



Compaq finds strategic software engineering partner in ArrAy.

Unique post-initial-development focus enables ArrAy to help Compaq satisfy a variety of customers. Compaq Computer

Corporation's OpenVMS™ software engineering division had a lot on its plate. Recently acquired from Digital Equipment Corporation, the organization had a full line of software to maintain for a large installed base. At the same time, they needed to push forward with exciting new development that would enhance the value of their users' and Compaq's investment.

Compaq faced the classic developer's challenge — how to ensure customer satisfaction with existing products while aggressively creating new ones. Doing both tasks well and on time with limited resources is a dilemma nearly every software developer must address. Compaq decided to look for a partner to maintain key products so in-house staff could focus on developing next generation software.

ArrAy, a software engineering services firm, offered Compaq a new and unique alternative, not available from traditional contracting firms. ArrAy's broad-based expertise and unique engagement model enabled them to work efficiently on previously developed code. By taking on critical post-initial-development tasks and executing them well,

ArrAy could help Compaq reduce time-to-market while increasing product quality and customer satisfaction.

Ladder of trust built on demonstrated success. The relationship between Compaq and ArrAy started small and grew as the services firm proved themselves.

First, ArrAy successfully resolved defects in Compaq's TCP/IP product. Next they inserted fixes into the product's new development tree and addressed SQA concerns for new TCP/IP development by devising and performing specialized tests.

Specialized TCP testing was a milestone engagement. No longer just a layered product, Compaq's TCP/IP software was now considered the primary communication transport for its flagship OpenVMS operating system. It would ship with each new release of the operating system. Problems with TCP/IP could result in a delay of the operating system release. TCP/IP development schedules and product support were elevated to a high-visibility and high-risk engagement. ArrAy's targeted testing enabled Compaq's development organization to have a high level of confidence in its TCP/IP software prior to Compaq's system-level testing of the bundled product.



Customer Story

Highlights

- Compaq engineers software effectively across a range of environments by leveraging ArrAy's expertise and unique post-initial-development support services.
- ArrAy productivity and cost-effectiveness validate business model.
- Service firm's flexibility and partnership approach help client increase software quality while reducing time-to-market.



"ArrAy has taken the post-initial-development role to a higher technology challenge ... Their teamwork, wealth of technical expertise, and scientific approach allow them to engineer effectively across a wide variety of environments."

— Bryan Jones, Director of OpenVMS Engineering, Compaq.

Standards were high. Compaq's criteria for a partner included:

- Strong technical expertise
- Good communication skills
- Ability to integrate skilled personnel into project engineering groups
- Ability to provide a solid return on investment

Flexible pool of resources satisfies a variety of needs.

Unlike traditional development compartmentalization, ArrAy software professionals could perform both maintenance and quality assurance, as well as other major development support tasks. ArrAy's wealth of knowledge enabled them to grasp complexities quickly and begin work on resolution immediately.

ArrAy's teaming approach allowed them to integrate rapidly into projects as equals and to utilize a variety of experts as the situation required. Use of the unique ArrAy Way™ methodology facilitated a high degree of knowledge capture and transfer among the team. This translated into great flexibility, which Compaq sees as a key strength, especially when paired with ArrAy's extensive knowledge of software engineering practices.

"ArrAy has taken the post-initial-development role to a higher technology challenge," says Bryan Jones, Compaq's Director of OpenVMS Engineering. "Their teamwork, wealth of technical expertise, and scientific approach allow them to engineer effectively across a wide variety of environments."

Broad industry knowledge facilitates complex ports.

ArrAy's broad industry knowledge featured prominently in several porting projects ArrAy next tackled for Compaq. Following Compaq's internal porting of the Apache web server to enable customers to use OpenVMS as a web server, Compaq relied on ArrAy to port the SPECweb 96 industry performance benchmark standard to OpenVMS and run performance tests on the OpenVMS Apache web server. ArrAy also worked with Compaq to port tests previously developed for a Sun® environment to OpenVMS to test the latest OpenVMS Network File System (NFS) functionality.

Typically in the industry, porting experts are hired chiefly on the strength of their knowledge of the target platform. By understanding both source and target architectures equally well, ArrAy was able to provide equivalent functionality on the new platform that was highly optimized for its environment.

News about ArrAy's capabilities spread within Compaq. The storage arm of the company engaged ArrAy to work with its StorageWorks™ product line. There, too, the software engineering firm provided key

porting and SQA services, including creating an OpenVMS agent for third party networking software originally designed to operate in UNIX® and Windows NT® environments. The new agent ported by ArrAy successfully took advantage of OpenVMS clustering and configurability.

ArrAy also ported Linux RAID subsystems to OpenVMS, optimizing the software to take advantage of the OpenVMS operating system without impacting performance.

Highly productive and cost-effective too. Much as he appreciates the quality of ArrAy's work, Jones is also a firm believer in looking at the numbers. The productivity metrics Compaq has accumulated on ArrAy are outstanding.

"ArrAy has significantly exceeded our customer satisfaction metrics for problem resolution," reports Jones. "ArrAy has a strong focus on the customer, which complements our internal teams and allows Compaq to deliver a consistent support model across all our products."

"By measuring productivity against cost, we're able to determine the unit cost for maintenance and problem resolution," continues Jones. "Because ArrAy excels at

productivity, it brings them in line with our internal cost structures, making them one of our strongest overall engineering partners."

Future looks bright. ArrAy's unique approach has proven itself, enabling Compaq to forge ahead with new development while at the same time protecting and enhancing the viability of existing products.

By specializing in post-initial-development, ArrAy is able to assist customers for the life of their software. This fosters a partnership attitude. Unlike vendors who see relationships as a series of finite encounters with built-in limitations, ArrAy sees client relationships as a continuum.

Jones concurs. "As business requirements change, ArrAy adapts. They provide the flexibility of a partnership." Both parties anticipate that their partnership will continue to grow and evolve, with satisfied Compaq customers the beneficiary of that partnership.



ArrAy Software Development Support Services include:

- Software Quality Assurance
- Maintenance
- Porting
- Enhancements

"Because ArrAy excels at productivity, it brings them in line with our internal cost structures, making them one of our strongest overall engineering partners."

— Bryan Jones



ArrAy Incorporated

**115 Flanders Road
Westborough, MA 01581
www.arrayinc.com
(508) 898-9593**

About Array. ArrAy Incorporated is a software engineering services firm that provides unique post-initial-development support to product developers. Its services help reduce client time-to-market while increasing product quality. Unlike traditional contractor or outsourcing alternatives, ArrAy's proven methodology, expertise, and collaborative work style deliver both an immediate and lasting solution for strategic engineering advantage.

ArrAy and ArrAy Way are trademarks of ArrAy Incorporated. Compaq, OpenVMS, and StorageWorks are trademarks of Compaq Computer Corporation. Other trademarks are the property of their respective owners.

© 2001 ArrAy Incorporated. All rights reserved. Printed in the USA. 02/01