THEME FEATURES

5 Experiences with Distributed Systems
   Guest Editors' Introduction  Stephen F. Lundstrom and Duncan H. Lawrie

9 XMS: A Rendezvous-Based Distributed System Software Architecture
   Neil Gammage and Liam Casey
   XMS creates a single, powerful system from loosely coupled microcomputers.
   Programs work together across nodes, making systemwide resource management transparent
   and distributed-system design simpler.

21 Helix: The Architecture of the XMS Distributed File System
   Marek Fridrich and William Older
   With abstraction layering and system decomposition, all the user sees is one homogeneous system.
   Behind the scene, the architecture is supporting 15 LANs and close to 1000 workstations.

30 Amaze: A Multiplayer Computer Game
   Eric J. Berglund and David R. Cheriton
   Amaze relies solely on the V kernel for point-to-point communication.
   The game's techniques could work in a general class of distributed applications.

40 High-Level Broadcast Communication for Local Area Networks
   Thomas J. LeBlanc and Robert P. Cook
   Even for LANs without broadcast-supporting hardware, this program offers improvements of
   from 1.1 to 7.8 over point-to-point message transmission—and that's the worst-case gain.

49 Multicast Communication on Network Computers
   Ariel J. Frank, Larry D. Wittie, and Arthur J. Bernstein
   Channel-oriented packet casting is a predominant feature of Micros, an operating system designed
   to explore control and communication techniques for netcomputers with thousands of hosts.

62 The ARC Network: A Case Study
   Mark C. Paulk
   Designed around VAX and developed for ballistic missile defense systems, this network offers
   error-free message passing and can absorb overhead unacceptable to general-purpose networks.

SPECIAL FEATURES

70 A Qualitative Assessment of Parallelism in Expert Systems
   Robert J. Douglass
   Developers envision expert systems that can make up to one billion inferences per second.
   This will require full utilization of a system's potential for parallel processing.

83 Mycin: The Expert System and its Implementation in Loglisp
   Sanjai Narain
   A translation of Mycin, an expert system used in medical consultations, into Loglisp, a logic
   programming system, is comparable in terms of clarity, speed, and space requirements.

DEPARTMENTS

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