

Current Projects in FreeBSD

- The Good News
- Port to Xen
- More chip support
- More wireless support
- Hardware Performance Monitoring (HWPMC)
- Continuing network performance improvements
- Clean up of IPv6, IPsec and FAST_IPSEC
- SCTP

The Good News

- Moore's law is dead
- SMP turned out to be a good long term strategy
- All chips now going multi-core
- SMP absolutely required to continue to get performance gains

Xen Port

- Xen is an open source virtualization system
- Requires changes to the operating system for the operating system to be hosted
- A port is underway

More Processor Support

- ARM9 work now ongoing
- PowerPC work now ongoing
- Various SPARC processors including Niagara

Wireless Support

- Work being done by Sam Leffler and others
- About to integrate more support for vlans
- More hardware support being added slowly
- Depends on hardware availability and developer time

HWPMC

- Hardware Performance Monitoring Code
- Uses chip specific counters to give a better idea of what's going on in the system and in your program
- There is a version currently in the system
- Support on AMD and Intel processors
- More tools being written and necessary
- Can eventually replace gprof

Network Performance

- Moving to SMP slowed down the performance of many system
- Networking was the last one to receive attention
- The goal is to remove the GIANT lock from all code
- GIANT Lock currently surrounds
 - Kame IPv6 and IPSec
 - Some ATM subsystems
- Current work is around reference counting sockets

Network Performance Status

- All TCP/IP v4 code is now fine grained lock
- One ATM stack will remain and be fine grained locked
- IPX/SPX stack is now fine grained locked
- IPv6, IPSec and FAST IPSec work is currently moving forward

Kame, IPv6 and IPSec

- March 2006 the KAME Project Completed
- Most code moved into FreeBSD and NetBSD
- This code now belongs to each project and will no longer be actively maintained by the KAME project
- Several KAME members are also FreeBSD committers
 - Umemoto (ume@)
 - Suzuki (suz@)
- Several FreeBSD committers are now working to clean up and move the code forward

IPSec vs. FAST_IPSEC

- KAME IPSec and FAST_IPSEC are incompatible
- FAST_IPSEC does not have support for v6
- Currently working to make the following matrix possible
 - FAST_IPSEC
 - KAME IPv6 and IPSec
 - KAME IPv6 and FAST_IPSEC
- Code is currently only available in PerForce and is unstable

Stream Control Transmission Protocol

- SCTP is a new transport protocol
- Often used in audio and video streams
- Can drop packets or not
- Keeps sequencing
- There are ports to several BSD operating systems
 - FreeBSD
 - NetBSD
 - OpenBSD
 - Mac OS X
- FreeBSD is working with the SCTP team to bring in their code

Questions?