FreeBSD in Japan

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Topics At A Glance

▶ How has FreeBSD been used in the Japanese market, and how the market looks like?
  ▶ History and background
  ▶ The current state of affairs

▶ Conversations with enterprise FreeBSD users
  ▶ Challenge, success, and failure
  ▶ What do we do?
Who Am I?
Who Am I?

- FreeBSD project member since 2000,
- Started as a member of JFUG (Japan FreeBSD User Group),
- Served as a core team member for 16 years,
- Assist. Prof. at TokyoTech

jp.FreeBSD.org 1998
FreeBSD.org 2000
Core, RE, DocEng 2006
AsiaBSDCon 2007
FF Board 2008
2022
A Short History of FreeBSD in Japan
'60-70s: electronic calculator:
Japanese learned microprocessors and use them in consumer electronic devices

'70s-80s: domestic computer and OS:
A national project "DIPS" : 40-bit word arch, multiprocessor, 256MB virtual memory address, C-TRON OS written in PL/1
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We know "semiconductor"

'70s-80s: domestic computer and OS:
A national project "DIPS": 40-bit word arch, multiprocessor, 256MB virtual memory address, C-TRON OS written in PL/1

We know "processor"
'80s-90s: workstations for office automation

WSes with SysV or 4.2BSD-based OS

NEC EWS4800/260
(MIPS R3000, SVR4, 1990)

Sony NEWS workstation
(68k and MIPS)
discontinued around 1998
late '90s: PC-UNIX emerged

WSes disappeared around '98 or were replaced with Intel boxes
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- There were a lot of Japanese developers who knew BSD well
- "Internet" became popular in Japan around 1995:
  - FreeBSD was one of the most popular OS for ISP and other Internet business companies
1998-2005:
The local community was pretty active:
KAME IPv6
PAO (ACPI/mobile device support)
etc
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2000: Toshiba, Hitachi, Fujitsu, and IBM Japan made an announcement that
"they would support Linux as their business foundation" in 2000
2005-:
The community started to shrink because of no young people and Linux-centric business

developers went to non-BSD business

Education for new recruits (>1,000 people /year) based on Linux in big companies who involved in the workstation business
Current Status of Affairs

- Big companies drive their adoption of Linux
  - People who know BSD are doing non-BSD business
  - Young people have no chance to know BSD
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- To get more people in the community:
  - AsiaBSDCon (since 2004, 2007-19, 2023... 14 times)
  - "FreeBSD Workshop," a monthly meet-up (since 2014, 91 times)
  - Forums in social media (Facebook, Twitter, Slack, mailing-list)
    - ~1k people in social media, ~100 in group chats/at conferences, ~20 at monthly meet-ups
Conversations with Japanese Enterprise FreeBSD Users
Who is still using BSD in Japan?

Passion
- S2 Factory: They love FreeBSD.
- BBT: Be careful not to lose the relationship

Business
- IIJ
- Sakura
- KDDI WC
- NEC
- SIE: Mutual benefits must be clear
Their Motivation

Four categories:

a) Passion: "because we love FreeBSD"

b) Inertia: "because we have used FreeBSD and no reason to change"

c) Superiority: "because FreeBSD was the best after considering the others"

d) Customer-driven: "because we have a customer who wants it"
Their Use Cases and Needs

- Two categories of use cases:
  - 1) as a complete POSIX-compatible OS
    ...runs middleware on it for their business
  - 2) as a component that they can reuse
    ...kernel, kernel subsystem, userland library, utility, etc

- Needs:
  - 1) Information in Japanese: release, security advisory, etc
  - 1) Commercial support service
  - 2) Contact to ask a question or upstreaming
Who is still using BSD?

- IIJ (Internet Initiative Japan), "passion-component"
  - ISP since 1992
  - Using NetBSD for the router products
  - Using OpenBSD for the virtual routers
  - Understand the open-source ecosystem
    - Hiring developers
    - Upstreaming their changes

Donating to AsiaBSDCon

SEIL/X4, NetBSD-based router
Who is still using BSD?

- Sakura Internet, "passion-complete OS"
  - Hosting provider since 1999 (was a startup)
  - Offering FreeBSD-based VPS (on KVM)
    - The founder loves FreeBSD
  - Offering a 3rd-party mirror of our FTP contents for >20 years
Who is still using BSD?

- S2 Factory "passion/inertia-complete OS"
  - The company run by kuriyama@ and hanai@
  - Building websites in collaboration with a graphic design company
  - Using FreeBSD (and open-source software) as the core technology

Donating to AsiaBSDCon
Who is still using BSD?

- KDDI Web Communications, "inertia-completeOS"
  - Hosting provider since 1999 (was a startup)
  - Offering FreeBSD-based VPS (bare-metal)

Donating machine/network resource for Tier-1 mirror in Japan
Who is still using BSD?

- BroadBand Tower "passion"
  - iDC service provider
  - No BSD is used, but the head of BBT Lab. is kind enough to offer machine/network resource to the FreeBSD project
  - Maybe possible to setup a collaboration
  - Tier-1 mirror (working) and testing lab (planning)

Donating machine/network resource for Tier-1 mirror in Japan
Who is still using BSD?

- SIE (Sony Interactive Entertainment), "superiority-component"
  - Gaming console (PlayStation series)
Lessons Learned

▶ Asking donation or financial support never worked
  ▶ No business custom of donation in Asia
  ▶ Only works for one that understands how open-source projects work

▶ Mutual benefits
  ▶ Needs a good story assuming it is a normal business relationship
    ▶ Know what they want
  ▶ Easy if they love FreeBSD, but...
Promoting FreeBSD

- α) As a complete, performant OS
  - for companies like ISPs in '90s: KDDI WC

What middleware they are using? Does it run on FreeBSD flawlessly?
Promoting FreeBSD

- α) As a complete, performant OS
  - for companies like ISPs in '90s: KDDI WC
- β) As toolkits, reusable software component collection
  - for consumers who want specific functionality
  - Needs more attention about "librarification" of FreeBSD

Investing in improving reusability if possible

- Notable examples:
  - Rump/Anykernel in NetBSD
  - OpenSSH in OpenBSD
  - OpenFastPath project (FreeBSD network stack in userland)
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- γ) FreeBSD as one can do the same as Linux in a better way
  - for Linux people who are not satisfied with it

Feature parity wherever possible
Promoting FreeBSD

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- All cases, we need working examples people can try easily:
  - "FreeBSD showcase"