



Multi-Wavelength Optical Network Solutions

more capacity out of the network you already have

Continual pressure to capture lucrative business services has compelled many broadband service providers to activate spare fibers installed during initial system deployments. Broadband service providers are also challenged to expand the capacity of their HFC networks to meet the demands of residential subscribers for HDTV, ever-increasing data download and upload speeds, and VoIP. At a cost of \$10,000/mile or more, new fiber construction may not be an option. With the existing fiber infrastructure rapidly becoming inadequate, if not already so, what recourse do broadband service providers have to continue to increase business services revenue and meet growing residential subscriber demand?

A sustainable network that can increase the bottom line

ARRIS offers a targeted solution that enables broadband service providers to offer the full range of next-generation residential and business services by leveraging their existing network. Rigorously tested and field-proven, ARRIS Multi-Wavelength Optical Network Solutions deliver multiplexed wavelengths of analog forward, return, and GigE services on one fiber. The flexibility of this solution allows broadband service providers to create the best wavelength plan for their system—recovering fiber for revenue generating business services.

The complexities of optical physics demand a wavelength plan that facilitates future expansion with minimal disruption. ARRIS has conducted exhaustive research on the underlying, multiple-wavelength, optical non-linear impairments that impact the RF spectrum. We have developed unique innovations to counter all optical non-linearities and fiber effects to maintain superior wavelength stability under all conditions. What does this mean for broadband service providers? It means that ARRIS has overcome the scientific challenges inherent in multiple wavelengths over one fiber, enabling heavy loading of video, data, and voice services on one fiber and recovery of additional fibers for other revenue generating services.

ARRIS Multi-Wavelength Optical Network Solutions. Meeting today's capacity expansion demands while facilitating a sustainable, revenue generating HFC network for tomorrow.

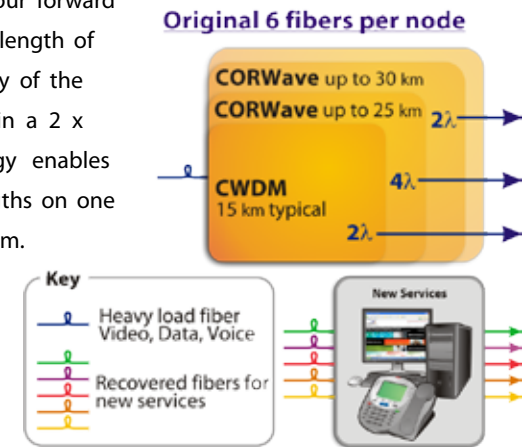
CWDM Technology—field-proven, lowest cost

The first to market, ARRIS CWDM Multi-Wavelength Optical Networks deliver up to 10 multiplexed ITU G.695 CWDM compliant wavelengths of analog forward, return, and GigE business services on a single fiber. Widely deployed and standards based, CWDM technology is an economical choice. CWDM transmitters do not require the special laser temperature controls and expensive wavelength circuitry needed with DWDM applications. These same features give CWDM technology the robust capabilities required in outdoor environments. And ARRIS' CWDM solution meets the needs of most networks—with 15 km typical link distances—with the proven reliability of the ARRIS CHP Max5000 Converged Headend Platform.

CORWave Technology—more wavelengths, longer reach

ARRIS CHP Max5000™ CORWave Optical Multiplexing Technology delivers even more wavelengths with even longer link distances on existing fiber—with no performance impairments. When deployed with the ARRIS Opti Max4100 4 x 4 segmentable node, CORWave Technology enables multiplexing of four forward wavelengths on one fiber with a link length of up to 25 km. When deployed with any of the ARRIS Opti Max segmentable nodes in a 2 x 2 configuration, CORWave Technology enables multiplexing of two forward wavelengths on one fiber with a link length of up to 30 km.

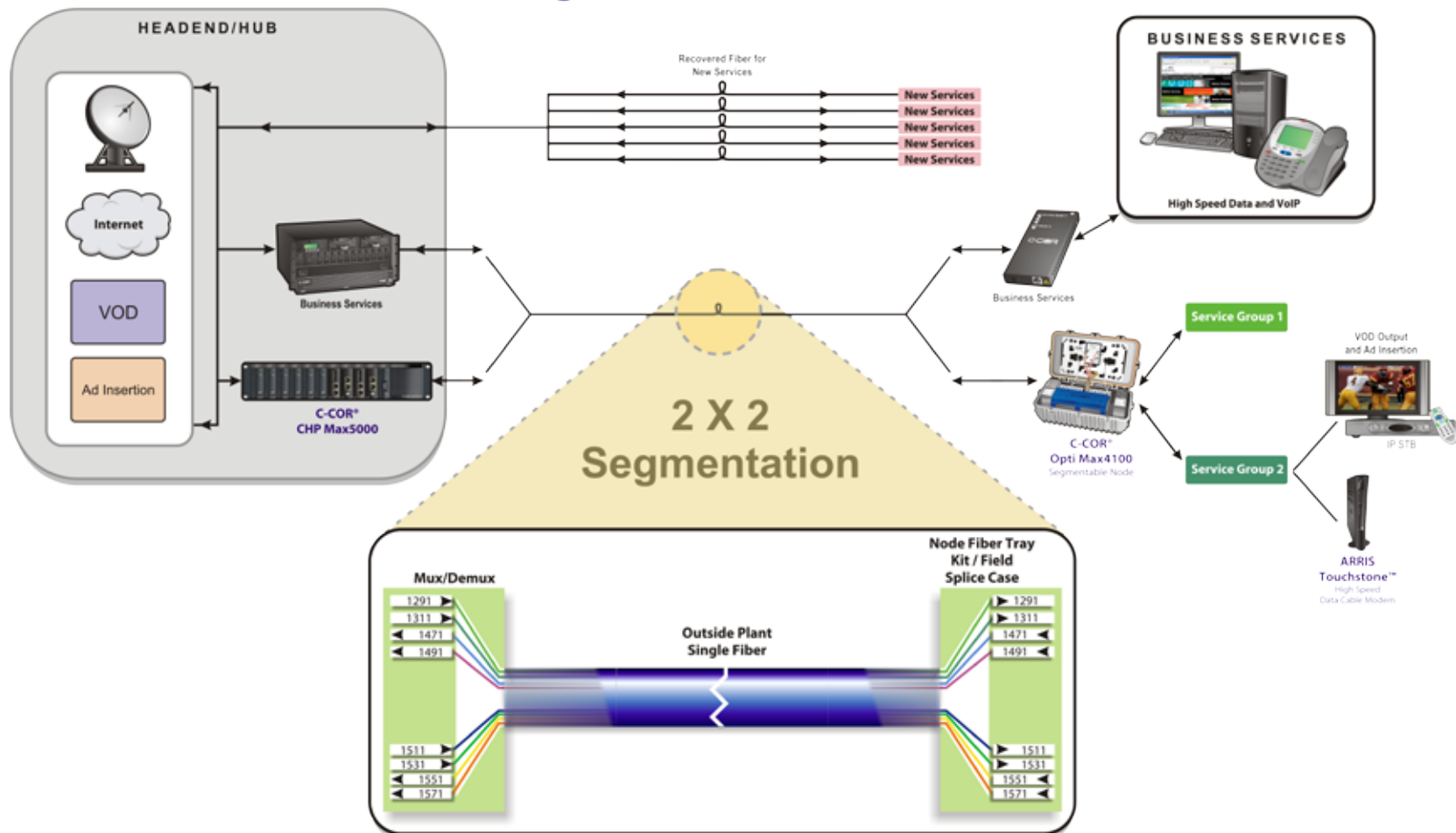
And two bidirectional GigE links for business services can be delivered on the same fiber—in both scenarios. In other words, service groups can be up to four times smaller than they are today and carry business services without installing new fiber.



ARRIS CHP Max5000™ CWDM Multi-Wavelength Optical Network

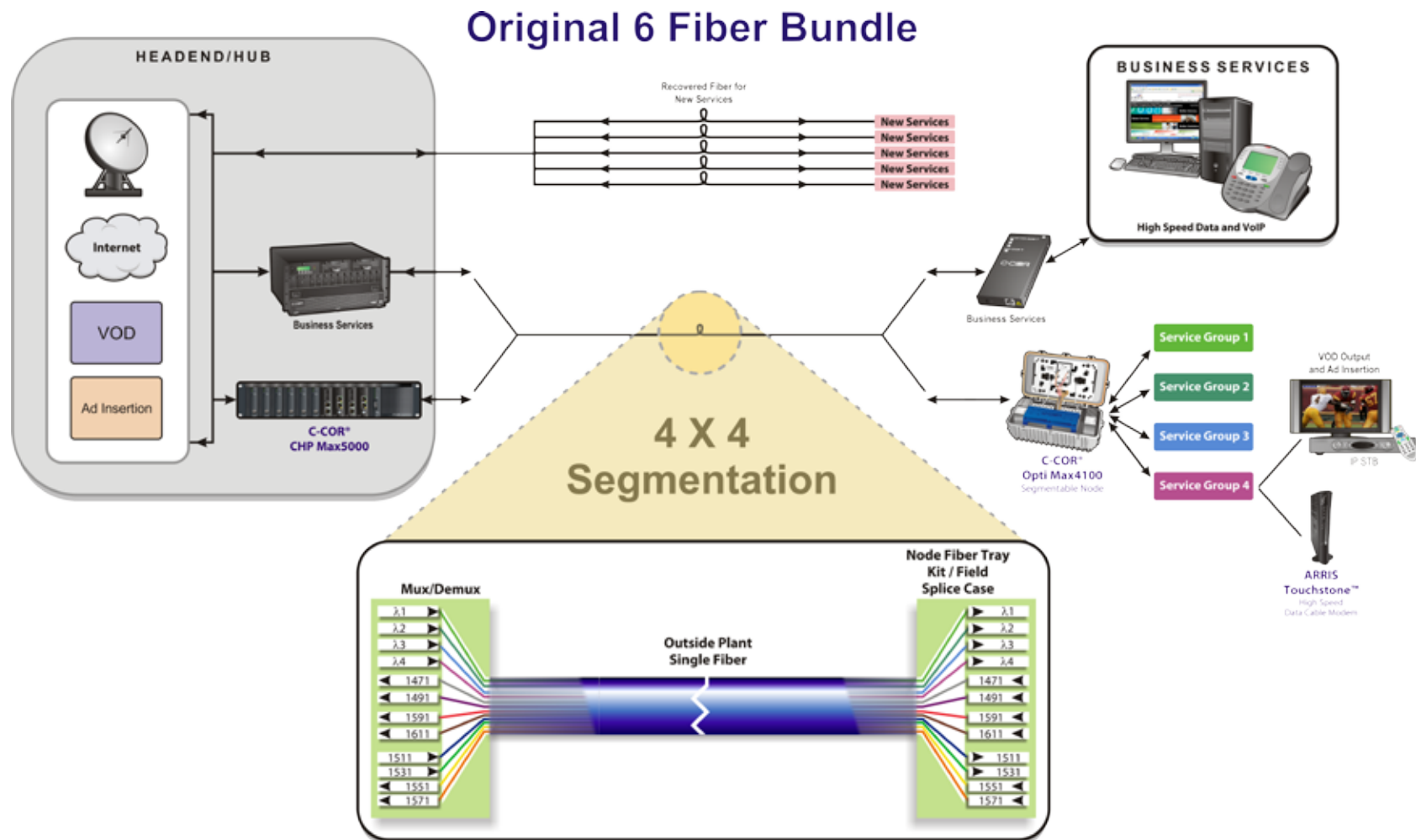
A field-proven, lowest cost solution. In this implementation, broadband service providers can accommodate one 2 x 2 segmentable node and four bidirectional links to serve fast-growing business services—all over one existing installed fiber up to 18 km. Two forward and four return wavelengths are dedicated to a segmented node serving two separate residential service groups, while two forward and two return wavelengths are dedicated for additional revenue-generating business services.

Original 6 Fiber Bundle



ARRIS CHP Max5000™ CORWave Multi-Wavelength Optical Network

More wavelengths for more reach is the most capable solution. In this implementation, broadband service providers can accommodate one 4 x 4 fully segmentable node and two sets of bidirectional links to serve fast-growing business services—all over one existing installed fiber up to 25 km. This CORWave option includes four forward and four return wavelengths serving four separate residential service groups, while two forward and two return wavelengths are dedicated for additional revenue-generating business services.



Capacity Enhancement Products and Systems

ARRIS CHP Max5000™ CORWave Technology delivers more wavelengths with more reach on your existing fiber, supporting forward and return node segmentation and dedicated business service links without new fiber construction. ARRIS' innovative CORWave technology enables multiplexing of up to four forward wavelengths on a single fiber. We ported all the attractive features of our current market-leading ARRIS CHP Max5000 transmitters to our CORWave transmitters—variable optical output, high isolation dual input, and management through CORView network management software. When combined with CWDM node return path transmitters, broadband service providers can support a 4 x 4 fully segmentable node. With CORWave technology, service groups can be up to four times smaller than they are today and carry business services without installing new fiber.

ARRIS CHP Max5000 1GHz 1311 nm and 1291 nm CWDM Transmitters are part of the industry recognized, high-density, fully-integrated, scalable ARRIS CHP Max5000 Converged Headend Platform. These advanced, ITU G.695 standards-based 1GHz CWDM transmitters enable multiplexing of two forward and multiple analog return wavelengths on a single fiber, reserving adjacent ITU channels for future applications. ARRIS CHP Max5000 1GHz CWDM transmitters—available with both variable and fixed output power levels—have dual-inputs that provide isolation much superior to alternative offerings, enabling simultaneous advanced service deployment of video and telephony without cross-talk impairments.

ARRIS CHP Max5000 Converged Headend Platform. The CHP Max5000 converges hub, headend, and digital transport onto one scalable platform. The CHP Max5000 provides the highest density headend platform on the market, with up to 52% greater density than alternate offerings. Features include accelerated deployment of advanced services, innovative technology creating a converged high-density platform, simplified installation and management, optional redundant powering, hot-swappable modules, investment protection through its 2RU footprint, and universal management through a craft interface and SNMP. With a full complement of application modules, including forward path transmitters and receivers, return path transmitters and receivers, EDFAs, and RF amplifiers, the CHP Max5000 is the industry leading headend platform.

ARRIS Opti Max4100, Opti Max3100, and Opti Max2100 Nodes are ARRIS' 1GHz segmentable, modular, pay-as-you-grow nodes. The ARRIS Opti Max4100 is a full 4 x 4 forward and return segmentable node with an industry-leading port-to-port isolation. The Opti Max3100 is a 2 x 2 forward and return segmentable node. While the ARRIS Opti Max2100 cabinet node facilitates full 2 x 2 forward and 4 x 4 return segmentation. The modular design of ARRIS' ARRIS Opti Max segmentable nodes allows a high level of scalability, which enables broadband service providers to deploy minimal configurations today and expand as subscriber demands increase.

