



Expanding Consumer Options with Open Source Solutions

Intel Collaborates to Create a New Framework

Flexible Computing for the Consumer Market

Demand is rising for Linux* in the consumer market, for education purposes and for government-sponsored digital inclusion programs. To help address this need, Intel is creating a framework on which to build Linux-based solutions using Intel® processor-based PC platforms that provide exceptional value for consumers and meet requirements for government policies.

Working collaboratively with the industry, the Open Source community and Intel® Channel Program members, Intel helps develop cost-effective solutions based on Intel® processor-based PC platforms running the Linux operating system. These dependable, secure solutions meet the requirements for a variety of government, consumer and education uses. Through the energy and dedication of the Open Source developer community, a solution stack of primary applications and tools for consumers has been developed. The stack has been enhanced further by commercial developers with innovative applications that improve functionality. Intel and the computing ecosystem are united in efforts to unlock the benefits and potential of Linux and Open Source software on Intel platforms for the widest possible consumer market.

Building a Stack Designed for Consumer Use

While Linux has become a leading operating system for server implementations the consumer market for Linux PC solutions has developed more slowly. A solution stack equipped to satisfy key consumer requirements can serve as an engine to more quickly respond to customer demand for Linux operating environments and applications running on PC platforms. The considerations in building a viable, consumer-oriented solution stack include:

- **Engaging citizens to participate more fully in their communities.** As state, local and national governments adopt and deploy cost-effective Linux-based solutions, citizens need a complementary means to connect with government services, stay informed, and engage in civic activities. Intel® processor-based PC platforms running open source software can affordably equip citizens to stay active in their communities.
- **Spurring economic growth through expanded knowledge.** Even basic computing tools open the door to improved opportunities, educational resources and economic development. The Linux operating system and affordable PCs powered by Intel processors offer a passport to the digital world and a means of improving local economies and generating job growth.
- **Enabling communication and mobility.** Mobile applications and connectivity tools designed for the Linux consumer market serve as valuable communication channels for residents of both rural and city locales. Intel® Centrino™ mobile technology offers the freedom of wireless connectivity.

Building an ecosystem to address these requirements takes a coordinated effort involving developers, standards bodies, manufacturers, and government officials. Through collaborative designs and open standards development, the consumer solution stack can be equipped for different levels of uses—from entry level to advanced.

Consumer Solution Stack Components

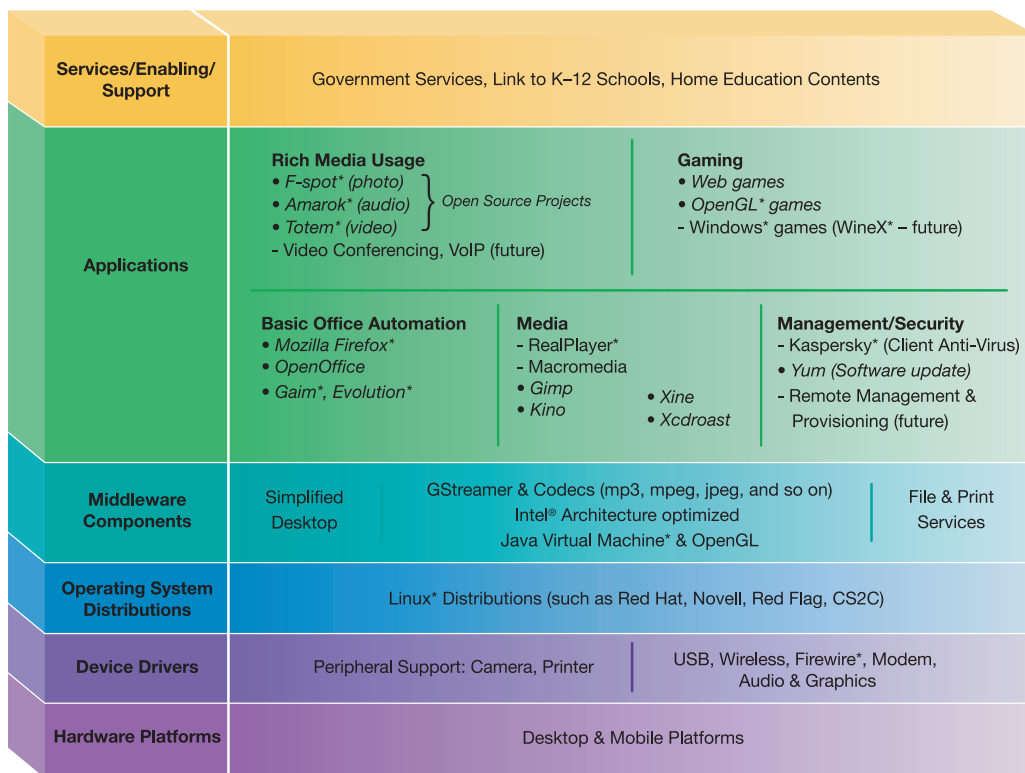
A *solution*, as referred to in this paper, consists of two or more hardware or software components that meet a business requirement and provide enhanced value when used together. When referring to a *solution framework*, this constitutes a collection of specific components—software applications—that address a market need at a baseline level. Intel encourages developers, system integrators, resellers, and system manufacturers to further extend the capabilities of each solution framework by building integrated solutions that complement and enhance it. The term *solution stack* describes a set of individual applications that work together to provide a complete solution. The Open Source community and vendors are invited to add value to the proposed solution stacks and contribute components to address broader market needs.

The consumer solution stack (shown in Figure 1) is under development by Intel and the computing ecosystem. This solution stack consists of:

- A desktop computer powered by an Intel® Pentium® 4 processor or Intel® Celeron® processor, running the Linux operating system.

AND

- **Entry**—Components at this level of the solution stack provide basic usages: core drivers and utilities to enable network connectivity, printing, and built-in operating-system tools. Fundamental applications include email, Web browsing, instant messaging, media playback, office tools, Macromedia Flash*, Adobe Acrobat* Reader and basic gaming capabilities. Anti-virus software and automated software updates round out the stack.
- **Intermediate**—Components at this level of the solution stack deliver improved media usages: all of the previous functions, as well as broadband network connectivity, support for digital cameras, simplified desktop tools, and content for K–12 and home education. Additional stack components include optimized gaming features and enhanced middleware components.



• Open Source Project

Figure 1. Solution Stack Components for Consumers

- **Advanced**—Components at this level of the solution stack offer rich media usages: all of the previous functions, as well as wireless connectivity, voice dictation, digital pen input, and remote management tools. Other rich media applications, including voice over IP (VoIP) and video conferencing, are also included.

As shown in Figure 1, the components of this stack include a choice of Linux operating-system distributions, a range of Intel processor-based platforms, and support for vertical applications in the education and government sectors. Higher performance systems are required to accommodate some of the advanced functions shown in the stack components.

Opportunities for Additional Development

While some parts of the solution stack are robust, work remains to be done on some of the key stack components and some areas of functionality can be improved. The improvement areas are availability of drivers for printers,

digital cameras and other USB devices; resolution of licensing issues for codecs; improved stability and documentation for core applications; optimization of vertical application content for Web-based use; automating of software updates and similar issues.

To fully realize the potential of this open source model, enhancements to the solution stack will need to come from both open source contributions and commercial developments.

Looking Forward

The open architecture model on which Linux and Open Source software are built fosters technological innovation and drives advances in consumer-oriented computing. With an eye to the future, Intel wants to help foster a deep and vibrant ecosystem of software to bring computing to everyone, through fully integrated, validated open source solutions. We invite you to join in this effort—to bring the benefits of advanced technology to every part of the world.

About Intel Corporation

Intel Corporation is the world's leading supplier of advanced microprocessors used inside PCs, servers and wireless devices, and a leading manufacturer of communication and networking products. The company is a driving force behind the PC and Internet revolutions that have transformed business and society. Founded in 1968, Intel created the first microprocessor in 1971, and today supplies the computing and communication industries with the chips, boards, systems and software building blocks that power computers, servers, communication systems and networks. Intel's mission is to be the preeminent building block supplier to the Internet economy.

For More Information

For more information about the Intel role in developing the Consumer Solution Stack, visit www.intel.com/opensource.



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