

Reviewer: Mike Maksimov

Paper Title: Model-Driven Engineering for Mission-Critical IoT Systems

Author(s): F. Ciccozzi, I. Crnkovic, D. Di Ruscio, I. Malavolta, P. Pelliccione, R. Spalazzese

1) Is the paper technically correct?

- Yes
- Mostly (minor flaws, but mostly solid)
- No

2) Originality

- Very good (very novel, trailblazing work)
- Good
- Marginal (very incremental)
- Poor (little or nothing that is new)

3) Technical Depth

- Very good (comparable to best conference papers)
- Good (comparable to typical conference papers)
- Marginal depth
- Little or no depth

4) Impact/Significance

- Very significant
- Significant
- Marginal significance.
- Little or no significance.

5) Presentation

- Very well written
- Generally well written
- Readable
- Needs considerable work
- Unacceptably bad

6) Overall Rating

- Strong accept (award quality)
- Accept (high quality - would argue for acceptance)
- Weak Accept (borderline, but lean towards acceptance)
- Weak Reject (not sure why this paper was published)

7) Summary of the paper's main contribution and rationale for your recommendation. (1-2 paragraphs)

IoT systems are widely heterogeneous with regards to their software and hardware. This heterogeneity is both one of their biggest strengths, and one of their biggest challenges. A subset of IoT systems are Mission-Critical IoT systems, which run applications whose failure might have severe consequences, and which are the focus of this paper. Things like adaptability, reusability, security, automation, privacy and dependability are all important factors that need to be considered at runtime and design time of such systems. This being no trivial task, the authors propose the use of model-driven engineering as a way to deal with the growing complexity of these highly diverse, distributed and often safety critical systems.

The paper/article is well written in general. As far as the substance, it lacks technical depth and mostly takes the form of a general discussion. By the same token, I find it hard to extract any solid points that could be termed as unique contributions to the field. On the flip side, the general points that were brought up and discussed were quite valid. I

believe this paper does a fine job in providing an introductory level survey of the difficulties faced when developing complex systems as a whole, not just MC-IoT systems, as well as a good exposition of how MDE can be applied to remedy those said difficulties.

8) List 1-3 strengths of the paper. (1-2 sentences each, identified as S1, S2, S3.)

S1 - The work features an extensive study of the MC-IoT literature and the authors also collaborate with various IoT companies. This (hopefully) allowed the authors to present an up-to-date and detailed representation of the current state and challenges faced in the field.

S2 - I believe the authors did a good job in presenting and underlining the importance of the various critical system components, such as dependability, safety, security, etc. They also did a fine job arguing how MDE can be used to deal with the challenges faced in each one of those components.

9) List 1-3 weaknesses of the paper (1-2 sentences each, identified as W1, W2, W3.)

W1 - Things were kept abstract throughout the entirety of the work. There weren't any unique or detailed approaches developed by the authors that could really be critiqued properly.