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A Queueing System with Decomposed Service and Inventoried Preliminary Services

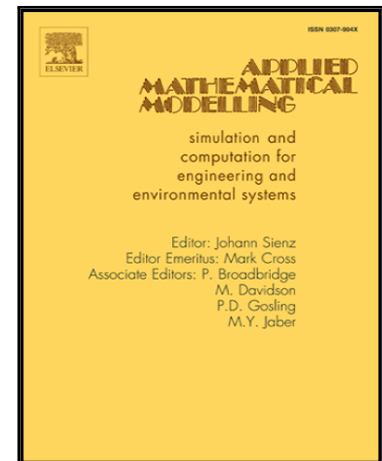
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Highlights

- Producing preliminary services in the absence of customers
- Formulating a quasi birth-and-death process and using matrix geometric analysis
- Deriving the process steady-state probabilities and system's performance measures
- Discovering that the entries of the rate matrix are related to Catalan numbers
- Deriving explicitly the PDF of a customer's sojourn time

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