World45 offers software solutions for the multi-core revolution.

# Sun and World45

World45 software tools and frameworks provide a revolutionary platform for capturing emerging market opportunities and for managing network convergence with the Sun Unified Network Platform (SUN-P).

## Introduction

World45's research and development services produce software solutions for multi-core, high-performance, high-throughput enterprise and telco servers. Combined with award-winning Sun™ UltraSPARC® CoolThreads™ technology, World45 software solutions offer high-performance computing and networking solutions that exploit the recent advances in highly parallel hardware execution architectures. Leveraging the Sun Unified Network Platform, World45 markets software-only networking solutions capable of competing with expensive, dedicated hardware solutions in the line-rate packet processing arena.

## Solution Overview

The recent expansion of mainstream computing hardware into the multi-core and chip-level multi-threaded realms, such as the Sun UltraSPARC CoolThreads processors, has produced a need for new software strategies. Simultaneously, the development of virtualization now allows World45 to write real-time code with dedicated hardware resources while retaining traditional operating systems in neighboring domains. Hypervisor technology, embedded in every Sun CMT server, makes Logical Domains a reliable and cost-effective virtualization option. World45 has been working with Sun since 2006 to take advantage of "bare-metal" domains and to develop techniques for high-speed inter-domain communication. The Netra™ Data Plane Software Suite provides this no-interrupt, run-to-completion environment. World45 has specifically focused on developing networking applications for ISPs, telecommunication companies, and the VoIP industry. World45's offload system is the base for the construction of specially-designed solutions for time- and throughput-critical applications that retain the availability of traditional operating system services.

## Solution Benefits

Core-network data-plane and serious enterprise deployments need special tuning and tailoring to exploit the best of what the Sun Unified Network Platform has to offer. UltraSPARC CoolThreads processors perform significantly better than alternatives, but solutions may require special OS and application tuning to achieve the best performance levels. With the right workload, the performance will *double* when compared to out-of-the-box deployment.


## World45 Ltd.

Suite 8, Centre for Innovation
87 Saint David Street
University of Otago
P.O. Box 56
Dunedin
New Zealand
www.world45.com

## World45 Contacts

- Mariusz Nowostawski
  Chief Research Officer
  +64 3 479 4590
  mariusz@world45.com
- Nicolas Erdody
  CEO
  +64 27 521 4020
  nicolas.erdody@world45.com

## Sun Contacts

- Bill Gough
  OEM Group
  bill.gough@sun.com
- Don Tobias
  OEM Design-Win Team
  donald.tobias@sun.com

The equation is simple: massively parallel hardware plus ubiquitous virtualization equals high-performance offload engines.

World45 offers custom offload engines that:

- Use shared memory for communication, providing superior performance
- Have a lightweight, job-based API that offers high portability and short time-to-market rate
- Can use as many threads as desired, thus providing easy scalability and adaptability

The Sun Unified Network Platform has huge potential—and World45 unveils it.

## Business Results

- Better hardware utilization—many high-end servers can do much more than they currently do; this is especially important for high-end, highly multi-core systems
- Better server room integration and rack utilization through virtualization
- Better scalability and adaptability—software solutions are easier to upgrade or replace as enterprise needs change
- Rapid deployment
- Easy maintenance and redundancy solutions

## Target Customer Profile

Tier 1 and 2 Network Equipment Providers building:

- IMS networks
- WiMax deployments
- LTE and other all packet networks

## Target Customer Environment

World45 solutions currently support Sun UltraSPARC CoolThreads-based rack-mount and blade servers. These solutions can potentially be deployed on all future multi-core and highly parallel hardware architectures, including AMD, Intel, and IBM-based solutions.

## Competitors

- Cavium Networks
- Raza Microelectronics
- Freescale Semiconductor

## Business Drivers

To gain a competitive advantage in today's telecommunications marketplace, carriers must find ways to be the first to deliver new and innovative services to subscribers. However, general purpose, non-CMT processors are not efficient enough to handle dataplane applications, and bifurcated architectures with specialized hardware for dataplane are too costly and inflexible. CMT and multi-core systems can boost the performance of specialized software modules beyond the reach of traditional systems. In such highly parallel environments, traditional software modules will perform poorly. To take full advantage of the new, highly parallel hardware model, software must be specially designed and optimized. The benefits of the shift towards CMT and multi-core systems most noticeably include cost effectiveness, easy scaling, high adaptability, and short time-to-market due to software-only tailoring.

## Qualifying Questions/Characteristics

Do you:

- Use multi-core servers currently, or envision moving towards multi-core solutions in the near future?
- Use specialized hardware solutions to meet your throughput and performance needs?
- Have high-throughput and/or high-performance computational needs?

## How to Order

Contact World45 directly at info@world45.com, or through your Sun reference account manager.

## Average Deal Size

- Small: $200k
- Medium: $1.2M
- Large: $6M

## Sun Technology Differentiation

- Sun Unified Network Platform
- Sun UltraSPARC server range

For additional details, visit sun.com/netra or download the "High-Performance Networking with Multi-Core and CMT Systems" white paper at www.world45.com/docs/3gsm.pdf.

## Typical Configuration

Subject to client needs/specifications and particular client configuration. Offload solution deployable on Netra Data Plane Software Suite along with Logical Domains running Sun Solaris™ and/or Linux operating systems on servers with Sun UltraSPARC T1 and UltraSPARC T2 architectures.