Product Information

High Availability Package

Availability framework for LynxOS

Rapid development and deployment of High Availability applications

Working in combination with the LynxOS® operating system, the LynuxWorks™ High Availability Package (HAP) presents a powerful platform for rapidly building High Availability (HA) solutions—including those using cost-effective Commercial-Off-The-Shelf (COTS) hardware.

Creating HA applications can be immensely challenging if you lack a flexible framework for their development, deployment and debugging. HAP delivers a comprehensive open HA framework, complete with API, system-level support for HA event management, and tools for configuring and operating HA facilities. With HAP open system software extensions, developers can use commercial hardware components coupled with redundant elements and switchover applications to construct systems that remain in service a high percent of the time—including systems supporting 99.999%, or "5-nines," uptime.

Building-in HA from the ground up

The sophisticated HA framework provided by HAP is unique in the industry in that it enables developers to construct systems that previously required considerable use of non-COTS hardware and software.

Utilizing COTS

The ability to integrate COTS components into an effective HA solution yields enormous time-to-market and cost advantages. HAP incorporates support for COTS hardware in its system-level feature layer, including board support for PPC and x86 processors running in a standard hot swap-capable chassis.

COTS hardware-based HA solutions are necessarily dependent on software to anticipate and manage failures. HAP leverages the LynuxWorks open source Messenger solution (see sidebar) to provide a standards-based communications mechanism for enabling various HA software services to interact. OEMs gain wide flexibility for integrating and implementing a diverse spectrum of fault-detection, replication, checkpointing and heartbeat mechanisms.

Leveraging standards and real-time determinism

HAP is unique in empowering developers to construct scalable HA applications that leverage industry standards while simultaneously providing real-time determinism. Where other HA solutions are built on proprietary OS interfaces, HAP is built on open standards both for real-time OS-level support as well as the HA framework. Hence, because the low-level system basis of HAP is the fully deterministic LynxOS real-time operating system, all HAP-enabled HA facilities are inherently deterministic. In addition, HAP is able to leverage the POSIX, BSD and System V interfaces that are built into LynxOS. This means that open source code written for those environments can be quickly ported into HAP-enabled HA applications.

Key facilities and features of the framework include:

- Device Resource Manager (DRM)—A system-level facility for managing system resource trees, DRM enables device drivers to use devices without requiring information on board-specific configurations. In addition to detecting, enumerating and managing devices and their address spaces, DRM supports basic hot-swap services
- CompactPCI Hot Swap and Warm Domain failover facilities—HA-aware applications can be informed of events for both warm domain and hot-swap operation. Tools, utilities and libraries are also provided to assist in diagnosing and facilitating hot swap and warm domain switchover events
- HA Failover support—HAP supports the creation of event notification facilities for processor failover in redundant processor and bus configurations

HAP also enables seamless integration into standards-based operations management and element management schemes through its support for SNMP.

HAP Advantages

- Accelerated time-to-market —rapidly deploy embedded solutions displaying "5-nines" availability
- Scalability, openness, and real-time determinism —leverage open standards to build scalable High Availability solutions with hard real-time performance
- Cost-effectiveness —construct sophisticated High Availability solutions using inexpensive COTS hardware

Leveraging LynuxWorks Messenger

HAP utilizes the LynuxWorks Messenger architecture, which facilitates the use of intelligent I/O processors (IOP) and increases system availability and scalability through lightweight CompactPCI backplane messaging technology. With LynuxWorks Messenger, applications and protocol processing may be 'split' across multiple cards and systems for enhanced performance and availability. LynuxWorks Messenger includes an IOP management daemon for:

- Diskless booting of IOPs
- Configuring and managing intelligent CompactPCI blades
- Detecting and resolving failures of IOP blades

Mission-critical services and support

LynuxWorks complements HAP with a comprehensive suite of professional services and support options designed to maximize system availability. This includes providing global 24x7 and long-term (up to 15 years) support for deployed systems based on LynxOS.

Expert professional services are available to ensure that system designs meet high availability requirements and that solutions can be seamlessly integrated into network infrastructures. Custom development services are also available for system extensions and optimizations, device driver development, performance maximization and kernel enhancements.

1.800.255.5969

LynuxWorks, Inc.
855 Branham Lane East
San Jose, CA 95138-1018
408·979·3900
408·979·3920 fax
www.lynuxworks.com

LynuxWorks Europe
2 Allee de la Fresnerie
78330 Fontenay Le Fleury
France
+33 1 30 85 06 00
+33 1 30 85 06 06 fax