



FTTH/FTTP Municipal UPDATE

March 5, 2008

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Reasons for Municipal Involvement

- Community leaders concerned that first class broadband and communications is essential to the future of the community.
- Citizen complaints about current services.
- Private providers not willing to step to the plate in the foreseeable future (separately or in partnership).

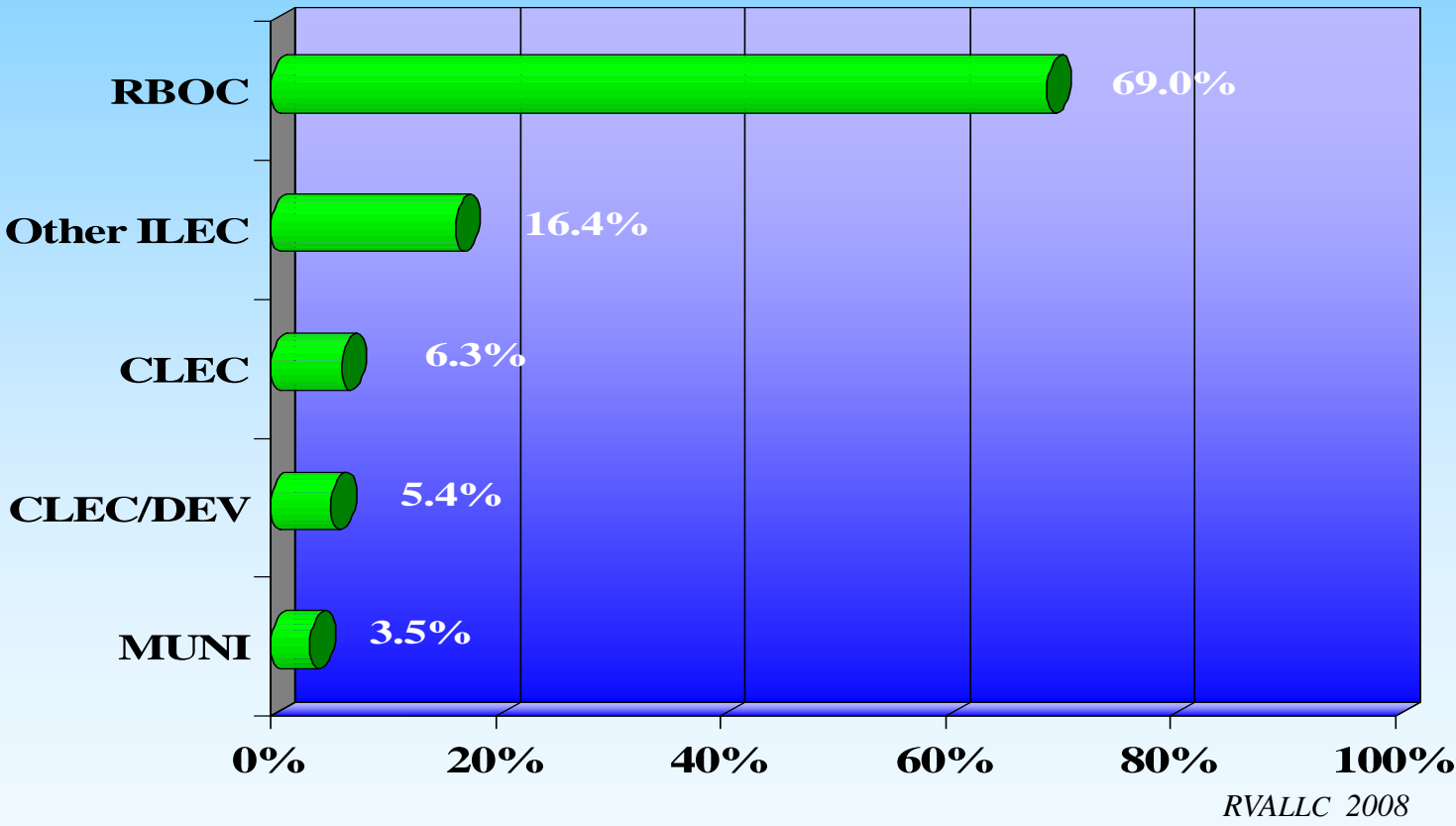
There Is a Void To Be Filled

- About 1/3 of the U.S. is rapidly building out a 21st Century communications network.
 - New homes
 - Existing homes in suburban and urban areas of Verizon
 - Existing homes in rural and suburban areas of Tier 3 ILECs
- About 2/3 of the U.S. is in danger of falling into third world communications status (and is especially open ground for municipal and competitive providers).

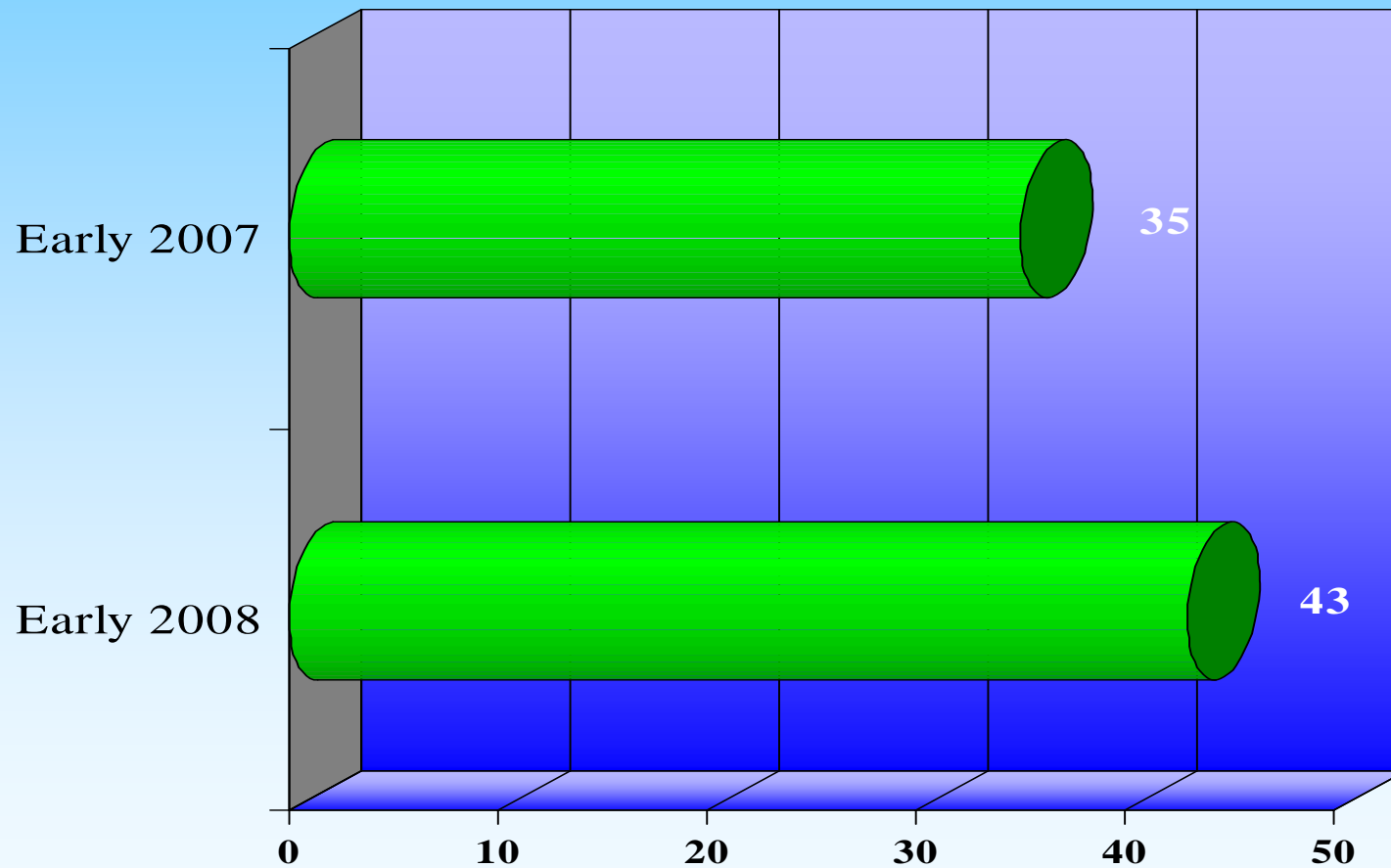
Place of Municipal FTTH

FTTH Subscribers By Type of Provider

As Of Oct 2007



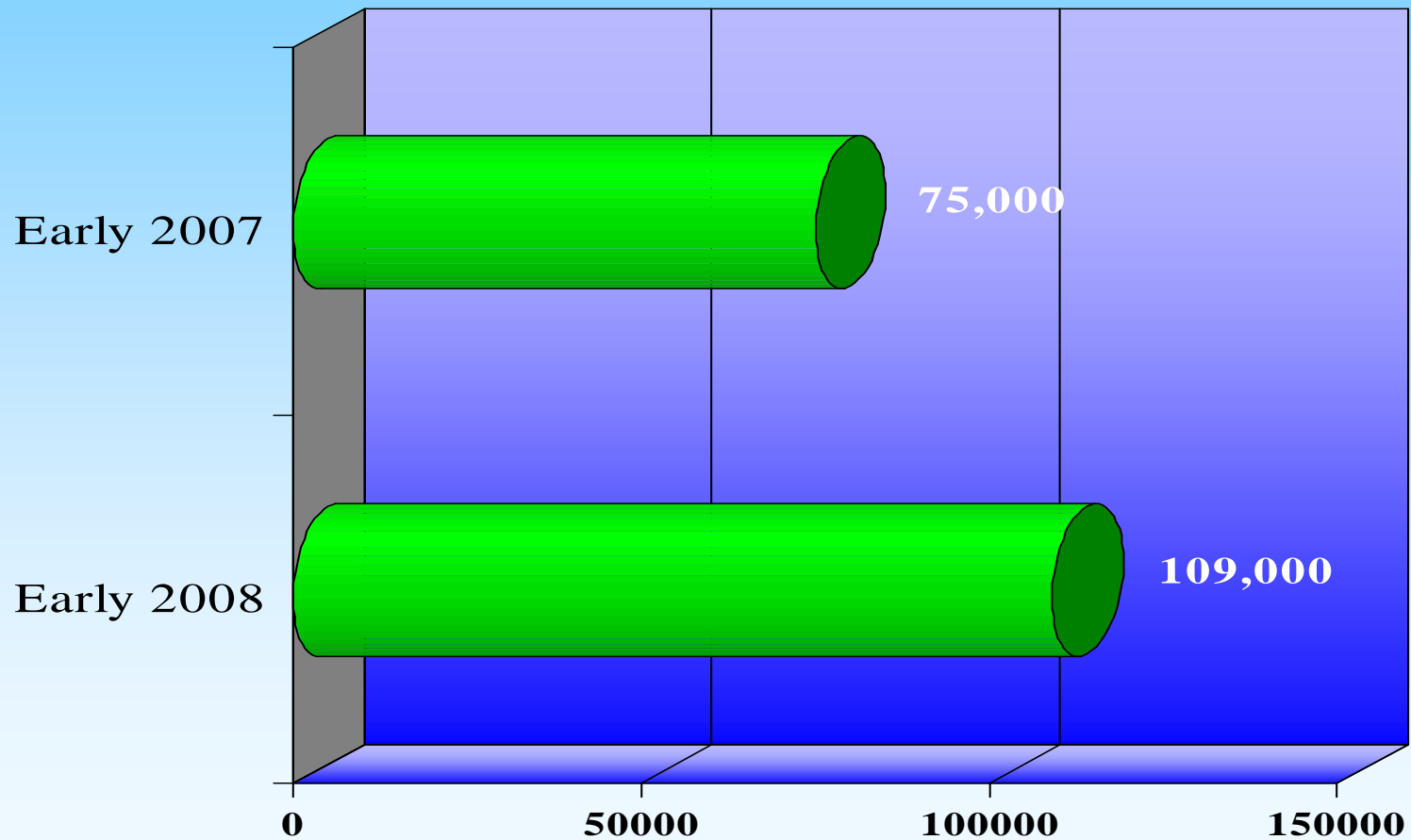
North American Muni FTTH Providers



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23% Growth March 1 2007 to March 1 2008

North American Muni FTTH Connections



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45% Growth – March 1 2007 to March 1 2008

Largest FTTH Municipalities

1. Jackson TN
2. Provo UT
3. Dalton TN

Fastest Growing FTTH Municipality

1. Clarksville TN

Notes About Municipal FTTH

- HFC and FTTB systems are sometimes mischaracterized as FTTH (Tacoma, Marietta, Glasgow)
- Two basic models: Retail and Wholesale

Systems Serving Large Percent of Service Area

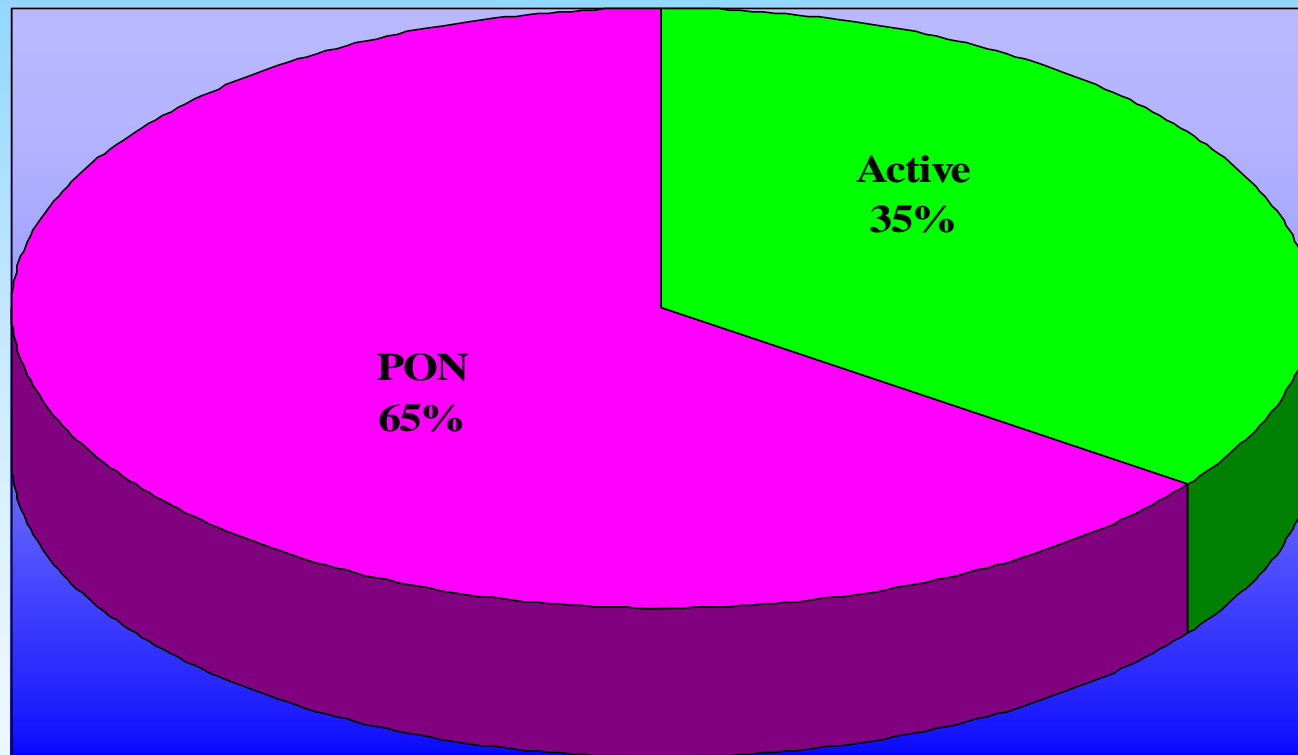
Baldwin, WI
Bellevue, IA
Bristol TN
Bristol VA
Brookings, SD
Burlington VT
Chelan PUD WA
Clarksville TN
Crawfordsville IN
Dalton GA
Douglas County PUD WA
Gainesville FL
Grant County PUD WA
Jackson TN
Kutztown PA
LENOOWISCKO VA
Loma Linda CA
MINET OR
Morristown TN
North Kansas City MO
Phillipi WV
Provo UT
Pulaski TN
Quincy FL
Reedsburg WI
Rochelle, IL
Sallisaw OK
UTOPIA UT
Windom MN

Systems Serving Trial Areas/Just Starting

Ashland OR
Auburn IN
Cedar Falls IA
Clallum PUD WA
CMON BC
Holland MI
Mason County PUD WA
Pend Oreille PUD WA
Radium Hot Springs BC
Shawano WI
Spenser IA
Sylacauga AL
Taunton MA
Wilson NC

FTTH MUNI Connections By Architecture

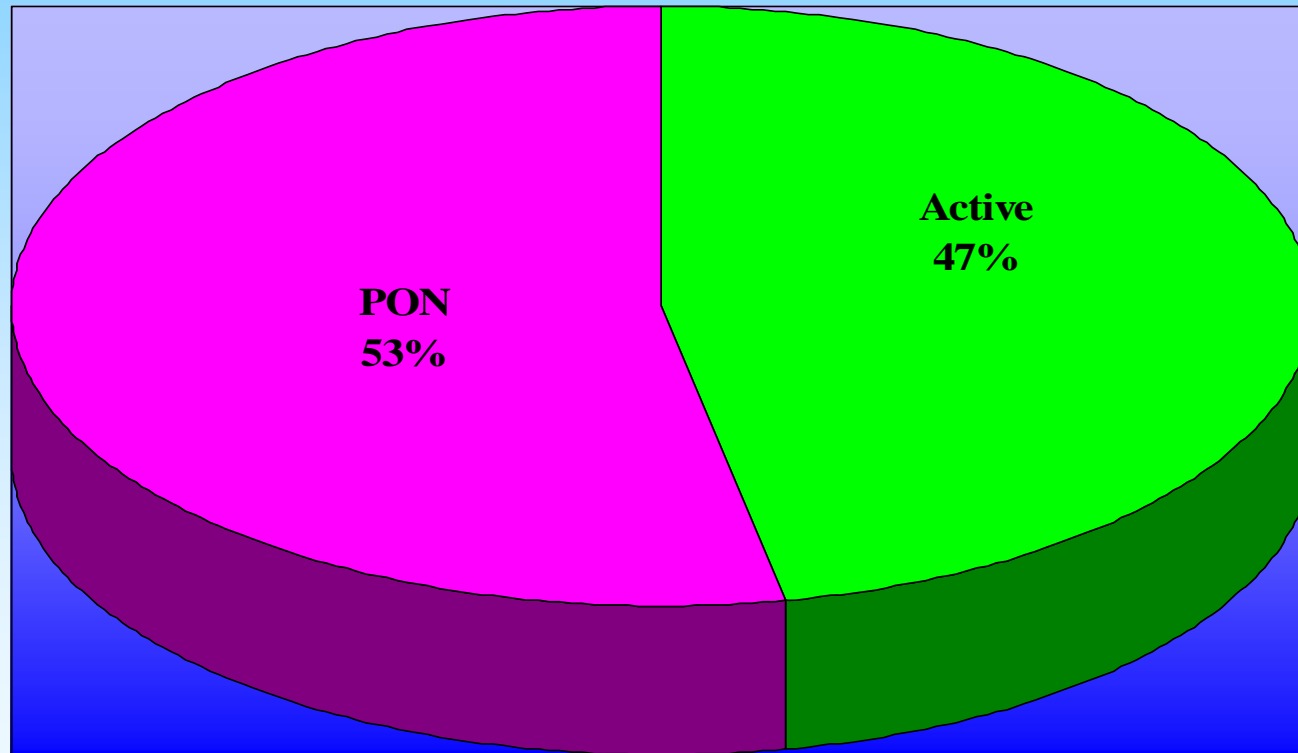
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FTTH MUNI Connections By Architecture

Estimated End 2008



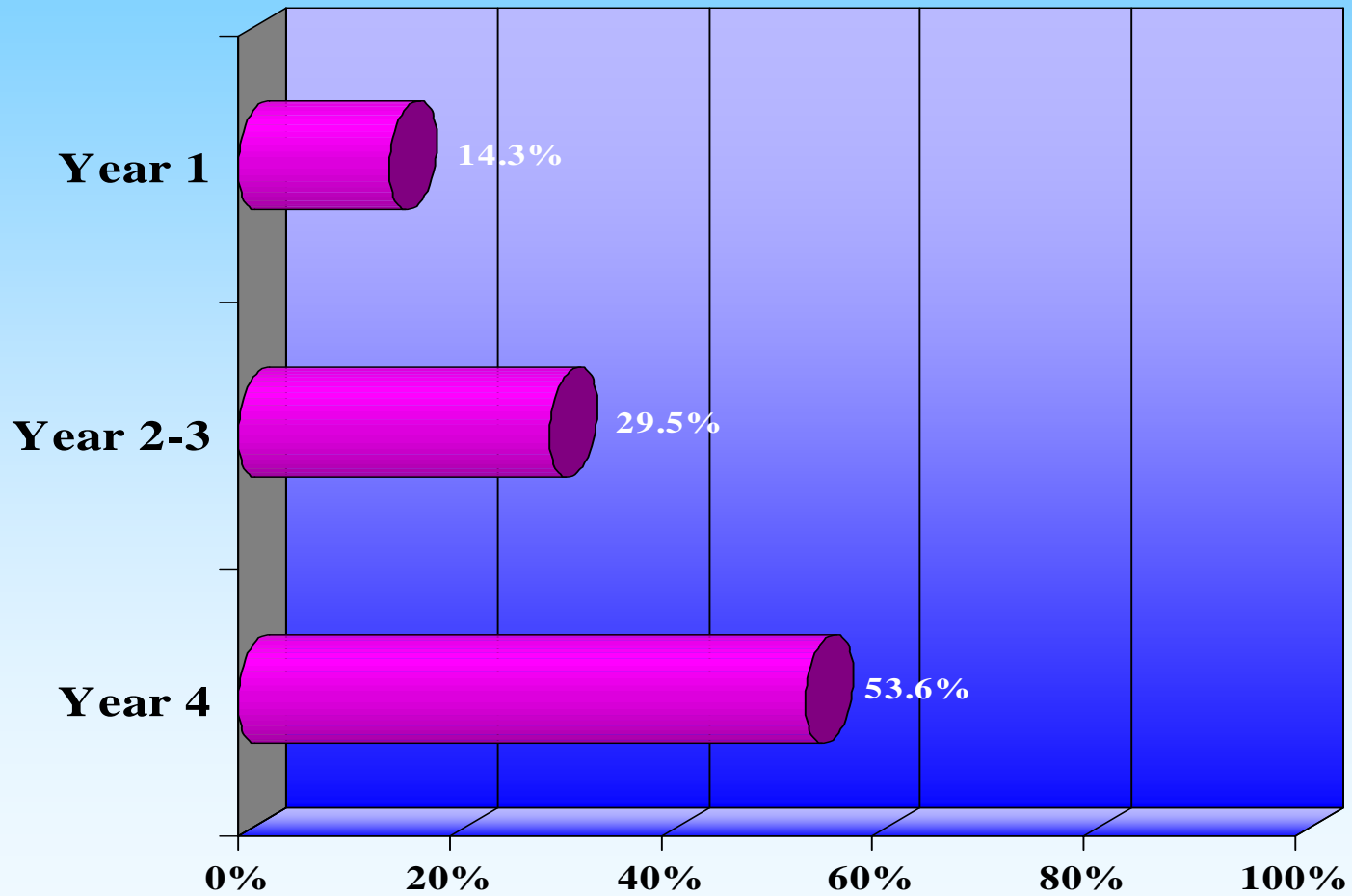
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Success Of Municipal FTTH

Success of Municipal FTTH

- Municipal FTTH has generally been successful in terms of meeting goals.
- There have been no “failures” of municipal FTTH.
- Weaknesses in open access municipal FTTH system take rates are being addressed.

Retail Muni Take Rates By Year Since Inception



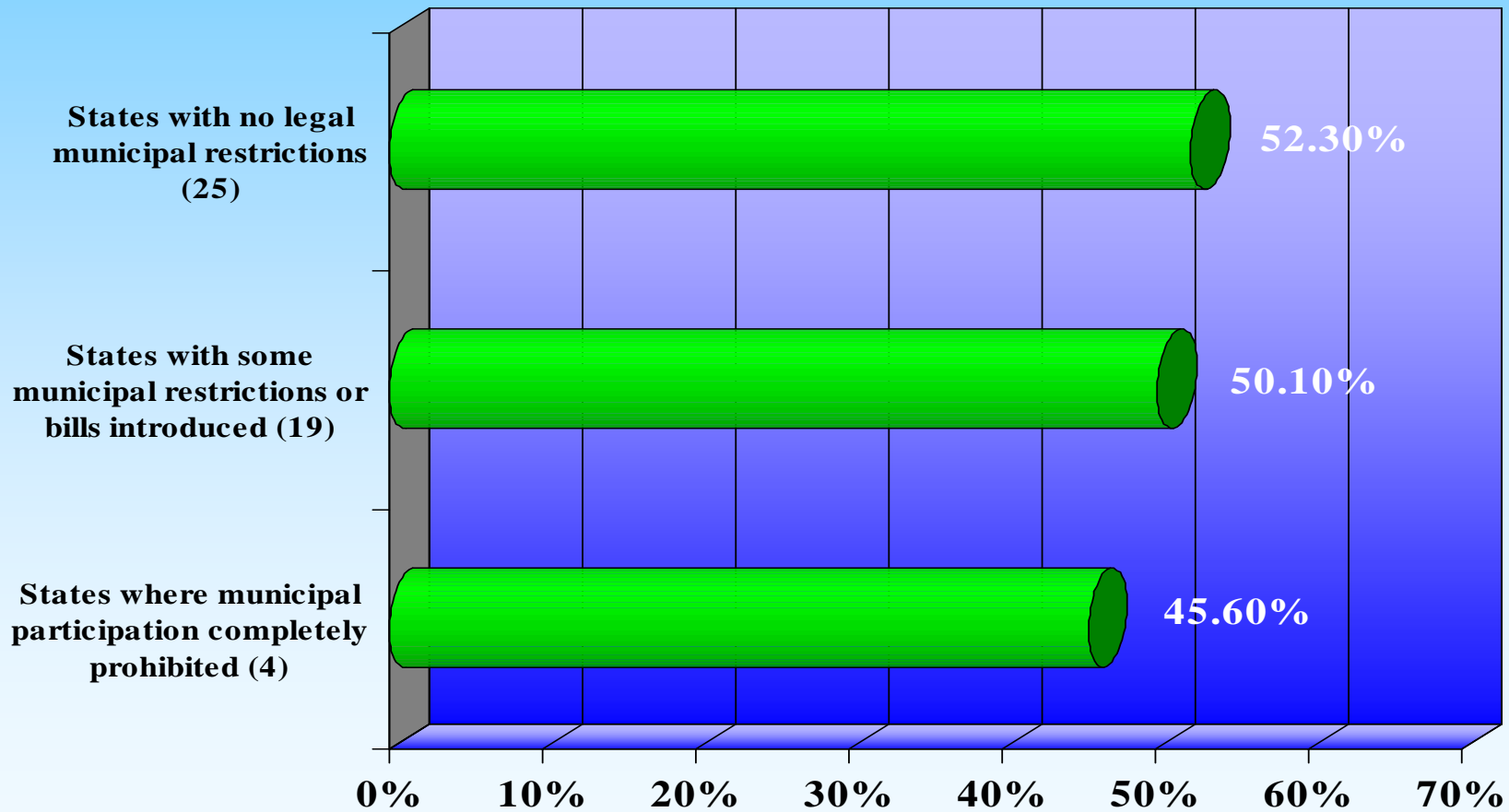
National Impact Of Municipal FTTH

National/Regional Impact Of Municipal FTTH

- Served as incubator for early FTTH.
- Serves as incubator for high bandwidth uses.
- May positively impact overall broadband penetration for a state.

Average Broadband Penetration By Level Of Municipal Restriction

Data Based On RVA Consumer Survey, Apr 2007
(Averages of states based on conditions)

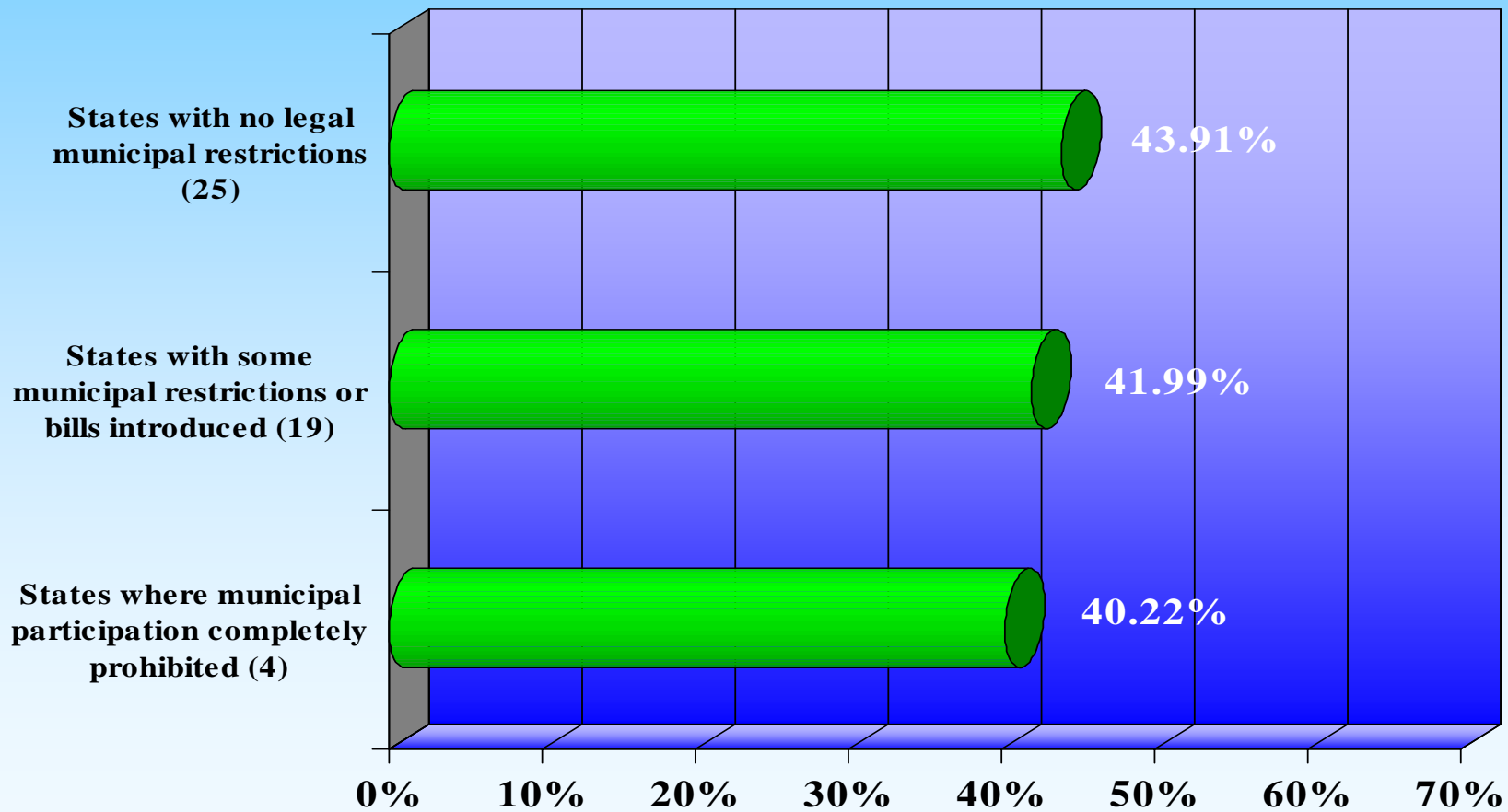


Note: Total Broadband Penetration by all types of providers

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Average Broadband Penetration By Level of Municipal Restriction

Data Based On FCC Residential High Speed Line Reporting, Dec 2006
(Averages of states based on conditions)



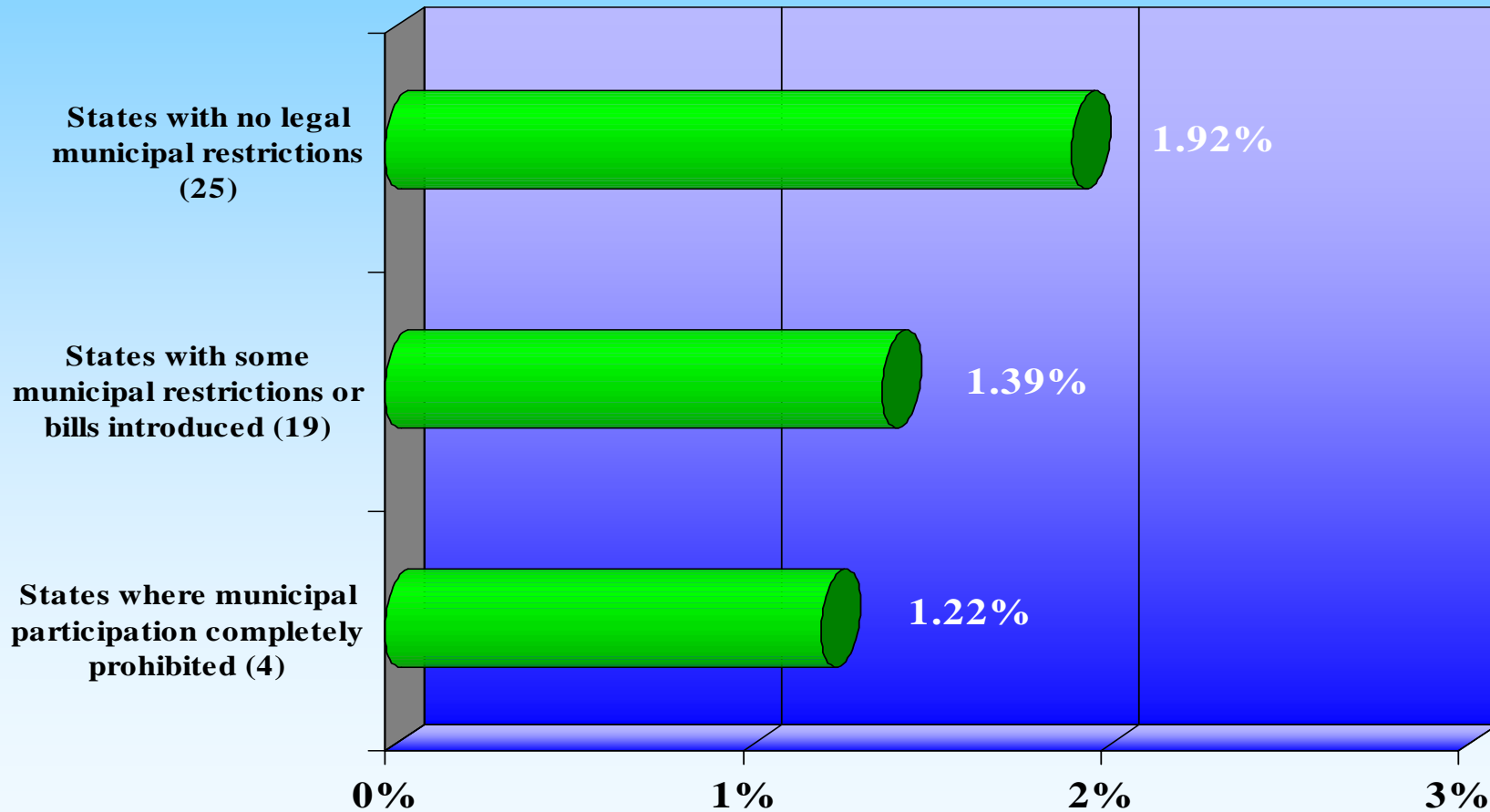
Note: Total Broadband Penetration by all types of providers

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Average FTTH Penetration By Level of Municipal Restriction

Data Based On RVA Research, Oct 2007

(Averages of states based on conditions)



Note: Total FTTH Penetration by all types of providers

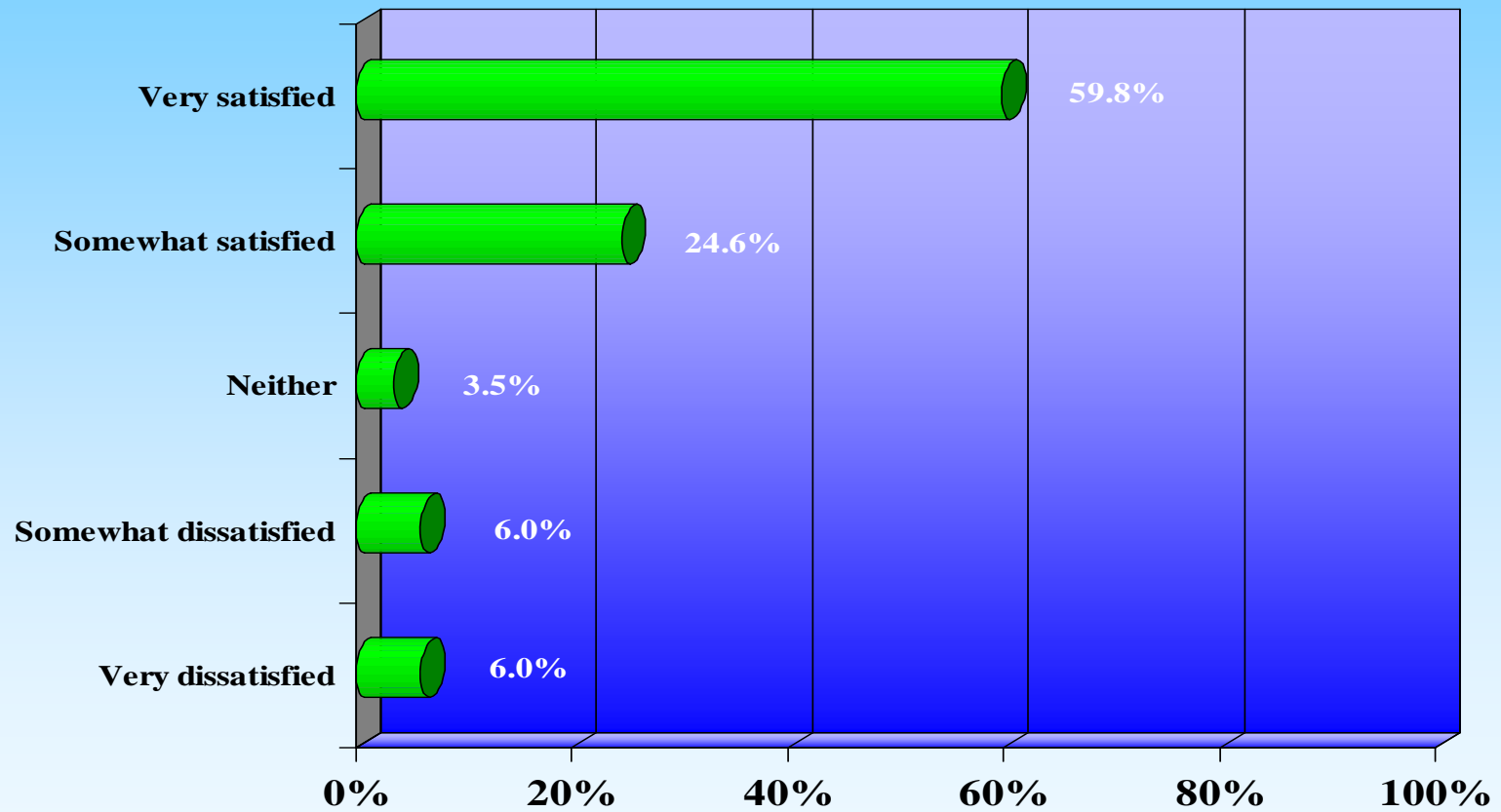
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Local Impact Of Municipal FTTH

Local Impact of Municipal FTTH

- Improved service for citizens at lower prices
- Attraction of traditional businesses
- Development of home based businesses
- Productivity/cost advantages
- Helping meet environmental goals

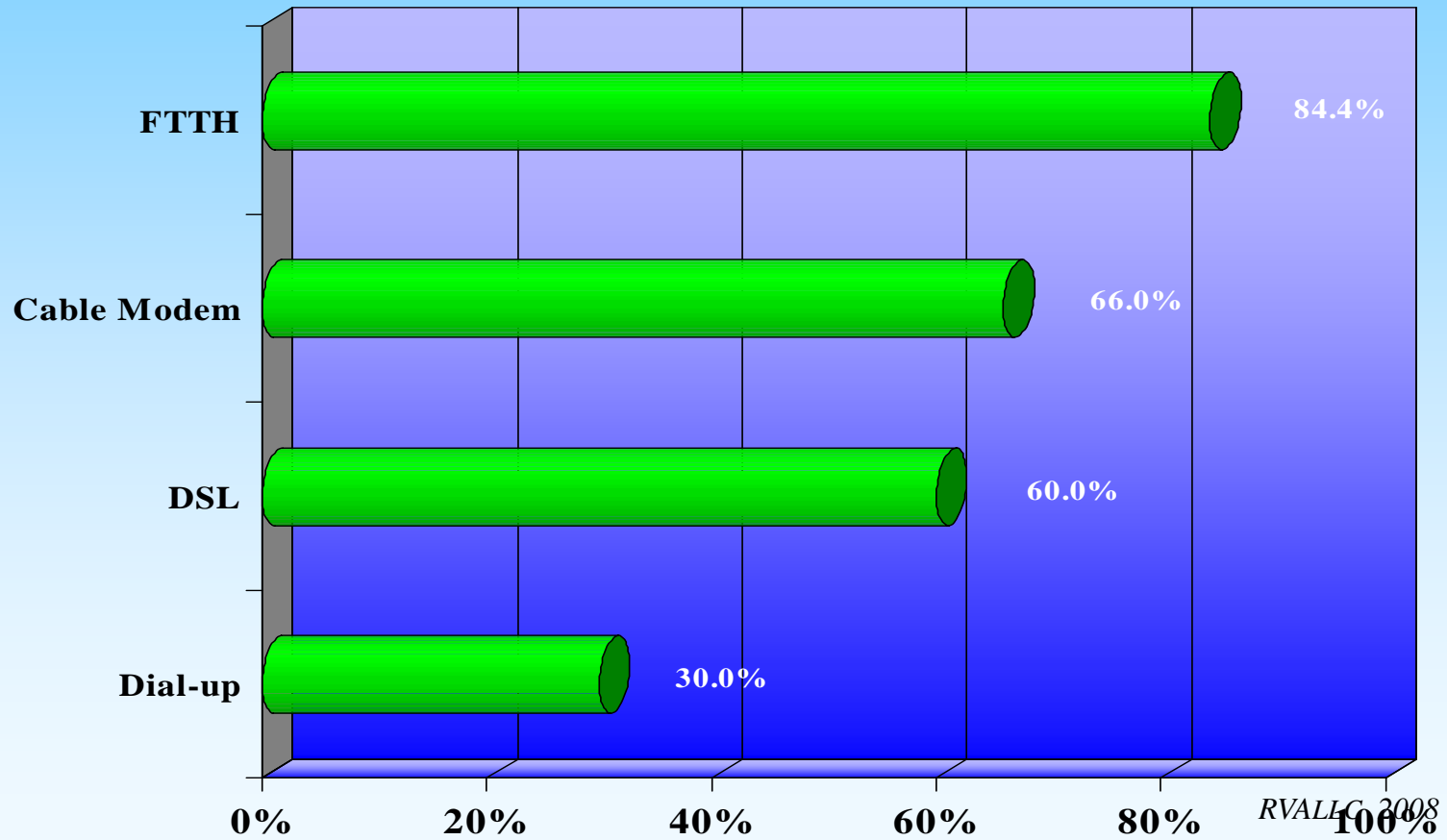
Customer Satisfaction with FTTH



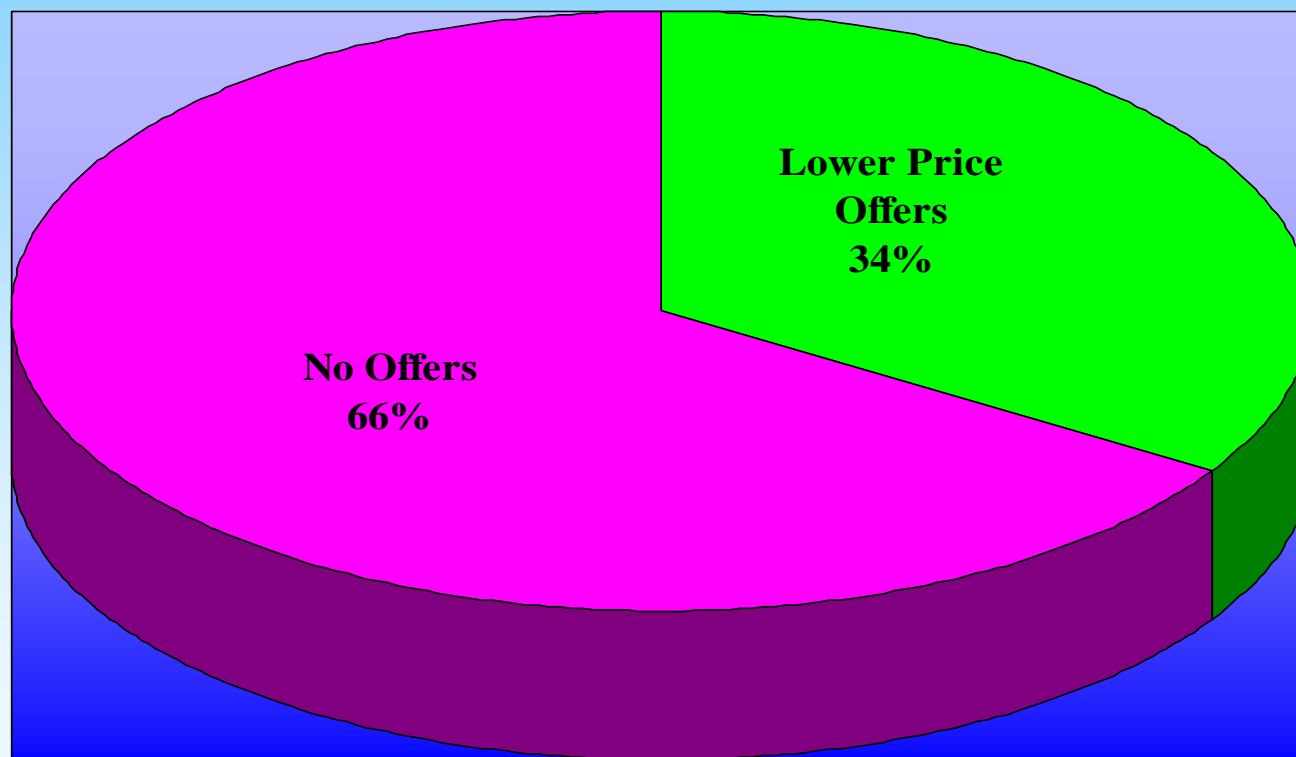
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Comparative Internet Customer Satisfaction

(Those somewhat or very satisfied)



FTTH Customers Reporting Lower Prices For Service Since Fiber Became Available



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Many FTTH municipalities report lower prices from competition as compared to surrounding areas.

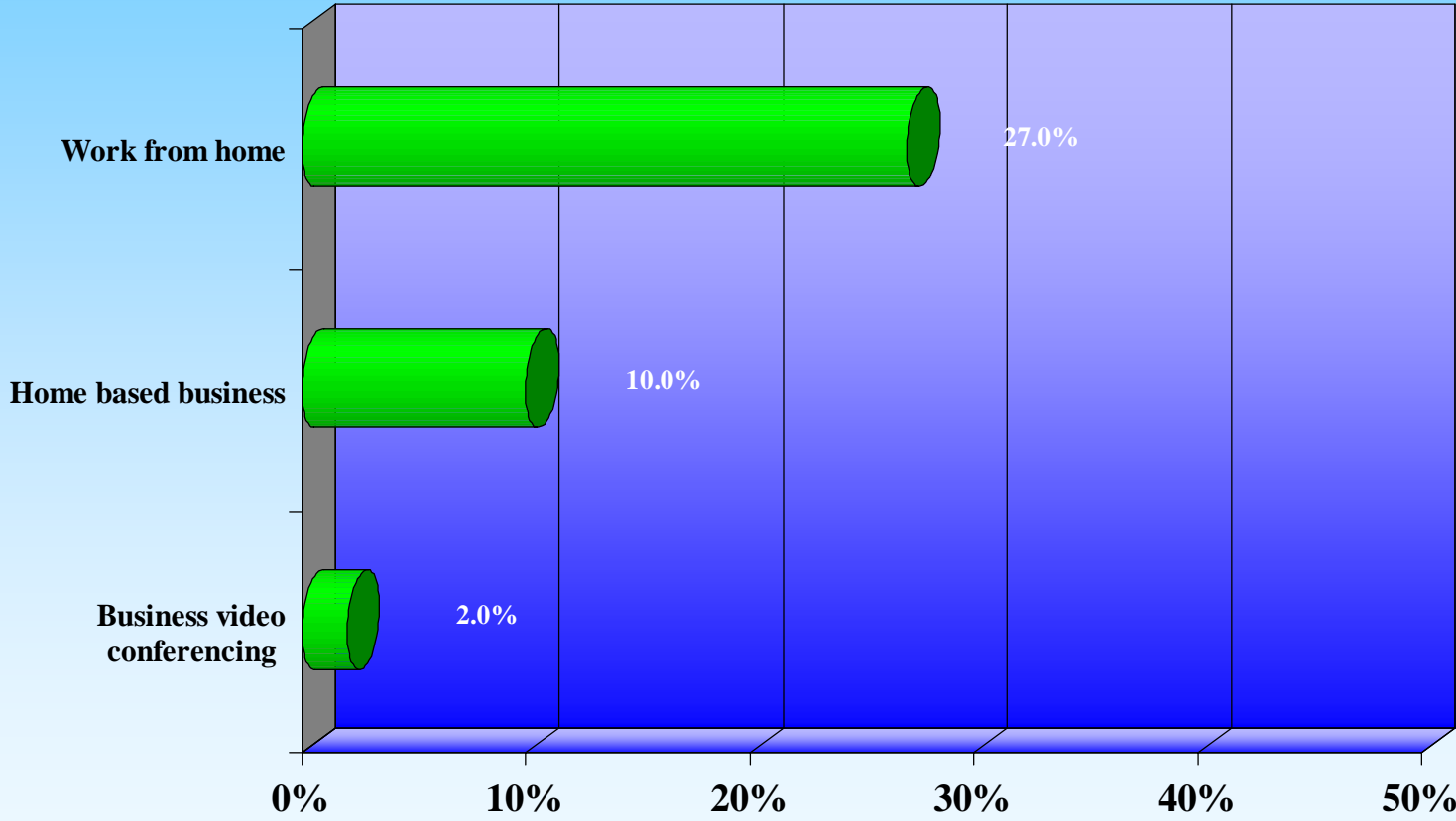
Examples Of Traditional Businesses Attracted Because of FTTH

Municipalities Reporting Plants Locating, In Part, Because of FTTH	
Bristol TN	Media General
Bristol VA	Northrup Grumman CGI
Chelan County WA	Yahoo
Douglas County WA	Sabey Corporation
Grant County WA	MSN (Microsoft) Ask Jeaves Intuit
Independence OR	Metal fabrication companies
Kutztown PA	Film production companies
Mason County WA	Louisville Slugger Sims Technology companies Online engineering firms
Windom MN	Trucking companies

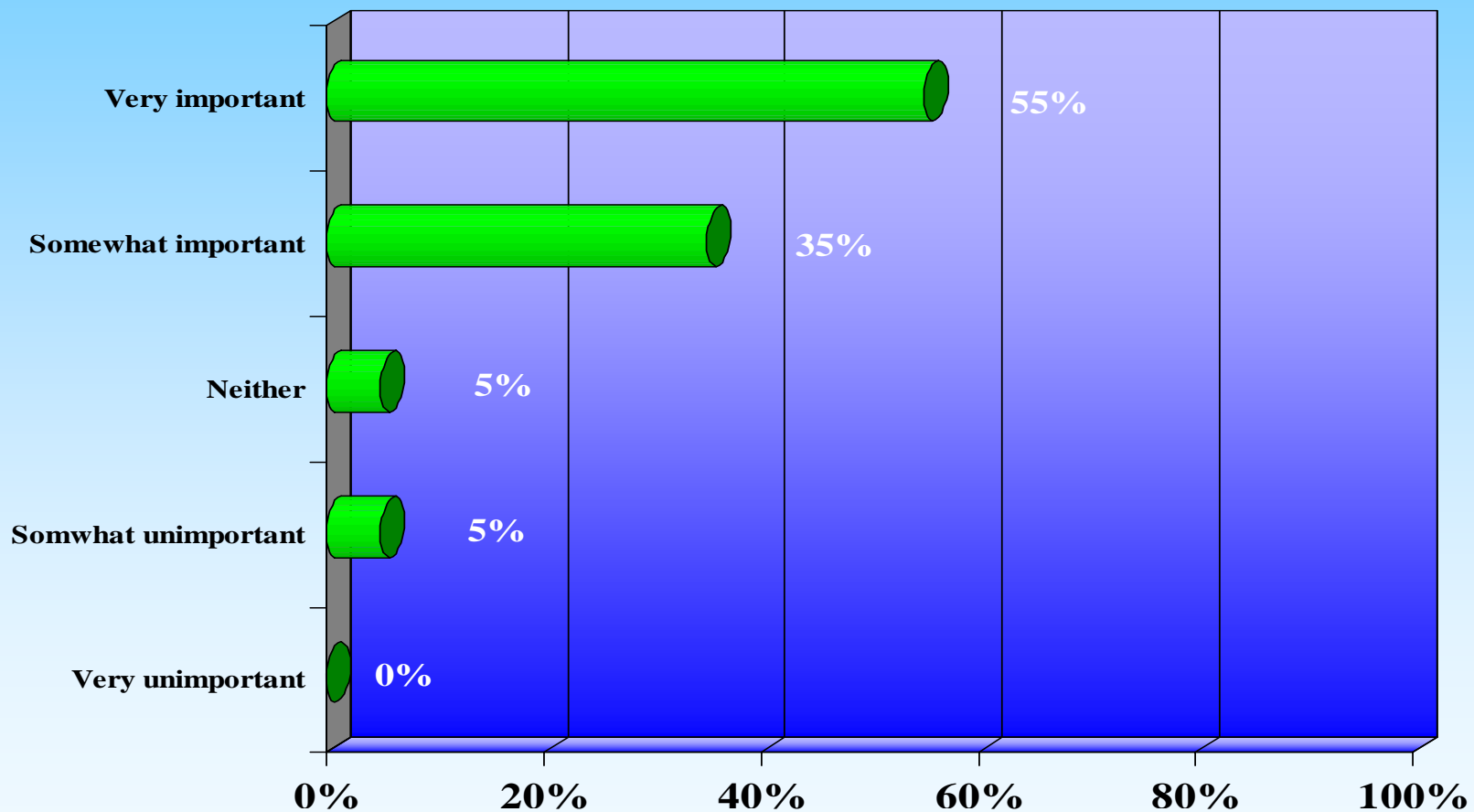
Examples of Home Based Businesses

- Scientific consulting
- Movie editing
- Decentralized call centers

FTTH Business Use



Perceived Importance Of FTTH To Home Based Business



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Examples of FTTH Productivity Advantages For Municipality

- Inventory control
- Video “first court appearances”

FTTH users report working one more day from home per month (on average).

Green Advantages From FTTH



- 5% reduction in gasoline use
- 4% reduction in CO₂ emissions
- \$5 billion in lower road expenditures
- 1.5 billion commute hours recaptured

Challenges Of Municipal FTTH

Challenges of Municipal FTTH

- Political/Incumbent pressure
- Financing
- Speed of process
- Video content source



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