tekst: Marco Aiello

One quote, two quotes, billions of quotes

foto: Wallstreet

Alan Kay, the visionary scientist who was talking about the Dynabook laptop as early as 1968 and laid the foundations of object-oriented programming by designing Smalltalk, has donated us many deep quotes among which the inspiring ``the best way to predict the future is to invent it.'' A nice quote in the right context can put you to think, it can make you smile, it may even stay in your mind forever. But too many quotes can be hard to handle. When a boring speaker has nothing to say and just tries to make a point by citing other more famous people over and over again, one tends to lose interest. So how about 1.600.000.000 quotes? And how about having them just in one day? Could so many quotes be generated and managed?

With a little shift in the meaning of the word `quote' it is actually possible. Take `quote' as in the current economic value of a stock, then 1.6 billion quotes a day are even a desirable amount to handle. That many stock transactions were in fact generated daily providing for as many equity quotes on the New York Stock Exchange on an average day of 2004. The NYSE needs to handle that amount of events and it has to do it fast and reliably. Nobody would accept to lose money simply because

a sell order on a stock which is taking a nosedive is `lost' by the exchange system, nor that the order takes more than a few seconds to execute.

The discipline of Distributed systems is concerned, among other things, with the design and analysis of software architectures that can address these requirements. Using more precise terms, the objective is to engineer systems which have low latency (operations happen fast), are highly scalable (the number of users connected and operating can virtually be as high as one wants), and extremely available (the system is reachable and ready to perform an operation nearly 100% of the time). Incidentally, the solution for the NYSE of 2004 was provided by IBM under the name of TradeWorks, while today the system is based on the JBoss platform.

Taking a chance of being annoying, I recite yet a second quote from Alan Kay. Though from 1972, I find it still applicable today: "[Computing] is a place where you can still be an artisan. People are willing to pay you if you're any good at all, and you have plenty of time for screwing around."
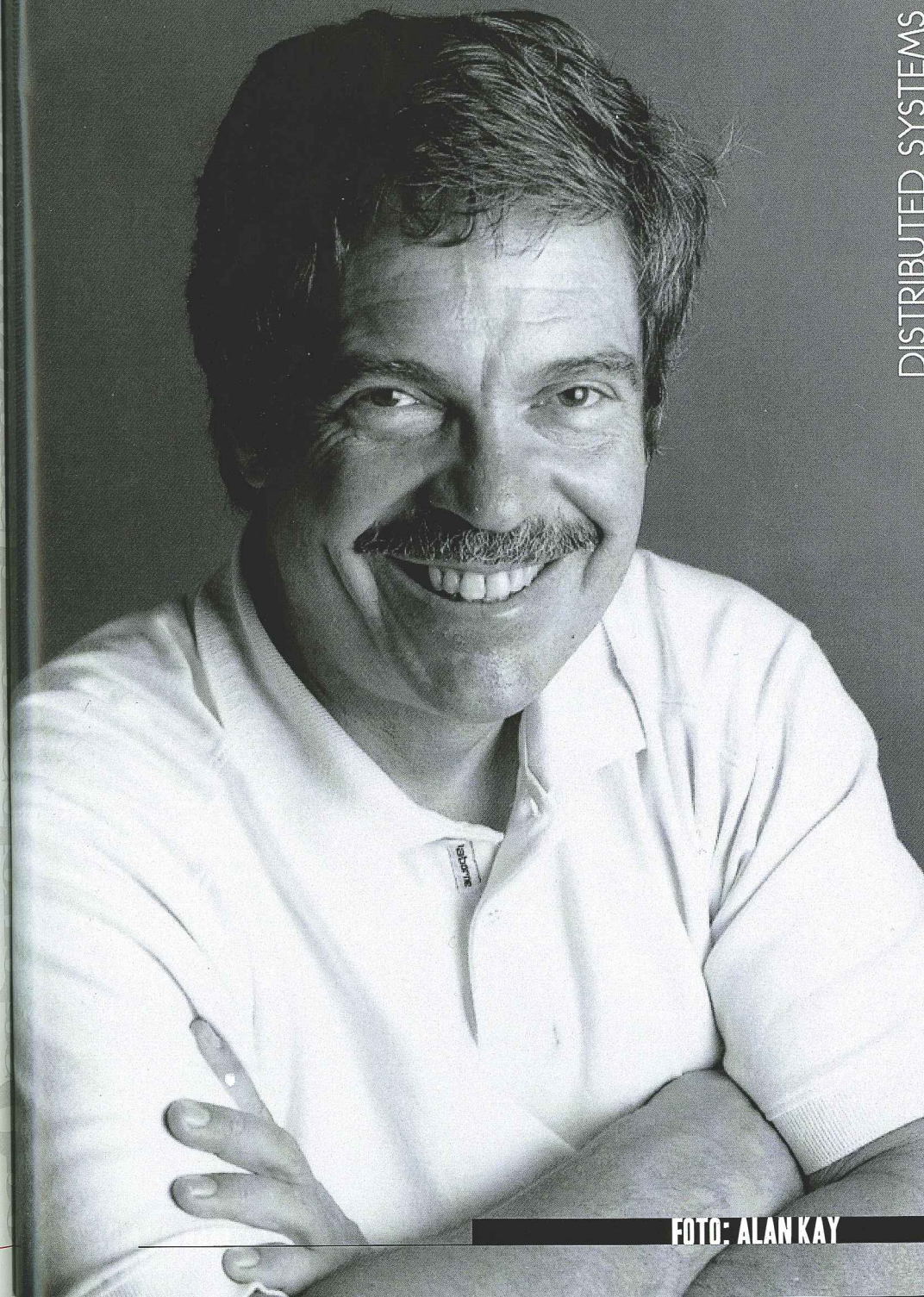
FOTO: ALAN KAY

DISTRIBUTED SYSTEMS

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