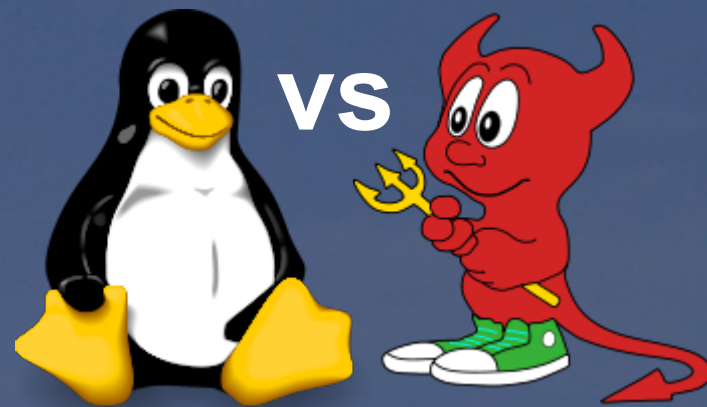
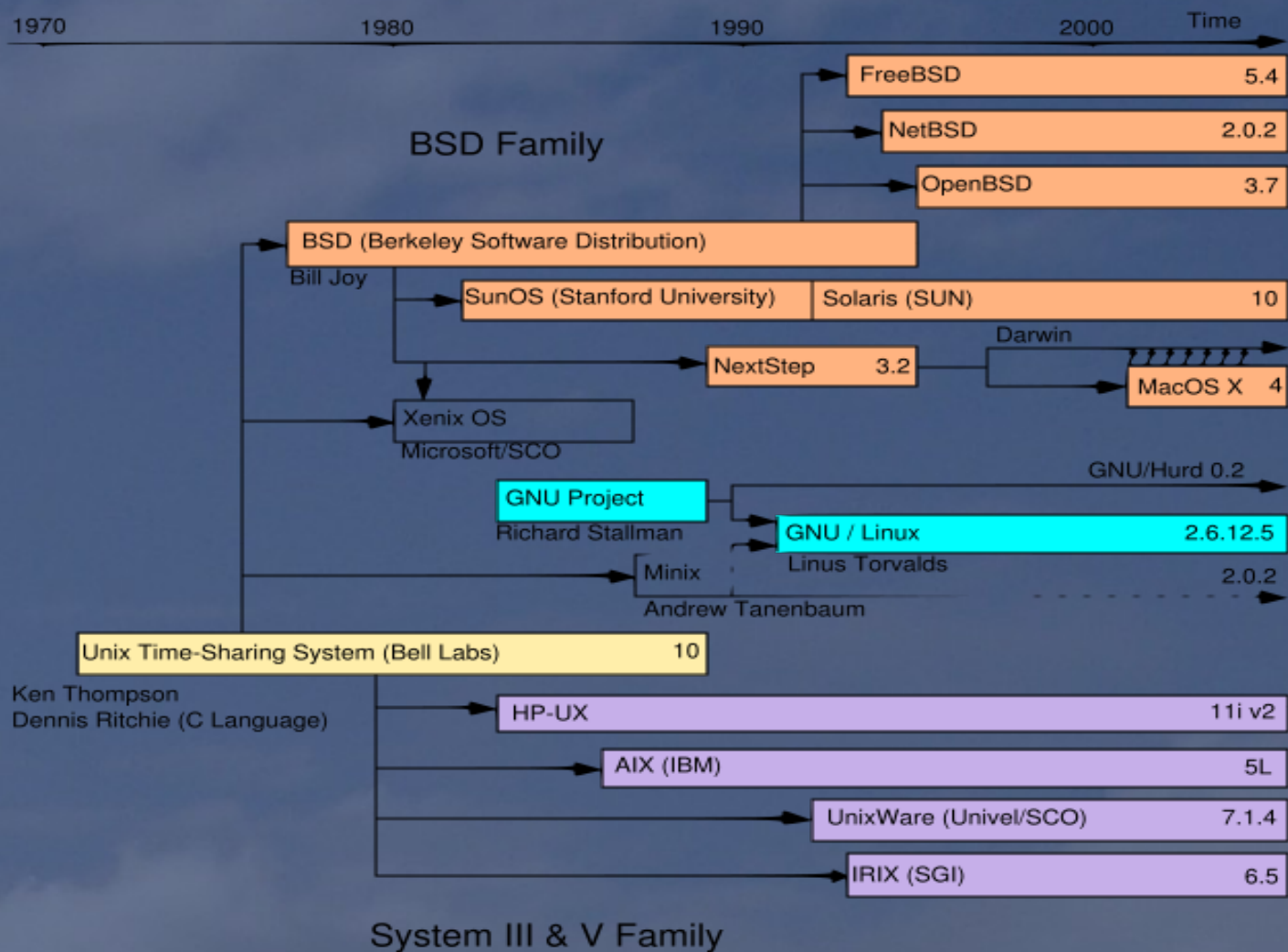


Porównanie systemów operacyjnych



Historia systemów Unix





Przedstawienie historii



- IX 1991 – jądro 0.01
- III 1994 – Linux 1.0
- III 1995 – Linux 1.2
- VI 1996 – Linux 2.0
- I 1999 – Linux 2.2
- I 2001 – Linux 2.4
- XII 2003 – Linux 2.6
- XII 1993 – FreeBSD 1.0
- XI 1995 – FreeBSD 2.0
- X 1998 – FreeBSD 3.0
- III 2000 – FreeBSD 4.0
- I 2003 – FreeBSD 5.0
- XI 2005 – FreeBSD 6.0

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- Przykłady oprogramowania na BSD License:
 - FreeBSD, NetBSD, OpenBSD
 - PostgreSQL
- Problem klauzuli ogłoszeniowej!

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Version 2, June 1991

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Porównanie systemów operacyjnych

Scheduler



VS



Priorytety Schedulera

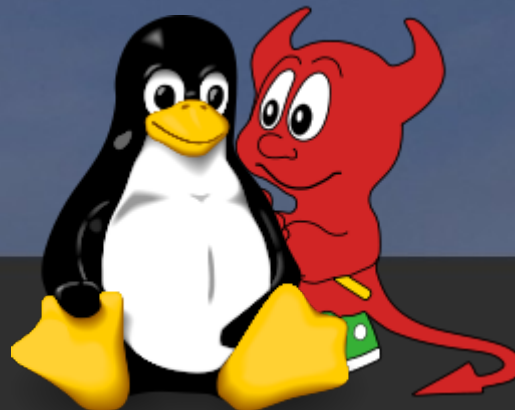
0-99 Wątki systemowe,
procesy real-time
100-139 Priorytety użytkownika

0-63 Przerwania
64-127 Top-half kernel
128-159 Procesy real-time
160-223 Procesy zwykłe
224-255 Procesy 'leniwe'



Cechy wspólne

- Faworyzują procesy interaktywne
- Kolejka procesów aktywnych i kolejka procesów 'przeterminowanych'
- Faworyzowanie procesów ze względu na cache
- Strategie FIFO, RoundRobin, normal
- Arytmetyczne wyliczanie priorytetów



Różnice

- Oddzielne kolejki dla priorytetów
- Obsługa wywłaszczania
- Scheduler zależy od wersji jądra

- Kolejka procesów 'leniwych'
- Wszystkie priorytety na jednej liście
- Stara się uruchamiać wątki na tym samym procesorze
- Scheduler jest wybierany przed kompilacją jądra



Dystrybucje systemu Linux

- Każda dystrybucja Linuxa ma swoje wady i zalety
- Najważniejsze różnice
 - przeznaczenie (Knoppix; Ubuntu, Aurox, SuSE; Gentoo, PLD; Slackware)
 - obsługiwany sprzęt (architektury i hardware)
 - instalator
 - automatyzm
 - dostarczone oprogramowanie
 - instalacja pakietów





FreeBSD a dystrybucje Linuxa

- Linux to jądro, dystrybucja Linuxa to jądro i aplikacje
- FreeBSD to kompletny system operacyjny
- Aplikacje FreeBSD są nadzorowane przez zespół programistów

Zalety braku dystrybucji

- Jeden system operacyjny
- Jedna spójna dokumentacja
- System operacyjny modyfikuje się tylko raz
- Brak ograniczeń związanych z akceptacją zmian w jądrze

Wady braku dystrybucji

- Zmiany w jądrze pociągają zmiany w aplikacjach użytkowych
- Dystrybucje Linuksowe nie muszą uwzględniać zmian w jądrach
- Mała elastyczność zastosowań (desktop / developer / server)
- Użytkownik ma do dyspozycji tylko jeden zestaw aplikacji

Linux Binaries Compatibility

- Po co jest ta funkcja?
- Możliwość uruchamiania binariów Linuxowych na FreeBSD
- Nie działa tryb wirtualny 8086

Linux Binaries Compatibility

- Aby włączyć tę opcję, należy załadować do jądra systemu odpowiedni moduł:
 - **# kldload linux**
- Następnie należy zainstalować biblioteki Linuksa
 - **# cd /usr/ports/emulators/linux_base-fc4**
 - **# make install distclean**
- A potem .. oprogramowanie

Linux Binaries Compatibility

- Więcej informacji można znaleźć pod adresem:
- http://www.freebsd.org/doc/en_US.ISO8859-1/books/handbook/linuxemu.html

Instalowanie oprogramowania

We FreeBSD jest:

- łatwe
- może być wykonywane na różne sposoby
- pilnuje zależności
- nie wywołuje frustracji



Instalowanie oprogramowania

Za pomocą pakietów

- mniejsze objętościowo
- krótszy czas instalacji (duże aplikacje...)
- łatwiejsze w obsłudze

Za pomocą portów

- program jest kompilowany dla odpowiedniego sprzętu
- program jest kompilowany z odpowiednią funkcjonalnością
- niektóre licencje zabraniają rozprowadzania binariów
- można zajrzeć w kod :)
- patchowanie



Używanie systemu portów

Od czego zacząć

- kolekcja portów

Jak znaleźć to czego potrzeba?

- www.freebsd.org/ports - lista portów
- whereis port – gdzie znajduje się nasz port

Co jest w porcie?

- Makefile
- distinfo, files (diffs)
- pkgdscr, pkgplist



Używanie systemu portów

Instalacja

- zalogować się jako root
- upewnić się, że mamy aktualną kolekcję portów (portaudit)
- przejść do katalogu z portem
- make install clean
- i koniec

Usuwanie

- pkg_delete

Aktualizacja

- portupgrade, portmanager



Miła pointa w tej części...

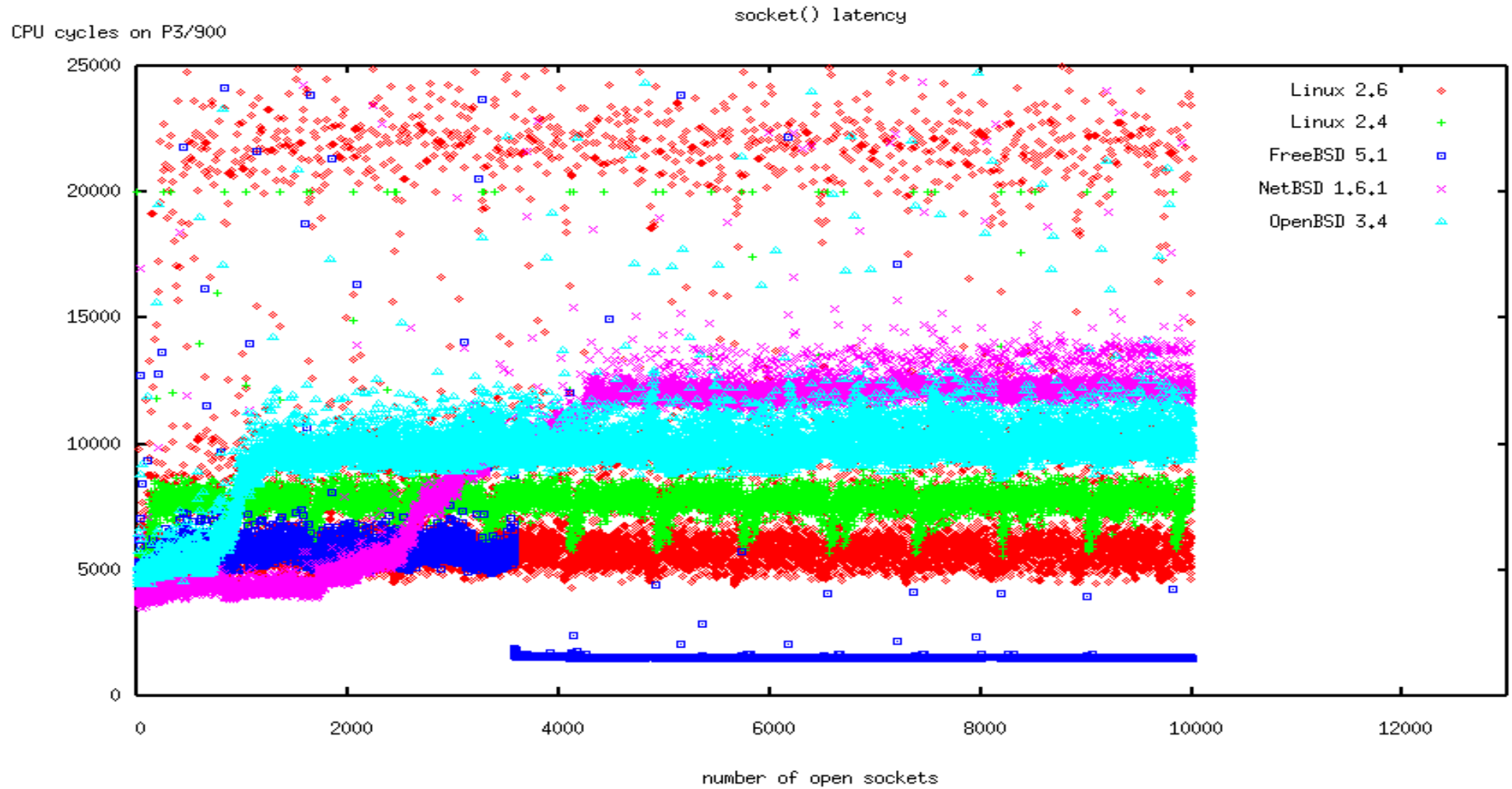


Linux też tak umie!

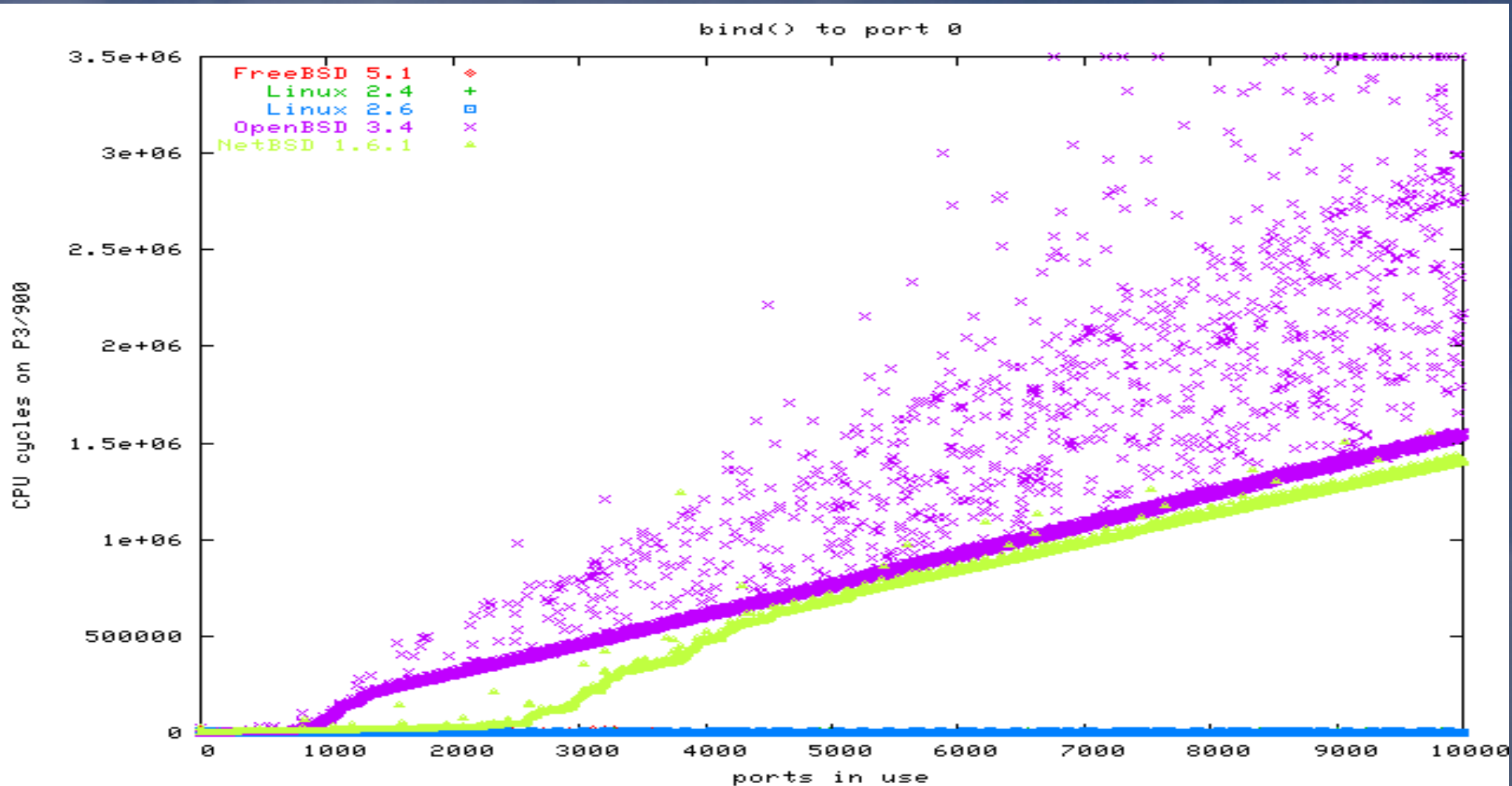
:)

- Porównanie wydajności systemów*:
 - Linux 2.6
 - Linux 2.4
 - FreeBSD
 - OpenBSD
 - NetBSD

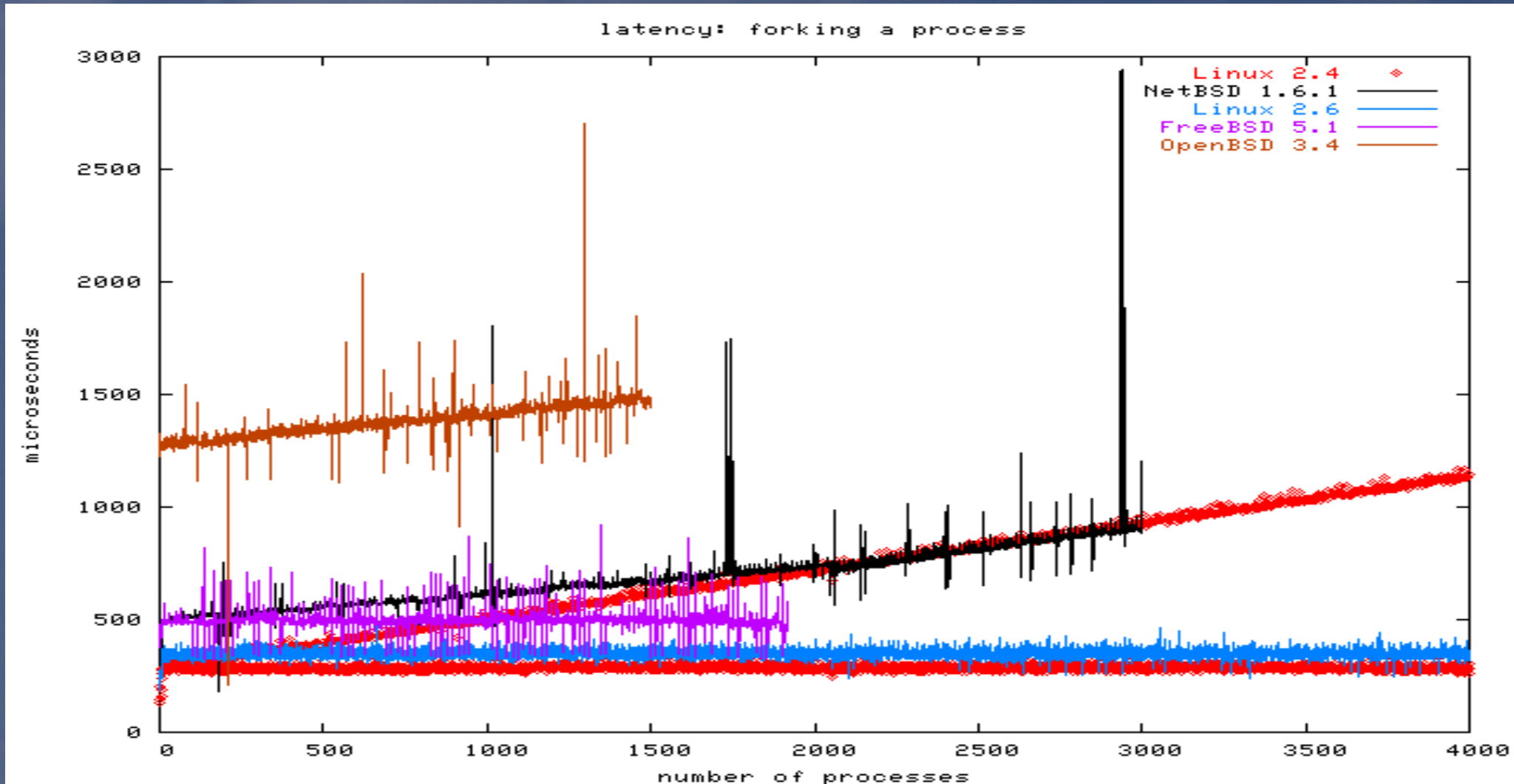
Wydajność: gniazda



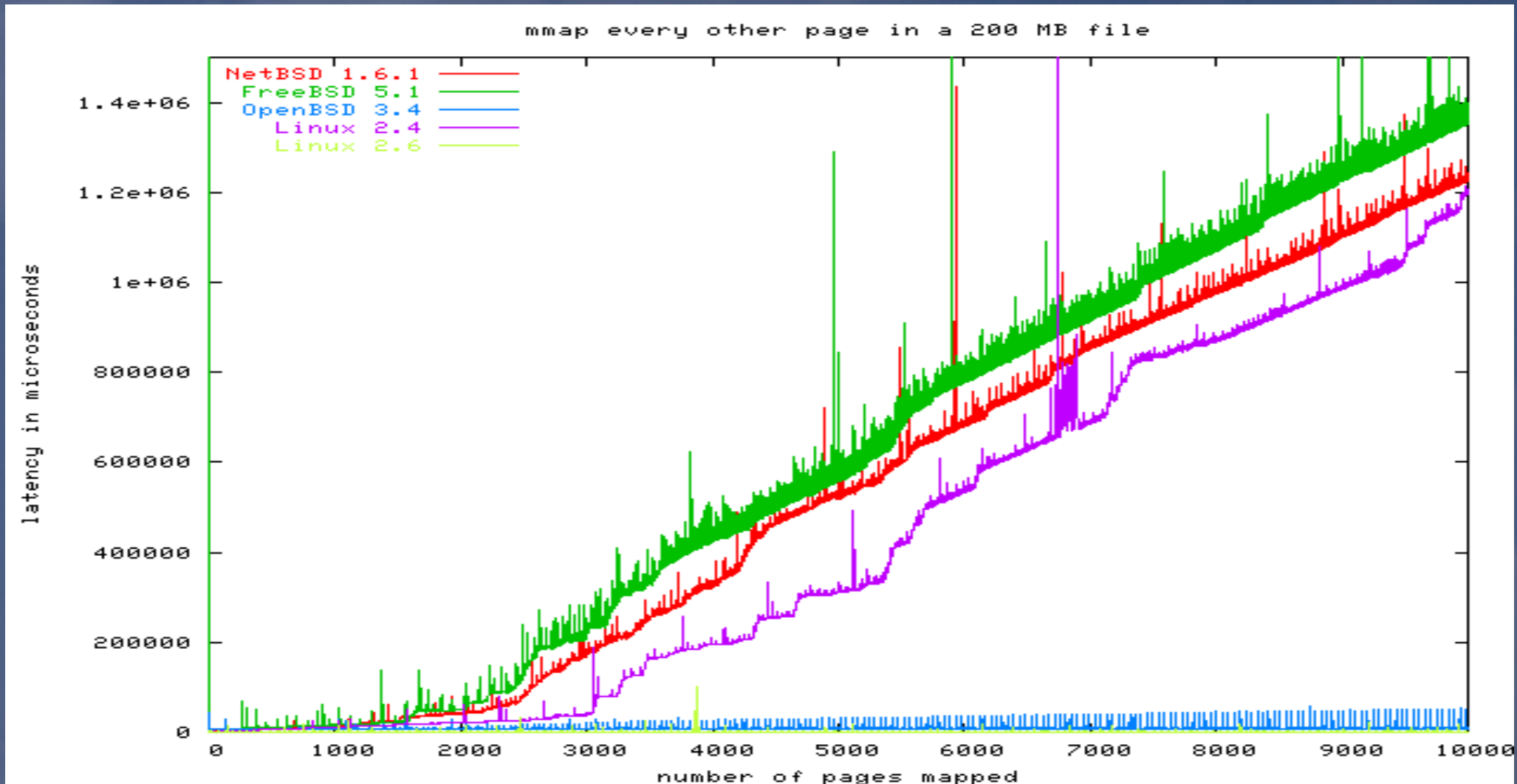
Wydajność, bind() with port 0



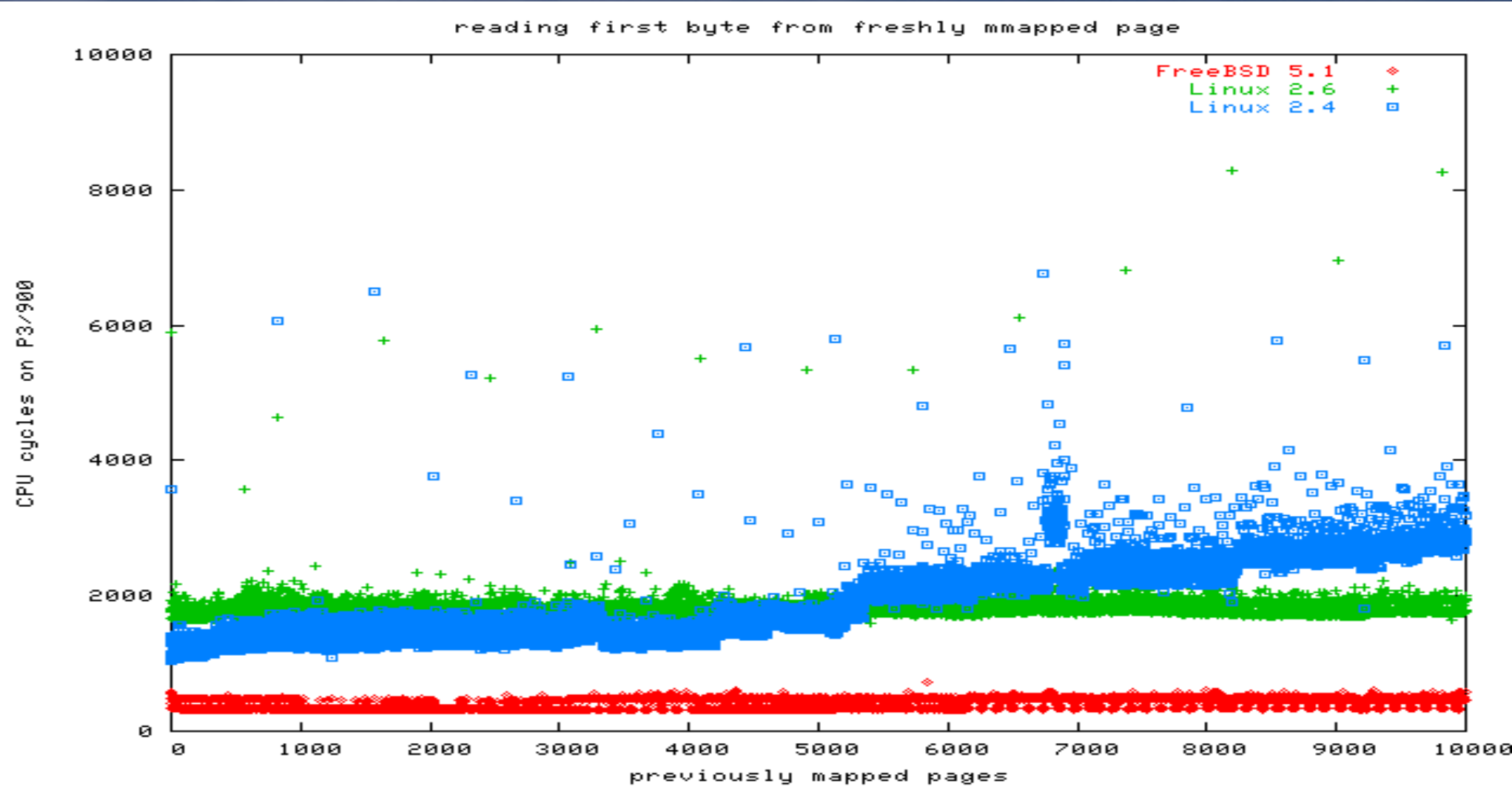
Wydajność: fork() + pipe()



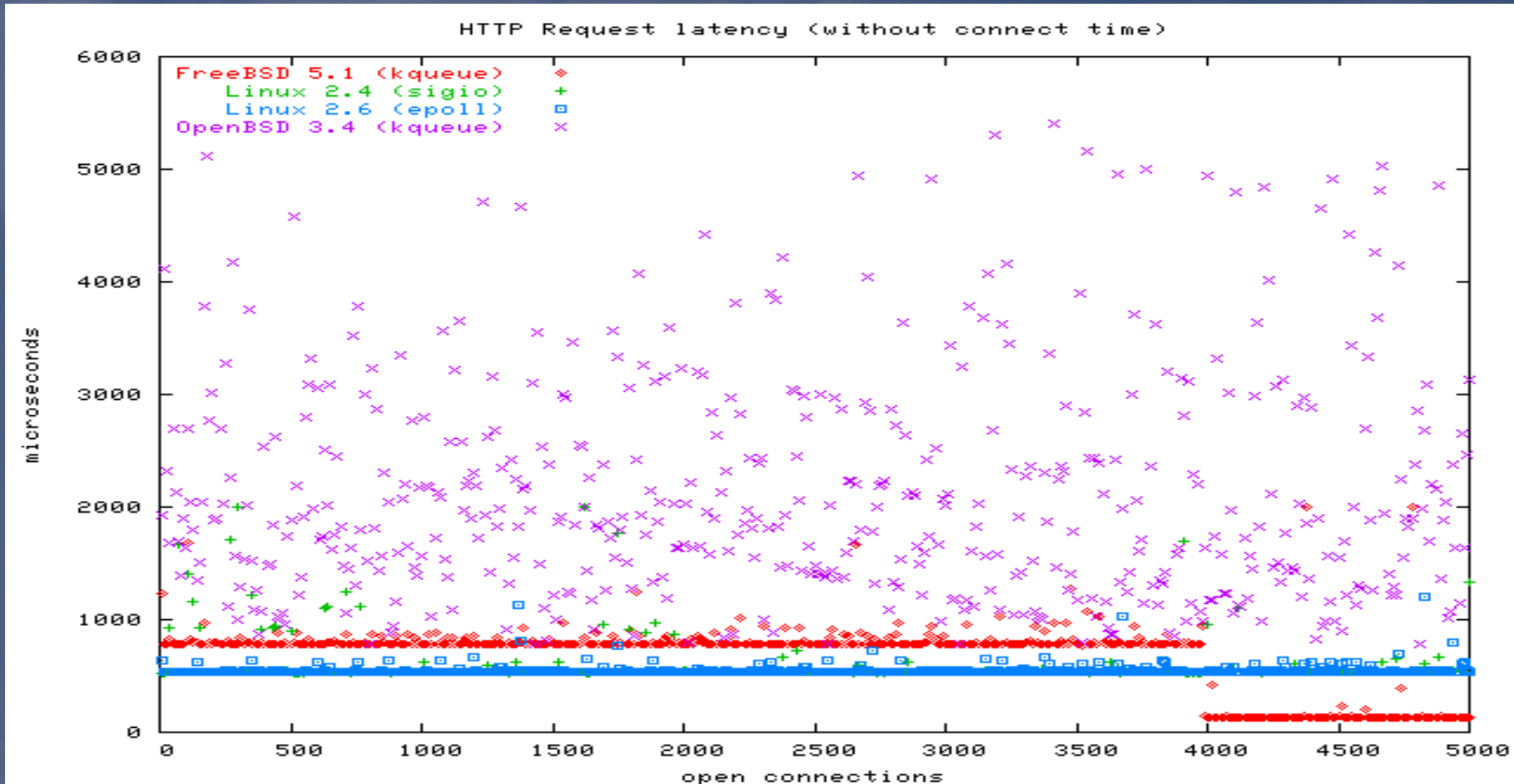
Wydajność: mmap()



Wydajność: mmap()



Wydajność, żądanie HTTP



Popularność zastosowań

- x Linux jest systemem dużo popularniejszym od FreeBSD
- x Nie każda popularna aplikacja ma wersję na FreeBSD
(Netscape, Adobe Acrobat, RealPlayer, VMware, Oracle, WordPerfect, Doom, Quake)
- ✓ Serwery home.pl, yahoo.com, apache.org
- ✓ Kopiowanie kodu źródłowego!

- <http://www-128.ibm.com/developerworks/opensource/library/os-freeb>

