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Titolo	4G: Deployment Strategies and Operational Implications : Managing Critical Decisions in Deployment of 4G/LTE Networks and their Effects on Network Operations and Business / / by Trichy Venkataraman Krishnamurthy, Rajaneesh Shetty
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Descrizione fisica	1 online resource (177 p.)
Collana	Expert's Voice In Networking
Disciplina	621.38456
Soggetti	Computer networks Computer organization Computer Communication Networks Computer Systems Organization and Communication Networks
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Includes index.
Nota di contenuto	Contents at a Glance; Contents; About the Authors; Introduction; Chapter 1: Network Planning; Dimensioning Phase; Configuration for the Site; User and Traffic Volume Estimation; Coverage and Capacity Estimation; Interface Requirement; Budget Information; Planning and Implementation Phase; Optimization Phase; Coverage Planning; Improving Coverage for a Given Service Area; Capacity Planning; Improve Capacity for a Particular Service Area; Radio Link Budget for LTE; Transmission Power; Antenna Gains; Diversity Gain; Cable and Connector Losses; Propagation Loss; LTE Band; Bandwidth Options TDD vs. FDDMIMO; Transmit Diversity Mode; Closed Loop Spatial Multiplexing; Open Loop Spatial Multiplexing; Beamforming; UE Capabilities; Cell Sizes: Femto vs. Micro vs. Macro; LTE Performance Testing; Key Performance Indicator Verification; Accessibility of KPI Testing; Retainability of KPI Testing; Integrity of KPI Testing; Availability of KPI Testing; Mobility of KPI Testing; Traffic Model Testing; Dense Urban Model; Urban Small Office Model; Urban Residential Area Model; Highway Model; Rural Large Cell Model; Overload and Capacity Testing;

Control Plane Overload and Capacity Testing

User Plane Overload and Capacity TestingLong Duration Testing;

Summary; Chapter 2: Self-Organizing Networks in LTE Deployment;

Introduction to Self-organizing Networks; SON Architecture;

Centralized SON; Distributed SON; Hybrid SON; Planning and

Provisioning Phase; Commissioning and Operation Phase; Optimization

Phase; SON Features; Self-planning Features; Self-optimization

Features; Self-healing Features; Automatic e-NodeB Setup; PCID

Allocation; Automatic PCID Assignment; Background; Common Ground;

PCID Collision; PCID Confusion; Automatic Neighbor Relation

Commissioned Neighbor Cell ConfigurationsAutomatic Neighbor

Relation Updates; Neighbor Cell Detection; X2 Configuration Discovery

of the Neighboring Site; X2 Connection Setup with Neighbor Cell

Configuration Updates; Neighbor Relation Optimization; SON and Self-

Optimization Motivation of Intercell Interference Coordination; Principle

of ICIC and Frequency Reuse; RACH Optimization; Need for RACH

Optimization; Prach-ConfigIndex; Mobility Robustness Optimization;

Late Handovers; Early Handovers; Handover to Wrong Cell; Load

Balancing; SON and Self-healing; Cell Outage Detection

Cell Outage CompensationBenefit of Cell Outage Compensation;

Summary; Chapter 3: Deployment Challenges in Evolving 4G;

Technology-Related Challenges; Interference Issues; Spectrum

Harmonization; Voice Over LTE Implementation; Multivendor

Interoperability; Issues Related to Backhaul; Environment Issues; UE

Maturity; Feature Availability; Standardization Delays; Patent Costs;

Business Challenges; Investment Issues; Average Revenue per User and

Return on Investment Periods; The Changing Marketplace; A Survey of

LTE Deployments Around the World; South Korea; Japan; Australia;

United States

Traffic Profiles and Other Evolution Challenges

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## Sommario/riassunto

As telecommunications operators and network engineers understand, specific operational requirements drive early network architectural and design decisions for 4G networks. But they also know that because technology, standards, usage practices, and regulatory regimes change on a continuous basis, so do best practices. 4G: Deployment Strategies and Operational Implications helps you stay up to date by providing the latest innovative and strategic thinking on 4G and LTE deployments. It evaluates specific design and deployment options in depth and offers roadmap evolution strategies for LTE network business development. Fortunately, as you'll discover in this book, LTE is a robust and flexible standard for 4G communications. Operators developing 4G deployment strategies have many options, but they must consider the tradeoffs among them in order to maximize the return on investment for LTE networks. This book will show operators how to develop detailed but flexible deployment road maps incorporating business requirements while allowing the agility that expected and unexpected network evolution require. Such road maps help you avoid costly redeployment while leveraging profitable traffic. Telecommunications experts and authors Trichy Venkataraman Krishnamurthy and Rajaneesh Shetty examine various architectural options provided by the flexibility of LTE and their effect on the general current and future capability of the designed network. They examine specific features of the network, while covering specific architectural deployment strategies through example and then assessing their implications on both near- and long-term operations as well as potential evolutionary paths. Besides helping you understand and communicate network upgrade and architectural evolution road maps (with options), you will learn: How to plan for accessibility, retainability, integrity, availability, and mobility How to

balance loads effectively How to manage the constraints arising from regulation and standardization How to manage the many disruptive factors affecting LTE networks 4G: Deployment Strategies and Operational Implications also outlines specific network strategies, which network features and deployment strategies support those strategies, and the trade-offs in business models depending on the strategies chosen. Best of all you will learn a process for proactive management of network road map evolution, ensuring that your network—and your skills—remain robust and relevant as the telecommunications landscape changes.

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