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The joint distribution of  $(X, N)$ , where  $N$  is geometric and  $X$  is the sum of  $N$  i.i.d. exponential variables (independent of  $N$ ), is infinitely divisible, and leads to a bivariate Levy process with correlated gamma and negative binomial coordinates. We present basic properties of this model, which include densities, marginal and conditional distributions, representations, infinite divisibility, and stochastic self-similarity. We also discuss practical issues of estimation and relevance of this model in actuarial and financial mathematics. (Received July 24, 2006)