



# Fast, Reliable and Predictable Performance: SUSE® Linux Enterprise Real Time 10

Today's processors allow operating systems to run faster than ever before, but speed alone cannot guarantee that time-critical applications will consistently meet deadlines. In many situations, tiny delays and inconsistencies are tolerable, but when they are not, Novell has your back with its first-to-market real-time processing solution for the enterprise.

### Why Real-time Computing?

Many of today's largest high-profile organizations—including financial institutions, manufacturers, government agencies and others—rely on time-dependent applications and processes, which must execute accurately and predictably all the time, every time. This is why organizations are turning to SUSE® Linux Enterprise Real Time. It is a real-time operating system that has been specifically engineered to reduce the latency, increase the reliability and predictability, and reduce the cost of operating time-sensitive, mission-critical applications. It inherits the best features of the award-winning SUSE Linux Enterprise kernel, so no special features are required to run it on commodity hardware or to access world-class support. When your business requires real-time computing and sub-second response, SUSE Linux Enterprise Real Time is the best solution.

### In Your Business, Latency Matters

Latency spikes and unpredictable performance wreak havoc in time-critical environments where a millisecond may be the difference between your business merely surviving and aggressively competing. IT systems are generally designed to withstand worst-case scenarios, often resulting in complexity, additional costs and gross over provisioning of computing resources.

To compensate, businesses either build their own software solutions or implement proprietary real-time solutions. In-house solutions may offer good risk mitigation, but they generally require extensive expertise and are sometimes difficult to develop and implement. Similarly, a proprietary solution is often bound to specialized hardware and cannot leverage the flexibility afforded by low-cost commodity components.

#### ■ Solution:

Real Time Linux

#### ■ Product:

SUSE Linux Enterprise Real Time

SUSE Linux Enterprise Real Time ensures predictability in time-critical environments. It's deterministic, reduces latency and runs on a variety of industry-standard platforms (x86/x86-64).



## For more information on SUSE Linux Enterprise Real Time, visit: [www.novell.com/realtime](http://www.novell.com/realtime)

When you choose SUSE Linux Enterprise Real Time, you can count on reliable and predictable performance, low latency and the full support of Novell.

To help your business avoid these pitfalls, your ideal time-critical solution should:

- *Be deterministic, providing predictable responses even under high workloads.*
- *Offer low latency.*
- *Use standard hardware and software to reduce costs.*
- *Be fully supported and based on an open, standard platform.*

### **An Ideal, Time-critical Solution**

SUSE Linux Enterprise Real Time is the answer. It is an extension to SUSE Linux Enterprise Server, ensuring performance in time-critical environments. When you choose SUSE Linux Enterprise Real Time, you can count on deterministic performance, low latency and the full support of Novell.

SUSE Linux Enterprise Real Time runs on a variety of industry-standard platforms (x86/x86-64). To take full advantage of the key features of SUSE Linux Enterprise Real Time, the platforms should be multi-core or multiprocessor systems. SUSE Linux Enterprise Real Time will, however, run on single processor systems.

SUSE Linux Enterprise Real Time also includes kernel modifications for real time and supporting user libraries, low latency node interconnect infrastructure (InfiniBand), documentation, and command line monitoring and performance tools.

### **Key Features**

Delivering predictable, top-level performance, SUSE Linux Enterprise Real Time 10 Service Pack 2 includes the following features:

- **Kernel preemption.** *Preemptible operating system processes to ensure no unwanted interrupts*
- **CPU shielding and assignment.** *Dedicated resources for high priority processes to minimize resource contention*
- **Priority inheritance.** *To solve priority inversion problems for mission critical processes*
- **High-resolution timers.** *Two microsecond resolution (vs. 40 milliseconds) to improve process accounting precision and accuracy*
- **OFED 1.3.** *Support for the latest OpenFabrics Enterprise Distribution (OFED) software stack, enabling the implementation of unified high-speed interconnects based on InfiniBand and 10-Gigabit Ethernet*
- **Adaptive locking.** *Adaptive locking algorithm for kernel locks reduces operating system context switching times, which dramatically improves throughput performance*
- **Precise timing protocol.** *Support for the Precise Timing Protocol (PTP) standard to enable the precise synchronization of high-speed networks*

### **Benefits**

You can deploy SUSE Linux Enterprise Real Time with confidence and take advantage of the following benefits:

- **Lower latency.** *Respond more rapidly to changing market conditions and business needs, and thus maximize your revenue opportunities*
- **Greater predictability.** *Ensure critical business processes complete in time, each and every time, and deliver high quality of service, even under heavy system loads*
- **Greater reliability.** *Increase the availability of your mission-critical applications and meet your service level agreements*
- **Greater visibility.** *Easily analyze the behavior of your time-critical applications,*

**“Higher resolution, ultra-high-field MRI technology is the future of healthcare, enabling safer and clearer pictures of life functions that empower medical professionals to make better-informed decisions on patient care. SUSE Linux Enterprise Real Time enables Siemens to dramatically expand the processing capabilities of our measurement operating systems, without a costly overhaul of the technology.”**

**Jürgen Gut**  
Siemens Medical Solutions

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*identify bottlenecks and improve performance*

- **Lower infrastructure costs.** *Save money now and in the future by using less hardware to run the same services reliably and predictably on an open platform*

### **Flexibility, Investment Protection and Better Resource Utilization**

Avoid vendor lock in and protect your current investments by implementing SUSE Linux Enterprise Real Time, an open source, enterprise real-time operating system. Benefit from the Novell® integration of the open source community's latest real-time technologies into its common desktop to data center platform. Use SUSE Linux Enterprise Real Time and redirect scarce resources to your core business operations, instead of maintaining and supporting your own custom, low-latency platform. Maximize flexibility and choice, and lower your total infrastructure costs by implementing open, standards-based, real-time technologies from Novell.

### **Affordable Pricing**

If you already own a current subscription of SUSE Linux Enterprise Server 10, then a SUSE Linux Enterprise Real Time subscription costs US\$2,500 per server (up to 32 cpus) per year. If you don't have SUSE Linux Enterprise Server 10, then you must purchase one in addition to your SUSE Linux Enterprise Real Time subscription.

Your annual SUSE Linux Enterprise Real Time subscription includes:

- *An electronic CD ISO image downloadable from a secure Web site.*
- *Maintenance, security patches and updates for the duration of your subscription.*
- *One year of Installation and technical support.*

You can add the SUSE Linux Enterprise Real Time 10 Service Pack 2 extension to an existing installation of SUSE Linux Enterprise Server 10 Service Pack 2, or you can purchase subscriptions for both and install them on new hardware.

### **Support**

The support terms and conditions for your SUSE Linux Enterprise Real Time subscription are inherited from your underlying SUSE Linux Enterprise Server subscription. For example, SUSE Linux Enterprise Real Time customers who have an underlying priority level SUSE Linux Enterprise Server subscription are entitled to priority-level support for SUSE Linux Enterprise Real Time.

### **Easy Deployment and Management**

SUSE Linux Enterprise Real Time is easy to deploy. Simply open YaST, the SUSE Linux Enterprise Server interface, and select the real-time kernel. This action installs the real-time extensions that compose SUSE Linux

**“By deploying SUSE Linux Enterprise Real Time UMB’s server infrastructure is able to deliver significantly better performance (greater than 10 percent under light load and up to 150 percent under heavy load) for our enterprise Identity Management solution while decreasing our overall physical server footprint by 75 percent.”**

**Scott Wiles**  
Manager Infrastructure Services  
UMB Financial Corporation

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Enterprise Real Time onto your SUSE Linux Enterprise Server 10 system. Because SUSE Linux Enterprise Real Time is fully compatible with standard Linux\* user-level APIs, you can run applications written for other Linux distributions without recompiling or modifying them. And, you can do this while simultaneously running time-critical applications.

### **The Right Choice for Time-critical Applications**

Why is SUSE Linux Enterprise Real Time the best choice for time-critical applications?

- *It is based on industry-standard hardware and software.*
- *It satisfies the requirements of time-critical application environments.*
- *It is surprisingly easy to get up and running with SUSE Linux Enterprise system deployment tools.*

- *It runs Linux applications unmodified.*
- *Unlike in-house real-time implementations and hybrid solutions, it has the full support of Novell and the SUSE Linux Enterprise ecosystem.*

When success depends on sub-second response times, every delay, no matter how small, is a threat to your bottom line. So why wait? Open source, Linux-based, real-time processing power is available for your enterprise right now. Gain a competitive edge by ensuring both responsiveness and performance of your time sensitive mission-critical applications on SUSE Linux Enterprise Real Time. Act today to claim the cost-savings and competitive advantages for your business.

For more information on SUSE Linux Enterprise Real Time, visit: [www.novell.com/realtime](http://www.novell.com/realtime)



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