

Security Map of Sensor Network

Abstract

The short paper draws a concrete map Figure 1 of security issues in sensor network. The literature survey is done and the sensor-relevant security areas are categorized into Table 1. A concise summary is given at the end.

1. Summary

Sensor networks are emerging fast and will be the next wave toward new network appliances. Security must be justified and ensured before the large scale deployment of sensors. The vertical comparison in Figure 1 shows that various security issues are rendered in every layer of the protocol stacks from physical layer to application layer. Bear in mind the whole picture, although it is extremely hard to secure them all, we can deal with the problems one by one and build appropriate security mechanisms satisfying particular appliances.

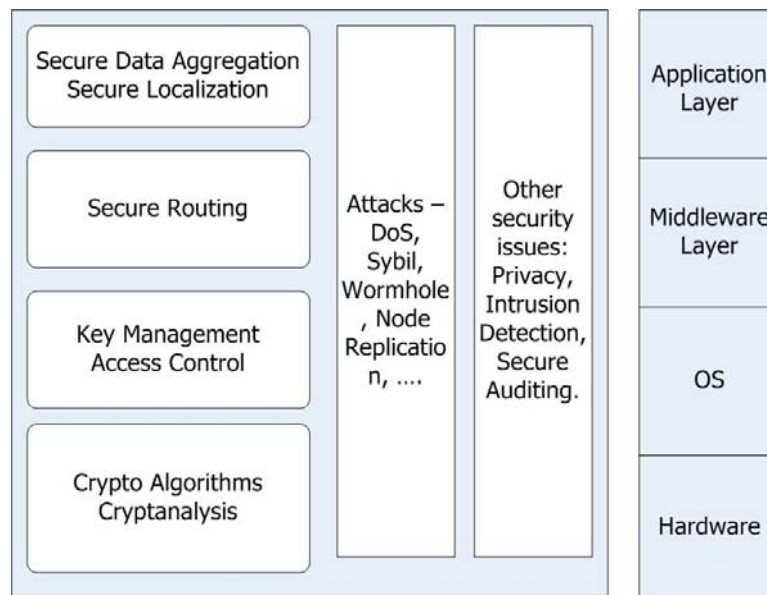


Figure 1: Security Architecture for WSN.

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Table 1: Sensor Security Categories

Categories	Sub-categories	Publications
Survey	Generic	[1] [2] [3] [4] [5] [6] [7] [8] [9] [10]
	Secure routing	[11] [12]
	Secure Aggregation	[13] [14]
	Secure Localization	[15]
Cryptography	Asymmetric	[16] [17] [18] [19] [20] [21] [22] [23] [24] [25] [26]
	Symmetric	[27] [28] [29]
Secure data aggregation	–	[30] [31] [32] [33] [34] [35] [36] [37] [38] [39] [40] [41] [42] [43] [44]
Secure routing	–	[45] [46] [47] [48] [49] [50] [51] [52] [53] [54] [55] [56] [57] [58] [59] [60]
Attacks	Sybil	[61] [62] [63] [64] [65]
	Wormhole	[66] [67] [68] [69] [70] [71] [72] [73] [74] [75]
	DOS	[76] [77] [78]
	Node replication	[79]
Key management	Probabilistic	[80] [81] [82] [83] [84] [85] [83] [86] [87] [88] [89] [37] [90] [91] [92] [93] []
	Deterministic	[94] [95] [96]
Location aware security	Location verification	[97] [98] [99] [100] [101] [102] [103] [104] [105] [106] [107] [108] [109] [110] []
	SSSS	

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