Running Head: DATA CENTER LOCATIONS

Evaluating Potential Data Center Locations: Plush Packet Incorporated (PPI)

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* **Technical**
  1. **Question**: Does the facility already have a pre-existing data center which is large enough to house PPI’s data center requirements?
     + **Justification**: A pre-existing data center can potentially cost less to remodel and/or renovate. Also, the current data center environment can give insight into what PPI should expect from the environment the infrastructure will be housed in.
  2. **Question**: Does the existing facility (for a third party data center rather than in-house data center) offer such services as e-mail, data storage, networking, national coverage, development boxes, web servers, and if so, how suited are these services when compared to running them in-house?
     + **Justification**: Using a third party data center rather than PPI running their own can cut overhead costs in millions of dollars. That being said, these cost savings must be compared against running the data center in house which would allow PPI greater flexibility and control, especially over proprietary data.
  3. **Question**: What is the load bearing capacity of the floor upon which all data center equipment will be housed, and is that capacity greater (preferably by a margin of 20% to 30%) than that of the theoretical weight of the data center equipment, also, are there any specific weak points at which data center equipment cannot be stored due to such weight limitations?
     + **Justification**: If the data center cannot support the weight then structural support enhancements may be required, that, or the facility may not be suitable to PPI’s needs. In other words, enhancements will likely cost the organization money to build into the structure which may make the facility undesirable when compared to constructing a new facility.
  4. **Question**: What are the existing security safeguards or proposed security safeguards for physical access to the data center facility and infrastructure?
     + **Justification**: Security must be considered as data integrity must be maintained for sensitive works in progress. Furthermore, physical security constraints ensure that PPI’s infrastructure is not brought down due to malicious actions which could potentially cost the organization capital.
* **Infrastructure**

1. **Question**: What is the existing or proposed (for a new site) N capacity of the data center and how is/will such capacity [be] maintained?
   * + **Justification**: Power, networking, and cooling are all integral components of PPI’s data center, ensuring that these are maintained at the highest N capacity at the lowest cost will safeguard the data center’s level of availability into the future (Note that PPI would prefer a site with an N capacity of 2N or greater, but are open to suggestions based upon environmental factors and cost availability).
2. **Question**: Does the facility already contain the required support infrastructure needed to run PPI’s data center (e.g. raised flooring, power grids, connectivity infrastructure, cooling, fire suppression, security, support and storage rooms, etc. [fully supportable or partially available]), and if not, is the facility coded to enable installation of these infrastructure requirements (or upgrade of partially available support infrastructure to meet requirements)?
   * + **Justification**: Pre-existing supporting infrastructure, either in whole or part, will immediately cut costs, and in the lack of such infrastructure, knowledge that it can be installed or upgraded will ensure that time is not wasted on a facility which cannot be used.
3. **Question**: Is the facility’s current electrical and connectivity infrastructure up to date and capable of supporting PPI’s data center requirements for at least a five year period; that is, is the copper cabling throughout the building tested and tagged to withstand the electrical load which the data center will place upon it, and all communication cables (Ethernet, phone, or fiber) fully functional and capable of being upgraded to meet PPI’s future needs?
   * + **Justification**: A five year buffer on electrical and communications infrastructure viability will ensure a cost effective environment to house PPI’s data center. Additionally, communications infrastructure upgradability will have a direct impact upon future costs which PPI will incur as technology advances.
4. **Question**: For a third party (rather than in-house) data center, what are the levels of availability offered and at what cost, also, how would these compare to running the data center in house?
   * + **Justification**: A third party data center may likely offer a greater level of availability than what PPI can possibly support. However, such levels much be weighed against the importance of service upkeep, that is, at what downtime would a service interruption become an insurmountable inconvenience to PPI’s customers.

* **Environment**

1. **Question**: Does the existing facility or potential site exist in an area with weather conditions which would pose a hazard to PPI’s data center (flood, ice storms, landslides, quakes, bush fires, tornadoes, or hurricanes) and if so, what precautions have been taken, or are recommended, to prevent these disasters from affecting the data center’s environment?
   * + **Justification**: If the data center is taken offline due to a disaster which could be avoided through proper handling, or by choosing another site altogether, than it is likely that insurance will not cover capital damage. Additionally, PPI work which will be stored and maintained within the data center is likely to be lost irrevocably.
2. **Question**: What type of disaster recovery options does the existing facility maintain, or what options are available for a newly constructed site?
   * + **Justification**: Ensuring that the data center is backed up and maintained such that PPI can become operational again with minimal downtime in the event of a catastrophic disaster will ensure that the organization will remain profitable in the face of extreme duress.
3. **Question**: What kind of electromagnetic interference protections are built into or proposed for the facility?
   * + **Justification**: Electromagnetic interference at a large scale can cause wide spread unexplainable (beyond interference) issues which can actually cause permanent damage to sensitive equipment. Ensuring that the data center is insulated against such interference can potentially save PPI capital.

* **Finance**

1. **Question**: For third party data centers, what are the cost brackets and associated fees to consider for data center operations, these should include future upgrades beyond initial capacity, emergency support, SLA costs, bandwidth costs, storage costs, licensing fees, hardware fees, and any additional fees which may be proffered by the supplying entity?
   * + **Justification**: Knowing these fees in advance will allow PPI to compare outsourcing costs to in house costs so that they can make an informed decision.
2. **Question**: For a new construction site, what are all the fees and costs associated, in addition to question 12, all contractor fees, material costs, land fees (buy/rent/lease) and taxes (present and future), hardware costs, support fees, support infrastructure installation fees and future maintenance and support costs, basic facilities (water, gas, electric) costs and associated fees (present and future), and any additional building costs which are not covered here but in contractor agreements sourcing?
   * + **Justification**: Just as in question 12, knowing these costs and fees in advance will allow PPI to make an informed decision.
3. **Question**: Are there any additional fees and costs which are not covered in this document which should be noted?
   * + **Justification**: Full disclosure of fees and charges will ensure timely and effective use of PPI capital.
4. **Question**: Are there any governmental financial incentives for operating in the proposed facility or with the proposed third party data center, and if so, how do they affect PPI monetarily?
   * + **Justification**: Governmental offsets can waylay large costs which are associated with initial setup and future operations in the given location.

* **Politics**

1. **Question**: Are there any conflicts of interest which would affect the governance of PPI in the location of the facility or proposed third party data center, and if so, please describe?
   * + **Justification**: Governance must be maintained so as to ensure PPI stock holders are not unduly penalized based on executive or director actions.
2. **Question**: Does the location of the facility or third party data center pose a threat (physical, mental, or suggested) to any PPI employee or their family, specifically from the political climate or undue cultural prejudices, and if so, please describe?
   * + **Justification**: All PPI employees should feel safe to work for PPI and any facilities PPI operates from or within.

Reference

Alger, D. (2005). *Build the Best Data Center Facility for Your Business.* Indianapolis: Cisco Press.