

## Senior Consultant

Mr. Shepherd has 27 years of experience in business, technical, and military leadership roles. He has spent the last 18 years in the Telecommunications/Information Technology industry serving in technical, management, architecture, and entrepreneurial roles of ever-increasing scope and responsibility. Mr. Shepherd and his family maintain residences in Ottawa, Ontario and Canmore, Alberta. Mr. Shepherd is 44.

## Career Overview

Mr. Shepherd began his formal working career (part time!) at age 16 when he enlisted in the Canadian Forces Primary Reserve. While completing secondary school and attending college, Mr. Shepherd continued to serve in the Reserve, becoming the youngest qualified infantry section commander in the army at age 18, and serving as an acting platoon warrant officer at age 20.

From 1989 to 1992, Mr. Shepherd attended a Coast Guard-accredited college, where his time was divided between school and seagoing work terms as a Marine Engineer Officer Cadet. He continued working in the international marine industry after graduation as a Marine Engineer and Power Systems Engineer. Motivated by improvements in the Canadian economic outlook, in 1994 Mr. Shepherd decided to return to Canada to pursue new education and career opportunities.

Several months after enrolling at Carleton University in Ottawa, Mr. Shepherd began summer and part-time employment at Bell-Northern Research (BNR). While completing his undergraduate degree (Applied Physics) Mr. Shepherd pursued career opportunities at BNR, starting as a test engineer, and progressing through technical roles of increasing responsibility. After completing his undergraduate studies, Mr. Shepherd joined BNR full-time as a Member of the Scientific Staff. He immediately took design responsibility for a very troubled Application-Specific Integrated Circuit (ASIC; i.e. a custom silicon device) development that was delaying the entire 330 person development team's progress, and delaying delivery of a product that was already over a year behind schedule with almost a billion dollars of orders awaiting fulfillment. As the fourth (and final!) design prime for the device, Mr. Shepherd completed the design and readied the device for production in 8 months. The previous designers had spent over 30 months generating three successive versions of the design, all of which were so troubled they were ultimately deemed unusable. The product shipped shortly after Mr. Shepherd's device was completed, and earned over \$1B revenue in its first year of sales. This product went on to earn Nortel over \$6B in lifetime revenue.

On the basis of this success, Mr. Shepherd was promoted Team Leader and Design Prime for the next version of the Spectrum platform, which added Ethernet and Voice over Internet Protocol (VoIP) capability to the existing Time Division Multiplex (TDM) and Asynchronous Transfer Mode (ATM) platform. By applying lessons learned during the previous development, Mr. Shepherd and his team delivered engineering development samples of the main control and switching module in 11 months (the previous version took 30 months to reach a similar state).

At the end of 1999, Mr. Shepherd decided to pursue other opportunities as a product architect with the newly-formed High Performance Optical Component Solutions subsidiary. From January to August 2000, Mr. Shepherd recruited a small, highly capable design team that designed and delivered the world's first 10 Gigabit Ethernet server adapter, and demonstrated the device in conjunction with Hewlett-Packard at the Interop Show in Atlanta in September of that year. On the basis of this success, Mr. Shepherd was

promoted to Group Architect in September of that year, and was given approval to recruit a larger integrated product team to develop and productize 10 Gigabit Ethernet server and storage I/O adapters and controllers. During 1999 and 2000, Mr. Shepherd was heavily involved on a consulting basis with the Nortel M&A and Corporate Development groups, and had served as the technical due diligence representative for the Alteon acquisition. Mr. Shepherd leveraged contacts within Alteon to recruit four key managers from Alteon's Gigabit Ethernet server adapter business (who were the market share leaders in that market) to join the new team. To ensure adequate focus on the 10 Gigabit opportunity, Mr. Shepherd was instrumental in licensing the existing Alteon server adapter controller devices to 3Com and Broadcom, raising over USD\$110M in immediate revenue from the licensees. The integrated team sampled our first controller ASIC 10 months after the team was formed, almost exactly coincident with the shutdown (and subsequent sale) of the entire division due to the revenue collapse Nortel suffered in late 2000 and early 2001.

In July 2001, Mr. Shepherd co-founded S2io (later renamed Neterion), to pursue product opportunities in the 10 Gigabit Ethernet server and storage adapter/controller market. Mr. Shepherd assumed the role of CTO, and also served as acting CEO from July 2001 to August 2002. Mr. Shepherd began searching for venture capital on September 10<sup>th</sup>, 2001, and despite the very negative investment environment at the time (9/11 attacks THE NEXT DAY and the ongoing tech industry crash) was able to secure two offers of investment within 6 weeks, and closed a USD \$9M Series A equity investment 4 weeks later.

Mr. Shepherd served as Chief Technology Officer at Neterion from 2001 to 2009. During this time he was primarily responsible for company strategy, product architecture, product marketing, technical sales, and fundraising at Neterion. He was also heavily involved in product design and engineering implementation for all products, and directly led the development of the first and third devices produced and marketed by Neterion. Neterion released their first device in May 2003, and by the end of 2003 had achieved over 50% global market share in a field of (at the time) over 20 competitors. Over the next few years, Neterion introduced two more product families, and maintained over 50% market share in the 10 Gigabit Ethernet adapter and controller markets through 2008. Mr. Shepherd was instrumental in raising a total of USD \$72M in equity investment and USD\$10M in debt, spread over four financing rounds, all at increased pre-money valuations. Mr. Shepherd successfully developed several purchase offers for Neterion. The first of these was in late 2004, when a larger competitor offered USD \$220M to purchase the company (Neterion had received USD \$42M total investment at that time). Against Mr. Shepherd's recommendation, the Board of Directors declined this offer and directed the company to focus on a medium term Initial Public Offering. In late 2005, another larger competitor offered USD \$285M (later raised to USD \$300M) to purchase the company. (These offers were also declined contrary to Mr. Shepherd's recommendation). While Mr. Shepherd owned business development and technical sales at Neterion the company closed exclusive Original Equipment Manufacturer (OEM) supply deals with IBM, HP, EMC, Cray, SGI, Fujitsu, Hitachi, and others.

Mr. Shepherd left Neterion in February 2009, and spent the next year getting to know his family again. Mr. Shepherd founded IT Millwrights Corporation in November 2009 to pursue opportunities in IT and technology management consulting to leverage his deep business and technology expertise and experience. Since forming IT Millwrights Corporation Mr. Shepherd has provided architectural and marketing advice for IT-related products to a large US-based semiconductor company and management, business development, and marketing advice to a prominent Canadian-based venture capital entity.

## **Selected Accomplishments**

### Product Architecture and Design

✦ product architect for a 65 person design and implementation team that produced three consecutive market-share leading devices in the highly competitive 10 Gigabit Ethernet adapter/controller market (all three devices had/have over 50% global market share in a field of more than a dozen competitors)

- ✧ architect and implementation prime for a 150 Million transistor 90 nanometer digital ASIC that (by several measures including logical complexity) was the largest ASIC in the world when it was introduced in early 2009
- ✧ served on many IEEE, IETF, and PCI standards working groups, and is recognized as a leading industry authority on converged networking issues and technologies
- ✧ contributed several key networking architectural enhancements to the Linux kernel to support mission-critical and high-bandwidth server applications

#### Engineering Program Management

- ✧ directed a team of program managers (at Neterion) to control a 65 person, multi-discipline (hardware, firmware, and software developers), multi-site (Ottawa, Cupertino, and Bangalore) engineering team that delivered the world's first fully virtualized 10 Gigabit Ethernet server adapter in 2008
- ✧ managed a 20 person team of hardware, firmware, and software designers to implement engineering prototypes of the world's first converged TDM/ATM/Ethernet voice gateway; first samples were delivered on time and on budget less than 10 months after the program began

#### Mergers and Acquisitions

- ✧ generated multiple purchase offers for Neterion at valuations of USD \$220M, USD \$285M, and USD \$300M
- ✧ served as strategic technical consultant to Nortel M&A and Corporate Development groups on many investment and merger deals
- ✧ was first technical integration prime assigned to Nortel-Bay Networks merger, and was involved in all aspects of the Nortel Networks-Alteon merger

#### Product Marketing

- ✧ was responsible for all product marketing decisions at Neterion for three consecutive networking product families that each had/have over 50% market share in a field of over a dozen competitors

#### Business Development and Technical Sales

- ✧ was primarily responsible for business development and technical sales at Neterion, winning exclusive OEM deals with IBM, Hewlett-Packard, EMC, Sun, Cray, SGI, Fujitsu, Hitachi, and others

#### Venture Capital and Private Equity

- ✧ raised a total of USD \$72M from 2001 to 2008 in four financing rounds (all with increased pre-money valuations)
- ✧ has assessed many investment opportunities on behalf of several venture capital firms

^ many contacts in the US venture capital community (particularly in the San Francisco Bay area)

### **Key Business Competency Areas**

Business Team Leadership (all disciplines), Project Team Management, Strategic Planning, Business Model and Business Plan Creation, Deal Structure and Negotiation, New Product Development and Launch, Venture Capital and Private Equity Fundraising, Early Stage Company Launch and Ramp, Organizational Development and Restructuring, Corporate Governance, Public Speaking and Presentations

### **Key Technical Competency Areas**

IT Data Networking Architecture, Telecom Networking Architecture, Server Architecture, Storage Array Architecture, Operating System Architecture, Hardware Design, Firmware Design, Software Design, System Integration, Fault Tolerant System Engineering, Information Security, Automation, ITIL Framework, COBIT, IEEE Standards, IETF Standards and Specifications, ANSI T11 (i.e. Fibre Channel) Standards and Specifications, PCI Standards, Infiniband Specifications

### **Language and Environment Experience**

Perl, Unix/Linux Shells (C, Korn, Bourne, Bash), tcl, Java/J2EE, PHP, VB, C/C++, Verilog, VHDL, System C, Spice, HP Series IV/Agilent ADS, Unix (Solaris, HPUX, AIX, FreeBSD, Linux, OS X), CVS, Clearcase, Sharepoint, MySQL, MS Word, MS Excel, MS Powerpoint, MS Visio, MS Project, Adobe Framemaker, OpenOffice Writer, OpenOffice Calc, OpenOffice Impress, OpenOffice Base, OpenOffice Draw, OpenOffice Math, Matlab, Wolfram Mathematica, Mathsoft, Google SketchUp, StarOffice Writer, StarOffice Calc, StarOffice Impress, StarOffice Draw

### **Information Technology/Data Communications/Telecommunications Industry Experience**

#### ***Management Consultant***

Organization: Business Development Bank of Canada Venture Capital Group

Duration: January 2011 through June 2011

Was retained to evaluate an existing portfolio company for potential new investment. Analyzed market opportunity for new product initiative. Also assessed suitability of existing management team members to lead new product efforts. Confidential findings were reported to investors.

### ***Management Consultant***

Organization: Confidential (large US-based semiconductor company)

Duration: April 2010 to September 2010

Was retained to evaluate the business potential for an existing product line and offer recommendations regarding the retention, sale, or disposal of the product line. Advice was followed and products are currently being sold or discontinued. Was offered full-time employment in a related part of the organization but declined due to necessity of relocation to either Oregon or Texas.

### ***Chief Technology Officer, acting Chief Executive Officer, and Founder***

Organization: Neterion Corporation (S2io Corporation)

Duration: July 2001 to February 2009

Founded S2io (later renamed Neterion) to develop and market high performance “Converged Networking” 10 Gigabit Ethernet server and storage adapters and controllers. Incorporated the company in the US and Canada, and established sites in Ottawa, Ontario and Cupertino, California.

As acting CEO (July 2001 to August 2002) Mr. Shepherd was primarily responsible for Series A venture capital fundraising, and searching for a permanent US-based CEO. Secured a USD \$9M Series A investment in 10 weeks (in the immediate aftermath of the technology market downturn and 9/11 terror attacks).

As CTO (July 2001 to February 2009) Mr. Shepherd was responsible for corporate strategy, business development, technical sales, product marketing, and product architecture. He shared responsibility for post-Series A fundraising, engineering program management, and product integration. During this time, the company:

- ✦ won exclusive OEM supply deals with IBM, HP, EMC, Cray, SGI, Fujitsu, Hitachi, and others
- ✦ maintained over 50% market share (by revenue and volume) in a field of over a dozen competitors
- ✦ developed and productized three consecutive market-leading ASICs (2003, 2005, and 2008)
- ✦ received three high-value purchase offers for the company (\$220M in 2004, \$285M in 2005, and \$300M in 2006)
- ✦ raised \$72M venture capital from US and Canadian firms in four financing rounds, all with increasing pre-money valuations (\$6M series A, \$15M series B, \$55M series C, and \$150M series D)

## **Architect**

Organization: Nortel Networks – High Performance Optical Component Solutions Subsidiary

Duration: January 2000 to July 2001

Joined organization as product architect for the semiconductor group. Major business focus was to prepare the organization to be spun out of Nortel as an independent company, and take it public. Mr. Shepherd's first responsibilities were:

- ✧ develop and oversee strategic partnership with Hewlett-Packard to co-develop and demonstrate the world's first 10 Gigabit Ethernet server adapter (achieved on-time, on-budget delivery and demonstration at Fall Interop in September 2000)
- ✧ represent the company's interests on the relevant IEEE standards working group (802.3ae)
- ✧ identify and analyze market opportunities for 10 Gigabit Ethernet adapters, controllers, and optical transceivers (identified synergy with concurrent purchase of Alteon Websystems by Nortel, which had about 65% market share in the Gigabit Ethernet server adapter business, and recruited 3 key leadership members of the Alteon server adapter product team to join the Optical Components group)

After forming a 10 Gigabit Ethernet server adapter product management team, Mr. Shepherd was instrumental in selling the existing Alteon server adapter business to 3Com for USD \$110M to raise badly needed cash for the parent company. Shortly after this sale closed, most of the optical components group was shut down (July 2001), and the remainder (some optical device lines) were sold to Bookhams LLC.

## ***Integrated System Development Team Leader***

Organization: Nortel – Carrier Networks Division – Spectrum 3 Platform Project

Duration: September 1998 to December 1999

Mr. Shepherd was appointed design prime and integrated (Hardware/Firmware/Software) development team leader for the world's first TDM/ATM/Ethernet voice gateway. By applying lessons learned from the previous platform development, Mr. Shepherd's 20 person team delivered first development prototypes 11 months after program start. This represented a 19 month improvement over the interval required for the previous platform to reach a similar state of design maturity.

## ***ASIC Design Prime and Design Engineer***

Organization: Bell Northern Research – Public Carrier Networking Division – Spectrum Platform Project

Duration: May 1997 to August 1998

Mr. Shepherd began full-time work immediately after completing his final year at Carleton University, as a direct continuation of his work as a summer student and part-time designer. He was immediately assigned to the design team of a very troubled, very late ASIC development that was the critical path item for the entire 330 person design team. Within three months Mr. Shepherd was given responsibility for the entire ASIC design, replacing the previous design prime. Mr. Shepherd completed the redesign and readied the device for production in 8 months, after the previous 3 design primes had spent over 30 months generating three fatally flawed devices.

Mr. Shepherd then became heavily involved in system integration, supporting the firmware and software teams to bring the (very) late product to market. Mr. Shepherd was promoted twice within two years on the basis of his performance and contributions to the program (which went on to earn over \$6B of revenue for the company).

### ***Design Engineer, Test Engineer, and Summer Student***

Organization: Bell Northern Research – Public Carrier Networking Division – Spectrum Platform Project

Duration: May 1994 to April 1997

While studying Physics at Carleton University, Mr. Shepherd worked for Bell-Northern Research as a summer student and part-time designer during the school term. Mr. Shepherd was initially assigned duties as a test engineer, but quickly demonstrated a strong aptitude for design, progressing through a series of hardware and firmware design tasks of ever-increasing complexity and responsibility, including phase-locked-loops, clock and data recovery circuits, processor bus interfaces, and system boot firmware. Based on his performance, Mr. Shepherd was offered a full-time position at BNR almost a year before he completed his studies (which he deferred accepting until he finished school!).

### **Work History**

2009-Present: IT Millwrights Corporation – ***Founder and Chief Executive Officer, Principal Consultant***

2001-2009: Neterion – ***Principal Founder and Chief Technology Officer***

1994-2001: Bell-Northern Research/Nortel – ***Designer, Team Leader, Architect***

1993-1994: Denholm Ship Management – ***Marine Engineer/Power Systems Engineer***

1990-1993: Upper Lakes Shipping/Marbulk – ***Marine Engineer Officer Cadet, Marine Engineer Officer***

1985-1990: Canadian Forces Primary Reserve – ***Infantry Soldier, Infantry Section Commander, Recruit Instructor***

### **Education**

1994-1997 Bachelor of Science (Honours), Applied Physics

Carleton University, Ottawa, Ontario

- ✦ Natural Sciences and Engineering Research Council Physics Scholarship
- ✦ Herzberg Physics Prize
- ✦ Graduated with High Honours (Magna Cum Laude)

1989-1992 Technologist Diploma, Marine-Mechanical Engineering

Georgian College, Owen Sound, Ontario

- ✦ Graduated first in class
- ✦ Dean's List