# A Study on Connectivity Evaluation Among Peer Groups in Pure P2P Networks

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*Abstract*— **Recently P2P (peer-to-peer) network garners attention as a technology for developing a peer group by use of connection of peers which function as autonomously distributed and cooperative units virtualized from computer resources. In this paper, we focus on pure P2P networks which form peer groups by connecting peers without the need for intermediaries. We execute performance evaluation by using computer simulation and propose a method to measure peer groups' connectivity utilizing mean number of connected peer groups without using peers' arrival and departure rates on peer groups.**

*Keyword*— **P2P, Pure model, Cluster model, Performance evaluation, Peer groups' connectivity**

**Yutaka Naito** was born in Japan, 1969. He received the Ph.D. degree in Engineering from Sojo University, 2022. He is currently engaged in research on P2P network technology for regional revitalization as an assistant professor in the Faculty of Computer and Information Sciences, Sojo University.

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**Takashige Hoshiai** was born in Japan, 1962. He received the Ph.D. degree in Engineering. He was a visiting researcher at Bell Telephone Laboratories from 1995 to 1997, and proposed the brokerless model in 1998, and invented the semantic information network architecture SIONet, which is the technology to realize the model. In 2011, he proposed Social Community Brand (SCB theory) that utilizes P2P for local revitalization. He is currently conducting research on regional revitalization and the emergence of regional innovation using SCB theory. In addition, he and his team invented a method of innovation emergence based on the concept of the board game GO. He is currently a president of Sojo University IoT/AI Center, a professor of the Faculty of Computer and Information Sciences, Sojo University, an invited researcher of Waseda University, a director of SCB Lab and a principal of SCB Innovation Academy.