

**CONSULTATION FOR NETWORK COMPANY PROPOSED CO-  
LOCATION SPACE & SERVICE IN CO-LOCATION ROOM 1 &  
CO-LOCATION ROOM 2**

Submission by Nucleus Connect Pte Ltd to the Info-communications  
Development Authority of Singapore

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## 1. General

### ***OpenNet's proposed charges result in RLS having to pay more for Co-location Space***

Nucleus Connect is in-principle not against OpenNet's efforts to streamline the Co-location Service. However, based on the indicative prices provided in this Consultation Paper, we submit that OpenNet's proposed prices would result in RLS having to pay more for their existing Co-location Space. This is totally unacceptable.

OpenNet was awarded the contract for NetCo based on prices it had provided in its bid. Subsequent to the award of the NetCo tender, OpCo bidders were provided with the prices that OpenNet would charge for its services (refer to OpCo RFP Supplement dated 3 October 2008). On the basis of IDA's and OpenNet's statements and representations in the NetCo tender and the Supplement, Nucleus Connect had worked out its business case, and submitted its bid for the OpCo tender.

It is important to note that IDA had awarded to OpenNet the NetCo tender for a passive network (including Co-location Service) based on OpenNet's statements and representations which it had made in the NetCo tender and the Supplement regarding its ability and commitment to meet the requirements of the Next Gen NBN.

It was subsequently revealed that OpenNet's Co-location Rooms could not meet the cooling requirements of the Next Gen NBN. After prolonged discussions, OpenNet was compelled by IDA to provide a Supplementary Cooling Service (refer to OpenNet's ICO Schedule 12B). RLS were thus forced to incur unexpected additional charges for the Supplementary Cooling Service, through no fault of RLS.

Almost immediately after IDA had approved OpenNet's Schedule 12B, it was discovered that OpenNet's procedures and processes in Schedule 12B were not workable. Therefore, OpenNet's latest proposal is clearly another attempt by OpenNet to rectify a situation caused by its utter incompetence and/or poor service delivery, at the expense and prejudice of its RLS.

The prejudice caused by OpenNet's latest proposal is not merely theoretical. It has significant cost implications for RLS and their downstream RSPs. With the latest proposal, OpenNet is seeking to further increase its charges for the existing Co-location Space.

Based on Nucleus Connect's computation, even using the lowest prices indicated in the Consultation Paper (\$990 per rack per month), the resulting costs for Co-location would be **40% higher** than the current charges (inclusive of Supplementary Cooling). If the proposed price of \$1,200 per rack per month is used, the resulting increase is **70%**.

Such significant cost increases are clearly unacceptable. RLS cannot be expected to pay more than they are currently paying, for reasons which are entirely attributed to OpenNet's fault. This is tantamount to allowing OpenNet to deviate from its bid prices. Further, we firmly believe that such increases run contrary to IDA's Price Review Methodology which does not allow NetCo (or OpCo) to increase its prices at the first review, even if IDA has determined that the NetCo's (or OpCo's) costs have increased. This principle is clearly enshrined in the Code of Practice for Next Generation National Broadband Network NetCo Interconnection. In addition, the Code of Practice also stipulates that for subsequent reviews, the price increases must be incremental. The 40% to 70% proposed price increases are clearly in contravention of this principle. We therefore believe that RLS have a legitimate and legal right to expect not to have to pay more for their current Co-location Space.

Hence, to impose a 40% to 70% price increase on RLS is wholly unfair and unreasonable. If the price increases are allowed, it would create an inexorable pressure on OpCos to pass on the price increases to the RSPs and subsequently, End Users.

Therefore, whilst Nucleus Connect is not opposed to OpenNet's streamlining of its Co-location Service, this cannot be at the expense and prejudice of RLS, or result in RLS having to fork out more than what they are currently paying OpenNet for the Co-location Space in Co-location Room 1 (which is based on OpenNet's bid price).

In relation to Co-location Room 2, we note that IDA has yet to determine the prices for such service. As submitted to IDA previously, the prices for the Co-location Space in Co-location Room 2 must take into account the prices charged by similar Data Centres. This will ensure that services offered over the Next Gen NBN can be competitive.

Unless IDA and/or OpenNet ensures that RLS are not penalized by the proposed Schedule 12, the proposal by OpenNet must be rejected.

***Any approval for the new Schedule 12 must not prejudice Nucleus Connect's rights under our on-going dispute with OpenNet***

Nucleus Connect has an on-going dispute with OpenNet arising from OpenNet's implementation of Schedule 12B. We submit that IDA's decision on the proposed Schedule 12 must not prejudice our rights regarding the dispute.

***OpenNet must be required to ensure that it has sufficient Co-location Space***

The provision of Co-location Space is a Mandated Service to be provided by the NetCo. We note that the proposed Schedule 12 Clause 3.7 states that “where OpenNet is unable to offer Co-location Space due to unavailability, OpenNet shall take reasonable measures to cater for additional space where possible”. This is not acceptable as it is the fundamental responsibility of OpenNet to ensure that it is able to offer the Mandated Services which it has been contracted by IDA to provide. The availability of Co-location Space is key to enabling RLs to offer services on the Next Gen NBN, and therefore OpenNet should not be allowed to absolve itself of that responsibility by “taking reasonable measures” to cater for additional space. Instead, OpenNet must ensure that it takes steps to ensure that there is always available space for Co-location either in its existing COs or by securing additional space.

Based on past experience, it has become clear that OpenNet does not take this responsibility seriously and it was only with much regulatory intervention that Co-location Room 2 was made available. Nucleus Connect therefore believes that IDA must impose a strict regulatory obligation (including financial penalties for any breaches) to ensure that OpenNet monitors the space availability within its existing COs, and takes steps to ensure that additional space is secured once a threshold is met. OpenNet must also be required to submit for IDA’s approval the steps (including timelines and triggering thresholds) it will take to ensure that Co-location Space can be secured in time.

***OpenNet must apply and impose its House Rules fairly across all its RLs***

Nucleus Connect notes that OpenNet has not been fair in its treatment of its RLs. Specifically, OpenNet has allowed certain RLs to deploy equipment in its COs, in breach of OpenNet’s House Rules. Despite being informed of the breaches since July 2012, we note that to-date, there is little evidence that such breaches are rectified, resulting in compliant RLs being discriminated against.

IDA must therefore ensure that OpenNet, as a Dominant Licensee, upholds its non-discriminatory obligations.

## 2. Specific Comments

Subject to our comments above, Nucleus Connect’s comments on specific clauses of the proposed Schedule 12 are tabulated below:

Relevant Provision of OpenNet’s ICO	Nucleus Connect’s Comments
Clauses 1.2, 1.2(a) & 1.2(b)	<p>The entire wording “Where certain work is to be carried out by OpenNet under this Schedule, and the quantum of the Charge is not defined under Schedule 15 (Charges), the RL shall pay all the reasonable costs incurred by OpenNet in provisioning Co-Location Service...” onwards ought to be deleted.</p> <p>For clarity and in order to avoid any potential disputes, all Charges for the Co-Location Service must be clearly stated in Schedule 12 or 15. This is consistent with IDA’s position for the charging regime in OpCo’s Interconnection Offer. There should not be a generic and vague “backdoor” avenue for OpenNet to impose additional charges.</p>
Clause 1.2(b)	<p>We would note that the Co-location Service is a critical service to the Next Gen NBN. If OpenNet is allowed to impose additional charges midstream, it may not be possible for RLs to disagree to the charges or stop work. Therefore, OpenNet must take responsibility for ensuring that any quotation provided by it is accurate and correct. Nucleus Connect has encountered situations where OpenNet has sought to impose additional charges on Nucleus Connect as OpenNet claims that it has failed to include the costs of certain works in its original quotation. In such situation, OpenNet must be made to absorb the costs (as it resulted from its own tardiness) since RLs would have agreed to proceed with the works based on an earlier quotation.</p> <p>OpenNet must be required to state upfront that it is not allowed to impose additional charges unless RLs change the scope of works.</p>
Clause 1.5	<p>There is no cogent or logical reason why OpenNet’s liability must be contingent on a negligent, wilful or reckless breach of the ICO Agreement. It is fair and reasonable that OpenNet must be responsible for liability arising from its negligence,</p>

Relevant Provision of OpenNet's ICO	Nucleus Connect's Comments
	wilfulness or contractual breach. Therefore, the words "...a negligent, wilful or reckless breach of this ICO Agreement by OpenNet" ought to be replaced by "...OpenNet's negligence, wilful act or breach of this ICO Agreement".
Clause 1.7(a)	The words "is solely caused by OpenNet" ought to be amended to "is caused by OpenNet". This is to remove any ambiguity and to impose a higher degree of deterrence on OpenNet to comply with the SLAs.
Clause 1.7(b)	The persistent poor service delivery of OpenNet since its launch clearly shows that the SLA remedy frameworks in OpenNet ICO are not sufficiently adequate to deter OpenNet from continuing with its poor service delivery. Therefore, there ought not to be any maximum cap on the SLA remedies and clause 1.7(b) ought to be deleted in its entirety.
Clause 1.8	The onsite charges should be specified in Schedule 15 to avoid any 'hidden' charges. Hence, the words "referred to in Schedule 15" ought to be inserted immediately after the words "Onsite charges" in line 1.
Clause 3.2	Nucleus Connect submits that the Request Quota should be increased. It is typical that a RL such as Nucleus Connect would submit requests for multiple COs at any one time. This would immediately result in at least half of the Request Quota being used up. Further, we would note that the Request Quota is for both new requests as well as modification requests which would exacerbate the situation. Nucleus Connect therefore submits that the Request Quota be removed, or at least doubled to 32 requests per week.
Clause 3.3(A)(a) and 3.3(B)(a)	OpenNet must be required to make available the amount of Co-location Space remaining in each CO to its RLs. We note that Annex 12B-1 and Annex 12B-2 lists the original space available in each Co-location Room. This is clearly not useful as the space (for example in the COs listed in Annex 12B-1) is no longer available for ordering. Therefore, OpenNet must make available information on the remaining space on its B2B, portal as well as on request.
Clause 3.3(B)	The reference to "clause 3.4(A)" is wrong. It ought to be

Relevant Provision of OpenNet's ICO	Nucleus Connect's Comments
	"clause 3.3(A)" instead.
Clauses 3.3(A)(c) & 3.3(B)(c)	It is unclear why OpenNet requires such information and how OpenNet uses such information in its assessment or allocation of space. Nucleus Connect has come across at least one incident where OpenNet did not verify not ensure that RLs complied with the information provided in their submission. We would submit that OpenNet must be clear and transparent in how it will audit and ensure that RLs comply with OpenNet's House Rules, as well as terms and conditions of its ICO, to ensure that all RLs have a level playing field.
Clauses 3.3(A)(e) & 3.3(B)(e)	The take-up of NGNBN services cannot be predicted with absolute certainty. Therefore, language ought to be inserted to stipulate that the forecast is provided for planning purposes and shall not be binding on the RL.
Clauses 3.3(A)(f) & 3.3(B)(f)	In order to cater for future technology (such as 10G PON or WDM PON), a higher heat load of 4kW is required. There is a need to cater for the higher heat load now so that the Next Gen NBN is in a position to take advantage of such technology as its comes on-stream.
Clause 3.4(A)(c) & 3.4(B)(i)	Any decommissioning of the Central Office must be subject to IDA's approval. To amend the provisions accordingly.
Clause 3.5(a)	For reasons already explained above, IDA must not allow a situation where OpenNet can claim it has run out of Co-location Space. Therefore, this clause should be deleted as such a situation should never arise.
Clause 3.5(b)	<p>As a NetCo, OpenNet is obliged to provide the Co-Location Service which is crucial to the success of the operations of Next Gen NBN. OpenNet cannot evade this obligation simply on the basis of arguing that there is "technical or engineering issues". As a NetCo and service provider, it is OpenNet's responsibility to address and resolve these issues.</p> <p>Therefore, the words "significant health, safety, technical or engineering issues" ought to be amended to "significant health or safety issues".</p>

Relevant Provision of OpenNet's ICO	Nucleus Connect's Comments
Clause 3.7	Co-Location Service is a key and critical component of the Next Gen NBN service. In the first instance, the situation where Co-location Service is unavailable should not be allowed to arise. However, if IDA decides to allow OpenNet to retain this clause, then accordingly, the words "take reasonable measures to" ought to be amended to "shall use all necessary steps to". Further, the words "The provision of such additional Co-Location Space shall not be subject to the Provisioning SLG" ought to be deleted.
Clause 3.8	The allocation and placement of the Co-Location Equipment cannot be left to the unfettered exercise of discretion by OpenNet. It ought to be subject to the test of reasonableness. Therefore, the word "reasonably" ought to be inserted immediately before the words "determined by OpenNet" in line 2.
Clause 4.2	To ensure consistency with clause 3.6, the words ", unless the Co-Location Request was wrongfully rejected by OpenNet" ought to be inserted immediately after the words "in Schedule 15 (Charges)" in the last line.
Clause 4.4	<p>We submit that OpenNet must be required to provide a committed quotation for the Charges, and not just an estimate.</p> <p>However, should IDA not require OpenNet to provide a binding quotation, then we submit that any variation of the actual charges from the estimate should be minor, and only to cover costs such as an under-estimation of actual man-days to complete the work.</p> <p>This clause should be modified to state that OpenNet cannot revise its charges once an RL has accepted it, and that any variation between the actual charges and the estimated charges cannot be due to OpenNet's oversight in its original estimate.</p> <p>The same should apply to other clauses under Site Preparation Work (Clause 6).</p>
Clause 5.4(a)	As a NetCo, OpenNet is obliged to provide the Co-Location



Relevant Provision of OpenNet's ICO	Nucleus Connect's Comments
	<p>Service which is crucial to the success of the operations of Next Gen NBN. OpenNet cannot evade this obligation simply on the basis of arguing that there is "technical or engineering issues". As a NetCo and service provider, it is OpenNet's responsibility to address and resolve these issues.</p> <p>Therefore, the words "significant health, safety, technical or engineering issues" ought to be amended to "significant health or safety issues".</p>
Clause 7.8(a)	<p>The words "resulting from the actions and omissions of the Requesting Licensee" in the indemnification provisions are too wide and one-sided in OpenNet's favour such that clause 7.8(a) could be interpreted that the RL must indemnify OpenNet for losses and damages which result from OpenNet's negligence or breach. Accordingly, clause 7.8(a) ought to be amended to include a carve-out for "any such actions or omissions resulting from OpenNet's negligence or breach of this ICO Agreement".</p>
Clause 7.8(d)	<p>The technical means provided by OpenNet cannot be left to its unfettered exercise. It ought to be subject to the test of reasonableness. Therefore, the words "sole discretion" in line 3 ought to be replaced by the words "reasonable discretion".</p>
Clause 7.9	<p>The exercise of discretion by OpenNet should not be unfettered. It ought to be subject to the test of reasonableness. Therefore, the word "discretion" in line 3 ought to be replaced by the words "reasonable discretion".</p>
Clause 8.2	<p>With the current low fill ratio experienced on the Next Gen NBN due to OpenNet's chosen network configuration, Nucleus Connect believes that 96 fibre core is insufficient. It is not fair for RLs to be penalized for a situation that is caused by OpenNet. Therefore, Nucleus Connect would submit that OpenNet should provide at least 2 x 96 fibre core, as well as committing to meet a certain splitter fill ratio. Should OpenNet fail to meet the minimum splitter fill ratio, OpenNet must be required to continue to provide additional fibre without charge.</p> <p>In line with the existing Schedule 12C, the words "at its own</p>

Relevant Provision of OpenNet's ICO	Nucleus Connect's Comments
	cost" ought to be inserted immediately after the words "OpenNet shall" in line 1.
Clause 8.3(a)	<p>As a NetCo, OpenNet is obliged to provide the Co-Location Service which is crucial to the success of the operations of Next Gen NBN. OpenNet cannot evade this obligation simply on the basis of arguing that there is "technical or engineering issues". As a NetCo and service provider, it is OpenNet's responsibility to address and resolve these issues.</p> <p>Therefore, the words "significant health, safety, technical or engineering issues" ought to be amended to "significant health or safety issues".</p>
Clause 10.3	The words "not the result of OpenNet's fault" in line 1 ought to be amended to "the result of the Requesting Licensee's fault". The RL ought to be liable for the Reconnection Charge only if it is due to its fault. Further, the change will be consistent with the wording in clause 10.2
Clause 10.4	The words ", unless the suspension is the result of OpenNet's fault" ought to be inserted immediately after the words "this clause 10" in line 3. OpenNet must be responsible for its own fault.
Clauses 11.2 & 11.3	Co-Location Service is a critical service under the NGNBN. OpenNet's termination rights ought to be subject to IDA's approval. This is the position set out in clause 12.3 of the main body of OpenNet ICO. Hence, for the avoidance of doubt, clauses 11.2 and 11.3 ought to be amended to include language stipulating that OpenNet's termination rights are subject to IDA's approval.
Clauses 11.3(d) to 11.3(f)	It is reasonable and logical that the RL ought to have a reciprocal right of termination for any of the scenarios stated in clauses 11.3(d) to 11.3(f) when it is clear that such scenarios are not due to the RL's fault. To amend the clauses accordingly.
Clause 12.4	The words "(such approval not to be unreasonably withheld or delayed)" ought to be inserted immediately after the words "of OpenNet" in line 3.

Relevant Provision of OpenNet's ICO	Nucleus Connect's Comments
Clause 12.5	The words "may affect" in line 4 ought to be amended to "may adversely affect". If there is no adverse affect, there is no reason for OpenNet to reject the request.
Annex 12A	Nucleus Connect submits that OpenNet must be required to provide SLGs for the provision of power and cooling as these are critical to the operations of a Co-location service, and any failures can result in disruption of services on the Next Gen NBN.
Annex 12A, clauses 1 to 3	The persistent poor service delivery of OpenNet since its launch clearly shows that the SLA remedy frameworks in OpenNet ICO are not sufficiently adequate to deter OpenNet from continuing with its poor service delivery. The maximum cap on the amount of compensation ought to be removed. The amount of compensation payable under the SLAs ought to be pegged simply to the number of days of delay. Therefore, clauses 1 to 3 ought to be amended accordingly.
Annex 12C, clauses 4.4 & 4.5	The words "clause 4.1 above" in line 1 should be replaced by the words "clause 4.2 or 4.3 above" for greater clarity.
Annex 12C, clause 4.4	The words "all costs" in the last line ought to be replaced by the words "all reasonable costs".
Annex 12C, clause 4.5	It is not acceptable that "OpenNet shall use its best endeavours" to restore ambient temperature. OpenNet should compensate RL for any equipment damages caused by over-heating where the over heat is unable to restored within twenty-four (24) hours.
Annex 12E, clause 1.1.1	This clause should be modified to state that only in situations where there is deviation from the original request submitted by the RL will there be a need to re-submit equipment specifications. OpenNet should not make the process more burdensome when there are no changes to the initial submission.
Annex 12E, clause 1.1.3	The exercise of discretion by OpenNet should not be unfettered. It ought to be subject to the test of reasonableness. Therefore, the words "in its sole discretion"

Relevant Provision of OpenNet's ICO	Nucleus Connect's Comments
	in the last sentence ought to be replaced by the words "in its reasonable discretion".
Annex 12E, clause 1.5.2	<p>As drafted, this clause implies that there could be situations where RLs can find their equipment stranded without the requisite power to operate them, since OpenNet has stated the maximum power it will provide.</p> <p>For example, based on Nucleus Connect's computation, based on 120kW, there would be 2,500A DC power available based on 48V DC. This means that only approximately 39 x 63A circuit breakers are available for deployment. This is clearly highly inadequate compared to the total rack space available to RLs. We also note that if RLs use AC power, it will deplete the power supply available even more rapidly.</p> <p>It is also unclear:</p> <ul style="list-style-type: none"> <li>• How OpenNet will allocate the power supply</li> <li>• The amount of power it will provide per rack</li> <li>• Whether OpenNet will use the circuit breaker capacity or the actual power consumption to determine its allocation</li> <li>• Who is responsible to provision the power cables, and for the handover of such power cables or circuit breakers to RLs</li> </ul> <p>Given the above-mentioned uncertainty, as well as the previously mentioned over OpenNet's ability to manage its Co-location Space and to ensure fair and non-discriminatory treatment of its RLs, Nucleus Connect has little confidence that OpenNet will be able to competently offer such a crucial service as power supply.</p> <p>In the circumstance, Nucleus Connect submits that IDA should require OpenNet to offer RLs the choice of providing and managing their own power supply. Further, we believe that OpenNet should base its charges on actual consumption, rather than basing its charges on circuit breaker capacity which does not reflect the actual consumption and significantly increases the costs to RLs.</p>
Annex 12E, clause 1.5.2(b)	We note that OpenNet has removed the provision of 32 Amps circuit breaker (refer to current Schedule 12 Annex 12D,

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	<p>Clause 1.5.2). We would request the re-instatement for the requirement for OpenNet to provide 32 Amps circuit breaker.</p>
Annex 12E, clause 1.6.2	<p>The word "cost" ought to be replaced by the words "reasonable cost". This is consistent with the wording in clause 1.7.5.</p>
Annex 12E, clause 1.7.12	<p>The words "any act or omission of the Requesting Licensee's employees and contracts" in the indemnification provisions are too wide and one-sided in OpenNet's favour such that clause 1.7.12 could be interpreted that the RL must indemnify OpenNet for losses and damages which result from OpenNet's fault, negligence or breach. Accordingly, clause 1.7.12 ought to be amended to include a carve-out for "any such act or omission due to OpenNet's fault, negligence or breach of this ICO Agreement".</p>
Annex 12E, clause 2.4	<p>The word "cost" ought to be replaced by the words "reasonable cost".</p>
Annex 12G, clause 1.8.3	<p>Clauses 1.8.5 to 1.8.11 should also not be applicable. Therefore, the words "clauses 1.8.1 and 1.8.4" in line 1 ought to be replaced with the words "clauses 1.8.1 and 1.8.4 to 1.8.11".</p>
Annex 12G, clause 1.8.3	<p>The requirements in clauses 1.8.1 and 1.8.4 to 1.8.11 ought not to apply to scenarios whereby the RL is asked by OpenNet to remedy issues or situations which are caused by OpenNet or due to OpenNet's fault. Such issues or situations may not be classified as service-affecting emergencies or non-service-affecting emergencies. It is unreasonable to require the RL to submit a request to obtain physical access in such scenarios, which have happened in the past. Clause 1.8.3 ought to be expanded accordingly.</p>
Annex 12G, clauses 1.8.4(a) & 1.8.5	<p>The restriction on the number of persons that can access the Co-location Space leads to inefficiency and should be removed. OpenNet should not impose any restriction on the number of personnel, except in situations where multiple RLs wish to access the Co-location Space at the same time. Only in such circumstances should OpenNet be allowed to impose a</p>

Relevant Provision of OpenNet's ICO	Nucleus Connect's Comments
	restriction.
Annex 12G, clauses 1.9.4 & 1.9.5	The requirements in clause 1.9.4 and 1.9.5 ought not to apply to scenarios whereby the RLs is asked by OpenNet to remedy issues or situations which are caused by OpenNet or due to OpenNet's fault. Such issues or situations may not be classified as service-affecting emergencies or non-service-affecting emergencies. It is unreasonable to require the RL to submit a request to obtain physical access in such scenarios, which have happened in the past. These clauses ought to be amended accordingly.
Schedule 15 Clause 12.3.1	In relation to the charges, we note that IDA will determine the Customised conversion factor (C). Based on the current charges paid by Nucleus Connect, we believe that the conversion factor should not exceed 0.52. We will be happy to share our computation with IDA if necessary.

### **3. Conclusion**

Nucleus Connect does not object to the proposed streamlining of OpenNet's Co-location Service into a single service schedule. However, we believe that any proposal cannot be prejudicial against existing RLS. Specifically, we believe that the proposed changes must not result in RLS having to pay OpenNet more for the existing Co-location Service. We note that the current proposed prices are a departure from that provided by OpenNet in its bid. This is clearly not acceptable. The ICO is a contractual agreement and as such the prices cannot be changed without taking into consideration the commercial impact to RLS and downstream RSPs and End Users. Further, we note that an increase in prices at this stage is contrary to the spirit and intent of IDA's Price Review Methodology.

Finally, Nucleus Connect has an on-going dispute with OpenNet in relation to Schedule 12B. Any revisions to OpenNet's Co-location Service must not prejudice Nucleus Connect's rights in relation this dispute.