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Sommario/riassunto	This thesis treats networks providing quantum computation based on distributed paradigms. Compared to architectures relying on one processor, a network promises to be more scalable and less fault-prone. Developing a distributed system able to provide practical quantum computation comes with numerous challenges, each of which need to be faced with careful analysis in order to create a seamless integration of multiple engineered components. In accordance with hardware technologies, currently under development worldwide, telegates represent the fundamental inter-processor operations. Each telegate consists of several tasks: i) entanglement generation and distribution, ii) local operations, and iii) classical communications. Entanglement generation and distribution is an expensive resource, as

it is time-consuming. The primary contribution of this thesis lies in the extensive analysis of some complex scenarios of general interest. We propose numerical models that help to identifythe interdependence between computation and communication. With the support of some of the best tools for reasoning -- i.e. network optimization, circuit manipulation, group theory and ZX-calculus -- we lay out new perspectives on the way a distributed quantum computing system should be developed.