DZS Saber-4400 PLATFORM
COST ANALYSIS FOR DZS

An In Depth Look at the
DZS Saber-4400 Optical Platform

October 4, 2022

Palmetto Engineering & Consulting, LLC
PO Box 255
St. Matthews, South Carolina 29135
(803) 874-4360

DZS, Inc.
DZS Saber-4400 Analysis

Table of Contents

1.1 Executive Summary

We at Palmetto Engineering & Consulting were asked to perform a cost/benefit analysis of the new DZS Saber-4400 coherent optical metro and edge transport platform. As the push for ubiquitous broadband continues at an extraordinary pace, the demand for better transport grows with it. To add transport at an existing temperature-controlled building is a lot easier than in areas that are served with cabinets today. Also, modifications to existing cabinets, to support the transport systems, can be quite expensive in addition to the transport platform. DZS has delivered a fine solution with the new Saber-4400 platform. It is a compact, modular platform that is designed to provide convenient, cost-effective delivery of fiber-based services at speeds up to 400 Gigabits per second (Gbps) per wavelength and will provide multi-degree CDC Flex-Grid ROADM functionality. What makes the Saber-4400 so unique is that it is the first of its kind to do this as an environmentally hardened platform all in 1RU. Our analysis looked at alternatives and estimated costs to deploy upgraded transport options.

The purpose of this analysis is to report on our evaluation of the new DZS Saber-4400 as it pertains to the cost savings for upgrading the existing transport to support a more robust coherent optical Metro and Edge platform.

1.2 The Issue

Even before the pandemic hit in 2019, broadband networks were growing at a tremendous rate. As workers and students had to stay home, the glaring inadequacies of the existing broadband network, were clearly obvious. There were many places that did not have sufficient broadband throughput to serve people working from home and students trying to use e-learning. The outcry was heard loud and clear globally, including by U.S. Congressional leaders, and they acted to provide funding to make broadband ubiquitously available. We are in the midst of that buildout today.

As this buildout takes place, the need to quickly deploy more robust transport networks throughout service providers' serving areas has greatly increased. When designing broadband networks, one is not only concerned with the immediate need, but also the demands into the foreseeable future. This is not an easy task with the proliferation of streaming services, gaming, IoT devices, 5G wireless networks, working from home, e-learning and the host of other things that continue to drive the need for broadband.

Although designing this network is never an easy task, it becomes much more complex when all you have are cabinets in some underserved areas. Areas that need better, more robust transport to support the deployment of the new universal service – broadband. Carriers also face the challenge of keeping up with the ever increasing demand for bandwidth for wireless carriers and meeting the stringent requirements of the Service Level Agreements (SLAs) with the wireless carriers. Before DZS announced the arrival of the Saber-4400, there hadn't been a temperature hardened coherent optical transport system of its kind. The Saber-4400 is a game changer for those service providers that need to quickly deploy the transport to support their broadband services.

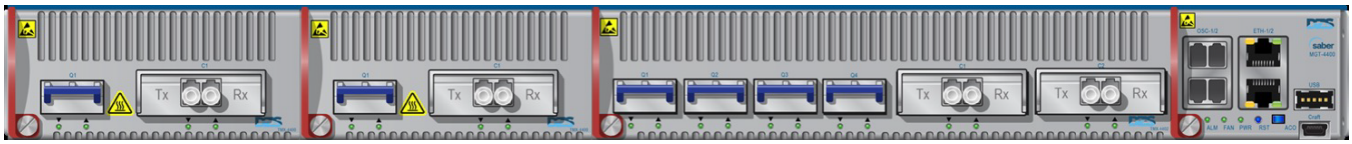
1.3 The DZS Saber-4400

DZS recently announced the introduction of the Saber-4400. It is compact, modular and provides coherent optical metro and edge transport in 1 Rack Unit (RU). It can deliver speeds up to 400 Gigabits per second (Gbps) per wavelength and multi-degree CDC Flex-Grid ROADM functionality. Each 1RU shelf features four hot-swappable modules that provide extensive flexibility and expandability. All in the industry's first

environmentally hardened Dense Wave Division Multiplexing (DWDM) modular transponder and muxponder solutions that are capable of operating between -40◦C to +65 degrees C. It can deliver 100 Gbps+ circuits up to 120 Kilometers (km) without amplification.

The Saber-4400 is scalable to 1.6 Terabits per second (Tbps) per shelf and supports stackable, virtual chassis configuration with a single management interface. It supports the needs of optical edge deployments, including multi-gigabit fiber broadband service offerings as well as upgraded connectivity to cell towers and many delivery requirements to commercial and enterprise customers.

Figure 1.1 SABER-4400



1.4 The Cost Benefit

In today's current supply chain environment, it is increasingly difficult to get materials and equipment to deploy many parts of a broadband network. If you look at deploying the Saber-4400, it saves the capital expense of having to significantly alter existing infrastructure. Best case, heat exchangers and some sort of HVAC would be needed to add another vendor's non-environmentally hardened transport. This represents a savings of at least $15,000-20,000 if an existing cabinet could be used. If not, then a building would have to be added. The cost for a building and all of the associated work, materials and equipment, land acquisition, racks, moving equipment from cabinet or deploy all new equipment and the cost soars to nearly $200,000. The case for deploying the Saber-4400 becomes much more compelling than the attributes of the shelf itself.

Summary

With the introduction of the Saber-4400, DZS brings an industry leading, environmentally hardened, compact, modular coherent optical transport platform that supports DWDM, ROADM with speeds up to 400 Gbps per wavelength. All of these features are available in 1RU of rack space. It removes many months of preparation because it can be deployed today in an existing cabinet with minimum changes to the existing infrastructure. Cabinets have traditionally been excluded from having this technology deployed, but with the Saber-4400, it is now a reality. It provides a greater Return On Investment (ROI) and has tremendous cost savings on initial capital expenditures and recurring operational expenditures.

About Palmetto Engineering & Consulting

Palmetto Engineering & Consulting specializes in custom telecommunications solutions for Rural Utilities Service (RUS) telecom engineering projects, independent telephone company consulting requests, and telecom in-house training and development services. Our experienced team is capable of providing innovative solutions tailored to the specific business needs of each client. Areas of expertise include: Network Planning, Outside Plant Design, Staking and Construction Surveillance, RUS/RDUP Contracts and P&S, Central Office Equipment Planning, Specifications Development, Assistance with Bidding, and

Acceptance Testing, Facilities Management/Mapping Services, GPS Surveying, GIS Integration, and Project Management.