Leveraging Used IT Equipment
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RFG believes used equipment can serve a valuable role within IT strategies, as corporations are increasingly pressed to meet new business application demands with limited available funding and skill sets. Many companies already take advantage of used equipment in cases where budgets require creative funding, however, RFG finds that there are numerous other business-related usage scenarios that are an appropriate venue for used equipment. Enterprises that necessitate immediate access to hardware, need additional computing power but wish to maintain infrastructure consistency, and/or require identical systems for testing and/or disaster recovery/business continuity strategies are also good used equipment candidates. Vendors perform rigorous testing and refurbishment to ensure that products are fully hardware and software restored before offering systems for resale. After hardware is tested and sufficiently data cleansed, vendors – particularly those associated with original equipment manufacturer (OEM) hardware providers – are able to offer low-rate financing and full warranty support options. IT executives should look beyond the tactical cost savings potential of used equipment, and maximize their spending capabilities by expanding hardware acquisition techniques to leverage used equipment as a means of solving strategic business requirements.

Business Imperatives

- The term "used equipment" carries an unwarranted negative connotation at many corporations, and is frequently used only as a fallback tactic when funding and personnel resources are in scarce supply. Corporations should understand that a large portion of available used equipment is of a recent generation and is equipped with warranties testifying to quality levels. Hardware vendors, in particular, are now offering "certified used" equipment options that have been refurbished to the same or better quality levels as new systems using methodical inspection, cleansing, and upgrade techniques to ensure proper performance. Current generation

hardware is available as used equipment, and a portion of those systems have never deployed despite being labeled as used. IT executives should understand that used equipment offers more than just cost savings over new equipment, and can be used strategically by the enterprise to maximize return on investment by leveraging existing infrastructure investments to fill technology gaps.

- OEM hardware vendors frequently have a leg up on their broker/dealer counterparts when it comes to used equipment selection and system refurbishment. The vendors originally responsible for system design and manufacturing have specialization capabilities, send assets back to their original point of manufacture for inspection, testing, and upgrade by the originally responsible individuals. Moreover, it is important to understand what processes are used in refurbishing systems, and whether a rigorous certification process is in place to properly examine and address all configuration issues, data overwrite, and hardware components that require attention. IT executives must perform methodical due diligence to ensure that used equipment vendors correctly address all touch points using adoptable and repeatable procedures necessary to meet quality levels and worthy of enterprise trust.

- Vendor lead times for new equipment deliveries can impede a corporation's ability to meet changing business requirements. Business applications experiencing growth can be extended to used systems rather than requiring upgrades to new platforms, for which the company may lack both funding and time. Certified used equipment can allow the enterprise to maintain the existing IT infrastructure, therefore not requiring excessive migration and training costs for supporting two dissimilar IT environments. Used equipment is appropriate for application testing – either on independent hardware or in properly partitioned portions of newly acquired live systems – to ensure that evolving code and test data do not disrupt ongoing operations. In addition, used

equipment is a perfect match for corporations in the throws of disaster recovery and business continuity projects that require identical systems to be deployed in additional locations. In cases where equipment is only required for a short duration, an example being seasonal demand, used equipment rental options are also available. IT execs should work with line of business (LOB) and executive management, as well as financial teams, to understand how technology and business growth requirements can be best aligned with the used equipment sourcing strategies available.

Used equipment tends to conjure up images of aging assets that have already operated for which the majority of their useful lives, and are now both outdated and of lesser quality than their newer counterparts. Such falsities typically keep used equipment purchases in many enterprises at bay, and such purchases are frequently employed only as a tactic of last resort when budgets get squeezed. Contrary to misconception, the majority of the used equipment pool is comprised of newer-generation technologies and has been restored to the same or better quality levels than initial release. An investigation of the definition of used equipment, the portfolio origination base, and the refurbishment process is can help to demonstrate how this these attributes can exist. Moreover, this illustration can help to provide insight into how used equipment can be best leveraged as a business enabler.

Used Equipment: It May Not Be What You Think

The term used equipment applies to any system that cannot be sold as new and is therefore being re-marketed. Vendors use many different names to describe this product population, including certified used, excess new, recertified, reconditioned, remanufactured, and used. The choice of which terminology is selected stems from a combination of the processes exerted to make the product available for resale and vendor marketing strategies, and definitions are prone to vary among vendors. IT executives considering

the purchase of used equipment will need to perform proper due diligence on vendor execution capabilities, processes, reputation, and support services to validate that systems and vendors can deliver as promised.

Virtually all hardware types are available as used equipment, including desktop PCs, notebooks, printers, peripherals, servers, and storage. Solutions are sourced from multiple different channels, and IT executives have the right to direct vendors to disclose how desired equipment was recaptured. The majority of available equipment is less than two years old, and a portion of the available product pool is still available as new equipment. Used equipment is recaptured from four primary sources, as listed in the table below.

Sources of Used Equipment Recapture	
Cancelled Orders or Product Returns	Any product that leaves a vendor's warehouse cannot be sold as new. Thus, opened or unopened returns are a steady source for used equipment as between one to four percent of customer orders are returned unused or used within a 30-day period.
Demonstration Equipment	Demonstration equipment may be provided to a customer as a pre-sales proof of concept to establish value. These systems have been installed at customer sites, but may or may not have been used. Vendors also use demonstration models at customer events, trade shows, or at their own facilities. Models are typically returned within 120 days, though may remain in use up to 180 days.
Excess New Inventory	Vendors update models regularly, and may choose to sell unused, older equipment as used inventory. These products may never have left the factory; or, have been returned from resellers that select to relinquish these systems.
Asset Recovery	Older used equipment is recaptured from end users via vendor asset recovery services. These systems vary widely in age, having generally been in operation for between 18 and 42 months.

Source: Robert Frances Group (RFG)

The Certification Process

No matter where solutions are sourced from, respectable used equipment vendors should perform the same rigorous refurbishment processes on all equipment sold, and be able to demonstrate their expertise in dealing with hardware types. This is one way that hardware vendors have an advantage over broker/dealers, which may not have the same level of specialization or trained personnel to perform system checks and updates. **IBM** **Corp.**'s IBM Global Financing arm, for example, ensures that its hardware is properly restored to "as new" or "better than new" condition by sending servers back to their point of manufacture to be worked on by the same technicians that originally built the equipment. Specific examination guidelines, inspection points, and tolerances are set per model, and each system is individually evaluated. Improperly functioning items are either corrected or replaced before deemed "certified."

Elements of a Proper Certification Process	
Physical Inspection	Hardware is visibly inspected to ensure it appears in like new condition. Pieces deemed unfit for resale due to irregularities or wear are marked for replacement.
Parts Testing and Replacement	All hardware parts are thoroughly tested to ensure proper performance. Those that are not functioning to within required standards or exhibit undue wear are replaced.
Wiring	Interior wiring is visibly and functionally tested. Replacement occurs if needed.
Cleaning	All exterior panels are cleaned to new condition. Interior equipment is cleaned using compressed air to remove dust and miscellaneous debris.
Data Overwrite	All data is wiped from the system to ensure proper data removal using a 1x overwrite, as well as hard drive performance. Operating system and software is reloaded per manufacturer or customer specifications.
Testing	A battery of tests administered over an extended, timed duration are performed. Results are monitored and logged. Errors previously that were previously unapparent are addressed. Once updates occur, testing is repeated until the system meets the required tolerances.
Quality Assurance	A quality assurance (QA) process takes place to ensure functionality and appearance.
Certification	After passing QA, the product is deemed certified. Ideally, the vendor will provide a description of the entire refurbishment process, and audited records of the recertification milestones should be made available upon request.
Packaging	Once complete, the system should be placed into new packaging, complete with cables and relevant documentation.
Warranty	Minimum warranties should be provided for systems. 90-day warranties are minimally required, although some systems may be accompanied with a one-year warranty. Options to purchase warranties of up to three years should be made available.

Source: Robert Frances Group (RFG)

Ideally, corporations should purchase used equipment from companies that specialize in particular brands and/or technology segments, as it is impossible to demonstrate refurbishment competency without specialization. IT executives should require vendors to provide updated proof of OEM certification and details on their remanufacturing processes to ensure that quality claims meet requirements. Again, broker/dealers may be at a disadvantage as detailed systems knowledge and the required staffing may prove challenging. It is therefore imperative to understand, review, and audit vendor refurbishment processes, and those offering certified programs are preferred.

Used Equipment Advantages

Used systems are often customizable to meet specific corporate guidelines. Customizations can include application and operating system installations, hardware upgrades to memory and hard drives, on-site installation and setup, and warranty options. Cost is often a primary driver of used equipment purchases, and corporations incorporate vendor funding options into their consideration criteria. **Dell, Inc.**, **Hewlett-Packard, Co.**, IBM, **Sun Microsystems, Inc.**, and other major vendors are able to provide funding through their financial services arms. Equipment

depreciation is allotted on an inverted exponential basis. Otherwise stated, this is to say that the first year's depreciation amount is the largest and depreciable quantities decrease with each passing year.

As a result, IT executives can expect for equipment reductions to range between 15 and 35 percent of initial pricing after an 18 month period. Beyond hardware cost, IT executives must pay close attention to the available financing and leasing rates as significant costs can either aggregate or be eliminated herein. The robustness of the used hardware market and the profits derived from the secondary equipment sale allow for lenders to offer rates close to or at the same levels as new equipment. Captive hardware vendors have the greatest flexibility to offer the most competitive rates as they are better able to predict and manage inventory throughout its life cycle. As many used equipment hardware purchases are part of a larger projects, IT executives can further realize cost savings by incorporating needed added software and services into a financing package that encompasses the entire project. (See the RFG Research Note "[Creative Financing Can Solve New Business Requirements and Constraints](#).")

Vendors are increasingly adopting build-to-order manufacturing processes on new equipment, even in cases where hardware configurations are standardized. This occurrence has materialized as advancements in assembly techniques have allowed vendors to reduce the time required for manufacturing and allowed for reductions in inventory management costs. Unfortunately for IT executives, this phenomenon delays shipments when unexpected inventory requests are placed. Supply shortages can also wreak havoc as manufacturers have cut down on the amount of components held in inventory. Used equipment inventories, however, remain in inventory until sold and are often available for shipment the same day an order is placed. Corporations desirous of hard-to-find new equipment may find such systems in used inventories, which can be a boon to both cost and speed of delivery in cases where manufacturing backlogs exist or equipment is needed urgently. Used equipment can often be

shipped the same day, and more rapid delivery options are available.

There is also a "green" element to used equipment purchases that may prove advantageous to for corporate sustainability and social responsibility endeavors. All enterprises are under pressure and scrutiny worldwide to act in more environmentally and socially conscious ways, and research demonstrates that a majority of the public holds corporations and governments responsible for global warming issues. Enterprises that fail to act and demonstrate advancements publicly have become targets. Leveraging used equipment can be a means of doing so of supporting sustainability efforts, as purchasing used equipment can manifest corporate commitment to extending the life of older assets.

Use-Case Scenarios

IT executives should strive to integrate used equipment as a business-enabling element of their hardware acquisition strategies. The purchasing of used equipment only when absolutely necessary is a tactical approach that misses the strategic, repeatable advantage used equipment can provide to corporations that perform the proper planning and business analysis. For example, not every business application requires the newest, most-powerful hardware – particularly when enterprises are looking to extend a proven infrastructure. Application growth scenarios can be addressed by deploying an operating platform identical to one that already exists in the corporation with used equipment without requiring migration to a new platform. This strategy may also prove acceptable when delays in new equipment delivery times are unable to meet business demand.

Disaster recovery and business continuity efforts are, perhaps, the biggest driver of interest in used equipment. Regulatory and business are dictating greater levels of uptime, and threats related to earthquakes, floods, hurricanes, terrorist attacks, tsunamis, and other natural and man-made hazards are forcing new DR/BC endeavors. Corporations are increasingly building new data centers and

remote office complexes to continue operations should primary sites experience outages. Deploying dissimilar systems at DR/BC facilities can create compatibility challenges. Most corporations do not have available capital to fund new equipment for both (or multiple) sites. Here, used equipment provides an inexpensive and logical means of building identical operating environments.

Testing scenarios are another good match for used equipment. All corporations have enacted technologies and processes to prevent test applications and data from intermingling with live data and potentially compromising ongoing business activities. Despite these efforts, improper updates or incorrectly segmented applications and data related to testing continues to affect mission- and business-critical applications in a majority of enterprises. IT executives can avoid these costly mistakes by deploying used equipment to prevent business disruption while simultaneously testing in an environment similar to the selected deployment scenario. When testing is complete, hardware can either be deployed live or costs can be shifted for additional development purposes.

Seasonal spikes in demand are the nemesis of systems operating at or near capacity. Corporations under budgetary and resource constraints may be unable to efficiently purchase, deploy, and migrate existing systems to more powerful architectures, and may find themselves better served by deploying used equipment. Similarly-equipped used equipment can be quickly provisioned using existing technologies to meet ebbs from financial processing, holiday shoppers, or any predicted or unforeseen increase in demand while minimizing cost and extending investments in existing infrastructures. IT executives should evaluate the relative advantages of all aforementioned scenarios in cooperation financial teams to determine cost/benefit analyses and maximize return on investment.

Rental Options

Used equipment can be advantageous in many usage scenarios, but corporations may find that they only require systems for a limited period of time or wish to test out capabilities before committing to a new or additional platform for the long-term. Rental options are another method of accessing used equipment with also providing more flexible usage terms than a standard purchase or lease. Project funding structures are also available, allowing hardware can be rented along with software and services. As an example, IBM's Certified Used Rental Program provides rental options for System i and System p servers for 3 to 12 months. Pricing is based on list pricing of an equivalent new server and the length of time the server is rented for. The longer the rental period, the lower the expenditure per month.

RFG believes adopting used equipment purchasing strategies can help corporations meet budget constraints while providing access to capable, recent technology hardware. In contrast to incorrect notions regarding used equipment, many of the available solutions are within 18 months of age and offer quality equal to that of a new system. When selecting a vendor for used equipment, IT executives should perform rigorous due diligence on their vendor to ensure that an exacting refurbishment process is in place and fully utilized on all purchased equipment. Additionally, vendors should support systems by backing them with at least a 90-day warranty, and offering warranties up to three years in duration. Leading vendors – particularly those associated with the OEM manufacturers – can offer funding strategies that encompass hardware, software, and services, and provide low-rate financing solutions similar to those available on new equipment. IT executives should work with LOB and executive management to understand how projected business application and data growth paths can be best aligned with used equipment strategies to reduce cost and leverage existing infrastructure investments.