1.	Record Nr.	UNISA996213051603316
	Autore	Bauer Eric
	Titolo	Practical system reliability / / Eric Bauer, Xuemei Zhang, Douglas A. Kimber
	Pubbl/distr/stampa	Piscataway, New Jersey : , : IEEE Press, , c2009
		[Piscataqay, New Jersey] : , : IEEE Xplore, , [2009]
	ISBN	1-282-11379-8
		9786612113796
		0-470-45540-3
		0-470-45538-1
	Descrizione fisica	1 online resource (303 p.)
	Disciplina	620.00452
	Soggetti	Telecommunication systems - Reliability
		Telecommunication
	Lingua di pubblicazione	Inglese
	Formato	Materiale a stampa
	Livello bibliografico	Monografia
	Note generali	Description based upon print version of record.
	Nota di bibliografia	Includes bibliographical references (p. 265-277) and index.
	Nota di contenuto	Preface Acknowledgments 1 Introduction 2 System Availability 2.1 Availability, Service and Elements 2.2 Classical View 2.3 Customers' View 2.4 Standards View 3 Conceptual Model of Reliability and Availability 3.1 Concept of Highly Available Systems 3.2 Conceptual Model of System Availability 3.3 Failures 3.4 Outage Resolution 3.5 Downtime Budgets 4 Why Availability Varies Between Customers 4.1 Causes of Variation in Outage Event Reporting 4.2 Causes of Variation in Outage Duration 5 Modeling Availability 5.1 Overview of Modeling Techniques 5.2 Modeling Definitions 5.3 Practical Modeling 5.4 Widget Example 5.5 Alignment with Industry Standards 6 Estimating Parameters and Availability from Field Data 6.1 Self-Maintaining Customers 6.2 Analyzing Field Outage Data 6.3 Analyzing Performance and Alarm Data 6.4 Coverage Factor and Failure Rate 6.5 Uncovered Failure Recovery Time 6.6 Covered Failure Detection and Recovery Time 7 Estimating Input Parameters from Lab Data 7.1 Hardware Failure Rate 7.2 Software Failure Rate 7.3 Coverage Factors 7.4 Timing Parameters 7.5 System-Level Parameters 8 Estimating

	Input Parameters in the Architecture/Design Stage 8.1 Hardware Parameters 8.2 System-Level Parameters 8.3 Sensitivity Analysis 9 Prediction Accuracy 9.1 How Much Field Data Is Enough? 9.2 How Does One Measure Sampling and Prediction Errors? 9.3 What Causes Prediction Errors? 10 Connecting the Dots 10.1 Set Availability Requirements 10.2 Incorporate Architectural and Design Techniques 10.3 Modeling to Verify Feasibility 10.4 Testing 10.5 Update Availability Prediction 10.6 Periodic Field Validation and Model Update 10.7 Building an Availability Roadmap 10.8 Reliability Report 11 Summary Appendix A System Reliability Report outline 1 Executive Summary 2 Reliability Requirements 3 Unplanned Downtime Model and Results. Annex A Reliability Definitions Annex B References Annex C Markov Model State-Transition Diagrams Appendix B Reliability and Availability Theory 1 Reliability Evaluation 3 Estimation of Confidence Intervals Appendix C Software Reliability Growth Models 1 Software Characteristic Models 2 Nonhomogeneous Poisson Process Models Appendix D Acronyms and Abbreviations Appendix E Bibliography Index About the Authors.
Sommario/riassunto	Learn how to model, predict, and manage system reliability/availability throughout the development life cycle Written by a panel of authors with a wealth of industry experience, the methods and concepts presented here give readers a solid understanding of modeling and managing system and software availability and reliability through the development of real applications and products. The modeling and prediction techniques and tools are customer-focused and data-driven, and are also aligned with industry standards (Telcordia, TL 9000, ISO, etc.). Readers will get a clear understanding about what real-world reliability and availability mean through step-by-step discussions of: . System availability. Conceptual model of reliability and availability. Why availability varies between customers. Modeling availability. Estimating parameters and availability from field data. Estimating input parameters from laboratory data. Estimating input parameters in the architecture/design stage. Prediction accuracy. Connecting the dots This book can be used by system architects, engineers, and developers to better understand and manage the reliability/availability of their products; quality engineers to grasp how software and hardware quality relate to system availability; and engineering students as part of a short course on system availability and software reliability.