Coloured Petri Nets Model for Web Architectures of Web and Database Servers

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Abstract : Web application architecture is important to achieve the desired performance for the application. Performance analysis studies are conducted to evaluate existing or planned systems. Web applications are used by hundreds of thousands of users simultaneously, which sometimes increases the risk of server failure in real time operations. We use Coloured Petri Net (CPN), a very powerful tool for modelling dynamic behaviour of a web application system. CPNs extend the vocabulary of ordinary Petri nets and add features that make them suitable for modelling large systems. The major focus of this work is on server side of web applications. The presented work focuses on modelling restructuring aspects, with major focus on concurrency and architecture, using CPN. It also focuses on bringing out the appropriate architecture for web and database servers given the number of concurrent users.

Keywords : coloured Petri Nets (CPNs), concurrent users, per- formance modelling, web application architecture
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