



Telecom in Ohio

A report on the state of the industry

October 2017

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Executive Summary

Telecommunications in Ohio is a thriving industry. It supports every facet of the state's economy and has transformed commerce, healthcare, education, agriculture, security and government services. This report from the Ohio Telecom Association quantifies the marketplace and profiles the diverse service providers across the state.

Following are highlights of the report:

- Telecom in Ohio is a \$23-billion annual industry.¹
- Ohio telecom companies contribute more than \$4 billion annually to the state's economy and employ more than 16,000 Ohioans.²
- Ohio telecom companies invest \$1 billion annually in the network – constantly making upgrades and expanding service.³
- 99% of Ohio homes can receive high-speed Internet. 72% of homes subscribe to the service from one of Ohio's 203 providers.⁴
- Household spending on telecom has increased 33% over the past three years and now totals \$325 per month, including wireless.⁵
- 70% of Ohio homes are wireless-only and no longer have a landline phone.⁶
- Ohio's local telephone companies have lost 80% of their landline customers since 2000.⁷
- Mobile wireless has grown far beyond landline losses. There are now more wireless phone numbers in use than people in Ohio.⁸
- 70% of 911 calls are made from cell phones. 50% of those are made from indoors.⁹
- The average home consumes 150 GB of data per month. Increasing data consumption requires service providers to continually upgrade their networks.¹⁰

- More than 50% of adults own a tablet computer, such as an iPad.¹¹
- Screen time on smartphones and tablets now exceeds television viewing.¹²
- 35% of homes stream video an average of 10 hours per week. Streaming requires a faster Internet connection and more network bandwidth.¹³
- Between the years 2007 and 2016, AT&T saw its Internet traffic increase 250,000%. By the end of 2020, traffic on the AT&T network will increase another seven times.¹⁴
- Verizon Wireless projects its mobile data will increase seven times by 2019.¹⁵
- The last comprehensive action the Ohio Legislature took to update laws affecting telecom providers was in 2010 with the passage of SB 162, the Telecommunications Modernization Act.
- Seven years later, local phone service remains heavily regulated in Ohio, even as wireless, cable television and Internet providers enjoy an open and competitive market.
- Excessive and imbalanced regulatory burdens on local phone companies create an unlevel playing field and inhibit greater investment in their networks.

The Marketplace

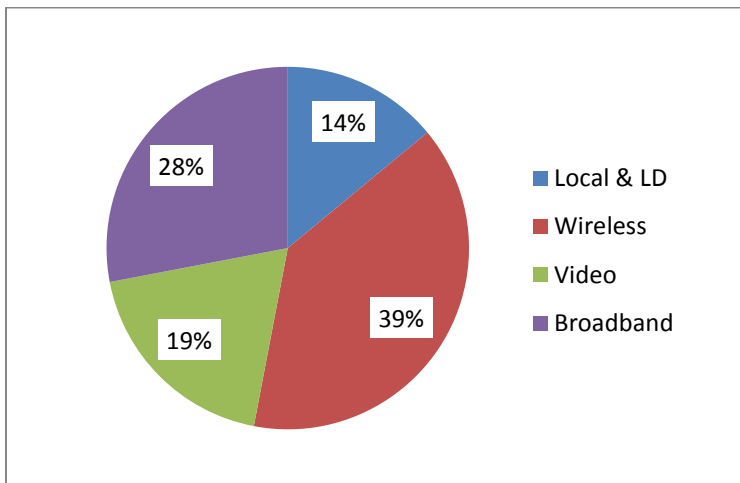
The telecom marketplace in Ohio is highly competitive, with hundreds of companies offering voice, video and data services. Wireless leads the pack among all providers with \$9 billion in annual revenues – more than 50% of which comes from mobile data plans.¹⁶ Local and long distance are steadily declining.

Telecom Revenue in Ohio (In Billions)¹⁷

Service	2006	2009	2013	2017
Local / Long (landline)	\$5.7	\$5.4	\$3.5	\$3.2
Wireless and Wireless Data	\$3.3	\$4.4	\$6.8	\$9.0
Subscription Video	\$1.3	\$2.8	\$3.8	\$4.3
Broadband	\$1.5	\$2.8	\$6.2	\$6.5
TOTAL	\$11.8	\$15.4	\$20.3	\$23.0

Local and long distance have declined by 43% over the past decade and now only make up 14% of the total. Wireless and video revenues have roughly tripled, and broadband has increased more than four-fold.

Telecom Revenues



In 2006, local and long distance made up one-half of all telecom revenue.

By 2017, they had dropped to only 14%.

The Competitors

There are 40 incumbent local telephone companies, 161 competitive local telephone companies, 31 cable television companies, two satellite television companies (DirecTV and Dish Network), 11 mobile wireless companies and 203 Internet service providers (ISPs) competing to provide Ohioans with voice, video and Internet services.¹⁸

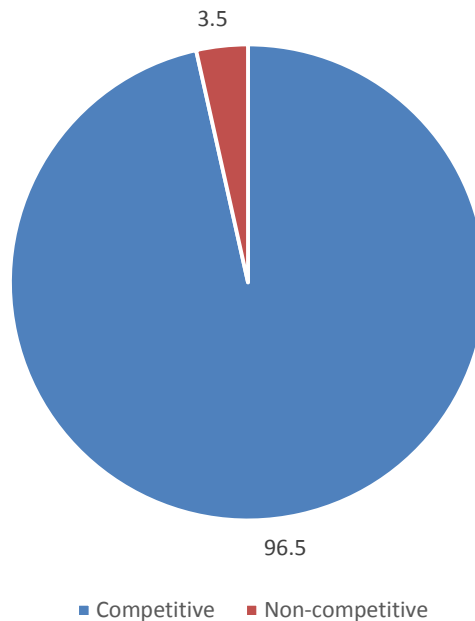
Whereas Internet and video are optional for consumers, basic local phone service is still regulated as an entitlement. Even as 70% of homes are wireless only, basic local phone service must remain available to 100% of homes.

Across the state, there are 759 “exchanges” – designated calling areas for local telephone companies, established by the Public Utilities Commission of Ohio.

Upon application, where there are two or more providers for basic local phone service, state law deems the exchange to be “competitive.”

In Ohio, 96.5% of all exchanges have multiple providers competing for the customer’s business and are competitive.¹⁹

Percentage of Ohio Exchanges with Competition



The Network

The wireline telecom network is the backbone of all communications. Without it, wireless calls could not be completed, and the Internet could not operate.

Consumers have come to expect that the network will be able to accommodate their growing online activities: video streaming to their tablets, browsing from their smartphones, high-definition signal to their TVs – all simultaneously.

In order to meet this rapidly growing need, Internet service providers (ISPs) must constantly increase the capacity to meet consumer needs. For example, to stream a single video in ultra-high-definition resolution (4K), the consumer needs a minimum of a 25 Mbps connection. As streaming approaches 100% of homes, ISPs will need to upgrade all parts of their networks.

AT&T has seen a 250,000% increase in network data traffic since 2007. There is a broad range of available Internet speeds in Ohio, based on the providers and locations.

Ongoing investment in the network, combined with efficient public policy, will ensure that all consumers have access to fast, reliable Internet access at comparable speeds.

IP Transition

The telecom network in Ohio is undergoing a radical transformation from old copper phone wires and circuit-based switches to an all Internet Protocol (IP) system. This means that all communications – voice, video, pictures, songs and the Worldwide Web – will be converted into data and processed by new data switches and other electronics.

The transition will require a wholesale replacement of old equipment with new IP networks, including fiber optics. The FCC will manage and direct the IP transition in coordination with the states.

***Telecom providers
must constantly
upgrade their networks
to keep ahead of
consumer demand.***

***AT&T has seen a
250,000% increase in
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since 2007.***

Telecom Regulation

For more than a century, Incumbent Local Exchange Carriers (ILECs), also known as local telephone companies, operated as government-sanctioned monopolies. Each company was assigned a geographic territory and became the sole provider of local phone service in that area. In exchange for this exclusivity, the government set rates, established service standards and restricted the profits that companies could earn.

United States

ILEC areas were opened to competition with the passage of the federal Telecommunications Act of 1996; yet *21 years later*, many of the *state* regulations that were original conditions of their monopoly status still exist.

In January 2013, the Federal Communications Commission began implementing “Connecting America: a Plan to Reform and Modernize the Universal Service Fund and Intercarrier Compensation System.”

Among the many rule changes, the Commission is phasing out its support of landline phone service and reallocating the funds to broadband deployment in unserved or underserved areas.

Ohio

In undertaking these changes, the FCC did not coordinate with individual states or consider the impact on state regulations. It simply recommends, in the most general fashion, that each state utility commission reconsider its regulations, based on federal changes. Without timely reform, regulatory uncertainty can adversely impact Ohio’s broadband and telecom providers.

On the state level, many of Ohio’s telecom regulations predate wireless and the Internet and are based on the old copper phone network.

Nationwide, state-by-state, public utilities commissions and legislatures are evaluating the work of the FCC and are modernizing their policies to create a level playing field for all telecom providers. More than half of states have enacted comprehensive market reform laws to address the changing marketplace.

Ohio’s local phone companies are burdened with excessive regulations, while other service providers enjoy an open and freely competitive marketplace.

New York and Minnesota, for example, established competitive grant programs to provide broadband to all households and businesses.

Ohio took a step forward in 2010 with the passage of the Telecommunications Modernization Act (SB 162). This affirmed that the Public Utilities Commission of Ohio (PUCO) has limited authority to regulate VoIP and may only exercise its limited authority if necessary for the protection, welfare and safety of the public.

However, local phone companies must still comply with outdated regulations that Voice over Internet Protocol (VoIP) providers do not have. VoIP is the technology used by practically all other voice providers than local phone companies.

Since 2010, the number of wireless lines has grown from six million to 12 million, and 70% of homes are wireless only.

Comparison of VoIP / ILEC Regulatory Requirements ²⁰

Regulation	VoIP	ILEC
Telecom Taxes	Exempt	Applies
Universal Service Support	None	Available
Local Loop Facilities	None	Regulated
Quality of Service	Market Driven	Regulated
Disconnect for Non-Payment	At Will	Regulated
Billing Rules	None	Regulated
State Jurisdiction	None	Yes
Federal Jurisdiction	Limited	Yes
Access to LD Carriers	None	Regulated
911 Access	Required	Required
Tariffs	None	Required
Lifeline	None	Required
Support of TDD and TDY	Required	Required
COLR	None	Required

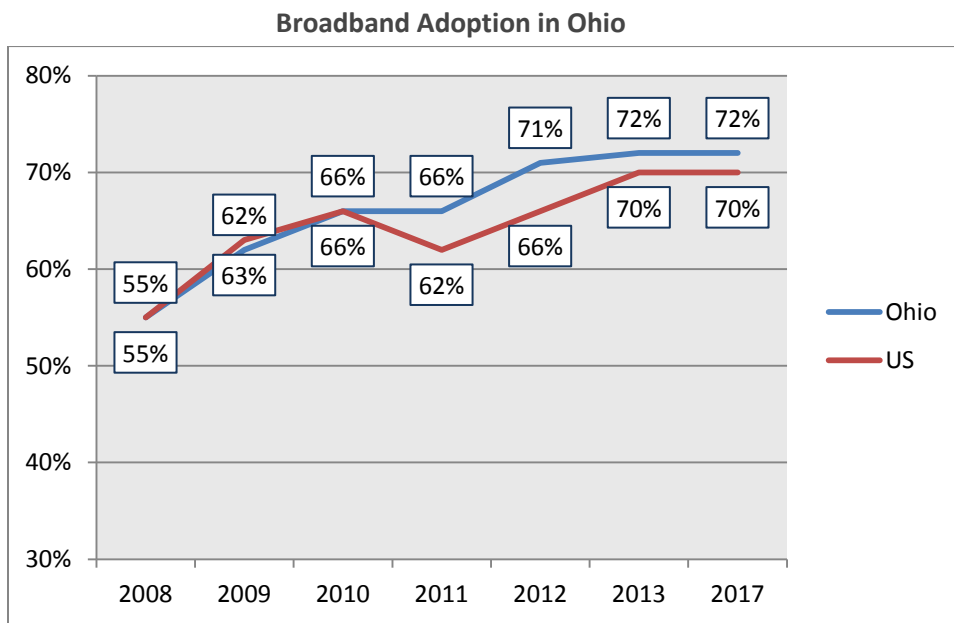
Pricing

Because Basic Local Exchange Service (BLES) rates are set by the PUCO, ILECs have limited flexibility on pricing. They must prove competition exists in their service areas in order to raise their rates. Even then, ILECs are restricted to a \$1.25 increase per year, irrespective of cost or the number of competitive options for consumers.

Investment in Ohio

Ohio's incumbent local phone companies contribute more than \$4 billion annually to Ohio's economy and invest more than \$1 billion annually in the network, making the incumbent local phone companies powerful drivers of economic development. OTA companies are committed to spending billions more to increase bandwidth and capacity. New technologies, such as fiber-to-the-home, can fulfill the need, but they require large capital investments. Estimates on how much capital is needed vary greatly due to topography, distance and number of customers in each location.

As a result of these and other companies' investments, Ohio is trending ahead of the national average in broadband adoption and mobile data.



Ohio's local phone companies contribute more than \$4 billion annually to the state's economy.

For the 28% of homes that do not subscribe to broadband (even though it is available), the primary reasons are age, cost and computer illiteracy. Elderly and lower income residents are less likely to use broadband and have limited computer experience.

Connect America Fund

The FCC established the Connect America Fund (CAF) in 2012. By 2015, CAF Phase Two funding was released, sending \$350 million to Ohio over six years to bring broadband to unserved and underserved areas.

Top Connect America Fund Recipients in Ohio ²¹

Service	Annual Award	No. of Locations
AT&T	\$14,000,000	37,603
CenturyLink	\$16,000,000	47,707
Cincinnati Bell	\$195,000	745
FairPoint	\$421,000	1,247
Frontier	\$22,900,000	66,592
Windstream	\$4,150,000	13,073
TOTAL	\$57,666,000	166,967

In addition to the companies listed above, the FCC has offered Ohio’s 34 small, rural telephone companies \$55 million to upgrade their networks to bring faster broadband to more than 7,000 rural homes and businesses.²²

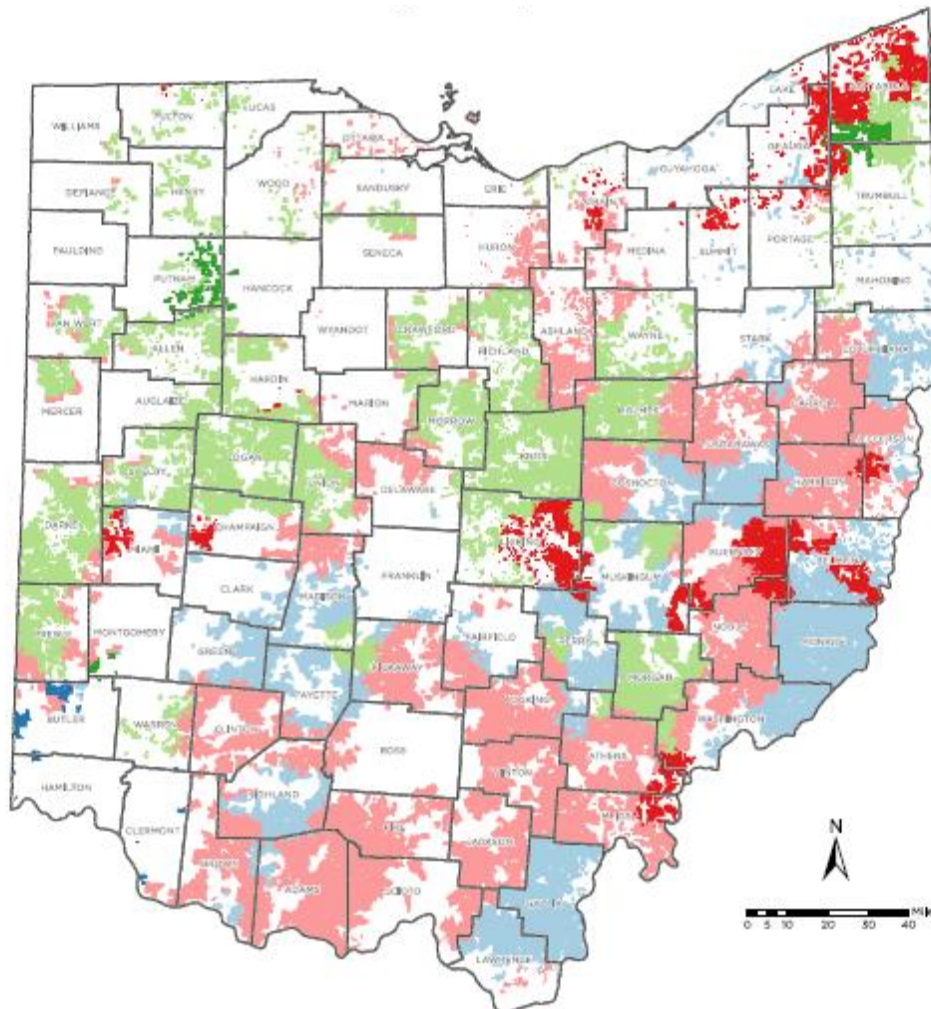
Broadband already extends across Ohio with 99% of homes accessible to a service provider. Ohio’s local phone companies will be investing millions more to reach the last 1% and to upgrade their networks to provide all homes with faster speeds and more reliable service.

Ohio is the only state in the U.S. in which all of the major local phone companies have applied for and received funding, indicating the strong commitment by all players to improve service to all consumers.

This partnership with the FCC will place Ohio among the most active states in the nation in broadband expansion. The map on the following page shows the designation of Connect America Funds in the state.

Broadband investment, capacity and availability are increasing, while the adoption rate remains flat. Telecom policy should focus on getting all homes to receive broadband.

Connect America Fund – Phase Two Build-out Commitments



Carrier	Housing and Business Locations in Targeted Areas	Annual CAF Investment
AT&T	37,603	\$14,802,500
Cincinnati Bell	745	\$194,944
CenturyLink	47,707	\$15,982,805
FairPoint	1,247	\$420,997
Frontier	66,592	\$22,927,850
Windstream	13,073	\$4,154,270

Legend

- County Boundary
- AT&T Areas Targeted for CAF Investment
- Cincinnati Bell Areas Targeted for CAF Investment
- CenturyLink Areas Targeted for CAF Investment
- FairPoint Areas Targeted for CAF Investment
- Frontier Areas Targeted for CAF Investment
- Windstream Areas Targeted for CAF Investment



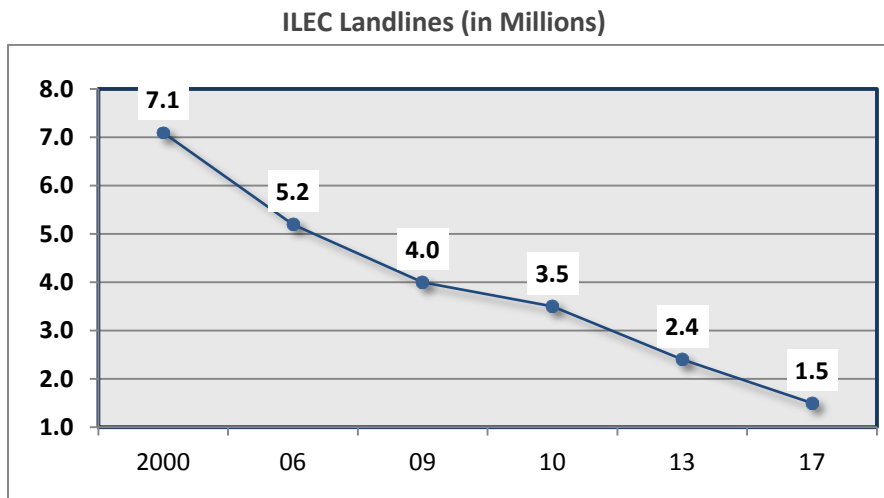
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Ohio's Local Phone Companies

New technologies have made traditional phone service largely obsolete. Most consumers prefer wireless and Internet communications to landline.

Residential users began eliminating their landlines in 2000, while businesses began converting their phone systems into voice over Internet protocol (VoIP) – a data communications service.

In less than a generation, Ohio's local phone companies – technically referred to as incumbent local exchange carriers (ILECs) – have lost 80% of their landline customers.



Since 2000 local phone companies have lost 80% of their customers.

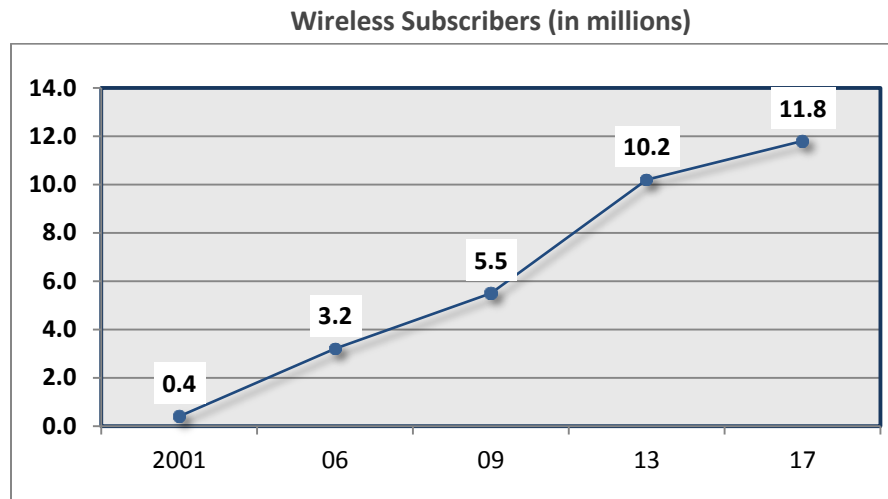
Landline statistics: ²³

- ILECs have lost 5.6 million local phone customers since peaking in 2000.
- Since 2010, ILECs have lost more than 10% of their phone lines per year.
- 20% of the lines remaining in service are basic only.
- 25% of the average phone bill is for taxes, surcharges and regulatory fees.
- 18% of lines remaining in service go unused each month.
- ILECs are heavily regulated, while other telecom services compete in an open market.

Despite their losses of local phone customers, ILECs remain the backbone of all telecom. They maintain the infrastructure that connects wireless and Internet communications.

Wireless in Ohio

Brimming with innovation, wireless continues to dominate the telecom industry. Wireless service revenues are now \$9 billion annually in Ohio. There are an estimated 11.8 million wireless phones in Ohio for a population of 11.4 million.



An estimated 70% of homes in Ohio are wireless only with an additional 10% having switched to a non-regulated VoIP service.

Wireless statistics:²⁴

- 95% of adults have a wireless phone.
- There are 9.1 million mobile wireless data plans in Ohio.
- The average home spends \$121 per month on mobile wireless.
- 77% of wireless users have a smartphone.
- Verizon Wireless projects its mobile data will increase seven times by 2019.

Each new generation of wireless brings faster speeds and greater reliability. Long-Term Evolution (LTE) is the name of the fourth-generation (4G) standard. This required each cell tower to be upgraded with new electronics to deliver the stronger and faster Internet speeds.

Fifth-generation networks are currently being fast-tracked by AT&T and Verizon and are due by 2020. In addition to providing much faster speeds (40-times faster than 4G) and much greater reliability, 5G networks will be the backbone of the Internet of Things and machine-to-machine communications.

There are more wireless phone numbers in service than people in Ohio.

Verizon Wireless projects its mobile data will increase seven times by 2019.

Broadband in Ohio

Fixed broadband is available to 99% of Ohio homes with 72% of those homes subscribing to a provider. ISPs are competing head-on to capture the consumer’s business and get broadband to everyone.

Like all telecom services in Ohio, broadband is very competitive. There are more than 200 providers, using a mix of technologies to bring a range of Internet options to Ohio consumers.

Ohio Internet Service Providers²⁵

Delivery Medium	No. of Providers
DSL (copper phone wires)	50
Cable Modem (cable television wires)	31
Fiber-optics	67
Fixed Wireless	45
Mobile Wireless	11
Satellite	2

Broadband statistics:²⁶

- Broadband is now in 72% of Ohio homes, 2% above the U.S. average.
- The average household spends \$61 per month on wired broadband.
- The average home spends an additional \$50 on mobile wireless broadband.
- The average household consumes a total of 150 gigabytes of data per month, a 130% increase in just two years.

There are several challenges facing Ohio broadband providers, including 1) keeping up with consumer demands for speed and bandwidth; and 2) encouraging adoption by the 28% of homes without broadband.

Customers expect more and more bandwidth at no additional cost and with no limitations, irrespective of network capacity or expense to the provider.

As to the 28% of Ohio homes without a broadband subscription, state and federal policymakers regard broadband to be an entitlement. Getting the service to all Americans is now a public policy priority.

Data traffic has increased more than 130% in two years.

How much is 150 GB of data consumption per month? The equivalent of streaming two-to-three hours of high-definition video per day.

Video in Ohio

Like wireless, video is exploding with innovation, from whole-home DVR to 4K-resolution. As a result, video providers are enjoying a steady increase in customer spending.

There are 31 cable television companies serving Ohio and two Direct Broadcast Satellite (DBS) providers: DirecTV and Dish Network. The cable companies have been especially ambitious at deploying broadband and phone service.

Video streaming has become a popular alternative to traditional television viewing. More than one-third of U.S. homes have a Netflix account. Netflix alone is responsible for one-third of all Internet traffic during peak hours.²⁷

Video statistics:²⁸

- 75% of all Internet traffic is related to video.
- 82% of homes currently subscribe to a video service provider, such as a cable or satellite company, down from a peak of 92% in 2007.
- 76% of homes use Netflix, DVR or video on-demand.
- The average home spends \$93 per month on subscription video (not including streaming).

Cord Cutting

History is repeating itself. Back in the early days of mobile wireless, a small minority of cell phone users began eliminating their landlines. They were willing to tolerate poor quality and dropped calls for the monthly savings of \$40-50 on their landline service. Fast forward to 2017, and 70% of Ohio homes are now wireless-only, due to much better cellular coverage and a new way of communicating through text and email.

Subscription video is on a similar path. An estimated 10% of homes nationwide have already cut the video cord.²⁹ The trend will accelerate dramatically over the next decade and become the norm. Consumers will watch and pay for television in a different manner, producing an entirely new video model.

75% of all Internet traffic is related to video.

10% of homes have cut the video cord and rely exclusively on streaming.

Healthcare and Telecom Case Studies

Rural Telehealth

Nowhere is the value of telecommunications more seen than in healthcare. Broadband connectivity has made it possible for residents throughout the state to receive the highest quality care from specialists and hospitals, often hundreds-of-miles away from where they live.

NTCA – the Rural Broadband Association recently released a study on the impact of telehealth – the remote delivery of medical services and clinical information using telecommunications technologies. Telehealth improves the delivery, cost and availability of healthcare to the most remote parts of Ohio.

This is especially valuable to rural Ohioans, who according to the Center for Disease Control (CDC), tend to be older, less advantaged and more susceptible to chronic diseases. They have less direct access to facilities, as rural hospitals continue to close, due to financial strains. Telehealth, made possible by the state’s broadband providers, is helping to bridge the gap between rural and urban areas.

Among the quantifiable benefits of rural telehealth are savings in transportation, lost wages and hospital costs, as well as increased revenues for local labs and pharmacies.³⁰ Telehealth can solve many of the healthcare problems inherent to rural areas.

Annually per Remote Facility	Savings / Revenues
Travel Savings	\$3,127
Lost Wages Savings	\$1,360
Hospital Cost Savings	\$27,209
Increased Revenues to Local Labs	\$49,299
Increased Revenues to Local Pharmacies	\$3,920

The complete study is available at www.ntca.org

Patient / Physician Relationship

Online patient portals provide more reliable and secure access to medical records for greater efficacy. Allowing patients to share their health data with providers has the potential for population health and chronic disease management. Patients can be more involved in tracking their conditions and help to identify changes in a condition before more costly treatments might be needed.

Leveraging broadband technology can expand the patient/physician encounter out of the office setting. This can lead to more frequent assessments and adjustments which may improve outcomes and cut costs.

The Cleveland Clinic is a leader in development of a rich, technology based relationship between patients and providers. Scheduling and access for patients, primary care and specialty providers are more convenient than ever. Through its patient portal, the Clinic has released millions of test results and ambulatory progress notes to patients. Further, patients can better manage medications, diagnoses, care plans, treatment options and health promoting activities. Patients now can more effectively manage their healthcare needs.³¹

The future of healthcare in Ohio is dependent on a fiber-based, broadband infrastructure – the same infrastructure that supports commerce, government services and education.

About the Ohio Telecom Association

The Ohio Telecom Association (OTA) promotes the common interests of telecommunications companies serving the state. OTA represents local phone companies, Internet providers, subscription video providers, wireless carriers and associate member companies that supply goods and services to the industry.

OTA plays an active role in the formulation of telecommunications policy working with its members, the Public Utilities Commission of Ohio and the General Assembly.

OTA is the first established telecommunications association in the United States. Its members are united in advocating for policies and regulations that create a fair marketplace. No single type of telecom provider – wired, wireless, VoIP – should be handicapped or be given an advantage in competing for the consumer's business.

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Sources

- ¹ Cronin Communications
- ² Ohio Telecom Association
- ³ Ohio Telecom Association
- ⁴ Federal Communications Commission (FCC)
- ⁵ Cronin Communications
- ⁶ FCC
- ⁷ Ohio Telecom Association
- ⁸ FCC and CTIA
- ⁹ FCC
- ¹⁰ Cronin Communications and Cisco
- ¹¹ Pew Research Center
- ¹² Millward Brown
- ¹³ Cronin Communications
- ¹⁴ AT&T
- ¹⁵ Verizon
- ¹⁶ Cronin Communications
- ¹⁷ Cronin Communications
- ¹⁸ PUCO, FCC and Cronin Communications
- ¹⁹ PUCO
- ²⁰ FCC
- ²¹ Connect America
- ²² Connect America
- ²³ Ohio Telecom Association and Cronin Communications
- ²⁴ FCC, Cronin Communications and Verizon
- ²⁵ FCC
- ²⁶ FCC and Cronin Communications
- ²⁷ Netflix and Cisco
- ²⁸ Cisco, Nielsen and Cronin Communications
- ²⁹ Nielsen
- ³⁰ NTCA – The Rural Broadband Association
- ³¹ The Cleveland Clinic