Fehlertoleranz in Algorithmen für schwach-konsistente Replikation in verteilten Systemen

Handout zum Vortrag von Felix Gärtner am 17. Dezember 1997

1 Begriffe

Fehlertoleranz [6], Fehlermodelle [10], Verfahren für strenge Konsistenz [4, 5], Replikation vs. Gruppenkommunikation [8].

2 Verfahren für schwach-konsistente Replikation

TSAE [8], *flood-d* [9], *HPP* [1].

3 Selbststabilisierende Replikationsverfahren

Selbststabilisierung [11, 2], Konstruktionsmethode [3] und daraus resultierende Algorithmen [7].

Literatur

[1] Adly, N., and Kumar, A. HPP: a hierarchical propagation protocol for large scale replication in wide area networks. In *ICCI95 Seventh International Conference on Computing and Information* (July 1995).

[2] Arora, A., and Gouda, M. Closure and convergence: a foundation of fault-tolerant computing. *IEEE Transactions on Software Engineering 19*, 11 (1993), 1015–1027.

[3] Arora, A., Gouda, M. G., and Varghese, G. Constraint satisfaction as a basis for designing nonmasking fault-tolerance. In *ICDCS94 Proceedings of the 14th International Conference on Distributed Computing Systems* (1994), pp. 424–431.

[4] Bernstein, P., Hadzilacos, V., and Goodman, N. *Concurrency control and recovery in database systems.* Addison-Wesley, 1987.

[5] Beuter, T., and Dadam, P. Prinzipien der Replikationskontrolle in verteilten Systemen. Tech. Rep. Ulmer Informatik-Berichte Nr. 95-11, Universität Ulm, Fakultät für Informatik, 1995.

[6] Cristian, F. Understanding fault-tolerant distributed systems. *Communications of the Association of the Computing Machinery 34*, 2 (February 1991), 56–78.

[7] Gärtner, F. Fehlertolerante replikation von diensten mit schwacher konsistenz mittels selbststabilisierender verteilter algorithmen. Diplomarbeit DA-BS-1997-06 am Fachgebiet Betriebssysteme des Fachbereichs Informatik, Technische Universität Darmstadt, December 1997. Internet: `http://www.student.informatik.tu-darmstadt.de/~theedge/diplom/`.

[8] Golding, R. A. *Weak-consistency group communication and membership.* PhD thesis, University of California, Santa Cruz, December 1992. Also published as Technical Report UCSC-CRL-92-52.

[9] Obraczka, K. *Massively replicating services in wide-area internetworks.* PhD thesis, University of Southern California, December 1994. Published as Technical Report 94-595.

[10] Schneider, F. B. What good are models and what models are good? In *Distributed Systems*, S. Mullender, Ed., 2nd ed. Addison-Wesley, 1993, ch. 2, pp. 17–26.

[11] Schneider, M. Self-stabilization. *ACM Computing Surveys 25*, 1 (1993), 45–67.