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Journal Name:	British Journal of Mathematics & Computer Science
Manuscript Number:	2013_BJMCS_8471
Title of the Manuscript:	MMPP/G/m/m+r Queuing System Model to analytically evaluate Cloud Computing Center Performances
Type of the Article	Original Research Article

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PART 1: Review Comments

	Reviewer's comment	Author's comment (if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)
Compulsory REVISION comments	1- Line 233: The moments t_n are not defined. $t_n = A_n$? 2- L 233: Prob[$J(t_n) = \lambda_i, J(t_{n+1}) = \lambda_j$] is a joint probability which is not equal to the transition (conditional) probability p_{ij}. This make formulas 234, 241, 250 and 253 not rigorously justified. 3- L 238 and 254: Fig 3 and Fig 4, what is the distribution used for service times to compute $B^*(s)$? 4- L 324: Prove that for a MMPP-2 process Q and W have the same distribution? 5- L 326: $J_t = 1$ during all the waiting time? 6- L332: π_k 's are the same as those in formula 330? 7- L 335: w is a waiting time (continuous) and here it takes discrete values ($w=k$)?	First of all we would like to thank the Reviewer: All the remarks suggested by the Reviewer are done and are highlighted in the manuscript. We added the following: Let $t_n = A_n$ and $t_{n+1} = A_{n+1}$ Effectively this joint probability and we have redone all the calculations using the conditional probability definition and the steady state probability of the MMPP Process. The modifications are highlighted in the manuscript for all the formulas. Exponential This assertion is changed and highlighted in the manuscript to: "For MMPP-2 process we can calculate the distribution Q as a function of W distribution as follows" Either $J_t = 1$ or $J_t = 2$ Effectively, they are not the same, now we changed π of the system to π^s and that related to MMPP is denoted as π



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		w is not the waiting time, but in fact is the number of waiting tasks in the system, and we denoted it now as w_q
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<u>Minor</u> REVISION comments	1- Line 57: tools 2- L 95: insert a mark "...task." 3- L 156 : $-\sigma_m$ instead of $-\sigma_{mm}$ 4- L 157 $+\sigma_{ij}/\sigma_i$ 5- Lines 181-188? remove these lines 6- L 198: P_x, P_y and $P_{z,k}$ are here in capital letters and in the sequel in small letters. Use a unified notation. 7- L 256: something missing after "...as follows:" 8- L 314-315: The proof is straightforward and well-known. 9- L 318: $\Pi_{m+r} = \pi_{m+r}$? Use one notation. 10- L 327: the same notation is used (π) for the stationary distribution of q_n and for J_t 11- L 330: summation is from 0 to N or 0 to $+\infty$? 12- L 390: "...the M/G/m..."	Done Done Done Done Removed, it was just a template paragraph that slips into the final version of the text. Done Done The proof is removed Done The equilibrium probability of the system is denoted now as π^s and changed in the text accordingly. The first summation is from 0 to $+\infty$ and the second one is from 0 to N, it is as follows: $E(z^{U_{n+1}}) = \sum_{k=0}^{+\infty} \text{Prob}(U_{n+1} = k) z^k$ $= \sum_{k=0}^N \pi_k w^*(\lambda_k(1-z)) \quad \text{with: } \pi' P = \pi \quad \text{and} \quad \sum_{k=0}^N \pi_k = 1$ Done
<u>Optional/General</u> comments	1- The author(s) should provide more convincing arguments about the applicability of the proposed model to cloud computing. For example, they should provide the way to have (or estimate) the parameters (λ_i) of the MMPP process from data. Also is there any way to know the arrival process in a real cloud computing network? 2- Give arguments about the correlation between arrivals.	Due to the nature of the cloud environment, especially the diversity and the nature of arrivals, we assumed MMPP task arrivals.



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	3- The author(s) should add a numerical results section where they simulate the different distributions of the model to compute or compare its performance with other proposed models in the literature.	It is in our perspectives
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