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Communications Offers & Insights

Summer Issue 2014

FINDING A WAY TO MEET BROADBAND NEEDS

Rural Texas FTTH Project Makes High-Speed Service a Reality

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How GVEC is utilizing GVEC.net to follow up on its commitment to deliver more for its members

INSIDE this issue

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In this issue

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Inside View

"Today, consumer devices and demands are driving change faster than anyone could foresee 30 years ago."

-Steven Locke
Vice President of Sales & Business Development, KGP Companies

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My career began with a local telephone company offering Plain Old Telephone Service. The competition was limited; the customers loyal and the service dependable. Being able to view the technology evolution from its foundation has provided me with a real sense of how dramatically the consumer experience has changed. Today, we talk on the phone while driving down the road with our families surfing the internet and watching their favorite movie from the backseat. That's a far cry from where the industry was just a short time ago.

Today, consumer devices and demands are driving change faster than anyone could foresee 30 years ago. Demands for data are skyrocketing from the onslaught consumer devices and business applications, such as cloud computing, Machine-to-Machine, and cyber security. The need for communications providers to offer more with less is driving the convergence of networks into a concise, highly-scalable and manageable architecture. According to a report provided by USTelecom, in 2017, consumption of IP traffic is expected to reach 37.1 exabytes (that's 37.1 billion gigabytes!) per month. That represents enormous growth (92,650%) over the 40 petabytes (40 million gigabytes) of IP Traffic consumed in the United States per month in 2000; only 14 years ago. Data is projected to surpass voice spending this year with continued growth through 2017 capturing 61% of the total anticipated spend for wireless services. Data and the magnitude of growth predicted is a game-changer.

The need to act decisively with an intense focus on strategic network improvements, long-term growth and viability has never been more critical. Throughout my years in telecom I have had the privilege of meeting many of the providers responsible for building the networks that lay the foundation for all of this enormous expansion. At KGP Companies, we have taken a unique approach to listen to our customers to identify areas where our core capabilities in supply chain and logistics services can reduce complexities and increase the speed to market. Our expansive logistics network, breadth of supply chain and inventory management capabilities offer key opportunities to customize solutions to augment and streamline network deployments. Additional distribution centers in Allentown, PA and Wilsonville, OR were added in 2013 to provide enhanced support and capabilities within those regions.

KGP Companies is committed to providing exceptional service to our customers and partners. "Consistently changing to keep in the forefront of the technology evolution is critical but we must balance that with the need to remain dependable and reliable."

Steven Locke

Vice President of Sales & Business Development,
KGP Companies

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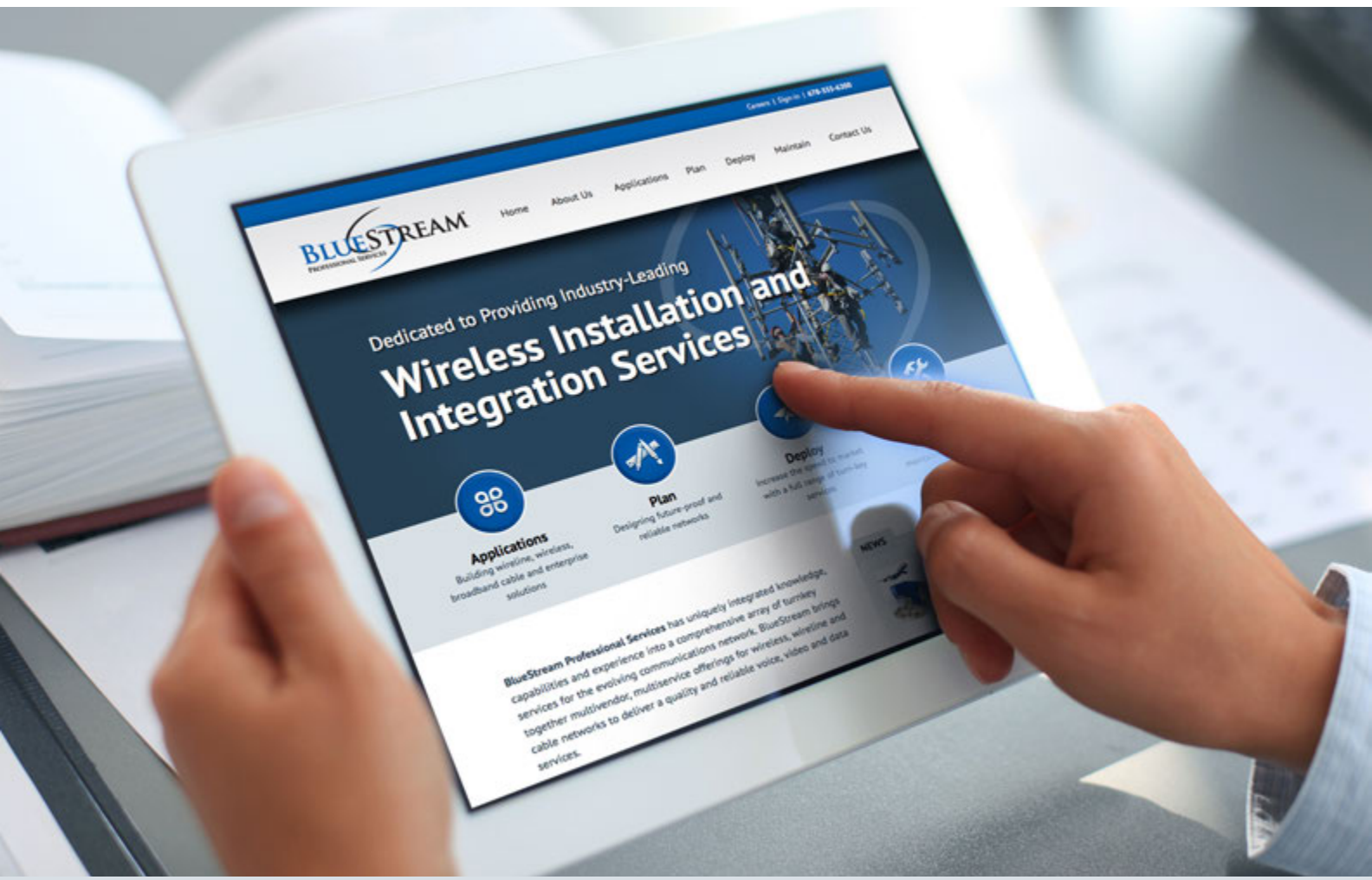
Check out the all new BlueStreamPro.com for information about how BlueStream Professional Services can provide expert level services for your next deployment. BlueStream Professional Services has uniquely integrated knowledge, capabilities and experience into a comprehensive array of turnkey services for the evolving communications network. BlueStream brings together multivendor, multiservice offerings for wireless, wireline and cable networks to deliver a quality and reliable voice, video and data services.



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Making the Move to Gigabit Services –
What You Need to Know for a Successful Transition

As the number and types of devices accessing the network continue to grow, the demand for bandwidth is unceasing. So much so that the 5 Mbps, 10 Mbps or 100 Mbps service that was once thought to be the ultimate, is now common place and the move is on to Gigabit service and beyond.

It's Time for "Change"

Futurist Mike Walsh once said "Change…. Always appears incremental until it's too late." This statement is so important, so fundamental, not just for our industry, also for us personally. What this means is that each of us needs to evolve, change and grow every day or we will become irrelevant. Likewise, we need to enable our customers to evolve, change and grow or they will become irrelevant.

Why is the pace of change accelerating?

Those of us in the technology business have at least **a few laws** we can look to when pondering this acceleration in our growth forecast. The first one is **Moore's Law** which states that ***the number of transistors on ICs doubles every 24 months***.

His prediction has proven to be incredibly accurate. However advancements in speed, processing power, and memory, find a remarkably straight line going back 50 years. If you extend the graph, so that it includes vacuum tube technology and even mechanical hand-crank adding machines, the line can be extended more than 100 years into the past.

So what does this mean for bandwidth. We look to ***Gilder's Law which says that the total bandwidth capacity of communication systems triples every 12 months***. Or bandwidth grows at least three times faster than computer power.

A third governing law that has a direct impact on not only what we do but why we do it is Metcalfe's Law which says ***the value of a network is proportional to the square of the number of nodes***. So, as a network grows, the value of being connected to it grows exponentially, while the cost per user remains the same or even reduces.

As you look at the convergence of these three laws, you can see we have, or are poised for, a synergistic reaction. The intersection of these three laws will foster an era of connectivity and creativity that will surpass most of our dreams. Abundant and cheap processing power and bandwidth combined with ubiquitous connectivity will bring in new business models, new ways of exchanging ideas and new ways of thinking which will shape the future as profound as the printing press.

Because of Moore's Law, more nodes can be economically added to a network which makes it more valuable, per Metcalfe's Law. When the network becomes more valuable, more bandwidth is needed, feeding Gilder's Law. When bandwidth is added, any spare capacity invites more connections. This makes the network more valuable, which drives demand for more powerful networking elements.

The rate of change is going to continue to accelerate at an exponential rate. As a result, service providers will not have clear visibility to future requirements of their customers. Network Flexibility is paramount. The long-term demand for broadband is infinite. Given infinite capital budgets and infinite payback times you would build fiber to the home everywhere. At the end of the day, users demand "instant access". They want any service, anywhere, on any device, instantly.

A future network state is required to allow service providers to effectively evolve, change and grow.

Where change is leading us - Gigabit Services

It was only a few years ago that the Federal Communications Commission (FCC) set forth a goal to deliver 20 Mbps services to 20 million households by 2020. This makes one wonder, do we really need a Gigabit?

The launch of fiber-based Gigabit services by Google Fiber and followed quickly by Tier 1 service providers such as AT&T and CenturyLink as well as Tier 3 carriers like Comporium, lead one to think that the move is on and if you (the service provider) build the infrastructure they (the customer) will come.

Gigabit Services Delivery Architectures

Gigabit services put a tremendous strain on all aspects of the network and bottlenecks begin to emerge quickly. Subscribers are paying for the service and they want to see it. This means carriers must deliver. That begs the question, what's the best architecture? There are several choices.

There are three things that service providers must consider for a successful Gigabit services delivery architecture. These are: PON, backplane and transport.

Many operators use GPON for Gigabit delivery. Active Ethernet does not have a bottleneck. By definition it is 1Gig symmetric services, but is more expensive to deploy than GPON.

ONT Evolution

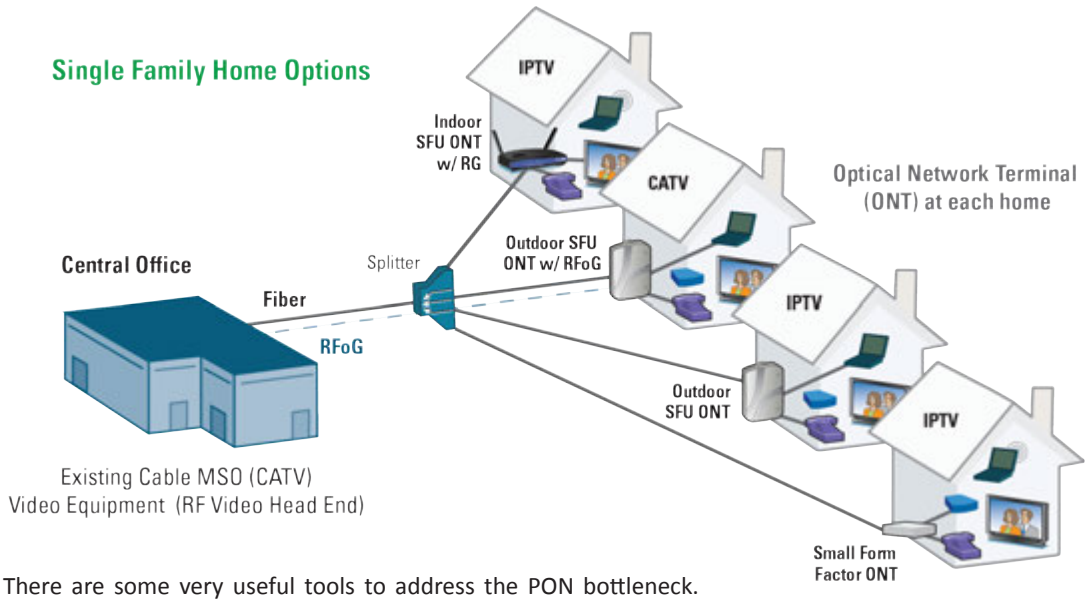

figure 1

Example 1

8-port GPON OLT
x 2.5G GPON per port
= 20G per access slot to egress chassis (Minimum)

Example 2

4-port XGPON1 OLT
x 10G GPON per port
= 40G per access slot to egress chassis (Minimum)

There are some very useful tools to address the PON bottleneck. These include:

- Advanced Dynamic Bandwidth Allocation
- Intelligent oversubscription
- Pools of separate bandwidth for business and residential
- Dedicated video pool and CIR

As bandwidth peaks, which is no more than 10Mbps peak average today, increases, and more subscribers splits are used, the more network side heavy lifting is required to ensure Quality of Service (QoS).

GPON

» 2.5G downstream, 1.25G upstream
» Widely deployed today

XGPON1

» 10G downstream, 2.5G upstream
» Only trial deployments to date
» TDM-PON technology (same as GPON)
» NGPON2
» 4-8 λs of TDM-PON (TWDM)
» 10/10, 10/2.5, 2.5/2.5
» 40-60 km reach / 1:256 split ratio
» ONTs require tunable receive filters and tunable lasers
» Standard finalized in 2014
» WDM overlay for special requirements (CPRI)

Backplane or back panel or mid-plane connects access modules (VDSL2, GPON, Native Ethernet) that are aggregating customer services AND the switch fabric that aggregates those same modules 10, 20 or more of them before uplinking the system to the cloud via big, expensive IP switch and router ports.

Non-blocking architectures are definitely the way to go as seen in the examples in *fig 1*.

Transport

The third and final element is transport. Continued growth of symmetric Gigabit service users will leave carriers looking for more answers to address their transport network. Service providers must meet three basic needs in terms of transport:

- Cost-effective 10G aggregation
- An answer to exhausted 10G rings
- Dedicated fiber support to cell towers

Some things to consider:

- The need for cost effective 10G aggregation
- Point-to-point solutions are great, but switch ports are very expensive
- 10G rings are nice but shared bandwidth is a problem
- There is a growing demand for dedicated fiber support to cell towers as cellular providers will soon not accept the jitter and delay associated with sharing the pipe with broadband.

Let's move to the customer side of the gigabit network the Customer premises. As much as 90% of the electronics cost and one-third to one-half of the overall cost per home lies here.

Network infrastructure considerations to successfully support Gigabit services rollout.

» Supporting strict service level agreements
» Fiber to the Home, not throughout:
» Driving down the cost of the most expensive elements to FTTH.
» The ONT and its installation.

Factors Determining ONT Construction

- **Packaging**
  – House, Business or Apartment
  – Outdoor or Indoor
- **Services**
  – Voice, Video, Data
  – CATV, IPTV
- **Integration**
  – Wi-Fi, Residential Gateway/Router
  – Home wiring type

However, as the market trends are migrating from outdoor to indoor, there are fewer requests for sub-gigabit options like HPNA and MoCa 1.1. Power and battery-backup size must be reduced along with the cost of installation. ONT prices that were once in the $200-$300 dollar range must now be closer to $100 or below. To do this, customer service installs must be simplified.

New ONT options also help the financial case. Micro ONTs are only about the size of a credit card and can be drop shipped to customers for self-installation and are only a fraction of the cost of older ONT models. These ONTs are particularly good for MDU applications. Residential gateway ONTs also provide some added advantages. These single-box solutions include an integrated radio and are perfect for managed services.

Conclusion

Making the move to Gigabit services is paramount to the success of the service provider, the bandwidth satisfaction of the consumer and the establishment of a fundamental architecture that can evolve, change, and grow over time. With all of the prognosticators speaking about the future bandwidth demands, one thing is for certain—many service providers have made the decision to deliver tomorrow's services today with gigabit deployments. It is never too late to make the right decision about the gigabit services architecture. ADTRAN is fully committed to creating a business model that works for service providers around the world as they make the successful transition to Gigabit.

Reinventing FTTH

Ultra-Flexible, High-Capacity, Deep Fiber Solutions

The growth in devices accessing the network is driving the need for higher bandwidth resulting in the need for increased FTTH deployments. ADTRAN® offers a full portfolio of solutions that deliver ultra-flexible, high-capacity, deep-fiber solutions. These solutions provide ultra-high service density, allowing service providers to expand their addressable market and ensure that no customer is left behind.

To learn more, visit ***adtran.com/ftth***

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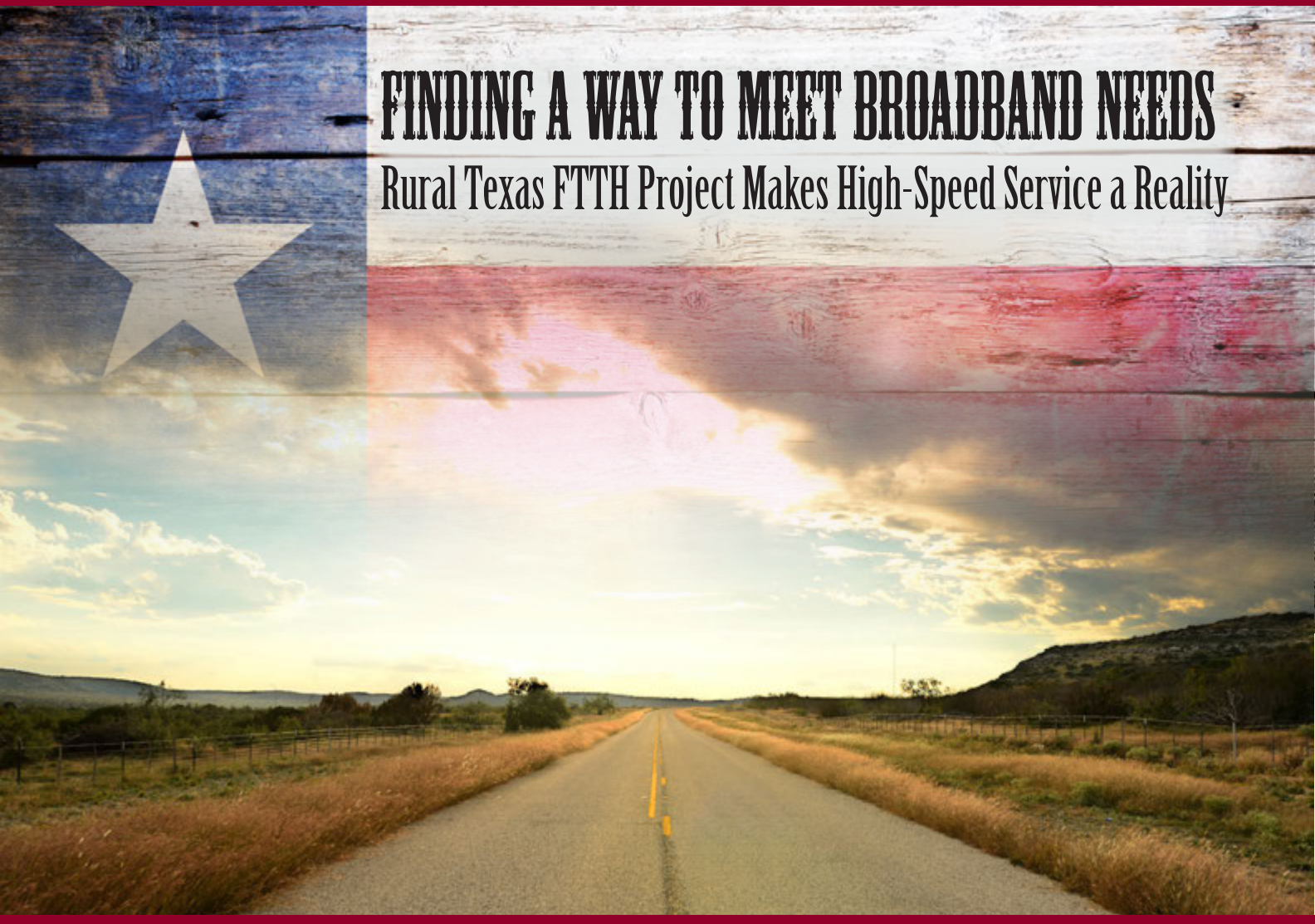


FINDING A WAY TO MEET BROADBAND NEEDS

Rural Texas FTTH Project Makes High-Speed Service a Reality

How GVEC is utilizing GVEC.net to follow up on its commitment to deliver more for its members

Across 16 counties of remote South Central Texas (east of San Antonio), local folks tend to be fiercely independent and are quite comfortable – thank you very much. But that doesn't mean they're not interested in the same level of high-speed Internet connection that has become commonplace in large metropolitan areas.

The expectation for higher speed access is what prompted Darren Schauer, GVEC General Manager and CEO, to initiate a pilot project to deploy fiber broadband to the small, but fast-growing, community of La Vernia, Texas. The project would require 90 miles of fiber-optic cable to reach 3,000 households. Planning, engineering and design of the network would be the responsibility of GVEC.net, a subsidiary of GVEC, which is a 75-year old electric cooperative servicing 74,000 meters.

"When GVEC.net first entered the market as an Internet Service Provider (ISP) in 1998, the goal was to bring this amenity to our rural residents. Since then, technology has improved and attitudes have shifted. The Internet is no longer a luxury, but a necessity, and today's customers want the faster speeds, greater bandwidth and reliability this next-generation product offers," stated Schauer.

The GVEC.net Board of Directors was also quick to see the advantages of this new, wired expansion and voted to approve it. But in doing so, GVEC.net would be tasked with a venture that was beyond their scope of expertise. This was to be a predominantly wired network and GVEC.net is a wireless company. Realizing such a new and complex undertaking would be a challenge solely on their own, GVEC.net hired an experienced industry consultant, Robert Russell, to assist them, and then they proceeded to put together a plan and a team of strategic partners and vendors well known for their fiber Internet expertise.

ADTRAN, Corning and KGP Logistics Play Important Roles as Key Project Partners

Prior to 2013, GVEC.net served their customers with broadband Cambium and WiMAX wireless technology. They decided to start a trial area in La Vernia, TX to do FTTH for their residential customers to gauge the level of interest.

The decision was made, early on, to launch FTTH by offering both Active Ethernet and GPON (passive) services in three data-speed packages: 50MB, 100 MB, and 1Gbps. ADTRAN was already being utilized by GVEC as their internal communications and wireless backbone for fiber transport and backhaul via their DWDM (Dense Wavelength Division Multiplexing) capabilities. Since the ADTRAN TA5000 platform was highly flexible and could handle both GPON and active Ethernet connections, it made the most sense to continue with this highly reliable platform for the FTTH project.

Also, after working with Corning to develop the Outside Plant portion of this FTTH project, GVEC.net chose to go with the Corning FlexNAP solution, which allows very quick delivery of fiber to subdivisions by eliminating the need for hand-splicing of cable and greatly reducing time and manpower requirements.

The Corning FlexNAP System utilizes fiber cables upon which access points are pre-installed for customer-specified locations along the length of cable. The system provides installation speeds 85% faster than traditional cable deployment methods by reducing cable preparation time. One FlexNAP ribbon cable holds up to 96 fibers.

"The Internet is no longer a luxury, but a necessity, and today's customers want the faster speeds, greater bandwidth and reliability this next-generation product offers."

- Darren Schauer, GVEC GM & CEO

The critical link between them was KGP Logistics, which already had a well-established relationship with both ADTRAN and Corning, and had worked with them on several similar projects in the past.

David Reinertsen, District Sales Manager for KGP Logistics, said, "We are a one-stop shop for our customers; capable of providing end-to-end solutions because of our existing partnerships with industry-leading vendors, such as ADTRAN and Corning. We're able to spec, quantify, arrange and deliver all the necessary supplies. Handing the upfront materials management for GVEC.net, including stocking ONTs, drops, and so forth (warehousing the inventory until it was needed) was part of our process. When planning the project, we looked at GVEC.net's project goals and timeframes – accounting for the entire run rate – and then determined what and how much product to stock."

"KGP Logistics was great with communication and letting us know where we stood with product availability..."

- Tad Vernor, GVEC.net Manager

The GVEC.net team leading the FTTH project includes, from left to right: Ceason Barnick - Senior Executive Manager, Tad Vernor - Installation Manager, and Robert Russell - FTTH Consultant.

Proving the Payback of a Sizeable Investment and the Value of Thorough, Deliberate Planning

"The majority of our customers are wireless, and we initiated the FTTH project in La Vernia to test the waters," explained Ceason Barnick, GVEC Senior Executive Manager. "Primarily, we wanted to gauge customer interest. GVEC.net is a for-profit company, even though it's owned by a non-profit, and so any product they provide has to stand-alone and be marketable and profitable. We needed to see if this was a network we could build and implement and turn revenue on."

The challenge was greater than what most might imagine, because La Vernia was actually a highly saturated wireless technology market. However, that also meant greater service interference from so many competitors crowding each other out. GVEC.net would be the first and only fiber Internet option.

"With our wireless offering, we are only able to provide 8MB service," Barnick continued, "but with FTTH, we can offer up to 1Gbps. The biggest consideration in choosing La Vernia for the test was the fact that it is one of the fastest-growing areas that we serve. And to be the size it is with the growth opportunity it has… with no other option than wireless… no cable or DSL… made it a logical choice."

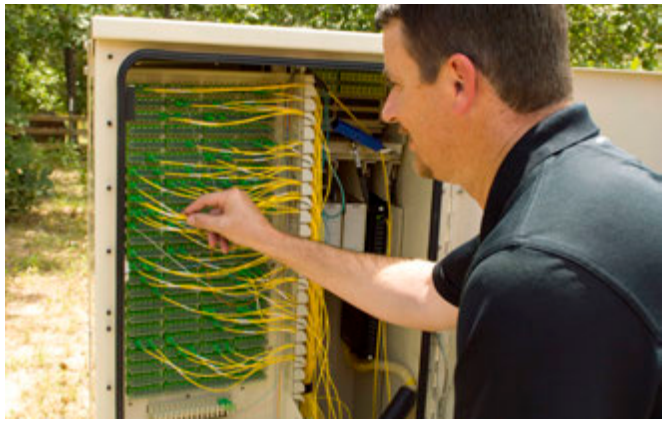
"For us, really, the most difficult part was learning the technology and immersing ourselves into something that was brand new to us. Also, having to build those outside relationships with different vendors," Barnick said.

Tad Vernor, GVEC.net Manager added, "The biggest issue for me was dealing with timelines, new vendors like Corning and ADTRAN, and making sure that we had the right equipment when we needed it. That was something we hadn't dealt with in our wireless lead times or products before. Thankfully, KGP Logistics did a very good job of managing this for us. It's why we chose them; to help make everything come together. KGP Logistics has done things for us to make sure we didn't have to worry about lead times and that things would go as smoothly as they could. KGP Logistics was great with communication and letting us know where we stood with product availability, and David was a great knowledge resource for us."

"We chose Corning because they are the leader and have set the standard with their FlexNAP cable. It's pre-spliced configuration made it easier to bring up customers without the need for specialized people in the field. We feel like the time and cost savings in ease of deployment is substantial."

"We chose the ADTRAN platform with confidence due to pricing, performance and versatility," Vernor concluded.

The ADTRAN Total Access 5000 is a carrier class, multi-service access and aggregation platform that bridges the gap between the existing and the next generation networks.
With a pure Ethernet core, it supports both legacy and emerging service interfaces and can be easily scaled to support even the most bandwidth intensive applications.



Progress, Profit Projections and Customer Response Have Been Extremely Encouraging

Overall, the deployment has gone very well. Less than 5 months into the project, the first customer was turned up. The "take rate," or rate of new customer sign ups, has been steady, and GVEC.net estimates that they have one month to go (July, 2014) until completion.

"We have received an overwhelmingly positive response from our customers," Barnick mentioned. "In fact, they're shocked. Even though they were waiting for it, and expected it, we have received very, very positive feedback on the service that they are getting with this product. We have set a benchmark of a 40% take rate in order to call our pilot project successful. However, we feel like the model will ultimately prove out at a much higher rate."

With the end in sight, Vernor reflected on his biggest impression of the entire project. "I am really impressed with how advanced fiber is for delivering technology versus anything else out there. You hear people talk about 'futuristic' all the time. But that's exactly what this is. Right now, we don't even know where the limits are. Manufacturers keep coming out with new optics that allow you to do more and more, and it's just exciting for us to bring something so revolutionary to our customers in such a small, rural area."

"Part of the GVEC mission statement is to identify and invest in products and services that fulfill the needs of those we serve," underscored Barnick, "and I think this is a glaring representation of how GVEC.net is carrying out that mission; investing in the latest, greatest technology. We have found, as a rural ISP, that the possibilities for fiber technology are limitless and will pan out for our customers, as well as prove out our business model, financially, and pay off for us as an investment."

About the Guadalupe Valley Electric Cooperative (GVEC) and GVEC.net

GVEC.net has been providing thousands of customers with high-speed Internet services for over 16 years throughout the south Texas region. The Internet Service Provider covers a 16 county radius and is a subsidiary of the Guadalupe Valley Electric Cooperative, which services over 74,000 consumers in the GVEC service area spanning 3,500 square miles across 13 counties in South Central Texas. The headquarters is located in Gonzales, Texas with four area offices in the cities of Schertz, Seguin, La Vernia and Cuero.

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–Henry David Thoreau

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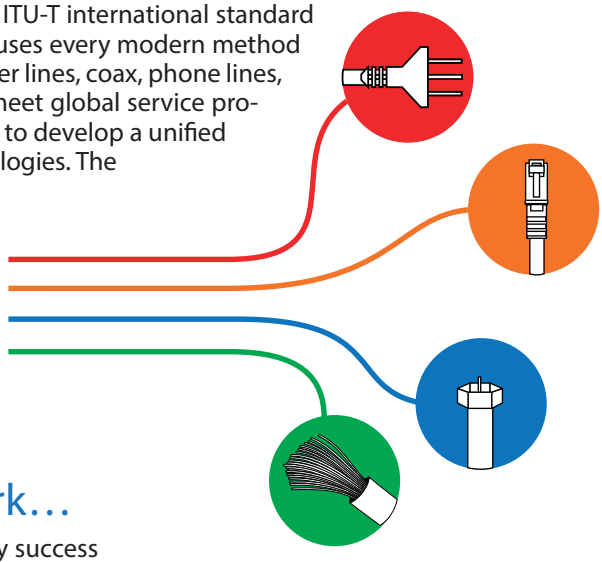
G.hn in a word – Convergence

By Don Gardenhire, ARRIS Group
John Egan, Marvell Semiconductor and President of Home Grid Forum

Designed from the ground up as an international standard for ANY wired medium, G.hn is the future for whole-home network connectivity.

G.hn Intro

Defined by service providers, for service providers, G.hn is an ITU-T international standard for home network connectivity over any existing wires. G.hn uses every modern method to deliver peak-performing mixed-services over a home's power lines, coax, phone lines, or any copper pair(s), as well as over plastic optical fiber. To meet global service providers' demanding criteria, the ITU-T started with a clean slate to develop a unified standard unencumbered by the limitations of existing technologies. The resulting standard defined a single technology to connect all the wires in a home to a single network at lower cost, higher performance, and with greater interoperability. G.hn delivers on the promise of a simple user-installed ecosystem – while maintaining the ability of service providers to configure, manage, and optimize their services.



Any wire, Anywhere. It just works.

Wireless still requires a wired network…

Wireless is the poster-boy of portable networking, but its very success leads to congestion and problematic coverage. G.hn extends Wi-Fi's performance by providing a hybrid, wired+wireless network in the home. This provides a number of benefits:

- G.hn can be used to interconnect fixed, non-battery powered devices by simply plugging a G.hn-enabled device on the wired network. This reduces the load on the wireless network and provides portable devices greater bandwidth and less interference
- A wired G.hn backbone with low-power Wi-Fi extenders will increase Wi-Fi coverage throughout the home. Interference (for both wireless and powerline) can be a problematic in multi-dwelling buildings, but G.hn overcomes this with a clever technical feature, NDIM (Neighboring Domain Interference Mitigation), built into the standard
- G.hn also increases the total available bandwidth in the home by using multiple types of medium at the same time
- G.hn is so easy to use that anyone can install it, but it can still be supplied and managed by the service provider.

Service providers sell services

Every support call costs money and detracts from the prime purpose of the service provider - which is service delivery. To assure quality delivery of services, providers were often forced to condition every wire in the home and install each home network device. The installation became even more complicated due to the advent of converged services: voice, video, and data. However, not only is G.hn easy to self-install, it includes both QoS and security, and can be remotely configured. Now customers can install their own devices, and if there are problems, the provider can diagnose and dynamically re-configure the devices remotely from the central office. All this is accomplished without entering the customer's home, installing any new wires, or worrying over service limitations in the future or conflicts with existing equipment.

G.HN

Convergence

G.hn was defined to be the "any wire" component of a converged, heterogeneous home network. With its ability to extend existing wireless, or wired, networks in any home, it is the only real choice for service providers to deliver emerging and converging future services like Ultra-HD and home automation, while continuing to deliver all the existing services.

HomeGrid Forum (HGF) is an industry alliance that brings together the world's best in technology innovators, silicon vendors, system manufacturers and service providers to promote G.hn, a globally recognized gigabit home networking technology based on ITU-T standards.

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In Post-Storm Outside Plant Restoration, Pre-Planning is Key

Preformed Line Products (PLP) and KGP have vast experience with many storm emergencies and know that pre-planning is key to ensuring telecommunication customers have the materials, including engineered-specific products, necessary to "weather" any storm.

In the wake of severe damage caused by weather events that leave homes and businesses without broadband and video services for days and weeks, telecommunication companies are landing squarely in the crosshairs of both public and political scrutiny. Most recently, when Superstorm Sandy wreaked havoc on parts of the U.S. East Coast, an estimated 8.6 million people were left without power and communication services – some for weeks. With pressure from all sides, telecommunication providers are working hard to find ways of improving their responsiveness to ensure timely restoration of service.

"At PLP, it's a multiple-step process when we hear a storm may be imminent in a region served by our telecommunication customers," says John Hofstetter, V.P. of Sales and Global Communications Markets at PLP. "When that happens, we immediately begin discussions centered on how to prepare to meet any additional supply needs."

Step one is communicating with everyone involved to ascertain what might be needed in a worse-case scenario. PLP can then begin ramping up production to deliver specific orders where they are needed. Step two is to check the "storm warehouse"- PLP's additional stored inventory of products that, according to PLP records of past events, are typically in high demand for post-storm damage restoration. Finally, step three is to liaise with major partners, such as KGP, to insure that there are ample product supplies available to meet alliance agreements with customers who may be within the projected storm path.

With today's predictive weather technologies, most major storms are observed for days before they strike any damaging blow. As such, preparations can begin much earlier then in the past. Manufacturing critical products can get underway 24/7 if necessary – days before the storm damage happens.

Another advantage PLP has over its competitors is its extensive U.S. manufacturing capacity. While others outsource manufacturing offshore in other countries, PLP's domestic manufacturing enables it to "turn on a dime" to take an order one day and ship it the following day. Getting storm-critical items into the hands of telecommunication providers quickly can often be the difference between communication restoration success and failure.

"We are united with KGP in reaching out to our mutual customers in the most difficult of times," says Hofstetter. "We stand committed to proactively helping our customers respond to emergencies with everything they need to restore communications to the communities they serve."

For more information on PLP products contact your local KGP Logistics representative:
www.kgplogistics.com | 800.755.1950

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The Leader Since the Beginning

Founded in 1947, Preformed Line Products (PLP) invented and patented innovative helical hardware solutions for the telecommunication, transmission and distribution utility industries. When partnering with PLP you have the benefits of:

- Over 65 years of reliability and proven field performance
- Trusted industry brands including GUY-GRIP® Dead-end, False Dead-end, Open Wire Dead-end, Drop Wire Dead-end, Strand Splice and FIBERLIGN® Dielectric Dead-end for ADSS Cables
- The most extensive line of helical products in the industry and custom engineered designs to suit difficult applications
- Extensive research and testing facilities located in Cleveland, Ohio
- Active leadership in key industry technical groups – Fiber to the Home Council, SCTE and Telecordia
- No cost training and support – on-site, at your location or at our facility
- Exceptional customer service and technical support

Support Through Every Storm

PLP's helical technology has helped our customers through decades of storms. Our turnaround time for storm damage orders is second to none:

- Capacity to deliver in any emergency
- Two helical manufacturing facilities in the USA, Rogers, Arkansas and Albemarle, North Carolina
- Active "storm stock" program to ensure key products are available when needed
- Specialized and dedicated Storm Response Team – handling customers' needs before, during and after all major events

We Were There Then
We Are Here Now
We'll Be Here Tomorrow…

Contact KGP Logistics for more information:
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NEW

PREMIER Panelock

PREMIER now brings you a locking cover for rack-mounted hardware and equipment such as patch panels, routers, switches, multiplexers, and radios. This steel cover restricts access to all equipment connections and protects fiber, Ethernet, coax and other cable types and connections from both accidental or intentional access and disconnects.

The PREMIER Panelock is ideal for co-locations, shared access facilities, data centers, remote sites and anywhere you to restrict unauthorized access such as banks, HIPPA data and government installations.

Features

- 4-dial combination lock with 10,000 possible combinations (user settable).
- 1RU and 2RU designs will not interfere with existing (installed) equipment.
- Can be installed over working equipment without service interruption.
- Integrated cable management includes tie bar and left/right cable exits.
- Restricts front or rear access to equipment connections.
- Vented cover allows airflow for equipment fans.
- Cover detaches completely for full access to service the equipment.
- Dual mounting depths of 3.5” and 4.25” are available (user settable).
- Works on front, mid, or rear mounted equipment (with Extension Kit).
- More economical and space efficient than building secure cages or cabinets.
- Made in USA.

Included with Each PREMIER Panelock

- Panelock Cover with Combination Cam Lock
- 2 End Brackets with Dual Depth Mounting Options for 3.5” and 4.25” Panel Depths
- Tie Bar with Mounting Screws
- 4 Cable Ties
- Installation Instructions & Contact Information

Ask your KGP Logistics customer service sepresentative for more details and place your order today. 800-755-1950.

Ordering Information

Item Number	Part Number	Description
0000412829	PT-PL-19-1CO	19" x 1.75" (1RU) Powder-coated Steel Locking Cover that fits over 1RU rack-mounted equipment; Single user-settable 4-dial combination cam lock; Mounting brackets; Tie bar and cable ties.
0000412830	PT-PL-19-2CO	19" x 3.5" (2RU) Powder-coated Steel Locking Cover that fits over 2RU rack-mounted equipment; Single user-settable 4-dial combination cam lock; Mounting brackets; Tie bar and cable ties.
0000412831	PT-PL-EXTKIT-1RU	1RU Mounting Ear and Protection Kit to add a Panelock to the front of mid-mounted racked equipment -or- to the back of the equipment. Includes 2 Universal 1RU mounting brackets (3" long) with mounting screws for Cisco and 2 protective metal covers with securing carriage bolts and nuts.

PREMIER®

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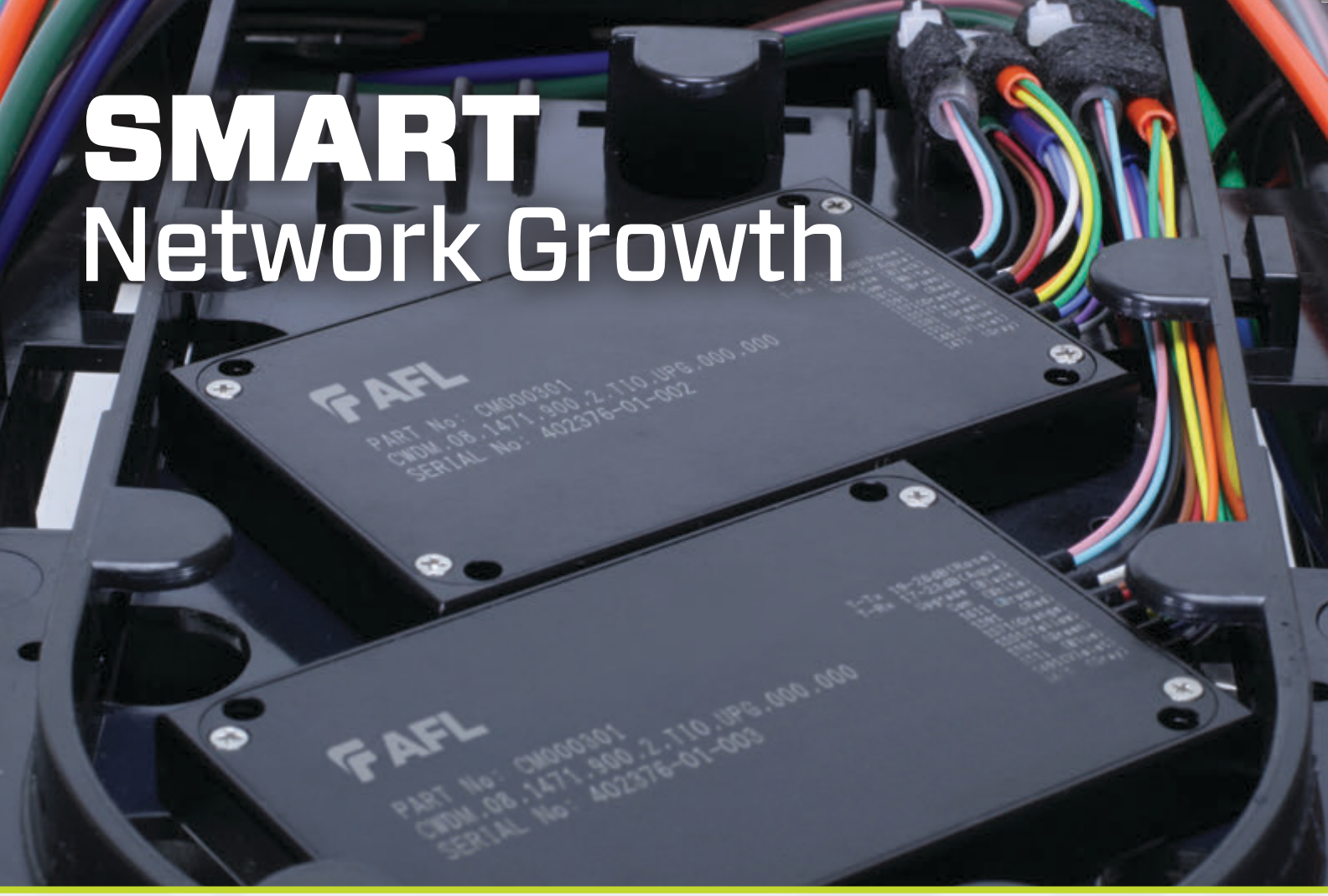
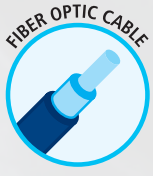
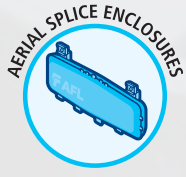
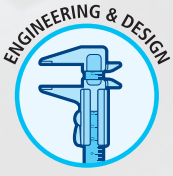
SMART Network Growth









Delivering reliable performance and flexibility in every network application

With multiple solutions for service and content providers, AFL can manage any or all of your deployment needs. Whether you are building, upgrading or expanding a network, AFL has extensive knowledge of the latest technologies for passive optical components including RFoG WDM, CWDM, DWDM, optical splitters and couplers.

Significantly reduce costs by eliminating the need to power and service active components and expand the capacity of fiber networks. AFL offers high-volume connectivity lines for innovative niche solutions.
Learn more at www.AFLglobal.com.

AFL

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AFL CELEBRATES 30 YEARS OF CONNECTING
1984 2014

KGP Logistics Item #	Mfr. Part #	Description
ADTRAN		
0000227034	1187770G1	TA350 ONT NID HSG SPLICE
0000357247	1187771G1	TA350 ONT NID HSG OPTITAP
0000358095	1187772G1	TA350 ONT SLACK STORAGE UNIT
0000275238	1187773G1	TA 380 MDU, SPLICE
0000282923	1187774G1	NID, SBU STND
0000290067	1187775G1	NID, SBU OPTITAP
0000407754	1187780G1	TA374 NID HSG
0000300796	1200487G10	SFP CPE 1310/1490NM 10KM
0000299018	1200487G20	SFP CPE 1310/1490NM 20KM
0000300797	1200487G40	SFP CPE 1310/1490NM 40KM
0000413112	1287562G1	TA324RG 2P+4GE+WIFI RG
0000413103	1287565G1	TA311 1POTS+1GE INDOOR ONT
0000420712	1287570F1	ETHERNET WIFI RG 802.11N
0000419515	1287571F1	ETHERNET WIFI RG 802.11AC
0000367745	1287701G1	TA 351, 2ND GEN
0000360629	1287702G1	TA 352, 2ND GEN
0000386904	1287702G3	TA 352H, 2ND GEN
0000407753	1287703G1	TA374 4 POTS + 4 GE MDU
0000287744	1287704G1	TA 354E
0000381610	1287711G1	TA 361, 2ND GEN
0000365076	1287712G1	TA 362, 2ND GEN
0000360628	1287715G1	TA 362R 2ND GEN
0000285807	1287722G1	TA 372 SBU, 2ND GEN
0000366427	1287722G2	TA 372R
0000285896	1287723G1	TA 372E
0000292065	1287735G1	TA324
0000356065	1287735G2	TA 324 W/UPS CONN
0000419099	1287735G3	TA324 INDOOR SFU GEN 3
0000300340	1287737G1	TA324E
0000356551	1287737G2	TA 324E W/UPS CONN
0000223488	4187701G2	TA351 + HSG BUNDLE, SPLICE
0000381016	4287701G2	TA351 + HSG BUNDLE, SPLICE
0000380310	4287702G2	TA352 2ND, HSG BUNDLE, SPLICE
0000381725	4287702G3	TA352 2ND,HSG BUNDLE, OPTITAP
0000381724	4287722G2	TA 372 + HSG BUNDLE, STND
0000377201	4287722G4	TA372R + HSG BUNDLE, STND
0000389099	4287723G2	TA 372E + HSG BUNDLE, STND

KGP Logistics Item #	Mfr. Part #	Description
AFL		
0000385003	CM000424	CWDM Card Guide HD Module 6ch 1471-151
0000384963	CM000203	CWDM 8CH (ISP) 1471-1611 CGM LC/UPC NO
0000385087	CM000571	1RU 40 CH. DWDM ITU CH. 21-60 NO EXPRES
0000385011	CM000448	Dual Single Channel Oadm 2M 900Um Leads
0000385008	CM000445	Dual Single Channel Oadm2M 900Um Leads
0000385092	CM000589	DWDM20ch 20-39100 GHz3slot LGXDTPLC
0000384986	CM000396	CWDM DUAL 8 CH 1471-1611+UPG LGX LC/UPC
0000385010	CM000447	Dual Single Channel Oadm 2M 900Um Leads
Comtrend		
0000407411	VR-3030	VDSL2 Single Port Modem
0000420902	NexusLink 3112u	VDSL2 and/or ADSL2+ Bonded Gateway, 3 Ethernet, 11n, 400mW High Power Radio, Gig FlexPort, USB Host
CommScope		
Call 1-800-755-1950 for information	Structural Steel and Coax Accessories	
Call 1-800-755-1950 for information	Low-PIM DAS Accessories/Connectors	
Call 1-800-755-1950 for information	Cable Assemblies	
Call 1-800-755-1950 for information	Surge Arrestors	
Megger		
Call 1-800-755-1950 for information	CFL535G	TDR, Handheld, Dual Cursor
Preformed Line Products (PLP)		
7213950142	PG-5718	8 FT Yellow Guy Marker
7212310142	GDE-1104	¼" B Coat Guy-Grip Dead-End
7212360142	GDE-2104	¼" C Coat Guy-Grip Dead-End
7212320142	GDE-1106	5/16" B Coat Guy-Grip Dead-End
7212370142	GDE-2106	5/16" C Coat Guy-Grip Dead-End
7212330142	GDE-1107	3/8 " B Coat Guy-Grip Dead-End
7212380142	GDE-2107	3/8" C Coat Guy-Grip Dead-End
7212010142	GFDE-2121	¼" False Dead-End
7212020142	GFDE-2123	5/16" False Dead-End
7214740142	GLS-2104	¼" EHS C Coat Strand Splice
PREMIER		**Panelock**
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KGP Logistics Item #	Mfr. Part #	Description
RFS		
0000414770	APXVFRR12X-C-I20	RF X-TREME™ Cross Polarized Triple Band Antenna, 698-2170MHz, 65deg, 13.3/16.0/16.3dBi, 1.2m, VET, 0-8deg, RET
0000414815	ICA12-50JPL	1/2" ClearFill Line Plenum-Rated Air-Dielectric Coaxial Cable for In-Building Applications, Blue
0000422536	ICA12-50JPLW	Coax, 1/2 Inch, Plenum-Rated, Air-Dielectric, White
0000422537	ICA12-50JPLLW	Coax, 1/2 Inch, Aluminum, Plenum-Rated, Air-Dielectric, White
0000422538	I-ATO3-698/2700R	Antenna, Indoor, Omnidirectional, Recess Mount, 698-2700 MHz, N Female
TE Connectivity		**Fiber Optic Splice Closures**
Call 1-800-755-1950 for information	FTAC-3G11000	Handheld tool kit; Includes handheld fiber dispenser tool, tip, spring clip, and sleeve with finger protector.
Call 1-800-755-1950 for information	FTAC-3G13000	Handheld accessories; Replacement parts for handheld tool. Includes tip, spring clip, and sleeve with finger protector.
Call 1-800-755-1950 for information	FTAC-21C025	Full corner radius limiters. 25 quantity
Call 1-800-755-1950 for information	FTAC-22C025	Half corner radius limiter. 25 quantity
Call 1-800-755-1950 for information	FTAC-1A1000C00000	TAC Cable Spools, Clear cable 100 foot
Call 1-800-755-1950 for information	FTAC-1A0300C00000	TAC Cable Spools, Clear cable 300 foot
Call 1-800-755-1950 for information	FTAC-1A0500C00000	TAC Cable Spools, Clear cable 500 foot
Call 1-800-755-1950 for information	FTAC-1A1000W00000	TAC Cable Spools, White cable 100 foot
Call 1-800-755-1950 for information	FTAC-1A0300W00000	TAC Cable Spools, White cable 300 foot
Call 1-800-755-1950 for information	FTAC-1A0500W00000	TAC Cable Spools, White cable 500 foot
Call 1-800-755-1950 for information	CP5776-000	CWDM 1 Channel Double Demux 1530nm
Call 1-800-755-1950 for information	CP5777-000	CWDM 1 Channel Double Demux 1550nm

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- 2 ns pulse width eliminates the "dead zone"
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Up & Coming

2014 National Events

Competitive Carriers Association (CCA)	Las Vegas, NV	Sept. 8-10
SCTE Cable-Tec Expo	Denver, CO	Sept. 22-25
BICSI	Anaheim, CA	Sept. 28 - Oct. 2
OSP Expo	Baltimore, MD	Sept. 30 - Oct. 2