LA Approx

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$\lambda_k = [\alpha + (k - \alpha)\beta]$
$\mu_k = k\mu$

$p_k = p_0 \prod_{j=0}^{k-1} \frac{\lambda_j}{\mu_j + 1}$
$p_k = p_0 \left(\frac{\beta}{\mu}\right)^k \frac{1}{k!} a(a+1)...(a+k-1)$
where
$a \equiv \frac{\alpha}{\beta}(1-\beta)$
$(1-x)^{-a} = \sum_{k=0}^{\infty} \frac{a(a+1)...(a+k-1)x^k}{k!}$
$p_k = \frac{1}{\left(1-\frac{\beta}{\mu}\right)^{-a}} \left(\frac{\beta}{\mu}\right)^k \frac{a(a+1)...(a+k-1)}{k!}$
$p_k = \binom{n+k-1}{k} p^n q^k$
$p + q = 1, 0 < p < 1$
$q = \frac{\beta}{\mu}$
$p = 1 - \frac{\beta}{\mu}$
$n = a$
$\mu = 1$
$E(x) = \frac{nq}{p} \Rightarrow M = \alpha$
$var(x) = \frac{nq}{p^2} \Rightarrow V = \frac{\alpha}{1-\beta}$
$Z = \frac{V}{M} = \frac{1}{1-\beta}$