Executive Summary

Collaboratively, Telstra, Intel, Quanta QCT and Red Hat have successfully launched an internal private cloud into Telstra’s internal IT environment. The hardware and software solution enables Telstra to create virtual machine development environments within 20 seconds using Telstra’s SOE VM images. This is 180 times faster than the previous environment.

Telstra now has an environment that can allow developers to log in from anywhere within the organization to the shared Platform-as-a-Service (PaaS) and/or Infrastructure as a Service (IaaS) using OpenShift Enterprise by Red Hat, and create VMs within seconds. This allows developers to focus on application development rather than environment set up and management.

The partnership between Red Hat, Telstra, Quanta QCT and Intel® has led to the successful deployment of this world-class PaaS and IaaS environment that helps Telstra to move ahead in their cloud service offerings in Australia and around the world.

Problem Statement

Telstra’s software product development undergoes rigorous pre-production stages, and at each stage, a unique environment is created for testing. The number of separate environments that have been produced has skyrocketed to a ratio of 5:1 of test environments to production, which made processes completely unmanageable and unmaintainable. Obtaining new machines could take weeks or months if physical kit was required, and in the best case an hour for a new VM to be supplied. This led developers to seek ways around the formal process, including using spare machines under their desk and makeshift VM farms.

Moreover, security controls made these separate environments difficult to access from anywhere on Telstra’s corporate network. The developers utilize these new pre-production environments for a wide range of activities, from application development, change testing and qualification, to assisting with porting activities, such as from RISC to x86 application migration.

This paper will illustrate how the integrated software and hardware stack delivered a solution that improved pre-production environment creation, helping Telstra business units decrease the time to money and increase business agility for applications in the cloud.
Partner Collaboration on Intel® Technologies Improves Business Agility by Consolidating Pre-production IT Environment Sprawl

Unifying unique IT environments

Telstra wanted a reliable, available and responsive environment to replace and consolidate the proliferation of unmanaged development environments, which were created by developers across the Telstra network. Telstra IT needed a cloud solution stack that would provide PaaS and IaaS with production-integrated with the enterprise Active Directory. This production environment for application development and testing had to be accessible to every developer within the Telstra corporate network.

The Telstra scale-out solution architecture for the development and test environment was based on the integration of Red Hat software, Quanta hardware and Microsoft Active Directory. The Red Hat software and Quanta hardware solution stack is illustrated below:

<table>
<thead>
<tr>
<th>COMPUTE</th>
<th>STORAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red Hat Enterprise Virtualization Hypervisor 3.1</td>
<td>Red Hat Storage 2+ (RHEL)</td>
</tr>
<tr>
<td>OpenShift Enterprise by Red Hat</td>
<td></td>
</tr>
<tr>
<td>Red Hat Enterprise Linux® 6.4</td>
<td>Quanta S210-X22RQ</td>
</tr>
<tr>
<td>Red Hat Enterprise Virtualization Manager 3.1</td>
<td>Intel® Xeon® processor E5-2650</td>
</tr>
<tr>
<td>Quanta S210-X12RS</td>
<td>2.5” hot-plug Intel SSDs 120GB</td>
</tr>
<tr>
<td>Intel® Xeon® processor E5-2650</td>
<td>Intel® 82599 10G SFP+</td>
</tr>
<tr>
<td>2.5” hot-plug Intel SSDs 120GB</td>
<td></td>
</tr>
<tr>
<td>Intel® 82599 10G SFP+</td>
<td></td>
</tr>
</tbody>
</table>

Solution Design

Telstra has reviewed each technology’s strengths to evaluate their capability to meet its specification:

- Scale-out compute and storage technologies like Red Hat’s solutions have rapidly gained popularity over the past few years, successfully crossing the chasm from niche technology to mainstream enterprise solution.
- The Quanta S210-X12RS (compute) and S210-X22RQ (storage) not only cover performance and efficiency, but also enable enhanced service operations, that accounts for a significant portion of the IT budget.
- Intel® SSDs are particularly suitable for intensive data read application environments. They are the ideal choice to replace SAS hard drives for content distribution network storage, providing better cost and performance.
- Intel® 10GbE Ethernet is the number one-selling 10GbE solution in the marketplace today. Many organizations are using it to migrate from 1GbE to simplify and save by consolidating GbE connections onto the more capable 10GbE.

By utilizing this world-class solution stack from multiple vendors, Telstra now has a production-deployed PaaS and IaaS that will meet Telstra IT’s requirements for a reliable, available and responsive environment for development and testing. The solution will scale horizontally by adding resources when required. It can scale elastically by adding or removing the resources at runtime. This applies to both the storage nodes and the compute nodes. This deployed solution stack was benchmarked against the previous environment’s VM creation time, with results showing that Telstra can now create 180 VMs in the same time it took to create one VM in the previous environment.

Improving business agility with one solid IT environment

The launch of the new environment into production within six weeks of concept meant that the business can meet its technical requirements and shorten the time for return on investment (ROI). Ending VM sprawl allowed Telstra to save on hardware and software infrastructure, power and cooling, and heightened the security while lowering application to production cycles (time to business).

For more information on Intel® Xeon® processors, visit https://www-ssl.intel.com/content/www/us/en/processors/xeon/xeon-processor-5000-sequence.html

INFORMATION IN THIS DOCUMENT IS PROVIDED IN CONNECTION WITH INTEL® PRODUCTS. NO LICENSE, EXPRESS OR IMPLIED, BY ESTOPPEL OR OTHERWISE, TO ANY INTELLECTUAL PROPERTY RIGHTS IS GRANTED BY THIS DOCUMENT, EXCEPT AS PROVIDED IN INTEL'S TERMS AND CONDITIONS OF SALE FOR SUCH PRODUCTS. INTEL ASSUMES NO LIABILITY WHATSOEVER, AND INTEL DISCLAIMS ANY EXPRESS OR IMPLIED WARRANTY, RELATING TO SALE AND/OR USE OF INTEL PRODUCTS INCLUDING LIABILITY OR WARRANTIES RELATING TO FITNESS FOR A PARTICULAR PURPOSE, MERCHANTABILITY, OR INFRINGEMENT OF ANY PATENT, COPYRIGHT OR OTHER INTELLECTUAL PROPERTY RIGHT. UNLESS OTHERWISE AGREED IN WRITING BY INTEL, THE INTEL PRODUCTS ARE NOT DESIGNED NOR INTENDED FOR ANY APPLICATION IN WHICH THE FAILURE OF THE INTEL PRODUCT COULD CREATE A SITUATION WHERE PERSONAL INJURY OR DEATH MAY OCCUR.

Intel may make changes to specifications and product descriptions at any time, without notice. Designers must not rely on the absence or characteristics of any features or instructions marked “reserved” or “undefined.” Intel reserves these for future definition and shall have no responsibility whatsoever for conflicts or incompatibilities arising from future changes to them. The information here is subject to change without notice. Do not finalize a design with this information.

The products described in this document may contain design defects or errors known as errata which may cause the product to deviate from published specifications. Current characterized errata are available on request. Contact your local Intel sales office or your distributor to obtain the latest specifications and before placing your product order. Copies of documents which have an order number and are referenced in this document, or other Intel literature, may be obtained by calling 1-800-548-4725, or by visiting Intel’s Web site at www.intel.com.

Copyright ©2014 Intel Corporation. All rights reserved. Intel, the Intel logo, and Xeon are trademarks of Intel Corporation in the U.S. and other countries.

* Other names and brands may be claimed as the property of others.