Paul Francis CV
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Research Area

Privacy in advertising and analytics, computer networks, overlay and P2P networks

Education

1975-80	Colorado State University, BSEE
1992-1994	Ph.D., University College London (UCL), Computer Science

Positions

1/09 –	Director, Max Planck Institute for Software Systems
7/03 – 12/08	Associate Professor, Cornell University, Computer Science Dept.
1/03 - 7/03	Instructor, Cornell University Computer Science Dept.
1/01 - 1/03	Chief Scientist, Tahoe Networks
8/00 - 1/01	Chief Scientist, Fast Forward Networks
1/00 - 8/00	Senior Researcher, ACIRI (AT&T Center for Internet Research at ICSI)
1/94 - 1/00	Member Technical Staff, NTT Software Labs, Tokyo
1/90 - 1/94	Member Technical Staff at Bellcore, Morristown NJ
12/82 - 1/90	Member Technical Staff, MITRE Corp., McLean VA
6/80 - 12/82	PBX field repair engineer, AT&T, Denver CO

Publications

Thesis

1. Paul Francis, "Addressing in Internetwork Protocols," University College London, Sept. 1994

Journal Publications

2. Paul Francis, S. Jamin, C. Jin, Y. Jin, A. Kurc, D. Raz, Y. Shavitt, L. Zhang "IDMaps: A Global Internet Host Distance Estimation Service," IEEE/ACM Transactions on Networking, Oct. 2001

3. Paul Francis, "Comparison of Geographical and Provider-rooted Internet Addressing," Computer Networks and ISDN Systems 27(3)437-448, 1994 (selected paper from INET 94/JENC 5).

4. Paul Tsuchiya*, Tony Eng, "Extending the IP Internet Through Address Reuse," ACM SIGCOMM Computer Communications Review, 23(1):16-33, Jan. 1993

Refereed Conference Publications

5. Alexey Reznichenko, Paul Francis, "Private-by-Design Advertising Meets the Real World," ACM CCS 2014

6. Ruichuan Chen, Istemi Ekin Akkus, Paul Francis, "SplitX: High-Performance Private Analytics," ACM SIGCOMM 2013

7. Stevens Le Blond, David Choffnes, Wenxuan Zhou, Peter Druschel, Hitesh Ballani, Paul Francis, "Towards Efficient Traffic-analysis Resistant Anonymity Networks," ACM SIGCOMM 2013

8. Istemi Ekin Akkus, Ruichuan Chen, Michaela Hardt, Paul Francis, Johannes Gehrke, "Non-Tracking Web Analytics", ACM Conference on Computer and Communications Security, CCS 2012

9. Ruichuan Chen, Alexey Reznichenko, Paul Francis, "Towards Statistical Queries over Distributed Private User Data," USENIX Symposium on Networked Systems Design and Implementation, NSDI 2012

10. Zartash Afzal Uzmi, Markus Nebel, Ahsan Tariq, Sana Jawad, Ruichuan Chen, Aman Shaikh, Jia Wang, Paul Francis, SMALTA: Practical and Near-Optimal FIB Aggregation, ACM CONEXT 2011

11. Ruichuan Chen, Aman Shaikh, Jia Wang, Paul Francis, "Address-Based Route Reflection," ACM CONEXT 2011

12. Alexey Reznichenko, Saikat Guha, Paul Francis, "Auctions in Do-Not-Track Compliant Internet Advertising", ACM Conference on Computer and Communications Security, CCS 2011

13. Saikat Guha, Bin Cheng, Paul Francis, "Privad: Practical Privacy in Online Advertising," USENIX Symposium on Networked Systems Design and Implementation, NSDI 2011

14. Saikat Guha, Alexey Reznichenko, Kevin Tang, Hamed Haddadi and Paul Francis, "Serving Ads from localhost for Performance, Privacy, and Profit," In Proceedings of the 8th Workshop on Hot Topics in Networks HotNets '09, 2009

15. Hamed Haddidi, Saikat Guha, Paul Francis, "Not All Adware is Badware: Towards Privacy-aware Advertising," IFIP I3E 2009, Nancy, France, Sept. 2009

16. Hitesh Ballani, Paul Francis, Tuan Cao, Jia Wang, "Making Routers Last Longer with ViAggre," ACM NSDI 2009, April 2009, Boston

17. Hitesh Ballani and Paul Francis, "Fault Management Using the CONMan Abstraction," Infocom 2009, April 2009, Rio De Janeiro

18. Hitesh Ballani and Paul Francis, "Mitigating DNS DoS Attacks," 15th ACM Conference on Computer and Communication Security, CCS 2008, Alexandria, VA, Oct. 2008

19. Vivek Vishnamurthy and Paul Francis, "On the Difficulty of Finding the Nearest Peer in P2P Systems," ACM SIGCOMM Internet Measurement Conference, IMC 2008, Oct. 2008, Vouliagmeni, Greece

20. Changxi Zheng, Lusheng Ji, Dan Pei, Jia Wang, Paul Francis, "A Light-Weight Distributed Scheme for Detecting IP Prefix Hijacks in Realtime," ACM SIGCOMM 2007, August, 2007, Kyoto Japan

21. Hitesh Ballani, Paul Francis, Xinyang Zhang, "A Study of Prefix Hijacking and Interception in the Internet," ACM SIGCOMM 2007, August, 2007, Kyoto Japan

22. Hitesh Ballani, Paul Francis, "CONMan, a Step Towards Network Manageability," ACM SIGCOMM 2007, August, 2007, Kyoto Japan

23. Saikat Guha, Paul Francis, "An End-Middle-End Approach to Connection Establishment," ACM SIGCOMM 2007, August, 2007, Kyoto Japan

24. Vivek Vishnumurthy, Paul Francis, "A Comparison of Structured and Unstructured P2P Approaches to Heterogeneous Random Peer Selection," USENIX, June 07

25. Vidhyashankar Venkatraman, Kaoru Yoshida, Paul Francis, "Chunkyspread: Heterogeneous Unstructured End System Multicast," The 14th IEEE International Conference on Network Protocols, Nov. 2006

26. Xinyang Zhang, Paul Francis, Jia Wang, Kaoru Yoshida, "Scaling Global IP Routing with the Core Router-Integrated Overlay," The 14th IEEE International Conference on Network Protocols, Nov. 2006

27. Hitesh Ballani, Paul Francis, Sylvia Ratnasamy, "A Measurement-based Deployment Proposal for IP Anycast," Proceedings of Internet Measurement Conference (IMC), Rio de Janeiro, Oct 2006 (Best Paper Award)

28. Vivek Vishnumurthy, Paul Francis, "On Heterogeneous Overlay Construction and Random Node Selection in Unstructured P2P Networks," Infocom 2006, April 2006, Barcelona

29. S. Guha and P. Francis. "Characterization and Measurement of TCP Traversal through NATs and Firewalls," Proceedings of Internet Measurement Conference (IMC), Berkeley, CA, Oct 2005.

30. Hitesh Ballani, Paul Francis, "Towards a Global IP Anycast Service," SIGCOMM 2005, August, 2005, Philadelphia

31. Manpreet Singh, Prashant Pradhan, Paul Francis, "MPAT: Aggregate TCP Congestion Management as a Building Block for Internet QoS" 12th IEEE International Conference on Network Protocols (ICNP 2004), October 2004.

32. Paul Francis, Ramakrishna Gummadi, "IPNL: A NAT-Extended Internet Architecture," SIGCOMM 2001, August, 2001, San Diego

33. Sylvia Ratnasamy, Paul Francis, Mark Handley, Richard Karp, and Scott Shenker, "A Scalable Content-Addressable Network," SIGCOMM 2001, August, 2001, San Diego

34. Paul Francis, Sugih Jamin, Vern Paxson, Lixia Zhang, Daniel Gryniewicz, Yixin Jin, "An Architecture for a Global Internet Host Distance Estimation Service," Proceedings INFOCOM '99, New York City, March 1999.

35. Paul Francis, Susumu Shimizu, Takashi Kambayashi, and Shin-ya Sato, "A Framework for Multilingual Searching and Meta-information Extraction," Proceedings INET 97, Kuala Lumpur, June 1997.

36. Paul Francis, Shin-ya Sato, "Design of a Database and Cache Management Strategy for a Global Information Infrastructure," Proceedings of the Third International Symposium on Autonomous Decentralized Systems, pp. 283-290, April 1997.

37. Paul Francis, Susumu Shimizu, "De-Centralized Web Searching: An Alternative Paradigm", Proceedings 19th Pacific Telecommunications Conference, Honolulu, Jan. 1997.

38. Paul Francis, Takashi Kambayashi, Shin-ya Sato, Susumu Shimizu, "Ingrid: A Self-Configuring Information Navigation Infrastructure," Proceedings 4th International WWW Conference, Dec. 1995, pp. 519-538.

39. Paul Francis, Ramesh Govindan, "Flexible Routing and Addressing for a Next Generation IP," SIGCOMM 94, September 1994, London.

40. Paul Francis, "Comparison of Geographical and Provider-rooted Internet Addressing," Proceedings INET 94/JENC 5, Prague, June 1994.

41. Tony Ballardie, Paul Tsuchiya*, Jon Crowcroft, "Core Based Trees (CBT): An Architecture for Scalable Inter-Domain Multicast Routing," SIGCOMM 93, San Francisco, Sept. 1993. This paper won the Best Student Paper award.

42. Tony McAuley, Paul Francis, "Fast Routing Table Lookup using Content Addressable Memory (CAM)," INFOCOM 93, March 1993.

43. Paul Tsuchiya*, "Efficient Utilization of Contiguous Two-level Hierarchical Addresses," Proceedings IEEE Globecom 92, Orlando Florida, December 1992.

44. Paul Tsuchiya*, "Internet Routing Over Large Public Data Networks using Shortcuts," Proceedings SIGCOMM 92 Conference, Baltimore Maryland, August 1992.

45. Paul Tsuchiya*, "Efficient and Flexible Hierarchical Address Assignment," Proceedings INET 92, Kobe Japan, June 1992.

46. Paul Tsuchiya*, "Efficient and Robust Policy Routing using Multiple Hierarchical Addresses," proceedings SIGCOMM 91 Conference, Zurich, Switzerland, September 1991.

47. Paul Tsuchiya*, "On the Graceful Degradation of Routing Given Insufficient Resources," Proceedings 14th Conference on Local Computer Networks, Minneapolis Minnesota, October, 1989.

48. Paul Tsuchiya*, "Simulation of a Large Network Distributed Routing Algorithm using OPNET," Proceedings DCA/JDSSC Computer-based Modeling Symposium, September 1988.

49. Paul Tsuchiya*, "The Landmark Hierarchy: A New Hierarchy for Routing in Very Large Networks," Proceedings SIGCOMM 88 Conference, Stanford, California, August, 1988.

50. Paul Tsuchiya*, "Team-of-Gateways: Design and Implementation," Proceedings MILCOM '87, Washington DC, October, 1987.

Refereed Workshop Publications

51. Saikat Guha, Bin Cheng, Alexey Reznichenko, Hamed Haddadi, Paul Francis, "Serving Ads from `localhost` for Performance, Privacy, and Profit," 8th ACM Workshop on Hot Topics in Networks, Hotnets 2009, New York, Oct. 2009

52. Hitesh Ballani, Paul Francis, Tuan Cao, and Jia Wang, "ViAggre: Making Routers Last Longer!", 7th ACM Workshop on Hot Topics in Networks, Hotnets 2008, Calgary, Oct. 2008

53. Saikat Guha, Kevin Tang, Paul Francis, "NOYB: Privacy in Online Social Networks," Proceedings of The First ACM SIGCOMM Workshop on Online Social Networks (WOSN '08), Seattle, Aug 2008

54. Tyler Steele, Vivek Vishnumurthy, and Paul Francis, "A Parameter-Free Load Balancing Mechanism for P2P Networks," IPTPS 2008, Feb. 2008, Tampa Bay

55. Saikat Guha, Paul Francis, "Identity Trail: Covert Surveillance Using DNS," Workshop on Privacy Enhancing Technologies, PET 2007, June 2007, Ottawa Canada

56. Hitesh Ballani, Paul Francis, "A Simple Approach to DNS DoS Defense", ACM Sigcomm Hotnets Workshop, Nov 2006

57. Hitesh Ballani, Paul Francis, "CONMan: Taking the Complexity out of Network Management," Sigcomm Internet Network Management Workshop, Sept. 2006, Pisa

58. Vidhyashankar Venkatraman, Paul Francis, "Chunkyspread: Multi-tree Unstructured End System Multicast," IPTPS 2006, February 2006

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