Gustavo Alonso
(Professor at the Department of Computer Science of ETH Zurich)

Title: Generalization versus Specialization in cloud computing infrastructures

Abstract

Cloud computing represents a fundamental change in the business model behind IT: a shift from manufacturing of software and hardware products towards packaging infrastructure, processing, and storage as services. Cloud data centers, given their intended use for general purpose computing, would seem to push towards homogeneity in architectures and platforms. Modern applications and use cases, from scientific computing to big data, push in exactly the opposite direction: an increase in specialization as a way to efficiently meet demanding requirements.

In this talk I will illustrate both trends and argue that, contradictory as they seem to be, there are many opportunities in combining them. Doing so requires to work in two areas. One is to find better ways to extend the performance and efficiency advantages of specialization to general purpose settings. The other is to develop the necessary software and hardware layers to allow generalized use of specialized systems. Taking together, these efforts outline an exciting research and development landscape that I will outline as a conclusion of the talk.

Biography

Gustavo Alonso is a professor at the Department of Computer Science of ETH Zurich (ETHZ) in Switzerland, where he is a member of the Systems Group. Gustavo has a M.S. and a Ph.D. in Computer Science from UC Santa Barbara. Before joining ETH, he was at the IBM Almaden Research Center.

His research interests encompass almost all aspects of systems, from design to run time. His applications of interest are distributed systems and databases, with an emphasis on system architecture. Current research is related to multi-core architectures, large clusters, FPGAs, and big data, mainly working on adapting traditional system software (OS, database, middleware) to modern hardware platforms.

Gustavo is a Fellow of the ACM and of the IEEE. He has received numerous awards, the most recent include the FCCM 2013 Best Paper Award, the AOSD 2012 Most Influential Paper Award, the VLDB 2010 Ten Year Best Paper Award, and the 2009 ICDCS Best Paper Award. He was the Chair of ACM EuroSys (the European Chapter of SIGOPS), and PC-Chair of a number of conferences in several areas, among others: Middleware (2004), VLDB (2006), Business Process Management (2007), ICDE (2008), VLDB Experimental and Analysis Track (2012), ICDCS (2014), EDBT (2015), VLDB Industrial Track (2016).