# *Solution Overview* *Meriton's Agile Optical Networking*

## INTRODUCTION

Meriton Networks is introducing the industry's first fully unified Agile Optical Networking solution for network operators deploying consumer broadband services and other high-speed business services – today.

The Agile Optical Networking infrastructure fits as part of network operators' emerging 21st century network architectures, as illustrated in Figure 1. The agile optical layer provides all of the transport and grooming requirements for the service access networks and the IP/MPLS network layer, while also delivering some services directly to end-customers (e.g. high-speed Ethernet, SANs).

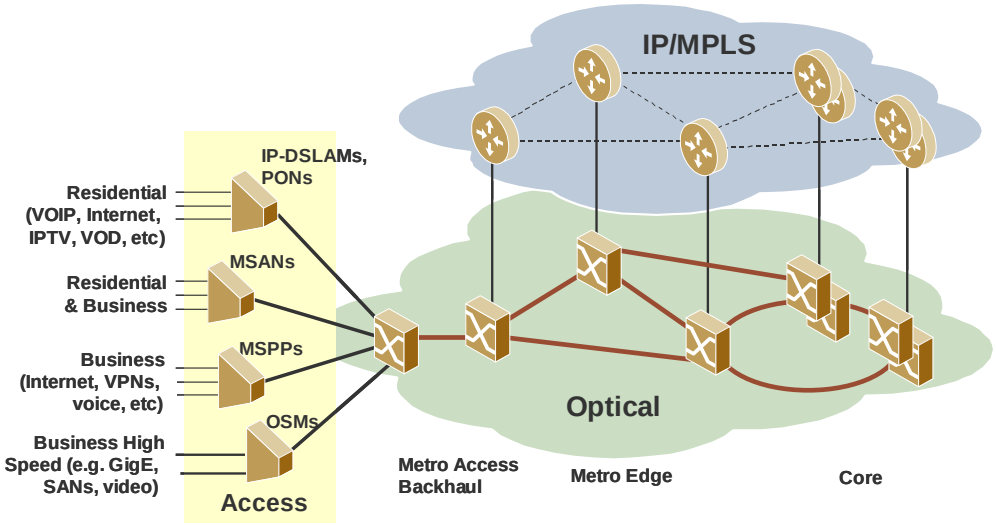


**Figure 1: Converged 21st Century Network Architecture**

Today's multi-box optical transport solutions (e.g. OXCs, OADMs) are typically static and not up to the task of enabling the huge deployment of today's new broadband services. These systems are expensive to deploy and operate, have long deployment cycles, and usually force dedicated builds by network operators.

Network operators are demanding better – a more agile, future-proof transport solution that will be capable of evolving to the full, standard-based OTN in the future. Network operators' key requirements for today's optical transport networks are:

- Unified end-to-end management, planning, and design
- Efficient point-and-click provisioning
- Simplified deployment and operations (e.g. one-time node engineering)
- Dynamic lightpaths and protection
- Multi-service transport and switching
- Agile and scalable wavelength network
- High performance optical layer

The Meriton's Agile Optical Networking solution is the industry's first unified end-to-end optical transport solution that fully meets all the above key requirements and is ready for deployment today.

## MERITON'S AGILE OPTICAL NETWORKING SOLUTION

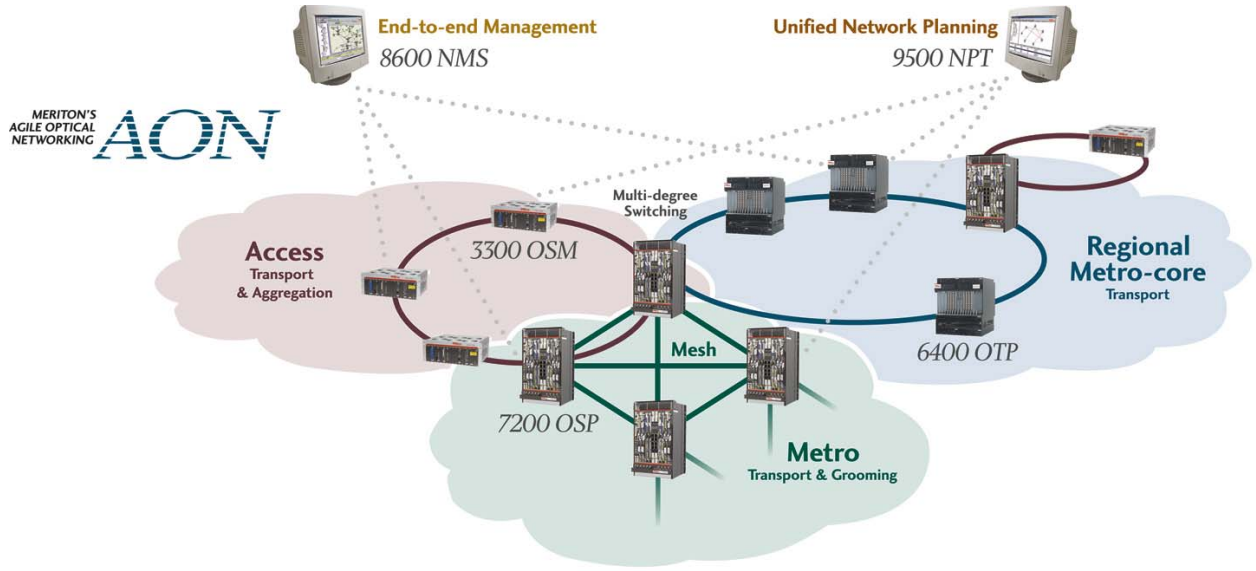


**Figure 2: Meriton's Agile Optical Networking Solution**

Meriton's Agile Optical Networking portfolio covers all transport requirements from access to core, as shown in Figure 2. Rather than restrict the number of approaches that network operators can employ in deploying their 21st century networks, Meriton delivers the freedom to choose the best approach for each application. A flexible "technology agnostic" philosophy means that customers can optimize costs and growth plans, while protecting their investment. Networks can evolve gracefully from, say, a network of 2.5 Gb/s rings or point-to-point connections today to a high-performance 40 Gb/s network of rings and meshes tomorrow by utilizing the best of OEO and/or ROADM technologies.

Unified network and link planning is critical to allow network operators to reduce their deployment times, to minimize project delays, and to guarantee high utilization of resources deployed. The network planning tools are also very

important to allow quick "what if" scenario planning with all link budget margins readily available for analysis. Meriton's Agile Optical Networking solution includes a comprehensive network-planning tool (9500 NPT), which handles all network demand design and link budget engineering across the entire network.

In Meriton's Agile Optical Networking portfolio, the 8600 NMS provides full end-to-end management through a very efficient point-and-click interface. The end-to-end lightpath provisioning, maintenance, and diagnostics also provides operators with full visibility on the status and performance of end-customer services.

Meriton has implemented an intelligent control plane across its full Agile Optical Networking solution. Today, the intelligent control plane is providing advanced features like auto network discovery, wavelength tracing, wavelength verification, fiber mis-wiring detection, and shared protection. The control plane is GMPLS-based and will evolve in the future to support dynamic end-to-end distributed lightpath set-up/tear-down, O-UNIs, and E-NNI for third party interoperability.

As shown in Figure 2, the Meriton Agile Optical Networking solution supports multi-service aggregation, grooming, and switching for layers 0 to 2 across the product set. This is critical for network operators to optimize network resources, and to allow the appropriate distribution of services. The any-service-any-port attribute of Meriton's Agile Optical Networking solution provides flexibility for network operators to migrate from SONET/SDH to Ethernet services without having to change-out any equipment.

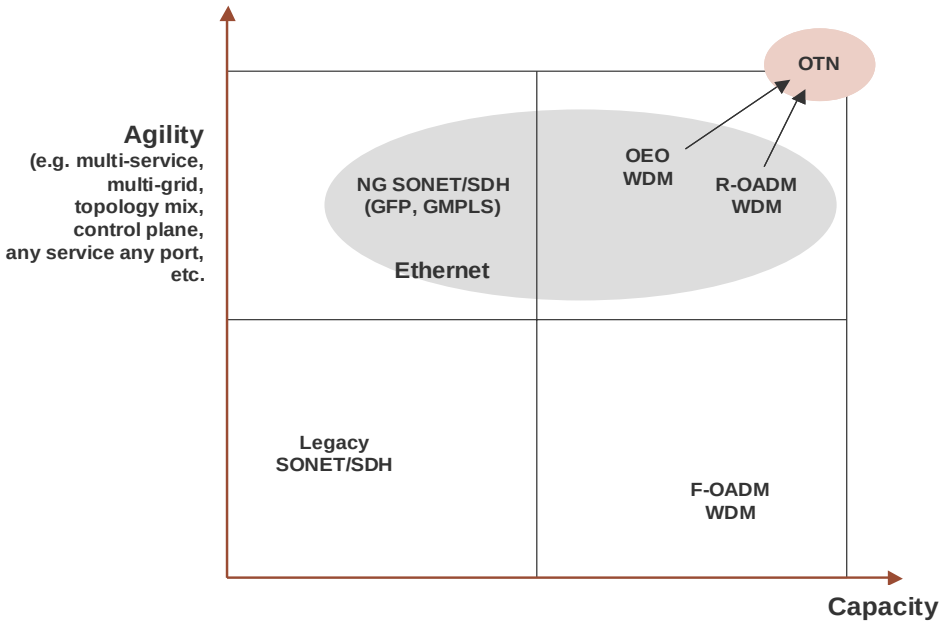


**Figure 3: Agility vs Capacity for Transport Networks**

One of the key requirements that network operators are looking for in their optical transport infrastructure is flexibility. As shown in Figure 3, WDM with dynamic reconfigurability provides the highest degree of agility and capacity for today's transport networks. Network operators need to react now to the huge broadband demand on the horizon but since services are still evolving, the network MUST be multi-mission ready. Flexibility is the key strength of the Meriton solution, including:

- Any wavelength at any node (without stranding any capacity)
- Any rate & protocol transponders
- Multi-service support including SONET, SDH, Ethernet, SANs, video, etc.
- OEO, ROADM, or hybrid optical pass-through design choices
- Linear, ring, mesh, or mix topology design choices
- CWDM, DWDM, or mix network options
- Unprotected, dedicated, or shared protection on a per wavelength basis

The foundation of Agile Optical Networking is a very cost-effective high-performance optical transmission layer. The Meriton transmission layer provides error-free transmission for 1 Gb/s to 40 Gb/s wavelengths across the access, metro, and regional environments. The key differentiator of Meriton's optical transmission layer is fully automated operations (e.g. no manual power balancing set-up or adjustment). Again, the optical transmission layer provides outstanding flexibility to the network operators:

- Choice of 2.5 Gb/s, 10 Gb/s, or a mix of channels per fiber line
- Choice of full C-band tunable or fixed transponders
- Choice of G.709 FEC or Extended FEC
- Broad choice of optical amplifiers and DCMs

## THE MERITON AGILE OPTICAL NETWORKING PORTFOLIO

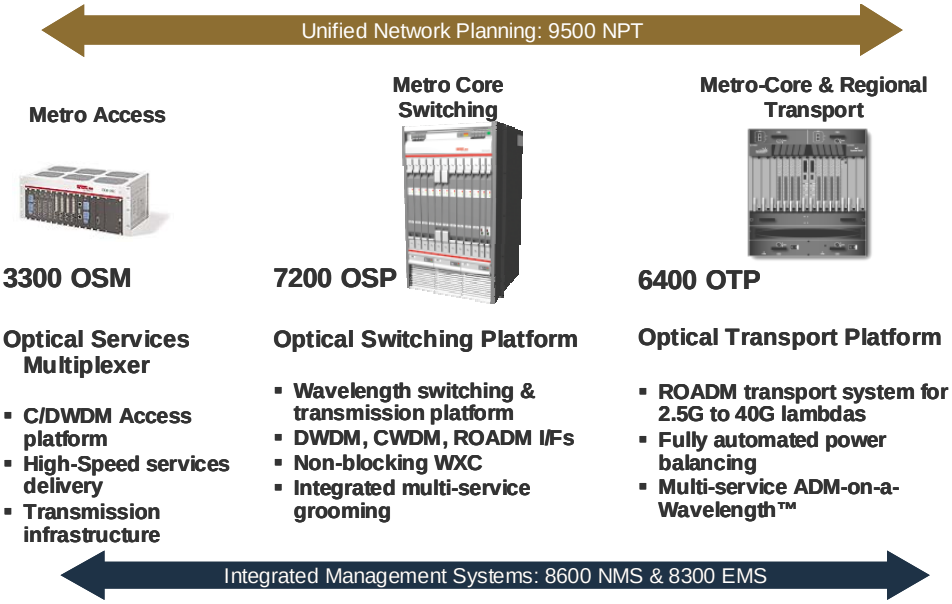


**Figure 4: Meriton's Agile Optical Networking Products**

In the access, the 3300 OSM is used to provide backhaul transport of all access uplinks and will also be the service delivery platform for some high-speed and wavelength services. The 3300 OSM is typically deployed in ring configurations but can also be deployed in linear chains as required.

The 7200 OSP is the key edge/metro switching platform for switching and grooming at the wavelength and sub-rate levels. The 7200 OSP is not only a fully featured Layer 0-Layer 2 switching node, but also provides seamless D/CWDM and ROADM optical interfaces to the 3300 OSM, 6400 OTP, and other 7200 OSP network elements. In addition to linear and ring deployments, the multi-degree 7200 OSP can be easily deployed in mesh configurations.

The 6400 OTP is Meriton's advanced transport platform incorporating ROADM capabilities for handling all transmission requirements across the metro-core and regional areas. The 6400 OTP fully supports reconfigurable WDM across metro-core and regional network links using its unique modular pay-as-you-grow ROADM technology and choices of advanced tunable or fixed transponders. The 6400 OTP also supports service termination and aggregation (e.g. SONET/SDH, Ethernet, SANs) with full compatibility to other Meriton network elements.

The 8600 NMS is Meriton's advanced end-to-end network management system. The 8600 NMS fully manages all the Meriton network elements, providing the network operator with a unified view of the underlining transport infrastructure from a single screen. With Meriton's Agile Optical Networking, the 8600 NMS

allows the network operator to easily provision and manage end-to-end services based on a simple intuitive point-and-click GUI.

The 9500 NPT is a network planning/design tool package for the entire Meriton Agile Optical Networking product set. The 9500 NPT allows Meriton's sales engineer (or end customer, partner) to quickly design the most efficient networks based on network demand and span information. Providing an end-to-end automated network-planning tool is unique in the industry and makes it possible for customers to save tremendous amounts of time and money, as well as ensuring excellence in network design and optimization.

The Meriton Agile Optical Networking solution gives network operators a flexible set of transport products and technologies to build today's multi-mission agile business networks with a future-proof migration path to full OTN requirements.

## About Meriton Networks Inc.

Meriton Networks Inc., provider of the optical networking foundation for 21st century networks has developed the industry's first unified end-to-end Agile Optical Networking architecture. Meriton customers, which include incumbent and competitive carriers as well as world-class enterprises, deploy a single, cost-effective solution that addresses the issues of fiber relief and network cost reduction, while also enabling the delivery of all high-speed metro and regional services. The Meriton solution includes metro access, metro core and regional extension products, which are fully managed by a best-in-class suite of network and service management and network planning tools. For more information, please visit http://www.meriton.com.


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