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Sommario/riassunto

Cognitive networks can dynamically adapt their operational parameters in response to user needs or changing environmental conditions. They can learn from these adaptations and exploit knowledge to make future decisions. Cognitive networks are the future, and they are needed simply because they enable users to focus on things other than configuring and managing networks. Without cognitive networks, the pervasive computing vision calls for every consumer to be a network technician. The applications of cognitive networks enable the vision of pervasive computing, seamless mobility, ad-hoc networks, and dynamic spectrum allocation, among others. In detail, the authors describe the main features of cognitive networks clearly indicating that cognitive network design can be applied to any type of network, being fixed or wireless. They explain why cognitive networks promise better protection against security attacks and network intruders and how such networks will benefit the service operator as well as the consumer. Cognitive Networks . Explores the state-of-the-art in cognitive networks, compiling a roadmap to future research. . Covers the topic of cognitive radio including semantic aspects.. Presents hot topics such as biologically-inspired networking, autonomic networking, and adaptive networking.. Introduces the applications of machine learning and distributed reasoning to cognitive networks. . Addresses cross-layer design and optimization.. Discusses security and intrusion detection in cognitive networks. Cognitive Networks is essential reading for advanced students, researchers, as well as practitioners interested in cognitive & wireless networks, pervasive computing, distributed learning, seamless mobility, and self-governed networks. With forewords by Joseph Mitola III as well as Sudhir Dixit.