Basics of Information Systems

Winter Semester 2022–23

For discussion on Wednesday, December 7, 2022

The following discussion points refer to the 2017 Turing award lecture on June 4, 2018, by John Hennessy and David Patterson:

An edited version of the lecture is published as John L. Hennessy and David A. Patterson, *A new golden age for computer architecture*, Commun. ACM **62** (2019), 48–60, DOI: 10.1145/3282307.

1. What are the crucial differences between RISC and CISC instruction set architectures?

2. What shift in technology, during the late 1970s, made RISC a compelling alternative to the traditional and emerging CISC architectures?

3. Why did the original excitement about RISC not translate into market dominance? On the contrary, why did the Intel x86 architecture, a CISC design, dominate the computing industry at least until and into the 2010s?

4. What are the reasons for the comeback of RISC in recent years?

5. What shifts in technology and in the market provide, in the opinion of the authors, opportunities which promise "a new golden age for computer architecture"?

6. The lecture is now about four years old. Taking more recent developments into account, would you subscribe to the authors' theses, or do you consider them overly biased toward their own niche?