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A History of Ciena

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Introduction

In the intricate tapestry of modern communication, where information flows ceaselessly across continents and oceans, the story of Ciena stands as a testament to innovation, resilience, and strategic vision. From its nascent beginnings at the dawn of optical networking, Ciena has not merely observed the evolution of digital connectivity; it has actively sculpted it, layer by painstaking layer. This book, *A History of Ciena: The Story of an S&P 500 Company*, chronicles the remarkable journey of an enterprise that transformed the very infrastructure of the internet, making possible the lightning-fast, always-on world we inhabit today.

This is more than just a corporate history; it is a narrative woven with the threads of technological breakthroughs, market upheavals, and the unwavering dedication of countless individuals. From the audacious pursuit of bandwidth in its early days to navigating the turbulent waters of the dot-com bust, Ciena's trajectory reflects the broader saga of the telecommunications industry itself. The company's persistent drive for innovation, its astute strategic acquisitions, and its ability to adapt to ever-changing technological landscapes have not only ensured its survival but have propelled it into the prestigious ranks of the S&P 500.

Within these pages, we will delve into the pivotal moments that defined Ciena's path: the excitement surrounding its initial public offering, the challenges and opportunities presented by the convergence of packet and optical technologies, and its expansion into new global markets. We will explore the company's deep commitment to research and development, which has consistently placed it at the forefront of advancements like 100G and beyond, and its crucial role in shaping the architecture of global network infrastructure, including vital submarine cable systems. The evolution of Ciena's software and network automation capabilities will also be examined, showcasing its leadership in the era of adaptive networks.

Ultimately, Ciena's story is one of profound impact—on how we communicate, work, and live. It illuminates the intricate dance between technological prowess and market demands, revealing how a company can not only weather the storms of an intensely competitive industry but also emerge as a guiding force. Through its enduring legacy, Ciena has consistently demonstrated an ability to anticipate future trends, fostering a culture of innovation that continues to push the boundaries of what is possible in connectivity.

This book offers a comprehensive look at the company's journey, examining its financial growth and shareholder value, its commitment to corporate social responsibility, and the vibrant global workforce that has underpinned its success. For

anyone seeking to understand the forces that shaped our hyper-connected world, or for those interested in the dynamics of a leading S&P 500 technology company, Ciena's history provides invaluable insights. It is a story of vision realized, challenges overcome, and a future continually being built, one optical fiber at a time.

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CHAPTER ONE: The Dawn of Optical Networking: Ciena's Genesis

In the nascent days of the internet, before the ubiquitous glow of screens and the instantaneity of global communication became commonplace, a quiet revolution was brewing within the confines of specialized laboratories. The year was 1992, and the world was just beginning to grasp the monumental potential of digital connectivity. Yet, a fundamental bottleneck threatened to stifle this burgeoning era: the limited capacity of existing communication networks. It was in this environment that David R. Huber, an electrical engineer with a keen understanding of optics, embarked on a journey that would ultimately lead to the founding of Ciena Corporation.

Huber's initial spark of an idea emerged from his work at General Instrument Corporation (GI), a company then focused on cable television equipment. He envisioned a method to significantly increase the amount of data that could be transmitted over existing fiber optic cables, a concept that would later become known as Dense Wavelength Division Multiplexing, or DWDM. This groundbreaking technology had the potential to transform how information traveled, making it possible to send multiple signals simultaneously by splitting light into different wavelengths, much like a prism separating white light into a rainbow of colors.

The prevailing technology at the time, Time Division Multiplexing (TDM), allowed for only two channels per fiber pair, a stark contrast to the revolutionary capacity DWDM promised. Huber recognized that while GI had developed this wavelength division multiplexing (WDM) technology, the company, burdened by debt, had decided to abandon it. Seizing the opportunity, Huber secured a license for the technology from GI, contingent on his ability to fund a business within 18 months. This pivotal moment marked the unofficial beginning of what would become Ciena.

Initially, Huber explored the idea of applying WDM technology to the cable television industry, envisioning its use for delivering movies-on-demand to consumers. This path, however, proved challenging due to licensing issues and the complex ecosystem of content providers and server infrastructure it required. It was clear that a different market might be more receptive to the transformative power of DWDM.

The formal establishment of Ciena took place on November 8, 1992, under the original name HydraLite. Huber, along with co-founder Kevin Kimberlin and with management assistance from Optelecom, Huber's former employer, began the arduous task of securing initial equity capital. The early days were characterized by the lean operations typical of a startup, with just four employees on the payroll at launch.

A crucial turning point arrived in late 1993 when Huber was introduced to Jon Bayless, a venture capitalist from Sevin Rosen Funds. Bayless, with a prescient eye for technological potential, quickly grasped the far-reaching implications of WDM for telecommunications networks, a far broader application than Huber's initial focus on cable television. This encounter proved instrumental, as Sevin Rosen ultimately invested \$1.25 million in HydraLite in April 1994, injecting much-needed capital into the burgeoning company.

With this initial investment, the company began to solidify its direction. Bayless brought in Patrick Nettles, a physicist and former colleague from Optilink, to lead the company as its first CEO. Nettles, despite his scientific background, possessed a keen business acumen and quickly convinced Huber to pivot the company's focus from cable TV to the long-distance telephone companies, recognizing the immense demand for increased bandwidth in that sector. It was also in 1994 that Huber and Nettles made another significant decision: to rename HydraLite to Ciena, a name that would soon become synonymous with optical networking innovation.

The company established its headquarters in Hanover, Maryland, in March 1997, a move designed to leverage the region's strong pool of research and development talent and access to manufacturing facilities. By October 1995, Ciena's employee count had grown to 49, a testament to the rapid progress being made. The venture capital continued to flow, with Ciena receiving a total of \$40 million in funding from various firms including Charles River Ventures, Japan Associated Finance Co., Star Ventures, and Vanguard Venture Partners. This capital was vital for a company engaged in cutting-edge research and development, especially considering the novelty of the technology that sometimes required Ciena to produce its own optical filtering devices.

The culmination of these early efforts arrived in May 1996 with the introduction of Ciena's first product: the MultiWave 1600 Transmission System. This system was a revelation, marking the world's first commercially available 16-channel DWDM platform. It boasted the capability to achieve 40 gigabits per second (Gbps) of total capacity over a single fiber pair, spanning distances up to 600 kilometers. To put this into perspective, in a telecom landscape where a single fiber pair could only accommodate approximately 40,000 simultaneous voice calls, the MultiWave 1600 was a truly revolutionary leap in capacity.

The MultiWave 1600 also offered significant advantages over existing systems, requiring fewer amplifiers between sites and presenting a more cost-effective hardware upgrade path for telecommunications companies. Integral to the MultiWave system was the WaveWatcher integrated network management system, providing comprehensive control and oversight.

Ciena's formal public debut, its "coming out party," as it were, was orchestrated with its first press release on March 28, 1996, officially introducing the MultiWave 1600. Long before this public announcement, however, Ciena had been in extensive discussions with major telecommunications players. Sprint Corporation became Ciena's first customer, publicly announced on June 12, 1996. The MultiWave 1600 was initially deployed along a 200-mile route within Sprint's network in the Midwest, a tangible demonstration of its transformative capabilities. WorldCom also became an early and significant customer.

The impact of the MultiWave 1600 was immediate and profound. In its very first year, Ciena achieved an astonishing \$195 million in sales, a figure that stood as the highest ever recorded by a startup at that time. This remarkable success was largely driven by the overwhelming demand from telecommunications providers eager to expand their network capacity. By early 1997, Sprint and WorldCom collectively accounted for a substantial 97 percent of Ciena's revenue, underscoring the critical role Ciena's technology played for these industry giants. The dawn of optical networking had arrived, and Ciena was at its vanguard, laying the groundwork for the high-bandwidth world that was rapidly unfolding.

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