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Nota di contenuto	Intro -- Preface -- Organization -- Abstract of Keynotes -- Humanizing Software Architecture -- Software Architectures in the Age of Cloud Computing -- Software Sustainability: What it Means for Software Architects and Why Should We Care -- Contents -- Components, APIs and Interface Management -- Avoiding Excessive Data Exposure Through Microservice APIs -- 1 Introduction -- 2 Related Work -- 3 Excessive Data Exposure in Microservice APIs -- 4 Communication Model -- 4.1 Formal Model Description -- 4.2 Source Code Mining -- 5 Metrics -- 6 Case Studies -- 6.1 Case Study 1: Lakeside Mutual -- 6.2 Case Study 2: eShopOnContainers -- 6.3 Summary -- 7 Discussion -- 8 Threats to Validity -- 9 Conclusions and Future Work -- References -- Documentation-as-Code for Interface Control Document Management in Systems of Systems: A Technical Action Research Study -- 1 Introduction -- 2 Background and Related Work -- 2.1 DaC-Documentation-as-Code -- 2.2 ICD Management Approaches -- 3 Research Method -- 3.1 Problem Formulation and Research Questions -- 3.2 Research Method -- 4 Results -- 4.1 RQ1: What Are the Issues with ICDs Management that Cause Assumptions and Misunderstandings When Working with These Documents in SoS? -- 4.2 RQ2: What Are the Features Required for a DaC-Based ICD Management Approach to Address Such Issues? -- 4.3 RQ3: What Is the

Design of an ICD Management Pipeline that Provides the Identified Features? -- 4.4 RQ4: To What Extent Can the Designed ICD Management Pipeline Improve the Identified ICD Management-Related Issues? -- 5 Discussion/Lessons Learned -- 6 Conclusion -- References -- To Deprecate or to Simply Drop Operations? An Empirical Study on the Evolution of a Large OpenAPI Collection -- 1 Introduction -- 2 Dataset Overview -- 3 Results -- 3.1 Deprecation Detection -- 3.2 Operation Stability over Time -- 3.3 Operation State Model. 4 Discussion -- 5 Related Work -- 6 Conclusion -- References -- Architecting for Data-Driven Systems -- ProML: A Decentralised Platform for Provenance Management of Machine Learning Software Systems -- 1 Introduction -- 2 Preliminary -- 3 ProML Platform -- 3.1 User-Driven Provenance Capture -- 3.2 Artefact-as-a-State-Machine -- 4 Performance and Cost Evaluation -- 4.1 Experimental Design -- 4.2 Results -- 5 Security Evaluation -- 5.1 Threat Model -- 6 Discussions -- 6.1 Usage Scenarios -- 6.2 Where ProML Performs unsatisfactorily -- 6.3 Threat to Validity -- 7 Related Work -- 8 Conclusion -- References -- A Systematic Survey of Architectural Approaches and Trade-Offs in Data De-identification -- 1 Introduction -- 2 Background and Motivation -- 2.1 Architectural Privacy Tactics and Patterns -- 2.2 Problem Statement and Research Questions -- 3 Reference Model for De-identification -- 4 Study Design -- 4.1 Input and Source Selection -- 4.2 SLR Results -- 4.3 Research Approach -- 5 De-identification Tactics -- 5.1 Phase I. Classification and Recognition of Personal Data -- 5.2 Phase II. De-identification of Personal Data -- 6 Non-functional Attributes and Trade-Offs Involved in De-identification -- 7 Validation -- 7.1 Threats to Validity -- 7.2 Applicability of the De-identification Tactics to Data Types -- 7.3 Coverage of the Privacy Strategies and Privacy Patterns -- 8 Conclusion -- References -- Accurate Performance Predictions with Component-Based Models of Data Streaming Applications -- 1 Introduction -- 2 Running Example -- 3 Related Work -- 4 Problem Analysis -- 4.1 Types of Delays -- 4.2 Required Capabilities of the Modeling Language and Simulation -- 5 Modeling Concepts -- 6 Implementation -- 7 Evaluation -- 7.1 Goals, Questions, Metrics -- 7.2 Evaluation Design -- 7.3 Experiment Setup -- 7.4 Models -- 7.5 Calibration -- 7.6 Results. 8 Threats to Validity -- 9 Conclusion and Future Work -- References -- Microservices and Middleware -- Assessing Architecture Conformance to Coupling-Related Infrastructure-as-Code Best Practices: Metrics and Case Studies -- 1 Introduction -- 2 Related Work -- 3 Research and Modeling Methods -- 4 Decisions on Coupling-Related, IaC-Specific Practices -- 5 Metrics Definition -- 5.1 Model Elements Definition -- 5.2 Metrics for System Coupling Through Deployment Strategy Decision -- 5.3 Metrics for System Coupling Through Infrastructure Stack Grouping Decision -- 6 Case Studies -- 7 Discussion -- 8 Conclusions and Future Work -- References -- Teaching Microservice Architecture Using DevOps-An Experience Report -- 1 Introduction -- 2 Challenges in Teaching -- 3 Course Description -- 3.1 Pedagogical Considerations -- 3.2 Learning Goals and Week Plan -- 3.3 SkyCave -- 3.4 Technical Environment -- 4 Modernization: From Monolith to Microservices -- 5 Results -- 6 Discussion -- 7 Conclusion -- References -- Should Microservice Security Smells Stay or be Refactored? Towards a Trade-off Analysis -- 1 Introduction -- 2 Background: SIGs -- 3 Towards a SIG-Based Trade-offs Analysis -- 4 Illustrative Example -- 5 Related Work -- 6 Conclusions -- References -- Architecture Modeling, Design and Decision Making -- From Informal Architecture Diagrams to Flexible Blended Models -- 1 Introduction -- 2 Motivation and Challenges -- 3 Flexible and Blended Modeling of Architectures -- 3.1

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Sommario/riassunto

This book constitutes the refereed proceedings of the 16th International Conference on Software Architecture, ECSA 2022, held in Prague in September 2022. The 9 full papers and 6 short papers were carefully selected from 47 submissions. In the Research Track, 11 full papers presented together with 5 short papers were carefully reviewed and selected from 58 submissions. The papers are organized in topical sections as follows: components, APIs and interface management; architecting for data-driven systems; microservices and middleware; architecture modeling, design and decision making; architecture reconstruction and recovery.
