SPE 104581: [**Transient Behavior of Multilateral Wells in Numerical Models: A Hybrid Analytical-Numerical Approach**](http://www.spe.org/elibrary/servlet/spepreview?id=SPE-104581-MS).

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**Abstract:** This paper presents an extension of transient well index approach to simulate pressure transient behavior of multilateral wells. This approach uses an analytical solution for the well index at early times and switches to the numerical well index at late times. The use of the transient well index eliminates the need for excessive grid refinement around the well. In this paper, we have improved the accuracy of the transient well index approach and have provided for a flexible and easily implementable approach to place multilaterals in conventional, Cartesian-grid reservoir models.