

# IP Ethernet in Mobile Backhaul Infrastructure

---



San Jose, CA

Thursday, 24 June, Track II, Infrastructure & Technology Trends

Presented by

**Michael Howard**

Co-founder and Principal Analyst, Carrier and Data Center Networking  
Infonetics Research

**INFONETICS  
RESEARCH**

# Today's Speaker

---



**Michael Howard**

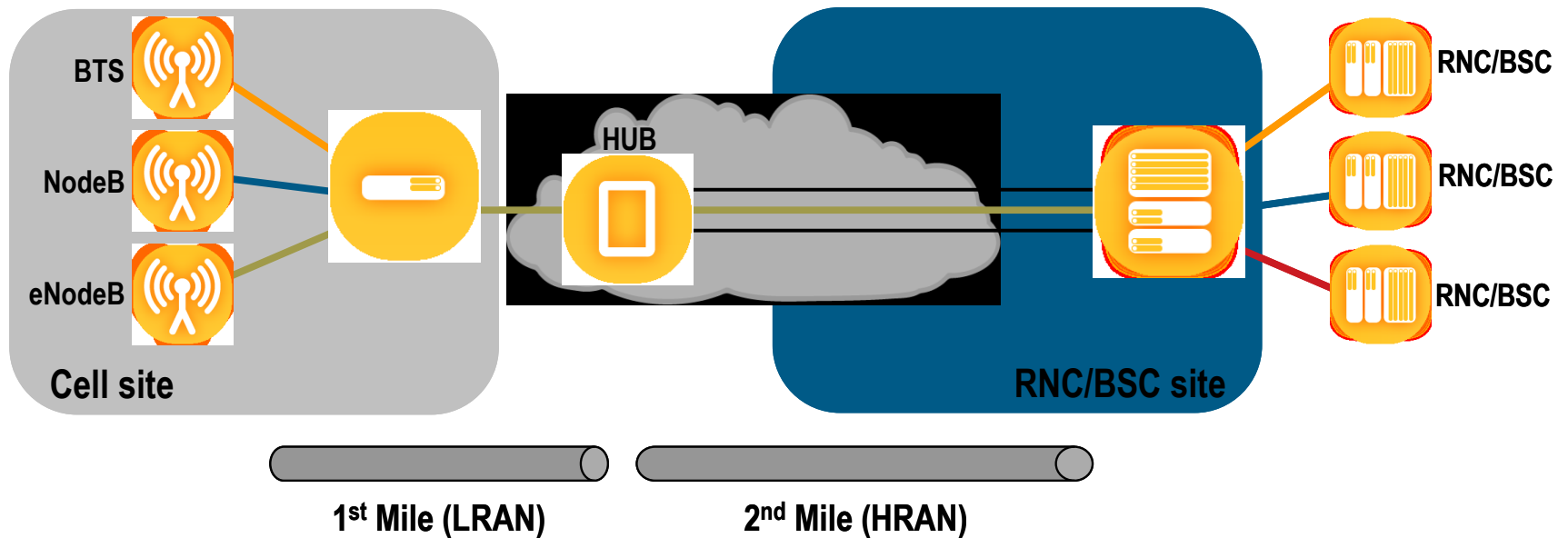
Principal Analyst and Co-founder

# The Ethernet market is moving

---

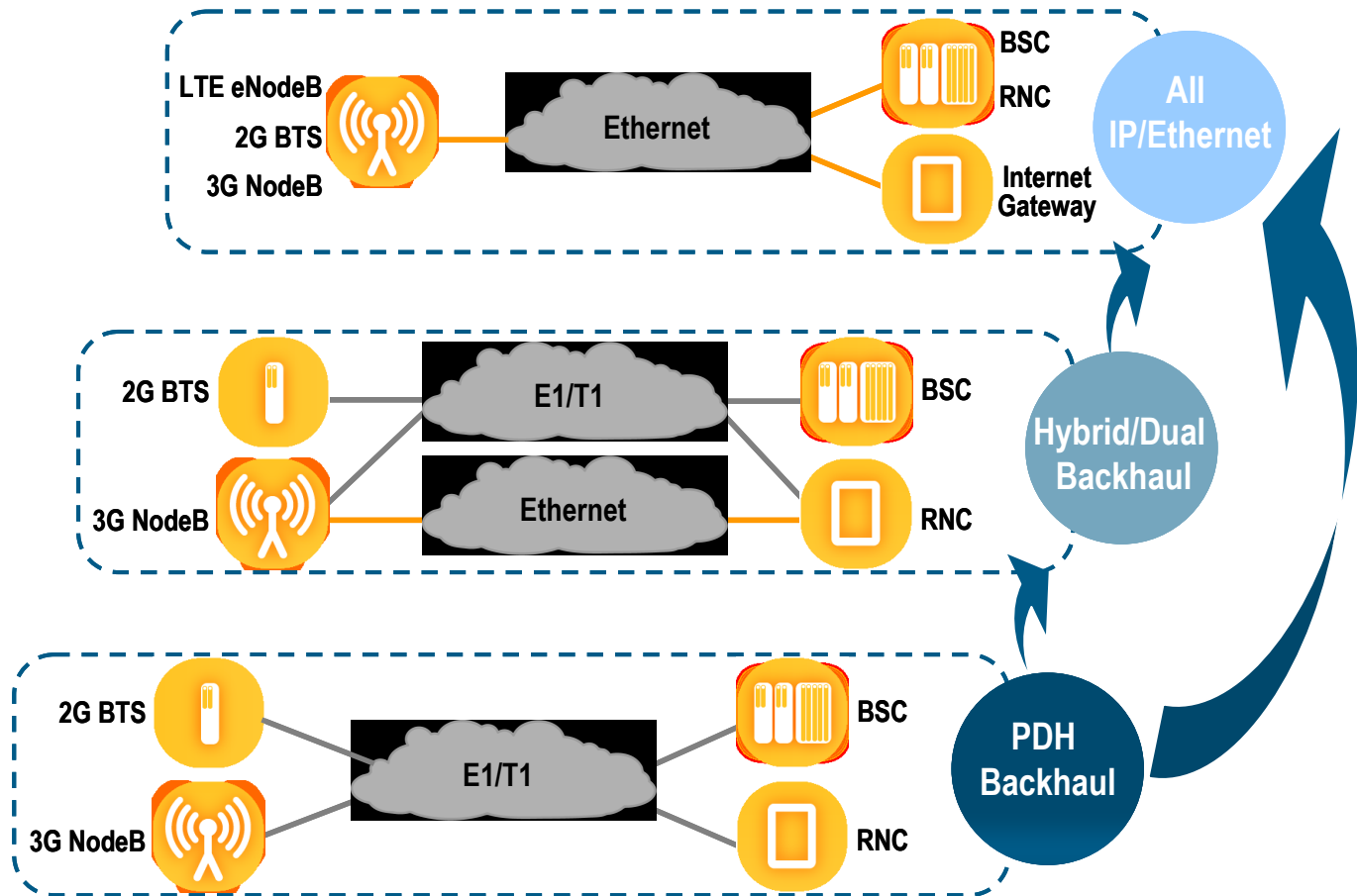
- Providers are investing in **Ethernet *equipment***
  - 2009: **\$22 billion**
  - 2014: **\$32 billion**
  - Cumulative **US\$149 billion** between 2010 and 2014
  - Routers, CE Switches, Ethernet over SDH/SONET and WDM, Ethernet microwave, EPON, VDSL, EADs
- \$Billions of **Ethernet *services*** revenue worldwide
  - 2009: **\$21 billion**
  - 2014: **\$39 billion**

# What is mobile cell site backhaul?



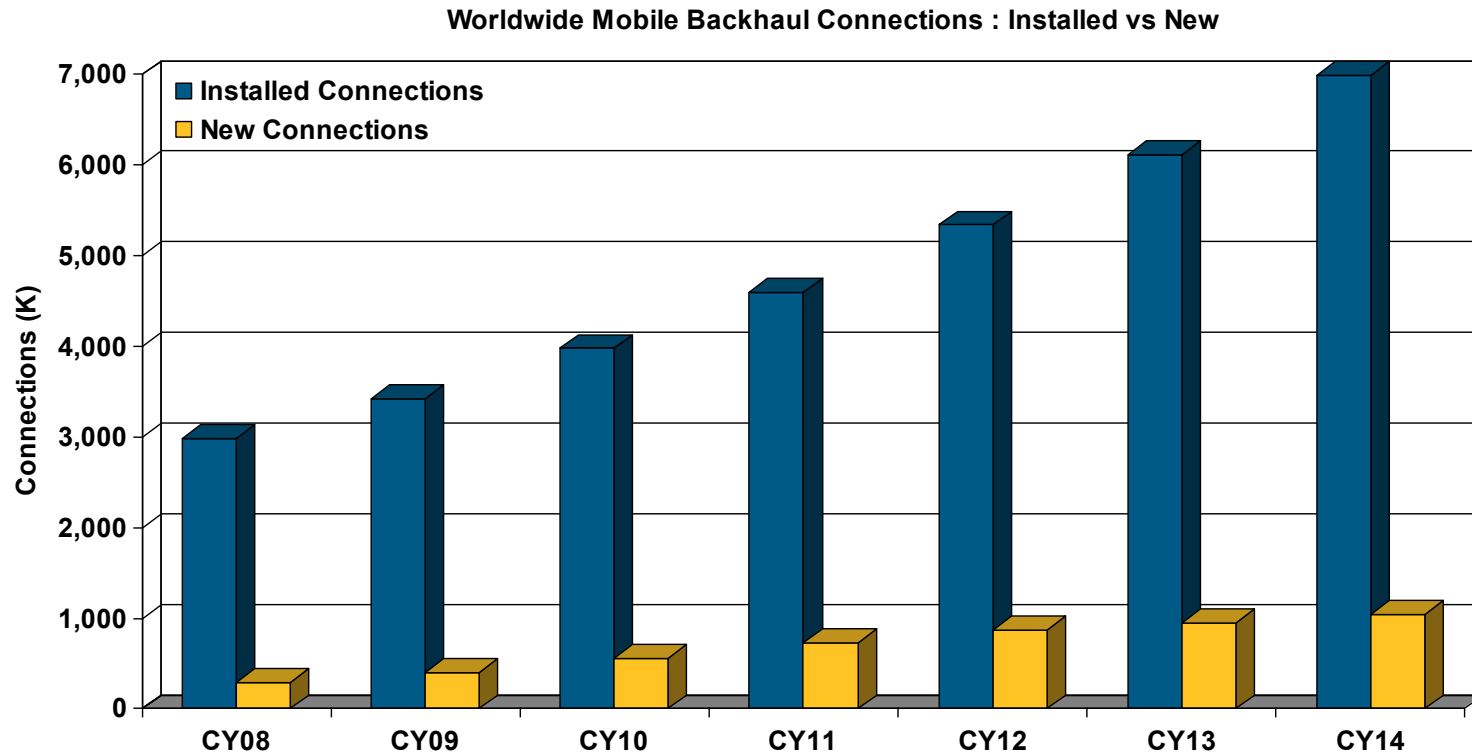
Network between the BTS/NodeBs at a cell site to the BSC/RNC site, whether over air, copper, or fiber

# 3 stages of IP/Ethernet backhaul to LTE



IP/Ethernet backhaul solves ARPU-traffic disconnect today and backhaul problem for HSPA today...and LTE tomorrow

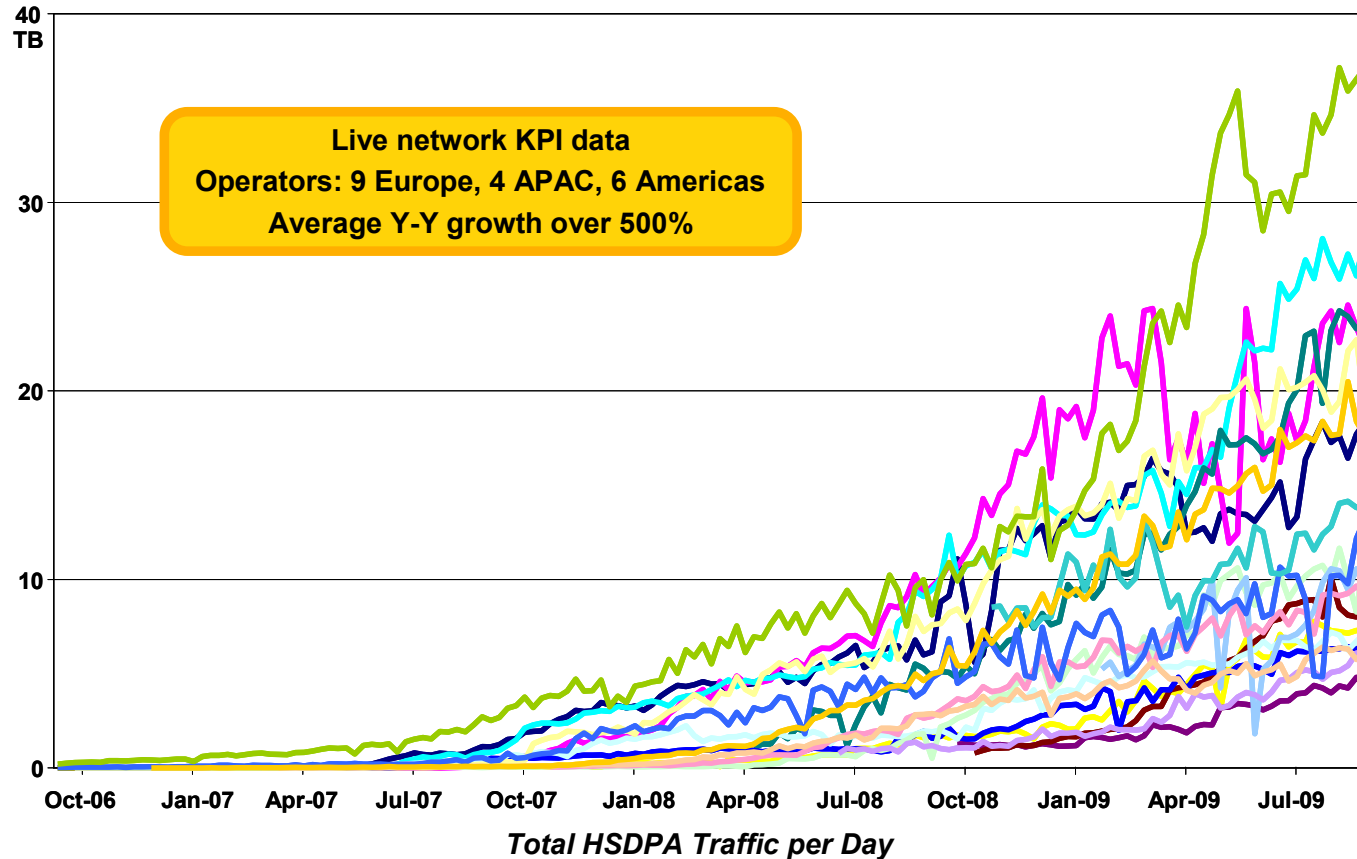
# Cell site backhaul connections increase quickly



- 2010-2014 new: ~1.4 billion mobile subs, ~1.2 billion mobile broadband subs
  - More base stations, cell site connections (and equipment for each), higher backhaul capacities
- Connections and bandwidth per connection drive equipment spending

Source: Infonetics Research *Mobile Backhaul Equipment and Services*, April 2010

# ...And data dramatically increases traffic load

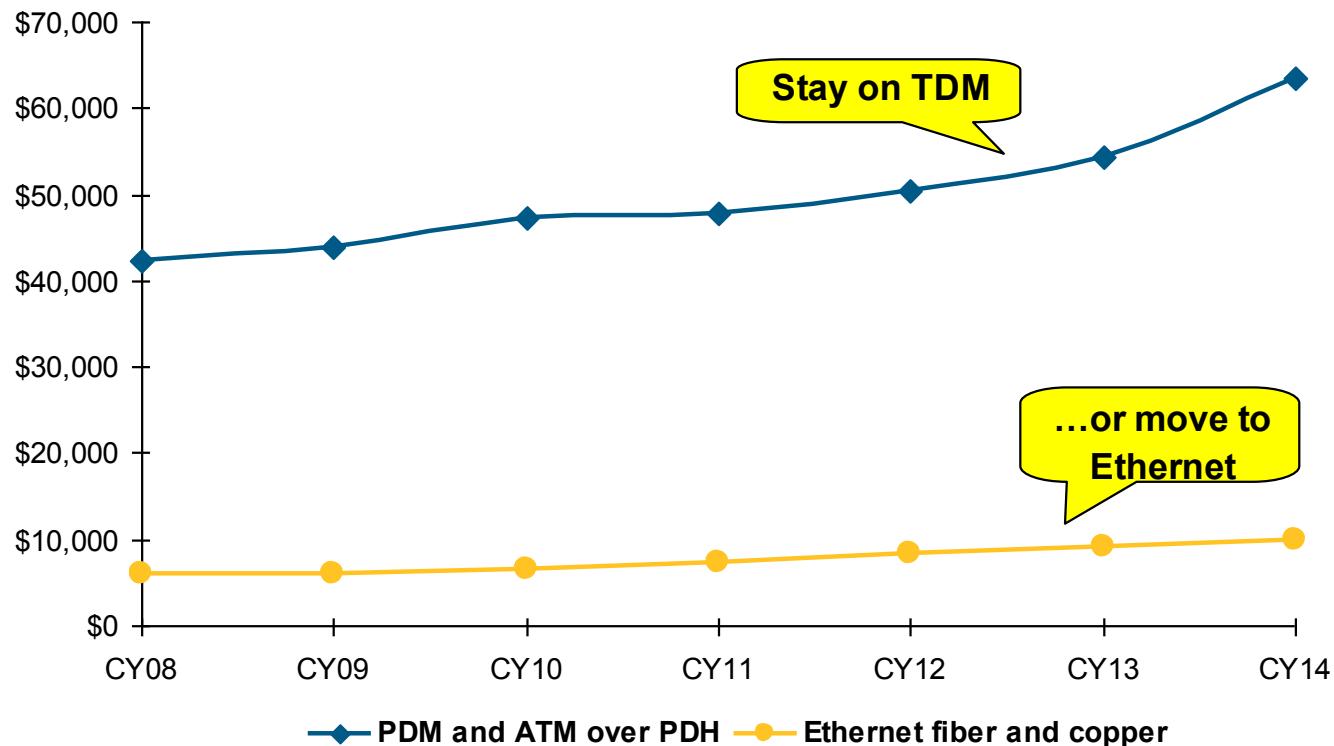


Source: Nokia Siemens Networks

Operators increasing capacities via EDGE, EV-DO, HSPA, WiMAX, LTE

.....But flat to slow ARPU changes

# Costs drive operators to IP/Ethernet backhaul

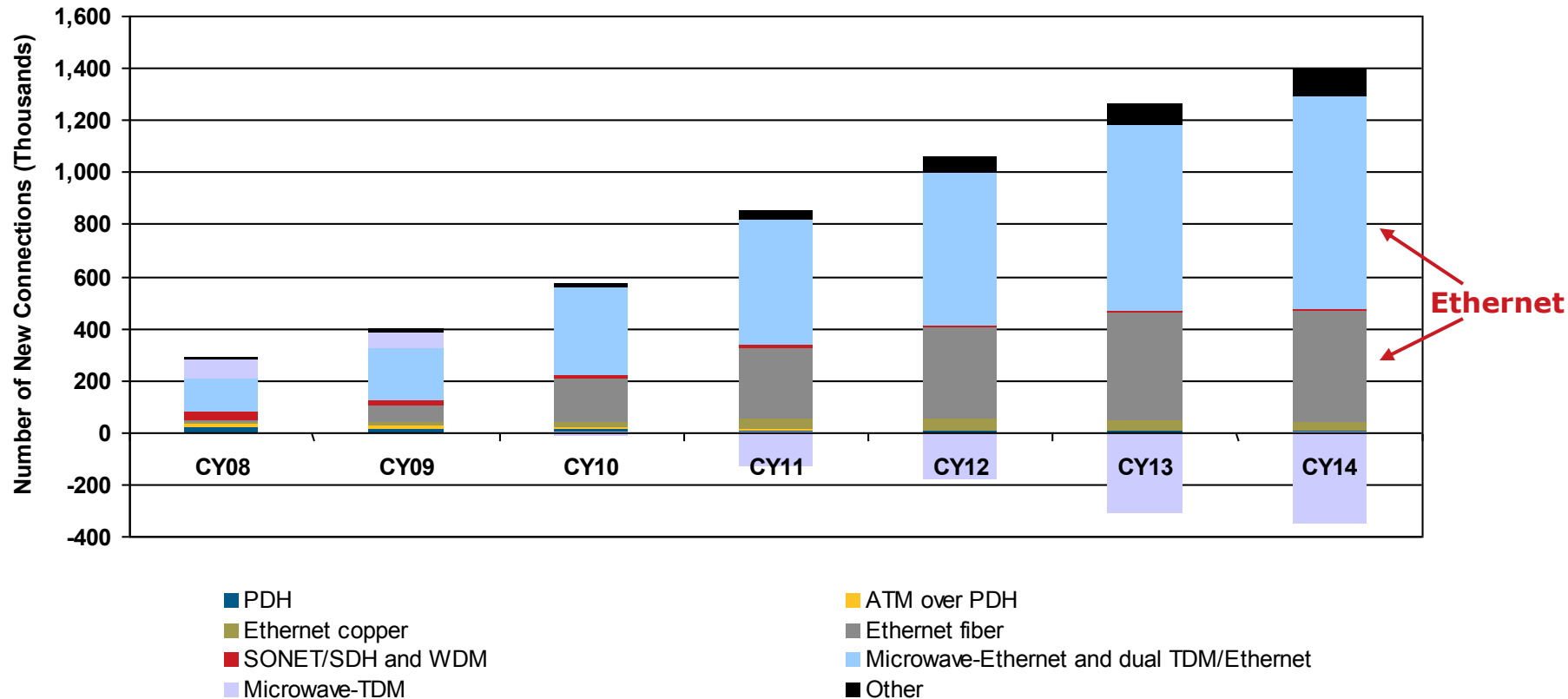


- Costs based on backhaul capacities required by technology, and MRCs for services
- Ethernet offers huge drop in cost-per-bit of bandwidth that almost matches the 2x to 10x traffic increases HSPA delivers
- IP/Ethernet naturally fits WiMAX and LTE as well



# New cell site connections go Ethernet

Worldwide Mobile Backhaul New Connections by Technology



New connections move quickly to mostly IP/Ethernet, whether fiber, copper or air

# Mobile backhaul 2010 issues

---

- Ethernet solidly in operator MBH strategies
  - Majority plan dual/hybrid approach
  - Predict 50 operators will be committed to single IP/Ethernet backhaul (were 25 at end 2009)
  - LTE planning drives more Ethernet
- Mobile broadband growth continues to drive traffic and costs
- Cellsites not fiberized fast enough—opportunity for microwave and copper
- New Ethernet chipsets include MBH functions: 1588v2, SynchE, Eth OAM

# Summary

---

- Backhaul costs are the principal driver, due to traffic growth
- Operators are making the investment to move to the IP/Ethernet backhaul networks
- IP/Ethernet backhaul
  - Solves ARPU-traffic disconnect today
  - Solves backhaul problem for HSPA today
  - ...and LTE tomorrow

# Thank You

## **Michael Howard**

Co-founder and Principal Analyst, Carrier and Data Center Networks

Infonetics Research

+1 408.583.3351

[michael@infonetics.com](mailto:michael@infonetics.com)

[www.infonetics.com](http://www.infonetics.com)

The logo for Infonetics Research, featuring the text "INFONETICS" on the top line and "RESEARCH" on the bottom line, both in white, uppercase letters. The text is centered within a dark blue rectangular background that has yellow horizontal bars above and below it.

INFONETICS  
RESEARCH