Experience a Better Cloud with Intelligent Clients

Optimize Cloud Security, Management and User Experience by Leveraging Each Device's Power and Capabilities

White Paper

Client-aware

Cloud Computing

According to the Yankee Group, three quarters of top-level IT executives consider cloud computing a key path for IT transformation and future growth.[1] IDC estimates that the market for cloud services ($23 billion in 2010) will grow at a compound annual rate of 27 percent for the next four years—over five times the projected growth rate for traditional IT products.[2] These are services expected to be consumed by users with a variety of devices.

The devices that users adopt for cloud services vary in capabilities, from basic to powerful and highly intelligent. When *intelligent client devices* with advanced capabilities are integrated in a cloud plan, they offer an important benefit to delivery, management, and security of cloud services, and for optimizing user experience. These devices should be carefully considered in any IT cloud planning strategy.

Balance and Benefit – The Value of Intelligent Clients in the Cloud

IT managers are increasingly realizing the significance of the capabilities of intelligent client devices – those combining hardware-based security capabilities, advanced manageability, and energy efficient performance. Managers are also seeing the importance of a balanced computing approach to delivery of cloud services, taking advantage of these client capabilities to better manage cloud services.

Comprehending appropriate client capabilities in a cloud strategy can help:

- **Balance IT control with meeting users' needs**
- **Maintain strong management practices** within cloud solutions, especially with regard to security and compliance
- **Position cloud infrastructure to adapt** to future developments inherent in the evolution of cloud computing

Considering the pros and cons of different device types allows IT to capitalize on client device capabilities and thus optimize the delivery of cloud services – with both IT control and user experience in mind. How each device class affects security, manageability, and application performance are important considerations. And, as *client aware applications* emerge and grow, the capabilities of these intelligent end points become even more valuable.

How Intelligent Clients Help Build the Cloud

Optimization of IT control, user experience, and data security improves with advanced client device capabilities, such as those integrated into 2nd generation Intel® Core™ vPro™ processors. Intel® Advanced Encryption Standard – New Instructions (Intel® AES-NI),[3] for example, accelerates encryption/decryption on intelligent clients; Intel® Trusted Execution Technology (Intel® TXT)[4] improves security with a pre-boot layer of protection on virtualized platforms, and Intel® vPro™ technology improves IT management of clients.[5]

2nd generation Intel Core vPro processors enable a more immersive visual experience, which can improve cloud-delivered graphics, animations, and CPU-compute intensive tasks on clients equipped with these processors. Intelligent clients also enable a more natural usage model by allowing users to work both online and offline.

Making the Cloud Even Smarter

As cloud computing continues to evolve, the availability of client-aware applications is expected to increase. Client-aware applications sense the attributes and capabilities of the client device (such as device type, processing power, connectivity, and security support) and then use this information to make real-time decisions about how to optimally execute a given task. For example, if the client-aware application detects that the end point is a smartphone, it may choose to run tasks entirely from the cloud-based server. Alternatively, if the application detects a PC with a 2nd generation Intel Core vPro processor, it can push more execution of certain tasks, like encryption/decryption workloads, down to the client, unburdening the cloud infrastructure, while delivering a more responsive service locally on the client. In a client-aware environment, both IT organizations and users can benefit from intelligent end points.

Several cloud service providers offer client-aware applications, including Citrix HDX Technologies* for multimedia delivery and Gproxy* for web user experience improvement. Major communications vendors are also beginning to make portal applications dynamically adaptable to client device capabilities and maximizing user experiences on intelligent end points.

Intel and Client-Aware Cloud Computing

Intel's active leadership in the development of cloud computing extends across the cloud computing ecosystem and includes technology innovation, standards leadership, and first-hand experience – combining vision (where cloud computing is going) with know-how (how practical cloud infrastructures are built and deployed). This cloud computing leadership can be immediately useful as you consider and implement your own cloud computing infrastructures. Intel's current products, as well as products in development, focus on the advances you need for effective cloud computing solutions.

To learn how you can benefit from intelligent client in the cloud, please visit www.intel.com/go/cloud.