Extending Intel's Enterprise Private Cloud with Platform as a Service

Platform as a Service (PaaS):

- Accelerates time to market for new custom applications

- Promotes the development of more cloud-aware applications

- Improves resource utilization by providing self-service, on-demand scalability

- Supports Intel's vision of using a hybrid cloud model to meet spikes in business demand

Intel IT is actively implementing platform as a service (PaaS) as the next logical step for our enterprise private cloud, to accelerate custom application deployment and promote cloud-aware application design principles. Our PaaS environment will build on our already successful infrastructure as a service (IaaS) efforts, and will provide an application development environment featuring self-service, on-demand tools, resources, automation, and a hosted platform runtime container.

In today's fast-paced business environment, agility is the key to success and the primary motivator for Intel IT's cloud-computing program. Our PaaS environment will help us achieve an aggressive goal of enabling developers to transition from innovative idea to production in a single day.

Transforming Intel's Application Development Environment

We believe PaaS has significant potential to address the following weaknesses in our current application development environment.

- **Limited Agility.** Today, the process to build and host a custom application is lengthy and complex, often taking several months after an application is initially developed to fully deploy it into production. By the time the application is landed, it could be out of date or no longer relevant, resulting in lost revenue opportunities.

- **Too much complexity.** Currently, application development teams are responsible for provisioning their own infrastructure, with a great deal of IT assistance. Therefore, developers must have a deep technical understanding of the underlying infrastructure including compute, storage, network, manageability, and security resources.

- **Poor standardization and extensibility.** Development team agility is hampered by a lack of standard business processes, templates, and on-demand capabilities. Developers also do not have access to step-by-step instructions for moving an application from one phase to another, such as from development to test, or test to production.

- **Inefficient utilization of resources.** Application developers want to plan for scaling their applications, but have no way to automate this process. Therefore, they often significantly over-estimate their resource requirements.

We believe that PaaS will improve our support of Intel's developers and streamline our deployment cycle by providing a quick, efficient way to deploy applications into production, scale them, and take them out of production. PaaS will increase developer productivity and optimize the use of resources, thereby supporting our technology roadmap for using hybrid clouds for further efficiency.

Proof of Concept

Over the past six months, Intel IT has researched PaaS to determine the requirements, scope, and implementation strategy associated with offering PaaS on Intel's enterprise private cloud. Our research led us to standardize on open-source software (OSS) programming language stacks. This approach provides a single broad, flexible solution that supports the programming languages and frameworks in use at Intel. An OSS-based implementation enables us to reap the benefits of working with the OSS community (such as rapid updates, low cost, and ability to collaborate), while still being able to customize our PaaS implementation.

We conducted a three-month proof of concept (PoC) that tested PaaS in our enterprise private cloud environment and demonstrated its positive potential:

- Enhanced agility and productivity

- Greater standardization and extensibility

- Reduced complexity

- Improved utilization

- More efficient security and business continuity

Having completed the successful PoC, we have created a roadmap for adding capabilities to our PaaS implementation that will support our overall goals of fast path to production, design for failure, efficient utilization, and component reuse.

You can find a full discussion of our work with PaaS at "Extending Intel's Enterprise Private Cloud with Platform as a Service."