

# Sun Technologies for Network Games

Enabling High-Performance Gaming Across Any Network or Device



## Games Go Global

Remember when all you needed to rock the world was a great idea and the skills and talent to get it out of your head and onto the screen? Press the golden master and off you go, onto the next million-selling game.

Okay, maybe it was never quite that easy, but at least you knew when you were done. Nowadays, it's go online or go home. That means once you finish writing the game, you're on the hook for another three to five years (if you're lucky) providing a network service to a global community that expects access to the game — 24 hours a day, 7 days a week, 365 days a year. If your game goes down once too often, player loyalty shifts to the new kid on the block. And if that weren't bad enough, you're now responsible for billing, authentication, and let's not forget security. You know every cheater out there will be looking for that fatal flaw that gives them unlimited wealth, power, or just the ability to spoil it for everyone else. If you thought putting together the money to pay your artists and developers was a monumental feat, how does \$15-20 million in start-up costs sound to you? Between engine development, server infrastructure, and support costs, you'll have to lay out most of that before the first player ever logs in. Once you're up and running, you're looking at another \$7-10 million a year just to keep it going.

Seems like things took a wrong turn somewhere. You started out making the next big consumer obsession, and you ended up running the New York Stock Exchange.

Fortunately, Sun knows a thing or two about building ultra-secure, rock-solid, globally accessible systems and services with 99.9 percent (three 9s) or more uptime. Sun's been doing it for over 20 years, and we've brought together a team of hardcore gamers and industry veterans and turned them loose to convert years of network systems experience into a next-generation game server infrastructure that will drastically reduce the cost and complexity of delivering high-performance games across any network or device. Which lets you get back to what you do best: Rocking the world with great games.

## It's Not Just a Game Anymore

Creating a successful online game service is more than just creating a game. It doesn't matter if you've got the most realistic physics, the most sophisticated spell system, or the baddest monsters around; if players can't log in and play on day one, or if they get double-billed or have hours of game play wiped out due to unforeseen system errors, they'll abandon the game like rats from a sinking ship. In a word-of-mouth business where reputations are made on first impressions, mistakes like these can be fatal.

Game Operators today are responsible for all aspects of the gamer's experience, including:

- Server reliability, availability, and maintenance
- Player authentication and access control
- Subscription, billing, and account management
- Customer relationship management
- Network security and cheat prevention

- In-Game administration
- Distribution of client-side patches and upgrades
- Community management
- Database management

What's more, you've got to deploy and manage your game infrastructure across dozens of servers. Overestimate your initial launch figures and you could end up with a bunch of servers and software sitting idle, just burning cash. Underestimate and performance will suffer, players won't be able to connect, and your name will be smeared all over fatbabies.com.

So now you're thinking "No big deal. I can handle it. I just designed and built an entire universe. How hard could it be?" And you could be right, maybe you can. But what you've got to ask yourself is "Do I really want to?" Did you get into this business to build and manage enterprise portals, or to make great games?

Exactly. That's what we thought.

### **From Enterprise to Entertainment**

When Sun built the Sun Java™ Enterprise System, we didn't exactly have games in mind when we were deciding what features to include. The good news is that most of the mission-critical administration and management tasks required to run a successful game are the same as those needed to keep the Global 100 operational day in and day out. The better news is that Sun's Game Technologies Group (remember that team of hard-core gamers and industry veterans we mentioned earlier) has been working to ensure that game developers have everything they need and only what they need to make great games. Have we piqued your interest?

"Okay Sun, I believe you can solve my customer relationship management and administration woes, but Everquest isn't Amazon.com. You're not going to tell me how to write my game server."

You're right. No two games are the same, and only you understand the unique requirements of your environment. What we are doing is developing new technologies that take the most common features of networking, event processing, and state management, and optimize them using some of the most advanced techniques in high-performance technical computing. Then we integrate the entire thing with the rest of the server

stack, leaving you to focus all your time and energy on creating the unique combination of components that will separate your game from the increasingly crowded field of second-string copycats and wannabes.

### **Big Iron Meets Its Match**

At this point you're probably thinking, "This is where you sell me some million dollar supercomputer, right?" We call it a Sun Fire™ 15K server, and no, as much as the hardware guys would like us to, we're not going to try sell you one. It won't do you any good to spend your entire marketing budget paying for a carrier-grade server that sits idle because you can't afford to get the word out about your game. What you need is a flexible, horizontally scalable solution that will get you up and running right away, and lets you grow as you go. With Sun, you've got the best of both worlds: Our experience building massive, high-performance data centers and our low-cost blade solution that lets you buy exactly what you need — when you need it. Add AMD's 64-bit Opteron processor and the unparalleled security, stability, and thread performance of the Solaris™ x86 OS and you've got one of the best price-performance ratios in the market today.

While you may be able to replace a million dollar box with a few dozen inexpensive rack-mounted blades, you still need to manage the software on all those bad boys. It might look like you've just traded up-front costs for the long-term nightmare of a Herculean IT job, but that's why Sun created N1™ Grid technology — to operate your entire back-end infrastructure as a single integrated system. The N1 Grid platform lets you easily shift resources where you need them, cutting costs even further by letting you make more efficient use of your systems. What's more, the Game Technologies Group is taking N1 Grid technology a step further, developing industry-specific technologies that let you run multiple games within a single set of servers, transparently shifting the load across servers as demand shifts from one game to another.

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### Leave the Driving to Us

As a game developer, you're riding the bleeding edge of technology. Every game you release is going to put a new set of unforeseen demands on the system, and when something goes wrong, the last thing you want to do is try to dissect the problem in order to figure out which of a half-dozen vendors you need to call to straighten it out. Sun's "systems" approach to delivering complete solutions means you've got a single point of contact to address your issues. Better yet, let us manage your data center for you. We can remotely diagnose and fix most problems while you're off dreaming up the game that's going to convince Carmack to throw in the towel and build rockets.

### Connected Performance Everywhere

Just when you thought you had a handle on things, they go and change the game. Suddenly everyone's playing games on their phones, and they all want to know when you're going to make a real game they can connect to anytime, anywhere, from any device. Bridging networks and devices adds an entirely new level of complexity to the already monumental task of bringing high-quality electronic entertainment to market. That's why Sun has been

working closely with middleware developers, handset and console manufacturers, broadband service providers, and wireless carriers to deliver a next-generation solution that will enable high-performance gaming across any network or device. Sun's Reference Architectures for Online Games take the guesswork out of planning for the future of online games by bringing you solutions you can deploy today.

### Sun - Committed to the Vision of Online Games

To the general public, online games are a fun and sometimes all-consuming way to connect with close friends and complete strangers while exercising their brains to overcome increasingly difficult and compelling challenges. To you, the developer, they are the ultimate expression of your brilliant, and sometimes twisted, imagination. To us, they are the next frontier in global network computing. Sun's response to the issues facing game developers is unique because the systems and networking skills needed to enable the next generation of mobile and online games are in our DNA. "The Network Is The Computer"™ is not just a great idea the rest of the world is finally waking up to. We've done the work, creating

innovations that make computers function together seamlessly in every hardware and software product we build. The Game Technologies Group brings to this the deep passion and understanding of online games and the games industry that make Sun Microsystems an ideal partner for anyone sharing the vision of massively scalable, high-performance gaming across any network or device.

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