



The Need for Ethernet in the First Mile

Presented to: IEEE ELM Call for Interest

Date: November 7th, 2000





Agenda

- **Yipes Background**
- **Challenges of the First Mile**
- **Current First Mile Access Methods**
- **First Mile “Wish List”**

Yipes Defined ...

Business Definition

Yipes is a metropolitan area service provider using fiber connected directly to customer locations and Ethernet switch/routers to offer ultra high speed, scalable, business to business Ethernet/IP connections, eliminating traditional SONET/ATM alternatives.

Yipes' Vision

Evangelize IP network solutions to connect business locations and unleash a new age of bandwidth abundance enabling next generation applications.

Yipes' Mission

Create a national IP network, leveraging best technology cost curves providing unprecedented services and price performance from IP over fiber networking.



Yipes Background

Yipes Creates a New Business Category in the Network Provider Industry

Yipes Provides What Businesses Want:

■ **Optical Gigabit Bandwidth**

- *An all-fiber network with virtually unlimited bandwidth to the customer, in the metropolitan area and across the backbone*

■ **An IP-Centric Service Provider**

- *An all-IP network optimized to support Internet or Business to Business services and applications*

■ **Managed Services**

- *Our entire network is continuously monitored to ensure exceptional customer experiences*

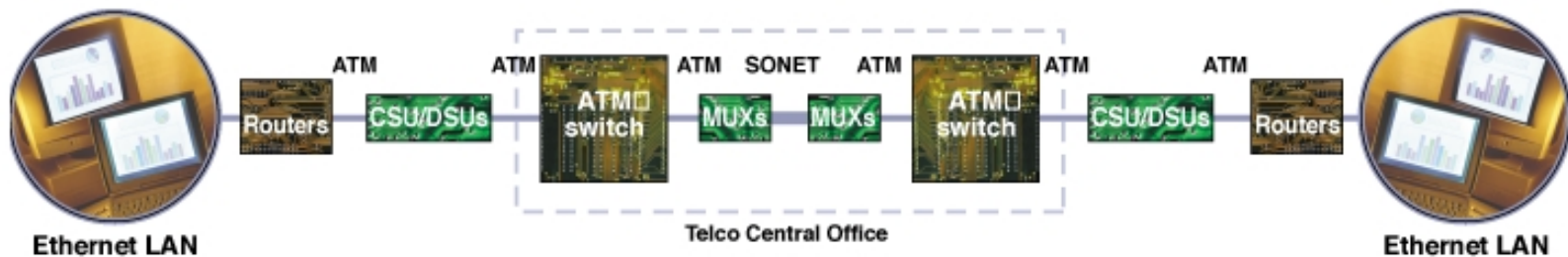


Yipes Background

A Simple Network Architecture with Less Conversion & Minimal Points of Failure

Traditional Telco Network

Voice-oriented Connectivity



Yipes Managed Optical IP Network

Gigabit Connectivity



yipes[™]
that's fast!

Yipes Brings Speed and Efficiency to the Desktop

- **Yipes NET™ (High Speed Internet Service)**
 - *Access the Internet at the speed you specify from 1 Mbps to 100 Mbps or incrementally on demand*
 - *Aggressive and enforceable Service Level Agreements (SLA's)*
- **Yipes MAN™ (LAN-to-LAN Connection)**
 - *Establish a virtual local network*
 - *Customer selects speed from 1 Mps to 1 Gbs on demand*
- **All Yipes services include**
 - *Individual engineer to assist from testing to implementation*
 - *Live first tier technical support all day, every day*
- **Future Yipes services**
 - *VoIP, video streaming, storage area networks, etc.*

Challenges of the First Mile

Fiber is the best access method, but ...

- ***Acquiring Right Of Entry (ROE) to buildings is challenging***
 - ***Need to obtain permission from building owners***
 - ***Need to obtain construction permits if necessary***

- ***At Lawrence Berkeley Lab (my former life)***
 - ***LBL LAN is all Ethernet based***
 - ***Not all buildings serviceable via fiber***
 - ***Currently use proprietary copper solution***
 - ***They're upgrading their switch, so old solution will not longer work, thus they're installing a DSLAM***

What choice do we have now?

- **Copper**
 - *category 3 (or worse) UTP*
 - *coaxial cable: RG-58/RG59*
 - *Note: cable TV systems pass through 97% of all US households, but these systems are limited for upstream capacity for two-way service.*
- **Fiber**
 - *Various flavors of Ethernet are already defined for fiber in previous standards*
- **Broadband wireless**
 - *Several vendors running Ethernet over various RF media*

What we would like to see

- *Whatever the medium turns out to be:*
 - *10 Mbs minimum solution; 100 Mbs preferred*
 - *2 – 10 Km reach*
 - *Full duplex capability*
 - *Low cost*
 - *Simple*
 - *Compatible with other IEEE standards such as P802.1p, P802.1q, link aggregation, etc.*

How we see it:

- ***Yipes is an all IP Optical Network***
 - ***Any first mile solution developed here would be a short term “throw away” alternative that would enable us to provide service to our customers prior to the availability of fiber on the customer premises***
- ***That being said:***
 - ***One of our fundamental design principles is to eliminate protocol translation, thus a First Mile Ethernet solution would be very useful.***
 - ***Native Ethernet could be run to the home***
 - ***End users are becoming more “Ethernet aware”***
 - ***You can get a 10/100 Mbs Ethernet card cheap***
 - ***Power over DTE will further increase demand for Ethernet***

Continued ...

- *Although SOHO is not our target market ...*
 - *Someday community PoPs may be interested in using our services – Ethernet would already exist so integrating them into our network would be simple*
- *The time is right – Lets put Ethernet in the First Mile and put an end to all those unnecessary protocol translations!*
 - *No more T-1, T-3, TDM tiresome expensive band-aids*
 - *Ethernet end-to-end once and for all!*

Thank You!

mbennett@yipes.com

References

- *USA Access Market Executive Report – Probe Research Inc.*