Solaris to RHEL Strategic Migration Planning Service

Objective

- A five phase strategic planning offering, based on years of experience doing Solaris to RHEL migrations, that involves working hand-in-hand with your IT team to analyze the existing as-is state, envision a future to-be state, and create a strategic migration roadmap to get you there.

Scope

- This is an engagement by Red Hat professional services. Engagement durations vary greatly based upon your specific migration needs, but are typically 2 – 6 months in length.
- An expert from Red Hat will come on site and work with you as a strategic advisor to create a clear, detailed, and low-risk plan to migrate your systems from Solaris to Red Hat Enterprise Linux.

Benefits

- Reduce your migration risk, reduce your TCO, and avoid vendor lock in by properly planning your move to the #1 Enterprise Linux operating system.
The Strategic Migration Planning Process

1. **Solaris vs. RHEL Ecosystem Analysis** – Mapping the Solaris ecosystem into the RHEL ecosystem and creating a RHEL Standard Operating Environment (SOE)

2. **Functional Applications Analysis** – High level analysis of business applications to be migrated.

3. **Organizational Readiness & Risk Analysis** – Analysis of organizational readiness factors, project risks, and risk mitigation strategies.

4. **Strategic Migration Roadmap Creation** – Combining everything into a single, holistic roadmap for migration.

5. **Migration Implementation** – Execution of the Strategic Migration Roadmap.
Phase I: Solaris to RHEL Ecosystem Analysis

• Examine existing Solaris ecosystem and determine the equivalent capabilities in the RHEL ecosystem.

• Create a gap analysis and plan to address all gaps (if needed).

• Create a Standard Operating Environment (SOE), an organization's standard implementation of RHEL, including base operating system, a custom configuration, standard applications, software updates and service packs.
Ecosystem Mapping Scenarios

1. Built-in Functionality to Built-in Functionality
   - Solaris
   - Red Hat Enterprise Linux

2. Solaris Infrastructure App to RHEL Infrastructure App
   - Solaris Infrastructure Application
   - Red Hat Enterprise Linux Infrastructure Application

3. Solaris Infrastructure Application to RHEL Functionality
   - Solaris Infrastructure Application
   - Red Hat Enterprise Linux

4. Solaris Functionality to RHEL Infrastructure Application
   - Solaris Functionality
   - Red Hat Enterprise Linux Infrastructure Application
## Common Ecosystem Component Mappings

<table>
<thead>
<tr>
<th>INFRASTRUCTURE COMPONENT</th>
<th>AS-IS SOLARIS</th>
<th>TO-BE RHEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provisioning</td>
<td>Jumpstart</td>
<td>Kickstart, RHN/Satellite</td>
</tr>
<tr>
<td>Network File Systems</td>
<td>NFS/NFSv4</td>
<td>NFS/NFSv4</td>
</tr>
<tr>
<td>Drive/Directory Mounting</td>
<td>Autosf</td>
<td>Autosf</td>
</tr>
<tr>
<td>Package Management</td>
<td>SyS V packages/pkgadm</td>
<td>RPM/YUM</td>
</tr>
<tr>
<td>Systems Management</td>
<td>Sun xVM Ops Center</td>
<td>RHN/Satellite</td>
</tr>
<tr>
<td>Monitoring</td>
<td>Sun Management Center</td>
<td>RHN/Satellite</td>
</tr>
<tr>
<td>Troubleshooting</td>
<td>Dtrace</td>
<td>Systemtap</td>
</tr>
<tr>
<td>Packet filtering firewall</td>
<td>IPfilter</td>
<td>Netfilter/IPTables</td>
</tr>
<tr>
<td>Intrusion Detection</td>
<td>BART</td>
<td>AIDE</td>
</tr>
<tr>
<td>Identity Management</td>
<td>Sun Java System Directory Server</td>
<td>Red Hat Directory Server</td>
</tr>
<tr>
<td></td>
<td>Sun Java System Identity Server</td>
<td>Red Hat Certificate System</td>
</tr>
<tr>
<td>File systems</td>
<td>UFS, ZFS, VxVM, VxFS, QFS</td>
<td>Ext3/4, LVM, GFS, XFS</td>
</tr>
<tr>
<td>Virtualization</td>
<td>Containers, Zones, Ldoms, Sunfire Dynamic System Domains, xVM</td>
<td>RHEL Virtualization (Xen, KVM), RHEV</td>
</tr>
<tr>
<td>Storage Multipath</td>
<td>MpxI/O</td>
<td>device-mapper-multipath</td>
</tr>
<tr>
<td>Job Scheduling</td>
<td>Sun Grid Engine</td>
<td>Red Hat MRG Grid</td>
</tr>
<tr>
<td>Clustering</td>
<td>Sun Cluster</td>
<td>Red Hat Cluster Suite</td>
</tr>
<tr>
<td>Bare-metal Recovery</td>
<td>Flash Archive</td>
<td>Kickstart, RHN/Satellite</td>
</tr>
</tbody>
</table>
Phase II: Functional Applications Analysis

• Analyze complexity and size of existing functional applications to determine macro-level migration difficulty.

• Analyze application migration dependencies, including tightly coupled interfaces and co-resident applications.

• Examine possible deployment scenarios for each application and its associated testing and staging environments based on the four generic deployment patterns.

• Create high-level functional migration application cost analysis.
Common Deployment Scenarios

Consolidation

Dispersion

Aggregation

Cloud Migration
Phase III: Organizational Readiness & Risk Analysis

- Examine organizational readiness factors including skill gaps, IT governance processes, and acceptance factors.

- Perform situational SWOT analysis to determine current-state migration strengths and weaknesses as well as future opportunities and threats.

- Analyze technical and security risks.

- Create Risk Mitigation Strategy to address and limit the impact of identified risks.

<table>
<thead>
<tr>
<th>RISK</th>
<th>LIKELIHOOD OF OCCURRENCE</th>
<th>POTENTIAL IMPACT</th>
<th>MITIGATION STRATEGY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Training budget low</td>
<td>High</td>
<td>High</td>
<td>Virtual training greatly reduces cost and allows staff to schedule at their own pace</td>
</tr>
<tr>
<td>Provisioning skill gaps</td>
<td>High</td>
<td>Medium</td>
<td>Consultant worked with staff to deploy an Enterprise Core Build that can be managed with new skills gained from virtual training</td>
</tr>
<tr>
<td>Previous migration project failed</td>
<td>Low</td>
<td>High</td>
<td>Team with Red Hat Consulting to establish a clear strategy and contingency plan</td>
</tr>
<tr>
<td>Budget constraints may lead to using unsupported software</td>
<td>Low</td>
<td>High</td>
<td>RHEL subscription model and errata life-cycle is unmatched, and customer does not want to be left in mission-critical situation unsupported</td>
</tr>
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<tbody>
<tr>
<td>Linux skill gaps</td>
<td>High</td>
<td>High</td>
<td>On-site training and workshops provides quicker knowledge and how-to while limiting travel spend</td>
</tr>
<tr>
<td>IT staff not able to fully support new projects in the short term</td>
<td>Medium</td>
<td>Medium</td>
<td>Red Hat Dedicated Engineer will see project to end ensuring timelines and goals are met</td>
</tr>
<tr>
<td>Unsupported tools in use</td>
<td>Low</td>
<td>Medium</td>
<td>Enterprise Standard Build ensures supported tools are in place across the environment, and RHIN Satellite used to deploy additional tools to address need for consistency throughout the environment</td>
</tr>
<tr>
<td>Custom application portability difficulty</td>
<td>High</td>
<td>High</td>
<td>Developers to work closely with consultants to re-write code as needed</td>
</tr>
<tr>
<td>IT staff apprehensive</td>
<td>Medium</td>
<td>Low</td>
<td>Training and mentoring from a dedicated Red Hat Engineer will ease concerns while limiting staff productivity by providing real-time guidance and recommendations</td>
</tr>
</tbody>
</table>
Phase IV: Strategic Migration Roadmap Creation

• Create final list of application workloads to be migrated.

• Perform consolidated server, deployment, and virtualization analysis.

• Examine hardware redeployment scenarios and opportunities.

• Create detailed training plan to address all identified skill gaps.

• Create detailed direct cost estimate for the entire migration.

• Create master Migration Roadmap
Phase V: Migration Implementation

Red Hat Consulting and Global Learning Services offers a wide variety of services to assist with Migration Implementation including:

- Functional Application Migration Services
- Middleware Migration Services
- Security Management
- System Management
- Data Management
- Identity Management
- Open Enrollment and On-Site Classes
Success Stories
Customer Success Stories

City of Chicago

Carving Out Cost

Migrated their mission critical Oracle database environment to Red Hat Enterprise Linux because they needed to:

• Reduce server hardware, maintenance and operating costs
• Prove Linux could effectively run enterprise-level applications
• Increase flexibility in choosing hardware vendors for significant potential cost savings

Red Hat solution successfully delivered in the original environment, addressing all the initial migration drivers and has further enabled City of Chicago to expand these benefits to other areas.
Customer Success Stories (cont.)

Hill Air Force Base

Increasing Efficiency and Scale

Migrated to Red Hat solutions because existing infrastructure continually crashes and left 18,000+ users working on highly sensitive and deadline-driven work without ability to do their jobs. Hill AFB needed:

- Cheaper, faster, more reliable system
- Added enhanced capacity
- A system that guarantees security and reliability

Red Hat's solution has eliminated the costly system failures, nightly load time of the largest application reduced from ~12hours to 3hours, and Red Hat's security-enhanced Linux was the only Linux option that met their security needs.
Customer Success Stories (cont.)

NYSE Euronext

Innovating For Success

Migrated to Red Hat solutions so NYSE Euronext could focus on diversifying its product base and developing a global platform for trading. To achieve this, they needed:

• To overcome the challenges with integrating varied trading platforms from multiple acquisitions
• Produce a simplified and optimized technology architecture
• Enhance the effectiveness of its technology through incorporation of features needed
• Have a solution that was reliable and flexible enough to produce the fast-paced performance demanded by the industry.

Hear about their results at http://customers.redhat.com/2008/05/12/nyse/