My history and research

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Talk in Japanese
Slides in English

https://goto920.github.io/Docs/20191106-talk.pdf

1. Origin: Queueing Networks

- Dissertation: Studies on Queueing Problems in Traffic Flows, 1986 (Kyoto Univ. Eng, Appl. Math & Phy)
  - Chap. 2: Analysis on a Sattelite Channel with Two Types of Downlink Error
  - Chap. 3: Performance Evaluation for a FCFS-Like Group Random Access Protocol on Bus Networks
  - Chap. 4: An Approximate Analysis on Cotrolled Tandem Queues
  - Chap. 5: Performance of an Extra Lane for Slow Vehicles

2. Tools learned in univ (4+2+3y)

- Applied math (queueing theory)
  - Appl. Prob., Laplace/z-transform, numerical comp
- Event driven simulation
  - Modeling, FORTRAN, Pascal
- Terminal, remote job entry setup for the computing center

3. History of non-academic activities

- 1984 – 1986 Joho Kanri Gakka (Keiei) – (10BASE-5, then 2 era)
  - Visiting researcher: 1.5 year at UC Irvine (lived in Newport Beach, Orange C., Calif.) as prepaid sabbatical leave
    - At an academic brother's lab. He got married Rita Coolidge. Retired
  - Unix(SunOS) and IP LAN for the department education/research
    - 133.29.0.0/16 assigned on Sep. 1989
    - BITNET – UUCP gateway operation
    - TeX and LaTeX, programming environment (C)
- --1990-- (10BASE-T Draft → 10BASE-T → 100BASE-T → 100BASE-TX era)
  - Bldg. J Network design, PC classrooms (terminal, X terminal, NeXT), campus LAN promoiton/design
  - UUCP operation then real Internet connection (e-mail, file transfer, network news)
  - Experimental Gopher, WWW, Proxy, dial up connection services
  - Regional Network Community (Tokai Internetwork Council, became NPO Tokai Internet Council)
    - https://web.archive.org/web/20190710051903/https://kmgoto.jp/TICArchive/ (historical documents)
  - JPNIC(Japan Network Information Center) Steering Committe member as regional/academic role (IP addr and JP domains)
  - JUCE (私立大学情報教育協会) activities

3. (cont.)

- --2000-- Seto Campus (100BASE-TX and 1000BASE-LX/SX era)
  - servers/network design for students' laptop PCs
  - DHCP and DNS integration design
    - Custom DHCP service based on MAC address pre-registration
    - Private hostname with stdid and room (e.g. 09st789.h303.seto-private)
  - ISMS project for "Can@Home"
    - to resolve anxiety about reporting class cancellation online at home
  - Nanzan Schools interconnection, Seto South bldgs.
- Five times office room moving (N, J, Seto North, Seto South, S, Q(GLS))

4. Research Papers

TITLE	CITED BY	YEAR
Performance and QoS of Next Generation Networking: Proceedings of the International Conference on the Performance and QoS of Next Generation Networking, P&QNet2000, Nagoya … K Goto, T Hasegawa, H Takagi, Y Takahashi Springer Science & Business Media	6	2012
Proxy Servers: Case Study for Cache Hit Ratio and Response Time K Goto, H Amano Performance and QoS of Next Generation Networking: Proceedings of the …		2012
ネットワークエミュレータ GINE を用いたマルウェア解析環境の構築 光枝靖章，後藤邦夫，河野浩之 コンピュータセキュリティシンポジウム 2012 論文集 2012 (3), 114-121		2012
Network emulator with virtual host and packet diversion K Goto Cyber Journals: Multidisciplinary Journals in Science and Technology …	2	2012

師匠が瀬戸キャンパスで開催、procを編集した

自分の論文はこれ

Dual Core CPUの時代。以後、カーネル機能向上でGUIつきNISTNetに負ける

4. (cont.)

- Network emulation (and its applications) – route real packets
  - Packet diversion (横取り) with Linux/Free BSD kernel module addition for IPv6
  - Low level socket API programming (AF_NETLINK, AF_PACKET on Linux)
  - Router/line delay, bandwidth emulation, userland router
  - Connection between virtual hosts (VirtualBox, Linux container etc.)
- Computer network security
  - intrusion detection, e-mail graylisting, bandwidth throttling etc.
- List on Google Scholar: https://scholar.google.com/citations?hl=en&user=nQrExGIAAAAJ&view_op=list_works&sortby=pubdate

5. Papers in Education

Educational Application of the Internet: International Joint Teleclass — 5 — 1995
K Aoki, K Goto
Proc. INET 95

COIL-like challenge with old tools
(Aoki is Eibei graduate, 1985 and was phD candidate at U Hawaii)

南山大学における情報通信基盤整備 — 1995
後藤邦夫
私情協ジャーナル 3 (4), 30-2

Summary of K12 activities in Japan — 5 — 1995
K Goto
Proc. INET'95

Dawn of school networking in Japan (co-author Nakayama)

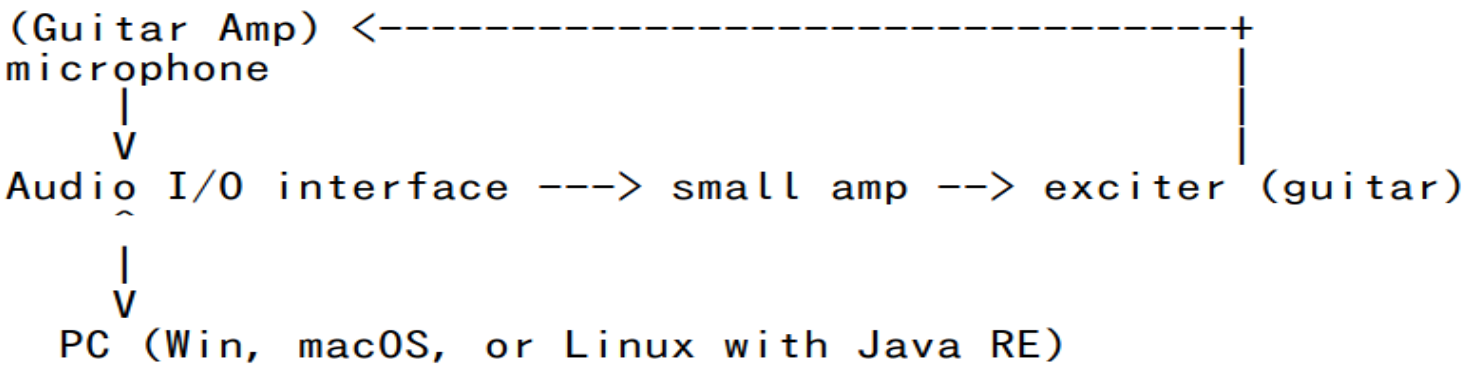
- http://www.isoc.org/inet95/proceedings/PAPER/021/html/paper.html
- http://www.isoc.org/inet95/proceedings/PAPER/172/html/paper.html

6. Current Interest

- Musical applications – not published yet
  - Digital sound signal processing, discrete-time Fourier transform,
  - peak detection, stereo pan estimation, etc.
- Examples https://goto920.github.io/
  - Presentation Timer (practice, in JavaScript (React)) – as an exercise
  - Metronome/Drum beats (for drummer, JavaScript) – with real drum sound samples
  - FilteredPlayer.jar (for PC with Java Runtime) – good application but Java RE is not popular any more
    - Split stereo sound by percussive/harmonic and pan(L-R) (combination of two existing method)
    - Applications: karaoke, drumless track. etc.
  - (guitar) Feedback booster (Java)
    - only for limited guitarist, exciter(speaker unit without cone) mounting is not convienient
  - Variable Speed/Pitch Music Player (JavaScript) with “soundtouch” libraries

5. (cont.) Feedback booster (Java)

- Theory
  - fundamental pitch detection, auto boost the pitch freq., compression
- Experiment: https://studio.youtube.com/video/bZyf2bIrEYM/edit
- Impl. as an effector pedal or smartphone App (using Bluetooth exciter)



6. Work in progress

- Adding clicks to popular music source
  - Beat detection/estimation at quasi-realtime click
  - Commercial software cannot handle all songs (e.g. Rec’n’Share(iOS) for Yamaha EAD-10)
  - Beat detection of songs without percussion is harder
- FilteredPlayerApp implementation in JavaScript for smartphones
  - Java Runtime is not available on smartphones
  - Web Audio API, Fourier transform, array manupilation etc.
  - Simple GUI

Appendix: Videos

- LP album in 1980
  https://www.youtube.com/playlist?list=PLa4FsPdq51PF5086fESye8wQauTmhIXxj
- Live performance in 1980
  https://www.youtube.com/playlist?list=PLa4FsPdq51PGSDgbJ83Fk-cSKsOwyFN6f
- Best vocal performance in 2018
  https://www.youtube.com/watch?v=89wtjR4Klug
- (Work) Example videos of my classes with Zoom Q2n4k (24k yen)
  https://www.youtube.com/playlist?list=PLa4FsPdq51PF-Hbl1L2-YLYXDjIQDQQbA