

# A Epidemic Style Super-node Election Method Based on Self-information Theory

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**Abstract**— Many distributed applications such as cloud computings, grids use peer-to-peer (P2P) paradigm as the lower service. In P2P technology, the super-node paradigm can lead to improved efficiency, without compromising the decentralized nature of P2P networks. So the above applications adopt super-node paradigm to provide services. However, due to inherent dynamism, decentralisation, scale and complexity of P2P environments, self-managing super-node selection is a challenging problem. This paper present a super-node election protocol based on self-information theory and gossiping technology(SPSI). In SPSI, every node has a information vector (VI), and SPSI uses a weighted mean mechanism based on VI to promote the “best” nodes to super-node status. As we know we are the first to use self-information theory to select super-node. The paper also includes extensive simulation experiments to prove the efficiency, scalability and robustness of SPSI.

**Keyword**— self-information quantity, super-node, scalability, SPSI



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