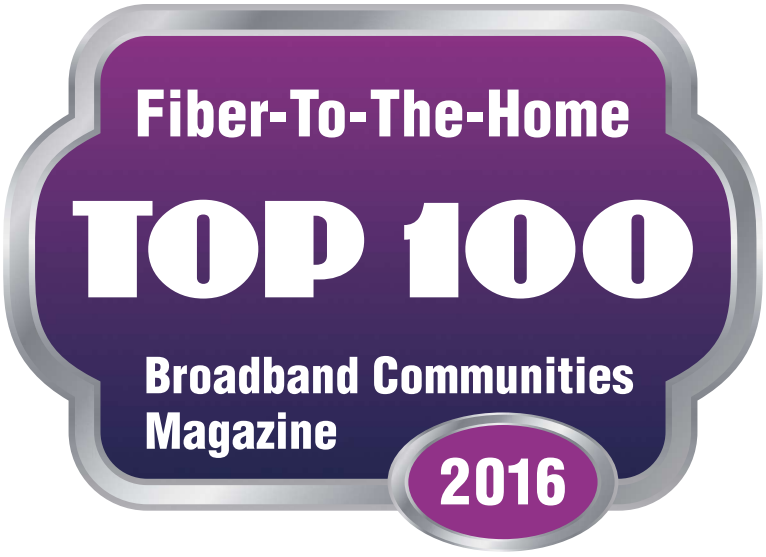

Fiber-to-the-home leaders and innovators for 2016

A BBC Staff Report

"Building a Fiber-Connected World" is the tagline of **Broadband Communities** magazine, and each year the FTTH Top 100 list recognizes organizations that lead the way in this arena. During the last year, the "game of gigs" that began with Google Fiber's Kansas City deployment continued apace, and the editors had plenty of Top 100 candidates to choose from.

As in previous years, the FTTH Top 100 list represents many niches in the complex fiber-to-the-home ecosystem. Optical fiber and fiber cables; passive equipment for connecting, protecting and managing fiber; and active equipment for sending and receiving signals over fiber are the most basic components of an FTTH network, along with software for planning, setting up and managing networks and for provisioning and billing fiber services. The list contains many companies that design, manufacture and distribute these essential products.

To put all these pieces together requires firms that finance, plan, design, engineer, construct and install fiber optic networks as well as equipment for digging, pushing, pulling and attaching fiber. These, too, are represented on the list. The list also includes a variety of organizations that advocate for better broadband or create the conditions that make FTTH more profitable.

Finally, there wouldn't be any fiber to the home if not for the network owners – large and small, private and public, incumbent and competitive – that invest in networks, decide what and where to build, operate networks and deliver services.

Companies newly added or reinstated to the list represent many parts of this ecosystem. Bechtel and Ledcor are large construction firms that have a renewed focus on fiber networks. Deep Fiber Solutions offers a specialized service that speeds the conversion of cable to fiber networks – critically important as cable providers build fiber closer to customers' homes or all the way to the home. CHR Solutions

ORGANIZATIONS ADDED OR REINSTATED TO THE 2016 FTTH TOP 100 LIST

American Polywater Corp.	www.polywater.com
Bechtel	www.bechtel.com
Biarri Networks	www.biarrinetworks.com
CHR Solutions	www.chrsolutions.com
Deep Fiber Solutions	www.deepfibersolutions.com
GigabitNow	www.gigabitnow.com
Ledcor	www.ledcor.com
Rocket Fiber	www.rocketfiber.com

offers engineering and network management services as well as software to support network operations. Biarri Networks uses an innovative approach to optimizing fiber network design. GigabitNow, operator of one of the oldest FTTH networks in the United States, has had recent success building and operating fiber broadband for multifamily communities in the Northwest. Rocket Fiber, a new service provider, is blazing its way across Detroit, connecting residential and commercial buildings with speeds up to 10 Gbps. And American Polywater Corporation makes decidedly un-glamorous products – lubricants and sealants – that are essential for fiber installation.

FTTH COMPANIES AT A GLANCE

SELECTION CRITERIA

In selecting the FTTH Top 100, the editors looked for organizations that advance the cause of fiber-based broadband by

- Deploying networks that are large or ambitious, have innovative business plans or are intended to transform local economies or improve communities' quality of life
- Supplying key hardware, software or services to deployers
- Introducing innovative technologies with game-changing potential, even if they have not yet been commercially deployed
- Providing key conditions for fiber builds, such as early-stage support or demand aggregation.

To be listed among the FTTH Top 100, an organization may be based anywhere in the world but must do business in North America. Except for broadband service providers, which are inherently local, we give preference to organizations that serve national rather than local markets. Overall size is unimportant, as is corporate form – in addition to for-profit companies, the list includes municipal providers, a telephone cooperative and several nonprofits, some of which include both public and private partners.

Although some organizations on the list focus entirely on fiber to the premises or other fiber-based broadband technologies, most deliver or support a mix of broadband technologies. For some, broadband represents only a small part of their business. In making these selections, the editors considered how important the organizations are to advancing fiber broadband rather than how important broadband is to them.

The FTTH Top 100 list was researched by Marianne Cotter, Rachel Ellner and Kassandra Kania and overseen by editor-in-chief Masha Zager, with recommendations and advice from editor-at-large Steve Ross. To nominate a company for next year's FTTH Top 100, email masha@bbcmag.com.

and interactive advertising platforms; whole-home DVR; fixed-mobile convergence; software for remote workforce management and network management

Summary: ARRIS broadband solutions support traditional RF triple-play services as well as IP video and high-speed data services, voice, on-demand content, targeted advertising, and network and workforce assurance solutions. The company's fiber deep architectures provide a variety of cable-friendly FTTP infrastructures that allow future migration for cable companies to Remote PHY – or all-IP – with minimal changes to plant infrastructure. These architectures, based on HFC technology, make deployment and maintenance relatively simple for service technicians. In January 2016, ARRIS completed its acquisition of Pace, a provider of technology solutions to the pay-TV and broadband industries. Headquartered north of Atlanta, in Suwanee, Georgia, ARRIS has R&D, sales and support centers throughout the world and employs 6,500 people globally. In 2015, ARRIS reported revenue of $4.8 billion.

AT&T / AT&T Connected Communities

www.att.com/communities

Key Products: Broadband internet, TV and voice services

Summary: AT&T is a leading provider of wireless, Wi-Fi, high-speed internet, voice and cloud-based services. The company has expanded its all-fiber GigaPower network to deliver internet speeds up to 1 Gbps to more than 1.5 million homes and apartment properties located in fast-growing rental metro areas across the United States. It plans to reach at least 56 metro areas with the technology, which was introduced in 2014. As part of its 2015 acquisition of DIRECTV, AT&T committed to expand its FTTP footprint to 11.7 million customer locations by 2019. At present, many AT&T customers can choose between DIRECTV or U-verse TV services, though the company has stated that it will eventually replace U-verse TV with an IP-based version of DIRECTV. AT&T Connected Communities is an organization dedicated to working with multifamily and single-family builders, developers, management groups and homeowners associations to provide next-generation communications and entertainment services. AT&T provides fiber connections to more than 1 million U.S. business locations, global IP network services that connect businesses representing 99 percent of the world's economy and high-speed internet connections to more than 57 million U.S. customer locations. AT&T revenue for 2015 was $147 billion, and the company employed more than 280,000 by the end of January 2016.

Atlantic Engineering Group

www.aeg.cc; www.atlanticifibernetworks.com
706-654-2298

Key Products: Design and field engineering, aerial and underground construction, professional services for FTTH networks

Summary: Atlantic Engineering Group (AEG), a pioneer in fiber-to-the-home network deployment, helps lead the drive to combine FTTH and smart-grid technologies into a single business plan for municipalities and rural electric cooperatives. The company, founded in 1996, specializes in the design and construction of fiber communications networks. Though this outside-plant specialist is headquartered in Braselton, Georgia, it deploys in-house personnel and on-site project managers globally. AEG performs project management, business modeling, service planning, engineering, underground and aerial construction, splicing, premises installation, headend activation, testing and many other professional and technical services. It has completed design or build commissions for more than 100 networks, including 42 FTTH projects, representing more than 2 million homes passed. Clients include municipalities, electric utilities, telephone companies, new market entrants and government agencies. To expand its E-Rate business, AEG established Atlantic Fiber Networks, which owns, designs, builds, manages and maintains educational wide area network solutions tailored to meet the needs of educational institutions. AEG merged its engineering division in early 2016 with Actavo, an international strategic operations partner in the telecom, industrial and building industries, headquartered in Dublin.

Baller Stokes & Lide, PC

www.baller.com
202-833-5300

Key Products: Legal services, public policy advocacy

Summary: This telecom law firm has a long, consistent record of support for the development of fiber to the home through its representation of clients and through public policy advocacy. The firm represents public and private entities on a broad range of communications matters, both nationally and in 35-plus states. It is best known for representing the rights of public entities to build and operate communications networks. The firm served as a consultant to Google on its Fiber for Communities initiative, was involved in several Gig.U projects, and has provided legal counsel for more than 70 community or public-private fiber projects. As the founder and president of the US Broadband Coalition, the firm's president, Jim Baller, helped develop a national consensus on the need for a national broadband strategy. He is now a driving force behind the movement to use high-capacity broadband to foster economic development. He is the co-founder and president of the 400-member Coalition for Local Internet Choice, dedicated to protecting the rights of communities to determine their economic futures and quality of life by choosing the best broadband Internet infrastructure. Founded in 1983, Baller Stokes & Lide is based in Washington, D.C. It has four attorneys and works with a network of local and regional counsel across the United States.