



hp always-on
infrastructure

technical computing
for product development





The challenges of product development are relentless and growing. As global competition for customers intensifies, the pressure is greater than ever to shorten product design cycles, increase product quality, and lower product cost.



Business success in this demanding environment requires a powerful, dependable technical computing infrastructure. Such an infrastructure must provide product development teams with the highest possible performance on critical applications. It must ensure computing resources are highly available. And it must enable companies to use Web-based collaboration to create, deliver, and support market-winning products.

meeting Internet-era product development needs

HP always-on infrastructure is a total solution for the computing challenges of Internet-age product development. Always-on infrastructure provides rapid implementation of technical computing systems, reliable operations, and complete life cycle management, all in a broad, compatible array of computing resources from the desktop to the data center.



HP always-on infrastructure meets the mission-critical computing needs of mechanical computer-aided engineering (MCAE), electronic design automation (EDA), and chemical/pharmaceutical product development teams. Always-on infrastructure delivers e-services for Web-based product design and collaboration, unmatched performance with leading application software, and the most reliable high availability systems on the market. In addition, always-on infrastructure provides unmatched investment protection with a future-proof roadmap that ensures your technical computing needs will be met throughout the life of your business.

helping companies invent, design, and deliver new products at Internet speed

The emergence of the Internet as a business tool and the convergence of product data and business processes to improve product life cycle management have led to the development of collaborative product development (CPD). CPD combines Web-enabled connectivity systems and product data management (PDM) solutions to form business-to-business hubs that improve product life cycle management.

HP is the leader in developing innovative e-services for Web-based product design and collaboration. With always-on infrastructure, HP offers a computing utility that enables CPD, creating a seamless flow of design, supply-chain, and customer information between geographically and organizationally distributed teams. CPD and always-on infrastructure combine to speed information flow, accelerate product development, increase design innovation, and reduce time-to-market.

HP always-on infrastructure also takes advantage of a host of new e-services for engineering, such as engineering portals and applications-on-tap. These services extend capacity and collaboration, and allow engineers to use and share the best design tools available.



delivering unmatched application performance

Enhanced technical-application performance translates directly into shorter product development cycles and higher quality products. HP's commitment to helping customers achieve superior application performance is a cornerstone of always-on infrastructure.

HP collaborates with customers and independent software vendors (ISVs) to enhance application performance. HP's worldwide technical consulting staff works with technical-computing customers and leading ISVs to optimize codes, access new software products, and uncover advanced computing solutions to problems. Together, HP and its partners undertake such performance-enhancing initiatives as restructuring code and algorithms to take advantage of parallelization and applying HP's library of highly optimized subroutines of basic mathematical and computational kernels to speed up applications.

operating at high availability crucial to product development success

Technical computing is increasingly regarded as a core asset of the corporate enterprise, and with good reason. When there are technical computing problems, the costs are high, including product delays and lost sales because of design flaws.

HP always-on infrastructure capitalizes on HP's market leadership in high availability (HA) computing to assure IT management, the user community, and the company that technical computing resources will be there when they're needed—with little or no unplanned outages. In collaboration with Platform Computing, HP is the first company to bring HA to the technical enterprise, offering an HA roadmap for engineering environments that provides:

- Guaranteed resource availability for critical applications
- Event management services
- Networking reliability and protection
- Accessibility to critical databases and file systems
- Online component replacement

The central components of HP's HA offering for technical environments are MC/ServiceGuard, HP's multicomputer cluster manager, and LSF (Load Sharing Facility) Suite for Workload Management, Platform Computing's industry-standard application-resource manager. The robust

combination of MC/ServiceGuard and LSF minimizes the chances that technical computing jobs will be interrupted by component failures and ensures that jobs can be restarted without administrator intervention if an interruption should occur.

MC/ServiceGuard is designed to work in conjunction with other HP HA products, such as MirrorDisk/UX, which provides disk redundancy to eliminate single points of failure in the disk subsystem; and PowerTrust, HP's uninterruptible power supply (UPS), which eliminates failures related to power outages. MC/ServiceGuard also helps reduce planned downtime by enabling "rolling" operating system and application upgrades.

LSF, which employs distributed load sharing and sophisticated job scheduling, harnesses all available computing resources so that the workload is handled faster, resulting in greater user productivity. Together, MC/ServiceGuard and LSF provide unmatched downtime protection for technical-computing environments.

superdome powers always-on infrastructure

SuperDome, HP's next-generation high-end computing platform, provides a powerful centerpiece for the technical computing always-on infrastructure. The latest addition to the HP 9000 family of HP-UX enterprise servers, SuperDome is uniquely able to address specific customer requirements, even as they change over time.

SuperDome meets stringent uptime requirements and provides unmatched resource flexibility. The SuperDome operating environment is the industry-standard 64-bit HP-UX UNIX® operating system, release 11i, a complete 64-bit environment, including address space, file and file-system size, and data types. Future support is planned for Linux and Windows NT®.

The highly scalable SuperDome platform supports system configurations from two to 64 processors. SuperDome's cell-based hierarchical crossbar architecture can be configured as one large symmetric multiprocessor or as several independent partitions. SuperDome users can repartition the system according to business or application needs.

offering a range of services and a future-proof roadmap

HP offers a host of services, including outsourcing, consulting, and financing, to ensure you get the most value for your always-on infrastructure investment. HP protects your investment by offering in-place upgrades to multiple generations of processors, including next-generation IA-64 and PA-RISC technology. In addition, multiple operating system support, unmatched application availability, and smooth upgrades ensure long life and stable engineering environments.

partners

To provide unmatched e-services for engineering, HP teams with industry-leading partners, including:

- Alventive
- ANSYS
- CoCreate
- EAI
- Monterey Design
- PTC
- SDRC
- SpinCircuit
- Unigraphics Solutions

you need...	solution	hp delivers always-on infrastructure
Ease of planning and designing a solution that fits your business immediately	invent it A solution that is tailored to meet your business needs	<ul style="list-style-type: none"> • Solution experts who design the ideal IT solution environment including people, processes, and technology to meet your business needs • Access to world-class partners with the simplicity of a single point of contact • Environmental and operational assessment skills to identify needs • Built-in software interoperability to develop with Linux or Windows® and deploy with HP-UX, promoting high availability
Speed of integration and installation of a ready-to-run infrastructure for fast time-to-market	build it A system that arrives ready-to-run—built for your business	<ul style="list-style-type: none"> • Consulting, networking, and integration services to create a solution-specific IT environment • Predelivery systems integration, testing, and site preparation to ensure smooth and speedy deployment • Ready-to-run infrastructure solutions, including storage, switches, and maximum performance HP 9000 SuperDome and other servers customized with your choice of software and configurations • Connectivity technologies and services for extended and wireless networking, providing the ability to access any resource anywhere, anytime • Vertical application solutions that leverage HP's world-class partners for robust implementations
Mission-critical services and technologies that enable continuous operations, flexible capacity, and efficient management to ensure ongoing effectiveness	run it A reliable solution that is easy to manage with built-in problem prevention	<ul style="list-style-type: none"> • Computing and expense models that align with your business, usage, and revenue • Mission-critical support that provides proactive services to help anticipate and prevent downtime, and reactive services to respond quickly to problems • Access to information and expertise for the complete solution life cycle • Optimized SuperDome systems and software management tools to identify and fix issues before they become problems • Security software and hardware features, providing layered access for the right people at the right time • Utility technology that provides instant capacity, helping you respond to spikes and ensure consistent levels of service
A future-proof roadmap, utility computing, and continuous care to meet your needs throughout the life of your business	evolve it An infrastructure that evolves throughout the life of your business	<ul style="list-style-type: none"> • Easy evolution and smooth upgrades ensure long life and stability for IT environments • Next-generation, technology-ready with IA-64, PA-RISC, and multi-OS capability, for ongoing investment protection • Flexible usage model that helps you manage growth and evolve with your market • The most comprehensive utility vision and roadmap • Continuous care that ensures the right technology at the right time for the life of your business • Ongoing operational and business alignment activities that continually evolve your infrastructure to meet changing business needs