

Enea  
Announces Open Source Inter Process Communications Technology for  
Distributed Systems

Mar 14, 06

***New IPC technology is 20% faster than TIPC, scales from DSPs to 64-bit CPUs, and supports multiple operating systems***

**March 14, 2006, San Jose, CA** – Enea, the world leader in advanced device software, today announced LINX™, a scaleable, high-performance interprocess communications service for distributed systems utilizing multiple operating systems. The new message-based transparent IPC technology delivers 20% higher performance than TIPC, and is the only IPC technology that scales from DSPs and microcontrollers to 64-bit CPUs. LINX is available for evaluation on OSE™ and Linux now, and can be readily ported to other operating systems. Enea will offer the new IPC service as open source to Linux developers.

"LINX is the best IPC technology for building complex distributed software in the industry," said Karl-Gustav Niska, vice president of marketing at Enea. "LINX is faster and more efficient than TIPC or TCP, works with a broad range of processor types, including DSPs, scales well to very large networks, and can handle any network topology. It's also open source. We believe that developers who evaluate both LINX and TIPC will find that LINX is the superior technology, regardless of the target OS or CPU."

LINX message-based IPC technology greatly simplifies the design of complex, heterogeneous distributed systems utilizing multiple operating systems and processors. LINX is platform (i.e., OSE, Linux, other operating systems) and media/interconnect (i.e., Gigabit Ethernet, RapidIO, PCI, shared memory) independent. It is also transparent, enabling application processes running on multiple CPUs and operating systems to communicate with each other as if they were running on the same CPU under the same operating system. This transparency makes it easy to distribute LINX-based applications across multiple processors and operating systems. It also makes systems easy to scale and reconfigure with little if any change to the application code.

LINX employs a lightweight connection protocol that greatly enhances performance relative to competitive IPC protocols. LINX, for example, is 90% faster than TCP for intranode IPC and 50% faster than TCP for internode IPC. Relative to TIPC, LINX provides, on average, 25% lower latency and 20% higher throughput for intra-node IPC, and 10% lower latency and 25% higher throughput for internode IPC.

LINX provides reliable, deterministic, high speed transport for both the control

and data plane over both reliable and unreliable media. It also supports encapsulation of other bearer protocols (like TCP, UDP, SCTP) for data transport. To enhance reliability, LINX provides end-to-end flow control, connection supervision, and built in support for redundant links/nodes. LINX also streamlines network management by providing run-time configuration and automatic detection and maintenance of cluster topology.

LINX utilizes an innovative address map model that greatly enhances flexibility and scalability. Because LINX nodes store only the addresses needed for local connections, they require minimal memory for code/data storage, and can be easily reconfigured. This enables LINX systems to scale to very large networks with complex cluster topologies (i.e., clusters connected by bridges and gateways), including those containing small-footprint DSP and microcontroller nodes. TIPC, by contrast uses a bit-mapped address model in which the complete system address map must be stored on every node in the system. This approach is memory intensive and complicates reconfiguration (i.e., after a failure, or when nodes are added/deleted), making it difficult for TIPC systems to support devices such as DSPs/microcontrollers and scale beyond simple clusters.

Later this year, Enea will announce a number of enhancements to LINX, including a naming service (publish/subscribe), reliable multicast, automatic failover to redundant links, automatic byte ordering (Endian conversion), and security/encryption.

Enea will make the Linux version available as open source under a dual BSD/GPL license. Production release is scheduled for June.

For more details on LINX, visit [www.enea.com](http://www.enea.com).

**For more information, please contact:**

North America:

Tom Hayes

Vice president of corporate marketing

Enea

(480) 753-9200

Email: [tom.hayes@enea.com](mailto:tom.hayes@enea.com)

Mark Shapiro

Davis-Marrin Communications

Phone: (858) 573-0736

Email: [mshapiro@davismarrin.com](mailto:mshapiro@davismarrin.com)

Europe:

Karl-Gustav Niska,

Senior Vice President of marketing

Senior vice president of marketing

Enea

Phone: +46 8 50 71 41 04, mobile phone: +46 709 71 41 04

Email: [karl-gustav.niska@enea.se](mailto:karl-gustav.niska@enea.se)

Benedicte Bissey

Marketing communications manager, Europe

Enea

Phone: +33 1 69 18 14 47, mobile phone: +33 6 88 05 96 48

Email: [benedicte.bissey@enea.se](mailto:benedicte.bissey@enea.se)

Asia Pacific:

Masahiro Kawahara

Enea

Phone: +81 35 207 61 67

[Masahiro.kawahara@enea.se](mailto:Masahiro.kawahara@enea.se)

#### **About Enea**

Enea is the leading supplier of real-time operating systems, middleware, development tools, database technology and professional services for high-availability distributed multiprocessing applications such as telecommunications infrastructure, mobile devices, medical instrumentation, and automobile control/infotainment. Enea's flagship operating system, OSE is deployed in approximately half of the world's 3G mobile phones and base stations. Enea has over 500 employees and is listed on the Stockholm Stock Exchange.

---