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Keynote Speech

Networks of 'Things'

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Abstract

System primitives allow formalisms, reasoning, simulations, and reliability and security risk-tradeoffs to be formulated and argued. In this talk, five core primitives belonging to most distributed systems are presented. These primitives apply well to systems with large amounts of data, scalability concerns, heterogeneity concerns, temporal concerns, and elements of unknown pedigree with possible nefarious intent. These primitives are the basic building blocks for a Network of 'Things' (NoT), including the Internet of Things (IoT). This talk offers an underlying and foundational understanding of IoT based on the realization that IoT involves sensing, computing, communication, and actuation. The material presented here is generic to all distributed systems that employ IoT technologies (i.e., 'things' and networks). The expected audience is computer scientists, IT managers, networking specialists, and networking and cloud computing software engineers.

About the speaker

Jeffrey Voas is an author and innovator. Voas was an entrepreneur and co-founded Cigital that is now a part of Synopsys (Nasdaq: SNPS). He has served as the IEEE Reliability Society President (2003-2005, 2009-2010, 2017-2018), and served as an IEEE Director (2011-2012). Voas co-authored two John Wiley books *(Software Assessment: Reliability, Safety, and Testability* [1995] and *Software Fault Injection: Inoculating Software Against Errors* [1998]), is on the editorial board of *IEEE Computer* Magazine, and was on the Editorial Advisory Board of *IEEE Spectrum* Magazine. Voas received his undergraduate degree in computer engineering from Tulane University (1985), and received his M.S. and Ph.D. in computer science from the College of William and Mary (1986, 1990 respectively). Voas is a Fellow of the IEEE, member of Eta-Kappa Nu, Fellow of the Institution of Engineering and Technology (IET), Fellow of the American Association for the Advancement of Science (AAAS), and member of the Washington Academy of Sciences. Voas's current research interests include Internet of Things (IoT) and BlockChain.