

Bibliography for the Survey Paper: “Consistency Models in Distributed Shared Memory — Theory and Practice”

Hengfeng Wei

April 4, 2015 ~ April 15, 2015

Contents

1 Bibliography	1
References	1

1 Bibliography

References

- [1] ADVE, S. V., AND BOEHM, H.-J. Memory models: A case for rethinking parallel languages and hardware. *Commun. ACM* 53, 8 (Aug. 2010), 90–101.
- [2] ADVE, S. V., AND GHARACHORLOO, K. Shared memory consistency models: A tutorial. *Computer* 29, 12 (Dec. 1996), 66–76.
- [3] AFEK, Y., ATTIYA, H., DOLEV, D., GAFNI, E., MERRITT, M., AND SHAVIT, N. Atomic snapshots of shared memory. *J. ACM* 40, 4 (Sept. 1993), 873–890.
- [4] AHAMAD, M., BAZZI, R. A., JOHN, R., KOHLI, P., AND NEIGER, G. The power of processor consistency. In *Proceedings of the Fifth Annual ACM Symposium on Parallel Algorithms and Architectures* (1993), SPAA ’93, ACM, pp. 251–260.
- [5] AHAMAD, M., NEIGER, G., BURNS, J., KOHLI, P., AND HUTTO, P. Causal memory: definitions, implementation, and programming. *Distrib. Comput.* 9, 1 (Mar. 1995), 37–49.
- [6] AIYER, A., ALVISI, L., AND BAZZI, R. A. On the availability of non-strict quorum systems. In *Proceedings of the 19th International Conference on Distributed Computing* (2005), DISC’05, Springer-Verlag, pp. 48–62.
- [7] AIYER, A. S., ALVISI, L., AND BAZZI, R. A. Byzantine and multi-writer k-quorums. In *Proceedings of the 20th International Conference on Distributed Computing* (2006), DISC’06, Springer-Verlag, pp. 443–458.

- [8] ALGLAVE, J. A formal hierarchy of weak memory models. 178–210.
- [9] ANDERSON, E., LI, X., SHAH, M. A., TUCEK, J., AND WYLIE, J. J. What consistency does your key-value store actually provide? In *Proceedings of the Sixth International Conference on Hot Topics in System Dependability* (2010), HotDep’10, USENIX Association, pp. 1–16.
- [10] ATTIYA, H., AND WELCH, J. *Distributed Computing: Fundamentals, Simulations and Advanced Topics*. John Wiley & Sons, 2004.
- [11] ATTIYA, H., AND WELCH, J. L. Sequential consistency versus linearizability. *ACM Trans. Comput. Syst.* 12, 2 (May 1994), 91–122.
- [12] BAILIS, P., VENKATARAMAN, S., FRANKLIN, M. J., HELLERSTEIN, J. M., AND STOICA, I. Probabilistically bounded staleness for practical partial quorums. *Proc. VLDB Endow.* 5, 8 (Apr. 2012), 776–787.
- [13] BAKER, J., BOND, C., CORBETT, J. C., FURMAN, J. J., KHORLIN, A., LARSON, J., LEON, J., LI, Y., LLOYD, A., AND YUSHPRAKH, V. Megastore: Providing scalable, highly available storage for interactive services. In *CIDR 2011, Fifth Biennial Conference on Innovative Data Systems Research, Asilomar, CA, USA, January 9-12, 2011, Online Proceedings* (2011), pp. 223–234.
- [14] BOEHM, H.-J., AND ADVE, S. V. Foundations of the c++ concurrency memory model. In *Proceedings of the 2008 ACM SIGPLAN Conference on Programming Language Design and Implementation* (2008), PLDI ’08, ACM, pp. 68–78.
- [15] BONNIN, D., AND TRAVERS, C. α -register. Sept. 2013.
- [16] BOROWSKY, E., AND GAFNI, E. Immediate atomic snapshots and fast renaming. In *Proceedings of the Twelfth Annual ACM Symposium on Principles of Distributed Computing* (New York, NY, USA, 1993), PODC ’93, ACM, pp. 41–51.
- [17] BURROWS, M. The chubby lock service for loosely-coupled distributed systems. In *Proceedings of the 7th Symposium on Operating Systems Design and Implementation* (2006), OSDI ’06, USENIX Association, pp. 335–350.
- [18] CALDER, B., WANG, J., OGUS, A., NILAKANTAN, N., SKJOLSVOLD, A., MCKELVIE, S., XU, Y., SRIVASTAV, S., WU, J., SIMITCI, H., HARIDAS, J., UDDARAJU, C., KHATRI, H., EDWARDS, A., BEDEKAR, V., MAINALI, S., ABBASI, R., AGARWAL, A., HAQ, M. F. U., HAQ, M. I. U., BHARDWAJ, D., DAYANAND, S., ADUSUMILLI, A., MCNETT, M., SANKARAN, S., MANIVANNAN, K., AND RIGAS, L. Windows azure storage: A highly available cloud storage service with strong consistency. In *Proceedings of the Twenty-Third ACM Symposium on Operating Systems Principles* (2011), SOSP ’11, ACM, pp. 143–157.
- [19] CANTIN, J. F. The complexity of verifying memory coherence. In *In Proceedings of the fifteenth annual ACM symposium on Parallel algorithms and architectures (SPAA)* (2003), ACM Press, pp. 254–255.

- [20] CANTIN, J. F., LIPASTI, M. H., AND SMITH, J. E. The complexity of verifying memory coherence and consistency. *IEEE Trans. Parallel Distrib. Syst.* 16, 7 (July 2005), 663–671.
- [21] CHANG, F., DEAN, J., GHEMAWAT, S., HSIEH, W. C., WALLACH, D. A., BURROWS, M., CHANDRA, T., FIKES, A., AND GRUBER, R. E. Bigtable: A distributed storage system for structured data. In *Proceedings of the 7th USENIX Symposium on Operating Systems Design and Implementation - Volume 7* (2006), OSDI '06, USENIX Association, pp. 15–15.
- [22] COOPER, B. F., RAMAKRISHNAN, R., SRIVASTAVA, U., SILBERSTEIN, A., BOHANNON, P., JACOBSEN, H.-A., PUZ, N., WEAVER, D., AND YERNENI, R. Pnuts: Yahoo!’s hosted data serving platform. *Proc. VLDB Endow.* 1, 2 (Aug. 2008), 1277–1288.
- [23] CORBETT, J. C., DEAN, J., EPSTEIN, M., FIKES, A., FROST, C., FURMAN, J. J., GHEMAWAT, S., GUBAREV, A., HEISER, C., HOCHSCHILD, P., HSIEH, W., KANTHAK, S., KOGAN, E., LI, H., LLOYD, A., MELNIK, S., MWAURA, D., NAGLE, D., QUINLAN, S., RAO, R., ROLIG, L., SAITO, Y., SZYMANIAK, M., TAYLOR, C., WANG, R., AND WOODFORD, D. Spanner: Google’s globally-distributed database. In *Proceedings of the 10th USENIX Conference on Operating Systems Design and Implementation* (2012), OSDI’12, USENIX Association, pp. 251–264.
- [24] DECANDIA, G., HASTORUN, D., JAMPANI, M., KAKULAPATI, G., LAKSHMAN, A., PILCHIN, A., SIVASUBRAMANIAN, S., VOSSHALL, P., AND VOGELS, W. Dynamo: Amazon’s highly available key-value store. In *Proceedings of Twenty-first ACM SIGOPS Symposium on Operating Systems Principles* (2007), SOSP '07, ACM, pp. 205–220.
- [25] DOLEV, D., AND SHAVIT, N. Bounded concurrent time-stamping. *SIAM J. Comput.* 26, 2 (Apr. 1997), 418–455.
- [26] DUTTA, P., GUERRAOU, R., LEVY, R. R., AND CHAKRABORTY, A. How fast can a distributed atomic read be? In *Proceedings of the Twenty-third Annual ACM Symposium on Principles of Distributed Computing* (2004), PODC '04, ACM, pp. 236–245.
- [27] FICH, F., AND RUPPERT, E. Hundreds of impossibility results for distributed computing. *Distrib. Comput.* 16, 2-3 (Sept. 2003), 121–163.
- [28] FISCHER, M. J., LYNCH, N. A., AND PATERSON, M. S. Impossibility of distributed consensus with one faulty process. *J. ACM* 32, 2 (Apr. 1985), 374–382.
- [29] FISCHER, M. J., AND MERRITT, M. Appraising two decades of distributed computing theory research. *Distrib. Comput.* 16, 2-3 (Sept. 2003), 239–247.
- [30] GARCIA-MOLINA, H., AND BARBARA, D. How to assign votes in a distributed system. *J. ACM* 32, 4 (Oct. 1985), 841–860.
- [31] GEORGE, L. *HBase - The Definitive Guide: Random Access to Your Planet-Size Data*. O’Reilly, 2011.

- [32] GIBBONS, P. B., AND KORACH, E. Testing shared memories. *SIAM J. Comput.* 26, 4 (Aug. 1997), 1208–1244.
- [33] GOLAB, W., HURWITZ, J., AND LI, X. S. On the k-atomicity-verification problem. In *Proceedings of the 2013 IEEE 33rd International Conference on Distributed Computing Systems* (2013), ICDCS '13, IEEE Computer Society, pp. 591–600.
- [34] GOLAB, W., LI, X., AND SHAH, M. A. Analyzing consistency properties for fun and profit. In *Proceedings of the 30th Annual ACM SIGACT-SIGOPS Symposium on Principles of Distributed Computing* (2011), PODC '11, ACM, pp. 197–206.
- [35] HADZILACOS, V., AND TOUEG, S. A modular approach to fault-tolerant broadcasts and related problems. Tech. rep., 1994.
- [36] HALDAR, S., AND VIDYASANKAR, K. Constructing 1-writer multireader multivalued atomic variables from regular variables. *J. ACM* 42, 1 (Jan. 1995), 186–203.
- [37] HALDAR, S., AND VIDYASANKAR, K. On specification of read/write shared variables. *J. ACM* 54, 6 (Dec. 2007).
- [38] HERLIHY, M. Concurrency and availability as dual properties of replicated atomic data. *J. ACM* 37, 2 (Apr. 1990), 257–278.
- [39] HERLIHY, M., AND SHAVIT, N. *The Art of Multiprocessor Programming*. Morgan Kaufmann Publishers Inc., San Francisco, CA, USA, 2008.
- [40] HERLIHY, M., AND SHAVIT, N. On the nature of progress. In *Proceedings of the 15th International Conference on Principles of Distributed Systems* (2011), OPODIS'11, Springer-Verlag, pp. 313–328.
- [41] HUNT, P., KONAR, M., JUNQUEIRA, F. P., AND REED, B. Zookeeper: Wait-free coordination for internet-scale systems. In *Proceedings of the 2010 USENIX Conference on USENIX Annual Technical Conference* (2010), USENIXATC'10, USENIX Association.
- [42] JAGADEESAN, R., AND RIELY, J. Between linearizability and quiescent consistency - quantitative quiescent consistency. In *Automata, Languages, and Programming - 41st International Colloquium, ICALP 2014, Copenhagen, Denmark, July 8-11, 2014, Proceedings, Part II* (2014), pp. 220–231.
- [43] KAWASH, J. Y. *Limitations and Capabilities of Weak Memory Consistency Systems*. PhD thesis, Calgary, Alta., Canada, Canada, 2000.
- [44] LAKSHMAN, A., AND MALIK, P. Cassandra: A decentralized structured storage system. *SIGOPS Oper. Syst. Rev.* 44, 2 (Apr. 2010), 35–40.
- [45] LAMPORT, L. A new solution of dijkstra's concurrent programming problem. *Commun. ACM* 17, 8 (Aug. 1974), 453–455.
- [46] LAMPORT, L. Proving the correctness of multiprocess programs. *IEEE Trans. Softw. Eng.* 3, 2 (Mar. 1977), 125–143.

- [47] LAMPORT, L. The mutual exclusion problem: Partii—statement and solutions. *J. ACM* 33, 2 (Apr. 1986), 327–348.
- [48] LEE, H., AND WELCH, J. L. Randomized registers and iterative algorithms. *Distrib. Comput.* 17, 3 (Mar. 2005), 209–221.
- [49] LIPTON, R., AND SANDBERG, J. PRAM: A Scalable Shared Memory. Tech. Rep. CS-TR-180-88, Princeton University, Department of Computer Science, 1988.
- [50] LLOYD, W., FREEDMAN, M. J., KAMINSKY, M., AND ANDERSEN, D. G. Don’t settle for eventual: Scalable causal consistency for wide-area storage with cops. In *Proceedings of the Twenty-Third ACM Symposium on Operating Systems Principles* (2011), SOSP ’11, ACM, pp. 401–416.
- [51] LLOYD, W., FREEDMAN, M. J., KAMINSKY, M., AND ANDERSEN, D. G. Stronger semantics for low-latency geo-replicated storage. In *Proceedings of the 10th USENIX Conference on Networked Systems Design and Implementation* (2013), nsdi’13, USENIX Association, pp. 313–328.
- [52] LYNCH, N. A hundred impossibility proofs for distributed computing. In *Proceedings of the Eighth Annual ACM Symposium on Principles of Distributed Computing* (1989), PODC ’89, ACM, pp. 1–28.
- [53] LYNCH, N. A., AND SHVARTSMAN, A. A. Robust emulation of shared memory using dynamic quorum-acknowledged broadcasts. In *Proceedings of the 27th International Symposium on Fault-Tolerant Computing (FTCS ’97)* (Washington, DC, USA, 1997), FTCS ’97, IEEE Computer Society, pp. 272–281.
- [54] MALKHI, D., REITER, M., AND WRIGHT, R. Probabilistic quorum systems. In *Proceedings of the Sixteenth Annual ACM Symposium on Principles of Distributed Computing* (1997), PODC ’97, ACM, pp. 267–273.
- [55] MANSON, J., PUGH, W., AND ADVE, S. V. The java memory model. In *Proceedings of the 32Nd ACM SIGPLAN-SIGACT Symposium on Principles of Programming Languages* (2005), POPL ’05, ACM, pp. 378–391.
- [56] MUSIAL, P., NICOLAOU, N., AND SHVARTSMAN, A. A. Implementing distributed shared memory for dynamic networks. *Commun. ACM* 57, 6 (June 2014), 88–98.
- [57] PETERSEN, K., SPREITZER, M. J., TERRY, D. B., THEIMER, M. M., AND DEMERS, A. J. Flexible update propagation for weakly consistent replication. In *Proceedings of the Sixteenth ACM Symposium on Operating Systems Principles* (1997), SOSP ’97, ACM, pp. 288–301.
- [58] SAITO, Y., AND SHAPIRO, M. Optimistic replication. *ACM Comput. Surv.* 37, 1 (Mar. 2005), 42–81.
- [59] SHAO, C., WELCH, J. L., PIERCE, E., AND LEE, H. Multiwriter consistency conditions for shared memory registers. *SIAM Journal on Computing* 40, 1 (2011), 28–62.

- [60] SILBERSTEIN, A., CHEN, J., LOMAX, D., McMILLAN, B., MORTAZAVI, M., NARAYAN, P. P. S., RAMAKRISHNAN, R., AND SEARS, R. Pnuts in flight: Web-scale data serving at yahoo. *IEEE Internet Computing* 16, 1 (Jan. 2012), 13–23.
- [61] STEINKE, R. C., AND NUTT, G. J. A unified theory of shared memory consistency. *J. ACM* 51, 5 (Sept. 2004), 800–849.
- [62] SUMBALY, R., KREPS, J., GAO, L., FEINBERG, A., SOMAN, C., AND SHAH, S. Serving large-scale batch computed data with project volde-mort. In *Proceedings of the 10th USENIX Conference on File and Storage Technologies* (2012), FAST’12, USENIX Association, pp. 18–18.
- [63] TAUBENFELD, G. On the computational power of shared objects. In *Proceedings of the 13th International Conference on Principles of Distributed Systems* (2009), OPODIS ’09, Springer-Verlag, pp. 270–284.
- [64] TAUBENFELD, G. Weak read/write registers. In *Distributed Computing and Networking, 14th International Conference, ICDCN 2013, Mumbai, India, January 3-6, 2013. Proceedings* (2013), pp. 423–427.
- [65] TERRY, D. Replicated data consistency explained through baseball. *Commun. ACM* 56, 12 (Dec. 2013), 82–89.
- [66] TERRY, D. B., DEMERS, A. J., PETERSEN, K., SPREITZER, M., THEIMER, M., AND WELCH, B. W. Session guarantees for weakly consistent replicated data. In *Proceedings of the Third International Conference on Parallel and Distributed Information Systems* (1994), PDIS ’94, IEEE Computer Society, pp. 140–149.
- [67] TERRY, D. B., PRABHAKARAN, V., KOTLA, R., BALAKRISHNAN, M., AGUILERA, M. K., AND ABU-LIBDEH, H. Consistency-based service level agreements for cloud storage. In *Proceedings of the Twenty-Fourth ACM Symposium on Operating Systems Principles* (New York, NY, USA, 2013), SOSP ’13, ACM, pp. 309–324.
- [68] TERRY, D. B., THEIMER, M. M., PETERSEN, K., DEMERS, A. J., SPREITZER, M. J., AND HAUSER, C. H. Managing update conflicts in bayou, a weakly connected replicated storage system. In *Proceedings of the Fifteenth ACM Symposium on Operating Systems Principles* (1995), SOSP ’95, ACM, pp. 172–182.
- [69] TORRES-ROJAS, F. J., AHAMAD, M., AND RAYNAL, M. Timed consistency for shared distributed objects. In *Proceedings of the Eighteenth Annual ACM Symposium on Principles of Distributed Computing* (1999), PODC ’99, ACM, pp. 163–172.
- [70] VAN RENESSE, R., AND SCHNEIDER, F. B. Chain replication for supporting high throughput and availability. In *Proceedings of the 6th Conference on Symposium on Operating Systems Design & Implementation - Volume 6* (2004), OSDI’04, USENIX Association, pp. 7–7.
- [71] VOGELS, W. Eventually consistent. *Commun. ACM* 52, 1 (Jan. 2009), 40–44.

- [72] YU, H., AND VAHDAT, A. Design and evaluation of a conit-based continuous consistency model for replicated services. *ACM Trans. Comput. Syst.* 20, 3 (Aug. 2002), 239–282.
- [73] ZHOU, L. Building reliable large-scale distributed systems: When theory meets practice. *SIGACT News* 40, 3 (Sept. 2009), 78–85.