



SOFTWARE  
FRAMEWORKS AND  
PRODUCT  
ENGINEERING  
SERVICES FOR  
**BROADBAND**

Aricent®

# ETHERNET—THE ANYWHERE, EVERYWHERE TECHNOLOGY

## Innovation across the broadband ecosystem

With the exponential increase in network data traffic, needing to support multiple legacy and contemporary network technologies simultaneously has led to inefficiencies, both in data throughput and operational effectiveness. This has led to a strong push to harmonize equipment across multiple network domains on a common technology platform. Ethernet has emerged as this common “anywhere, everywhere” technology. It meets the needs of various applications, including packet-based services, fixed-mobile convergence, converged packet optics, data center switching, smart grid, and industrial networking.

Aricent delivers innovation across all broadband technologies to help Telecom Equipment Manufacturers (TEMs) address the crosscurrents of time to market, product readiness, and cost efficiencies. We also offer a robust set of pre-packaged software frameworks and a comprehensive set of product lifecycle services that are based on a strong foundation of deep domain expertise across core, access, and aggregation networks.

## Aricent’s broadband software frameworks and protocol stacks

- > **Intelligent Switch Solution (ISS):** ISS is Aricent’s industry-leading feature software framework for Layer 2 and Layer 3 switching; it is an integral part of over 100 products deployed globally. ISS is a feature-rich and highly scalable software that is suited for multiple end products, including Data Center switches, IP-DSLAMs, managed switches, aggregation nodes, and security appliances. ISS has been ported to, and optimized on, silicon from multiple industry-leading vendors, offering TEMs flexibility in choice of hardware for their products. To address the needs of different market segments, ISS is available in four *flavors*: ISS Enterprise, ISS Workgroup, ISS Metro, and ISS Data Center.
- > **Individual Protocol Stacks:** We also offer individually licensable stacks for multiple protocols in the IP routing, Layer 2 switching, Metro Ethernet, VPN, WAN access, and Management domains.



TEM Engagement with Aricent for Broadband Products

## Aricent’s broadband services

Aricent provides access to a global talent pool that includes more than 2,500 engineers with deep domain expertise in enterprise networks, industrial networks, Carrier Ethernet transport, smart grids, and packet optical transport networks. With over 100 different products currently being offered with our software, Aricent is the partner of choice for most major TEMs. Our Services include:

- > **Product Strategy:** Aricent’s product strategy services group helps TEMs identify critical market requirements for broadband products, translate them into specific product requirements, and target the ideal product phasing for different product features.
- > **Product Design and Development:** We have teams with extensive design and development expertise in modular system architecture; system design; system engineering; Operations, Administration, Management, and Provisioning (OAMP); and platform re-engineering.
- > **Testing and Integration Services:** Our competence in testing domains such as product validation, interoperability, managed testing, and certification has been honed over multiple customer engagements. We also help TEMs ensure interoperability with equipment from a variety of vendors, and perform MEF-9/MEF-14 compliance testing for the pre-certification of Carrier Ethernet services.

## Aricent: The strategic partner of choice for broadband

- > **Accelerate Time to Market:** Our software frameworks, combined with comprehensive product engineering services, enable customers to accelerate new product development across core, access, and aggregation networks.
- > **Optimize R&D Investments:** We offer flexible engagement models for our professional services, including a time-and-material (T&M) model with offshore/onsite delivery, and a fixed price model based on an agreed upon scope of work (SoW).
- > **Improve Product Quality:** Aricent has consistently enabled TEMs to deliver high-quality products over the past 15 years across multiple broadband technologies and applications.

## Aricent's broadband expertise

- > **Mobile Backhaul Transport:** Over the past few years, mobile backhaul has evolved from traditional T1/E1-based solutions to IP-based architectures. Aricent enables TEMs to deliver carrier class backhaul solutions that can simultaneously handle legacy, TDM, and ATM traffic, together with IP traffic from newer networks.
- > **Carrier Ethernet Transport:** With Carrier Ethernet, service providers can offer subscribers high bandwidth services such as video conferencing and video ondemand. We have worked with multiple TEMs to design and develop their Carrier Ethernet products.
- > **Packet Optical Transport:** Packet optical transport is a cost-effective alternative to traditional SONET/SDH transport networks, with similar OAM and recovery performance. Aricent can help TEMs introduce features such as GMPLS- and MPLS-TP-based packet switching into their optical products.
- > **Data Center Ethernet:** Data centers are fast moving to a converged storage and data network based on Ethernet technology. With our ISS Data Center offering, TEMs can introduce data center Ethernet features into their Ethernet switches.
- > **Industrial Networking:** The introduction of support for high availability and real-time traffic has made Ethernet popular in industrial and defense environments. With all the support for Industrial Ethernet built into our software, we can help TEMs deliver high-performance switches for this domain.
- > **Smart Grid Networking:** Multiple initiatives are underway to optimize energy consumption, and smart grids are a key piece to this puzzle. Aricent helps TEMs deliver smart connectivity to the grid through nodes for Wi-Fi-based mesh networks in Field Area Networks, and Carrier Ethernet nodes for tele-protection and SCADA data transport.

- > **Broadband Access :** While developed economies continue to drive mobile broadband access, emerging economies such as China and India are set to drive fixed-line broadband growth. Aricent's deep domain expertise in optical access technologies such as FTTX, GPON, and GE-PON; and non-optical broadband access technologies such as IP based DSLAM, ADSL, and ADSL2+, helps TEMs build end products faster, better, and cheaper.
- > **Deep Packet Inspection (DPI) and Policy Control:** With the advent of social networking sites, smart phones, video sharing sites, and other cloud services, there is an unprecedented load on network resources—and telecom operators are looking for better ways to manage bandwidth. Our expertise in DPI helps service providers optimize bandwidth utilization by enforcing policies and taking appropriate control measures.
- > **Distributed Networking:** As networks continue to grow in size and complexity, the earlier models of control and management are being significantly challenged. A distributed networking control solution for Ethernet simplifies management by treating a cluster as a single logical switch under which all network elements share a common configuration and management interface. This translates into substantial savings in power and OpEx; and with our portable distributed Ethernet framework network operators, can deliver these benefits to the market, faster.

## CASE STUDIES

### Development of Metro Ethernet switching products for a Tier 1 US TEM:

We helped a large US-based TEM deliver multiple Metro Ethernet switching access/aggregation products, spearheading product engineering activities for advanced technology modules. Our excellent vendor ecosystem and domain expertise helped the client reduce technology-related risks and accelerate development cycles, resulting in significant cost savings.

### Development of IP and Gigabit Ethernet features for a leading mobile backhaul vendor:

We introduced IP and Gigabit Ethernet functionality in the client's existing CDMA2000 RAN Aggregator product and also built a TCL/Expect-based framework to automate testing for it. With the help of our solution, the client was able to reduce R&D expenses by over 40 percent.

### Development of a Terabyte Optical Transport network:

We designed and developed a packet switching framework comprising of a GMPLS control plane and an MPLS-TP-based data plane on our client's existing optical OTN platform. With this solution, we were able to help our client achieve a competitive advantage by conceptualizing and rolling out the product ahead of the competition.



One Tower Center Boulevard, 18th Floor, East Brunswick, NJ 08816, USA  
Tel: + 1 732 837 1200 | Fax: + 1 732 837 1190 | Email: [info@aricent.com](mailto:info@aricent.com)

› [aricent.com](http://aricent.com)

The Aricent Group is a global innovation and technology services company that helps clients imagine, commercialize, and evolve products and services for the connected world. Bringing together the communications technology expertise of Aricent with the creative vision and user experience prowess of frog, the Aricent Group provides a unique portfolio of innovation capabilities that seamlessly combines consumer insights, strategy, design, software engineering, and systems integration. The client base includes communications service providers, equipment manufacturers, independent software vendors, device makers, and many other Fortune 500 brands. The company's investors are Kohlberg Kravis Roberts & Co., Sequoia Capital, The Family Office, Delta Partners, and The Canadian Pension Plan Investment Board.

© 2011 Aricent Group. All rights reserved. All Aricent brand and product names are service marks, trademarks, or registered marks of Aricent Inc. in the United States and other countries.