The 10 Essentials
for Creating a Market-Leading Software Appliance
Designing and manufacturing an application-optimized software appliance is a difficult challenge. Independent software vendors (ISVs) need hardware platform solutions that are 100% customized to enhance the performance of their software. These custom solutions must also include a variety of value-added services designed to relieve the ISV of many hardware and logistics responsibilities including custom branding, software imaging, regulatory & compliance, global logistics, warranty, and technical support. Incorporating the ten essential factors discussed here will drive the successful development and launch of your market leading software appliance.

The 10 Essentials for Software Appliance Success

1 Design and Engineering

Software appliance hardware engineering should be performed by an experienced team of engineers who work closely with you to turn your specifications into powerful platforms that become production-ready systems. The platform engineers should recommend the right components to optimize the hardware for the specific software's performance.

There are many advantages to using a hardware-agnostic approach that is not tied to any specific hardware vendor for appliance configuration and leverages strategic OEM relationships with the best component manufacturers.

The relationship forged with the dedicated platform engineering team should include engineering services for the life of the hardware program. From prototype configuration to software integration to testing, through ongoing lifecycle management, and platform re-engineering, the design team should be there every step of the way. If necessary, the design and engineering team should also be willing and able to conduct any required custom research, advanced testing, or compliance and certification on a fee basis.

Checklist 1 - Be sure the team selected for engineering and design includes these capabilities:

A. ___ Appliance hardware configuration and appliance lifecycle management.
B. ___ Hardware lifecycle planning, vendor relations, and roadmap consulting.
C. ___ Physical design services with rapid custom parts prototyping.
D. ___ Imaging software and BIOS in the factory and maintaining updates.
E. ___ System testing for thermal, environmental and power specifications.
F. ___ Identifying and analyzing component failures and maintaining performance statistics.
G. ___ Manage software licensing, individual part serial numbers, and other parameters per unit.
H. ___ Testing appliance roadmap platforms with various software configurations.
2 Custom Hardware Platforms

You should start with a custom cost-optimized hardware platform to maximize the performance of your software appliance. Engineering will configure hardware appliances with custom computers that are optimal for Your specific application - from small form factor PCs to rackmount servers to custom dense storage server chassis even to full rack integration.

Checklist 2 – Identify and specify your required form factor and devices:

A. ______ Small form factor hardware appliances can use Mini-ITX and Micro-ATX platforms to provide a compact footprint for embedded computing options.
B. ______ Identify your CPU requirements – from low power Atom CPUs, to socketed dual CPUs, to multi-core CPUs.
C. ______ Specify networking hardware to connect multiple appliances in various configurations.
D. ______ Determine the requirements for PCIe-based internal cards including GPUs.
E. ______ Identify requirements for small displays, multiple network interfaces, multiple hard drives, front-facing Ethernet ports, etc.
F. ______ Requirements for custom server chassis, unique front or back side interfaces, disk drive access, or a mixture of rotating and Flash memory drives in hybrid configurations.
G. ______ The need for rack-scale implementation of multiple appliances configured and powered in a custom rack.
3 Branding Chassis, Packaging and Documents

It is important to fully brand your software appliance to create an excellent out-of-box experience for your customers and improve your brand identity. Branding the chassis is another important consideration. Consider powder coating or silkscreen printing, as well as custom-machined parts like spring-loaded pushbuttons, attachment blocks and hinges and custom wire harnesses.

Custom branded appliance packaging is another consideration, including custom-printed cartons branded and designed precisely to fit chassis, printed stickers to apply to standard shipping cartons, custom foam inserts, mailing labels and packing slips, as well as custom inclusions like posters, promotional items, and sales information. Even product documentation, like custom branded server rear ports, user manuals, installation guides and other printed product documentation produced and included with system shipments should be considered for branding purposes.

Checklist 3 – Consider these branding options:

A. ___ Custom chassis bezel(s)
B. ___ Multi-layer custom faceplates
C. ___ Factory applied labels
D. ___ Color-matched handles
E. ___ Powder coating on the chassis or other metal parts
F. ___ Bending, milling and/or extruding to fit unique design
G. ___ Polycarbonate chassis overlay
H. ___ Custom-designed shipping cartons
I. ___ Branded product manuals and documentation inclusions

4 Software Imaging

To create a easy-to-use software appliance, your software will be loaded onto the hardware in the factory and fully tested prior to shipping. This Plug-n-Play approach is a competitive advantage. Your customers will appreciate fast turn-up and require minimal (if any) installation support.

Checklist 4 - Your hardware partner must support:

A. ___ Secure in-factory storage of your software image
B. ___ Version control and change control
C. ___ Downloading exact software images
D. ___ Automated appliance factory testing of every unit
5 Manufacturing and Technology Partners

Your appliance manufacturing partner must have demonstrated success with designing, manufacturing, scaling and support software appliances. They should be direct supply chain and technology partners with the leading component vendors – CPUs, Memory, Disks, Network, Power supplies, Chassis, etc.

Checklist 5 - Select a manufacturing partner who has the following attributes and capabilities:

A. _____ Demonstrated expertise with building and configuring software appliances in a high-mix, highly scalable manufacturing environment.

B. _____ Experience creating and maintaining unique platforms

C. _____ Manufacturing facilities certified under ISO.

D. _____ Handles a wide range of certifications and requirements such as UL, FCC, CE, CCC, BIS, FAR/DFAR, TAA, RoHS, WEEE, EnergyStar, and market specific certifications

E. _____ Use software tools that assure manufacturing accuracy, cross-trained technicians proficient in multiple work centers

F. _____ Manufacturing cells designed to configure and test multiple systems at once to support large-scale orders.

G. _____ Visual assembly instructions should be documented as the prototype is built, ensuring accuracy in production. These instructions should show every component location, cable turn, screw torque level, specialty bracket, custom labeling, and anti-tampering feature, among others.

H. _____ Manufacturer should have direct channel partnerships with leading component manufacturers to ensure supply chain effectiveness. Key examples include world-class suppliers such as: Intel®, Microsoft®, Micron®, LSI®, AMD®, Seagate®, Western Digital®, Supermicro®, AIC, Foxconn, and others.
Inventory Management

Look for agile inventory programs that can keep systems stocked and ready for immediate shipping to your end customer, regardless of where they are located throughout the world. The standard stocked inventory approach is best for variable demand situations and provides total control over on-hand inventory levels. With this approach, systems are built to order with no requirement to hold inventory.

An alternative is to use the build to forecast stocked inventory approach for consistent, anticipated order needs; systems are pre-built and stocked for immediate shipment upon order. The managed inventory approach is best for ISVs with strong forecasting abilities; systems are stocked to meet a rolling 90-day forecast and billed when they ship.

Checklist 6: There are several key Inventory management areas to investigate

A. Does your potential partner have the option of using a standard stocked inventory approach which is best for variable demand situations.
B. Will you have visibility and control over on-hand inventory levels.
C. Your partner should have the capability to build systems to order with no requirement to hold inventory.
D. Explore an alternative to use a build to forecast stocked inventory approach for consistent, anticipated order needs where systems are pre-built and stocked for immediate shipment upon order.
E. Determine whether your organization has strong forecasting abilities so that a managed inventory approach might be used where systems are stocked to meet a rolling 90-day forecast and billed when they ship.
Global Logistics and Support

Use an appliance manufacturer with a support team that responds to the ever-changing regulations for technology product exportation.

Checklist 7: Global commerce functions and technical support functions:

A. Platform certification for country-specific regulations, for example CCC for China.
B. Advanced replacement programs.
C. Coordination of in-country customs brokers or freight forwarders when required.
D. Assistance with responsible disposal of retired hardware, including secure erasure and/or destruction of hard drives.
E. Worldwide telephone support with direct contact to US-based support specialists.
F. Consultation to match logistics and support service levels with end user requirements.
G. Standard and optional extended warranty programs.
H. 24/7 technical support option for rapid hardware troubleshooting and diagnosis.
I. Global support programs with onsite service including 4-hour and next-day response.
J. RMA repair programs performed in the US, EU and APAC with expedited cross-shipping.
K. Premium support services for mission-critical applications.
L. Global inventory status of shippable systems and inventory levels with historical data.
M. List of all manufactured systems with hardware detail and last location.
N. Bills of material, open/closed orders, quotes, invoices, and credits.
O. Inventory reorder points with alerts, plus the ability to add or change inventory and quantities.
P. Stored data such as asset tags, MAC addresses, serial numbers, and license keys.
Q. Historical data for RMA returns and the ability to generate new RMA requests.
R. Customization for packing slips and shipping labels.
S. End-of-life component status reports.
Lifecycle Management

Hardware obsolescence can introduce unwelcomed challenges for software appliances, including driver compatibility, firmware characteristics, and future performance of a new platform. It can also lead to delays in getting products to customers, which may erode customer satisfaction and reduce revenue.

While configuration changes are inevitable and impossible to bypass, it is important to work with a software appliance platform partner to smoothly streamline technology transitions. Not only will the re-engineering process be less disruptive, but it also often improves overall system performance – a tangible benefit for end users.

Checklist 8 - Look for a hardware partner that uses:

A. _____ Time-tested engineering best practices,
B. _____ A documented project management process
C. _____ Strong strategic partnerships with leading component manufacturers like Intel, Supermicro, Micron, Western Digital, HGST, Seagate, etc.
D. _____ Provides end of life (EOL) roadmaps as early as possible for strategic planning and hands-on access to pre-released hardware for advanced testing.
E. _____ When technology transitions occur your partner should insure the bill of materials is locked down and the platform is ready to build and ship to customers.
F. _____ An efficient, highly-managed lifecycle management process is the only solution to avoid EOL surprises. Such a process should include these components:
G. _____ A migration strategy planned 90 days or more in advance.
H. _____ Involvement in the hardware evaluation process to mitigate compatibility issues.
I. _____ Engineering support to assist with software updates to adapt to the new platform.
J. _____ Benchmark testing with software and operating system to measure performance.
K. _____ Customer portal visibility to EOL dates established by component manufacturers.
L. _____ Supply chain sourcing of retired components to extend longevity when appropriate.

A robust lifecycle management program for appliances will minimize hardware disruptions and distractions, enabling appliance designers to stay focused on product innovation and building customer relationships.
Dedicated Account and Support Staff

The most important essential ingredient is to insure your hardware platform partner supports you with dedicated Account Management, Project Management, Logistics and Technical Support staff. Having personal long-term relationships with people you can trust and call 24/7 provides both a competitive advantage and peace of mind.

Checklist 9 - Insure your potential partner has the following capabilities and tools:

A. _____Dedicated Account Manager available 24/7 / 365
B. _____Dedicated Project Manager in factory to manage all logistics
C. _____In-house Technical Support Staff who are experts in your software appliance
D. _____Financial terms that support your product launch and scale-up

Take Action Now–Using the 10 Essentials for Software Appliance Success

You can now use these 10 Essentials to select the best partner for your software appliance hardware platform.

Checklist 10 – Execute the key elements of your Action Plan

A. _____Discuss each of these areas with potential platform vendors and determine whether they meet all 10 essential criteria.
B. _____Ask for documented proof of performance and existing customer referrals. Performing rigorous due diligence in each area will pay off in long term software appliance success.
C. _____Even failing in one area could result in expensive difficulties for your software appliance development, launch and product life-cycle.
D. _____Complete all the 10 Essentials Checklists and compile your requirements for your software appliance.
E. _____Discuss your requirements with proven software appliance platform vendors to determine your best fit.

Getting Started with Equus Compute Solutions

Equus has been focused on supplying these 10 Essential capabilities to our Partners for 28 years. We have helped many Software Appliance Vendors succeed in the market as their “secret weapon” partner. Let’s discuss your unique needs and challenges.

You can discuss your requirements right now: Click here to Chat >>
Or you can contact us to set up a discussion call: Use this form >>
Call us at 1-800-641-1475