



NEW PARADIGM RESOURCES

Metro Ethernet Strategies in a Web 2.0 World

New Paradigm Resources Group, Inc.
30 S. Michigan, Suite 700
Chicago, IL 60603
(312) 980-7848
www.nprg.com

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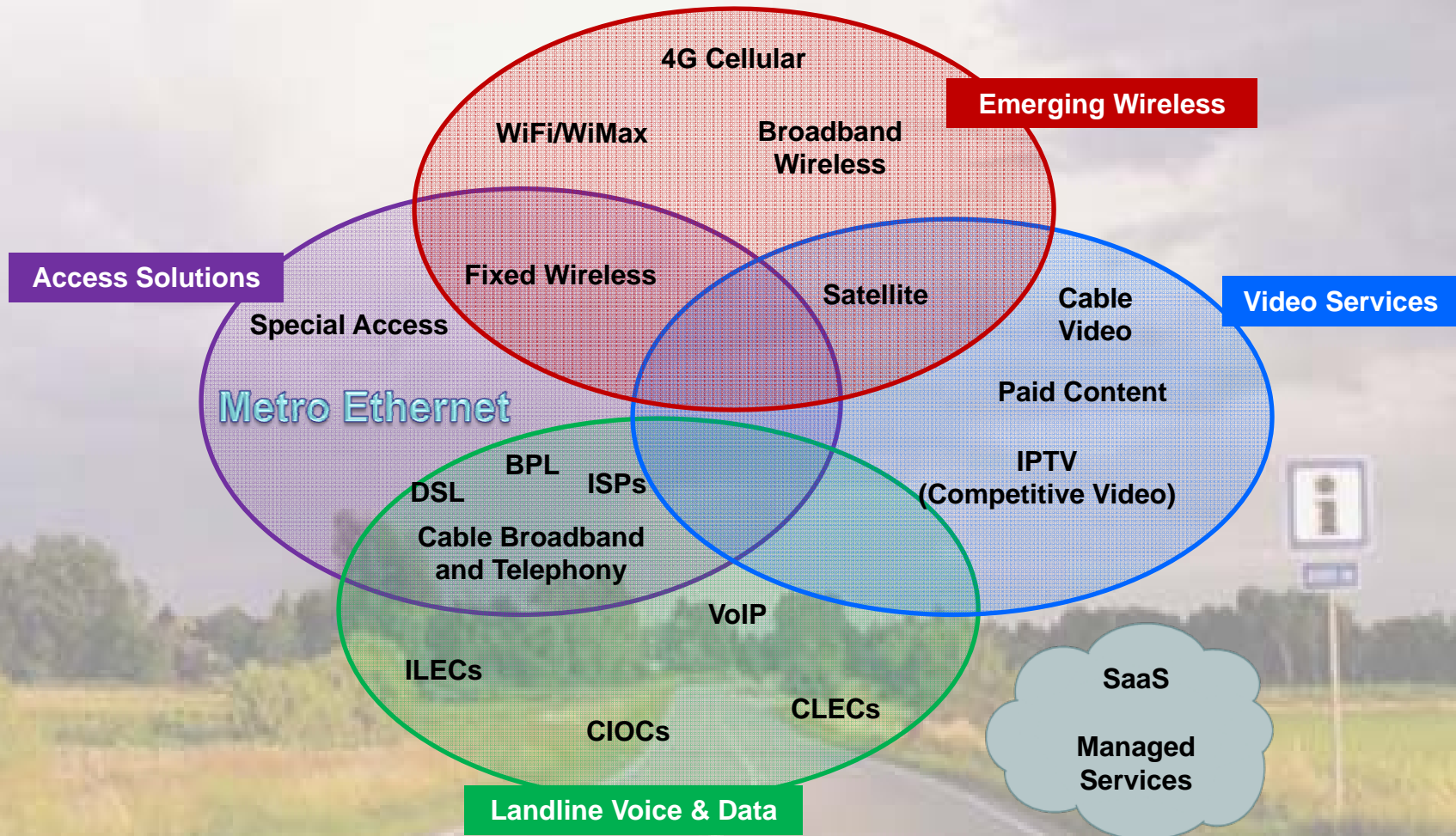
Question and Answer -- Along the Way

The Big Picture: Putting the Metro Ethernet Sector in Context

The Metro Ethernet Sector In Context: What is Metro Ethernet?

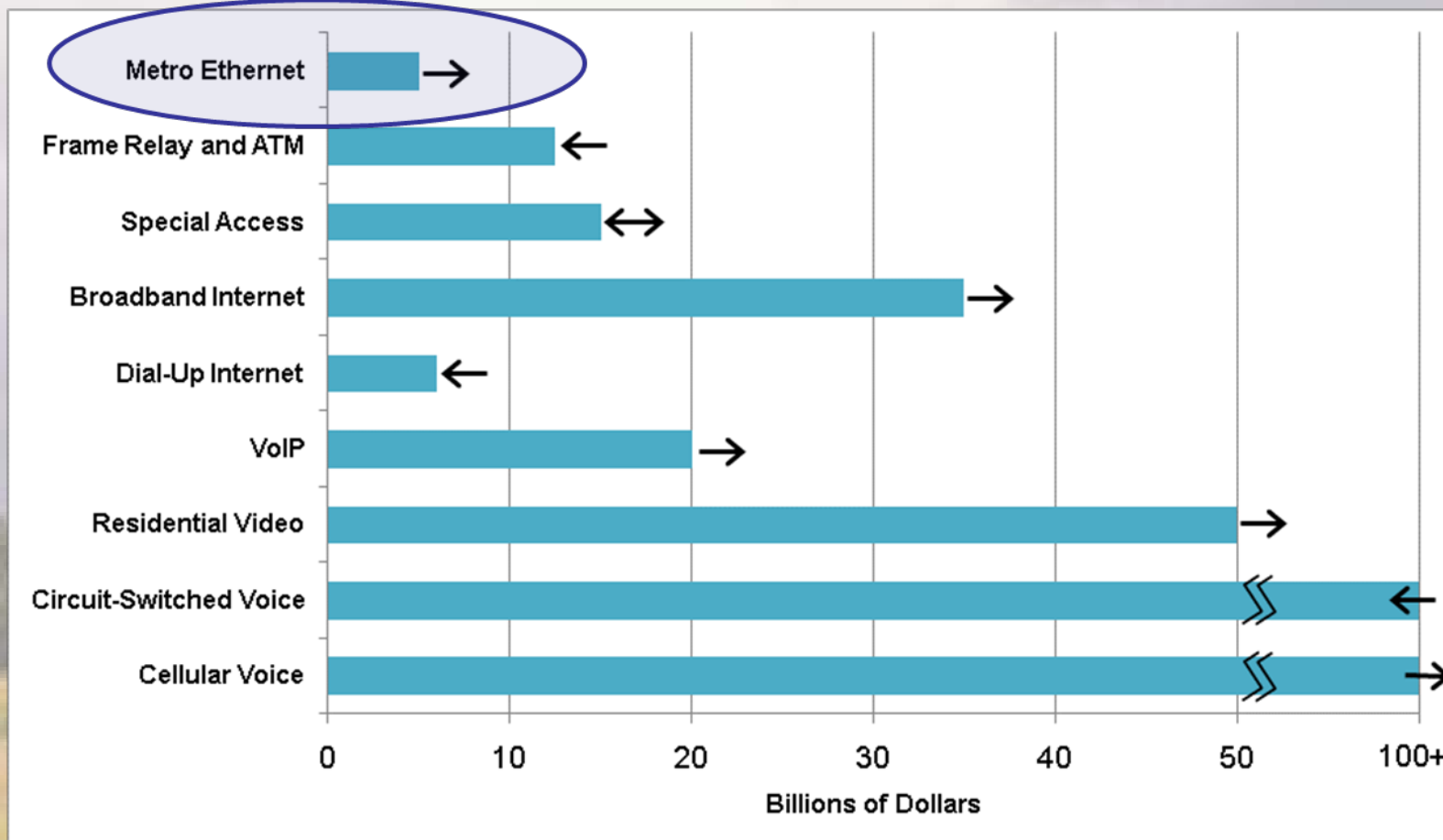
- What is the “Metro Ethernet sector”?
- What are the differences between Metro Ethernet services? Which show the most promise?
- Is Metro Ethernet being used as a replacement for basic data connectivity?
- What long term impacts will service providers feel due to continued growth and adoption of Metro Ethernet solutions?
- What are the general prospects for Metro Ethernet?

The Metro Ethernet Sector In Context: The Service Provider Universe



The Metro Ethernet Sector In Context: The Communications Services Universe

U.S. Services Sector Market Size & Direction (2008)



Source: New Paradigm Resources Group, Inc.

The Metro Ethernet Sector in Context: Key Provider Categories

Incumbent LECs



Competitive Providers



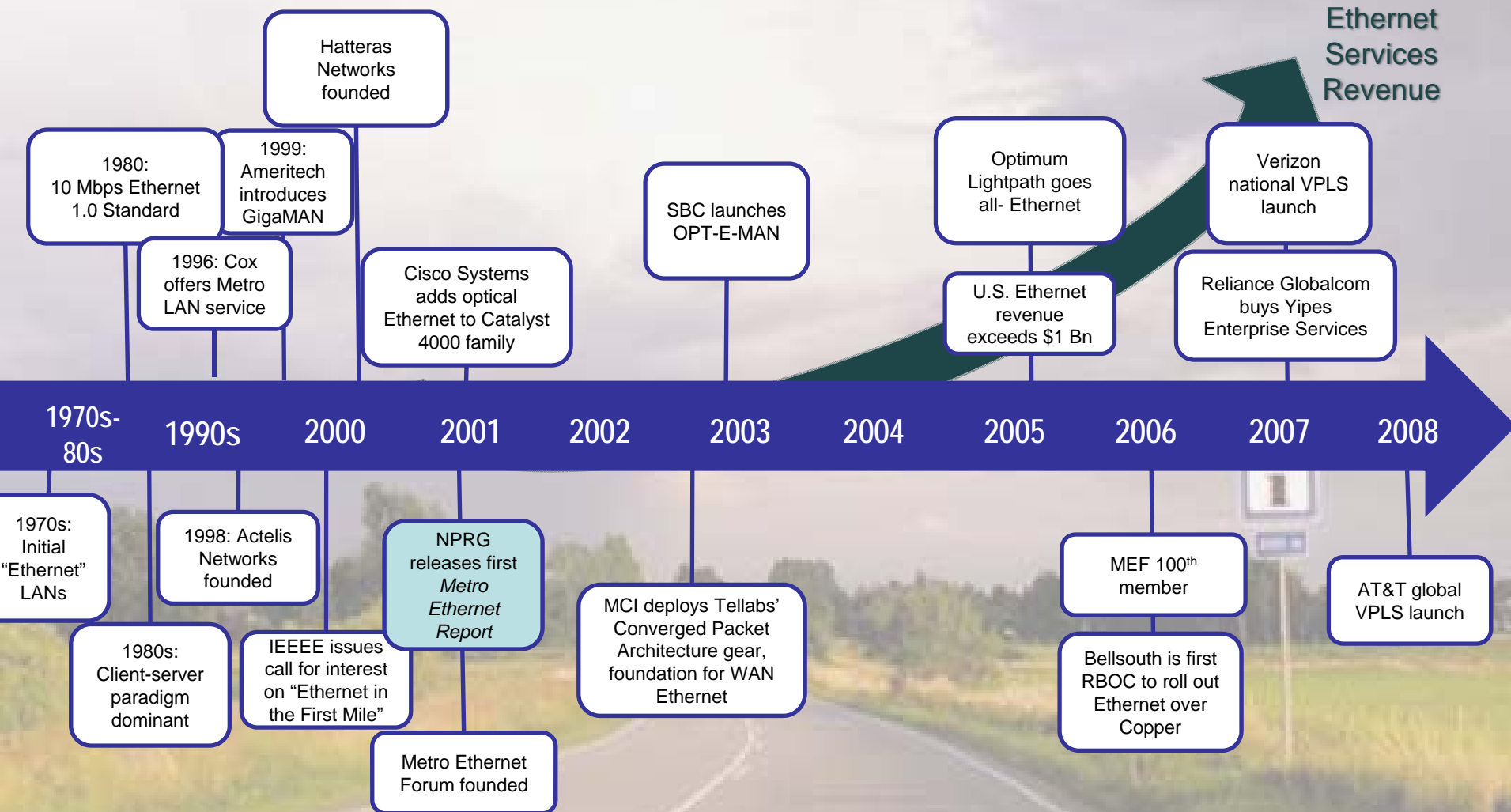
Pure Play / Fiber Network



Cable System Operators



The Metro Ethernet Sector In Context: Metro Ethernet History 101



The Metro Ethernet Sector in Context: Comparing Services

Services Comparison

Service Characteristics	DSL/Cable Modem	T-1	Metro Ethernet	Wavelengths
Growth Potential	↑	↔	↑ ↑	↑
Bandwidth Range	< 15 Mbps	1.5 Mbps	2 Mbps to 10 Gbps	> 1 Gbps
Scalability	None	Limited	High	Limited
Price per Bit	Moderate	High	Low to Moderate	Low to Moderate
Service Quality	Limited	High	Low to High	Carrier-class
Paradigmatic Equipment	Modem	CSU, IAD	Router	Multiplexer
Barriers to Entry	Moderate	Low to Moderate	Low to Moderate	High
Web 2.0 Potential	Moderate but falling	Moderate but falling	High	High

Source: New Paradigm Resources Group, Inc.

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A Closer Look at the Metro Ethernet Arena



A Closer Look at the Metro Ethernet Arena: Predominant Metro Ethernet Strategies



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Carrier Set	Strategic Objective
Pure Play / Fiber Network Oper.	<ul style="list-style-type: none"> • Disruptive: No legacy infrastructure/services to support • Target low-hanging fruit, scalable prospects
RBOC	<ul style="list-style-type: none"> • Wide net: Ethernet part of diversified portfolio • Migration: Bridge customers to next-gen services
Other ILEC	<ul style="list-style-type: none"> • Retention: Preempt disruptive competitor entry
CLEC	<ul style="list-style-type: none"> • Challenge: Enterprise capabilities to mid-market at lower price-points
Cable MSO	<ul style="list-style-type: none"> • Equalizer: Scalable business services with incremental upgrade to existing architecture
Global Providers	<ul style="list-style-type: none"> • Beachhead: Offer comparable international networking on the RBOCs' own turf

A Closer Look at the Metro Ethernet Arena: Providers & Target Customer Sets

Customer Segment

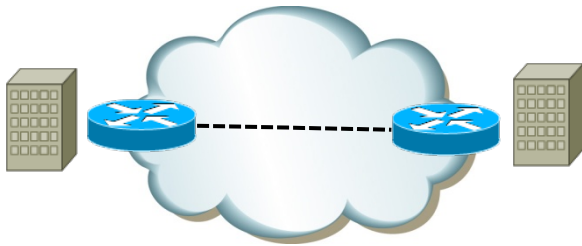
	SMB	Large Enterprise	Wholesale
Provider Sector	Pure Play / Fiber Network Operators		👍👍
	RBOC	👍	👍👍
	Other ILEC	👍👍	👍
	CLEC	👍👍	👍👍
	Cable MSO	👍👍	👍
	Global Providers		👍👍

👍👍 = Primary Target

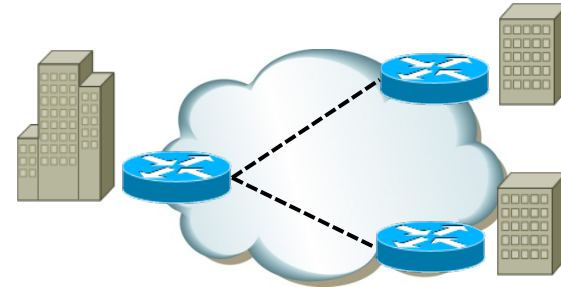
👍 = Secondary Target

A Closer Look at the Metro Ethernet Arena: Key Metro Ethernet Services

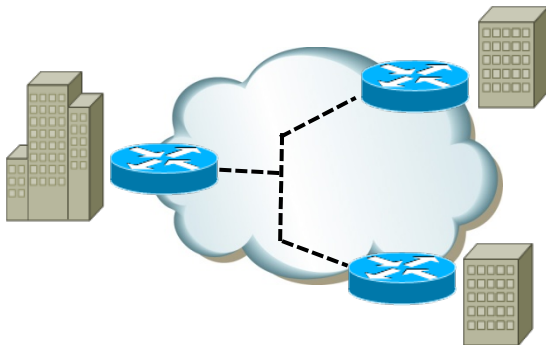
Ethernet Private Line (EPL)



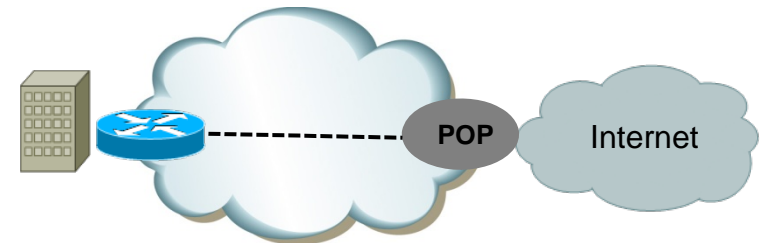
Ethernet Virtual Private Line (EVPL)



Ethernet Virtual Private LAN (VPLS)



Dedicated Internet Access (E-DIA)



A Closer Look at the Metro Ethernet Arena: Key Metro Ethernet Services Trends

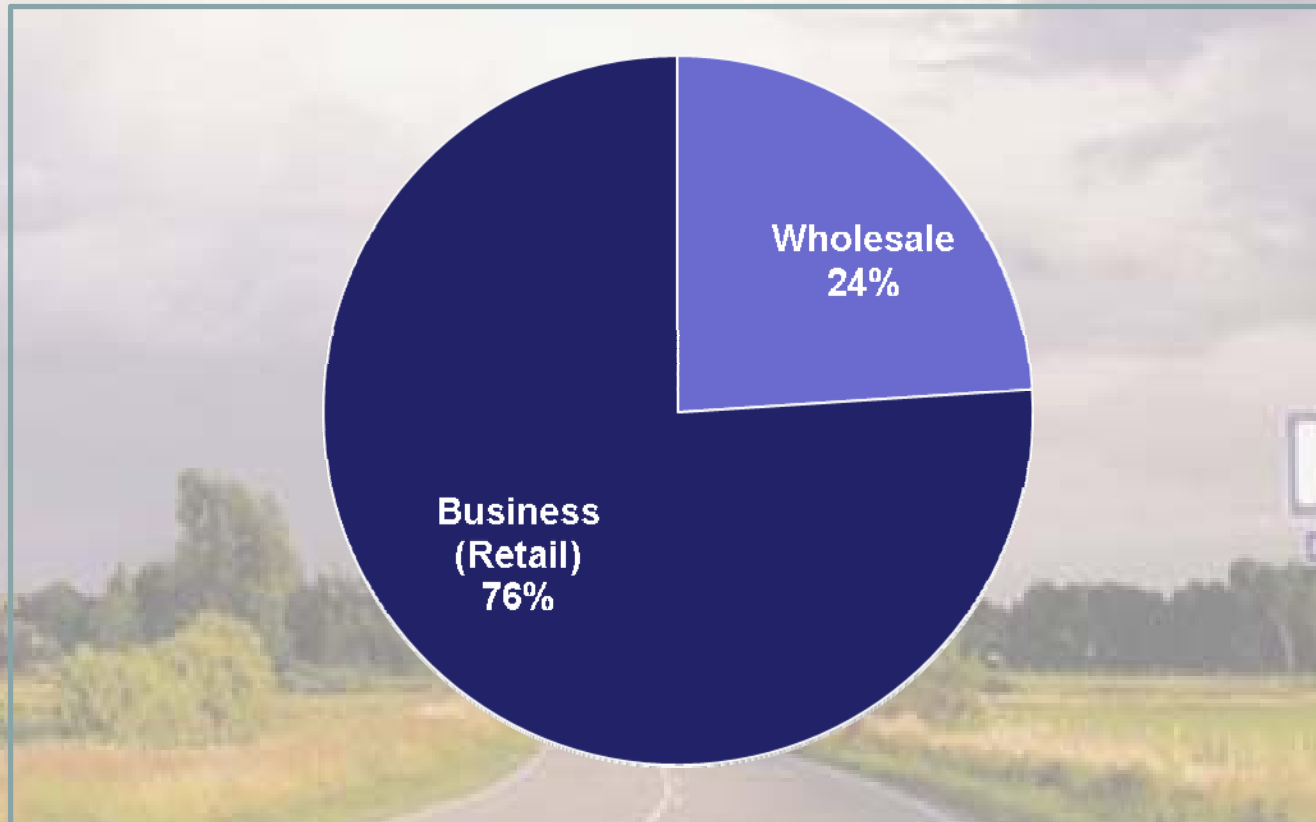
Ethernet Service	Application Trends
EPL	<ul style="list-style-type: none">• Medical / Healthcare (imaging, patient data)• Education (E-Rate K-12, videoconferencing)• Data centers, storage, disaster recovery
EVPL	<ul style="list-style-type: none">• Enterprise branch offices (retail, banks)• Financial services & transactions (data transfer)• Mobile backhaul
VPLS	<ul style="list-style-type: none">• Extend any-to-any communication across MPLS network• Enterprise VoIP networks
E-DIA	<ul style="list-style-type: none">• Content delivery• Small business (web-centric, multimedia, engineering)

Critical Market Drivers include:

- Growing end-user acceptance
- Bandwidth demand increasing
- Lower service pricing: traffic is “just bits”
- Equipment quality and pricing
- WAN expansion
- Bandwidth-intensive applications
- Robust SLAs and Classes of Service (CoS)
- Services integration / Continued network convergence

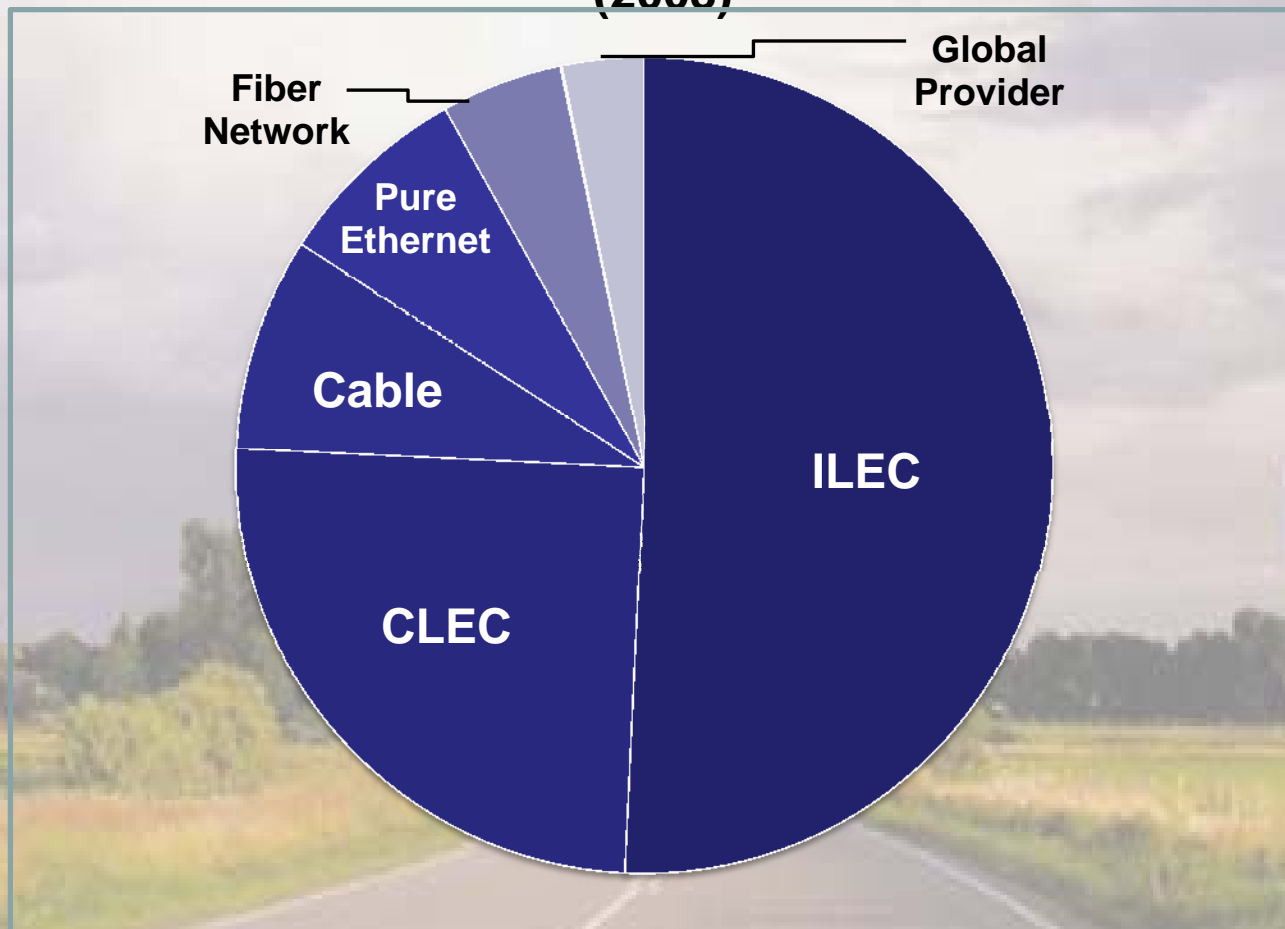
A Closer Look at the Metro Ethernet Arena: Metro Ethernet Market by Customer Segment

Share of Ethernet Revenue by Customer Segment (2008)



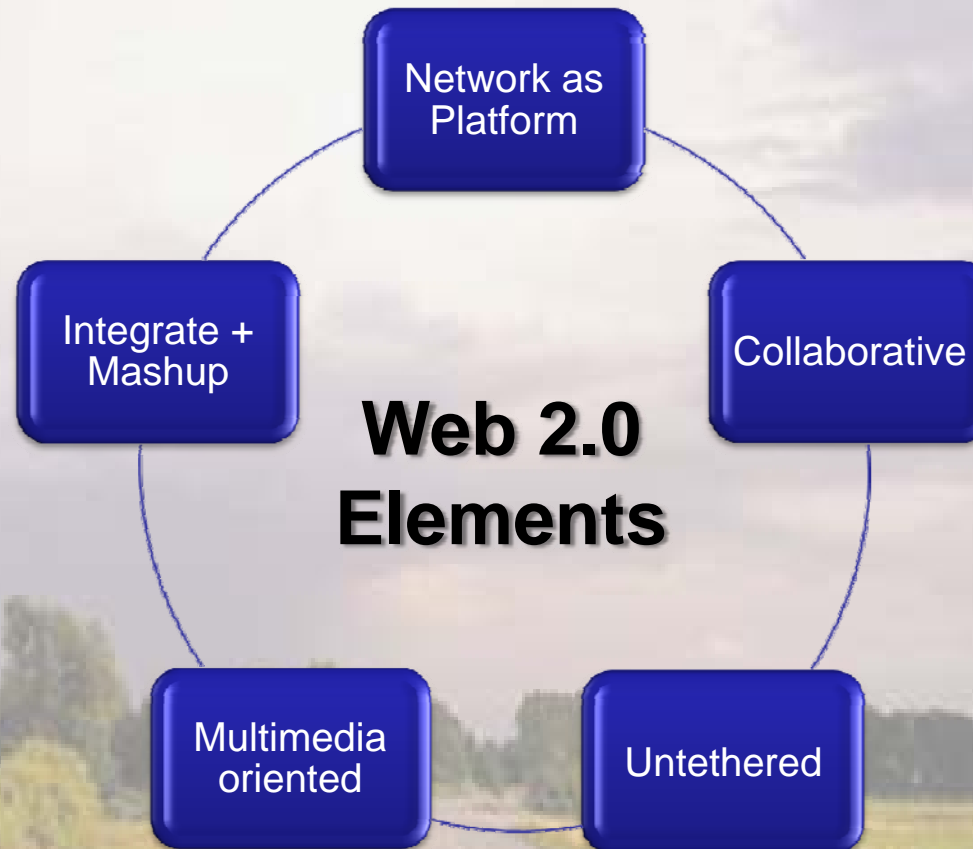
A Closer Look at the Metro Ethernet Arena: Metro Ethernet Market by Provider Sector

Share of Ethernet Revenue by Service Provider Set (2008)

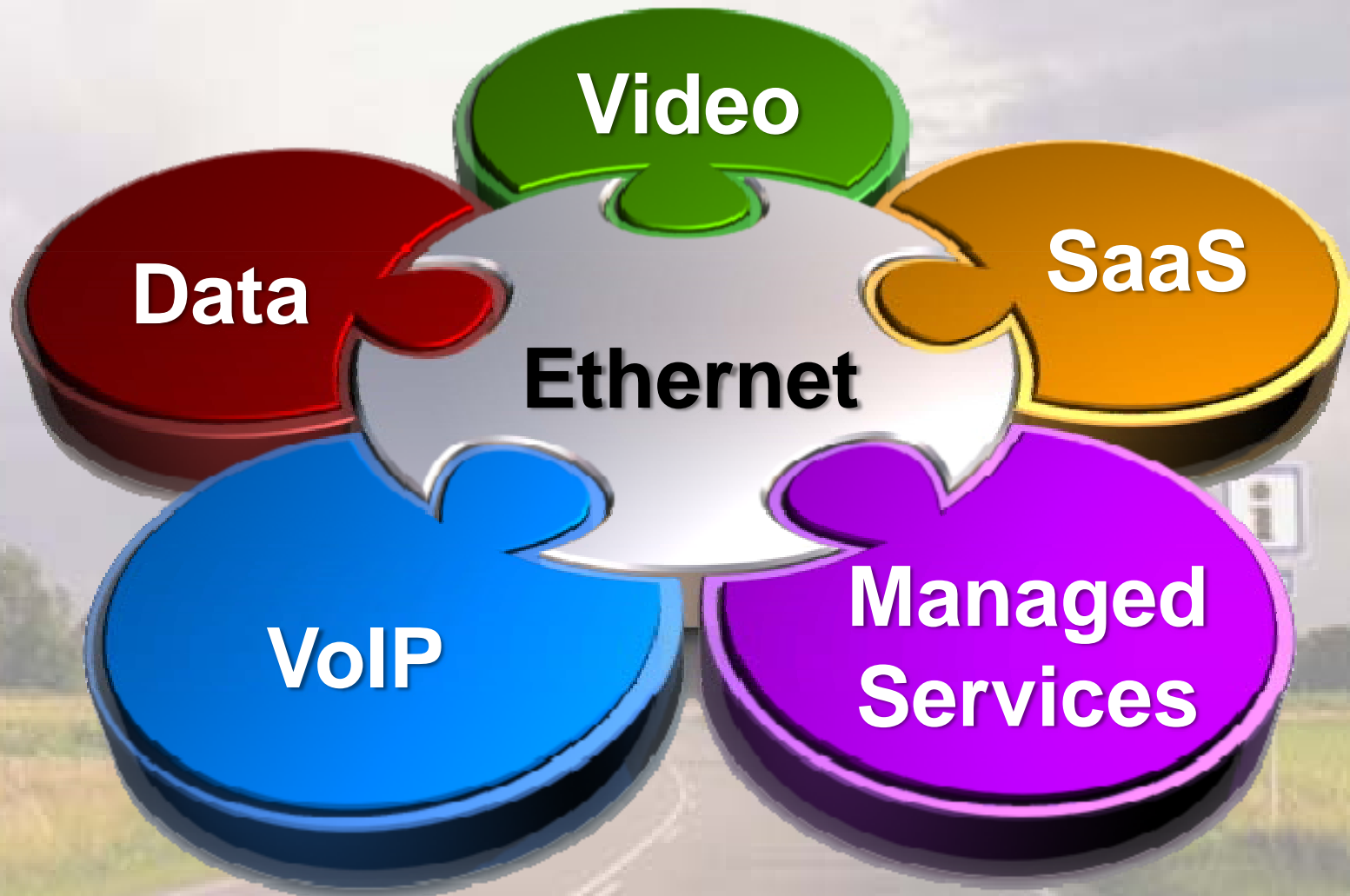


Metro Ethernet's Evolving Role in a Web 2.0 World

Metro Ethernet's Evolving Role: Characteristics of the Web 2.0 World

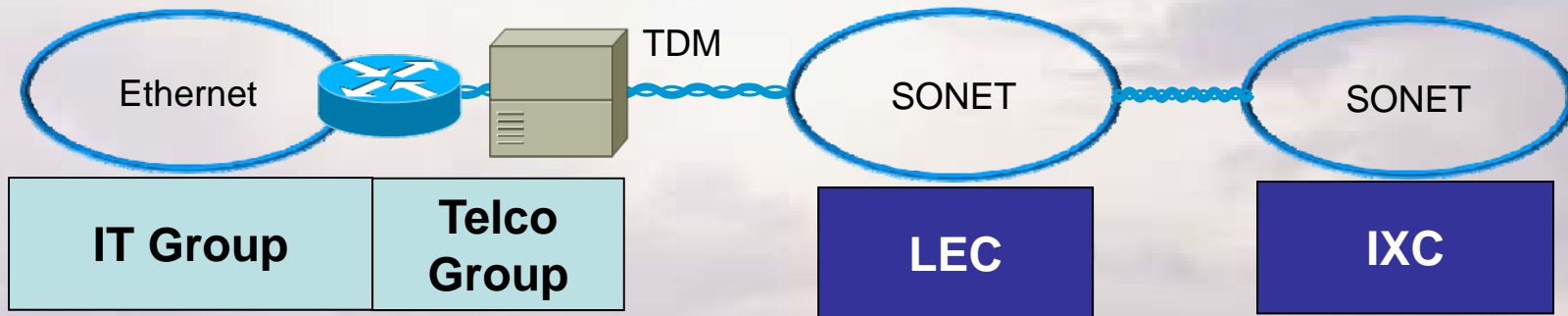


Metro Ethernet's Evolving Role: Where does it fit?

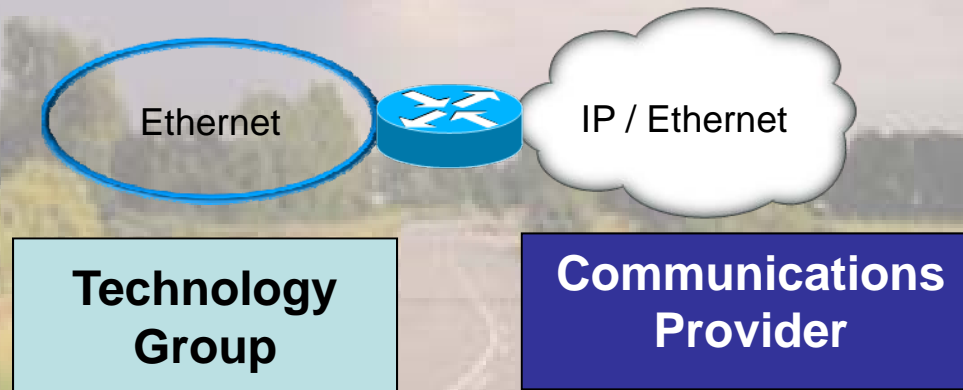


Metro Ethernet's Evolving Role: Shifting the Paradigm

Traditional Paradigm

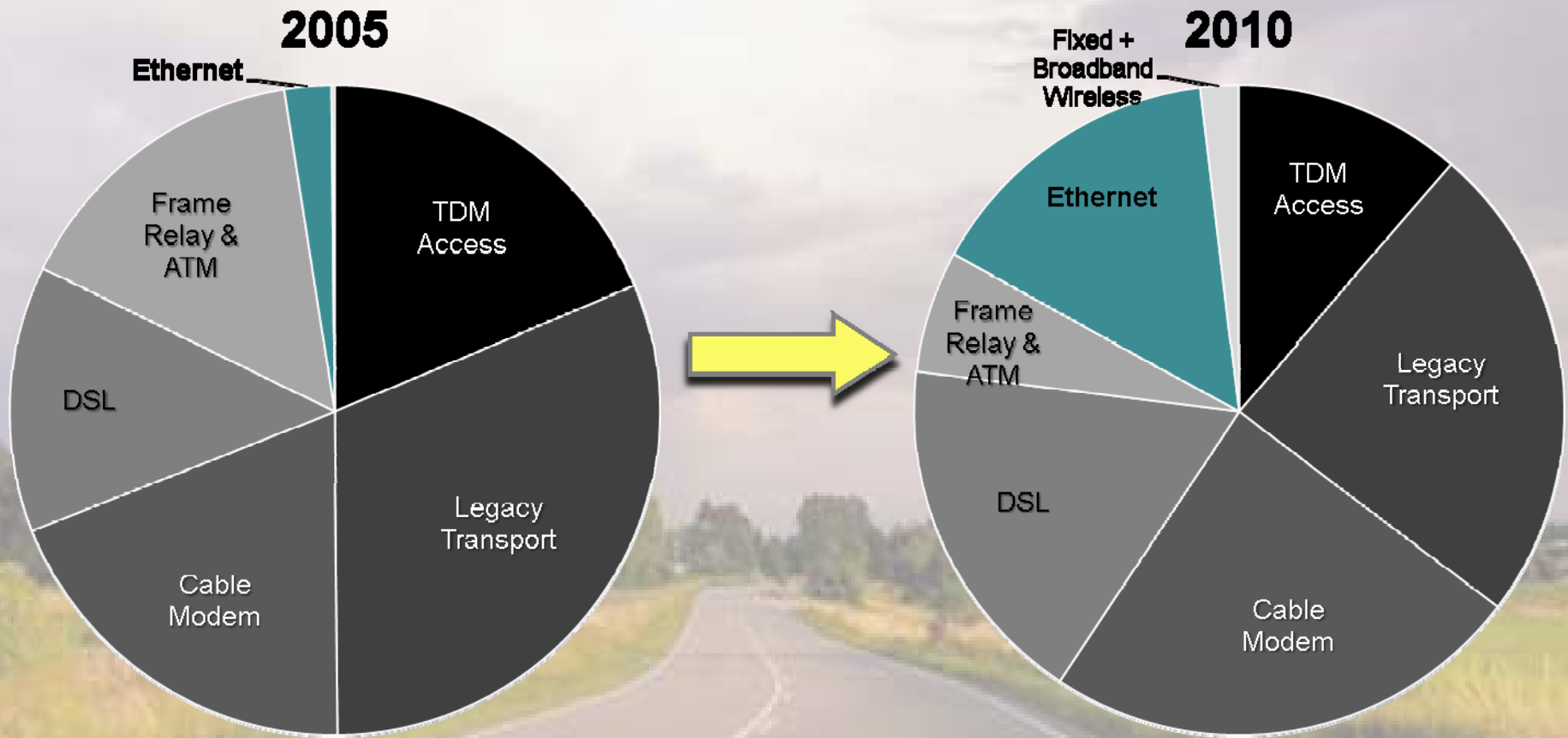


Emerging Paradigm



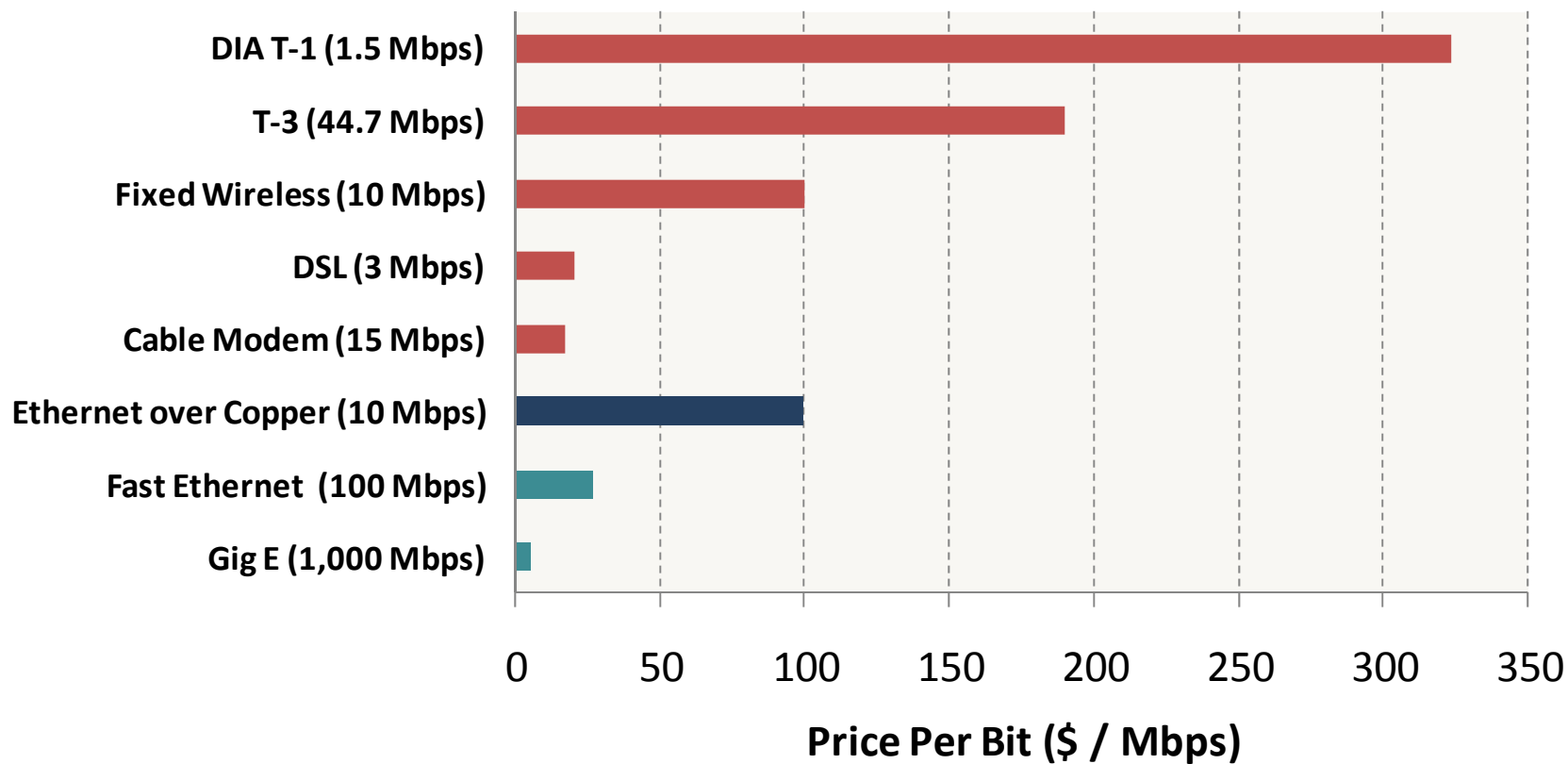
Metro Ethernet's Evolving Role: Shifting the Paradigm

Bandwidth Services Revenue

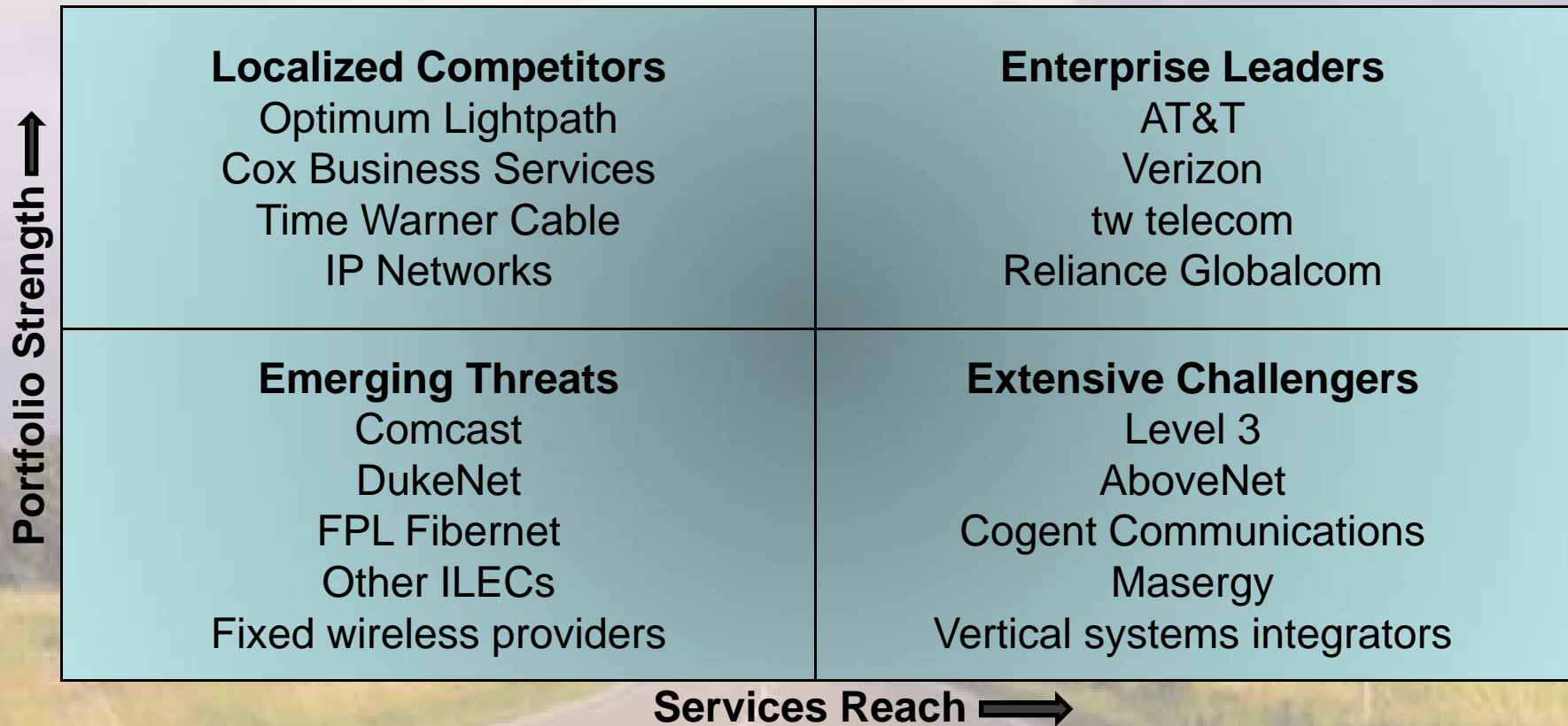


Metro Ethernet's Evolving Role: Comparative Pricing

Business-Class Internet Access Pricing



Metro Ethernet's Evolving Role: Segmenting the Providers



Metro Ethernet's Evolving Role: Finding Prosperity in Web 2.0



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Market leadership in Web 2.0 era will require:

1. Diverse Ethernet portfolio
2. Scalable bandwidth options
3. Robust inter-market networking
4. Demonstrable QoS and guarantees
 - Including off-net locations (E-NNI)
5. Pricing reflective of value delivered, not legacy pricing assumptions

Metro Ethernet Market Summary & Outlook

Technical enablers...

- Continued improvement on SLAs and OA&M
- Bandwidth on demand
- Remote monitoring/fault isolation
- Circuit emulation and pseudowires

... for growing revenue opportunities

- Growing wholesale market: Backhaul ready to boom?
- External Network-to-Network Interface (E-NNI)
- Ethernet service over copper
- 10GigE productization

Summary & Outlook: Key Takeaways



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Some thoughts to take away from this discussion:

- Metro Ethernet is an established service option
- Pace of adoption exceeding expectations
- Pricing has stabilized, but disruptors still exist
- Facilitator of other products & network services
- Wholesale market growing as mobile backhaul opportunity materializes

Need to Know More About the Metro Ethernet Sector?

If you need it, we probably have it:

- ***Metro Ethernet Track - Continuous Information & Advisory Service***
 - ***Sector Analyses*** (forecasts, market size, trends, emerging strategies, and outlook)
 - ***Research Briefs*** (strategic analysis of issues affecting the sector as they arise)
 - ***Service Provider Coverage & Profiles*** (detailed data, information & analysis of the providers)
- ***Metro Ethernet Sector Analysis Report***
- ***Service Provider Coverage, Analysis & Profiles***

Any of these can be ordered by calling (312) 980-4843



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Informed direction

...within a changing landscape

Thank You!

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