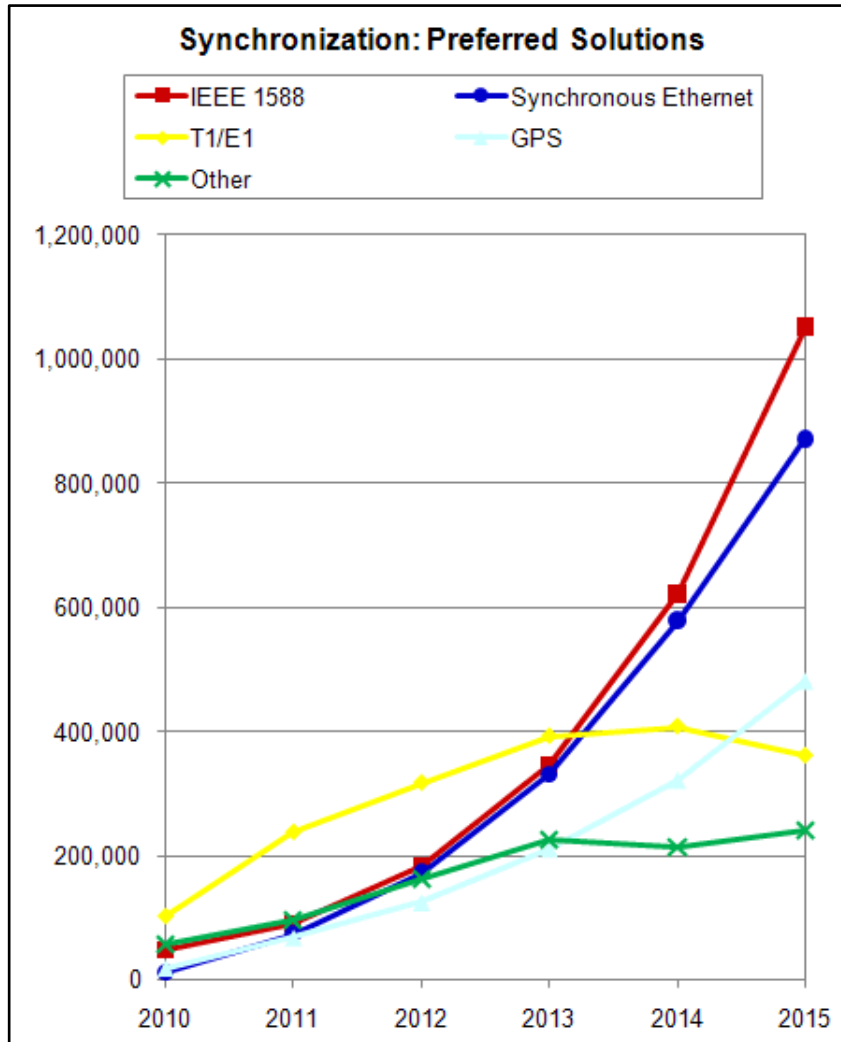
Figure 3: Average Operator Ranking (Out of 5) for Different Synchronization Solutions

	DECEMBER 2009	DECEMBER 2010
IEEE 1588v2	3.4	3.7
Synchronous Ethernet	3.6	3.7
GPS	3.0	3.1
Leaving a T1/E1 at the cell site	3.4	3.0
NTP	2.5	2.7
Adaptive Clock Recovery	2.4	2.4
NTR	2.3	2.4
Other proprietary solution	2.0	2.0

Source: Heavy Reading Mobile Backhaul Survey, December 2010; 83 respondents

- 5<sup>th</sup> annual backhaul survey
- December 2010
- E1s need to come out.
- Standards based solutions
- Synch E support consistent.
- 1588v2 momentum.
  - Wariness of packet technology
  - Initial protocol implementations & E backhaul were error prone.
  - Ethernet backhaul stability/QoS
  - Industry collaboration (TP, HW, T&M, IOT, ICAP, pre-integrated vendor blue-prints)
  - Time/Phase.
  - Proof-points
  - Acceptance- like E backhaul, PWE, IPsec

# Mobile Backhaul Synchronization Forecast



- Changes quarterly
- No account of 'Any2 will do'.
- Directed by annual survey
- E1 dependency in decline.
- 1588v2 and Synch E.
- TD-LTE, FDD features, packet smarts, SynchE upgrades
- GPS/Other GNSS
- Challenge

Source: Heavy Reading's Ethernet Backhaul Quarterly Tracker Service , October 2011



**HEAVY  
READING**

## White Paper

# IEEE 1588 Timing for Mobile Backhaul: The Road to “Plug & Play”



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# Thank you

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