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A data privacy model based on Internet of Things and cyberphysical systems reference architectures

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ABSTRACT:

Data privacy concerns in the Internet of Things (IoT) and cyberphysical systems (CPS) are real, valid and accentuated. In this paper it is argued that data privacy compliance in IoT and CPS should be addressed at both technical and non-technical levels. Methods to ensure data privacy protection based on both system and organisational reference architectures are therefore required. Based on an analysis of existing reference architectures for IoT and CPS, this paper proposes a consolidated architecture relevant for ensuring data privacy for both IoT and CPS. The proposed architecture is then combined with an enterprise architecture reference framework to propose a data privacy model for IoT and CPS with a focus on both organisational and technological features and positioned to guide compliance with the South African Protection of Personal Information Act 4 of 2013 (POPI Act).