Identifying Important Predictors for Computer Server Sales Using an Effective Hybrid Forecasting Technique

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Abstract

Various Internet search engines and applications have been introduced continually with the rapid development of the information technologies. Thus, the computer server industry has played a key role in the current information age. In addition, the computer server market is characterized by long product lifecycles and high unit prices which highlight the importance of accurate sales forecasting for operators in promoting and selling computer servers. This study utilized and compared five forecasting methods to forecast the demand for computer servers, including the naive forecast (NF), moving average (MA), stepwise regression (SR), and support vector regression (SVR) methods, as well as a hybrid stepwise regression-support vector regression method (SR-SVR). The real sales volumes of six computer server product lines provided by a multinational computer server company served as the empirical data. This study aimed to identify the superior forecasting models for various computer server product lines and discuss the practical implications of key predictors. The forecasting results of this study indicated that the SR-SVR model outperformed all the other models for five computer server lines. Therefore, the SR-SVR was the suggested method to forecast the sales of computer servers. Additionally, this study revealed that the sales volume of the same period in the previous year was the dominant sales predictor for 5 of these 6 server products and other important predictors also provided convincible insights into sales management.

Keywords: Computer servers, sales forecasting, stepwise regression, support vector regression, hybrid forecasting model.

1. Introduction

Internet services such as electronic mail, search engines, and social websites have become an integral part of everyday life, which intensively rely on the infrastructure of computer servers. The world wide prevalence of the Internet results in a dramatically increased global demand for computer servers, making the computer server industry a prominent industry in the Information age.

Computer servers differ from personal computers (PCs) in that they are required to instantly process commands issued from various sources and concurrently provide results